

# FLUID CONNECTORS PRODUCT RANGE NORTH AMERICA

FLUID CONNECTORS PRODUCT RANGE  
NORTH AMERICA

HYDRAULICS  
HOSE RANGE

CRIMP FITTINGS

CRIMP MACHINES



Fluid Connectors Solid Solutions

# MANULI FLUID CONNECTORS AMERICAN PRODUCT RANGE

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## HYDRAULIC HOSE RANGE

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# INTRODUCTION TO MANULI HYDRAULICS PRODUCT RANGE

Manuli Hydraulics, part of Manuli Rubber Industries, is active in the design, manufacture and sale of a wide range of hoses, connectors and machines for conveying power in high/very high pressure hydraulic circuits and fluids in refrigeration units.

An overview of its main product range is represented in this short catalogue:

- 1) hoses
- 2) fittings
- 3) quick couplings
- 4) hoses and fittings refrigeration overview
- 4) assembling machines

## INNOVATION

Manuli Hydraulics R&D activities are based at the Aldo Occari Innovation Centre in Bologna (Italy), which oversees the R&D centres in France, Poland, China and India. All research centres are equipped with advanced facilities. Main laboratories feature special rooms that allow re-searchers to simulate the most extreme environmental conditions: heat, cold, fog, saline environments, vibrations and many others.

Co-design projects, in confidential alliances with Original Equipment Customers, are an additional benefit to our Partners. The tech-nological cooperation with OEMs helps our engineers to better understand the ever demanding requirements of fluid conveying applications, enhancing capability and expertise in providing complete fluid connector solutions.

### Facilities certifications

Certificaciones de plantas



**ISO 9001:2000/9002**  
Quality Assurance

Manuli Rubber Industries (I)  
Manuli Hydraulics (Suzhou) (P.R.C.)  
Manuli Hydraulics Polska (PL)  
Manuli Hydraulics Europe (CZ)  
Manuli Hydraulics U.K. (U.K.)  
Manuli OTIM (F)  
Manuli Hydraulics Korea (K)  
Techmaflex (F)

**ISO 14001:2004**  
Environmental Management

Manuli Rubber Industries (I)  
Manuli Hydraulics Korea (K)  
Manuli Hydraulics Polska (PL)  
Manuli Hydraulics Europe (CZ)  
Manuli Hydraulics (Suzhou) (P.R.C.)

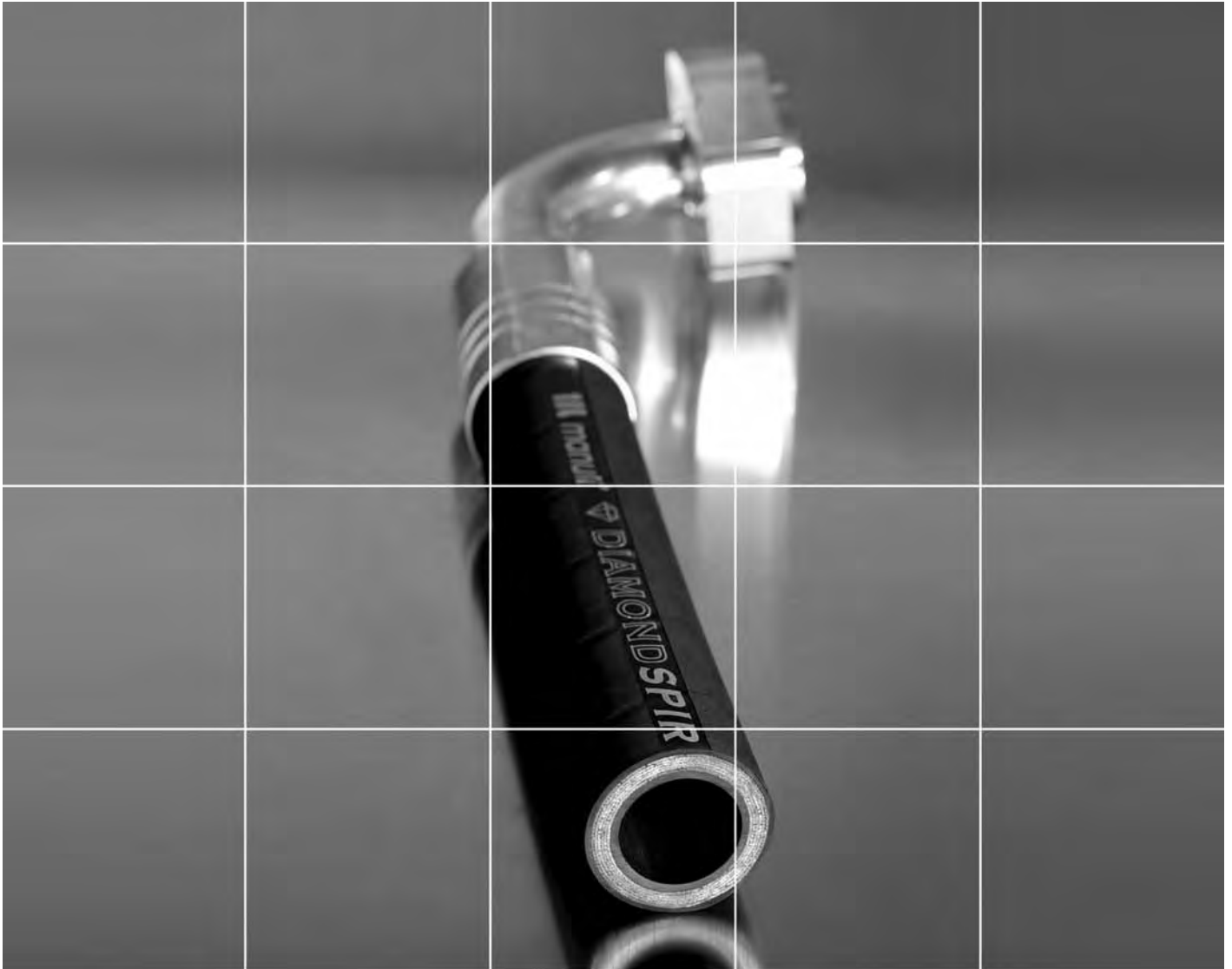
**ISO 18001:1999**  
Certified plants

Manuli Rubber Industries (I)  
Manuli Hydraulics (Suzhou) (P.R.C.)



AOIC - Italy

*"Excellence is attainable with the utmost passion"*



The Hydraulic hose range is dedicated to hydraulic systems and equipment in many different sectors, such as construction machines, mining, industrial processes, agriculture, road construction equipment, drilling, forestry machines, material handling and lifting, road transportation, marine and off-shore, and many others.

High pressure hydraulics is a means to transmit, control and distribute energy and power using a pressurized liquid, most often oils or water based fluids as medium.

Manuli UNIVERSAL hose range meets the ISO, EN, SAE, JIS International Norms while the EXTREME hose range is designed to meet special performance and requirements in OEM severe applications. This second hose family includes also a relevant group of hoses dedicated to Special applications, products developed as a result of more than 75 years of experience in field.

The hose families follow traditional norms or the isobaric modern approach, which features a friendly methodology for users thanks to constant pressure levels for any size.



# AMERICAN HOSE RANGE 2013

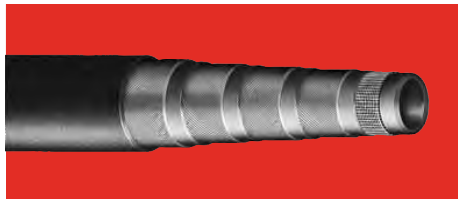
RANGE	PAGE	HOSE	HOSE STRUCTURE	MANULI® DESIGN EXCEEDS NORM	KEY PERFORMANCE	
UNIVERSAL	TRADITIONAL	5	GOLDENSPIR®/4SP	Wire spiral	ISO 3862-4SP, EN 856-4SP	1.000.000 impulse cycle
		6	GOLDENSPIR®/4SH	Wire spiral	ISO 3862-4SH, EN 856-4SH	1.000.000 impulse cycle
		7	TRACTOR®/1SN	Wire braided	ISO 1436-1SN, EN 853-1SN, SAE J517-100R1AT	Standard hydraulic applications
		8	TRACTOR®/2SN	Wire braided	ISO 1436-2SN, EN 853-2SN, SAE J517-100R2AT	Standard hydraulic applications
		9	TRACTOR®/1SC	Wire braided	ISO 11237-1SC, EN 857-1SC	Compact structures, standard hydraulic applications
		10	TRACTOR®/2SC	Wire braided	ISO 11237-2SC, EN 857-2SC, SAE J157-100R16	Compact structures, standard hydraulic applications
		11	HARVESTER®/17	Wire braided	SAE J517-100R17, ISO 11237-R17	Light and compact structure
		12	LYTE-FLEX®	Wire braided	-	Compact and flexibility
		13	COVER	Wire braided	SAE J517-100 R5	General purpose hose
		14	SPIRTEX®/K	Textile, Helix wire	SAE J517-100 R4	High quality suction hose
		15	MULTITEX	Textile	SAE J517-100 R6, ISO 4079, EN 854-R6/1TE	Universal low pressure solution
		16	ASTRO/2	Textile	ISO 4079-2TE, EN 854-2TE	Medium pressure solution
		17	ASTRO/3	Textile	ISO 4079-3TE, EN 854-3TE	Medium pressure solution
		18/19	HYDROPLAST/ HYDROTWIN	Textile	ISO 3949-R7, EN 855-R7, SAE J517-100R7	Thermoplastic solution, also twinned
RANGE	PAGE	HOSE	HOSE STRUCTURE	MANULI® DESIGN EXCEEDS NORM	KEY PERFORMANCE	
EXTREME	TRADITIONAL	20	ROCKMASTER/1SN	Wire braided	EN 853, ISO 1436-1SN, SAE J517-100R1AT	Abrasion, weather and heat resistance
		21	ROCKMASTER/2SN	Wire braided	EN 853, ISO 1436-2SN, SAE J517-100R2AT	Abrasion, weather and heat resistance
		22	ROCKMASTER/2ST	Wire braided	EN 853, ISO 1436-2ST, SAE J517-100R2AT	Abrasion, weather and heat resistance
		23	ROCKMASTER/2 PLUS	Wire braided	EN 853, ISO 1436-2SN, SAE J517-100R2AT, perf. BCS174, ISO 6805-4	Abrasion, weather and heat resistance
		24	ROCKMASTER/1SC	Wire braided	EN 857, ISO 11237-1SC	Abrasion, weather and heat resistance
		25	ROCKMASTER/2SC	Wire braided	EN 857, ISO 11237-2SC, SAE J517-100R16S	Abrasion, weather and heat resistance
		26	ROCKMASTER/4SP	Wire spiral	EN 856, ISO 3862-4SP	Abrasion, weather and heat resistance
		27	ROCKMASTER/4SH	Wire spiral	EN 856, ISO 3862-4SH	Abrasion, weather and heat resistance
		28	ROCKMASTER/12	Wire spiral	EN 856, ISO 3862-R12, SAE J517-100R12	Abrasion, weather and heat resistance
		29	ROCKMASTER/13	Wire spiral	EN 856, ISO 3862-R13, SAE J517-100R13	Abrasion, weather and heat resistance
		30	ROCKMASTER/15	Wire spiral	ISO 3862-R15, SAE J517-100R15	Abrasion, weather and heat resistance
		31	EQUATOR/1	Wire braided	EN 853, ISO 1436-1SN, SAE J517-100R1AT	Extreme temperature
		32	EQUATOR/2	Wire braided	EN 853, ISO 1436-2SN, SAE J517-100R2AT	Extreme temperature
		33	NOZONE/2K	Wire braided	EN 857, ISO 11237-2SC	Outstanding ozone resistance
		66	XTRAFLEX/4000	Wire spiral	ISO 18752-C	Extreme Flexibility
		67	XTRAFLEX/5000	Wire spiral	ISO 18752-C	Extreme Flexibility
68	XTRAFLEX/6000	Wire spiral	ISO 18752-C	Extreme Flexibility		

# AMERICAN HOSE RANGE 2013

RANGE	PAGE	HOSE	HOSE STRUCTURE	MANULI® DESIGN EXCEEDS NORM	KEY PERFORMANCE	
ISOBARIC	34	GOLDEN ISO/21 AntiWear	Wire braided	ISO 18752-A, ISO 11237-R17, SAE J517-100R17	Outstanding abrasion resistance	
	35	GOLDEN ISO/28 AntiWear	Wire braided	ISO 18752-A, ISO 11237-R19, SAE J517-100R19	Outstanding abrasion resistance	
	36	GOLDEN ISO/21 Xtraflex	Wire spiral	ISO 18752-C/D; JIS K6349-3	ISO 18752-C/D High flexibility, low bend radius	
	37	GOLDEN ISO/28 Xtraflex	Wire spiral	ISO 18752-C/D; JIS K6349-3	ISO 18752-C/D High flexibility, low bend radius	
	38	GOLDEN ISO/35 Xtraflex	Wire spiral	ISO 18752-C/D; JIS K6349-3	ISO 18752-C/D High flexibility, low bend radius	
	39	GOLDEN ISO/42 Xtraflex	Wire spiral	ISO 18752-C/D	ISO 18752-C/D High flexibility, low bend radius	
	40	GOLDEN ISO/38 Longlife	Wire spiral	SAE J517-100R13, ISO 3862-R13, ISO 18752-D extension	High fatigue resistance	
	41	GOLDEN ISO/45 Longlife	Wire spiral	ISO 18752-D extension, ISO 3862-R15, SAE J517-100R15	High fatigue resistance	
	42	TWINPOWER/4000	Wire braided	ISO 11237-2SC, EN 857-2SC, SAE J517-100R16	Compact twinned hose structure	
	43	TWINPOWER/5000	Wire braided	Exceed ISO 11237-2SC, EN 857-2SC, SAE J517-100R16	Compact twinned hose structure	
	44	SHIELDMASTER/2000	Wire braided	Isobaric line, special multilayer cover	Outstanding abrasion resistance	
	45	SHIELDMASTER/4000	Wire braided and spiral	Isobaric line, special multilayer cover	Outstanding abrasion resistance	
	46	SHIELDMASTER/5000	Wire braided and spiral	Isobaric line, special multilayer cover	Outstanding abrasion resistance	
	47	SHIELDMASTER/6000	Wire braided and spiral	Isobaric line, special multilayer cover	Outstanding abrasion resistance	
EXTREME	SPECIAL APPLICATION	48	PUSH-FIT	Textile	SAE J30 R6	Push-on hose
		49	MASTERTEX	Textile	Exceed SAE J517-100R6, ISO 4079, EN 854-R6/1TE	Low pressure high temperature hose
		50	T°REX	Wire braided	-	Extreme high temperature (160°C) hose, oil cooling
		51	PILOT	Wire braided	-	Extreme Lightness
		52	TWINPOWER/PLUS	Wire braided	Exceed ISO 11237-2SC, EN 857-2SC, SAE J517-100R16	Compact twinned hose structure
		53	ETERNITY/2	Wire braided	EN 857, ISO 11237-2SC, SAE J517-100R16	High service life and reliability
		54	DIAMONDSPIR	Wire spiralled	ISO 3862-R15, SAE J517-100R15	Very high pressure rating
		55	JACKMASTER	Wire braided	IJ-100	Extreme static pressure
		56	FIREND	Wire braided	EN 853, ISO 1436-1SN, SAE J517-100R1AT	Fire suppression systems
		57	XTRAFLOW/HT	Wire braided	Special Manuli design	High temperature suction & return lines
		58	XTRAFLOW/2WB	Wire braided	ISO 11237-2SC, EN 857-2SC extension	High flow rates, outstanding abrasion resistance
		59	XTRAFLOW/4WS	Wire spiral	ISO 3862 and SAE J517 extension	High flow rates, outstanding abrasion resistance
		60	DIAMONDSPIR/14	Wire spiral	ISO 18752-C extension	Very high flow rates, outstanding abrasion resistance
		61	DIAMONDSPIR/21	Wire spiral	ISO 18752-C extension	Very high hydraulic power transmission
		62	DIAMONDSPIR/35	Wire spiral	ISO 18752-C extension	Very high hydraulic power transmission
		63	SHIELDMASTER/2 PLUS MINE	Wire braided	EN 853, ISO 1436-2SN, SAE J517-100R2AT, perf. BCS174, ISO 6805-4	Outstanding abrasion resistance, MSHA approved
		64	SHIELDMASTER/5000 MINE	Wire braided and spiral	Isobaric line, perfor. BCS174, ISO 6805	Outstanding abrasion resistance, MSHA approved
		65	SHIELDMASTER/6000 MINE	Wire spiral	ISO 3862-R15, SAE J517-100R15 perfor. BCS174, ISO 6805-6	Outstanding abrasion resistance, MSHA approved

# HOSES BY WORKING PRESSURE

Hose type		Working Pressure (psi)																		
		DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102		
range	DASH SIZE	-3	-4	-5	-6	-8	-10	-12	-16	-20	-24	-32	-38	-40	-48	-56	-64			
UNIVERSAL	TRADITIONAL	GOLDENSPIR/4SP		7030		6520	6090	5510	5510	4640										
		GOLDENSPIR/4SH							6090	5580	5070	4350	3620							
		TRACTOR/1SN	3620	3260	3110	2610	2320	1880	1520	1270										
		TRACTOR/2SN	6010	5800	5070	4780	3980	3620	3110	2390	1810	1300	1160	1300						
		TRACTOR/1SC		3260	3110	2610	2320	1880	1520	1270	910	720	580		720	500				
		TRACTOR/2SC		5800	5070	4780	3980	3620	3110	2390	1810	1450	1300		1010	650				
		HARVESTER/17		3040	3040	3040	3040													
		LYTEFLEX		5070	4300	4060	3550	3040	3040	2030										
		COVER	3040	3040	2270	2030	1760	1520	810	620	500	340								
		SPIRTEX/K						300	300	240	200	140	100			50	50	40	20	
MULTITEX	500	430	430	430	430	430	430	430												
ASTRO/2		1080	980	910	840	720	650	580	500											
ASTRO/3		2100	1880	1590	1340	1160	1010	790	650	580	470									
HYDROPLAST/HYDROTWIN	3040	2780	2710	2530	2030															
GENERAL HYDRAULIC	TRADITIONAL	ROCKMASTER/1SN		3260	3110	2610	2320	1880	1520	1300	940	720	580	720						
		ROCKMASTER/2SN		5800	5070	5070	5070	3620	3110	2530	2030	1450	1300	1300						
		ROCKMASTER/2ST	6010	5800	5070	5070	5070	3620	3110	2530	2030	1450	1300							
		ROCKMASTER/2PLUS		6520		5800	5250	4930	4490	3480	2530	2110	1880			1010				
		ROCKMASTER/1SC		3770	3620	3260	2750	2170	2170	1590	1080	720	720							
		ROCKMASTER/2SC	6090	5800	5070	4780	3980	3620	3550	3040	2030	1450	1300		1010	650				
		ROCKMASTER/4SP		7030		6520	6090	5510	5510	4640	3040	2680	2530							
		ROCKMASTER/4SH						6520	6090	5580	5070	4350	3620							
		ROCKMASTER/12				4060	4060	4060	4060	4060	3040	2530	2530							
		ROCKMASTER/13		10000		10000	8990		5070	5070	5070	5070	5070							
	ROCKMASTER/15							6090	6090	6090	6090	6090								
	EQUATOR/1		3260	3110	2610	2320	1880	1520	1270	940	720	580		500						
	EQUATOR/2		5800	5070	4780	3980	3620	3110	2530	2170	1450	1300								
	NOZONE/2K		5800	5070	4780	3980	3620	3110												
	EXTREME	ISOBARIC	GoldenISO/21 AntiWear	3040	3040	3040	3040	3040	3040	3040	3040									
			GoldenISO/28 AntiWear		4060	4060	4060	4060	4060	4060										
			GoldenISO/21 XtraFlex									3040								
			GoldenISO/28 XtraFlex				4060	4060		4060	4060	4060								
			GoldenISO/35 XtraFlex				5070	5070		5070	5070	5070	5070							
GoldenISO/42 XtraFlex									6090	6090	6090									
GoldenISO/38 LongLife									5510	5510	5510									
GoldenISO/45 LongLife								6670	6670	6670	6520									
TWINPOWER/4000						4060	4060													
TWINPOWER/5000						5070	5070													
SPECIAL APPLICATIONS		PUSHFIT		500	500	500	360	360	300	200										
		MASTERTEX		430		430	430	430												
		T*REX									620									
		PILOT	2170	2170	1740	1450	1450													
		TWINPOWER/PLUS					4490													
		ETERNITY/2		6520	5800	5290	5070	4350	4350	3260										
		DIAMONDSPIR							8120	8120	7610	6880	6090		5070	3040				
		JACKMASTER		10510		10510														
		FIREND		3260		2610				1520	1270									
		GOLDENGURAD/5000						5000	5000	5000	5000	5000	5000							
XTRAFLOW/2HT														500	500	500				
XTRAFLOW/2WB														1520	1160	500				
XTRAFLOW/4WS														2030	1520	1160				
DIAMONDSPIR/14															2030					
DIAMONDSPIR/21														3040	3040					
DIAMONDSPIR/35														5070	5070					
SHIELDMASTER/2PLUS MINE		6520	5800	5800	5250		4490	3480	2530	2110	1880									
SHIELDMASTER/5000 MINE		5000	5000	5000	5000	5000	5000	5000	5000	5000	5000									
SHIELDMASTER/6000 MINE										6090	6090	6090								



# GOLDENSPIR®/4SP

EN 856 4SP

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10009006*	6	-4	1/4"	17.6	0.69	485	7030	2400	34800	100	3.94	615	41	-	MF+M00910-04
H10009010*	10	-6	3/8"	21.1	0.83	450	6520	2000	29005	110	4.33	780	52	OPS	MF+M00910-06
H10009012*	12	-8	1/2"	24.3	0.96	420	6090	1750	25370	120	4.72	930	62	OPS	MF+M00910-08
H10009016*	16	-10	5/8"	27.9	1.10	380	5510	1600	23200	140	5.51	1159	78	OPS	MF+M00910-10
H10009019*	19	-12	3/4"	31.9	1.26	380	5510	1600	23200	170	6.69	1520	102	-	MF+M00920-12
H10009025*	25	-16	1"	39.0	1.54	320	4640	1400	20300	340	13.39	1970	132	-	MF+M00920-16

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Approved at 1.000.000 impulse cycles (MF2000® fittings) - Over standard pressure resistance - **Bio** biological and mineral oils compatibility

Aprobada hasta 1.000.000 de ciclos de impulso (conexiones MF2000®) - Resistencia de presión superior a estándar - **Bio** compatible con aceites minerales y biológicos

### MAIN APPLICATIONS

Very high pressure power lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F

-40°C / +100°C

### MAX OPERATING TEMPERATURE

(Intermittent service)

257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** EN 856 4SP - ISO 3862-1 4SP

**TYPE APPROVALS:** ABS, BV, DNV, GL, GOST R, KRS, LR, MSHA

**BWB:** Approval available upon request

### PRINCIPALES APLICACIONES

Líneas de muy alta presión

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F

-40°C / +100°C

### MAXIMA TEMPERATURA DE OPERACION

(Servicio intermitente)

257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 espirales de acero de alta resistencia

**CUBIERTA:** Caucho sintético resistente al ambiente

**ESPECIFICACIONES APLICABLES:** EN 856 4SP - ISO 3862-1 4SP

**APROBACIONES:** ABS, BV, DNV, GL, GOST R, KRS, LR, MSHA

**BWB:** Aprobaciones disponible bajo pedido

# GOLDENSPIR®/4SH

EN 856 4SH



STANDARD PART. REF.	HOSE SIZE														
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING						
	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10040019*	19	-12	3/4"	31.9	1.26	420	6090	1750	25370	210	8.27	1540	103	OPS	IL+M01300-12
H10040025*	25	-16	1"	38.1	1.50	385	5580	1750	25370	220	8.66	2085	140	OPS	IL+M01300-16
H10040032*	31	-20	1.1/4"	45.0	1.77	350	5070	1400	20300	420	16.50	2460	165	OPS	IL+M01400-20
H10040040*	38	-24	1.1/2"	52.4	2.06	300	4350	1250	18120	560	22.05	3190	214	OPS	IL+M01400-24
H10040051*	51	-32	2"	67.5	2.66	250	3620	1000	14500	700	27.56	4500	302	OPS	IL+M01400-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Approved at 1.000.000 flexing impulse cycles (MF2000® fittings) - Over standard pressure resistance - **bio** biological and mineral oils compatibility

Aprobada hasta 1.000.000 de ciclos de impulso flexibles (conexiones MF2000®) - Resistencia de presión superior a estándar - **bio** compatible con aceites minerales y biológicos

### MAIN APPLICATIONS

Very high pressure power lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F  
-40°C / +100°C

### MAX OPERATING TEMPERATURE

(Intermittent service)  
257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** EN 856 4SH - ISO 3862-1 4SH

**TYPE APPROVALS:** ABS, BV, DNV, GL, GOST-R, KRS, LR, MSHA

**BWB:** Approval available upon request

### PRINCIPALES APLICACIONES

Líneas de muy alta presión

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F  
-40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente)  
257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 espirales de acero de alta resistencia

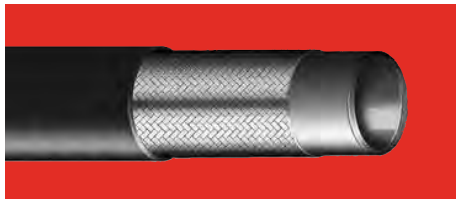
**CUBIERTA:** Caucho sintético resistente al ambiente

**ESPECIFICACIONES APLICABLES:** EN 856 4SH - ISO 3862-1 4SH

**APROBACIONES:** ABS, BV, DNV, GL, GOST-R, KRS, LR, MSHA

**BWB:** Aprobaciones disponible bajo pedido





# TRACTOR®/1SN

EN 853 1SN

PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H02004005*	5	-03	3/16"	9,5	0,37	11,5	0,45	250	3620	1000	14500	89	3,50	185	0,12	MF+M03400-03
H02004A06*	6	-04	1/4"	11,2	0,44	13,2	0,52	225	3260	900	13050	100	3,94	220	0,15	MF+M03400-04
H02004008*	8	-05	5/16"	12,8	0,50	14,8	0,58	215	3110	850	12320	114	4,49	270	0,18	MF+M03400-05
H02004010*	10	-06	3/8"	15,1	0,59	17,1	0,67	180	2610	720	10440	127	5,00	340	0,23	MF+M03400-06
H02004012*	12	-08	1/2"	18,1	0,71	20,1	0,79	160	2320	640	9280	178	7,01	400	0,27	MF+M03400-08
H01006016*	16	-10	5/8"	21,3	0,84	23,3	0,92	130	1880	520	7540	200	7,87	490	0,33	MF+M03400-10
H01006019*	19	-12	3/4"	25,3	1,00	27,3	1,07	105	1520	420	6090	240	9,45	610	0,41	MF+M03400-12
H01006025*	25	-16	1"	33,1	1,30	35,1	1,38	88	1270	350	5070	300	11,81	920	0,62	MF+M03400-16
H01006032*	31	-20	1.1/4"	40,6	1,60	43,3	1,70	63	910	250	3620	419	16,50	1260	0,85	MF+M03400-20
H01006040*	38	-24	1.1/2"	47,0	1,85	49,7	1,96	50	720	200	2900	500	19,69	1470	0,99	MF+M03400-24
H01006051*	51	-32	2"	60,4	2,38	63,1	2,48	40	580	160	2320	630	24,80	2040	1,37	MF+M03400-32
H01006060*	60	-38	2.3/8"	68,8	2,71	71,5	2,81	50	720	200	2900	650	25,59	2210	1,49	MF+M03400-38

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**EN/DIN rated working pressure - Smooth cover FRAS approved (DN 5÷12)**

**Presión de trabajo acorde a Norma EN/DIN - Cubierta lisa con aprobación FRAS (DN 5÷12)**

### MAIN APPLICATIONS

Low-medium pressure lines, return lines

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE

(Intermittent service) +250°F +121°C

RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

REMARK: Halogen-Free hose line

**INSERT:** MF2000® - MULTIFIT TYPE

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** EN 853 1SN - SAE 100 R1AT - ISO 1436 1SN/R1AT

**TYPE APPROVALS:** ABS, BV (DN 5÷51), DNV, FRAS (DN 5÷12), GL (DN 5÷51), GOST-R, KRS, LR

**BWB:** Approval available upon request

### PRINCIPALES APLICACIONES

Líneas de baja y media presión, líneas de retorno

TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +250°F +121°C

FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua

COMENTARIO: gama de mangueras "Halogen-Free"

**ESPIGA:** MF2000® - TIPO MULTIFIT

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Una trenza de acero de alta resistencia

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** EN 853 1SN - SAE 100 R1AT - ISO 1436 1SN/R1AT

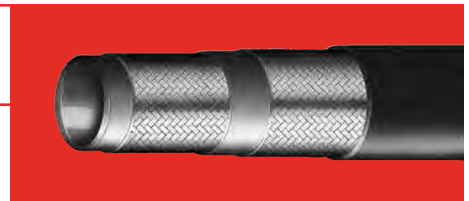
**APROBACIONES:** ABS, BV (DN 5÷51), DNV, FRAS (DN 5÷12), GL (DN 5÷51), GOST-R, KRS, LR

**BWB:** Aprobaciones disponible bajo pedido



# TRACTOR<sup>®</sup>/2SN

EN 853 2SN



PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01027005*	5	-03	3/16"	11,3	0,44	13,3	0,52	415	6010	1650	23920	89	3,50	315	0,21	MF+M03400-03
H01027006*	6	-04	1/4"	12,7	0,50	14,7	0,58	400	5800	1600	23200	100	3,94	370	0,25	MF+M03400-04
H01027008*	8	-05	5/16"	14,3	0,56	16,3	0,64	350	5070	1400	20300	114	4,49	410	0,28	MF+M03400-05
H01027010*	10	-06	3/8"	16,7	0,66	18,7	0,74	330	4780	1320	19140	127	5,00	530	0,36	MF+M03400-06
H01027012*	12	-08	1/2"	19,8	0,78	21,8	0,86	275	3980	1100	15950	178	7,01	620	0,42	MF+M03400-08
H01027016*	16	-10	5/8"	23,0	0,91	25,0	0,98	250	3620	1000	14500	200	7,87	720	0,48	MF+M03400-10
H01027019*	19	-12	3/4"	27,0	1,06	29,0	1,14	215	3110	860	12470	240	9,45	940	0,63	MF+M03400-12
H01027025*	25	-16	1"	34,8	1,37	36,8	1,45	165	2390	660	9570	300	11,81	1290	0,87	MF+M03400-16
H01027032*	31	-20	1.1/4"	44,3	1,74	47,0	1,85	125	1810	500	7250	419	16,50	1910	1,28	MF+M03400-20
H01027040*	38	-24	1.1/2"	50,7	2,00	53,4	2,10	90	1300	360	5220	500	19,69	2250	1,51	MF+M03400-24
H01027051*	51	-32	2"	63,5	2,50	66,2	2,61	80	1160	320	4640	630	24,80	2900	1,95	MF+M03400-32
H01027060*	60	-38	2.3/8"	68,8	2,71	71,5	2,81	90	1300	360	5220	650	25,59	2700	1,81	MF+M03400-38

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



EN/DIN rated working pressure ▪ Wide range of type approvals available

Presión de trabajo acorde a la norma EN/DIN ▪ Amplia gama de aprobaciones y normas

### MAIN APPLICATIONS

Medium-high pressure lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

### MAX OPERATING TEMPERATURE

(Intermittent service) +250°F +121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

REMARK: Halogen-Free hose line

### INSERT: MF2000<sup>®</sup> - MULTIFIT TYPE

TUBE: Oil resistant synthetic rubber

REINFORCEMENT: Two high tensile steel braids

COVER: Environment resistant synthetic rubber

APPLICABLE SPECS.: EN 853 2SN - SAE 100 R2AT - ISO 1436 2SN/R2AT

TYPE APPROVALS: ABS, BV (DN 5-51), DNV, GL, GOST-R, KRS, LR

BWB: Approval available upon request

### PRINCIPALES APLICACIONES

Líneas de media y alta presión

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +250°F +121°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua  
COMENTARIO: gama de mangueras "Halogen-Free"

### ESPIGA: MF2000<sup>®</sup> - TIPO MULTIFIT

TUBO: Caucho sintético, resistente al aceite

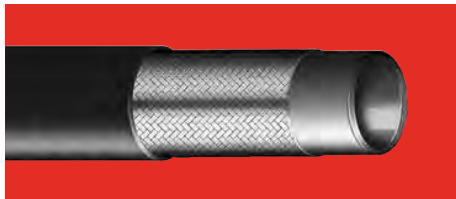
REFUERZO: Dos trenzas de acero de alta resistencia

CUBIERTA: Caucho sintético resistente a la intemperie

ESPECIFICACIONES APLICABLES: EN 853 2SN - SAE 100 R2AT - ISO 1436 2SN/R2AT

APROBACIONES: ABS, BV (DN 5-51), DNV, GL, GOST-R, KRS, LR

BWB: Aprobaciones disponible bajo pedido



# TRACTOR®/1SC

EN 857 1SC

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01013006*	6	-04	1/4"	10,2	0,40	12,0	0,47	225	3260	1050	15220	50	1,97	185	0,12	MF+M00830-04
H01013008*	8	-05	5/16"	11,5	0,45	13,6	0,54	215	3110	1000	14500	55	2,17	215	0,14	MF+M00830-05
H01013010*	10	-06	3/8"	13,6	0,54	15,5	0,61	180	2610	850	12320	60	2,36	265	0,18	MF+M00820-06
H01013012*	12	-08	1/2"	17,1	0,67	18,9	0,74	160	2320	660	9570	70	2,76	335	0,23	MF+M00820-08
H01013016*	16	-10	5/8"	20,6	0,81	22,4	0,88	130	1880	620	8990	90	3,54	445	0,30	MF+M00820-10
H01013019*	19	-12	3/4"	23,9	0,94	25,9	1,02	105	1520	480	6960	100	3,94	540	0,36	MF+M00820-12
H01013025*	25	-16	1"	31,3	1,23	33,3	1,31	88	1270	400	5800	160	6,30	770	0,52	MF+M00820-16
H01013031*	31	-20	1.1/4"	38,4	1,51	40,9	1,61	63	910	400	5800	210	8,27	1080	0,73	MF+M00820-20
H01013038*	38	-24	1.1/2"	45,0	1,77	47,5	1,87	50	720	200	2900	300	11,81	1220	0,82	MF+M00820-24
H01013051*	51	-32	2"	58,0	2,28	60,5	2,38	40	580	160	2320	400	15,75	1630	1,10	MF+M00820-32
H01013063*	63	-40	2.1/2"	70,5	2,78	73,0	2,87	50	720	200	2900	760	29,92	2090	1,40	MF+M03400-40
H01013076*	76	-48	3"	85,0	3,35	87,7	3,45	35	500	140	2030	900	35,43	2780	1,87	MF+M03400-48

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**High flexibility and excellent bend radius ▪ Low weight n Range extension to DN 76 ▪ Large size 63÷76 MSHA approved ▪ Vacuum resistance with SAE 100 R4 performance approved on sizes up to DN 31**

**Alta flexibilidad y excelente radio de curvatura ▪ Bajo peso ▪ Tamaños hasta DN 76 ▪ Aprobación MSHA DN 63÷76 ▪ Resistencia al vacío (SAE 100 R4) aprobada para los tamaños hasta DN 31**



**For hydraulic lift applications according to EN 81-2 specification: DN 19: WP = 50 bar - DN 25: WP = 50 bar - DN 31: WP = 50 bar. The ref. spec. EN 81-2 is identified in the standard hose branding for these specific applications.**

**Para aplicaciones de elevadores hidráulicos con la especificación EN 81-2: DN 19: WP = 50 bar - DN 25: WP = 50 bar - DN 31: WP = 50 bar. La referencia específica EN 81-2 está identificada en el marcaje de la manguera para estas aplicaciones específicas.**

### MAIN APPLICATIONS

Low-medium pressure lines with installation constraints, pilot lines, return lines (suction lines DN ≤31)

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE

(Intermittent service) +250°F +121°C

RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

REMARK: Halogen-Free hose line

**INSERT:** MF2000® - MULTIFIT TYPE

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** EN 857 1SC and ISO 11237 1SC

TYPE APPROVALS: ABS, GL, GOST-R, LR, MSHA, Elevators EN 81-2

### PRINCIPALES APLICACIONES

Líneas de baja y media presión en espacios reducidos, líneas piloto, líneas de retorno (líneas de succión DN 31)

TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +250°F +121°C

FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua  
COMENTARIO: gama de mangueras "Halogen-Free"

**ESPIGA:** MF2000® - TIPO MULTIFIT

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Una trenza de acero de alta resistencia

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** EN 857 1SC y ISO 11237 1SC

**APROBACIONES:** ABS, GL, GOST-R, LR, MSHA, Elevators EN 81-2

# TRACTOR®/2SC

## EN 857 2SC



PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01025006*	6	-04	1/4"	11,3	0,44	13,1	0,52	400	5800	1850	26830	45	1,77	280	0,19	MF+M03400-04
H01025008*	8	-05	5/16"	12,9	0,51	14,7	0,58	350	5070	1700	24650	55	2,17	330	0,22	MF+M03400-05
H01025010*	10	-06	3/8"	15,0	0,59	16,8	0,66	330	4780	1500	21750	65	2,56	395	0,27	MF+M03400-06
H01025012*	12	-08	1/2"	18,5	0,73	20,3	0,80	275	3980	1220	17690	80	3,15	510	0,34	MF+M03400-08
H01025016*	16	-10	5/8"	21,8	0,86	23,6	0,93	250	3620	1050	15220	90	3,54	630	0,42	MF+M03400-10
H01025019*	19	-12	3/4"	25,6	1,01	27,6	1,09	215	3110	920	13340	120	4,72	800	0,54	MF+M03400-12
H01025025*	25	-16	1"	33,0	1,30	35,2	1,39	165	2390	720	10440	160	6,30	1130	0,76	MF+M03400-16
H01025031*	31	-20	1.1/4"	41,1	1,62	43,6	1,72	125	1810	560	8120	250	9,84	1570	1,06	MF+M03400-20
H01025038*	38	-24	1.1/2"	47,7	1,88	50,7	2,00	100	1450	400	5800	300	11,81	1900	1,28	MF+M03400-24
H01025051*	51	-32	2"	60,4	2,38	63,4	2,50	90	1300	360	5220	400	15,75	2460	1,65	MF+M03400-32
H01025063*	63	-40	2.1/2"	73,0	2,87	76,0	2,99	70	1010	300	4350	760	29,92	2980	2,00	MF+M03400-40
H01025076*	76	-48	3"	87,8	3,46	90,5	3,56	45	650	180	2610	900	35,43	3250	2,18	MF+M03400-48

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**High flexibility and excellent bend radius ▪ Low weight ▪ Range extension to DN 76 ▪ Vacuum resistance with SAE 100 R4 performance approved on sizes up to DN 76**

Alta flexibilidad y excelente radio de curvatura ▪ Bajo peso ▪ Tamaños hasta DN 76 ▪ Resistencia al vacío (SAE 100 R4) aprobada para los tamaños hasta DN 76



**For hydraulic lift applications according to EN 81-2 specification: DN 31: WP = 50 bar - DN 38: WP = 50 bar - DN 51: WP = 45 bar. These ratings are identified with additional embossed branding on the hose references.**

Para aplicaciones de elevadores hidráulicos con la especificación EN 81-2: DN 31: WP = 50 bar - DN 38: WP = 50 bar - DN 51: WP = 45 bar. Estos ratings están identificados con el marcaje en relieve en las referencias de las mangueras.

#### MAIN APPLICATIONS

Medium-high pressure lines with installation constraints, return lines and suction lines  
CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE  
(Intermittent service) +250°F +121°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water  
REMARK: Halogen-Free hose line

**INSERT:** MF2000® - MULTIFIT TYPE

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** EN 857 2SC, ISO 11237 2SC, SAE 100 R16S

**TYPE APPROVALS:** ABS, DNV, GL (DN 6÷51), GOST-R, LR, Elevators EN 81-2

**BWB:** Approval available upon request

#### PRINCIPALES APLICACIONES

Líneas de media y alta presión en espacios reducidos, líneas de retorno y de succión

TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +250°F +121°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua  
COMENTARIO: gama de mangueras "Halogen-Free"

**ESPIGA:** MF2000® - TIPO MULTIFIT

**TUBO:** Caucho sintético, resistente al aceite

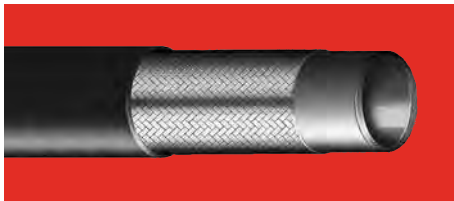
**REFUERZO:** Dos trenzas de acero de alta resistencia

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** EN 857 2SC, ISO 11237 2SC, SAE 100 R16S

**APROBACIONES:** ABS, DNV, GL (DN 6÷51), GOST-R, LR, Elevators EN 81-2

**BWB:** Aprobaciones disponible bajo pedido



# HARVESTER®/17

SAE 100 R17

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01056006*	6	-4	1/4"	12.0	0.47	210	3040	840	12180	50	1.97	180	12	OPB	MF+M00820-04
H01056008*	8	-5	5/16"	13.6	0.54	210	3040	840	12180	55	2.17	210	14	OPB	MF+M00820-05
H01056A10*	10	-6	3/8"	16.2	0.64	210	3040	840	12180	65	2.56	315	21	OPB	MF+M03400-06
H01056A12*	12	-8	1/2"	19.7	0.78	210	3040	840	12180	90	3.54	435	29	OPB	MF+M03400-08

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Isobaric pressure rating - Compact hose structures for installations in narrow spaces**

Gama de presión isobárica - Manguera compacto por instalaciones en espacios reducidos

### MAIN APPLICATIONS

Medium pressure lines with installation constraints

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F

-40°C / +100°C

### MAX OPERATING TEMPERATURE

(Intermittent service)

250°F 121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycols and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** SAE 100 R17 - ISO 11237-1 R17

**TYPE APPROVALS:** GOST-R, LR

### PRINCIPALES APLICACIONES

Líneas de media presión en espacios reducidos

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F

-40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente)

250°F 121°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Un refuerzo trenzado de acero de alta resistencia

**CUBIERTA:** Caucho sintético resistente a la intemperie  
**ESPECIFICACIONES APLICABLES:** SAE 100 R17 - ISO 11237-1 R17

**APROBACIONES:** GOST-R, LR

# LYTE-FLEX®

SAE 100 R16



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01084006*	6	-4	1/4"	13.2	0.52	350	5070	1400	20300	50	1.97	260	17	OPB	MF+M03400-04
H01084008*	8	-5	5/16"	14.5	0.57	297	4300	1190	17250	55	2.17	285	19	OPB	MF+M03400-05
H01084010*	10	-6	3/8"	17.0	0.67	280	4060	1120	16240	63	2.48	385	26	OPB	MF+M03400-06
H01084012*	12	-8	1/2"	20.3	0.80	245	3550	980	14210	88	3.46	465	31	OPB	MF+M03400-08
H01084016*	16	-10	5/8"	24.0	0.94	210	3040	840	12180	100	3.94	605	41	OPB	MF+M03400-10
H01084019*	19	-12	3/4"	27.7	1.09	210	3040	840	12180	120	4.72	795	53	OPB	MF+M03400-12
H01084025*	25	-16	1"	34.6	1.36	140	2030	560	8120	150	5.91	1090	73	OPB	MF+M03400-16

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



SAE 100 R2 pressure rating - Lightness and flexibility

Gama de presión SAE 100 R2 - Bajo peso y flexibilidad

### MAIN APPLICATIONS

Medium pressure lines with installation constraints

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F

-40°C / +100°C

### MAX OPERATING TEMPERATURE

(Intermittent service)

250°F 121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycols and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** SAE 100 R16 - ISO 11237-1 R16;

in addition: DN 16, 19 SAE 100 R17 - ISO 11237-1 R17

**TYPE APPROVALS:** GOST-R, LR

### PRINCIPALES APLICACIONES

Líneas de media presión en espacios reducidos

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F

-40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente)

250°F 121°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos refuerzos trenzados de acero de alta resistencia

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** SAE 100 R16 - ISO

11237-1 R16;

adicionalmente aplica para: DN 16, 19 SAE 100 R17 - ISO

11237-1 R17

**APROBACIONES:** GOST-R, LR



# COVER

SAE 100 R5



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H05002005*	5	-4	3/16"	13.2	0.52	210	3040	840	12180	75	2.95	220	15	OPB	MF+M00310-03
H05002006*	6	-5	1/4"	14.8	0.58	210	3040	840	12180	85	3.35	258	17	OPB	MF+M00310-04
H05002008*	8	-6	5/16"	17.1	0.67	157	2270	630	9130	100	3.94	310	21	OPB	MF+M00310-05
H05002010*	10	-8	13/32"	19.4	0.76	140	2030	560	8120	115	4.53	360	24	OPB	MF+M00310-06
H05002012*	12	-10	1/2"	23.3	0.92	122	1760	490	7100	140	5.51	485	32	OPB	MF+M00310-08
H05002016*	16	-12	5/8"	27.3	1.07	105	1520	420	6090	165	6.50	650	44	-	MF+M00310-10
H05002022*	22	-16	7/8"	31.2	1.23	56	810	224	3250	185	7.28	609	41		*
H05002028*	28	-20	1.1/8"	38.0	1.50	43	625	175	2530	229	9.02	795	53		*
H05002035*	35	-24	1.3/8"	44.3	1.74	35	500	140	2030	265	10.43	1020	68		*
H05002046*	46	-32	1.13/16"	56.1	2.21	24	350	98	1420	335	13.19	1420	95		*

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

\* Contact Manuli Rubber Industries / Consulte a Manuli Rubber Industries

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**General purpose hose ▪ Wear resistant cover**

**Manguera de aplicación general ▪ Cubierta resistente al desgaste**

### MAIN APPLICATIONS

Low-medium pressure lines, general purpose applications

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

### MAX OPERATING TEMPERATURE

(Intermittent service) 250°F 121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water, diesel fuel (up to 200°F 93°C)

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** One textile braid

**APPLICABLE SPECS.:** SAE 100 R5

### PRINCIPALES APLICACIONES

Líneas de baja y media presión, aplicaciones generales

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 250°F 121°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua, aceite diesel (hasta 200°F 93°C)

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Un refuerzo trenzado de acero de alta resistencia

**CUBIERTA:** Un refuerzo textil

**ESPECIFICACIONES APLICABLES:** SAE 100 R5



# SPIRTEX/K

SAE 100 R4



STANDARD PART. REF.	HOSE SIZE														
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING						
	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H30005016*	16	-10	5/8"	26.0	1.02	21	300	64	930	96	3.78	590	40	-	MF+M00310-10
H30005019*	19	-12	3/4"	29.0	1.14	21	300	84	1220	125	4.92	550	37	OPS	MF+M00310-12
H30005025*	25	-16	1"	35.0	1.38	17	250	70	1010	150	5.91	680	46	OPS	MF+M00920-16
H30005031*	31	-20	1.1/4"	42.0	1.65	14	200	56	810	200	7.87	840	56	OPS	MF+M00920-20
H30005038*	38	-24	1.1/2"	48.5	1.91	10	140	42	610	254	10.00	1024	70	OPS	MF+M00910-24
H30005051*	51	-32	2"	61.5	2.42	7	100	28	410	300	11.81	1420	95	OPS	MF+M00910-32
H30005063*	63	-40	2.1/2"	76.0	2.99	4	62	17	250	355	13.98	2150	144	-	MF+M03400-40
H30005076*	76	-48	3"	88.0	3.46	4	56	16	230	457	17.99	2850	191	-	MF+M03400-48
H30005090*	89	-56	3.1/2"	103.0	4.06	3	45	12	180	530	20.87	3450	231	-	*
H30005102*	102	-64	4"	115.0	4.53	2	35	10	140	610	24.02	3900	261	-	*

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

\* Contact Manuli Rubber Industries / Consulte a Manuli Rubber Industries

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Resistance to vacuum ▪ New compact SAE 100 R4 architecture**

**Resistencia al vacío ▪ Nueva estructura compacta acorde a Norma SAE 100 R4**

### MAIN APPLICATIONS

Suction lines, return lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F

-40°C / +100°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two textile reinforcements with steel helical body wire

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** SAE 100 R4

**TYPE APPROVALS:** GOST-R

### PRINCIPALES APLICACIONES

Líneas de succión, líneas de retorno

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F

-40°C / +100°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua

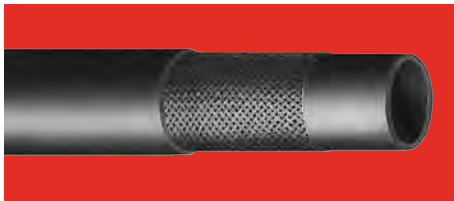
**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos refuerzos textiles con cuerpo de acero helicoidal

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** SAE 100 R4

**APROBACIONES:** GOST-R



# MULTITEX

SAE 100 R6 EN 854 R6/1TE

STANDARD PART. REF.	HOSE SIZE								
			R.O.D.	O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H09067005*	5	-3	3/16"	11.0	0.43	35	500	140	2030	35	1.38	93	6	-	MF+M00820-03
H09067006*	6	-4	1/4"	12.6	0.50	30	430	120	1740	45	1.77	117	7	-	MF+M00820-04
H09067008*	8	-5	5/16"	14.1	0.56	30	430	120	1740	65	2.56	135	10	-	MF+M00820-05
H09067010*	10	-6	3/8"	15.8	0.62	30	430	120	1740	75	2.95	165	11	-	MF+M00820-06
H09067012*	12	-8	1/2"	19.4	0.76	30	430	120	1740	90	3.54	215	15	-	MF+M00820-08
H09067016*	16	-10	5/8"	23.0	0.91	30	430	120	1740	115	4.53	285	19	-	MF+M00820-10
H09067019*	19	-12	3/4"	26.0	1.02	30	430	120	1740	140	5.51	325	22	-	MF+M00820-12
H09067025*	25	-16	1"	32.0	1.26	30	430	120	1740	150	5.91	430	29	-	MF+M00820-16

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**High flexibility - Wide range of fluid compatibility - MF2000® Multifit type couplability - Push-On hose with MF2000® Push-Lock insert type without ferrule**

**Alta flexibilidad - Amplia gama de compatibilidad de aceite mineral y biológico - Tipo de conexiones MF2000® Multifit - Manguera Push-On con espiga tipo Push-Lock MF2000® sin férula**

### MAIN APPLICATIONS

Low pressure lines, return lines, drain lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F

-40°C / +121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high resistance textile braid

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** SAE 100 R6 - EN 854 R6/1TE

- ISO 4079-1 R6/1TE

**TYPE APPROVALS:** GOST-R

### PRINCIPALES APLICACIONES

Líneas de baja presión, líneas de retorno, líneas de drenaje

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F

-40°C / +121°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Un refuerzo textil de alta resistencia

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** SAE 100 R6 - EN

854 R6/1TE - ISO 4079-1 R6/1TE

**APROBACIONES:** GOST-R



Working Pressure with Push-Lock fittings:

**DN 5, 6, 8, 10, 12, 16, 19: 17 bar - DN 25: 12 bar**

Presión de trabajo con racores Push-Lock:

**DN 5, 6, 8, 10, 12, 16, 19: 17 bar - DN 25: 12 bar**

# ASTRO/2

EN 854 2TE



STANDARD PART. REF.	HOSE SIZE														
					O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING				
	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H09045006*	6	-4	1/4"	13.0	0.51	75	1080	300	4350	40	1.57	130	9	-	MF+M00820-04
H09045008*	8	-5	5/16"	14.6	0.57	68	980	272	3940	50	1.97	145	10	-	MF+M00820-05
H09045010*	10	-6	3/8"	16.1	0.63	63	910	252	3650	60	2.36	180	12	-	MF+M00820-06
H09045012*	12	-8	1/2"	19.2	0.76	58	840	232	3360	70	2.76	220	15	-	MF+M00820-08
H09045016*	16	-10	5/8"	23.6	0.93	50	720	200	2900	90	3.54	290	19	-	MF+M00820-10
H09045019*	19	-12	3/4"	26.5	1.04	45	650	180	2610	110	4.33	365	24	-	MF+M00820-12
H09045025*	25	-16	1"	33.4	1.31	40	580	160	2320	130	5.12	525	35	-	MF+M00820-16
H09045032*	31	-20	1.1/4"	41.5	1.63	35	500	140	2030	140	5.51	695	47	-	MF+M00820-20

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



### Wide range of fluid compatibility

Amplia gama de compatibilidad de aceite mineral y biológico

#### MAIN APPLICATIONS

Low pressure lines, return lines

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +257°F

-40°C / +125°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high resistance textile braid

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** EN 854 2TE - ISO 4079-1 2TE

**TYPE APPROVALS:** GL, GOST-R

#### PRINCIPALES APLICACIONES

Líneas de baja presión, líneas de retorno

#### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +257°F

-40°C / +125°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Una trenza textil de alta resistencia

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** EN 854 2TE - ISO

4079-1 2TE

**APROBACIONES:** GL, GOST-R



# ASTRO/3

EN 854 3TE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H09046006*	6	-4	1/4"	14.2	0.56	145	2100	580	8410	45	1.77	150	10	-	MF+ M00310-04
H09046008*	8	-5	5/16"	16.6	0.65	130	1880	520	7540	55	2.17	210	14	-	MF+ M00310-05
H09046010*	10	-6	3/8"	18.2	0.72	110	1590	440	6380	70	2.76	230	15	-	MF+ M00310-06
H09046012*	12	-8	1/2"	21.5	0.85	93	1340	372	5390	85	3.35	290	19	-	MF+ M00310-08
H09046016*	16	-10	5/8"	25.6	1.01	80	1160	320	4640	105	4.13	385	26	-	MF+ M00310-10
H09046019*	19	-12	3/4"	28.8	1.13	70	1010	280	4060	130	5.12	450	30	-	MF+ M00310-12
H09046025*	25	-16	1"	35.4	1.39	55	790	220	3190	150	5.91	570	38	-	MF+ M00310-16
H09046032*	31	-20	1.1/4"	42.5	1.67	45	650	180	2610	190	7.48	730	49	-	MF+ M00310-20
H09046040*	38	-24	1.1/2"	49.4	1.94	40	580	160	2320	240	9.45	930	62	-	MF+ M00910-24
H09046051*	51	-32	2"	62.2	2.45	33	470	132	1910	300	11.81	1300	87	-	MF+ M00910-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



### Wide range of fluid compatibility

Amplia gama de compatibilidad de aceite mineral y biológico

#### MAIN APPLICATIONS

Low-medium pressure lines, return lines

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F

-40°C / +121°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high resistance textile braids

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** EN 854 3TE - ISO 4079-1 3TE

**TYPE APPROVALS:** GL, GOST-R

#### PRINCIPALES APLICACIONES

Líneas de baja y media presión, líneas de retorno

#### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F

-40°C / +121°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite.

**REFUERZO:** Dos trenzas textiles de alta resistencia

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** EN 854 3TE - ISO

4079-1 3TE

**APROBACIONES:** GL, GOST-R

# HYDROPLAST

EN 855 R7



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H30010005*	5	-3	3/16"	10.2	0.40	210	3040	840	12180	35	1.38	80	5	-	MF+M00820-03
H30010006*	6	-4	1/4"	12.0	0.47	192	2780	770	11160	50	1.97	95	6	-	MF+M00820-04
H30010008*	8	-5	5/16"	14.3	0.56	187	2710	750	10870	55	2.17	135	9	-	MF+M00820-05
H30010010*	10	-6	3/8"	16.3	0.64	175	2530	700	10150	75	2.95	165	11	-	MF+M00820-06
H30010012*	12	-8	1/2"	20.3	0.80	140	2030	560	8120	95	3.74	225	15	-	MF+M00820-08

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**High flexibility ▪ Tight bend radius ▪ Excellent abrasion resistance**

**Gran flexibilidad ▪ Reducido radio de curvatura ▪ Excelente resistencia a la abrasión**

### MAIN APPLICATIONS

Medium pressure hydraulic applications, hoisting, hydraulic transmission

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F  
-40°C / +100°C

### MAX OPERATING TEMPERATURE

212°F 100°C for oil,  
149°F 65°C for air, water and water based fluids

### RECOMMENDED FLUIDS

Mineral and biological oils, ASTM 1, ASTM 3, polyglycol based oils, water, water oil emulsions

**TUBE:** Oil resistant thermoplastic Elastomer

**REINFORCEMENT:** Two polyester braids

**COVER:** Thermoplastic elastomer with high ozone and abrasion resistance

**APPLICABLE SPECS.:** EN 855 R7, SAE 100R7

**TYPE APPROVALS:** GOST-R

### PRINCIPALES APLICACIONES

Líneas de media presión hidráulica, montacargos y transmisión hidráulica

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F  
-40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

212°F 100°C para aceite,  
149°F 65°C para aire, agua y líquidos con base de agua

### FLUIDOS RECOMENDADOS

Aceite mineral y biológico, ASTM 1, ASTM 3, polyglycol en base de aceite, agua, aceite en emulsión acuosa

**TUBO:** Elastomero termoplástico, resistente al aceite

**REFUERZO:** Dos trenzas de poliéster

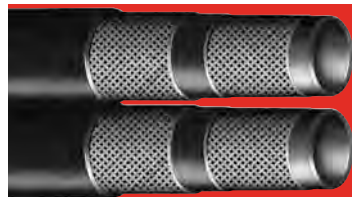
**CUBIERTA:** Elastomero termoplástico resistente al ozono ya la abrasión

**ESPECIFICACIONES APLICABLES:** EN 855 R7, SAE 100R7

**APROBACIONES:** GOST-R

# HYDROTWIN

EN 855 R7



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H30011005*	5	-3	3/16"	10.2	0.40	210	3040	840	12180	35	1.38	160	11	-	MF+M00820-03
H30011006*	6	-4	1/4"	12.0	0.47	192	2780	770	11160	50	1.97	190	13	-	MF+M00820-04
H30011008*	8	-5	5/16"	14.3	0.56	187	2710	750	10870	55	2.17	270	18	-	MF+M00820-05
H30011010*	10	-6	3/8"	16.3	0.64	175	2530	700	10150	75	2.95	330	22	-	MF+M00820-06
H30011012*	12	-8	1/2"	20.3	0.80	140	2030	560	8120	95	3.74	450	30	-	MF+M00820-08

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**High flexibility ▪ Tight bend radius ▪ Excellent abrasion resistance ▪ Twin version**  
**Gran flexibilidad ▪ Reducido radio de curvatura ▪ Excelente resistencia a la abrasión ▪ Versión gemela**

### MAIN APPLICATIONS

Medium pressure hydraulic applications, hoisting, hydraulic transmission

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F  
-40°C / +100°C

### MAX OPERATING TEMPERATURE

212°F 100°C for oil,  
149°F 65°C for air, water and water based fluids

### RECOMMENDED FLUIDS

Mineral and biological oils, ASTM 1, ASTM 3, polyglycol based oils, water, water oil emulsions

**TUBE:** Oil resistant thermoplastic elastomer

**REINFORCEMENT:** Two polyester braids

**COVER:** Thermoplastic elastomer with high ozone and abrasion resistance

**APPLICABLE SPECS.:** EN 855 R7, SAE 100R7

**TYPE APPROVALS:** GOST-R

### PRINCIPALES APLICACIONES

Líneas de median presión hidráulica, montacargos y transmisión hidráulica

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F  
-40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

212°F 100°C para aceite,  
149°F 65°C para aire, agua y líquidos con base de agua

### FLUIDOS RECOMENDADOS

Aceite mineral y biológico, ASTM 1, ASTM 3, polyglycol en base de aceite, agua, aceite en emulsión acuosa

**TUBO:** Elastomero termoplástico, resistente al aceite

**REFUERZO:** Dos trenzas de poliéster

**CUBIERTA:** Elastomero termoplástico resistente al ozono y a la abrasión

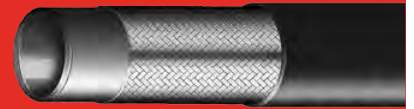
**ESPECIFICACIONES APLICABLES:** EN 855 R7, SAE 100R7

**APROBACIONES:** GOST-R



# ROCKMASTER®/1SN

ABRASION, WEATHER & HEAT RESISTANCE



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01007006*	6	-4	1/4"	13.0	0.51	225	3260	1000	14500	100	3.94	240	16	OPB	MF+M03400-04
H01007008*	8	-5	5/16"	14.6	0.57	215	3110	950	13770	114	4.49	255	17	OPB	MF+M03400-05
H01007010*	10	-6	3/8"	17.0	0.67	180	2610	800	11600	127	5.00	360	24	OPB	MF+M03400-06
H01007012*	12	-8	1/2"	20.1	0.79	160	2320	680	9860	178	7.01	450	30	OPB	MF+M03400-08
H01007016*	16	-10	5/8"	23.3	0.92	130	1880	600	8700	200	7.87	510	34	OPB	MF+M03400-10
H01007019*	19	-12	3/4"	27.3	1.07	105	1520	500	7250	240	9.45	610	41	OPB	MF+M03400-12
H01007025*	25	-16	1"	35.1	1.38	90	1300	360	5220	300	11.81	920	62	OPB	MF+M03400-16
H01007032*	31	-20	1.1/4"	43.3	1.70	65	940	260	3770	419	16.50	1250	84	OPNS	MF+M03400-20
H01007040*	38	-24	1.1/2"	49.7	1.96	50	720	260	3770	500	19.69	1600	107	OPNS	MF+M03400-24
H01007051*	51	-32	2"	63.1	2.48	40	580	250	3620	630	24.80	2200	147	OPNS	MF+M03400-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame resistance to a wide range of spec. ▪ Antistatic and antitoxic cover**

**Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistencia a la llama en una amplia gama de especificaciones ▪ Cubierta antiestática y atóxica**

### MAIN APPLICATIONS

Low-medium pressure lines, return lines, in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

### MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 853 1SN -

SAE 100 R1AT - ISO 1436-1 1SN/R1AT

**TYPE APPROVALS:** DNV, DNV MED (DN 5÷16),

FRAS, GOST-R, LOBA, MSHA

### PRINCIPALES APLICACIONES

Líneas de baja y media presión, líneas de retorno, en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, en minas subterráneas y minas a cielo abierto

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceite basado en éster sintético, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Un refuerzo trenzado de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 853

1SN - SAE 100 R1AT - ISO 1436-1 1SN/R1AT

**APROBACIONES:** DNV, DNV MED (DN 5÷16), FRAS,

GOST-R, LOBA, MSHA



# ROCKMASTER®/2SN

ABRASION, WEATHER & HEAT RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft			
H01038006*	6	-4	1/4"	14.7	0.58	400	5800	1750	25370	50	1.97	360	24	OPB	-	MF+M03400-04
H01038008*	8	-5	5/16"	16.3	0.64	350	5070	1480	21460	60	2.36	395	26	OPB	-	MF+M03400-05
H01038010*	10	-6	3/8"	18.7	0.74	350	5070	1400	20300	70	2.76	505	34	OPB	OPNS	MF+M03400-06
H01038012*	12	-8	1/2"	21.8	0.86	350	5070	1400	20300	89	3.50	640	43	OPB	OPNS	MF+M03400-08
H01038016*	16	-10	5/8"	25.0	0.98	250	3620	1020	14790	100	3.94	710	48	OPB	OPNS	MF+M03400-10
H01038019*	19	-12	3/4"	29.0	1.14	215	3110	900	13050	130	5.12	945	63	OPB	OPNS	MF+M03400-12
H01038025*	25	-16	1"	36.8	1.45	175	2530	700	10150	160	6.30	1305	87	OPB	OPNS	MF+M03400-16
H01038032*	31	-20	1.1/4"	47.0	1.85	140	2030	560	8120	419	16.50	1940	130	OPNS	-	MF+M03400-20
H01038040*	38	-24	1.1/2"	53.4	2.10	100	1450	500	7250	500	19.69	2245	150	OPNS	-	MF+M03400-24
H01038051*	51	-32	2"	66.2	2.61	90	1300	420	6090	630	24.80	3085	207	OPNS	-	MF+M03400-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame resistance to a wide range of spec. ▪ Antistatic and antitoxic cover ▪ Over standard pressure resistance**

**Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistencia a la llama en una amplia gama de especificaciones ▪ Cubierta antiestática y atóxica ▪ Resistencia a la presión superior a lo indicado en la Norma**

### MAIN APPLICATIONS

Medium-high pressure lines in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE  
(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 853 2SN - SAE 100 R2AT - ISO 1436-1 2SN/R2AT

**TYPE APPROVALS:** DNV, DNV MED (DN 5÷16), FRAS, GOST-R, LOBA, MSHA, RINA (DN 38÷51), (DN 8÷51)

### PRINCIPALES APLICACIONES

Líneas de media y alta presión en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto

TEMPERATURA CONTINUA DE SERVICIO  
-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN  
(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceite basado en éster sintético, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos trenzas de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 853 2SN - SAE 100 R2AT - ISO 1436-1 2SN/R2AT

**APROBACIONES:** DNV, DNV MED (DN 5÷16), FRAS, GOST-R, LOBA, MSHA, RINA (DN 38÷51), (DN 8÷51)

# ROCKMASTER®/2ST

ABRASION, WEATHER & HEAT RESISTANCE



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01035005*	5	-3	3/16"	15.6	0.61	415	6010	2000	29000	89	3.50	390	26	-	MF+M00910-03
H01035006*	6	-4	1/4"	17.2	0.68	400	5800	1750	25370	100	3.94	460	31	-	MF+M00910-04
H01035008*	8	-5	5/16"	18.9	0.74	350	5070	1480	21460	114	4.49	510	34	-	MF+M00910-05
H01035010*	10	-6	3/8"	21.3	0.84	350	5070	1400	20300	127	5.00	635	43	-	MF+M00910-06
H01035012*	12	-8	1/2"	24.5	0.96	350	5070	1400	20300	178	7.01	770	52	-	MF+M00910-08
H01035016*	16	-10	5/8"	27.7	1.09	250	3620	1020	14790	200	7.87	890	60	-	MF+M00910-10
H01035019*	19	-12	3/4"	31.6	1.24	215	3110	900	13050	240	9.45	1115	75	-	MF+M00920-12
H01035025*	25	-16	1"	39.5	1.56	175	2530	670	9710	300	11.81	1530	103	-	MF+M00920-16
H01035032*	31	-20	1.1/4"	50.6	1.99	140	2030	560	8120	419	16.50	2335	156	-	MF+M00920-20
H01035040*	38	-24	1.1/2"	57.0	2.24	100	1450	500	7250	500	19.69	2680	180	-	MF+M00910-24
H01035051*	51	-32	2"	69.8	2.75	90	1300	420	6090	630	24.80	3625	243	-	MF+M00910-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Superior abrasion resistance** ▪ **High ozone and weather resistance** ▪ **Flame resistance to a wide range of spec.** ▪ **Antistatic and antitoxic cover** ▪ **Over standard pressure resistance**

Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistencia a la llama en una amplia gama de especificaciones ▪ Cubierta antiestática y atóxica ▪ Resistencia a la presión superior a lo indicado en la Norma

### MAIN APPLICATIONS

Medium-high pressure lines in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE  
(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 853 2ST - SAE 100 R2A - ISO 1436-1 2ST/R2A

**TYPE APPROVALS:** GOST-R, LOBA, LR, (DN 6÷51), MSHA, FRAS

### PRINCIPALES APLICACIONES

Líneas de media y alta presión en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto

TEMPERATURA CONTINUA DE SERVICIO  
-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN  
(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceite basado en éster sintético, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos trenzas de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 853 2ST - SAE 100 R2A - ISO 1436-1 2ST/R2A

**APROBACIONES:** GOST-R, LOBA, LR, (DN 6÷51), MSHA, FRAS



# ROCKMASTER®/2PLUS

ABRASION, WEATHER & HEAT RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01101006*	6	-4	1/4"	13.1	0.52	450	6520	1800	26100	45	1.77	260	17	-	MF+M03400-04
H01101010*	10	-6	3/8"	18.5	0.73	400	5800	1600	23200	127	5.00	525	35	-	MF+M00910-06
H01101012*	12	-8	1/2"	22.1	0.87	362	5240	1450	21020	178	7.01	745	50	-	MF+M00910-08
H01101016*	16	-10	5/8"	25.2	0.99	340	4930	1360	19720	200	7.87	870	58	-	MF+M00910-10
H01101019*	19	-12	3/4"	29.3	1.15	310	4490	1240	17980	240	9.45	1070	72	OPNS	MF+M00920-12
H01101025*	25	-16	1"	37.8	1.49	240	3480	960	13920	300	11.81	1590	107	OPNS	MF+M00920-16
H01101032*	31	-20	1.1/4"	47.2	1.86	175	2530	700	10150	419	16.50	2150	144	OPNS	MF+M00920-20
H01101038*	38	-24	1.1/2"	53.7	2.11	146	2110	584	8460	500	19.69	2500	168	-	MF+M00910-24
H01101051*	51	-32	2"	65.5	2.58	130	1880	530	7680	630	24.80	3090	207	-	MF+M00910-32
H01101076*	76	-48	3"	91.4	3.60	70	1010	280	4060	500	19.69	3990	267	-	MF+M03400-48 skive solution

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame resistance to a wide range of spec. ▪ Antistatic and antitoxic cover ▪ Superior pressure rating ▪ Skive fittings solution**

**Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistencia a la llama en una amplia gama de especificaciones ▪ Cubierta antiestática y atóxica ▪ Resistencia a la presión superior a lo indicado en la Norma ▪ Conexiones para mangueras que requieren pelarse**

### MAIN APPLICATIONS

High pressure lines with installation constraints in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE  
(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** MANULI® Design:

Exceed ISO 1436-2SN, EN 853-2SN, SAE J517 type 100 R2 AT Performance BCS 174, ISO 6805 type 4

**TYPE APPROVALS:** DNV, GOST-R, LR, MSHA, FRAS

### PRINCIPALES APLICACIONES

Líneas de alta presión en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto

TEMPERATURA CONTINUA DE SERVICIO  
-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN  
(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceite basado en éster sintético, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos refuerzos trenzados de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®: Excede ISO 1436-2SN, EN 853-2SN, SAE J517 tipo 100 R2 AT Ejecución BCS 174, ISO 6805 tipo 4

**APROBACIONES:** DNV, GOST-R, LR, MSHA, FRAS



# ROCKMASTER®/1SC

ABRASION, WEATHER & HEAT RESISTANCE



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01108006*	6	-4	1/4"	12.0	0.47	260	3770	1050	15220	50	1.97	175	12	-	MF+M00120-04
H01108008*	8	-5	5/16"	13.7	0.54	250	3620	1000	14500	55	2.17	212	14	-	MF+M00120-05
H01108010*	10	-6	3/8"	15.5	0.61	225	3260	900	13050	60	2.36	251	17	-	MF+M00120-06
H01108012*	12	-8	1/2"	19.1	0.75	190	2750	760	11020	70	2.76	360	24	-	MF+M00820-08
H01108016*	16	-10	5/8"	22.4	0.88	150	2170	600	8700	90	3.54	430	28	-	MF+M00820-10
H01108019*	19	-12	3/4"	25.9	1.02	150	2170	600	8700	100	3.94	540	36	-	MF+M00820-12
H01108025*	25	-16	1"	33.1	1.30	110	1590	440	6380	160	6.30	770	51	-	MF+M00820-16
H01108031*	31	-20	1.1/4"	40.9	1.61	75	1090	300	4350	210	8.27	1060	71	-	MF+M00820-20
H01108038*	38	-24	1.1/2"	47.5	1.87	50	720	200	2900	300	11.81	1190	80	-	MF+M00820-24
H01108051*	51	-32	2"	60.5	2.38	50	720	200	2900	400	15.75	1590	106	-	MF+M00820-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**New compact one wire braid hose line - High temperature resistance for the most severe service and OEM applications - Working pressure exceeds 1SC standards - Superior protection with ROCKMASTER® cover compound - High ozone and weather resistance - Flame resistance to a wide range of spec. - Antistatic and antitoxic cover - Vacuum resistance with SAE 100 R4 performance approved on sizes up to DN 31**

Nueva manguera compacta de una trenza de alambre - Resistencia a altas temperaturas, trabajo pesado y aplicaciones requeridas por fabricantes de equipo original (OEM) - La presión de trabajo excede los estándares 1SC - El compuesto de la cubierta de la ROCKMASTER® ofrece protección superior - Alta resistencia al ozono y a la intemperie - Resistencia a la llama en una amplia gama de especificaciones - Cubierta antiestática y atóxica - Resistencia al vacío (SAE 100 R4) aprobada para los tamaños hasta DN 31

### MAIN APPLICATIONS

Low-medium pressure lines with installation constraints in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +250°F -40°C / +121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 857 1SC - ISO 11237-1 1SC

**TYPE APPROVALS:** LR, MSHA, FRAS

### PRINCIPALES APLICACIONES

Líneas de baja y media presión, líneas de retorno, en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, en minas subterráneas y minas a cielo abierto

TEMPERATURA CONTINUA DE SERVICIO  
-40°F / +250°F -40°C / +121°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceite basado en éster sintético, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Un refuerzo trenzado de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Exceed EN 857 1SC - ISO 11237-1 1SC

**APROBACIONES:** LR, MSHA, FRAS



# ROCKMASTER®/2SC

ABRASION, WEATHER & HEAT RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01030005*	5	-3	3/16"	11.5	0.45	420	6090	2000	29000	40	1.57	215	14	OPB	MF+M03400-03
H01030006*	6	-4	1/4"	13.1	0.52	400	5800	1850	26820	45	1.77	265	18	OPB	MF+M03400-04
H01030008*	8	-5	5/16"	14.7	0.58	350	5070	1700	24650	55	2.17	320	21	OPB	MF+M03400-05
H01030010*	10	-6	3/8"	16.8	0.66	330	4780	1500	21750	65	2.56	390	26	OPB	MF+M03400-06
H01030012*	12	-8	1/2"	20.3	0.80	275	3980	1220	17690	80	3.15	490	33	OPB	MF+M03400-08
H01030016*	16	-10	5/8"	23.6	0.93	250	3620	1050	15220	90	3.54	590	40	OPB	MF+M03400-10
H01030019*	19	-12	3/4"	27.6	1.09	245	3550	980	14210	120	4.72	795	53	OPB	MF+M03400-12
H01030025*	25	-16	1"	35.2	1.39	210	3040	840	12180	150	5.91	1160	78	OPB	MF+M03400-16
H01030031*	31	-20	1.1/4"	43.6	1.72	140	2030	560	8120	250	9.84	1555	104	OPNS	MF+M03400-20
H01030038*	38	-24	1.1/2"	50.7	2.00	100	1450	400	5800	300	11.81	1845	124	OPNS	MF+M03400-24
H01030051*	51	-32	2"	63.4	2.50	90	1300	360	5220	400	15.75	2375	159	OPNS	MF+M03400-32
H01030063*	63	-40	2.1/2"	76.0	2.99	70	1010	300	4350	760	29.92	2955	198	-	MF+M03400-40
H01030076*	76	-48	3"	90.5	3.56	45	650	180	2610	900	35.43	3155	211	-	MF+M03400-48

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame resistance to a wide range of spec. ▪ Antistatic and antitoxic cover ▪ Working pressure improvement ▪ Range extension to DN 76 ▪ Vacuum resistance with SAE 100 R4 performance approved on sizes up to DN 76

Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistencia a la llama en una amplia gama de especificaciones ▪ Cubierta antiestática y atóxica ▪ Resistencia de presión superior a lo indicado a la norma ▪ Tamaños hasta DN 76 ▪ Resistencia al vacío (SAE 100 R4) aprobada para los tamaños hasta DN 76

### MAIN APPLICATIONS

Medium-high pressure lines with installation constraints in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining, return and suction lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

### MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 857 2SC -

ISO 11237-1 2SC, SAE 100 R 16S;

in addition: DN 25 SAE 100 R17, ISO 11237-1 R17

**TYPE APPROVALS:** GOST-R, LOBA (DN 5+25), LR, MSHA, RINA (DN 6+31), (DN 8+25)

### PRINCIPALES APLICACIONES

Líneas de presión de media y alta en espacios reducidos en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto, líneas de retorno y de succión

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Acete mineral, acete vegetal y de colza, aceites basados en glicoles y poliglicoles, acete basado en éster sintético, acete mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos refuerzos trenzados de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor.

**ESPECIFICACIONES APLICABLES:** Excede EN 857 2SC

- ISO 11237-1 2SC, SAE 100 R 16S; adicionalmente

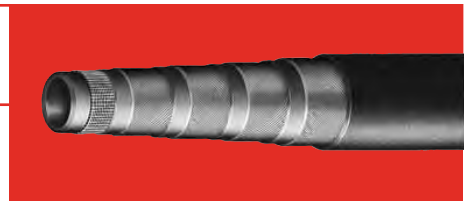
aplica para: DN 25 SAE 100 R17, ISO 11237-1 R17

**APROBACIONES:** GOST-R, LOBA (DN 5+25), LR, MSHA, RINA (DN 6+31), (DN 8+25)



# ROCKMASTER®/4SP

ABRASION, WEATHER & HEAT RESISTANCE



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10008006*	6	-4	1/4"	17.6	0.69	485	7030	2400	34800	125	4.92	585	39	-	MF+M00910-04
H10008010*	10	-6	3/8"	21.1	0.83	450	6520	2000	29000	125	4.92	740	50	OPS	MF+M00910-06
H10008012*	12	-8	1/2"	24.3	0.96	420	6050	1750	25370	175	6.89	890	60	OPS	MF+M00910-08
H10008016*	16	-10	5/8"	27.9	1.10	380	5510	1600	23200	200	7.87	1090	73	OPS	MF+M00910-10
H10008019*	19	-12	3/4"	31.9	1.26	380	5510	1600	23200	240	9.45	1470	99	-	MF+M00920-12
H10008025*	25	-16	1"	39.0	1.54	320	4640	1400	20300	340	13.39	1910	128	-	MF+M00920-16
H10008032*	31	-20	1.1/4"	49.7	1.96	210	3040	1250	18120	460	18.11	2985	201	-	MF+M00920-20
H10008038*	38	-24	1.1/2"	56.1	2.21	185	2680	1000	14500	560	22.05	3500	235	-	MF+M00910-24
H10008051*	51	-32	2"	69.0	2.72	175	2530	1000	14500	660	25.98	5000	336	-	MF+M00910-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Approved at 1.000.000 impulse cycles (MF2000® fittings) ▪ Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame resistance to a wide range of spec. ▪ Antistatic and antitoxic cover ▪ Upgraded temperature resistance ▪ **bio** biological and mineral oils compatibility

Aprobada hasta 1.000.000 de ciclos de impulso (conexiones MF2000®) ▪ Superior resistencia a la temperatura incrementada ▪ Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistencia a la llama en una amplia gama de especificaciones ▪ Cubierta antiestática y atóxica ▪ **bio** compatible con aceites minerales y biológicos

### MAIN APPLICATIONS

Very high pressure power lines in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE  
(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 856 4SP - ISO 3862-1 4SP

**TYPE APPROVALS:** DNV, DNV (MED), FRAS, GOST-R, LOBA, MSHA, RINA (DN 6÷16),

### PRINCIPALES APLICACIONES

Líneas de presión muy alta en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, subterráneas y minas a cielo abierto

TEMPERATURA CONTINUA DE SERVICIO  
-40°F / +250°F -40°C / +121°C

MÁXIMA TEMPERATURA DE OPERACIÓN  
(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite basado en éster sintético, aceite mineral en emulsión acuosa, agua

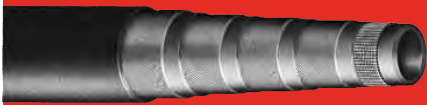
**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 refuerzos de acero en espiral de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 856 4SP - ISO 3862-1 4SP

**APROBACIONES:** DNV, DNV (MED), FRAS, GOST-R, LOBA, MSHA, RINA (DN 6÷16),



# ROCKMASTER® /4SH

ABRASION, WEATHER & HEAT RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10044016*	16	-10	5/8"	28.5	1.12	450	6520	1850	26820	180	7.09	1290	86	-	IL+M01300-10
H10044019*	19	-12	3/4"	31.9	1.26	420	6090	1750	25370	210	8.27	1500	104	OPS	IL+M01300-12
H10044025*	25	-16	1"	38.1	1.50	385	5580	1750	25370	220	8.66	2040	137	OPS	IL+M01300-16
H10044032*	31	-20	1.1/4"	45.0	1.77	350	5070	1400	20300	420	16.50	2435	164	OPS	IL+M01400-20
H10044038*	38	-24	1.1/2"	52.4	2.06	300	4350	1250	18120	560	22.05	3165	213	OPS	IL+M01400-24
H10044051*	51	-32	2"	67.5	2.66	250	3620	1000	14500	700	27.56	4460	300	OPS	IL+M01400-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Approved at 1.000.000 flexing impulse cycles (MF2000® fittings) ▪ Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame resistance to a wide range of spec. ▪ Antistatic and antitoxic cover ▪ Upgraded temperature resistance ▪ **bio** biological and mineral oils compatibility**  
**Aprobada hasta 1.000.000 de ciclos de impulso flexibles (conexiones MF2000®) ▪ Resistencia a la temperatura incrementada ▪ Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistencia a la llama en una amplia gama de especificaciones ▪ Cubierta antiestática y atóxica ▪ **bio** compatible con aceites minerales y biológicos**

### MAIN APPLICATIONS

Very high pressure power lines in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE  
(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 856 4SH -ISO 3862-1 4SH

**TYPE APPROVALS:** DNV, DNV (MED), FRAS. GOST-R, LOBA (DN 19+51), LR, MSHA, (DN 19+51)

### PRINCIPALES APLICACIONES

Líneas de presión muy alta en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto

TEMPERATURA CONTINUA DE SERVICIO  
-40°F / +250°F -40°C / +121°C

MÁXIMA TEMPERATURA DE OPERACIÓN  
(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 refuerzos de acero en espiral de alta resistencia

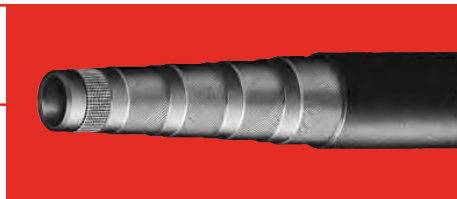
**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 856 4SH -ISO 3862-1 4SH

**APROBACIONES:** DNV, DNV (MED), FRAS. GOST-R, LOBA (DN 19+51), LR, MSHA, (DN 19+51)

# ROCKMASTER®/12

ABRASION, WEATHER & HEAT RESISTANCE



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft			
H10031010*	10	-6	3/8"	20.0	0.79	280	4060	1600	23200	100	3.94	620	42	OPS	OPNS	MF+M00910-06
H10031012*	12	-8	1/2"	23.5	0.93	280	4060	1350	19570	125	4.92	760	51	OPS	OPNS	MF+M00910-08
H10031016*	16	-10	5/8"	27.1	1.07	280	4060	1300	18850	140	5.51	990	66	OPS	OPNS	MF+M00910-10
H10031019*	19	-12	3/4"	30.4	1.20	280	4060	1300	18850	150	5.91	1175	79	OPS	OPNS	MF+M00920-12
H10031025*	25	-16	1"	37.5	1.48	280	4060	1150	16670	225	8.86	1690	114	OPS	OPNS	MF+M00920-16
H10031A32*	31	-20	1.1/4"	45.9	1.81	210	3040	1000	14500	250	9.84	2270	152	OPS	OPNS	MF+M00920-20
H10031040*	38	-24	1.1/2"	53.3	2.10	175	2530	1000	14500	500	19.69	3120	210	OPS	OPNS	MF+M00910-24
H10031051*	51	-32	2"	66.7	2.63	175	2530	800	11600	630	24.80	4420	296	OPS	OPNS	MF+M00910-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Approved at 1.000.000 impulse cycles (MF2000® fittings) - Superior abrasion resistance - High ozone and weather resistance - Flame resistance to a wide range of spec. - Antistatic and antitoxic cover - **Bio** biological and mineral oils compatibility

Aprobada hasta 1.000.000 de ciclos de impulso (conexiones MF2000®) - Superior resistencia a la abrasión - Alta resistencia al ozono y a la intemperie - Resistencia a la llama en una amplia gama de especificaciones - Cubierta antiestática y atóxica - **Bio** compatible con aceites minerales y biológicos

### MAIN APPLICATIONS

High pressure power lines in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE  
(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 856 R12 - SAE 100 R12 - ISO 3862-1 R12

**TYPE APPROVALS:** ABS, BV, BV (MED), FRAS, GOST-R, LR, MSHA

### PRINCIPALES APLICACIONES

Líneas de presión de trabajo pesado, transmisiones hidrostáticas, en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto

TEMPERATURA CONTINUA DE SERVICIO  
-40°F / +250°F -40°C / +121°C

MÁXIMA TEMPERATURA DE OPERACIÓN  
(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

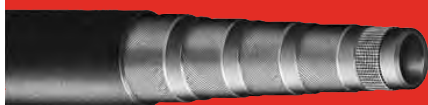
**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 refuerzos de acero en espiral de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 856 R12 - SAE 100 R12 - ISO 3862-1 R12

**APROBACIONES:** ABS, BV, BV (MED), FRAS, GOST-R, LR, MSHA



# ROCKMASTER®/13

ABRASION, WEATHER & HEAT RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10035019*	19	-12	3/4"	31.8	1.25	350	5070	1950	28270	240	9.45	1620	109	OPS	IL+M01300-12
H10035025*	25	-16	1"	39.2	1.54	350	5070	1650	23920	300	11.81	2195	147	OPS	IL+M01300-16
H10035A32*	31	-20	1.1/4"	48.8	1.92	350	5070	1500	21750	420	16.50	3285	221	OPS	IL+M01300-20
H10035040*	38	-24	1.1/2"	57.5	2.26	350	5070	1600	23200	500	19.69	4720	317	OPS	IL+M01300-24
H10035051*	51	-32	2"	72.0	2.83	350	5070	1500	21750	630	24.80	6825	457	OPS	IL+M01300-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Approved at 1.000.000 flexing impulse cycles (MF2000® fittings) - Superior abrasion resistance - High ozone and weather resistance - Flame resistance to a wide range of spec. - Antistatic and antitoxic cover - **bio** biological and mineral oils compatibility

Aprobada hasta 1.000.000 de ciclos de impulso flexibles (conexiones MF2000®) - Superior resistencia a la abrasión - Alta resistencia al ozono y a la intemperie - Resistencia a la llama en una amplia gama de especificaciones - Cubierta antiestática y atóxica - **bio** compatible con aceites minerales y biológicos

### MAIN APPLICATIONS

Heavy duty power lines, hydrostatic transmissions, in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE  
(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals (DN 6÷31). Six high tensile steel spirals (DN 38÷51)

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 856 R13 - SAE 100 R13 - ISO 3862-1 R13

**TYPE APPROVALS:** ABS (DN 19÷51), BV (DN 19÷51), BV MED (DN 19÷51), FRAS, GOST-R, LOBA, RINA (DN 38÷51), (DN 19÷51), MSHA

### PRINCIPALES APLICACIONES

Líneas de presión de trabajo pesado, transmisiones hidrostáticas, en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto

TEMPERATURA CONTINUA DE SERVICIO  
-40°F / +250°F -40°C / +121°C

MÁXIMA TEMPERATURA DE OPERACIÓN  
(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 refuerzos de acero en espiral de alta resistencia (DN 6÷31). 6 refuerzos de acero en espiral de alta resistencia (DN 38÷51)

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

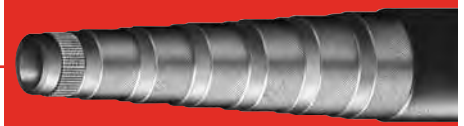
**ESPECIFICACIONES APLICABLES:** Excede EN 856 R13 - SAE 100 R13 - ISO 3862-1 R13

**APROBACIONES:** ABS (DN 19÷51), BV (DN 19÷51), BV MED (DN 19÷51), FRAS, GOST-R, LOBA, RINA (DN 38÷51), (DN 19÷51), MSHA



# ROCKMASTER®/15

ABRASION, WEATHER & HEAT RESISTANCE



STANDARD PART. REF.	HOSE SIZE														
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING						
	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10049019*	19	-12	3/4"	31.0	1.22	420	6090	1750	25370	265	10.43	1430	96	OPS	IL+M01300-12
H10049025*	25	-16	1"	38.1	1.50	420	6090	1750	25370	267	10.51	2040	137	OPS	IL+M01300-16
H10049A32*	31	-20	1.1/4"	49.5	1.95	420	6090	1680	24360	267	10.51	3670	246	OPS	IL+M01300-20
H10049040*	38	-24	1.1/2"	57.5	2.26	420	6090	1680	24360	315	12.40	4720	317	OPS	IL+M01300-24

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Approved at 1.000.000 flexing impulse cycles (MF2000® fittings) ▪ Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame resistance to a wide range of spec. ▪ Antistatic and antitoxic cover ▪ **bio** biological and mineral oils compatibility

Aprobada hasta 1.000.000 de ciclos de impulso flexibles (conexiones MF2000®) ▪ Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistencia a la llama en una amplia gama de especificaciones ▪ Cubierta antiestática y atóxica ▪ **bio** compatible con aceites minerales y biológicos

### MAIN APPLICATIONS

Heavy duty power lines, hydrostatic transmissions, in heavy duty environmental conditions, specific installations with severe abrasion conditions, marine applications, underground and open pit mining

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

### MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals (DN 19→25).

Six high tensile steel spirals (DN 31→38)

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed SAE 100 R15 - ISO 3862-1 R15

**TYPE APPROVALS:** ABS, BV, BV (MED), DNV, FRAS, GL, GOST-R, LOBA, LR, MSHA,

### PRINCIPALES APLICACIONES

Líneas de presión de trabajo pesado, transmisiones hidrostáticas, en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F -40°C / +121°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 refuerzos de acero en espiral de alta resistencia (DN 19→25). 6 refuerzos de acero en espiral de alta resistencia (DN 31→38)

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede SAE 100 R15 - ISO 3862-1 R15

**APROBACIONES:** ABS, BV, BV (MED), DNV, FRAS, GL, GOST-R, LOBA, LR, MSHA,



# EQUATOR™/1

## EXTREME TEMPERATURE



STANDARD PART. REF.	HOSE SIZE														
					O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING				
	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01059006*	6	-4	1/4"	13.4	0.53	225	3260	1000	14500	100	3.94	240	16	OPB	MF+M00120-04
H01059008*	8	-5	5/16"	15.0	0.59	215	3110	900	13050	114	4.49	280	19	-	MF+M00120-05
H01059010*	10	-6	3/8"	17.3	0.68	180	2610	800	11600	127	5.00	340	23	OPS	MF+M00120-06
H01059012*	12	-8	1/2"	20.5	0.81	160	2320	680	9860	178	7.01	435	29	OPS	MF+M00120-08
H01059016*	16	-10	5/8"	23.5	0.93	130	1880	600	8700	200	7.87	505	34	OPS	MF+M00120-10
H01059019*	19	-12	3/4"	27.7	1.09	105	1520	500	7250	240	9.45	645	43	OPS	MF+M00120-12
H01059025*	25	-16	1"	35.8	1.41	88	1270	360	5220	300	11.81	980	66	OPS	MF+M00120-16
H01059032*	31	-20	1.1/4"	43.5	1.71	65	940	345	5000	420	16.54	1305	87	OPS - OPNS	MF+M00110-20
H01059038*	38	-24	1.1/2"	50.0	1.97	50	720	290	4200	500	19.69	1550	104	OPS - OPNS	MF+M00110-24
H01059051*	51	-32	2"	63.1	2.48	40	580	250	3620	630	24.80	2250	151	OPS - OPNS	MF+M00110-32
H01059063*	63	-40	2.1/2"	74.6	2.94	35	500	140	2030	600	23.62	2425	162	-	MF+M03400-40

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Wide range temperature resistance ▪ EN/DIN pressure rating ▪ Outstanding ozone resistance ▪ Superior weather and UV resistance**

**Amplia gama de resistencia a la temperatura ▪ Presión de trabajo acorde a Norma EN/DIN ▪ Gran resistencia al ozono ▪ Superior resistencia a la intemperie y rayos UV**

#### MAIN APPLICATIONS

Low-medium pressure lines in extreme temperature conditions (foundries, com-pressors, hydraulics within engine compartments, etc.)

CONTINUOUS SERVICE TEMPERATURE RANGE  
-67°F / +275°F -55°C / +135°C

MAX OPERATING TEMPERATURE  
(Intermittent service) 300°F 150°C

#### RECOMMENDED FLUIDS

Mineral oils, glycols and polyglycols, transmission fluids, air with oil vapours, mineral oils in aqueous emulsion (up to 212°F 100°C)

**!** Compressed air applications require cover pin-pricking and additional safety devices

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** Blue synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 853 1SN - SAE 100 R1AT - ISO 1436-1 1SN/R1AT

**TYPE APPROVALS:** ABS, BV, BV MED (DN 6÷31), DNV, GL, GOST-R, LR, MSHA

#### PRINCIPALES APLICACIONES

Líneas de baja a media presión en extremas condiciones de temperatura (fundición, compresores, componentes hidráulicos dentro de motores, etc.)

TEMPERATURA CONTINUA DE SERVICIO  
-67°F / +275°F -55°C / +135°C

MÁXIMA TEMPERATURA DE OPERACIÓN  
(Servicio intermitente) 300°F 150°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, glicoles y poliglicoles, aire con vapores de aceite, aceite mineral en emulsión acuosa (hasta 212°F 100°C)

**!** Para aplicaciones con aire comprimido se requiere de una cubierta especial y un dispositivo de seguridad

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Un refuerzo trenzado de acero de alta resistencia

**CUBIERTA:** Caucho sintético azul con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 853 1SN - SAE 100 R1AT - ISO 1436-1 1SN/R1AT

**APROBACIONES:** ABS, BV, BV MED (DN 6÷31), DNV, GL, GOST-R, LR, MSHA

# EQUATOR™/2

## EXTREME TEMPERATURE



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01061006*	6	-4	1/4"	14.9	0.59	400	5800	1725	25010	100	3.94	390	26	OPB	MF+M00910-04
H01061008*	8	-5	5/16"	16.5	0.65	350	5070	1480	21460	114	4.49	435	29	-	MF+M00910-05
H01061010*	10	-6	3/8"	19.0	0.75	330	4780	1400	20300	127	5.00	535	36	OPS	MF+M00910-06
H01061012*	12	-8	1/2"	22.0	0.87	275	3980	1200	17400	178	7.01	645	43	OPS	MF+M00910-08
H01061016*	16	-10	5/8"	25.2	0.99	250	3620	1020	14790	200	7.87	770	52	OPS	MF+M00910-10
H01061019*	19	-12	3/4"	29.0	1.14	215	3110	900	13050	240	9.45	925	62	OPS	MF+M00920-12
H01061025*	25	-16	1"	37.0	1.46	175	2530	700	10150	300	11.81	1360	91	OPS	MF+M00920-16
H01061032*	31	-20	1.1/4"	47.0	1.85	150	2170	600	8700	420	16.54	2030	136	OPS	MF+M00920-20
H01061040*	38	-24	1.1/2"	53.4	2.10	100	1450	410	5940	500	19.69	2275	152	OPS	MF+M00910-24
H01061051*	51	-32	2"	66.2	2.61	90	1300	370	5360	630	24.80	3155	211	OPS	MF+M00910-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Wide range temperature resistance ▪ EN/DIN pressure rating ▪ Outstanding ozone resistance ▪ Superior weather and UV resistance**

**Amplia gama de resistencia a la temperatura ▪ Presión de trabajo acorde a Norma EN/DIN ▪ Gran resistencia al ozono ▪ Superior resistencia a la intemperie y rayos UV**

#### MAIN APPLICATIONS

Medium-high pressure lines in extreme temperature conditions (foundries, compressors, hydraulics within engine compartments, etc.)

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-67°F / +275°F -55°C / +135°C

#### MAX OPERATING TEMPERATURE

(Intermittent service) 300°F 150°C

#### RECOMMENDED FLUIDS

Mineral oils, glycols and polyglycols, transmission fluids, air with oil vapours, mineral oils in aqueous emulsion (up to 212°F 100°C)

**!** Compressed air applications require cover pin-pricking and additional safety devices

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Blue synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 853 2SN

SAE 100 R2AT - ISO 1436-1 2SN/R2AT

**TYPE APPROVALS:** ABS, BV, BV (MED), DNV, GL, GOST-R, LR, MSHA

#### PRINCIPALES APLICACIONES

Líneas de mediana a alta presión en extremas condiciones de temperatura (fundición, compresores, componentes hidráulicos dentro de motores, etc.)

#### TEMPERATURA CONTINUA DE SERVICIO

-67°F / +275°F -55°C / +135°C

#### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 300°F 150°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, glicoles y poliglicoles, aire con vapores de aceite, aceite mineral en emulsión acuosa (hasta 212°F 100°C)

**!** Para aplicaciones con aire comprimido se requiere de una cubierta especial y un dispositivo de seguridad

**TUBO:** Caucho sintético, resistente al aceite

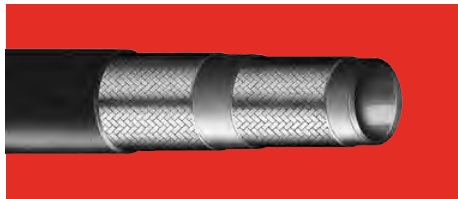
**REFUERZO:** Dos refuerzos trenzados de acero de alta resistencia

**CUBIERTA:** Caucho sintético azul con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 853 2SN

SAE 100 R2AT - ISO 1436-1 2SN/R2AT

**APROBACIONES:** ABS, BV, BV (MED), DNV, GL, GOST-R, LR, MSHA



# NOZONE®/2K

## OUTSTANDING OZONE RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01039006*	6	-4	1/4"	13.1	0.52	400	5800	1850	26820	45	1.77	275	18	-		MF+M03400-04
H01039008*	8	-5	5/16"	14.7	0.58	350	5070	1700	24650	55	2.17	335	22	-		MF+M03400-05
H01039010*	10	-6	3/8"	16.8	0.66	330	4780	1500	21750	65	2.56	400	27	-		MF+M03400-06
H01039012*	12	-8	1/2"	20.3	0.80	275	3980	1220	17690	80	3.15	505	34	-		MF+M03400-08
H01039016*	16	-10	5/8"	23.6	0.93	250	3620	1050	15220	90	3.54	605	41	-		MF+M03400-10
H01039019*	19	-12	3/4"	27.6	1.09	215	3110	920	13340	120	4.72	815	55	-		MF+M03400-12

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Outstanding ozone resistance** ▪ **Superior weather and UV resistance** ▪ **High temperature resistance**  
**Gran resistencia al ozono** ▪ **Superior resistencia a la intemperie y a los rayos UV** ▪ **Resistencia a las altas temperaturas**

#### MAIN APPLICATIONS

Medium-high pressure lines with installation constraints and extreme environmental conditions

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F

-40°C / +121°C

#### MAX OPERATING TEMPERATURE

(Intermittent service) 275°F 135°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** Exceed EN 857 2SC and ISO 11237-1 2SC

**TYPE APPROVALS:** GOST-R, MSHA

#### PRINCIPALES APLICACIONES

Líneas de media a alta presión en espacios reducidos y extremas condiciones ambientales

#### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F

-40°C / +121°C

#### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 275°F 135°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceites vegetales y aceites basados en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos trenzas de acero de alta resistencia

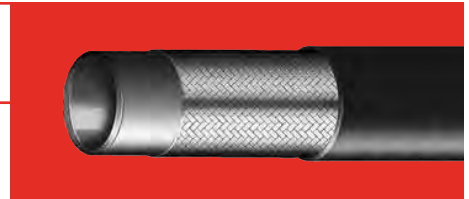
**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Excede EN 857 2SC y ISO 11237-1 2SC

**APROBACIONES:** GOST-R, MSHA

# GOLDENISO®/21 ANTIWEAR

## OUTSTANDING ABRASION RESISTANCE



PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H01125005*	3	-03	3/16"	8,7	0,34	10,5	0,41	210	3040	840	12180	45	1,77	150	0,10	-	OPB-03
H01125006*	6	-04	1/4"	10,2	0,40	12,0	0,47	210	3040	840	12180	50	1,97	180	0,12	MF+M00830-04	OPB-04
H01125008*	8	-05	5/16"	11,5	0,45	13,6	0,54	210	3040	840	12180	55	2,17	210	0,14	MF+M00830-05	OPB-05
H01125010*	10	-06	3/8"	14,4	0,57	16,2	0,64	210	3040	840	12180	65	2,56	300	0,20	MF+M03400-06	OPB-06
H01125012*	12	-08	1/2"	17,9	0,70	19,7	0,78	210	3040	840	12180	90	3,54	415	0,28	MF+M03400-08	OPB-08
H01125016*	16	-10	5/8"	22,2	0,87	24,0	0,94	210	3040	840	12180	100	3,94	620	0,42	MF+M03400-10	OPB-10
H01125019*	19	-12	3/4"	25,6	1,01	27,7	1,09	210	3040	840	12180	120	4,72	780	0,52	MF+M03400-12	OPB-12
H01125025*	25	-16	1"	33,0	1,30	35,2	1,39	210	3040	840	12180	150	5,91	1120	0,75	MF+M03400-16	OPB-16

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Extreme abrasion resistance** - Approved at 200.000 impulse cycles, 133% WP at T=100°C (ISO 18752 grade A) - Very low bend radius to suit restricted space installations - High robust and compact hose structure compared to rated pressure - High environmental agents resistance - Vacuum resistance accordingly to SAE 100R4 requirements

#### MAIN APPLICATIONS

Medium and high pressure hydraulic lines with installation constraints, pilot lines, return, drain and suction lines

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable and synthetic ester based oils (up to +212°F / +100°C), glycols and polyglycols, mineral oils in aqueous emulsion and water

**TUBE:** Synthetic rubber

**REINFORCEMENT:** One wire braid (DN 6÷12)

Two wire braids (DN 16÷25)

**COVER:** High abrasion resistant synthetic rubber

**APPLICABLE SPECS.:** ISO 18752 grade A, SAE J517 type 100 R17, ISO 11237-R17

**TYPE APPROVALS:** MSHA, GOST-R

**STANDARD PACKAGING:** Reel

#### PRINCIPALES APLICACIONES

Líneas hidráulicas de media presión y alta en espacios reducidos, líneas piloto, vuelta, de drenaje y líneas de succiones

#### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +212° F -40° C / 100° C

#### FLUIDOS RECOMENDADOS

Los aceites minerales, aceites vegetales y basado en éster sintético (hasta 212° F / 100° C), glicoles y poliglicoles, aceite mineral en emulsión acuosa y agua

**TUBO:** Caucho sintético

**REFUERZO:** Una trenza de alambre (DN 6 ÷ 12)

Dos trenzas de alambre (DN 16 ÷ 25)

**CUBIERTA:** Caucho sintético con alto resistente a la abrasión

**ESPECIFICACIONES APLICABLES:** ISO 18752 de grado A, SAE J517 tipo R17 100, ISO 11237-R17

**APROBACIONES:** MSHA, GOST-R

**EMBALAJE ESTÁNDAR:** Reel



# GOLDENISO®/28 ANTIWEAR

## OUTSTANDING ABRASION RESISTANCE

PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H01126006*	6	-04	1/4"	11,6	0,46	13,2	0,52	280	4060	1120	16240	50	1,97	260	0,17	MF+M03400-04	OPB-04
H01126008*	8	-05	5/16"	12,9	0,51	14,5	0,57	280	4060	1120	16240	55	2,17	280	0,19	MF+M03400-05	OPB-05
H01126010*	10	-06	3/8"	15,4	0,61	17,0	0,67	280	4060	1120	16240	63	2,48	380	0,26	MF+M03400-06	OPB-06
H01126012*	12	-08	1/2"	18,5	0,73	20,3	0,80	280	4060	1120	16240	80	3,15	495	0,33	MF+M03400-08	OPB-08
H01126016*	16	-10	5/8"	22,7	0,89	24,7	0,97	280	4060	1120	16240	90	3,54	730	0,49	MF+M03400-10	OPB-10
H01126019*	19	-12	3/4"	27,1	1,07	29,3	1,15	280	4060	1120	16240	120	4,72	1060	0,71	MF+M03400-12	OPB-12

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Extreme abrasion resistance - Approved at 200.000 impulse cycles, 133% WP at T=100°C (ISO 18752 grade A) - Very low bend radius to suit restricted space installations - High robust and compact hose structure compared to rated pressure - High environmental agents resistance - Vacuum resistance accordingly to SAE 100R4 requirements**

#### MAIN APPLICATIONS

Medium and high pressure hydraulic lines with installation constraints, pilot lines, return, drain and suction lines

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable and synthetic ester based oils (up to +212°F / +100°C), glycols and polyglycols, mineral oils in aqueous emulsion and water

**TUBE:** Synthetic rubber

**REINFORCEMENT:** Two wire braids

**COVER:** High abrasion resistant synthetic rubber

**APPLICABLE SPECS.:** ISO 18752 grade A, SAE J517 type 100 R19

**TYPE APPROVALS:** MSHA, GOST-R

**STANDARD PACKAGING:** Reel

#### PRINCIPALES APLICACIONES

Líneas hidráulicas de media presión y alta en espacios reducidos, líneas piloto, vuelta, de drenaje y líneas de succiones

#### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +212° F -40° C / 100° C

#### FLUIDOS RECOMENDADOS

Los aceites minerales, aceites vegetales y basado en éster sintético (hasta 212° F / 100° C), glicoles y poliglicoles, aceite mineral en emulsión acuosa y agua

**TUBO:** Caucho sintético

**REFUERZO:** Dos trenzas de alambre

**CUBIERTA:** Caucho sintético con alto resistente a la abrasión

**ESPECIFICACIONES APLICABLES:** ISO 18752 de grado A, SAE J517 tipo 100 R19

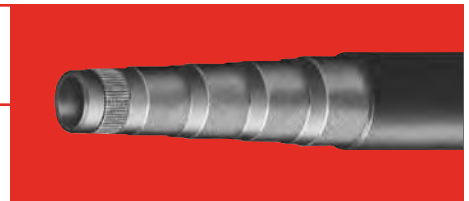
**APROBACIONES:** MSHA, GOST-R

**EMBALAJE ESTÁNDAR:** Reel



# GOLDENISO®/21 XTRAFLEX

ISO 18752-C/D



PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H10093031*	10	-20	1.1/4"	41,7	1,64	44,5	1,75	210	3040	840	12180	210	8,27	2071	1,39	MF+M00920-20	OPK-20
H10093038*	12	-24	1.1/2"	48,9	1,93	52,1	2,05	210	3040	840	12180	260	10,24	2989	2,01	IP+M01500-24	MS+M05400-24
H10093051*	16	-31	2"	63,2	2,49	66,8	2,63	210	3040	840	12180	330	12,99	4310	2,90	IP+M01500-32	MS+M05400-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Excellent flexibility (low bending force), also in low temperature applications** ▪ **Reduced bend radius**  
 ▪ **Easy mounting in severe installations** ▪ **Isobaric pressure rating** ▪ **bio biological and mineral oils compatibility** ▪ **No-skive fitting solution**

### MAIN APPLICATIONS

Medium pressure hydraulic lines with short assemblies in severe installations, return lines  
 CONTINUOUS SERVICE TEMPERATURE RANGE  
 -40°F / +250°F -40°C / +121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to +100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** 4 high tensile steel spirals

**COVER:** Synthetic rubber with high abrasion, ozone, weather and heat resistance

**APPLICABLE SPECS.:** ISO 18752-C/D; JIS K6349-3

**TYPE APPROVALS:** MSHA

### PRINCIPALES APLICACIONES

Líneas hidráulicas de media presión con montajes cortos en instalaciones difíciles, líneas de retorno  
 TEMPERATURA CONTINUA DE SERVICIO  
 -40° F / 250° F -40° C / 121° C

### FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetales y aceite basado en éster sintético (hasta 100° C/212° F), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

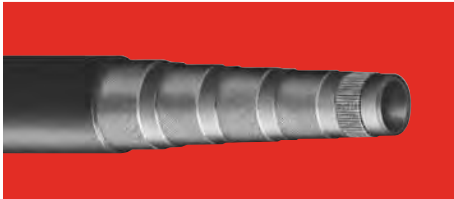
**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 espirales de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta abrasión, al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** ISO 18752-C / D, JIS K6349-3

**APROBACIONES:** MSHA.



# GOLDENISO®/28 XTRAFLEX

ISO 18752-C/D

PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H10095010*	10	-06	3/8"	16,7	0,66	18,9	0,74	280	4060	1120	16240	65	2,56	520	0,35	MF+M00910-06	OPK-06
H10095012*	12	-08	1/2"	19,6	0,77	21,8	0,86	280	4060	1120	16240	90	3,54	650	0,44	MF+M00910-08	OPK-08
H10095016*	16	-10	5/8"	23,5	0,93	25,7	1,01	280	4060	1120	16240	100	3,94	934	0,63	MF+M00910-10	OPK-10
H10095019*	19	-12	3/4"	26,9	1,06	29,3	1,15	280	4060	1120	16240	120	4,72	1040	0,70	MF+M00920-12	OPK-12
H10095025*	25	-16	1"	34,1	1,34	36,5	1,44	280	4060	1120	16240	150	5,91	1530	1,03	MF+M00920-16	OPK-16
H10095031*	31	-20	1.1/4"	41,7	1,64	44,5	1,75	280	4060	1120	16240	210	8,27	2160	1,45	MF+M00920-20	OPK-20
H10095038*	38	-24	1.1/2"	48,9	1,93	52,1	2,05	280	4060	1120	16240	280	11,02	2994	2,01	IP+M01500-24	MS+M05400-24

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Extreme flexibility (low bending force), also in low temperature applications - Approved at 1 Million impulse cycles, (MF2000 fittings) - Reduced bend radius - Easy mounting in severe installations - Isobaric pressure rating - biological and mineral oils compatibility - No-skive fitting solution**

### MAIN APPLICATIONS

High pressure power lines with short assemblies in severe installations

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to +100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** 4 high tensile steel spirals

**COVER:** Synthetic rubber with high abrasion, ozone, weather and heat resistance

**APPLICABLE SPECS.:** ISO 18752-C/D; JIS K6349-3

**TYPE APPROVALS:** MSHA

**STANDARD PACKAGING:** Reel

### PRINCIPALES APLICACIONES

Líneas de alta presión con ensambles cortos en instalaciones difíciles

### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +250° F -40° C 121° C

### FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetales y aceite basado en éster sintético (hasta 100° C/212° F), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 espirales de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta abrasión, al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** ISO 18752-C / D, JIS K6349-3

**APROBACIONES:** MSHA.

**EMBALAJE ESTÁNDAR:** Reel

# GOLDENISO®/35 XTRAFLEX

ISO 18752-C/D



PART. REF.	HOSE SIZE		R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING		
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H10096010*	10	-06	3/8"	16,7	0,66	18,9	0,74	350	5070	1400	20300	80	3,15	530	0,36	MF+M00910-06	OPK-06
H10096012*	12	-08	1/2"	19,6	0,77	21,8	0,86	350	5070	1400	20300	90	3,54	660	0,44	MF+M00910-08	OPK-08
H10096016*	16	-10	5/8"	23,5	0,93	25,7	1,01	350	5070	1400	20300	100	3,94	934	0,63	MF+M00910-10	OPK-10
H10096019*	19	-12	3/4"	27,5	1,08	30,1	1,19	350	5070	1400	20300	120	4,72	1220	0,82	MF+M00920-12	OPK-12
H10096025*	25	-16	1"	34,6	1,36	37,2	1,46	350	5070	1400	20300	150	5,91	1800	1,21	MF+M00920-16	OPK-16
H10096031*	31	-20	1.1/4"	42,1	1,66	44,9	1,77	350	5070	1400	20300	230	9,06	2340	1,57	IP+M01500-20	OPK-20
H10096038*	38	-24	1.1/2"	52,9	2,08	56,1	2,21	350	5070	1400	20300	300	11,81	4140	2,78	IP+M01600-24	MS+M05500-24

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Excellent flexibility (low bending force), also in low temperature applications - Approved at 1 Million impulse cycles, (MF2000 fittings) - Reduced bend radius - Easy mounting in severe installations - Isobaric pressure rating - **bio** biological and mineral oils compatibility - No-skive fitting solution available

### MAIN APPLICATIONS

Heavy duty power lines with short assemblies in severe installations

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to +100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

### TUBE: Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals (DN 6÷31)

Six high tensile steel spirals (DN 38÷51)

**COVER:** Synthetic rubber with high abrasion, ozone, weather and heat resistance

**APPLICABLE SPECS.:** ISO 18752-C/D; JIS K6349-3

**TYPE APPROVALS:** MSHA

**STANDARD PACKAGING:** Reel

### PRINCIPALES APLICACIONES

Pesados cables eléctricos de servicio con montajes cortos en instalaciones difíciles

### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +250° F -40° C 121° C

### FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetales y aceite basado en éster sintético (hasta 100° C/212° F), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Cuatro espirales de acero de alta resistencia (DN 6 ÷ 31)

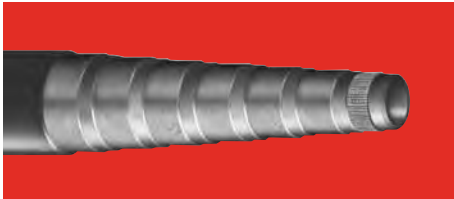
Seis espirales de acero de alto tensil (DN 38 ÷ 51)

**CUBIERTA:** Caucho sintético con alta abrasión, al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** ISO 18752-C / D, JIS K6349-3

**APROBACIONES:** MSHA.

**EMBALAJE ESTÁNDAR:** Reel



# GOLDENISO® /42 XTRAFLEX

ISO 18752-C/D

PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H10097019*	19	-12	3/4"	27,7	1,09	30,2	1,19	420	6090	1680	24360	150	5,91	1285	0,86	IP+M01500-12	MS+M05400-12
H10097025*	25	-16	1"	34,8	1,37	37,3	1,47	420	6090	1680	24360	210	8,27	1915	1,29	IP+M01500-16	MS+M05400-16
H10097031*	31	-20	1.1/4"	46,3	1,82	49,5	1,95	420	6090	1680	24360	260	10,24	3663	2,46	IP+M01600-20	MS+M05500-20

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Excellent flexibility (low bending force), also in low temperature applications - Approved at 1 Million impulse cycles, (MF2000 skive fittings) - Reduced bend radius - Easy mounting in severe installations - Isobaric pressure rating - biological and mineral oils compatibility - No-skive fitting solution**

### MAIN APPLICATIONS

Heavy duty power lines with short assemblies in severe installations

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to +100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals (DN 6÷25)

Six high tensile steel spirals (DN 31÷51)

**COVER:** Synthetic rubber with high abrasion, ozone, weather and heat resistance

**APPLICABLE SPECS.:** ISO 18752-C/D

**TYPE APPROVALS:** MSHA

### PRINCIPALES APLICACIONES

Pesados cables eléctricos de servicio con montajes cortos en instalaciones difíciles

### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +250° F -40° C 121° C

### FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetales y aceite basado en éster sintético (hasta 100° C/212° F), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Cuatro espirales de acero de alta resistencia (DN 6 ÷ 25)

Seis espirales de acero de alto tensil (DN 31 ÷ 51)

**CUBIERTA:** Caucho sintético con alta abrasión, al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** ISO 18752-C / D

**APROBACIONES:** MSHA

# GOLDENISO®/38 LONGLIFE

## HIGH FATIGUE RESISTANCE



PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING								
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1
H10098019*	19	-12	3/4"	27,7	1,09	32,0	1,26	380	5510	1520	22040	170	6,69	1410	0,95	IP+M01500-12
H10098025*	25	-16	1"	34,8	1,37	38,1	1,50	380	5510	1520	22040	220	8,66	1990	1,34	IP+M01500-16
H10098031*	31	-20	1.1/4"	46,3	1,82	49,5	1,95	380	5510	1520	22040	267	10,51	3663	2,46	IP+M01500-20

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Over standard pressure rating - Approved with two severe fatigue qualification programs: 2 millions flexing impulse cycles (ISO 6802, T=100°C, test pressure=120% WP) - 1,2 million flexing impulse cycles (ISO 8032, T=120°C, test pressure=133%) - Superior abrasion resistance - High ozone and weather resistance - Flame retardant and antistatic properties of the cover - Wide compatibility with hydraulics fluids, mineral and biodegradable oils - Low bend radius and high flexibility - New Interlock-Plus easy mounting system**

#### MAIN APPLICATIONS

Heavy duty pressure lines, hydrostatic transmissions, heavy duty earth moving equipment, hydraulic presses, drilling applications, injection moulding machines, specific installations with severe abrasion conditions and/or heavy duty environmental conditions, marine applications, underground and open pit mining

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

+257°F +125°C

RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

**INSERT:** MF2000® INTERLOCK-PLUS TYPE

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel wire spirals (DN 16÷25)

Six high tensile steel wire spirals (DN 31)

**COVER:** Synthetic rubber with high ozone, abrasion and weather resistance

**APPLICABLE SPECS.:** Manuli special design exceeds, SAE J517 type 100R15, ISO 3862 R15, ISO 18752-D extension

**TYPE APPROVALS:** MSHA, GOST-R

#### PRINCIPALES APLICACIONES

Líneas de servicio pesado de presión, transmisiones hidrostáticas, tierra de equipo pesado móvil, prensas hidráulicas, las aplicaciones de perforación, máquinas de moldeo por inyección, instalaciones específicas con condiciones de abrasión severa y / o condiciones ambientales de trabajo pesado, aplicaciones marinas minas a cielo abierto y subterráneas

TEMPERATURA CONTINUA DE SERVICIO

-40° C / +250° F -40° C / +121° C

Temperatura máxima de funcionamiento

257° F 125° C

FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetales y ésteres sintéticos basados en aceites, glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**INSERT:** MF2000® BLOQUEO-PLUS TIPO

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Cuatro espirales de alambre de acero de alta resistencia (DN 16 ÷ 25)

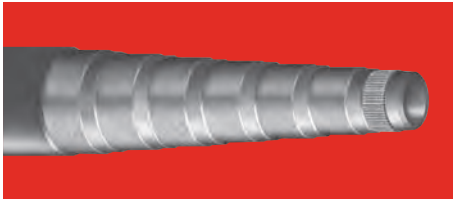
Seis espirales de alambre de acero de alta resistencia (DN 31)

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, a la abrasión y resistencia a la intemperie

**ESPECIFICACIONES APLICABLES:** Diseño especial Manuli supera, SAE J517 type 100R15, ISO 3862 R15, ISO 18752-D extensión

**APROBACIONES:** MSHA, GOST-R





# GOLDENISO®/45 LONGLIFE

## HIGH FATIGUE RESISTANCE

PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1
H10089016*	16	-10	5/8"	25,5	1,00	28,5	1,12	460	6670	1840	26680	250	9,84	1290	0,87	IP+M01500-10
H10089019*	19	-12	3/4"	28,4	1,12	32,0	1,26	460	6670	1840	26680	280	11,02	1530	1,03	IP+M01500-12
H10089025*	25	-16	1"	35,4	1,39	38,1	1,50	460	6670	1840	26680	340	13,39	2150	1,44	IP+M01500-16
H10089031*	31	-20	1.1/4"	46,3	1,82	49,5	1,95	450	6520	1800	26100	420	16,54	3790	2,55	IP+M01800-20

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Over standard pressure rating - Approved with two severe fatigue qualification programs: 2 millions flexing impulse cycles (ISO 6802, T=100°C, test pressure=120% WP) - 1 million flexing impulse cycles (ISO 6802, T=120°C, test pressure=133% WP for DN 16, 19, 25; 120% WP for DN 31) - High performance Nitrile tube compound for the best chemical compatibility with a wide range of hydraulics oils - Superior abrasion resistance - High ozone and weather resistance - Flame retardant and antistatic properties of the cover - Wide compatibility with hydraulics fluids, mineral and biodegradable oils - Low bend radius and high flexibility - New Interlock-Plus easy mounting system

#### MAIN APPLICATIONS

Heavy duty pressure lines, hydrostatic transmissions, heavy duty earth moving equipment, hydraulic presses, drilling applications, injection moulding machines, specific installations with severe abrasion conditions and/or heavy duty environmental conditions, marine applications, underground and open pit mining  
CONTINUOUS SERVICE TEMPERATURE RANGE  
-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE  
+257°F +125°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

**INSERT:** MF2000® INTERLOCK-PLUS TYPE

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel wire spirals (DN 16÷25)

Six high tensile steel wire spirals (DN 31)

**COVER:** Synthetic rubber with high ozone, abrasion and weather resistance

**APPLICABLE SPECS.:** Manuli special design exceeds, SAE J517 type100R15, ISO 3862 R15, ISO 18752-D extension

**TYPE APPROVALS:** MSHA, GOST-R

#### PRINCIPALES APLICACIONES

Líneas de servicio pesado de presión, transmisiones hidrostáticas, tierra de equipo pesado móvil, prensas hidráulicas, las aplicaciones de perforación, máquinas de moldeo por inyección, instalaciones específicas con condiciones de abrasión severa y / o condiciones ambientales de trabajo pesado, aplicaciones marinas, minas a cielo abierto y subterráneas  
TEMPERATURA CONTINUA DE SERVICIO  
-40° C / +250° F -40° C / +121° C  
Temperatura máxima de funcionamiento  
257° F 125° C

FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetales y ésteres sintéticos basados en aceites, glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**INSERT:** MF2000® BLOQUEO-PLUS TIPO  
**TUBO:** Caucho sintético, resistente al aceite  
**REFUERZO:** Cuatro espirales de alambre de acero de alta resistencia (DN 16 ÷ 25)  
Seis espirales de alambre de acero de alta resistencia (DN 31)

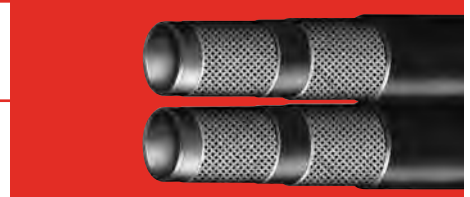
**CUBIERTA:** Caucho sintético con alta resistencia al ozono, a la abrasión y resistencia a la intemperie

**ESPECIFICACIONES APLICABLES:** Diseño especial Manuli supera, SAE J517 type100R15, ISO 3862 R15, ISO 18752-D extensión

**APROBACIONES:** MSHA, GOST-R

# TWINPOWER®/4000

EASY INSTALLATION FOR OEMs



PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01119010*	10	-06	3/8"	15,4	0,61	18,0	0,71	280	4060	1120	16240	65	2,56	830	0,56	MF+M00120-06
H01119012*	12	-08	1/2"	18,5	0,73	21,5	0,85	280	4060	1120	16240	80	3,15	1100	0,74	MF+M00120-08

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Compact hose structure and reduced bend radius ▪ Isobaric rating exceeding international specifications ▪ Smooth hose cover ensuring user friendly installation inside the booms ▪ Unique hose assembly solution for pressure and discharge line on the same body valve ▪ Reduced installation time compared to two separated assembly hose solutions ▪ Reduced risk of abrasion of the line inside the booms due to twin hose alignment ▪ Elimination of clamps to connect the two hose lines, with consequent easiness of insertion ▪ Warehouse/logistic optimization with reduced codes in stock

Estructura compacta de mangueras y reducido radio de curvatura ▪ Excede la tasa isobárica de la especificación Internacional ▪ Cubierta lisa que asegura una fácil instalación en el interior del mástil ▪ Única solución para presión y descarga en el mismo cuerpo de la válvula ▪ Se reduce el tiempo de la instalación comparado con la solución de dos mangueras separadas ▪ Se reduce el riesgo de abrasión de las líneas del mástil debido a la alineación de la manguera gemela ▪ Eliminación de abrazaderas para conectar las dos mangueras, con consecuente comodidad de inserción ▪ Optimización del stock/almacén con códigos reducidos en stock

### MAIN APPLICATIONS

Hose range dedicated to aerial lifts, platforms, forklift trucks and telescopic booms applications

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE

(Intermittent service) +248°F +120°C

RECOMMENDED FLUIDS

Mineral, vegetable and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

REMARK!

Twinned hose line width: DN 10: 36,0 mm (1,42")  
DN 12: 43,5 mm (1,71")

**INSERT:** MF2000® - MULTIFIT TYPE

**TUBE:** Synthetic rubber

**REINFORCEMENT:** Two high tensile steel wire braids.

**COVER:** Synthetic rubber with high ozone, abrasion and weather resistance

**APPLICABLE SPECS.:** DN 10: ISO 11237 R16, SAE J517 type100R16, DN 12: ISO 11237 2SC, EN 857 2SC, SAE J517 type 100R16S

**TYPE APPROVALS:** GOST-R

### PRINCIPALES APLICACIONES

Gama de manguera dedicada a elevadores, plataformas, carretillas elevadoras y mástiles telescópicos

TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +248°F +120°C

FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal, aceites con base en éster sintético, aceites basados en glicoles y poliglicoles, aceite en emulsión acuosa, agua

COMENTARIO!

La anchura de la manguera gemela:  
DN 10: 36,0 mm (1,42") DN 12: 43,5 mm (1,71")

**ESPIGA:** MF2000® - MULTIFIT TYPE

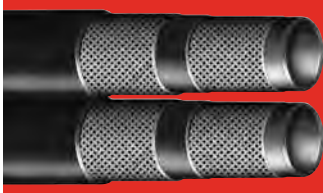
**TUBO:** Caucho sintético

**REFUERZO:** Dos trenzas de acero de alta Resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, a la abrasión y a la intemperie

**ESPECIFICACIONES APLICABLES:** DN 10: ISO 11237 R16, SAE J517 tipo 100R16, DN 12: ISO 11237 2SC, EN 857 2SC, SAE J517 tipo 100R16S

**APROBACIONES:** GOST-R



# TWINPOWER®/5000

EASY INSTALLATION FOR OEMs

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01120010*	10	-06	3/8"	15,0	0,59	17,6	0,69	350	5070	1400	20300	65	2,56	830	0,56	MF+M00120-06
H01120012*	12	-08	1/2"	18,6	0,73	21,6	0,85	350	5070	1400	20300	80	3,15	1190	0,80	MF+M00120-08

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Compact hose structure and reduced bend radius ▪ Isobaric rating exceeding international specifications ▪ Smooth hose cover ensuring user friendly installation inside the booms ▪ Unique hose assembly solution for pressure and discharge line on the same body valve ▪ Reduced installation time compared to two separated assembly hose solutions ▪ Reduced risk of abrasion of the line inside the booms due to twin hose alignment ▪ Elimination of clamps to connect the two hose lines, with consequent easyness of insertion ▪ High abrasion resistant and flame retardant MSHA approved cover ▪ Warehouse/logistic optimization with reduced codes in stock

Estructura compacta de mangueras ▪ reducido radio de curvatura ▪ Excede la tasa Isobárica de la especificación Internacional ▪ Cubierta lisa que asegura una fácil instalación en el interior del mástil ▪ Única solución para presión y descarga en el mismo cuerpo de la válvula ▪ Se reduce el tiempo de la instalación comparado con la solución de dos mangueras separadas ▪ Se reduce el riesgo de abrasion de las líneas del mástil debido a la alineación de la manguera gemela ▪ Eliminación de abrazaderas para conectar las dos mangueras, con consecuente comodidad de inserción ▪ Alta Resistencia a la abrasión y al retardo de la llama. Cubierta aprobada por MSHA ▪ Optimización del stock/almacén con códigos reducidos en stock

### MAIN APPLICATIONS

Hose range dedicated to aerial lifts, platforms, forklift trucks and telescopic booms applications

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE

(Intermittent service) +248°F +120°C

RECOMMENDED FLUIDS

Mineral, vegetable and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

REMARK!

Twinned hose line width: DN 10: 36,0 mm (1,42")  
DN 12: 43,5 mm (1,71")

**INSERT:** MF2000® - MULTIFIT TYPE

**TUBE:** Synthetic rubber

**REINFORCEMENT:** Two high tensile steel wire braids

**COVER:** Synthetic rubber with high ozone, abrasion and weather resistance

**APPLICABLE SPECS.:** exceed ISO 11237 2SC, EN 857 2SC, SAE J517 type 100R16S

**TYPE APPROVALS:** GOST-R, MSHA

### PRINCIPALES APLICACIONES

Gama de manguera dedicada a elevadores, plataformas, carretillas elevadoras y mástiles telescópicos

TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +248°F +120°C

FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal, aceites con base en éster sintético, aceites basados en glicoles y poliglicoles, aceite en emulsión acuosa, agua

COMENTARIO!

La anchura de la manguera gemela:  
DN 10: 36,0 mm (1,42") DN 12: 43,5 mm (1,71")

**ESPIGA:** MF2000® - MULTIFIT TYPE

**TUBO:** Caucho sintético

**REFUERZO:** Dos trenzas de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, a la abrasion y a la intemperie

**ESPECIFICACIONES APLICABLES:** excede ISO 11237 2SC, EN 857 2SC, SAE J517 tipo 100R16S

**APROBACIONES:** GOST-R, MSHA

# SHIELDMASTER®/2000

OUTSTANDING ABRASION RESISTANCE



STANDARD PART. REF.	HOSE SIZE										
					O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01106A06*	6	-4	1/4"	12.3	0.48	140	2030	560	8120	50	1.97	185	12	-	MF+M00120-04
H01106010*	10	-6	3/8"	15.8	0.62	140	2030	560	8120	60	2.36	265	18	-	MF+M00120-06
H01106012*	12	-8	1/2"	19.3	0.76	140	2030	560	8120	70	2.76	345	23	-	MF+M00120-08

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Outstanding abrasion and ozone resistance** ▪ **Compact overall dimensions** ▪ **Easy assembly and mounting operations (no protection sleeves required)** ▪ **Isobaric pressure rating** ▪ **FROST** suitable for very cold environments ▪ **Compact solution for difficult installation**

Gran resistencia a la abrasión y al ozono ▪ Dimensiones generales estándar ▪ Fácil ensamble y montaje (no se requieren mangas de protección) ▪ Gama de presión isobárica ▪ **FROST** disponible para ambientes extremadamente fríos ▪ Gran flexibilidad para ser instalada en espacios reducidos

### MAIN APPLICATIONS

Low pressure lines with extreme abrasion conditions (e.g. bunched-up hoses, localised contacts with sharp edges and extraneous bodies/particles, wear due to sliding over the ground, alternative to spring guards). Pilot lines with shield architecture

#### INTERNAL TEMPERATURE

-49°F / +212°F -45°C / +100°C

#### MIN. EXTERNAL TEMPERATURE

-67°F -55°C

#### MAX. OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

RECOMMENDED FLUIDS Mineral oils, vegetable oils and rape seed oils, glycols and polyglycols based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** Composite bi-layer structure with outstanding abrasion resistance

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** GOST-R

### PRINCIPALES APLICACIONES

Líneas de baja presión con extremas condiciones de abrasión (Ej. Mangueras rozando entre sí, contactos con bordes cortantes y partículas/cuerpos extraños, abrasión debida a deslizamiento sobre el suelo, evita el uso de protectores de cubierta en espiral tipo coil).

Líneas piloto con protección superior en su cubierta

#### INTERNAL TEMPERATURE

-49°F / +212°F -45°C / +100°C

#### MIN EXTERNAL TEMPERATURE

-67°F -55°C

#### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

FLUIDOS RECOMENDADOS Aceite mineral, aceites vegetales y de colza, aceites con base en glicoles y poliglicoles, aceites basados en éster sintético, aceites en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Un refuerzo trenzado de acero de alto tensil

**CUBIERTA:** Estructura de compuesto de doble capa con gran resistencia a la abrasión

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** GOST-R





# SHIELDMASTER®/4000

## OUTSTANDING ABRASION RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01031006*	6	-4	1/4"	13.6	0.54	276	4000	1110	16090	50	1.97	260	17	OPB	MF+M00120-04
H01031008*	8	-5	5/16"	14.9	0.59	276	4000	1110	16090	57	2.24	285	19	OPB	MF+M00120-05
H01031010*	10	-6	3/8"	17.4	0.69	276	4000	1110	16090	63	2.48	390	26	OPB	MF+M00120-06
H01031012*	12	-8	1/2"	20.7	0.81	276	4000	1110	16090	80	3.15	535	36	-	MF+M00120-08
H01031016*	16	-10	5/8"	25.1	0.99	276	4000	1110	16090	90	3.54	620	42	OPNS	MF+M00120-10
H01031019*	19	-12	3/4"	29.7	1.17	276	4000	1110	16090	120	4.72	1100	74	OPNS	MF+M00120-12
H01031025*	25	-16	1"	38.1	1.50	276	4000	1110	16090	267	10.51	1935	130	OPNS	MF+M00920-16
H01031031*	31	-20	1.1/4"	47.0	1.85	276	4000	1110	16090	400	15.75	2585	173	OPS	MF+M00920-20
H01031038*	38	-24	1.1/2"	53.5	2.11	276	4000	1110	16090	500	19.69	3155	211	OPS	MF+M00910-24
H01031051*	51	-32	2"	68.0	2.68	276	4000	1110	16090	700	27.56	4560	306	OPS	IL+M01400-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Outstanding abrasion and ozone resistance** ▪ **Compact overall dimensions** ▪ **Easy assembly and mounting operations (no protection sleeves required)** ▪ **Isobaric pressure rating** ▪ **FROST** suitable for very cold environments

Gran resistencia a la abrasión y al ozono ▪ Dimensiones generales estándar ▪ Fácil ensamble y montaje (no se requieren mangas de protección) ▪ Gama de presión isobárica ▪ **FROST** disponible para ambientes extremadamente fríos

#### MAIN APPLICATIONS

High pressure lines with extreme abrasion conditions (e.g. bunched-up hoses, localised contacts with sharp edges and extraneous bodies/particles, wear due to sliding over the ground, alternative to spring guards)

#### INTERNAL TEMPERATURE

-49°F / +212°F -45°C / +100°C

#### MIN EXTERNAL TEMPERATURE

-67°F -55°C

#### MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils, (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids (DN 6--19)

Four high tensile steel spirals (DN 25--51)

**COVER:** Composite bi-layer structure with outstanding abrasion resistance

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** GOST-R

#### PRINCIPALES APLICACIONES

Líneas de baja presión con extremas condiciones de abrasión (Ej. Mangueras rozando entre si, contactos con bordes cortantes y partículas/ cuerpos extraños, abrasión debida a deslizamiento sobre el suelo, evita el uso de protectores de cubierta en espiral tipo coil.)

#### INTERNAL TEMPERATURE

-49°F / +212°F -45°C / +100°C

#### MIN EXTERNAL TEMPERATURE

-67°F -55°C

#### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos refuerzos trenzados de acero de alta resistencia (DN 6--19) Cuatro refuerzos en espiral de acero de alta resistencia (DN 25--51)

**CUBIERTA:** Estructura de compuesto de doble capa con gran resistencia a la abrasión

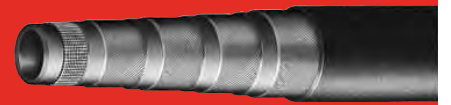
**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** GOST-R



# SHIELDMASTER®/5000

OUTSTANDING ABRASION RESISTANCE



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft			
H01032006*	6	-4	1/4"	13.6	0.54	345	5000	1380	20010	50	1.97	260	17	OPB	-	MF+M00120-04
H01032008*	8	-5	5/16"	15.1	0.59	345	5000	1380	20010	55	2.17	330	22	OPB	-	MF+M00120-05
H01032010*	10	-6	3/8"	17.2	0.68	345	5000	1380	20010	65	2.56	405	27	OPB	-	MF+M00120-06
H01032012*	12	-8	1/2"	22.2	0.87	345	5000	1380	20010	120	4.72	655	44	OPS	OPNS	MF+M00910-08
H01032016*	16	-10	5/8"	27.2	1.07	345	5000	1380	20010	200	7.87	990	66	OPS	OPNS	MF+M00910-10
H01032019*	19	-12	3/4"	31.2	1.23	345	5000	1380	20010	230	9.06	1385	93	OPS	OPNS	IL+M01300-12
H01032025*	25	-16	1"	38.1	1.50	345	5000	1380	20010	267	10.51	1935	130	OPS	OPNS	IL+M01300-16

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Outstanding abrasion and ozone resistance** ▪ **Compact overall dimensions** ▪ **Easy assembly and mounting operations (no protection sleeves required)** ▪ **Isobaric pressure rating** ▪ **FROST** suitable for very cold environments

Gran resistencia a la abrasión y al ozono ▪ Dimensiones generales estándar ▪ Fácil ensamble y montaje (no se requieren mangas de protección) ▪ Gama de presión isobárica ▪ **FROST** disponible para ambientes extremadamente fríos

### MAIN APPLICATIONS

Heavy duty power lines with extreme abrasion conditions (e.g. bunched-up hoses, localised contacts with sharp edges and extraneous bodies/particles, wear due to sliding over the ground, alternative to spring guards)

### INTERNAL TEMPERATURE

-49°F / +212°F -45°C / +100°C

### MIN EXTERNAL TEMPERATURE

-67°F -55°C

### MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids (DN 6÷12). Four high tensile steel spirals (DN 16÷25)

**COVER:** Composite bi-layer structure with outstanding abrasion resistance

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** GOST-R

### PRINCIPALES APLICACIONES

Líneas de presión para trabajo pesado con extremas condiciones de abrasión (Ej. Mangueras rozando entre sí, contactos con bordes cortantes y partículas/cuerpos extraños, abrasión debida a deslizamiento sobre el suelo, evita el uso de protectores de cubierta en espiral tipo coil)

### INTERNAL TEMPERATURE

-49°F / +212°F -45°C / +100°C

### MIN EXTERNAL TEMPERATURE

-67°F -55°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceites con base en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite en emulsión acuosa, agua

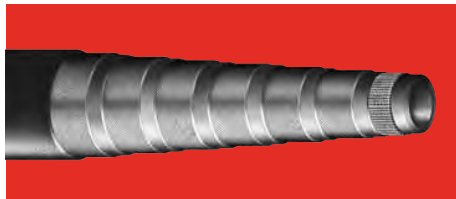
**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos refuerzos trenzados de acero (DN 6÷12). Cuatro refuerzos en espiral (DN 16÷25)

**CUBIERTA:** Estructura de compuesto de doble capa con gran resistencia a la abrasión

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** GOST-R



# SHIELDMASTER®/6000

## OUTSTANDING ABRASION RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01A32006*	6	-4	1/4"	13.5	0.53	420	6090	1680	24360	45	1.77	280	19	OPB	MF+M00120-04
H01A32010*	10	-6	3/8"	20.6	0.81	420	6090	1680	24360	110	4.33	720	48	OPS	MF+M00910-06
H01A32012*	12	-8	1/2"	23.5	0.93	420	6090	1680	24360	120	4.72	845	57	OPS	MF+M00910-08
H01A32016*	16	-10	5/8"	27.0	1.06	420	6090	1680	24360	140	5.51	1000	67	OPS	MF+M00910-10
H01A32019*	19	-12	3/4"	32.0	1.26	420	6090	1680	24360	170	6.69	1475	99	OPS	IL+M01300-12
H01A32025*	25	-16	1"	38.1	1.50	420	6090	1680	24360	220	8.66	2045	137	OPS	IL+M01300-16
H01A32031*	31	-20	1.1/4"	49.5	1.95	420	6090	1680	24360	267	10.51	3680	247	OPS	IL+M01300-20
H01A32038*	38	-24	1.1/2"	57.8	2.28	420	6090	1680	24360	315	12.40	4765	313	OPS	IL+M01300-24
H01A32051*	51	-32	2"	72.0	2.83	420	6090	1680	24360	600	23.62	6745	452	-	XL+M01800-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Outstanding abrasion and ozone resistance** ▪ **Compact overall dimensions** ▪ **Easy assembly and mounting operations (no protection sleeves required)** ▪ **Isobaric pressure rating** ▪ **FROST** suitable for very cold environments

Gran resistencia a la abrasión y al ozono ▪ Dimensiones generales estándar ▪ Fácil ensamble y montaje (no se requieren mangas de protección) ▪ Gama de presión isobárica ▪ **FROST** disponible para ambientes extremadamente fríos

#### MAIN APPLICATIONS

Heavy duty power lines with extreme abrasion conditions (e.g. bunched-up hoses, localised contacts with sharp edges and extraneous bodies/particles, wear due to sliding over the ground, alternative to spring guards)

#### INTERNAL TEMPERATURE

-49°F / +212°F -45°C / +100°C

#### MIN EXTERNAL TEMPERATURE

-67°F -55°C

#### MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids (DN 6)

Four high tensile steel spirals (DN 10÷25)

Six high tensile steel spirals (DN 31÷51)

**COVER:** Composite bi-layer structure with outstanding abrasion resistance

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** GOST-R

#### PRINCIPALES APLICACIONES

Líneas de presión para trabajo pesado con extremas condiciones de abrasión (Ej. Mangueras rozando entre sí, contactos con bordes cortantes y partículas/cuerpos extraños, abrasión debida a deslizamiento sobre el suelo, evita el uso de protectores de cubierta en espiral tipo coil)

#### INTERNAL TEMPERATURE

-49°F / +212°F -45°C / +100°C

#### MIN EXTERNAL TEMPERATURE

-67°F -55°C

#### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceites con base en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos refuerzos trenzados de acero (DN 6).

Cuatro refuerzos en espiral (DN 10÷25). Seis refuerzos en espiral de acero de altaresistencia desde (DN 31÷51)

**CUBIERTA:** Estructura de compuesto de doble capa con gran resistencia a la abrasión

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** GOST-R

# PUSHFIT

## PUSH-ON HOSE, SAE J30 R6



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft	
H09066006*	6	-4	1/4"	12.7	0.50	35	510	140	2030	76	2.99	130	9	-
H09066008*	8	-5	5/16"	14.3	0.56	35	510	140	2030	76	2.99	160	11	-
H09066010*	10	-6	3/8"	15.8	0.62	35	510	140	2030	76	2.99	175	12	-
H09066012*	12	-8	1/2"	19.6	0.77	25	360	100	1450	127	5.00	235	16	-
H09066016*	16	-10	5/8"	23.6	0.93	25	360	100	1450	150	5.91	320	21	-
H09066019*	19	-12	3/4"	28.3	1.11	21	300	84	1210	180	7.09	470	31	-
H09066025*	25	-16	1"	33.9	1.33	14	200	56	810	240	9.45	525	35	-

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Push-On hose with MF2000® Push-Lock insert type without ferrule - High aging resistance - Fuel application with push-on fittings (clamps recommended in fuel applications)**

**Manguera Push-On con espiga tipo Push-Lock MF2000® sin férula - Alta resistencia al envejecimiento - Aplicación para combustibles con la conexión push-on - Abrazaderas son recomendadas en aplicaciones manejando derivados del petróleo**

#### MAIN APPLICATIONS

Push-on hose for low pressure lines, return lines, drain lines. Used in fuel system or in the crankcase of internal combustion engines in mobile (truck, bus, off-highway, vehicles), stationary and marine applications

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

#### MAX OPERATING TEMPERATURE

(Intermittent service) 250°F 121°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water, diesel fuel, gasoline

**TUBE:** Fuel and oil resistant synthetic rubber compound

**REINFORCEMENT:** One textile braid

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** SAE J30 R6

**TYPE APPROVALS:** GOST-R

#### PRINCIPALES APLICACIONES

Manguera push-on usada en líneas de baja presión, de retorno y de drenaje. Usada en sistemas de combustible o en la carcasa de motores de combustión interna, en aplicaciones móviles estacionarias o marinas

#### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

#### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 250°F 121°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y de colza, aceites basados en glicoles y poliglicoles, aceites con base en éster sintético, aceite en emulsión acuosa, agua, aceite diesel

**TUBO:** Compuesto de caucho sintético resistente a los derivados del petróleo

**REFUERZO:** Un refuerzo textil

**CUBIERTA:** Caucho sintético resistente a la intemperie

**ESPECIFICACIONES APLICABLES:** SAE J30 R6

**APROBACIONES:** GOST-R

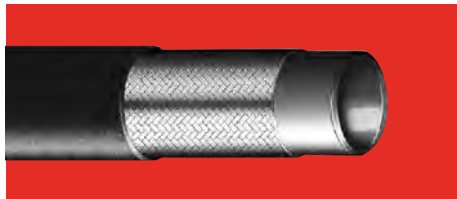


Working Pressure according to SAE J30 R6:

**DN 6, 8, 10: 3,4 bar (50 psi) DN 12, 16, 19, 25: 2,4 bar (35 psi)**  
clamps recommended in fuel application

Presión de trabajo según SAE J30 R6:

**DN 6, 8, 10: 3,4 bar (50 psi) DN 12, 16, 19, 25: 2,4 bar (35 psi)**  
abrazaderas recomendadas para aplicación de combustible



# MASTERTEX®

## EXTREME TEMPERATURE. EXCEED SAE 100 R6 EN 854 R6/1TE

PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	STD MF2000	STD									
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Ferrule	Insert	One Piece
H09069006*	6	-4	1/4"			12,6	0,50	30	430	120	1740	45	1,77	115	0,08	M00830-04	MF	
H09069010*	10	-6	3/8"			15,8	0,62	30	430	120	1740	75	2,95	160	0,11	M00830-06	MF	
H09069012*	12	-8	1/2"			19,4	0,76	30	430	120	1740	90	3,54	210	0,14	M00830-08	MF	
H09069016*	16	-10	5/8"			23,0	0,91	30	430	120	1740	115	4,53	285	0,19	M00830-10	MF	

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Long term aging resistance - Suitability in high temperature applications - High flexibility - Wide range of fluid compatibility - MF2000 Multifit type couplability**

#### MAIN APPLICATIONS

Low pressure lines, return lines, drain lines  
**CONTINUOUS SERVICE TEMPERATURE RANGE**  
 -40°F / +275°F -40°C / +135°C  
**RECOMMENDED FLUIDS**  
 Mineral oils, synthetic base oils (HS), vegetable and rape  
 seed oils, glycol and polyglycol based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber  
**REINFORCEMENT:** One high resistance textile braid  
**COVER:** Environment resistant synthetic rubber  
**APPLICABLE SPECS.:** Exceed SAE 100 R6; EN 854 R6/1TE; ISO 4079-1 R6/1TE  
**STANDARD PACKAGING:** Reel

#### PRINCIPALES APLICACIONES

Líneas de baja presión, líneas de retorno, líneas de drenaje  
**TEMPERATURA CONTINUA DE SERVICIO**  
 -40° C / +275° F -40° C / 135° C  
**FLUIDOS RECOMENDADOS**  
 Aceites minerales, aceites de base sintética (SA), vegetales y violaciones aceites basados en aceites de semillas, glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite  
**REFUERZO:** Una trenza textil de alta resistencia  
**CUBIERTA:** Caucho sintético resistente a la intemperie  
**ESPECIFICACIONES APLICABLES:** Exceed SAE 100 R6; R6/1TE  
**EMBALAJE ESTÁNDAR:** Reel

# T°REX®

## EXTREME TEMPERATURE



PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	STD MF2000	STD

	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Ferrule	Insert	One Piece
H1127031*	31	-20	1.1/4"	0,0	0,00	40,7	1,60	43	620	172	2490	203	7,99	925	0,62	M00820-20	MF	

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Extreme high temperature and aging resistance - High flexibility - Long service duration**

#### MAIN APPLICATIONS

Oil cooling systems, automatic transmissions with very high temperature of the oil, low pressure high temperature applications in hydraulic systems

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +320°F -40°C / +160°C

#### RECOMMENDED FLUIDS

Mineral oils, Synthetic Hydrocarbons oils, glycols and polyglycols (up to 121°C / +250°F)

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel wire braid

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** MANULI® Design

#### PRINCIPALES APLICACIONES

Sistemas de refrigeración de aceite, transmisiones automáticas de muy alta temperatura del aceite, las aplicaciones de alta temperatura de baja presión en sistemas hidráulicos

#### TEMPERATURA CONTINUA DE SERVICIO

-40° C / 320° F -40° C / 160° C

#### FLUIDOS RECOMENDADOS

Aceites minerales, aceites hidrocarburos sintéticos, glicoles y poliglicoles (hasta 121° C / 250° F)

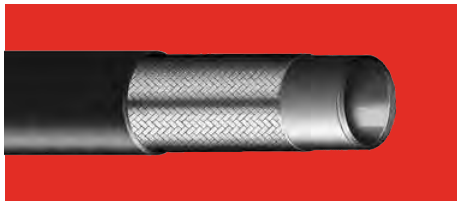
**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** una alta resistencia a la tracción de alambre de acero trenzado

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** MANULI® Design





# PILOT

## EXTREME LIGHTNESS

STANDARD PART. REF.	HOSE SIZE														
					O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING				
	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01015005*	5	-3	3/16"	10.5	0.41	150	2170	600	8700	20	0.79	145	10	-	MF+M00820-03
H01015A06*	6	-4	1/4"	11.5	0.45	150	2170	600	8700	25	0.98	155	10	-	MF+M00820-04
H01015008*	8	-5	5/16"	13.1	0.52	120	1740	480	6960	30	1.18	185	12	-	MF+M00820-05
H01015010*	10	-6	3/8"	14.8	0.58	100	1450	400	5800	40	1.57	210	14	-	MF+M00820-06
H01015012*	12	-8	1/2"	18.0	0.71	100	1450	400	5800	50	1.97	270	18	-	MF+M00820-08

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**High temperature working conditions** ▪ **ROCKMASTER® cover compound, for tough environment, high abrasion, ozone, aging resistance** ▪ **DN 12: new fitting solution with M00820-08 no-skive ferrule** ▪ **Superior lightness and flexibility** ▪ **Extreme compact structure** ▪ **Approved at 1.000.000 cycles working pressure** ▪ **Kink resistant solution for pilot applications**

Condiciones de trabajo registrando altas temperaturas ▪ **ROCKMASTER®** compuesto de la cubierta ofreciendo alta resistencia a la abrasión, ozono, trabajo pesado y envejecimiento ▪ **DN12: nueva solución en cuanto a conexiones para usar con el ferrul para no-pelar M00820-08** ▪ Superior ligereza y flexibilidad ▪ Extrema presión compacta ▪ Aprobada para 1.000.000 de ciclos de presión de trabajo ▪ Su alta flexibilidad evita que la manguera se enrede

#### MAIN APPLICATIONS

Specifically studied for pilot lines, useful also for low pressure lines with installation constraints. Ideal for severe installations, e.g. for engine compartments and for high temperature applications

#### SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel braid

**COVER:** Environment resistant synthetic rubber

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** GOST-R, MSHA

#### PRINCIPALES APLICACIONES

Estudiada específicamente para líneas piloto, útil también para líneas de baja presión en espacios reducidos. Ideal para operación en condiciones severas, ej. Compartimentos de motores y aplicaciones donde se registran altas temperaturas

#### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F -40°C / +121°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceites vegetales y de colza, aceites con base en glicoles y poliglicoles, aceites basados en éster sintético, aceites en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Una trenza de acero de alta resistencia

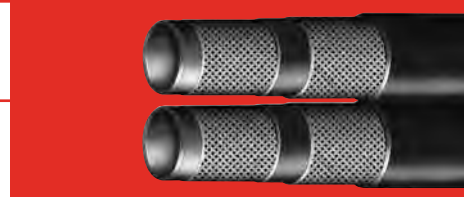
**CUBIERTA:** Caucho sintético con alta resistencia a la intemperie

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** GOST-R, MSHA

# TWINPOWER®/PLUS

EASY INSTALLATION FOR OEMs



PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H0112012*	12	-08	1/2"	18,5	0,73	22,5	0,89	310	4490	1240	17980	80	3,15	1220	0,82	MF+M00120-08

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Compact hose structure and reduced bend radius** - Approved with 500.000 flexing impulse cycles (1,33 WP), 125.000 flexing cycles (Manuli testing method) - Smooth hose cover ensuring user friendly installation inside the booms - Unique hose assembly solution for pressure and discharge line on the same body valve - Reduced installation time compared to two separated assembly hose solutions - Reduced risk of abrasion of the line inside the booms due to twin hose alignment - Elimination of clamps to connect the two hose lines, with consequent easyness of insertion - High abrasion resistant and flame retardant MSHA approved cover - Warehouse/logistic optimization with reduced codes in stock

Estructura compacta de mangueras y reducido radio de curvatura - Aprobado con 500.000 ciclos de impulsos flexibles (1,33 WP), 125.000 ciclos flexibles (método de prueba Manuli) - Superior resistencia a la presión hasta 5000 psi - Excede la tasa Isobárica de la especificación Internacional (ISO 11237 2SC/EN 857 2SC) - Cubierta lisa que asegura una fácil instalación en el interior del mástil - Única solución para presión y descarga en el mismo cuerpo de la válvula - Se reduce el tiempo de la instalación comparado con la solución de dos mangueras separadas - Se reduce el riesgo de abrasión de las líneas del mástil debido a la alineación de la manguera gemela - Eliminación de abrazaderas para conectar las dos mangueras, con consecuente comodidad de inserción - Alta Resistencia a la abrasión y al retardo de la llama. Cubierta aprobada por MSHA (líneas 5000/PLUS) - Optimización del stock/almacén con códigos reducidos en stock

### MAIN APPLICATIONS

Hose range dedicated to aerial lifts, platforms, forklift trucks and telescopic booms applications  
CONTINUOUS SERVICE TEMPERATURE RANGE

-40°C / +121°C

MAX OPERATING TEMPERATURE

(Intermittent service) +135°C

RECOMMENDED FLUIDS

Mineral, vegetable and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

REMARK!

Twinned hose line width: DN 12 = 46,0 mm (1,81")

**INSERT:** MF2000® - MULTIFIT TYPE

**TUBE:** Synthetic rubber

**REINFORCEMENT:** Two high tensile steel wire braids

**COVER:** Synthetic rubber with high ozone, abrasion and weather resistance

**APPLICABLE SPECS.:** exceed ISO 11237 2SC, EN 857 2SC, SAE J517 type 100R16S

**TYPE APPROVALS:** GOST-R, MSHA

### PRINCIPALES APLICACIONES

Gama de manguera dedicada a elevadores, plataformas, carretillas elevadoras y mástiles telescópicos

TEMPERATURA CONTINUA DE SERVICIO

-40°C / +121°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +135°C

FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal, aceites con base en éster sintético, aceites basados en glicoles y poliglicoles, aceite en emulsión acuosa, agua

COMENTARIO!

La anchura de la manguera gemela: DN 12 = 46,0 mm (1,81")

**ESPIGA:** MF2000® - MULTIFIT TYPE

**TUBO:** Caucho sintético


**REFUERZO:** Dos trenzas de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, a la abrasión y a la intemperie

**ESPECIFICACIONES APLICABLES:** excede ISO 11237 2SC, EN 857 2SC, SAE J517 tipo 100R16S

**APROBACIONES:** GOST-R, MSHA

## HIGH SERVICE LIFE AND RELIABILITY

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01102006*	6	-04	1/4"	11,3	0,44	13,1	0,52	450	6520	1800	26100	45	1,77	275	0,18	MF+M00120-04
H01102008*	8	-05	5/16"	12,9	0,50	14,7	0,58	400	5800	1600	23200	55	2,17	325	0,22	MF+M00120-05
H01102010*	10	-06	3/8"	15,0	0,59	16,8	0,66	365	5290	1460	21170	65	2,56	390	0,26	MF+M00120-06
 H01102A12*	12	-08	1/2"	18,6	0,73	20,4	0,80	350	5070	1400	20300	80	3,15	560	0,38	MF+M00120-08
H01102016*	16	-10	5/8"	22,7	0,89	24,7	0,97	300	4350	1200	17400	90	3,54	730	0,49	MF+M00120-10
H01102019*	19	-12	3/4"	27,1	1,07	29,3	1,15	300	4350	1200	17400	120	4,72	1070	0,72	MF+M00120-12
H01102025*	25	-16	1"	33,7	1,33	35,9	1,41	225	3260	900	13050	160	6,30	1340	0,90	MF+M00120-16

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**The Hi-Performance solution for toughest OEM specifications ▪ Performance far exceeds EN 857-2SC ▪ Improved impulse and service life duration ▪ High temperature and environmental resistance ▪ Enhanced flex impulse resistance with M00120 skive ferrule**

La solución de alto rendimiento para las exigentes especificaciones de equipo original (OEM) ▪ Su rendimiento excede la Norma EN857-2SC ▪ Mejorada resistencia a impulsos y mayor vida útil ▪ Resistencia a altas temperaturas y medio ambiente ▪ Acentuada flexibilidad para asegurar una buena resistencia a impulsos con casquillo M00120 para pelado

#### MAIN APPLICATIONS

High pressure lines with installation constraints in severe OEM applications

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

#### MAX OPERATING TEMPERATURE:

+275°F +135°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to +212°F / +100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

#### INSERT: MF2000® - MULTIFIT TYPE

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids

**COVER:** Synthetic rubber with high ozone, abrasion and weather resistance.

**APPLICABLE SPECS.:** Exceed EN 857 2SC, SAE 100 R16S and ISO 11237 2SC

**TYPE APPROVALS:** DNV, DNV (MED), GOST-R, MSHA, LOBA

#### PRINCIPALES APLICACIONES

Líneas de alta presión con restricciones para la instalación en aplicaciones severas para equipo original (OEM)

#### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F -40°C / +121°C

#### MÁXIMA TEMPERATURA DE OPERACIÓN:

+275°F +135°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta +212°F / +100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

#### ESPIGA: MF2000® - TIPO MULTIFIT

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 2 refuerzos de acero en espiral de alta resistencia

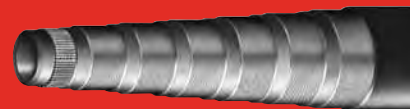
**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor.

**ESPECIFICACIONES APLICABLES:** Excede EN 857 2SC, SAE 100 R16S y ISO 11237 2SC

**APROBACIONES:** DNV, DNV (MED), GOST-R, MSHA, LOBA

# DIAMONDSPIR™

VERY HIGH PRESSURE



PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H10018019*	19	-12	3/4"	29,1	1,15	32,1	1,26	560	8120	2240	32480	280	11,02	1660	1,12	XL+M01750-12
H10018025*	25	-16	1"	38,2	1,50	41,2	1,62	560	8120	2240	32480	350	13,78	2910	1,96	XL+M01800-16
H10018032*	31	-20	1.1/4"	47,7	1,88	50,9	2,00	525	7610	2100	30450	420	16,54	4210	2,83	XL+M01800-20
H10018038*	38	-24	1.1/2"	55,2	2,17	58,7	2,31	475	6880	1900	27550	500	19,69	5230	3,51	XL+M01800-24
H10018051*	51	-32	2"	68,4	2,69	71,9	2,83	420	6090	1680	24360	600	23,62	6680	4,49	XL+M01800-32
<b>new</b> H10018A63*	63	-40	2.1/2"	80,6	3,17	84,8	3,34	350	5070	1400	20300	800	31,50	8110	5,45	XL+M01800-40
H10018076*	76	-48	3"	90,8	3,57	94,6	3,72	210	3040	870	12610	900	35,43	7910	5,32	XL+M01800-48

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Very high pressure resistance** ▪ **Approved with severe fatigue tests** ▪ **Superior abrasion resistance** ▪ **High ozone and weather resistance** ▪ **Flame resistance to a wide range of spec.** ▪ **Antistatic and antitoxic cover** ▪ **bio biological and mineral oils compatibility**

Superior resistencia a la presión ▪ Aprobado con prueba de máximo esfuerzo ▪ Superior resistencia a la abrasión ▪ Alta resistencia al ozono y a la intemperie ▪ Resistente a la llama ▪ Cubierta antiestática y atóxica ▪ **bio** compatible con aceite mineral y biológico

### MAIN APPLICATIONS

Heavy duty power lines, hydrostatic transmissions in heavy duty environmental conditions, specific installations with severe abrasion conditions, off-shore applications, underground and open pit mining

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

#### MAX OPERATING TEMPERATURE

(Intermittent service) +257°F +125°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to +210°F / +100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

#### INSERT: MF2000® - XTRALOCK TYPE

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Six high tensile steel spirals (DN 25÷76). Four high tensile steel spirals (DN 19)

**COVER:** Synthetic rubber with high abrasion, ozone, weather and heat resistance

**APPLICABLE SPECS.:** MANULI® Design - ISO 6807-D (DN 76), exceed ISO 3862 R15

**TYPE APPROVALS:** ABS (DN 25÷76), GOST-R, MSHA, LOBA, FRAS

### PRINCIPALES APLICACIONES

Líneas de muy extrema presión en condiciones ambientales de trabajo pesado, transmisión hidrostática, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas subterráneas y minas a cielo abierto

#### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F -40°C / +121°C

#### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +257°F +125°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta +210°F / +100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

#### ESPIGA: MF2000® - TIPO XTRALOCK

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Seis refuerzos de acero en espiral de alta resistencia al ozono (DN 25÷76), Cuatro refuerzos de acero en espiral de alta resistencia al ozono (DN 19)

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Diseño MANULI® ISO 6807-D (DN 76), excede ISO 3862 R15

**APROBACIONES:** ABS (DN 25÷76), GOST-R, MSHA, LOBA, FRAS





PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01034006*	6	-04	1/4"	12,7	0,50	14,7	0,58	725	10510	1450	21030	100	3,94	370	0,25	MF+M03400-04
H01034010*	10	-06	3/8"	15,0	0,59	16,8	0,66	725	10510	1450	21030	127	5,00	395	0,27	MF+M03400-06

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Weight-lifting by means of jacking system ▪ Extreme static pressure ▪ Tested/approved for specific jacking applications ▪ Test certificate available upon request ▪ Standard MF2000® fittings compatibility: no special fittings required**

**Levantamiento de peso por medio de sistemas hidráulicos ▪ Extrema presión estática ▪ Probada y aprobada para aplicaciones de levantamiento ▪ Certificado de prueba ▪ Racores estándar MF2000®: no se requiere racores especiales**

#### MAIN APPLICATIONS

Jacking systems

CONTINUOUS SERVICE TEMPERATURE RANGE


-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE

(Intermittent service) +250°F +121°C

RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

 Product designed for jacking applications.

Any different use may reduce service life.

Please contact Manuli Hydraulics for more information

REMARK: Halogen-Free hose line

**INSERT: MF2000® - MULTIFIT TYPE**

**TUBE: Oil resistant synthetic rubber**

**REINFORCEMENT: Two high tensile steel braids**

**COVER: Environment resistant synthetic rubber**

**APPLICABLE SPECS.: IJ100 hydraulic jack spec.**

**TYPE APPROVALS: GOST-R**

#### PRINCIPALES APLICACIONES

Sistemas de levantamiento de peso

TEMPERATURA CONTINUA DE SERVICIO


-40°F / +212°F -40°C / +100°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) +250°F +121°C

FLUIDOS RECOMENDADOS

Aceite mineral, aceites vegetales y de colza, aceites con base en glicoles y poliglicoles, aceites basados en éster sintético, aceites en emulsión acuosa, agua

 Producto diseñado para aplicaciones de

levantamiento de peso. Cualquier otro uso, quizás reduzca el tiempo de vida útil.

Consulte a Manuli Hydraulics, para mayor información

COMENTARIO: gama de mangueras "Halogen-Free"

**ESPIGA: MF2000® - TIPO MULTIFIT**

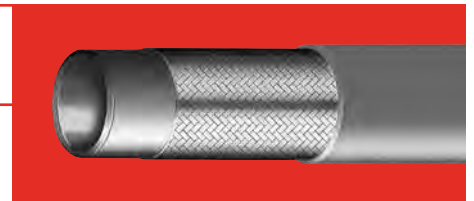
**TUBO: Caucho sintético, resistente al aceite**


**REFUERZO: Dos refuerzos trenzados de acero de alta resistencia**

**CUBIERTA: Caucho sintético resistente a la intemperie**  
**ESPECIFICACIONES APLICABLES: IJ100 para levantamiento hidráulico**

**APROBACIONES: GOST-R**





PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01124006*	6	-04	1/4"	11,0	0,43	13,0	0,51	225	3260	900	13050	100	3,94	220	0,15	MF+M03400-04
H01124010*	10	-06	3/8"	15,0	0,59	17,0	0,67	180	2610	720	10440	127	5,00	325	0,22	MF+M03400-06
H01124012*	12	-08	1/2"	18,1	0,71	20,1	0,79	160	2320	640	9280	178	7,01	410	0,28	MF+M03400-08
H01124019*	19	-12	3/4"	25,3	1,00	27,9	1,10	105	1520	420	6090	240	9,45	660	0,44	MF+M03400-12
 H01124025*	25	-16	1"	33,1	1,30	35,7	1,41	88	1270	350	5070	300	11,81	980	0,66	MF+M03400-16

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**SAE 100R1S and ISO 1SN rated working pressure - Flame retardant red cover - Excellent performance for standard hydraulic applications - Embossed indelible branding - No skive MF2000 (two-pieces)**

Resistencia a la presión según SAE 100R1S y ISO 1SN - Cubierta roja con retardante a la llama - Excelentes características para aplicaciones hidráulicas estándar - Marcada en relieve - Racores para No pelar MF2000 (dos piezas)

#### MAIN APPLICATIONS

Use in fire suppression systems of off-road vehicles, mining equipment, stationary engines. The hose present red cover for easy identification in the fire suppression system

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F 40°C / +100°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water, water based fire extinguishing agents

**INSERT:** MF2000® (no-skive) – MULTIFIT TYPE

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** One high tensile steel wire braid

**COVER:** Red synthetic rubber with high ozone, abrasion and weather resistance

**APPLICABLE SPECS.:** ISO 1436-1SN, SAE J517 type 100R1S and R1AT, EN 853 1SN

**TYPE APPROVALS:** MSHA, GOST-R

#### PRINCIPALES APLICACIONES

Use en los sistemas de supresión de fuego de vehículos móviles, equipos para minería, artefactos estacionarios. La manguera presenta la cubierta roja para una identificación fácil en el sistema de supresión de fuego

#### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +212°F -40°C / +100°C

#### FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetales y sintéticos con base ester, glicoles y polyglicoles, aceites minerales en emulsión de agua, agua, agua basada en agentes que extinguen el fuego

**ESPIGA:** MF2000® (no-skive) – MULTIFIT TYPE

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Una malla de acero reforzado









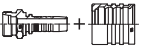
**CUBIERTA:** Caucho sintético Rojo, resistente al ozono, abrasión y ambiente

**ESPECIFICACIONES APLICABLES:** ISO 1436-1SN, SAE J517 tipo 100R1S y R1AT, EN 853 1SN

**APROBACIONES:** MSHA, GOST-R

# XTRAFLOW®/HT

## HIGH TEMPERATURE SUCTION & RETURN LINES

																
PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING								
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01128063*	63	-40	2.1/2"	75,8	2,98	78,5	3,09	35	500	140	2030	254	10,00	3590	2,41	MF+M03400-40
H01128076*	76	-48	3"	87,8	3,46	90,5	3,56	35	500	140	2030	355	13,98	3290	2,21	MF+M03400-48
H01128089*	89	-56	3.1/2"	102,2	4,02	107,4	4,23	35	500	140	2030	475	18,70	5708	3,84	MF+M03400-56

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Vacuum resistance exceeding SAE 100R4 performance ▪ Extreme high temperature and heat aging resistance ▪ High flow rates ▪ Reduced bend radius compared to SAE 100 R4**

#### MAIN APPLICATIONS

Suction and return lines in hydraulic systems with high temperature fluids, low pressure hydraulic systems in mining equipment. Remark: compressed air applications require cover pin-pricking and additional safety devices.

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-67°F / +275°F -55°C / +135°C

#### MAX OPERATING TEMPERATURE

+300°F +150°C

#### RECOMMENDED FLUIDS

Mineral oils, glycols and polyglycols, transmission fluids, mineral oils in aqueous emulsion (up to 212°F 100°C), air with oil vapours.

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two wire braids of high tensile steel wire

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** MSHA

#### PRINCIPALES APLICACIONES

Succión y retorno en sistemas hidráulicos con fluidos a altas temperaturas, sistemas hidráulicos de baja presión en equipos de minería. Observación: aplicaciones de aire comprimido requieren cobertura dispositivos de seguridad adicionales pin-pinchazo y.

#### TEMPERATURA CONTINUA DE SERVICIO

-67° C / +275° F -55° C / +135° C

Temperatura máxima de funcionamiento

300° F 150° C

#### FLUIDOS RECOMENDADOS

Los aceites minerales, glicoles y poliglicoles, fluidos de transmisión, aceite mineral en emulsión acuosa (hasta 212° F 100° C), el aire con vapores de aceite.

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos trenzas de alambre de acero de alta tensión

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** MANULI® Diseño

**APROBACIONES:** MSHA

# XTRAFLOW®/2WB

HIGH FLOW RATES, LOW PRESSURE DROPS



PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H01129063*	63	-40	2.1/2"	75,8	2,98	78,5	3,09	105	1520	420	6090	510	20,08	3531	2,37	MS+M05400-40
H01129076*	76	-48	3"	89,0	3,50	93,6	3,69	80	1160	320	4640	510	20,08	4976	3,34	MS+M05400-48
H01129089*	89	-56	3.1/2"	102,2	4,02	107,4	4,23	35	500	140	2030	710	27,95	5530	3,72	MS+M05400-56

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame resistance and electrical antistatic properties of the cover ▪ High working pressure and flow rates ▪ Low pressure drops ▪ Vacuum resistance with SAE 100 R4

### MAIN APPLICATIONS

Medium-Low pressure lines with high flow rates, specific installations with severe abrasion conditions, marine applications, underground and open pit mining, return and suction lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel wire braids

**COVER:** Synthetic rubber with high ozone, weather and abrasion resistance

**APPLICABLE SPECS.:** Extension EN 857-2SC, ISO 11237-2SC

**TYPE APPROVALS:** MSHA

### PRINCIPALES APLICACIONES

Las líneas de mediana a baja presión con caudales elevados, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, minas a cielo abierto y subterráneas, de retorno y las líneas de succión

### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +212° F -40° C / 100° C

### FLUIDOS RECOMENDADOS

Aceites aceites minerales, aceites vegetales y de colza, glicoles y poliglicoles, aceite basado en éster sintético, aceite en emulsión acuosa, agua

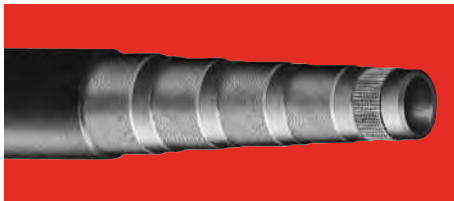
**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** dos de alta resistencia de alambre de acero trenzas

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y resistencia a la abrasión

**ESPECIFICACIONES APLICABLES:** EN 857. Extensión-2SC, ISO 11237-2SC

**APROBACIONES:** MSHA



# XTRAFLOW®/4WS

HIGH FLOW RATES, OUTSTANDING ABRASION RESISTANCE

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H10091063*	63	-40	2.1/2"	77,5	3,05	81,5	3,21	140	2030	700	10150	700	27,56	5890	3,96	MS+M05400-40
H10091076*	76	-48	3"	87,8	3,46	92,2	3,63	105	1520	525	7610	700	27,56	5900	3,96	MS+M05400-48
H10091089*	89	-56	3.1/2"	103,7	4,08	108,7	4,28	80	1160	400	5800	800	31,50	8212	5,52	MS+M05400-56

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Extreme abrasion resistance - High ozone and weather resistance - Flame retardant and antistatic cover - Superior pressure rating - Structure robustness for tough handling

### MAIN APPLICATIONS

Mine hydraulic return lines, medium pressure hydraulic lines with high flow rates, longwalls water lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils, synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel wire spirals

**COVER:** Synthetic rubber with high abrasion, ozone and weather resistance

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** GOST-R; MSHA

### PRINCIPALES APLICACIONES

Líneas hidráulicas para minas de retorno, líneas hidráulicas de media presión con caudales altos tajos largos, líneas de agua

### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +212° F -40° C / 100° C

### FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetal, aceite basado en éster synthetic, glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Cuatro acero de alta resistencia de alambre espiral

**CUBIERTA:** Caucho sintético con alta abrasión, al ozono ya la intemperie

**ESPECIFICACIONES APLICABLES:** MANULI® Diseño

**APROBACIONES:** GOST-R; MSHA

# DIAMONDSPIR®/14

HIGH FLOW RATES, OUTSTANDING ABRASION RESISTANCE



PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H10104076*	76	-48	3"	87,8	3,46	92,2	3,63	140	2030	560	8120	700	27,56	5900	3,96	IP+M01500-48

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Extreme abrasion resistance - High ozone and weather resistance - Flame retardant and antistatic cover - Superior pressure rating - Structure robustness for tough handling - InerLock robust fitting technology**

### MAIN APPLICATIONS

Mine hydraulic return lines, medium pressure hydraulic lines with high flow rates, longwall water lines

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

### MAS OPERATING TEMPERATURE

+257°F +125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four or six high tensile wire spirals

**COVER:** Synthetic rubber with high abrasion, ozone and weather resistance

**APPLICABLE SPECS.:** MANULI® Design, ISO 18752-C extension

**TYPE APPROVALS:** FRAS, GOST-R, MSHA

### PRINCIPALES APLICACIONES

Líneas hidráulicas para minas de retorno, líneas hidráulicas de media presión con altas tasas de flujo, líneas de agua de tajo largo

### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +250° F -40° C / +121° C

### MAS DE TEMPERATURA DE FUNCIONAMIENTO

257° F 125° C

### FLUIDOS RECOMENDADOS

Los aceites minerales, aceites vegetales y basado en éster sintético, glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

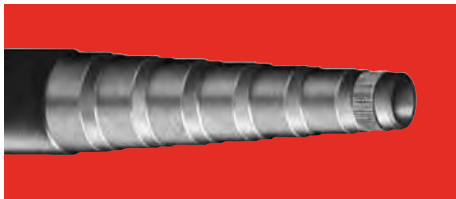
**REFUERZO:** Cuatro o seis espirales de alambre de alta resistencia

**CUBIERTA:** Caucho sintético con alta abrasión, al ozono y a la intemperie

**ESPECIFICACIONES APLICABLES:** MANULI® Diseño, extensión ISO 18752-C

**APROBACIONES:** FRAS, GOST-R, MSHA





# DIAMONDSPIR®/21

VERY HIGH HYDRAULIC POWER TRANSMISSION

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H10102063*	63	-40	2.1/2"	77,5	3,05	81,5	3,21	210	3040	840	12180	700	27,56	5890	3,96	IP+M01500-40
H10102076*	76	-48	3"	90,8	3,57	94,6	3,72	210	3040	840	12180	900	35,43	7910	5,32	IP+M01810-48

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Very high flow rates in high pressure ▪ Extreme robustness of the hose structures ▪ Hose compact dimensions ▪ Approved with severe fatigue tests ▪ Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame retardant (MSHA) and antistatic properties ▪ **bio** Biological and mineral oils compatibility ▪ Crimped interLock Plus fittings structures

### MAIN APPLICATIONS

Heavy duty power lines, hydrostatic transmission in heavy duty environmental conditions, specific installations with severe abrasion conditions, offshore applications, underground and open pit mining

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

#### MAX OPERATING TEMPERATURE

+257°F +125°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils, and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four to six high tensile steel spirals

**COVER:** Synthetic rubber with high abrasion, ozone, weather and heat resistance

**APPLICABLE SPECS.:** MANULI® Design, ISO 18752 grade C extension

**TYPE APPROVALS:** FRAS; GOST-R; MSHA

### PRINCIPALES APLICACIONES

Pesados cables eléctricos de servicio, la transmisión hidrostática en condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones de abrasión severa, aplicaciones marinas, underground y la minería a cielo abierto

#### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +250° F -40° C / +121° C

#### Temperatura máxima de funcionamiento

257° F 125° C

#### FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetal y aceite basado en éster synthetic (hasta 100° C/212° F), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Cuatro a seis espirales de acero de alta resistencia

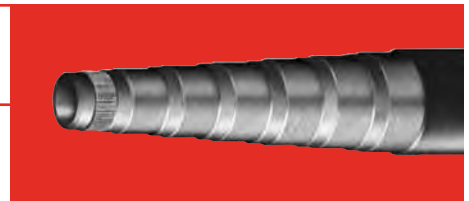
**CUBIERTA:** Caucho sintético con alta abrasión, ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** MANULI® Diseño, extensión ISO 18752 de grado C

**APROBACIONES:** FRAS, GOST-R; MSHA

# DIAMONDSPIR®/35

VERY HIGH HYDRAULIC POWER TRANSMISSION



PART. REF.	HOSE SIZE	R.O.D.	O.D.	MAX W.P.	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	FITTING								
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H10103063*	63	-40	2.1/2"	80,6	3,17	84,8	3,34	350	5070	1400	20300	800	31,50	8110	5,45	IP+M01810-40
H10103076*	76	-48	3"	97,9	3,85	101,9	4,01	350	5070	1400	20300	1000	39,37	12070	8,11	IS+M02800-48

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Very high flow rates in high pressure ▪ Extreme robustness of the hose structures ▪ Hose compact dimensions ▪ Approved with severe fatigue tests ▪ Superior abrasion resistance ▪ High ozone and weather resistance ▪ Flame retardant (MSHA) and antistatic properties ▪ **Bio** Biological and mineral oils compatibility ▪ Crimped InterLock Plus & InterLock Super fittings structures

### MAIN APPLICATIONS

Heavy duty power lines, hydrostatic transmissions in heavy duty environmental conditions, specific installations with severe anrasion conditions, offshore applications, underground and open pit mining

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

### MAS OPERATING TEMPERATURE

+257°F +125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Six to eight high tensile steel spirals

**COVER:** Synthetic rubber with high abrasion, ozone, weather and heat resistance

**APPLICABLE SPECS.:** MANULI® Design, ISO 18752 grade C extension

**TYPE APPROVALS:** FRAS, GOST-R, MSHA

**STANDARD PACKAGING:** Reel

### PRINCIPALES APLICACIONES

Pesados cables eléctricos de servicio, transmisiones hidrostáticas en las condiciones ambientales de trabajo pesado, instalaciones específicas con condiciones anrasion severa, aplicaciones marinas, subterráneas y minería a cielo abierto

### TEMPERATURA CONTINUA DE SERVICIO

-40° C / +250° F -40° C / +121° C

### MAS DE TEMPERATURA DE FUNCIONAMIENTO

257° F 125° C

### FLUIDOS RECOMENDADOS

Aceites minerales, aceites vegetales y aceite basado en éster sintético (hasta 100° C/212° F), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Seis a ocho espirales de acero de alta resistencia

**CUBIERTA:** Caucho sintético con alta abrasión, al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** MANULI ® Diseño, extensión ISO 18752 de grado C

**APROBACIONES:** FRAS, GOST-R, MSHA



# SHIELDMASTER® /2 PLUS MINE

## OUTSTANDING ABRASION RESISTANCE

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H01122006*	6	-4	1/4"	13.1	0.52	450	6520	1800	26100	45	1.77	260	17	OPB	MF+M03400-04
H01122010*	10	-6	3/8"	18.5	0.73	400	5800	1600	23200	127	5.00	525	35	OPNS	MF+M00910-06
H01122012*	12	-8	1/2"	22.1	0.87	362	5240	1450	21020	150	5.91	745	50	OPNS	MF+M00910-08
H01122019*	19	-12	3/4"	29.3	1.15	310	4490	1240	17980	230	9.06	1070	71	OPNS	MF+M00920-12
H01122025*	25	-16	1"	37.8	1.49	240	3480	960	13920	300	11.81	1590	106	OPNS	MF+M00920-16
H01122031*	31	-20	1.1/4"	47.2	1.86	175	2530	700	10150	380	14.96	2150	143	OPNS	MF+M00920-20
H01122038*	38	-24	1.1/2"	53.7	2.11	146	2110	584	8468	450	17.72	2500	167	OPNS	MF+M00910-24
H01122051*	51	-32	2"	65.5	2.58	130	1880	520	7540	600	23.62	3090	206	OPNS	MF+M00910-32

Standard packaging: reel (DN 6÷25) / Embalaje estándar: bobina (DN 6÷25)

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERÍSTICAS ESPECIALES



**MSHA approved composite cover for mining applications** ▪ Outstanding abrasion and ozone resistance ▪ Easy assembling and mounting operations, no protection sleeves are required ▪ Indelible branding with embossed technology ▪ Reduced bend radius for difficult installations ▪ Flame retardant and electrical antistaticity cover properties

Aprobación MSHA cubierta compuesta para aplicaciones mineras ▪ Excelente resistencia a la abrasión y al ozono ▪ Fácil de ensamblar y montar, no se requiere protecciones ▪ Marcado en relieve indeleble ▪ Radio de curvatura reducido para instalaciones difíciles ▪ Cubierta con retardante a la llama y electricidad antiestática

#### MAIN APPLICATIONS

High pressure lines with installations constraints in heavy duty environmental conditions, specific installations with severe abrasion conditions, underground and open pit mining  
**CONTINUOUS SERVICE TEMPERATURE RANGE**  
 -40°C / +100°C -40°F / +212°F  
**MAX OPERATING TEMPERATURE**  
 (Intermittent service) 257°F 125°C  
**RECOMMENDED FLUIDS**  
 Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F - 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two wire braids of high tensile steel wire

**COVER:** Composite bi-layer structure with outstanding abrasion & ozone resistance.

**APPLICABLE SPECS.:** EN 853 tipo 2SN - ISO 1436-1 tipo 2SN - SAE J517 tipo 100R2AT

Exceed performances of:

- BCS 174 (British Coal Specification 1992)
- ISO 6805 type 4 (Rubber hoses and hose assemblies for underground mining - Wire reinforced hydraulic types for coal mining)

**TYPE APPROVALS:** MSHA (FRAS, LOBA, Polish Safety B, MA requested)

#### PRINCIPALES APLICACIONES

Líneas de alta presión con instalaciones constreñidas en condiciones medioambientales muy duras, instalaciones con severas condiciones de abrasión, minas de subsuelo y abiertas  
**TEMPERATURA CONTINUA DE SERVICIO**  
 -40°C / +100°C -40°F / +212°F  
**MÁXIMA TEMPERATURA DE OPERACIÓN**  
 (Servicio intermitente) 257°F 125°C  
**FLUIDOS RECOMENDADOS**  
 Aceite mineral, aceite vegetal y aceite con base en éster sintético (hasta 212°F - 100°C), glicoles y poliglicoles, aceite en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos trenzas de acero de alta resistencia

**CUBIERTA:** Estructura compuesta con bi-capa con excelente resistencia a la abrasión y al ozono.

**ESPECIFICACIONES APLICABLES:** EN 853 tipo 2SN - ISO 1436-1 tipo 2SN - SAE J517 tipo 100R2AT

Excede las características de:

- BCS 174 (especificación 1992 del carbón británico)
- ISO 6805 tipo 4 (Mangueras de caucho y ensamblajes para minas - malla de acero reforzada tipo hidráulico para minas de carbón)

**APROBACIONES:** MSHA (FRAS, LOBA, seguridad polaca C, MA requerido)

# SHIELDMASTER®/5000 MINE

OUTSTANDING ABRASION RESISTANCE



STANDARD PART. REF.	HOSE SIZE															
					O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING					
	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft			
H01104006*	6	-4	1/4"	13.6	0.54	345	5000	1380	20010	50	1.97	260	17	OPB	-	MF+M00120-04
H01104008*	8	-5	5/16"	15.1	0.59	345	5000	1380	20010	55	2.17	330	22	OPB	-	MF+M00120-05
H01104010*	10	-6	3/8"	17.2	0.68	345	5000	1380	20010	65	2.56	405	27	OPB	-	MF+M00120-06
H01104012*	12	-8	1/2"	22.2	0.87	345	5000	1380	20010	120	4.72	655	45	OPS	OPNS	MF+M00910-08
H01104016*	16	-10	5/8"	27.2	1.07	345	5000	1380	20010	200	7.87	1015	68	OPS	OPNS	MF+M00910-10
H01104019*	19	-12	3/4"	31.2	1.23	345	5000	1380	20010	230	9.06	1420	95	OPS	OPNS	IL+M01300-12
H01104025*	25	-16	1"	38.1	1.50	345	5000	1380	20010	267	10.51	1980	133	OPS	OPNS	IL+M01300-16
H01104031*	31	-20	1.1/4"	45.2	1.78	345	5000	1380	20010	350	13.78	2500	168	OPS	OPNS	IL+M01400-20

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging. Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**MSHA approved cover for mining applications** ▪ Outstanding abrasion and ozone resistance ▪ Compact overall dimensions ▪ Easy assembly and mounting operations (no protection sleeves required) ▪ Indelible branding with embossed technology

Cubierta especial, con aprobación MSHA para aplicaciones de minería ▪ Gran resistencia a la abrasión y al ozono ▪ Dimensiones generales estándar ▪ Fácil ensamble y montaje (no se requieren mangas de protección) ▪ Marcado indeleble realizado

### MAIN APPLICATIONS

Heavy duty power lines with extreme abrasion conditions (e.g. bunched-up hoses, localised contacts with sharp edges and extraneous bodies/particles, wear due to sliding over the ground, alternative to spring guards)  
 CONTINUOUS SERVICE TEMPERATURE RANGE  
 -40°F / +212°F -40°C / +100°C  
 MAX OPERATING TEMPERATURE  
 (Intermittent service) 257°F 125°C  
 RECOMMENDED FLUIDS  
 Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Two high tensile steel braids (DN 6÷12)

Four high tensile steel spirals (DN 16÷31)

**COVER:** Composite bi-layer structure with outstanding abrasion resistance

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** GOST-R, MSHA (FRAS, LOBA, B), MA requested)

### PRINCIPALES APLICACIONES

Líneas de presión para trabajo pesado con extremas condiciones de abrasión (Ej. Mangueras rozando entre sí, contactos con bordes cortantes y partículas/cuerpos extraños, abrasión debida a deslizamiento sobre el suelo, evita el uso de protectores de cubierta en espiral tipo coil)  
 TEMPERATURA CONTINUA DE SERVICIO  
 -40°F / +212°F -40°C / +100°C  
 MÁXIMA TEMPERATURA DE OPERACIÓN  
 (Servicio intermitente) 257°F 125°C  
 FLUIDOS RECOMENDADOS  
 Aceite mineral, aceite vegetal, aceites con base en éster sintético (hasta 212°F 100°C), aceites basados en glicoles y poliglicoles, aceite en emulsión acuosa y agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** Dos refuerzos trenzados de acero de alta resistencia (DN 6÷12)

Cuatro refuerzos en espiral de acero de alta resistencia (DN 16÷31)

**CUBIERTA:** Estructura de compuesto de doble capa con gran resistencia a la abrasión

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** GOST-R, MSHA (FRAS, LOBA, seguridad polaca C, MA requerido)





# SHIELDMASTER®/6000 MINE

## OUTSTANDING ABRASION RESISTANCE

STANDARD PART. REF.	HOSE SIZE										
					O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10086031*	31	-20	1.1/4"	49.5	1.95	420	6090	1680	24360	260	10.24	3680	245	OPS	IL+M01300-20
H10086038*	38	-24	1.1/2"	57.8	2.28	420	6090	1680	24360	310	12.20	4765	318	OPS	IL+M01300-24
H10086051*	51	-32	2"	72.0	2.83	420	6090	1680	24360	600	23.62	6745	450	-	XL+M01800-32

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

### KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**MSHA approved composite cover for mining applications ▪ Outstanding abrasion and ozone resistance ▪ Easy assembling and mounting operations, no protection sleeves are required ▪ Indelible branding with embossed technology ▪ Reduced bend radius for difficult installations ▪ Flame retardant and electrical antistaticity cover properties**

Aprobación MSHA cubierta compuesta para aplicaciones mineras ▪ Excelente resistencia a la abrasión y al ozono ▪ Fácil de ensamblar y montar, no se requiere protecciones ▪ Marcado en relieve indeleble ▪ Radio de curvatura reducido para instalaciones difíciles ▪ Cubierta con retardante a la llama y electricidad antiestática

#### MAIN APPLICATIONS

Heavy duty power lines with extreme abrasion conditions (e.g. bunches of hoses, localised contacts with sharp edges, and extraneous bodies/particles, wear due to sliding over the ground, alternative to spring guards), underground and open pit mining

#### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°C / 100°C -40°F / 212°F

#### MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

#### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F - 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** 6 high tensile steel wire spirals

**COVER:** Composite bi-layer structure with outstanding abrasion and ozone resistance.

**APPLICABLE SPECS.:** ISO 3862-1 type R15 - SAE J517 type 100R15

Exceed performances of:

- BCS 174 (British Coal Specification 1992)
- ISO 6805 type 6 (Rubber hoses and hose assemblies for underground mining - Wire reinforced hydraulic types for coal mining)

**TYPE APPROVALS:** MSHA (FRAS, LOBA, MA requested)

#### PRINCIPALES APLICACIONES

líneas de muy alta presión con condiciones extremas de abrasión (ejemplo, los manojos de mangueras, contactos localizados con bordes afilados, y cuerpos/partículas extraña, uso debido a resbalar encima de la tierra, alternativa a las protecciones), minas subterráneas y abiertas

#### TEMPERATURA CONTINUA DE SERVICIO

-40°C / 100°C -40°F / 212°F

#### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

#### FLUIDOS RECOMENDADOS

Aceite mineral, aceites vegetales y aceites basados en éster sintético (hasta 212°F - 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 6 espirales de acero reforzado

**CUBIERTA:** Estructura compuesta con bi-capa con excelente resistencia a la abrasión y al ozono.

**ESPECIFICACIONES APLICABLES:** ISO 3862-1 tipo R15 - SAE J517 tipo 100R15

Excede las características de:

- BCS 174 (especificación 1992 del carbón británico)
- ISO 6805 tipo 4 (Mangueras de caucho y ensamblajes para minas - malla de acero reforzada tipo hidráulico para minas de carbón)

**APROBACIONES:** MSHA (FRAS, LOBA, seguridad polaca C, MA requerido)



# XTRAFLEX™ /4000

EXTREME FLEXIBILITY



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10065019*	19	-12	3/4"	30.4	1.20	280	4060	1120	16240	120	4.72	1135	76	OPS	MF+M00920-12
H10065025*	25	-16	1"	38.1	1.50	280	4060	1120	16240	150	5.91	1950	131	OPS	MF+M00920-16
H10065031*	31	-20	1.1/4"	47.0	1.85	280	4060	1120	16240	210	8.27	2605	175	OPS	MF+M00920-20

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Excellent flexibility ▪ Low bending force ▪ Reduced bend radius ▪ Easy mounting in severe installations ▪ Isobaric pressure rating ▪ **bio** biological and mineral oils compatibility

Excelente flexibilidad ▪ Reducido radio de curvatura ▪ Fácil montaje en instalaciones difíciles ▪ Gama de presión isobárica ▪ **bio** compatible con aceites minerales y biológicos

### MAIN APPLICATIONS

High pressure power lines with short assemblies in severe installations

RECOMMENDED LENGTH BETWEEN FIXTURES

DN 19 ≤ 80 cm; DN 25 ≤ 120 cm; DN 31 ≤ 160 cm

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals

**COVER:** Synthetic rubber with high ozone, weather and heat resistance.

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** MSHA

### PRINCIPALES APLICACIONES

Líneas de alta presión con ensambles cortos en instalaciones difíciles

LONGITUD RECOMENDADA ENTRE PUNTOS FIJOS

DN 19 ≤ 80 cm; DN 25 ≤ 120 cm; DN 31 ≤ 160 cm

TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F -40°C / +121°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

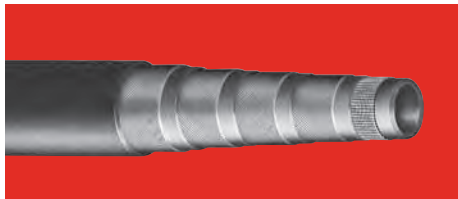
**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 refuerzos de acero en espiral de alta resistencia

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor.

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** MSHA



# XTRAFLEX™/5000

EXTREME FLEXIBILITY

STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft			
H10016019*	19	-12	3/4"	31.2	1.23	350	5070	1400	20300	120	4.72	1400	94	OPS	OPNS	IL+M01300-12
H10016025*	25	-16	1"	38.1	1.50	350	5070	1400	20300	150	5.91	1950	131	OPS	OPNS	IL+M01300-16
H10016031*	31	-20	1.1/4"	45.2	1.78	350	5070	1400	20300	350	13.78	2470	165	OPS	OPNS	IL+M01300-20

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



**Excellent flexibility ▪ Low bending force ▪ Reduced bend radius ▪ Easy mounting in severe installations ▪ Isobaric pressure rating ▪ biological and mineral oils compatibility**

**Excelente flexibilidad ▪ Reducido radio de curvatura ▪ Fácil montaje en instalaciones difíciles ▪ Gama de presión isobárica ▪ compatible con aceites minerales y biológicos**

### MAIN APPLICATIONS

High pressure power lines with short assemblies in severe installations

RECOMMENDED LENGTH BETWEEN FIXTURES

DN 19≤80 cm; DN 25≤120 cm; DN 31≤160 cm

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals

**COVER:** Synthetic rubber with high ozone, weather and heat resistance.

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** MSHA

### PRINCIPALES APLICACIONES

Líneas de alta presión con ensambles cortos en instalaciones difíciles

LONGITUD RECOMENDADA ENTRE PUNTOS FIJOS

DN 19≤80 cm; DN 25≤120 cm; DN 31≤160 cm

TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F -40°C / +121°C

MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 refuerzos de acero en espiral de alta resistencia

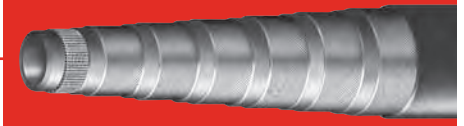
**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor.

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** MSHA

# XTRAFLEX™ /6000

EXTREME FLEXIBILITY



STANDARD PART. REF.	HOSE SIZE								
			O.D.	MAX WORK PRESSURE	BURST PRESSURE	MIN. BEND RADIUS	WEIGHT	MF3000 FITTING	MF2000 FITTING

	DN	dash	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lbs/100ft		
H10078019*	19	-12	3/4"	32.0	1.26	420	6090	1680	24360	170	6.69	1520	102	OPS	MF+M01300-12
H10078025*	25	-16	1"	38.1	1.50	420	6090	1680	24360	220	8.66	2070	139	OPS	MF+M01300-16
H10078031*	31	-20	1.1/4"	49.5	1.95	420	6090	1680	24360	267	10.51	3725	250	OPS	MF+M01300-20

Standard packaging: reel / Embalaje estándar: bobina

\* The complete code for each item is composed by 13 digits, the last 4 digits indicate the type of packaging.

Please see the full list of alternative options on Manuli web site.

\* El código completo de cada posición está compuesto por 13 dígitos, los últimos 4 dígitos indican el tipo de embalaje. Por favor vea la lista completa o una opción alternativa en la página web de Manuli

## KEY PERFORMANCE CARACTERISTICAS ESPECIALES



Excellent flexibility ▪ Low bending force ▪ Reduced bend radius ▪ Easy mounting in severe installations ▪ Isobaric pressure rating ▪ **bio** biological and mineral oils compatibility

Excelente flexibilidad ▪ Reducido radio de curvatura ▪ Fácil montaje en instalaciones difíciles ▪ Gama de presión isobárica ▪ **bio** compatible con aceites minerales y biológicos

### MAIN APPLICATIONS

Heavy duty power lines with short assemblies in severe installations

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F

-40°C / +121°C

### MAX OPERATING TEMPERATURE

(Intermittent service) 257°F 125°C

### RECOMMENDED FLUIDS

Mineral oils, vegetable oils and synthetic ester based oils (up to 212°F 100°C), glycols and polyglycols, mineral oils in aqueous emulsion, water

**TUBE:** Oil resistant synthetic rubber

**REINFORCEMENT:** Four high tensile steel spirals DN 19÷25. Six high tensile steel spirals DN 31

**COVER:** Synthetic rubber with high ozone, weather and heat resistance

**APPLICABLE SPECS.:** MANULI® Design

**TYPE APPROVALS:** MSHA

### PRINCIPALES APLICACIONES

Líneas de alta presión y trabajo pesado con ensambles cortos en instalaciones difíciles

### TEMPERATURA CONTINUA DE SERVICIO

-40°F / +250°F

-40°C / +121°C

### MÁXIMA TEMPERATURA DE OPERACIÓN

(Servicio intermitente) 257°F 125°C

### FLUIDOS RECOMENDADOS

Aceite mineral, aceite vegetal y aceite basado en éster sintético (hasta 212°F 100°C), glicoles y poliglicoles, aceite mineral en emulsión acuosa, agua

**TUBO:** Caucho sintético, resistente al aceite

**REFUERZO:** 4 refuerzos de acero en espiral de alta resistencia DN 19÷25. 6 refuerzos de acero en espiral de alta resistencia DN 31

**CUBIERTA:** Caucho sintético con alta resistencia al ozono, intemperie y calor

**ESPECIFICACIONES APLICABLES:** Diseño MANULI®

**APROBACIONES:** MSHA

# CRIMPED FITTINGS





## SUMMARY

A wide range of SAE standards, a global offer of metric standards, a simplified ferrules range and concept, a superior design of end configurations (solid elbows, thrust wire and slip-on nuts) make MF3000 program the ideal solution for hydraulics.

Un amplio rango de conexiones estándar SAE, conexiones métricas, un rango mínimo de férulas, un superior diseño de configuraciones (Codos de una sola pieza, tuercas deslizables, tuercas giratoria) y la solución ideal en conexiones hidráulicas el programa MF3000.

Description Descripción	Reference Referencia	Page Página
JIC MALE 37° CONE - SAE J516/J514 JIC MACHO RECTO ASIENTO A 37° - SAE J516/J514	OPB12510	79
JIC FEMALE 37° CONE SEAT DOUBLE EXAGON - SAE J516/J514 JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO - SAE J516/J514	OPB22711	80
JIC FEMALE 37° CONE SEAT DOUBLE EXAGON COMPACT SAE J516/J514 JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO COMPACTO - SAE J516/J514	OPB22711K / OPB22711KR	80/122
JIC FEMALE 37° CONE SEAT - SAE J516/J514 JIC HEMBRA RECTA ASIENTO A 37° - SAE J516/J514	OPB22712	81
90° JIC FEMALE 37° CONE SEAT - SAE J516/J514 JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/J514	OPB22592, OPB22593 / OPB22591KR	82/123
45° JIC FEMALE 37° CONE SEAT - SAE J516/J514 JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/J514	OPB22542, OPB22543 / OPB22541KR	83/122
LONG DROP 90° JIC FEMALE 37° CONE SEAT - SAE J516/J514 JIC HEMBRA CODO LARGO 90° ASIENTO A 37° - SAE J516/J514	OPB24792, OPB24793 / OPB24791KR	84/123
90° JIC FEMALE COMPACT ELBOW 37° CONE SEAT - SAE J516/J514 JIC HEMBRA CODO CORTO 90° ASIENTO A 37° - SAE J516/J514	OPB22582F	84
ORFS RIGID MALE - SAE J1453 ORFS MACHO ASIENTO PLANO - SAE J1453	OPB12410	85
ORFS FEMALE - SAE J516/J1453 ORFS HEMBRA RECTA ASIENTO PLANO - SAE J516/J1453	OPB22411	85
90° ORFS FEMALE - SAE J516/J1453 ORFS HEMBRA CODO 90° ASIENTO PLANO - SAE J516/J1453	OPB22491 / OPB22493	86
45° ORFS FEMALE - SAE J516/J1453 ORFS HEMBRA CODO 45° ASIENTO PLANO - SAE J516/J1453	OPB22441 / OPB22443	87
LONG DROP 90° ORFS FEMALE - SAE J516/J1453 ORFS HEMBRA CODO LARGO 90° ASIENTO PLANO - SAE J516/J1453	OPB24493	88
SAE MALE O-RING BOSS TYPE - SAE J516/J514 SAE MACHO TIPO O-RING BOSS - SAE J616/J514	OPB13010	88
SAE SWIVEL MALE O-RING BOSS TYPE - SAE J516/J514 SAE MACHO GIRATORIO TIPO O-RING BOSS - SAE J516/J514	OPB14310	89
90° SAE SWIVEL MALE O-RING BOSS TYPE - SAE J516/J514 SAE MACHO GIRATORIO CODO 90°, TIPO O-RING BOSS - SAE J516/J514	OPB14390	89
SAE FEMALE 45° CONE SEAT - SAE J516/J512 SAE 45 HEMBRA RECTA ASIENTO A 45° - SAE J516/J512	OPB22612	90



Description Descripción	Reference Referencia	Page Página
90° SAE FEMALE SWEPT ELBOW 45° CONE SEAT - SAE J516/J512 HEMBRA SAE CODO 45° ASIENTO A 45° - SAE J516/J512	OPB22692	90
NPTF MALE 30° CONE SEAT - SAE J516 NPTF MACHO CUERDA CONICA, ASIENTO A 30° - SAE J516	OPB12810	91
NPTF SWIVEL MALE 30° CONE SEAT - SAE J516 NPTF MACHO GIRATORIO CUERDA CONICA, ASIENTO A 30° - SAE J516	OPB14110	92
NPSM FEMALE 30° CONE SEAT - SAE J514 NPSM HEMBRA RECTA ASIENTO A 30° CUERDA RECTA - SAE J514	OPB22812	92
FLANGE STRAIGHT HEAD CODE 61 - SAE J516/J518 BRIDA RECTA CODIGO 61 - SAE J516/J518	OPB23311	93
FLANGE HEAD 22.5° CODE 61 - SAE J516/J518 BRIDA CODO 22.5° CODIGO 61 - SAE J516/J518	OPB23321	93
FLANGE HEAD 30° CODE 61 - SAE J516/J518 BRIDA CODO 30° CODIGO 61 - SAE J516/J518	OPB23331	94
FLANGE HEAD 45° CODE 61 - SAE J516/J518 BRIDA CODO 45° CODIGO 61 - SAE J516/J518	OPB23341	94
FLANGE HEAD 60° CODE 61 - SAE J516/J518 BRIDA CODO 60° CODIGO 61 - SAE J516/J518	OPB23361	95
FLANGE HEAD 67.5° CODE 61 - SAE J516/J518 BRIDA CODO 67.5° CODIGO 61 - SAE J516/J518	OPB23371	95
FLANGE HEAD 90° CODE 61 - SAE J516/J518 BRIDA CODO 90° CODIGO 61 - SAE J516/J518	OPB23391	95
BSP MALE TAPERED BSP MACHO CUERDA CONICA	OPB10710	96
BSP MALE PARALLEL 60° CONE SEAT - BS5200 BSP MACHO CUERDA RECTA ASIENTO A 30° - BS5200	OPB10510	97
BSP FEMALE 60° CONE - BS5200 BSP HEMBRA RECTA ASIENTO A 60° - BS5200	OPB20512 / OPB20513	98
90° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200 BSP HEMBRA CODO 90° ASIENTO A 60° - BS5200	OPB20592 / OPB20593	99
45° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200 BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200	OPB20542 / OPB20543	100
BSP O-RING FEMALE 60° CONE - BS5200 BSP HEMBRA RECTA CON O-RING ASIENTO A 60° - BS5200	OPB20812 / OPB20813	101
90° BSP O-RING FEMALE 60° CONE - BS5200 BSP HEMBRA CODO 90° CON O-RING ASIENTO A 60° - BS5200	OPB20892 / OPB20893	101
45° BSP O-RING FEMALE 60° CONE - BS5200 BSP HEMBRA CODO 45° CON O-RING ASIENTO A 60° - BS5200	OPB20842 / OPB20843	102
90° BSP O-RING FEMALE COMPACT ELBOW 60° CONE - BS5200 BSP HEMBRA CODO CORTO 90° CON O-RING ASIENTO A 60° - BS5200	OPB20882F	102
BSP MALE FLAT SEAT BSP MACHO ASIENTO PLANO	OPB10610	103
BSP MALE FLAT SEAT BSP HEMBRA RECTA ASIENTO PLANO	OPB20612 / OPB20613	103

## SUMMARY

Description Descripción	Reference Referencia	Page Página
METRIC STANDPIPE STRAIGHT L.T. - DIN 2353 TUBO LISO MILIMETRICO RECTO SERIE LIGERA L.T. - DIN 2353	OPB22010	104
METRIC STANDPIPE STRAIGHT H.T. - DIN 2353 TUBO LISO MILIMETRICO RECTO SERIE PESADA H.T. - DIN 2353	OPB22110	105
90° METRIC STANDPIPE L.T. - DIN 2353 TUBO LISO MILIMETRICO CODO 90° SERIE LIGERA L.T. - DIN 2353	OPB22090	106
90° METRIC STANDPIPE H.T. - DIN 2353 TUBO LISO MILIMETRICO CODO 90° SERIE PESADA H.T. - DIN 2353	OPB22190	106
45° METRIC STANDPIPE L.T. - DIN 2353 TUBO LISO MILIMETRICO CODO 45° SERIE LIGERA L.T. - DIN 2353	OPB22040	107
45° METRIC STANDPIPE H.T. - DIN 2353 TUBO LISO MILIMETRICO CODO 45° SERIE PESADA H.T. - DIN 2353	OPB22140	107
METRIC FEMALE 60° CONE SEAT - DIN 20078/3863 HEMBRA RECTA MILIMETRICA CONO 60° - DIN 20078/3863	OPB21013	108
90° METRIC FEMALE SWEPT ELBOW 60° CONE - DIN 20078/3863 HEMBRA CODO 90° MILIMETRICA CONO 60° - DIN 20078/3863	OPB21093	108
METRIC FEMALE MULTISEAL - DIN 20078/3868 HEMBRA RECTA MILIMETRICA MULTISELLO - DIN 20078/3863	OPB21312 / OPB21313	109
90° METRIC FEMALE SWEPT ELBOW MULTISEAL - DIN 20078/3868 HEMBRA CODO 90° MILIMETRICA MULTISELLO - DIN 20078/386	OPB21392 / OPB21393	110
45° METRIC FEMALE SWEPT ELBOW MULTISEAL - DIN 20078/3868 HEMBRA CODO 45° MILIMETRICA MULTISELLO - DIN 20078/3868	OPB21343	110
METRIC MALE 24° CONE SEAT L.T. - DIN 20066/3861 MACHO MILIMETRICO CONO 24° SERIE LIGERA L.T. - DIN 20066/3861	OPB11110	111
O-RING METRIC FEMALE 24° CONE L.T. - DIN 20066/3865 HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T. - DIN 20066/3865	OPB21512 / OPB21513	112
90° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE L.T. - DIN 20066/3865 HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T. - DIN 20066/3865	OPB21592 / OPB21593	113
45° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE L.T. - DIN 20066/3865 HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T. - DIN 20066/3865	OPB21542 / OPB21543	114
METRIC MALE 24° CONE SEAT H.T. - DIN 20066/3861 MACHO MILIMETRICO CONO 24° SERIE PESADA H.T. - DIN 20066/3861	OPB11210	115
O-RING METRIC FEMALE 24° CONE H.T. - DIN 20066/3865 HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T. - DIN 20066/3865	OPB21612 / OPB21613	116
90° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE H.T. - DIN 20066/3865 HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T. - DIN 20066/3865	OPB21692 / OPB21693	117
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FLANGE HEAD 67.5° CODE 61 - SAE J516/J518 BRIDA CODO 67.5° CODIGO 61 - SAE J516/J518	OPNS23371	140
FLANGE HEAD 90° CODE 61 - SAE J516/J518 BRIDA CODO 90° CODIGO 61 - SAE J516/J518	OPNS23391	140
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90° SAE FLANGE CODE 62 - SAE J516/J518 BRIDA CODO 90° CODIGO 62 - SAE J516/J518	OPNS23691	141
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BSP FEMALE 60° CONE - BS5200 BSP HEMBRA RECTA ASIENTO A 60° - BS5200	OPNS20512 / OPNS20513	145
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JIS BSP FEMALE 60° CONE (NISSAN) JIS B 8363 JIS BSP HEMBRA RECTA ASIENTO A 30° (NISSAN) JIS B 8363	OPNS20711 / OPNS20712	162
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45° SUPERCAT FLANGE BRIDA CODO 45° SUPERCAT	OPNS23941	164

## OPS TYPE TIPO OPS

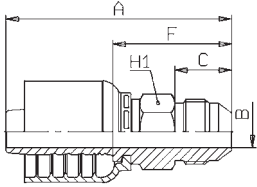
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90° JIC FEMALE 37° CONE SEAT - SAE J516/J514 JIC HEMBRA CODO 90° ASIEN TO A 37° - SAE J516/J514	OPS22792, OPS22793 / OPS22591KR	170/188
90° LONG DROP JIC FEMALE 37° CONE SEAT - SAE J516/J514 JIC HEMBRA CODO LARGO 90° ASIEN TO A 37° - SAE J516/J514	OPS24792 / OPS24791KR	170/189
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FLANGE HEAD 60° CODE 61 - SAE J516/J518 BRIDA CODO 60° CODIGO 61 - SAE J516/J518	OPS23361	177
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FLANGE HEAD 30° CODE 62 - SAE J516/J518 BRIDA CODO 30° CODIGO 62 - SAE J516/J518	OPS23631	180
FLANGE HEAD 45° CODE 62 - SAE J516/J518 BRIDA CODO 45° CODIGO 62 - SAE J516/J518	OPS23641	180
FLANGE HEAD 60° CODE 62 - SAE J516/J518 BRIDA CODO 60° CODIGO 62 - SAE J516/J518	OPS23661	181
FLANGE HEAD 67.5° CODE 62 - SAE J516/J518 BRIDA CODO 67.5° CODIGO 62 - SAE J516/J518	OPS23671	181
FLANGE HEAD 90° CODE 62 - SAE J516/J518 BRIDA CODO 90° CODIGO 62 - SAE J516/J518	OPS23691	182
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BSP MALE PARALLEL 60° CONE SEAT - BS5200 BSP MACHO CUERDA RECTA ASIENTO A 30° - BS5200	OPS10510	183
BSP FEMALE 60° CONE - BS5200 BSP HEMBRA RECTA ASIENTO A 60° - BS5200	OPS20711 / OPS20712	183
45° BSP FEMALE 60° CONE - BS5200 BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200	OPS20742 / OPS20743	184
90° BSP FEMALE 60° CONE - BS5200 BSP HEMBRA CODO 90° ASIENTO A 60° - BS5200	OPS20792 / OPS20793	184
JIS BSP FEMALE 60° CONE SEAT JIS B 8363 JIS BSP HEMBRA RECTA ASIENTO A 30° (NISSAN) JIS B 8363	OPS23811	185
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## JIC STANDARD CONNECTIONS



### OPB12510

JIC MALE 37° CONE - SAE J516/J514  
 JIC MACHO RECTO ASIENTO A 37° - SAE J516/J514

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPB12510-04-04	6	1/4"	- 04	7/16" - 20	0.16	2.19	0.55	1.10	0.47
OPB12510-04-05	6	1/4"	- 04	1/2" - 20	0.22	2.22	0.55	1.14	0.55
OPB12510-04-06	6	1/4"	- 04	9/16" - 18	0.28	2.22	0.55	1.14	0.67
OPB12510-05-05	8	5/16"	- 05	1/2" - 20	0.22	2.24	0.55	1.14	0.55
OPB12510-05-06	8	5/16"	- 05	9/16" - 18	0.28	2.24	0.55	1.14	0.67
OPB12510-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.32	0.55	1.17	0.67
OPB12510-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.50	0.65	1.34	0.75
OPB12510-06-10	10	3/8"	- 06	7/8" - 14	0.49	2.68	0.77	1.52	0.94
OPB12510-08-06	12	1/2"	- 08	9/16" - 18	0.28	2.48	0.55	1.26	0.75
OPB12510-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.58	0.65	1.35	0.75
OPB12510-08-10	12	1/2"	- 08	7/8" - 14	0.49	2.76	0.77	1.53	0.94
OPB12510-08-12	12	1/2"	- 08	1.1/16" - 12	0.59	2.91	0.87	1.69	1.06
OPB12510-10-10	16	5/8"	- 10	7/8" - 14	0.49	2.89	0.77	1.54	0.94
OPB12510-10-12	16	5/8"	- 10	1.1/16" - 12	0.59	3.03	0.87	1.68	1.06
OPB12510-12-10	19	3/4"	- 12	7/8" - 14	0.49	3.07	0.77	1.63	1.06
OPB12510-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	3.17	0.87	1.73	1.06
OPB12510-12-14	19	3/4"	- 12	1.3/16" - 12	0.63	3.19	0.89	1.75	1.26
OPB12510-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	3.29	0.91	1.85	1.34
OPB12510-16-12	25	1"	- 16	1.1/16" - 12	0.59	3.66	0.87	1.76	1.26
OPB12510-16-16	25	1"	- 16	1.5/16" - 12	0.78	3.78	0.91	1.88	1.34
OPB12510-16-20	25	1"	- 16	1.5/8" - 12	1.02	3.98	0.96	2.08	1.65

# OPB TYPE



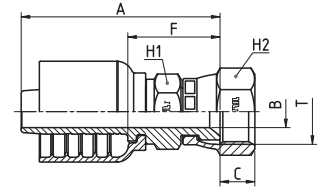
## JIC STANDARD CONNECTIONS

### OPB22711

JIC FEMALE 37° CONE SEAT DOUBLE EXAGON

SAE J516/J514 (CRIMPED-BACK NUT)

JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO SAE J516/J514  
(CRIMPADO DETRAS DE LA TUERCA)

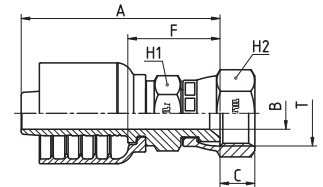


### OPB22711K

JIC FEMALE 37° CONE SEAT DOUBLE EXAGON COMPACT

SAE J516/J514 (CRIMPED-BACK NUT)

JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO COMPACTO  
SAE J516/J514 (CRIMPADO DETRAS DE LA TUERCA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPB22711-03-04K	5	3/16"	- 03	7/16" - 20	0.16	1.63	0.35	0.79	0.47	0.59
OPB22711-04-04K	6	1/4"	- 04	7/16" - 20	0.16	1.89	0.35	0.81	0.47	0.59
OPB22711-04-06K	6	1/4"	- 04	9/16" - 18	0.28	1.93	0.37	0.85	0.55	0.67
OPB22711-06-06K	10	3/8"	- 06	9/16" - 18	0.28	2.03	0.37	0.87	0.67	0.67
OPB22711-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.20	0.42	0.85	0.75	0.87
OPB22711-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.42	1.06	0.75	0.87
OPB22711-08-10K	12	1/2"	- 08	7/8" - 14	0.37	2.39	0.49	1.17	0.87	0.98
OPB22711-10-10K	16	5/8"	- 10	7/8" - 14	0.37	2.51	0.49	1.16	0.87	0.98
OPB22711-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	2.62	0.56	1.19	1.06	1.25

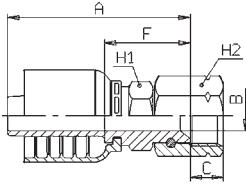


## JIC STANDARD CONNECTIONS

### OPB22712

JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)

JIC HEMBRA RECTA ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



PART. REF.	HOSE BORE	THREAD	DIMENSIONS inch							
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		DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
<b>NEW</b>	OPB22712-04-04	6	1/4"	- 04	7/16" - 20	0.16	1.91	0.32	0.83	0.47	0.67
	OPB22712-04-05	6	1/4"	- 04	1/2" - 20	0.16	1.92	0.36	0.85	0.47	0.67
	OPB22712-05-05	8	5/16"	- 05	1/2" - 20	0.22	1.94	0.36	0.85	0.55	0.67
	OPB22712-05-06	8	5/16"	- 05	9/16" - 18	0.28	2.03	0.36	0.95	0.55	0.75
	OPB22712-05-08	8	5/16"	- 05	3/4" - 16	0.37	2.13	0.42	1.02	0.75	0.87
	OPB22712-06-04	10	3/8"	- 06	7/16" - 20	0.16	2.13	0.32	0.97	0.67	0.67
	OPB22712-06-05	10	3/8"	- 06	1/2" - 20	0.22	2.13	0.36	0.98	0.67	0.67
<b>NEW</b>	OPB22712-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.13	0.36	0.97	0.67	0.75
	OPB22712-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.20	0.40	1.07	0.75	0.87
	OPB22712-06-10	10	3/8"	- 06	7/8" - 14	0.49	2.24	0.48	1.10	0.87	1.06
	OPB22712-08-06	12	1/2"	- 08	9/16" - 18	0.28	2.18	0.36	0.97	0.75	0.75
	OPB22712-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.40	1.08	0.75	0.87
	OPB22712-08-12	12	1/2"	- 08	1.1/16" - 12	0.49	2.41	0.56	1.19	1.06	1.26
	OPB22712-10-08	16	5/8"	- 10	3/4" - 16	0.37	2.44	0.40	1.11	0.87	0.87
	OPB22712-10-12	16	5/8"	- 10	1.1/16" - 12	0.59	2.51	0.56	1.16	1.06	1.26
	OPB22712-12-08	19	3/4"	- 12	3/4" - 16	0.37	2.61	0.40	1.19	1.06	0.87
	OPB22712-12-10	19	3/4"	- 12	7/8" - 14	0.49	2.62	0.48	1.19	1.06	1.06
	OPB22712-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	2.68	0.56	1.24	1.06	1.26
	OPB22712-12-14	19	3/4"	- 12	1.3/16" - 12	0.59	2.74	0.58	1.31	1.18	1.42
	OPB22712-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	2.72	0.60	1.28	1.26	1.50
	OPB22712-16-12	25	1"	- 16	1.1/16" - 12	0.49	3.23	0.56	1.33	1.26	1.26
	OPB22712-16-16	25	1"	- 16	1.5/16" - 12	0.78	3.25	0.60	1.35	1.26	1.50
	OPB22712-16-20	25	1"	- 16	1.5/8" - 12	1.02	3.58	0.64	1.69	1.61	1.97

# OPB TYPE



## JIC STANDARD CONNECTIONS

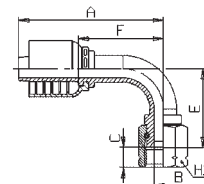
### OPB22592

90° JIC FEMALE 37° CONE SEAT - SAE J516/J514

(THRUST-WIRE NUT)

JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/J514

(TUERCA GIRATORIA SOBRE LA ESPIGA)



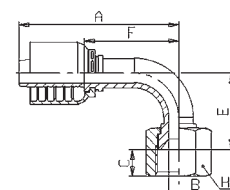
### OPB22593

90° JIC FEMALE 37° CONE SEAT - SAE J516/J514

(SLIP-ON NUT)

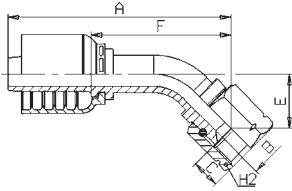
JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/J514

(TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB22593-03-04	5	3/16"	- 03	7/16" - 20	0.12	1.86	0.35	0.93	1.02	0.59
OPB22592-04-04	6	1/4"	- 04	7/16" - 20	0.16	2.20	0.32	1.06	1.12	0.67
OPB22592-04-05	6	1/4"	- 04	1/2" - 20	0.16	2.20	0.36	1.08	1.12	0.67
OPB22593-04-06	6	1/4"	- 04	9/16" - 18	0.16	2.24	0.39	1.10	1.16	0.75
OPB22593-04-08	6	1/4"	- 04	3/4" - 16	0.28	2.24	0.43	1.20	1.15	0.87
OPB22592-05-05	8	5/16"	- 05	1/2" - 20	0.22	2.27	0.36	1.06	1.17	0.67
OPB22592-05-06	8	5/16"	- 05	9/16" - 18	0.28	2.32	0.36	1.12	1.22	0.75
OPB22592-06-05	10	3/8"	- 06	1/2" - 20	0.22	2.34	0.37	1.04	1.19	0.67
OPB22592-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.36	1.28	1.40	0.75
OPB22593-06-08	10	3/8"	- 06	3/4" - 16	0.28	2.59	0.42	1.16	1.44	0.87
OPB22593-06-10	10	3/8"	- 06	7/8" - 14	0.37	2.60	0.49	1.24	1.44	1.06
OPB22592-08-06	12	1/2"	- 08	9/16" - 18	0.28	2.68	0.36	1.30	1.46	0.75
OPB22592-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.96	0.40	1.61	1.73	0.87
OPB22593-08-10	12	1/2"	- 08	7/8" - 14	0.37	3.00	0.49	1.42	1.77	1.06
OPB22593-08-12	12	1/2"	- 08	1.1/16" - 12	0.49	2.99	0.54	1.42	1.77	1.26
OPB22592-10-10	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.48	2.07	2.11	1.06
OPB22593-10-12	16	5/8"	- 10	1.1/16" - 12	0.49	3.38	0.54	1.97	2.03	1.26
OPB22592-12-10	19	3/4"	- 12	7/8" - 14	0.49	3.60	0.48	2.07	2.17	1.06
OPB22592-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	3.88	0.56	2.28	2.44	1.26
OPB22592-12-14	19	3/4"	- 12	1.3/16" - 12	0.59	3.88	0.58	2.28	2.44	1.42
OPB22592-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	3.88	0.60	2.26	2.44	1.50
OPB22592-16-16	25	1"	- 16	1.5/16" - 12	0.78	4.73	0.60	2.64	3.03	1.50
OPB22592-16-20	25	1"	- 16	1.5/8" - 12	1.02	4.94	0.64	2.93	3.04	1.97

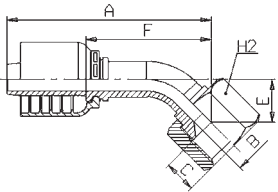
## JIC STANDARD CONNECTIONS



### OPB22542

45° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)

JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB22543

45° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(SLIP-ON NUT)

JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/J514  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE	THREAD	DIMENSIONS inch							
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	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB22542-04-04	6	1/4"	- 04	7/16" - 20	0.16	2.48	0.32	0.57	1.40	0.67
OPB22542-04-05	6	1/4"	- 04	1/2" - 20	0.16	2.49	0.37	0.57	1.41	0.67
OPB22543-04-06	6	1/4"	- 04	9/16" - 18	0.16	2.48	0.39	0.55	1.40	0.75
OPB22542-05-05	8	5/16"	- 05	1/2" - 20	0.22	2.54	0.37	0.57	1.43	0.67
OPB22542-05-06	8	5/16"	- 05	9/16" - 18	0.28	2.60	0.38	0.57	1.50	0.75
OPB22542-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.81	0.38	0.65	1.65	0.75
OPB22543-06-08	10	3/8"	- 06	3/4" - 16	0.28	2.77	0.43	0.55	1.61	0.87
OPB22543-06-10	10	3/8"	- 06	7/8" - 14	0.37	2.83	0.50	0.61	1.67	1.06
OPB22542-08-08	12	1/2"	- 08	3/4" - 16	0.37	3.27	0.42	0.79	2.05	0.87
OPB22543-08-10	12	1/2"	- 08	7/8" - 14	0.37	3.17	0.50	0.67	1.95	1.06
OPB22543-08-12	12	1/2"	- 08	1.1/16" - 12	0.49	3.19	0.56	0.67	1.97	1.26
OPB22542-10-10	16	5/8"	- 10	7/8" - 14	0.49	3.79	0.50	1.00	2.44	1.06
OPB22543-10-12	16	5/8"	- 10	1.1/16" - 12	0.49	3.71	0.56	0.94	2.36	1.26
OPB22542-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	4.19	0.56	1.08	2.76	1.26
OPB22542-12-14	19	3/4"	- 12	1.3/16" - 12	0.59	4.15	0.58	1.08	2.72	1.42
OPB22542-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	4.19	0.60	1.08	2.76	1.50
OPB22542-16-12	25	1"	- 16	1.1/16" - 12	0.59	4.75	0.56	1.08	2.85	1.26
OPB22542-16-16	25	1"	- 16	1.5/16" - 12	0.78	5.28	0.60	1.27	3.39	1.50
OPB22542-16-20	25	1"	- 16	1.5/8" - 12	1.02	5.44	0.64	1.42	3.54	1.97

# OPB TYPE

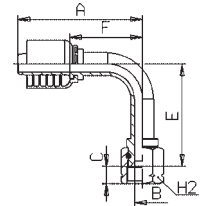


## JIC STANDARD CONNECTIONS

### OPB24792

**LONG DROP 90° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)**

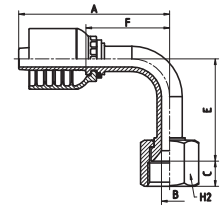
JIC HEMBRA CODO LARGO 90° ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB24793

**LONG DROP 90° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(SLIP-ON NUT)**

JIC HEMBRA CODO LARGO 90° ASIENTO A 37° - SAE J516/J514  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)



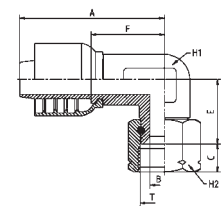
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
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	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB24792-04-04	6	1/4"	- 04	7/16" - 20	0.16	2.20	0.32	1.77	1.12	0.67
OPB24792-04-05	6	1/4"	- 04	1/2" - 20	0.16	2.20	0.37	1.77	1.12	0.67
OPB24793-04-06	6	1/4"	- 04	9/16" - 18	0.16	2.24	0.38	2.19	1.16	0.75
OPB24792-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.38	2.17	1.40	0.75
OPB24793-06-08	10	3/8"	- 06	3/4" - 16	0.28	2.59	0.43	2.43	1.44	0.87
OPB24792-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.88	0.43	2.43	1.65	0.87
OPB24793-08-10	12	1/2"	- 08	7/8" - 14	0.37	3.00	0.50	2.57	1.77	1.06
OPB24792-10-10	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.50	2.58	2.11	1.06
OPB24792-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	3.88	0.56	3.72	2.44	1.26
OPB24792-16-16	25	1"	- 16	1.5/16" - 12	0.78	5.01	0.60	4.33	3.11	1.50

### OPB22582F

**90° JIC FEMALE COMPACT ELBOW 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)**

JIC HEMBRA CODO CORTO 90° ASIENTO A 37° - SAE J516/514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



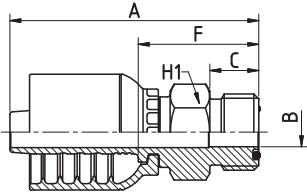
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
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	DN	inch	Size		B	A	C	E	F	H <sub>1</sub>	H <sub>2</sub>
OPB22582-04-04F	6	1/4"	- 04	7/16" - 20	0.16	1.89	0.32	0.81	0.79	0.55	0.67
OPB22582-04-06F	6	1/4"	- 04	9/16" - 18	0.28	1.93	0.35	0.85	0.79	0.55	0.75
OPB22582-06-06F	10	3/8"	- 06	9/16" - 18	0.28	2.10	0.36	0.94	0.91	0.75	0.75
OPB22582-06-08F	10	3/8"	- 06	3/4" - 16	0.37	2.26	0.40	1.10	1.05	0.87	0.87
OPB22582-08-08F	12	1/2"	- 08	3/4" - 16	0.37	2.33	0.40	1.10	0.98	0.87	0.87
OPB22582-08-10F	12	1/2"	- 08	7/8" - 14	0.49	2.37	0.48	1.14	0.98	0.87	1.06
OPB22582-12-12F	19	3/4"	- 12	1.1/16" - 12	0.59	2.74	0.56	1.30	1.48	1.06	1.26
OPB22582-16-16F	25	1"	- 16	1.5/16" - 12	0.79	3.47	0.60	1.57	2.04	1.42	1.50

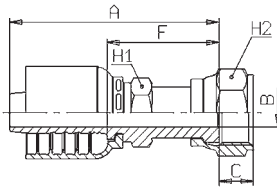
## ORFS STANDARD CONNECTIONS

### OPB12410

ORFS RIGID MALE - SAE J1453  
ORFS MACHO ASIEN TO PLANO - SAE J1453



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPB12410-04-04	6	1/4"	- 04	9/16" - 18	0.16	2.03	0.39	0.94	0.63
OPB12410-04-06	6	1/4"	- 04	11/16" - 16	0.26	2.13	0.44	1.05	0.75
OPB12410-05-06	8	5/16"	- 05	11/16" - 16	0.26	2.17	0.44	1.06	0.75
OPB12410-06-06	10	3/8"	- 06	11/16" - 16	0.26	2.23	0.44	1.07	0.75
OPB12410-06-08	10	3/8"	- 06	13/16" - 16	0.37	2.34	0.50	1.18	0.87
OPB12410-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.43	0.50	1.20	0.87
OPB12410-08-10	12	1/2"	- 08	1" - 14	0.49	2.60	0.61	1.38	1.06
OPB12410-10-10	16	5/8"	- 10	1" - 14	0.49	2.72	0.61	1.37	1.06
OPB12410-10-12	16	5/8"	- 10	1.3/16" - 12	0.59	2.83	0.67	1.48	1.26
OPB12410-12-12	19	3/4"	- 12	1.3/16" - 12	0.59	2.97	0.67	1.54	1.26
OPB12410-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	3.03	0.69	1.59	1.50
OPB12410-16-16	25	1"	- 16	1.7/16" - 12	0.78	3.54	0.69	1.65	1.50



### OPB22411

ORFS FEMALE - SAE J516/J1453 (CRIMPED-BACK NUT)  
ORFS HEMB RA RECTA ASIEN TO PLANO - SAE J516/J1453  
(CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPB22411-04-04	6	1/4"	- 04	9/16" - 18	0.16	1.24	0.31	1.08	0.51	0.75
OPB22411-04-06	6	1/4"	- 04	11/16" - 16	0.28	1.34	0.37	1.18	0.63	0.87
OPB22411-05-06	8	5/16"	- 05	11/16" - 16	0.28	1.40	0.37	1.20	0.63	0.87
OPB22411-06-06	10	3/8"	- 06	11/16" - 16	0.28	1.46	0.37	1.22	0.63	0.87
OPB22411-06-08	10	3/8"	- 06	13/16" - 16	0.37	1.64	0.43	1.40	0.75	0.94
OPB22411-08-06	12	1/2"	- 08	11/16" - 16	0.28	1.57	0.37	1.26	0.63	0.87
OPB22411-08-08	12	1/2"	- 08	13/16" - 16	0.37	1.73	0.43	1.41	0.75	0.94
OPB22411-08-10	12	1/2"	- 08	1" - 14	0.45	1.83	0.53	1.51	0.94	1.18
OPB22411-08-12	12	1/2"	- 08	1.3/16" - 12	0.55	1.96	0.57	1.65	1.10	1.42
OPB22411-10-10	16	5/8"	- 10	1" - 14	0.45	1.92	0.53	1.52	0.94	1.18
OPB22411-10-12	16	5/8"	- 10	1.3/16" - 12	0.55	2.05	0.57	1.65	1.10	1.42
OPB22411-12-10	19	3/4"	- 12	1" - 14	0.45	2.09	0.53	1.61	1.10	1.18
OPB22411-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	2.19	0.57	1.71	1.10	1.42
OPB22411-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	2.26	0.59	1.79	1.42	1.61
OPB22411-16-12	25	1"	- 16	1.3/16" - 12	0.55	3.70	0.57	1.80	1.42	1.42
OPB22411-16-16	25	1"	- 16	1.7/16" - 12	0.78	2.45	0.59	1.82	1.42	1.61
OPB22411-16-20	25	1"	- 16	1.1/16" - 12	1.02	2.57	0.58	1.94	1.61	1.97



# OPB TYPE

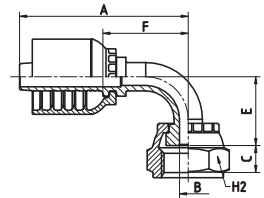


## ORFS STANDARD CONNECTIONS

### OPB22491

90° ORFS FEMALE - SAE J516/J1453  
(CRIMPED-BACK NUT)

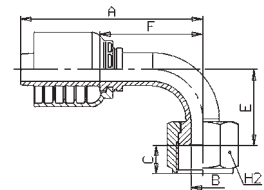
ORFS HEMBRA CODO 90° ASIENTO PLANO - SAE J516/J1453  
(CRIMPADO DETRAS DE LA TUERCA)



### OPB22493

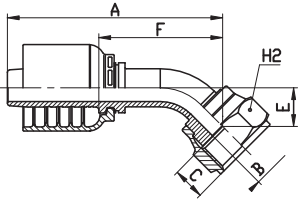
90° ORFS FEMALE - SAE J516/J1453  
(SLIP-ON NUT)

ORFS HEMBRA CODO 90° ASIENTO PLANO - SAE J516/J1453  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB22493-04-04	6	1/4"	- 04	9/16" - 18	0.16	2.17	0.32	0.87	1.08	0.67
OPB22493-04-06	6	1/4"	- 04	11/16" - 16	0.28	2.17	0.37	0.87	1.08	0.87
OPB22493-05-06	10	5/16"	- 05	11/16" - 16	0.28	2.36	0.37	0.91	1.26	0.87
OPB22493-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.34	0.37	0.94	1.18	0.87
OPB22493-06-08	10	3/8"	- 06	13/16" - 16	0.37	2.34	0.43	1.04	1.18	0.94
OPB22491-08-06	12	1/2"	- 08	11/16" - 16	0.28	2.44	0.37	0.96	1.22	0.87
OPB22493-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.82	0.43	1.18	1.59	0.94
OPB22493-08-10	12	1/2"	- 08	1" - 14	0.45	2.82	0.53	1.18	1.59	1.18
OPB22493-08-12	12	1/2"	- 08	1.3/16" - 12	0.55	2.79	0.57	1.48	1.56	1.42
OPB22493-10-10	16	5/8"	- 10	1" - 14	0.45	3.24	0.53	1.48	1.89	1.18
OPB22493-10-12	16	5/8"	- 10	1.3/16" - 12	0.55	3.24	0.57	1.61	1.89	1.42
OPB22491-12-10	19	3/4"	- 12	1" - 14	0.45	3.37	0.53	1.50	1.93	1.18
OPB22493-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	3.66	0.57	1.89	2.22	1.42
OPB22493-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	3.66	0.58	1.87	2.22	1.61
OPB22491-16-12	25	1"	- 16	1.3/16" - 12	0.55	4.17	0.57	1.89	2.27	1.42
OPB22493-16-16	25	1"	- 16	1.7/16" - 12	0.78	4.71	0.58	2.20	2.81	1.61
OPB22493-16-20	25	1"	- 16	1.11/16" - 12	1.02	4.67	0.58	2.20	2.78	1.97

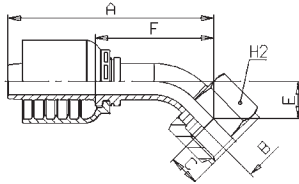
## ORFS STANDARD CONNECTIONS



### OPB22441

**45° ORFS FEMALE - SAE J516/J1453  
(CRIMPED-BACK NUT)**

ORFS HEMBRA CODO 45° ASIENTO PLANO - SAE J516/J1453  
(CRIMPADO DETRAS DE LA TUERCA)



### OPB22443

**45° ORFS FEMALE - SAE J516/J1453  
(SLIP-ON NUT)**

ORFS HEMBRA CODO 45° ASIENTO PLANO - SAE J516/J1453  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE		THREAD	DIMENSIONS inch						
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	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB22443-04-04	6	1/4"	- 04	9/16" - 18	0.16	2.30	0.32	0.41	1.21	0.67
OPB22443-04-06	6	1/4"	- 04	11/16" - 16	0.28	2.30	0.37	0.41	1.22	0.87
OPB22443-05-06	8	5/16"	- 05	11/16" - 16	0.28	2.44	0.37	0.42	1.34	0.87
OPB22443-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.44	0.37	0.43	1.28	0.87
OPB22443-06-08	10	3/8"	- 06	13/16" - 16	0.37	2.50	0.43	0.49	1.34	0.94
OPB22441-08-06	12	1/2"	- 08	11/16" - 16	0.28	2.52	0.37	0.43	1.30	0.87
OPB22443-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.88	0.43	0.51	1.65	0.94
OPB22443-08-10	12	1/2"	- 08	1" - 14	0.44	2.88	0.53	0.53	1.65	1.18
OPB22443-08-12	12	1/2"	- 08	1.3/16" - 12	0.55	3.06	0.57	0.72	1.84	1.42
OPB22443-10-10	16	5/8"	- 10	1" - 14	0.45	3.28	0.53	0.63	1.93	1.18
OPB22443-10-12	16	5/8"	- 10	1.3/16" - 12	0.55	3.38	0.57	0.72	2.03	1.42
OPB22441-12-10	19	3/4"	- 12	1" - 14	0.45	3.43	0.53	0.65	1.99	1.18
OPB22443-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	3.82	0.57	0.85	2.38	1.42
OPB22443-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	3.80	0.58	0.83	2.37	1.61
OPB22443-16-16	25	1"	- 16	1.7/16" - 12	0.78	4.72	0.58	0.93	2.81	1.61
OPB22443-16-20	25	1"	- 16	1.11/16" - 12	1.02	4.69	0.58	0.92	2.81	1.97

# OPB TYPE

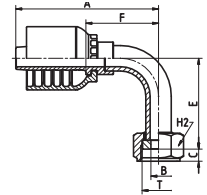


## ORFS STANDARD CONNECTIONS

### OPB24493\*

LONG DROP 90° ORFS FEMALE - SAE J516/J1453  
(SLIP-ON NUT)

ORFS HEMBRA CODO LARGO 90° ASIENTO PLANO - SAE J516/J1453  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)



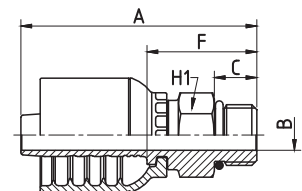
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB24493-04-04	6	1/4"	- 04	9/16" - 18	0.17	2.05	0.32	1.79	0.96	0.67
OPB24493-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.40	0.37	2.11	1.24	0.87
OPB24493-06-08	10	3/8"	- 06	13/16" - 16	0.26	2.40	0.43	2.09	1.24	0.94
OPB24493-08-08	12	1/2"	- 08	13/16" - 16	0.39	2.68	0.43	2.50	1.46	0.94
OPB24493-08-10	12	1/2"	- 08	1" - 14	0.38	2.67	0.53	2.50	1.44	1.18
OPB24493-10-10	16	5/8"	- 10	1" - 14	0.38	2.95	0.53	2.70	1.60	1.18
OPB24493-10-12	16	5/8"	- 10	1.3/16" - 12	0.50	2.95	0.57	2.85	1.60	1.42
OPB24493-12-12	19	3/4"	- 12	1.3/16" - 12	0.61	3.23	0.57	3.78	1.79	1.42
OPB24493-16-16	25	1"	- 16	1.7/16" - 12	0.81	4.20	0.58	4.47	2.30	1.61

\* NOT MADE FROM SOLID STOCK / CONSTRUIDOS CON SOLDADURA

## SAE OR BOSS STANDARD CONNECTIONS

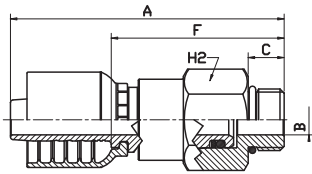
### OPB13010

SAE MALE O-RING BOSS TYPE - SAE J516/J514  
SAE MACHO TIPO O-RING BOSS - SAE J516/J514



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPB13010-04-04	6	1/4"	- 04	7/16" - 20	0.16	2.03	0.36	0.94	0.55
OPB13010-04-06	6	1/4"	- 04	9/16" - 18	0.28	2.05	0.39	0.96	0.67
OPB13010-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.17	0.39	1.01	0.67
OPB13010-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.28	0.44	1.13	0.87
OPB13010-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.36	0.44	1.14	0.87
OPB13010-08-10	12	1/2"	- 08	7/8" - 14	0.49	2.48	0.50	1.26	0.98
OPB13010-10-12	16	5/8"	- 10	1. 1/16" - 12	0.59	2.83	0.59	1.48	1.26
OPB13010-12-12	19	3/4"	- 12	1. 1/16" - 12	0.59	2.99	0.59	1.56	1.26
OPB13010-12-16	19	3/4"	- 12	1. 5/16" - 12	0.78	3.01	0.59	1.57	1.50
OPB13010-16-16	25	1"	- 16	1. 5/16" - 12	0.78	3.52	0.59	1.62	1.50

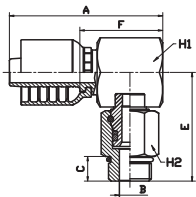
## SAE OR BOSS STANDARD CONNECTIONS



### OPB14310

SAE SWIVEL MALE O-RING BOSS TYPE - SAE J516/J514  
 SAE MACHO GIRATORIO TIPO O-RING BOSS - SAE J516/J514

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>2</sub>	
OPB14310-04-04	6	1/4"	- 04	7/16" - 20	0.16	2.70	0.36	1.61		0.67
OPB14310-04-06	6	1/4"	- 04	9/16" - 18	0.28	2.81	0.39	1.73		0.87
OPB14310-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.96	0.39	1.81		0.87
OPB14310-06-08	10	3/8"	- 06	3/4" - 16	0.28	3.04	0.44	1.88		0.87
OPB14310-08-08	12	1/2"	- 08	3/4" - 16	0.37	3.26	0.44	2.00		1.06
OPB14310-08-10	12	1/2"	- 08	7/8" - 14	0.37	2.89	0.51	1.66		1.06
OPB14310-08-12	12	1/2"	- 08	1.1/16" - 12	0.59	3.47	0.59	2.24		1.26
OPB14310-10-10	16	5/8"	- 10	7/8" - 14	0.37	2.98	0.51	1.63		1.06
OPB14310-12-12	19	3/4"	- 12	1.1/16" - 12	0.49	3.32	0.59	1.88		1.26



### OPB14390\*

90° SAE SWIVEL MALE O-RING BOSS TYPE

SAE J516/J514

SAE MACHO GIRATORIO CODO 90° TIPO O-RING BOSS

SAE J516/J514

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch						
	DN	inch	Size		B	A	C	E	F	H <sub>1</sub>	H <sub>2</sub>
OPB14390-06-06	10	3/8"	- 06	9/16" - 18	0.27	1.95	0.39	1.57	0.79	0.87	0.67
OPB14390-06-08	10	3/8"	- 06	3/4" - 16	0.27	1.95	0.44	1.80	0.79	0.87	0.87
OPB14390-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.09	0.44	1.93	0.87	1.06	0.87
OPB14390-08-10	12	1/2"	- 08	7/8" - 14	0.37	2.31	0.51	1.87	1.08	1.06	1.06
OPB14390-10-10	16	5/8"	- 10	7/8" - 14	0.37	2.45	0.51	1.87	1.10	1.06	1.06
OPB14390-12-12	19	3/4"	- 12	1.1/16" - 12	0.49	2.52	0.59	2.19	1.08	1.26	1.26

\* NOT MADE FROM SOLID STOCK / CONSTRUIDOS CON SOLDADURA

# OPB TYPE

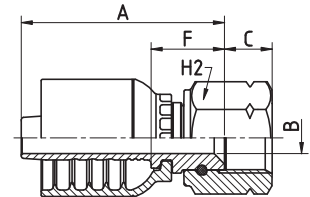


## SAE 45° STANDARD CONNECTIONS

### OPB22612

SAE FEMALE 45° CONE SEAT - SAE J516/J512  
(THRUST-WIRE NUT)

SAE HEMBRA RECTA ASIENTO A 45° - SAE J516/J512  
(TUERCA GIRATORIA SOBRE LA ESPIGA)

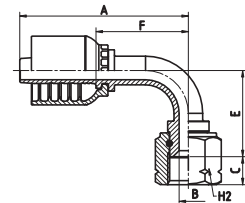


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPB22612-04-04	6	1/4"	- 04	7/16" - 20	0.16	1.69	0.32	0.61	0.67
OPB22612-06-06	10	3/8"	- 06	5/8" - 18	0.28	1.81	0.43	0.65	0.87
OPB22612-12-12	19	3/4"	- 12	1.1/16" - 14	0.59	2.33	0.57	0.89	1.26

### OPB22692

90° SAE FEMALE SWEPT ELBOW 45° CONE SEAT - SAE J516/J512  
(THRUST-WIRE NUT)

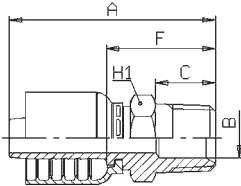
HEMBRA SAE CODO 90° ASIENTO A 45° - SAE J516/J512  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>1</sub>
OPB22692-04-04	6	1/4"	- 04	7/16" - 20	0.16	2.20	0.32	1.06	1.11	0.67
OPB22692-06-06	10	3/8"	- 06	5/8" - 18	0.28	2.56	0.43	1.30	1.40	0.87
OPB22692-12-12	19	3/4"	- 12	1.1/16" - 14	0.59	3.88	0.57	2.28	2.44	1.26



## NPTF STANDARD CONNECTIONS



### OPB12810

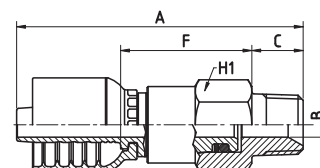
NPTF MALE 30° CONE SEAT - SAE J516  
NPTF MACHO CUERDA CONICA ASIEN TO A 30° - SAE J516

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPB12810-03-02	5	3/16"	- 03	1/8" - 27	0.16	1.77	0.39	0.93	0.47
OPB12810-03-04	5	3/16"	- 03	1/4" - 18	0.22	1.99	0.57	1.15	0.55
OPB12810-04-02	6	1/4"	- 04	1/8" - 27	0.16	2.03	0.39	0.95	0.47
OPB12810-04-04	6	1/4"	- 04	1/4" - 18	0.22	2.22	0.57	1.14	0.55
OPB12810-04-06	6	1/4"	- 04	3/8" - 18	0.37	2.32	0.57	1.24	0.75
OPB12810-04-08	6	1/4"	- 04	1/2" - 14	0.28	2.34	0.55	1.26	0.94
OPB12810-05-04	8	5/16"	- 05	1/4" - 18	0.22	2.28	0.57	1.18	0.55
OPB12810-05-06	8	5/16"	- 05	3/8" - 18	0.37	2.36	0.57	1.26	0.75
OPB12810-06-04	10	3/8"	- 06	1/4" - 18	0.22	2.34	0.57	1.19	0.55
OPB12810-06-06	10	3/8"	- 06	3/8" - 18	0.37	2.28	0.57	1.13	0.75
OPB12810-06-08	10	3/8"	- 06	1/2" - 14	0.49	2.52	0.76	1.36	0.94
OPB12810-08-06	12	1/2"	- 08	3/8" - 18	0.37	2.36	0.57	1.14	0.75
OPB12810-08-08	12	1/2"	- 08	1/2" - 14	0.49	2.60	0.76	1.37	0.94
OPB12810-08-12	12	1/2"	- 08	3/4" - 14	0.63	2.62	0.76	1.39	1.06
OPB12810-10-08	16	5/8"	- 10	1/2" - 14	0.49	2.87	0.76	1.52	0.94
OPB12810-10-12	16	5/8"	- 10	3/4" - 14	0.63	2.93	0.76	1.58	1.06
OPB12810-12-08	19	3/4"	- 12	1/2" - 14	0.49	2.87	0.76	1.44	1.06
OPB12810-12-12	19	3/4"	- 12	3/4" - 14	0.63	2.87	0.76	1.44	1.06
OPB12810-12-16	19	3/4"	- 12	1" - 11.5	0.78	3.25	0.95	1.81	1.42
OPB12810-16-12	25	1"	- 16	3/4" - 14	0.61	3.43	0.76	1.53	1.26
OPB12810-16-16	25	1"	- 16	1" - 11.5	0.78	3.62	0.95	1.72	1.42
OPB12810-16-20	25	1"	- 16	1.1/4" - 11.5	1.02	4.11	0.98	2.22	1.81

## NPTF STANDARD CONNECTIONS

### OPB14110

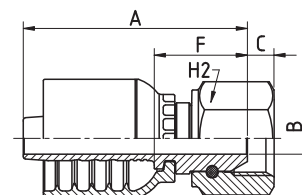
NPTF SWIVEL MALE 30° CONE SEAT - SAE J516  
 NPTF MACHO GIRATORIO CUERDA CONICA  
 ASIENTO A 30° - SAE J516



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPB14110-04-02	6	1/4"	- 04	1/8" - 27	0.12	2.73	0.39	1.65	0.67
OPB14110-04-04	6	1/4"	- 04	1/4" - 18	0.16	2.91	0.57	1.83	0.67
OPB14110-04-06	6	1/4"	- 04	3/8" - 18	0.28	2.91	0.57	1.83	0.75
OPB14110-06-04	10	3/8"	- 06	1/4" - 18	0.16	3.15	0.57	1.99	0.87
OPB14110-06-06	10	3/8"	- 06	3/8" - 18	0.28	3.15	0.57	1.99	0.87
OPB14110-06-08	10	3/8"	- 06	1/2" - 14	0.37	3.33	0.76	2.17	0.94
OPB14110-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.55	0.76	2.32	1.06
OPB14110-12-12	19	3/4"	- 12	3/4" - 14	0.63	3.72	0.76	2.28	1.26
OPB14110-16-16	25	1"	- 16	1" - 11.5	0.78	4.49	0.95	2.59	1.50

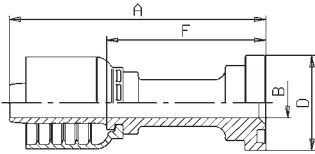
### OPB22812

NPSM FEMALE 30° CONE - SAE J514 (THRUST-WIRE NUT)  
 NPSM HEMBRA RECTA ASIENTO A 30° CUERDA RECTA  
 SAE J514 (TUERCA GIRATORIA SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPB22812-04-04	6	1/4"	- 04	1/4" - 18	0.16	1.77	0.17	0.69	0.75
OPB22812-06-06	10	3/8"	- 06	3/8" - 18	0.28	1.98	0.24	0.82	0.87
OPB22812-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.12	0.26	0.90	1.06
OPB22812-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.40	0.35	0.96	1.26
OPB22812-16-16	25	1"	- 16	1" - 11.5	0.78	2.97	0.41	1.07	1.50

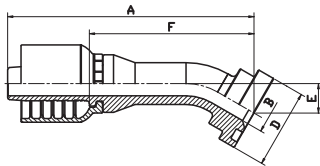
## FLANGE CODE 61 STANDARD CONNECTIONS



### OPB23311

FLANGE STRAIGHT HEAD CODE 61 - SAE J516/J518  
BRIDA RECTA CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	F		
OPB23311-08-08	12	1/2"	- 08	1/2"	0.37	3.23	1.19	2.00		
OPB23311-08-12	12	1/2"	- 08	3/4"	0.59	3.50	1.50	2.27		
OPB23311-10-12	16	5/8"	- 10	3/4"	0.59	3.94	1.50	2.59		
OPB23311-12-12	19	3/4"	- 12	3/4"	0.59	3.72	1.50	2.28		
OPB23311-12-16	19	3/4"	- 12	1"	0.79	3.72	1.75	2.28		
OPB23311-16-16	25	1"	- 16	1"	0.78	4.43	1.75	2.53		
OPB23311-16-20	25	1"	- 16	1.1/4"	1.02	4.67	2.00	2.77		



### OPB23321

FLANGE HEAD 22.5° CODE 61 - SAE J516/J518  
BRIDA CODO 22.5° CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	E	F	
OPB23321-08-08	12	1/2"	- 08	1/2"	0.37	3.74	1.19	0.31	2.52	
OPB23321-12-12	19	3/4"	- 12	3/4"	0.59	4.38	1.50	0.39	2.94	
OPB23321-12-16	19	3/4"	- 12	1"	0.79	4.38	1.75	0.39	2.94	
OPB23321-16-16	25	1"	- 16	1"	0.78	5.39	1.75	0.45	3.50	

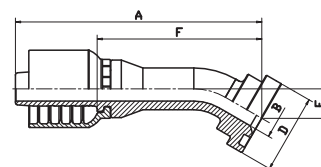
# OPB TYPE



## FLANGE CODE 61 STANDARD CONNECTIONS

### OPB23331

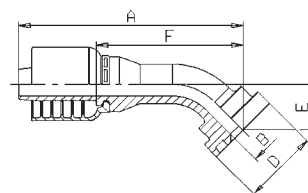
FLANGE HEAD 30° CODE 61 - SAE J516/J518  
BRIDA CODO 30° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPB23331-08-08	12	1/2"	- 08	1/2"	0.37	3.69	1.19	0.44	2.46
OPB23331-12-12	19	3/4"	- 12	3/4"	0.59	4.32	1.50	0.55	2.88
OPB23331-12-16	19	3/4"	- 12	1"	0.79	4.32	1.75	0.55	2.88
OPB23331-16-16	25	1"	- 16	1"	0.78	5.31	1.75	0.65	3.42

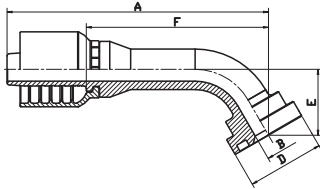
### OPB23341

FLANGE HEAD 45° CODE 61 - SAE J516/J518  
BRIDA CODO 45° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPB23341-08-08	12	1/2"	- 08	1/2"	0.37	3.53	1.19	0.73	2.30
OPB23341-08-12	12	1/2"	- 08	3/4"	0.59	3.57	1.50	0.75	2.34
OPB23341-10-12	16	5/8"	- 10	3/4"	0.59	3.75	1.50	0.87	2.40
OPB23341-12-12	19	3/4"	- 12	3/4"	0.59	4.13	1.50	0.91	2.70
OPB23341-12-16	19	3/4"	- 12	1"	0.79	4.13	1.75	0.91	2.70
OPB23341-16-16	25	1"	- 16	1"	0.78	5.11	1.75	1.08	3.21
OPB23341-16-20	25	1"	- 16	1.1/4"	1.02	5.11	2.00	1.07	3.21

## FLANGE CODE 61 STANDARD CONNECTIONS

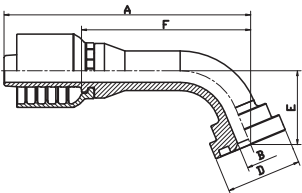


### OPB23361

FLANGE HEAD 60° CODE 61 - SAE J516/J518  
BRIDA CODO 60° CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
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	DN	inch	Size		B	A	D	E	F
OPB23361-08-08	12	1/2"	- 08	1/2"	0.37	4.04	1.19	1.02	2.81
OPB23361-12-12	19	3/4"	- 12	3/4"	0.59	4.86	1.50	1.30	3.42
OPB23361-16-16	25	1"	- 16	1"	0.78	5.98	1.75	1.54	4.09
OPB23361-16-20	25	1"	- 16	1.1/4"	1.02	5.98	2.00	1.54	4.09

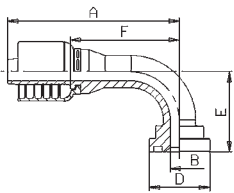


### OPB23371

FLANGE HEAD 67.5° CODE 61 - SAE J516/J518  
BRIDA CODO 67.5° CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
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	DN	inch	Size		B	A	D	E	F
OPB23371-08-08	12	1/2"	- 08	1/2"	0.37	3.90	1.19	1.17	2.67
OPB23371-12-12	19	3/4"	- 12	3/4"	0.59	4.67	1.50	1.50	3.24
OPB23371-12-16	19	3/4"	- 12	1"	0.79	4.67	1.75	1.50	3.24
OPB23371-16-16	25	1"	- 16	1"	0.78	5.78	1.75	1.77	3.88



### OPB23391

FLANGE STRAIGHT HEAD CODE 61 - SAE J516/J518  
BRIDA RECTA CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
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	DN	inch	Size		B	A	D	E	F
OPB23391-08-08	12	1/2"	- 08	1/2"	0.37	3.37	1.19	1.57	2.15
OPB23391-08-12	12	1/2"	- 08	3/4"	0.59	3.37	1.50	1.61	2.15
OPB23391-10-12	16	5/8"	- 10	3/4"	0.59	3.50	1.50	1.87	2.15
OPB23391-12-12	19	3/4"	- 12	3/4"	0.59	3.98	1.50	2.05	2.54
OPB23391-12-16	19	3/4"	- 12	1"	0.79	3.98	1.75	2.05	2.54
OPB23391-16-16	25	1"	- 16	1"	0.78	4.95	1.75	2.44	3.05
OPB23391-16-20	25	1"	- 16	1.1/4"	1.02	4.95	2.00	2.44	3.05



# OPB TYPE

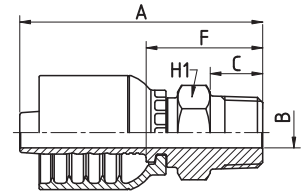


## BSPT STANDARD CONNECTIONS

### OPB10710

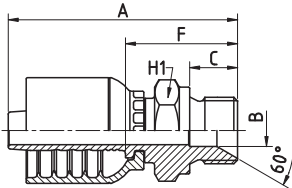
BSP MALE TAPERED

BSP MACHO CUERDA CONICA



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPB10710-03-02	5	3/16"	- 03	1/8" - 28	0.18	1.65	0.31	0.81	0.47
OPB10710-03-04	5	3/16"	- 03	1/4" - 19	0.18	1.81	0.47	0.96	0.55
OPB10710-04-02	6	1/4"	- 04	1/8" - 28	0.18	1.91	0.31	0.83	0.47
OPB10710-04-04	6	1/4"	- 04	1/4" - 19	0.18	2.07	0.47	0.98	0.55
OPB10710-04-06	6	1/4"	- 04	3/8" - 19	0.28	2.11	0.47	1.02	0.75
OPB10710-04-08	6	1/4"	- 04	1/2" - 14	0.39	2.24	0.59	1.16	0.87
OPB10710-05-06	8	5/16"	- 05	3/8" - 19	0.28	2.15	0.47	1.04	0.75
OPB10710-05-08	8	5/16"	- 05	1/2" - 14	0.39	2.28	0.59	1.18	0.87
OPB10710-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.22	0.47	1.07	0.75
OPB10710-06-08	10	3/8"	- 06	1/2" - 14	0.39	2.36	0.59	1.20	0.87
OPB10710-08-04	12	1/2"	- 08	1/4" - 19	0.18	2.24	0.47	1.02	0.75
OPB10710-08-08	12	1/2"	- 08	1/2" - 14	0.39	2.45	0.59	1.22	0.87
OPB10710-10-08	16	5/8"	- 10	1/2" - 14	0.39	2.57	0.59	1.22	0.87
OPB10710-10-12	16	5/8"	- 10	3/4" - 14	0.67	2.81	0.67	1.46	1.06
OPB10710-12-12	19	3/4"	- 12	3/4" - 14	0.67	2.83	0.67	1.40	1.06
OPB10710-16-16	25	1"	- 16	1" - 11	0.89	3.54	0.83	1.65	1.42

## BSPT STANDARD CONNECTIONS



### OPB10510

BSP MALE PARALLEL 60° CONE SEAT - BS5200  
 BSP MACHO CUERDA RECTA ASIENTO A 60° - BS5200

PART. REF.	HOSE BORE	THREAD	DIMENSIONS inch
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	DN	inch	Size		B	A	C	F	H <sub>1</sub>	
OPB10510-03-02	5	3/16"	- 03	1/8" - 28	0.14	1.73	0.39	0.89	0.55	
OPB10510-04-02	6	1/4"	- 04	1/8" - 28	0.14	1.97	0.39	0.89	0.55	
OPB10510-04-04	6	1/4"	- 04	1/4" - 19	0.20	2.09	0.43	1.00	0.75	
OPB10510-04-06	6	1/4"	- 04	3/8" - 19	0.31	2.15	0.47	1.06	0.87	
OPB10510-05-04	8	5/16"	- 05	1/4" - 19	0.20	2.13	0.43	1.02	0.75	
OPB10510-05-06	8	5/16"	- 05	3/8" - 19	0.31	2.19	0.47	1.08	0.87	
OPB10510-06-04	10	3/8"	- 06	1/4" - 19	0.20	2.18	0.43	1.02	0.75	
OPB10510-06-06	10	3/8"	- 06	3/8" - 19	0.31	2.26	0.47	1.11	0.87	
OPB10510-06-08	10	3/8"	- 06	1/2" - 14	0.43	2.36	0.55	1.20	1.06	
OPB10510-08-06	12	1/2"	- 08	3/8" - 19	0.31	2.33	0.47	1.11	0.87	
OPB10510-08-08	12	1/2"	- 08	1/2" - 14	0.43	2.45	0.55	1.22	1.06	
OPB10510-08-10	12	1/2"	- 08	5/8" - 14	0.57	2.53	0.63	1.30	1.18	
OPB10510-08-12	12	1/2"	- 08	3/4" - 14	0.67	2.57	0.63	1.34	1.26	
OPB10510-10-10	16	5/8"	- 10	5/8" - 14	0.57	2.65	0.63	1.30	1.18	
OPB10510-10-12	16	5/8"	- 10	3/4" - 14	0.67	2.69	0.63	1.34	1.26	
OPB10510-12-12	19	3/4"	- 12	3/4" - 14	0.67	2.83	0.63	1.40	1.26	
OPB10510-12-16	19	3/4"	- 12	1" - 11	0.89	2.99	0.75	1.56	1.61	
OPB10510-16-16	25	1"	- 16	1" - 11	0.89	3.50	0.75	1.61	1.61	
OPB10510-16-20	25	1"	- 16	1.1/4" - 11	1.12	3.66	0.79	1.76	1.97	

# OPB TYPE

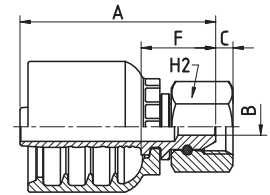


## BSP STANDARD CONNECTIONS

### OPB20512

**BSP FEMALE 60° CONE - BS5200  
(THRUST-WIRE NUT)**

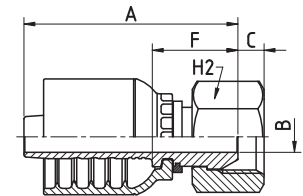
BSP HEMBRA RECTA ASIENTO A 60° - BS5200  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB20513

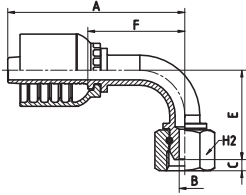
**BSP FEMALE 60° CONE - BS5200  
(SLIP-ON NUT)**

BSP HEMBRA RECTA ASIENTO A 60° - BS5200  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)



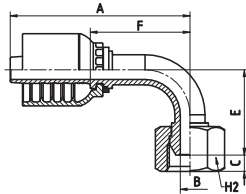
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPB20512-03-02	5	3/16"	- 03	1/8" - 28	0.12	1.43	0.17	0.58	0.55
OPB20513-03-04	5	3/16"	- 03	1/4" - 19	0.16	1.49	0.21	0.65	0.75
OPB20512-04-02	6	1/4"	- 04	1/8" - 28	0.12	1.69	0.17	0.61	0.55
OPB20513-04-04	6	1/4"	- 04	1/4" - 19	0.16	1.75	0.21	0.67	0.75
OPB20513-04-06	6	1/4"	- 04	3/8" - 19	0.28	1.83	0.24	0.75	0.87
OPB20512-05-04	8	5/16"	- 05	1/4" - 19	0.16	1.79	0.17	0.69	0.75
OPB20513-05-06	8	5/16"	- 05	3/8" - 19	0.28	1.85	0.24	0.75	0.87
OPB20512-06-04	10	3/8"	- 06	1/4" - 19	0.16	1.87	0.17	0.71	0.75
OPB20513-06-06	10	3/8"	- 06	3/8" - 19	0.28	1.93	0.24	0.77	0.87
OPB20513-06-08	10	3/8"	- 06	1/2" - 14	0.37	1.94	0.26	0.79	1.06
OPB20512-08-06	12	1/2"	- 08	3/8" - 19	0.28	2.05	0.24	0.82	0.87
OPB20513-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.03	0.26	0.80	1.06
OPB20512-08-10	12	1/2"	- 08	5/8" - 14	0.48	2.09	0.40	0.86	1.10
OPB20512-08-12	12	1/2"	- 08	3/4" - 14	0.59	2.15	0.35	0.92	1.26
OPB20512-10-10	16	5/8"	- 10	5/8" - 14	0.49	2.20	0.40	0.85	1.10
OPB20512-10-12	16	5/8"	- 10	3/4" - 14	0.59	2.26	0.35	0.91	1.26
OPB20512-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.40	0.35	0.96	1.26
OPB20512-12-16	19	3/4"	- 12	1" - 11	0.78	2.46	0.41	1.02	1.50
OPB20512-16-16	25	1"	- 16	1" - 11	0.78	2.97	0.41	1.07	1.50

## BSP STANDARD CONNECTIONS



### OPB20592

**90° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200  
(THRUST-WIRE NUT)**  
BSP HEMBRA CODO 90° ASIENTO A 60° - BS5200  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB20593

**90° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200  
(SLIP-ON NUT)**  
BSP HEMBRA CODO 90° ASIENTO A 60° - BS5200  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE		THREAD	DIMENSIONS inch						
	DN	inch		B	A	C	E	F	H <sub>2</sub>	

	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB20592-03-02	5	3/16"	- 03	1/8" - 28	0.12	1.69	0.17	1.02	0.85	0.55
OPB20592-04-02	6	1/4"	- 04	1/8" - 28	0.12	2.20	0.17	1.06	1.12	0.55
OPB20593-04-04	6	1/4"	- 04	1/4" - 19	0.16	2.24	0.21	1.14	1.16	0.75
OPB20593-04-06	6	1/4"	- 04	3/8" - 19	0.28	2.24	0.24	1.22	1.16	0.87
OPB20592-05-04	8	5/16"	- 05	1/4" - 19	0.16	2.15	0.21	1.16	1.04	0.75
OPB20593-05-06	8	5/16"	- 05	3/8" - 19	0.28	2.36	0.24	1.08	1.26	0.87
OPB20593-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.59	0.24	1.24	1.44	0.87
OPB20593-06-08	10	3/8"	- 06	1/2" - 14	0.37	2.59	0.26	1.26	1.44	1.06
OPB20592-08-06	12	1/2"	- 08	3/8" - 19	0.28	2.99	0.24	1.61	1.77	0.87
OPB20593-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.00	0.26	1.44	1.77	1.06
OPB20592-08-10	12	1/2"	- 08	5/8" - 14	0.48	2.96	0.40	1.73	1.73	1.10
OPB20592-08-12	12	1/2"	- 08	3/4" - 14	0.59	2.96	0.35	1.79	1.73	1.26
OPB20592-10-10	16	5/8"	- 10	5/8" - 14	0.49	3.46	0.40	2.11	2.11	1.10
OPB20592-10-12	16	5/8"	- 10	3/4" - 14	0.59	3.46	0.35	2.17	2.11	1.26
OPB20592-12-12	19	3/4"	- 12	3/4" - 14	0.61	3.86	0.35	2.34	2.42	1.26
OPB20592-12-16	19	3/4"	- 12	1" - 11	0.78	3.86	0.41	2.44	2.42	1.50
OPB20592-16-16	25	1"	- 16	1" - 11	0.78	5.03	0.41	2.99	3.13	1.50

# OPB TYPE

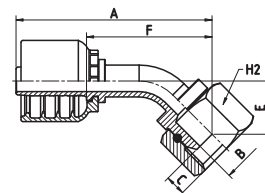


## BSP STANDARD CONNECTIONS

### OPB20542

**45° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200  
(THRUST-WIRE NUT)**

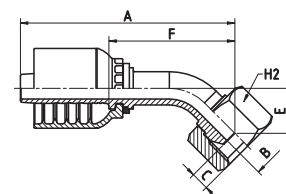
BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB20543

**45° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200  
(SLIP-ON NUT)**

BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

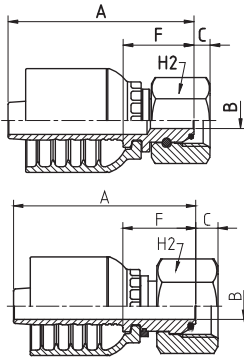


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>

	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB20543-04-04	6	1/4"	- 04	1/4" - 19	0.16	2.50	0.21	0.59	1.42	0.75
OPB20543-04-06	6	1/4"	- 04	3/8" - 19	0.28	2.56	0.24	0.63	1.48	0.75
OPB20543-05-06	8	5/16"	- 05	3/8" - 19	0.28	2.60	0.24	0.53	1.50	0.87
OPB20543-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.81	0.24	0.59	1.65	0.87
OPB20543-06-08	10	3/8"	- 06	1/2" - 14	0.37	2.83	0.26	0.63	1.67	1.06
OPB20543-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.17	0.26	0.67	1.95	1.06
OPB20542-08-10	12	1/2"	- 08	5/8" - 14	0.48	3.37	0.40	0.89	2.15	1.10
OPB20542-10-10	16	5/8"	- 10	5/8" - 14	0.49	3.83	0.40	1.02	2.48	1.10
OPB20542-10-12	16	5/8"	- 10	3/4" - 14	0.59	3.87	0.35	1.06	2.52	1.26
OPB20542-12-12	19	3/4"	- 12	3/4" - 14	0.61	4.21	0.35	1.12	2.78	1.26
OPB20542-12-16	19	3/4"	- 12	1" - 11	0.78	4.29	0.41	1.18	2.85	1.50
OPB20542-16-16	25	1"	- 16	1" - 11	0.78	5.48	0.41	1.44	3.58	1.50



## BSP STANDARD CONNECTIONS



### OPB20812

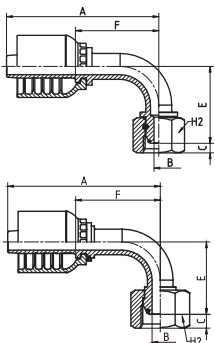
**BSP O-RING FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA RECTA CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)

### OPB20813

**BSP O-RING FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA RECTA CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE	THREAD	DIMENSIONS inch		
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	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPB20813-04-04	6	1/4"	- 04	1/4" - 19	0.16	1.77	0.19	0.69	0.75
OPB20812-06-04	10	3/8"	- 06	1/4" - 19	0.16	1.87	0.19	0.71	0.75
OPB20813-06-06	10	3/8"	- 06	3/8" - 19	0.28	1.96	0.24	0.80	0.87
OPB20813-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.02	0.26	0.80	1.06
OPB20812-10-10	16	5/8"	- 10	5/8" - 14	0.49	2.22	0.38	0.87	1.18
OPB20812-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.42	0.33	0.98	1.26
OPB20812-16-16	25	1"	- 16	1" - 11	0.78	2.97	0.42	1.07	1.50
OPB20812-16-20	25	1"	- 16	1.1/4" - 11	1.03	3.11	0.41	1.21	1.97



### OPB20892

**90° BSP O-RING FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA CODO 90° CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)

### OPB20893

**90° BSP O-RING FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA CODO 90° CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE	THREAD	DIMENSIONS inch		
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	DN	inch	Size		B	A	C	e	F	H <sub>2</sub>
OPB20893-04-04	6	1/4"	- 04	1/4" - 19	0.16	2.20	0.19	1.12	1.12	0.75
OPB20892-06-04	10	3/8"	- 06	1/4" - 19	0.16	2.56	0.19	1.30	1.40	0.75
OPB20893-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.56	0.24	1.42	1.40	0.87
OPB20893-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.98	0.26	1.65	1.75	1.06
OPB20892-10-10	16	5/8"	- 10	5/8" - 14	0.49	3.44	0.38	2.17	2.09	1.18
OPB20892-12-12	19	3/4"	- 12	3/4" - 14	0.59	3.86	0.33	2.36	2.42	1.26
OPB20892-16-16	25	1"	- 16	1" - 11	0.78	5.03	0.42	2.99	3.13	1.50
OPB20892-16-20	25	1"	- 16	1.1/4" - 11	1.03	5.03	0.41	3.09	3.13	1.97

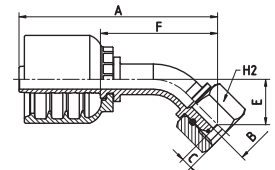
# OPB TYPE



## BSP STANDARD CONNECTIONS

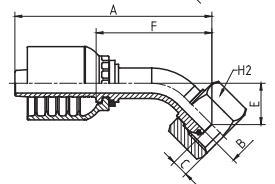
### OPB20842

**45° BSP O-RING FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA CODO 45° CON O-RING ASIENTO A 60° BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB20843

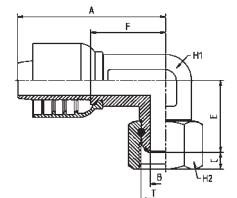
**45° BSP O-RING FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA CODO 45° CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>2</sub>	
OPB20843-04-04	6	1/4"	- 04	1/4" - 19	0.16	2.50	0.19	0.59	1.42	0.75
OPB20843-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.91	0.24	0.73	1.75	0.87
OPB20843-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.27	0.26	0.81	2.05	1.06
OPB20842-10-10	16	5/8"	- 10	5/8" - 14	0.49	3.85	0.38	1.08	2.50	1.18
OPB20842-12-12	19	3/4"	- 12	3/4" - 14	0.61	4.23	0.33	1.14	2.80	1.26
OPB20842-16-16	25	1"	- 16	1" - 11	0.78	5.46	0.42	1.40	3.56	1.50

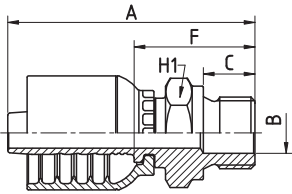
### OPB20882F

**90° BSP O-RING FEMALE COMPACT ELBOW 60° CONE BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA CODO CORTO 90° CON O-RING ASIENTO A 60° BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch						
	DN	inch	Size		B	A	C	E	F	H <sub>1</sub>	H <sub>2</sub>
OPB20882-04-04F	6	1/4"	- 04	1/4" - 19	0.16	1.95	0.19	0.87	0.79	0.55	0.75
OPB20882-06-06F	10	3/8"	- 06	3/8" - 19	0.28	2.24	0.24	1.08	0.91	0.75	0.87
OPB20882-08-08F	12	1/2"	- 08	1/2" - 14	0.37	2.45	0.26	1.22	0.98	0.87	1.06
OPB20882-10-10F	16	5/8"	- 10	5/8" - 14	0.49	2.63	0.38	1.28	0.97	0.94	1.10
OPB20882-12-12F	19	3/4"	- 12	3/4" - 14	0.59	2.85	0.33	1.42	1.48	1.06	1.26
OPB20882-16-16F	25	1"	- 16	1" - 11	0.79	3.63	0.42	1.73	2.04	1.42	1.50

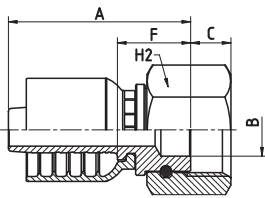
## BSP STANDARD CONNECTIONS



### OPB10610

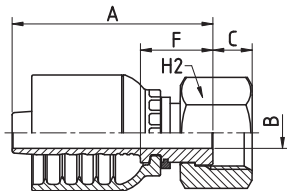
**BSP MALE FLAT SEAT**  
BSP MACHO ASIENTO PLANO

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPB10610-06-06	10	3/8"	- 06	3/8" - 19	0.37	2.26	0.47	1.11	0.87
OPB10610-06-08	10	3/8"	- 06	1/2" - 14	0.51	2.36	0.55	1.20	1.06
OPB10610-08-08	12	1/2"	- 08	1/2" - 14	0.51	2.45	0.55	1.22	1.06
OPB10610-12-12	19	3/4"	- 12	3/4" - 14	0.71	2.83	0.63	1.40	1.26



### OPB20612

**BSP FEMALE FLAT SEAT (THRUST-WIRE NUT)**  
BSP HEMBRA RECTA ASIENTO PLANO  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB20613

**BSP FEMALE FLAT SEAT (SLIP-ON NUT)**  
BSP HEMBRA RECTA ASIENTO PLANO  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPB20613-04-04	6	1/4"	- 04	1/4" - 19	0.16	1.65	0.31	0.57	0.75
OPB20613-06-06	10	3/8"	- 06	3/8" - 19	0.28	1.81	0.35	0.65	0.87
OPB20613-06-08	10	3/8"	- 06	1/2" - 14	0.37	1.85	0.39	0.69	1.06
OPB20613-08-08	12	1/2"	- 08	1/2" - 14	0.37	1.93	0.39	0.70	1.06
OPB20612-08-12	12	1/2"	- 08	3/4" - 14	0.59	2.05	0.45	0.82	1.26
OPB20612-10-12	16	5/8"	- 10	3/4" - 14	0.59	2.17	0.45	0.81	1.26
OPB20612-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.30	0.45	0.87	1.26
OPB20612-12-16	19	3/4"	- 12	1" - 11	0.78	2.36	0.51	0.93	1.50
OPB20612-16-16	25	1"	- 16	1" - 11	0.78	2.87	0.51	0.98	1.50

# OPB TYPE

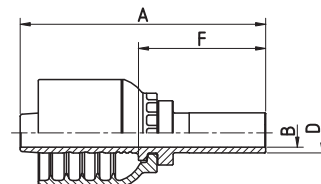


## METRIC STANDPIPE STANDARD CONNECTIONS

### OPB22010

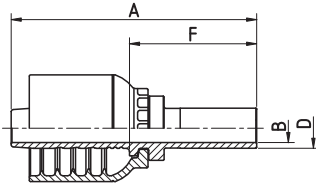
METRIC STANDPIPE STRAIGHT L.T. - DIN 2353

TUBO LISO MILIMETRICO RECTO SERIE LIGERA L.T. - DIN 2353



PART. REF.	HOSE BORE			PIPE	DIMENSIONS inch					
	DN	inch	Size		mm	B	A	C		
OPB22010-03-04	5	3/16"	- 03	4	0.08	2.01	0.87	1.17		
OPB22010-03-06	5	3/16"	- 03	6	0.12	1.97	0.87	1.13		
OPB22010-04-06	6	1/4"	- 04	6	0.12	2.24	0.87	1.16		
OPB22010-05-10	8	5/16"	- 05	10	0.28	2.30	0.91	1.20		
OPB22010-06-10	10	3/8"	- 06	10	0.28	2.36	0.91	1.20		
OPB22010-06-12	10	3/8"	- 06	12	0.31	2.36	0.91	1.20		
OPB22010-06-15	10	3/8"	- 06	15	0.41	2.44	0.98	1.28		
OPB22010-08-12	12	1/2"	- 08	12	0.31	2.44	0.91	1.22		
OPB22010-08-15	12	1/2"	- 08	15	0.41	2.52	0.98	1.30		
OPB22010-08-18	12	1/2"	- 08	18	0.49	2.56	1.02	1.33		
OPB22010-10-18	16	5/8"	- 10	18	0.49	2.70	1.02	1.35		
OPB22010-10-22	16	5/8"	- 10	22	0.59	2.78	1.10	1.43		
OPB22010-12-18	19	3/4"	- 12	18	0.59	2.86	1.02	1.43		
OPB22010-12-22	19	3/4"	- 12	22	0.59	2.93	1.10	1.50		
OPB22010-16-28	25	1"	- 16	28	0.81	3.52	1.18	1.63		

## METRIC STANDPIPE STANDARD CONNECTIONS



### OPB22110

METRIC STANDPIPE STRAIGHT H.T. - DIN 2353  
 TUBO LISO MILIMETRICO RECTO SERIE PESADA H.T. - DIN 2353

PART. REF.	HOSE BORE		PIPE	DIMENSIONS						
	DN	inch		mm	B	A	C	F	inch	
OPB22110-03-08	5	3/16"	- 03	8	0.12	2.05	0.94	1.20		
OPB22110-04-08	6	1/4"	- 04	8	0.16	2.32	0.94	1.24		
OPB22110-04-10	6	1/4"	- 04	10	0.16	2.40	1.02	1.32		
OPB22110-04-12	6	1/4"	- 04	12	0.28	2.40	1.02	1.32		
OPB22110-05-12	8	5/16"	- 05	12	0.28	2.42	1.02	1.32		
OPB22110-06-14	10	3/8"	- 06	14	0.31	2.60	1.14	1.44		
OPB22110-08-14	12	1/2"	- 08	14	0.37	2.68	1.14	1.45		
OPB22110-08-16	12	1/2"	- 08	16	0.41	2.72	1.18	1.49		
OPB22110-10-20	16	5/8"	- 10	20	0.49	3.09	1.42	1.74		
OPB22110-12-20	19	3/4"	- 12	20	0.59	3.25	1.42	1.81		
OPB22110-12-25	19	3/4"	- 12	25	0.59	3.41	1.57	1.97		
OPB22110-16-25	25	1"	- 16	25	0.59	3.92	1.57	2.02		
OPB22110-16-30	25	1"	- 16	30	0.81	4.07	1.73	2.18		
OPB22110-16-38	25	1"	- 16	38	1.02	4.31	1.97	2.41		



# OPB TYPE

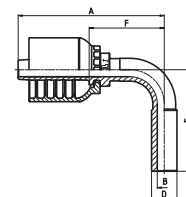


## METRIC STANDPIPE STANDARD CONNECTIONS

### OPB22090

90° METRIC STANDPIPE L.T. - DIN 2353

TUBO LISO MILIMETRICO CODO 90° SERIE LIGERA L.T. - DIN 2353

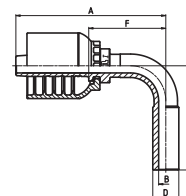


PART. REF.	HOSE BORE			PIPE	DIMENSIONS inch					
	DN	inch	Size		mm	B	A	E		
OPB22090-03-06	5	3/16"	- 03	6	0.12	1.73	1.34	0.89		
OPB22090-04-06	6	1/4"	- 04	6	0.12	1.99	1.34	0.91		
OPB22090-05-10	8	5/16"	- 05	10	0.28	2.27	1.57	1.16		
OPB22090-06-10	10	3/8"	- 06	10	0.28	2.50	1.67	1.34		
OPB22090-06-12	10	3/8"	- 06	12	0.31	2.50	1.77	1.34		
OPB22090-08-15	12	1/2"	- 08	15	0.41	2.88	2.05	1.65		
OPB22090-08-18	12	1/2"	- 08	18	0.49	2.88	2.17	1.65		
OPB22090-10-18	16	5/8"	- 10	18	0.49	3.28	2.32	1.93		
OPB22090-12-22	19	3/4"	- 12	22	0.59	3.58	2.48	2.15		
OPB22090-16-28	25	1"	- 16	28	0.78	4.56	2.95	2.66		

### OPB22190

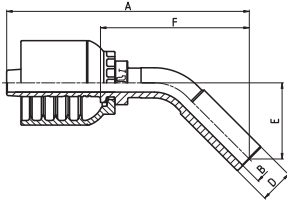
90° METRIC STANDPIPE H.T. - DIN 2353

TUBO LISO MILIMETRICO CODO 90° SERIE PESADA H.T. - DIN 2353



PART. REF.	HOSE BORE			PIPE	DIMENSIONS inch					
	DN	inch	Size		mm	B	A	E		
OPB22190-04-08	6	1/4"	- 04	8	0.16	2.15	1.50	1.06		
OPB22190-04-10	6	1/4"	- 04	10	0.24	2.15	1.61	1.06		
OPB22190-04-12	6	1/4"	- 04	12	0.28	2.15	1.73	1.06		
OPB22190-05-12	8	5/16"	- 05	12	0.28	2.31	1.73	1.20		
OPB22190-06-14	10	3/8"	- 06	14	0.37	2.54	2.01	1.38		
OPB22190-08-14	12	1/2"	- 08	14	0.37	2.88	2.11	1.65		
OPB22190-08-16	12	1/2"	- 08	16	0.41	2.92	2.17	1.69		
OPB22190-10-20	16	5/8"	- 10	20	0.49	3.28	2.62	1.93		
OPB22190-12-20	19	3/4"	- 12	20	0.59	3.58	2.72	2.15		
OPB22190-12-25	19	3/4"	- 12	25	0.59	3.70	2.95	2.26		
OPB22190-16-25	25	1"	- 16	25	0.59	4.32	3.01	2.42		
OPB22190-16-30	25	1"	- 16	30	0.78	4.64	3.43	2.74		

## METRIC STANDPIPE STANDARD CONNECTIONS



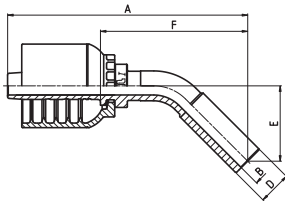
### OPB22040

45° METRIC STANDPIPE L.T. - DIN 2353

TUBO LISO MILIMETRICO CODO 45° SERIE LIGERA L.T. - DIN 2353

PART. REF.	HOSE BORE	PIPE	DIMENSIONS inch			
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	DN	inch	Size	mm	B	A	E	F
OPB22040-04-06	6	1/4"	- 04	6	0.12	2.58	0.81	1.50
OPB22040-05-10	8	5/16"	- 05	10	0.28	2.85	0.89	1.75
OPB22040-06-10	10	3/8"	- 06	10	0.28	3.03	0.91	1.87
OPB22040-06-12	10	3/8"	- 06	12	0.31	3.10	0.98	1.95
OPB22040-08-15	12	1/2"	- 08	15	0.41	3.50	1.10	2.28
OPB22040-10-18	16	5/8"	- 10	18	0.49	3.85	1.20	2.50
OPB22040-12-22	19	3/4"	- 12	22	0.59	4.15	1.26	2.72
OPB22040-16-28	25	1"	- 16	28	0.78	5.11	1.46	3.21



### OPB22140

45° METRIC STANDPIPE H.T. - DIN 2353

TUBO LISO MILIMETRICO CODO 45° SERIE PESADA H.T. - DIN 2353

PART. REF.	HOSE BORE	PIPE	DIMENSIONS inch			
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	DN	inch	Size	mm	B	A	E	F
OPB22140-04-08	6	1/4"	- 04	8	0.16	2.74	0.87	1.65
OPB22140-04-10	6	1/4"	- 04	10	0.24	2.82	0.94	1.73
OPB22140-06-14	10	3/8"	- 06	14	0.37	3.31	1.14	2.15
OPB22140-08-16	12	1/2"	- 08	16	0.41	3.62	1.18	2.40
OPB22140-10-20	16	5/8"	- 10	20	0.49	4.06	1.42	2.72
OPB22140-12-25	19	3/4"	- 12	25	0.59	4.61	1.59	3.17
OPB22140-16-25	25	1"	- 16	25	0.59	5.13	1.61	3.23

# OPB TYPE

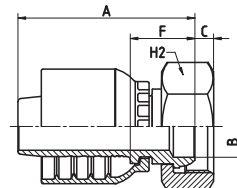


## METRIC 60° STANDARD CONNECTIONS

### OPB21013

METRIC FEMALE 60° CONE - DIN 20078/3863  
(SLIP-ON NUT)

HEMBRA RECTA MILIMETRICA CONO 60° - DIN 20078/3863  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

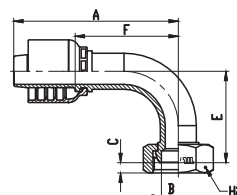


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPB21013-12-30	19	3/4"	- 12	M 30x1.5	0.79	2.26	0.32	0.83	1.42
OPB21013-16-38	25	1"	- 16	M 38x1.5	1.02	2.80	0.30	0.90	1.81

### OPB21093

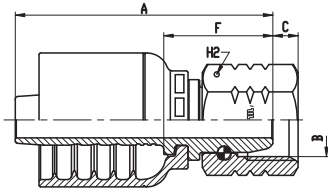
90° METRIC FEMALE SWEEP ELBOW 60° CONE  
DIN 20078/3863 (SLIP-ON NUT)

HEMBRA CODO 90° MILIMETRICA CONO 60°  
DIN 20078/3863 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>1</sub>
OPB21093-12-30	19	3/4"	- 12	M 30x1.5	0.79	3.86	0.32	2.15	2.42	1.42
OPB21093-16-38	25	1"	- 16	M 38x1.5	1.02	4.91	0.30	2.48	3.01	1.81

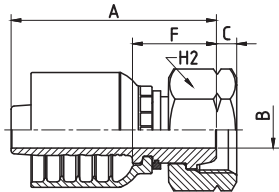
## METRIC MULTISEAL STANDARD CONNECTIONS



### OPB21312

**METRIC FEMALE MULTISEAL - DIN 20078/3868  
(THRUST-WIRE NUT)**

HEMBRA RECTA MILIMETRICA MULTISELLO - DIN 20078/3868  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB21313

**METRIC FEMALE MULTISEAL - DIN 20078/3868  
(SLIP-ON NUT)**

HEMBRA RECTA MILIMETRICA MULTISELLO - DIN 20078/3868  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE	THREAD	PIPE	DIMENSIONS inch
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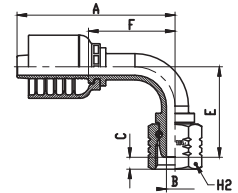
	DN	inch	Size		mm	B	A	C	F	H <sub>2</sub>
OPB21313-03-12	5	3/16"	- 03	M 12x1.5	6	0.12	1.57	0.15	0.73	0.55
OPB21313-04-14	6	1/4"	- 04	M 14x1.5	8	0.16	1.85	0.15	0.77	0.67
OPB21313-04-16	6	1/4"	- 04	M 16x1.5	10	0.16	1.85	0.16	0.77	0.75
OPB21313-05-16	8	5/16"	- 05	M 16x1.5	10	0.22	1.87	0.16	0.77	0.75
OPB21313-05-18	8	5/16"	- 05	M 18x1.5	12	0.22	1.87	0.16	0.77	0.87
OPB21312-06-16	10	3/8"	- 06	M 16x1.5	10	0.28	2.01	0.20	0.85	0.75
OPB21313-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	1.95	0.16	0.79	0.87
OPB21313-06-22	10	3/8"	- 06	M 22x1.5	15	0.28	1.99	0.20	0.83	1.06
OPB21313-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	2.07	0.20	0.85	1.06
OPB21313-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	2.22	0.22	0.87	1.26

## METRIC MULTISEAL STANDARD CONNECTIONS

### OPB21392

90° METRIC FEMALE SWEPT ELBOW MULTISEAL  
DIN 20078/3868 (THRUST-WIRE NUT)

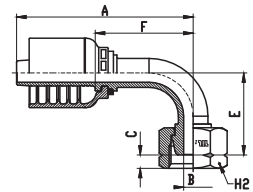
HEMBRA CODO 90° MILIMETRICA MULTISELLO - DIN 20078/3868  
(TUERCA GIRATORIA CON PASADOR DE SEGURIDAD)



### OPB21393

90° METRIC FEMALE SWEPT ELBOW MULTISEAL  
DIN 20078/3868 (SLIP-ON NUT)

HEMBRA CODO 90° MILIMETRICA MULTISELLO - DIN 20078/3868  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

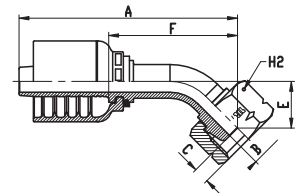


PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	E	F
OPB21393-04-14	6	1/4"	- 04	M 14x1.5	8	0.16	2.24	0.15	1.16	1.16	0.67
OPB21393-04-16	6	1/4"	- 04	M 16x1.5	10	0.16	2.24	0.16	1.16	1.16	0.75
OPB21393-05-16	8	5/16"	- 05	M 16x1.5	10	0.22	2.36	0.16	1.14	1.26	0.75
OPB21392-06-16	10	3/8"	- 06	M 16x1.5	10	0.28	2.56	0.20	1.50	1.40	0.75
OPB21393-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	2.59	0.16	1.24	1.44	0.87
OPB21393-06-22	10	3/8"	- 06	M 22x1.5	15	0.28	2.59	0.20	1.26	1.44	1.06
OPB21393-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	3.00	0.20	1.44	1.77	1.06
OPB21393-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	3.38	0.22	1.97	2.03	1.26

### OPB21343

45° METRIC FEMALE SWEPT ELBOW MULTISEAL  
DIN 20078/3868 (SLIP-ON NUT)

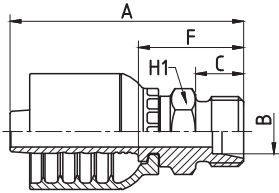
HEMBRA CODO 45° MILIMETRICA MULTISELLO  
DIN 20078/3868 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	E	F
OPB21343-04-14	6	1/4"	- 04	M 14x1.5	8	0.16	2.52	0.15	0.59	1.44	0.67
OPB21343-04-16	6	1/4"	- 04	M 16x1.5	10	0.16	2.52	0.16	0.59	1.44	0.75
OPB21343-05-16	8	5/16"	- 05	M 16x1.5	10	0.22	2.64	0.16	0.59	1.54	0.75
OPB21343-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	2.81	0.16	0.61	1.65	0.87
OPB21343-06-22	10	3/8"	- 06	M 22x1.5	15	0.28	2.83	0.20	0.61	1.67	1.06
OPB21343-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	3.17	0.20	0.67	1.95	1.06
OPB21343-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	3.71	0.22	0.94	2.36	1.26



## METRIC 24° O-RING STANDARD CONNECTIONS



### OPB11110

METRIC MALE 24° CONE SEAT L.T. - DIN 20066/3861  
 MACHO MILIMETRICO CONO 24° SERIE LIGERA L.T. - DIN 20066/3861

PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	F	H <sub>1</sub>
OPB11110-04-12	6	1/4"	- 04	M 12x1.5	6	0.16	1.93	0.39	0.85	0.55	
OPB11110-04-14	6	1/4"	- 04	M 14x1.5	8	0.16	1.93	0.39	0.85	0.55	
OPB11110-04-16	6	1/4"	- 04	M 16x1.5	10	0.28	2.01	0.43	0.93	0.67	
OPB11110-04-18	6	1/4"	- 04	M 18x1.5	12	0.35	2.01	0.43	0.93	0.75	
OPB11110-05-16	8	5/16"	- 05	M 16x1.5	10	0.28	2.05	0.43	0.94	0.67	
OPB11110-05-18	8	5/16"	- 05	M 18x1.5	12	0.35	2.05	0.43	0.94	0.75	
OPB11110-06-16	10	3/8"	- 06	M 16x1.5	10	0.28	2.11	0.43	0.95	0.67	
OPB11110-06-18	10	3/8"	- 06	M 18x1.5	12	0.35	2.13	0.43	0.97	0.75	
OPB11110-06-22	10	3/8"	- 06	M 22x1.5	15	0.39	2.17	0.47	1.01	0.87	
OPB11110-08-22	12	1/2"	- 08	M 22x1.5	15	0.39	2.23	0.47	1.01	0.87	
OPB11110-08-26	12	1/2"	- 08	M 26x1.5	18	0.49	2.26	0.47	1.04	1.06	
OPB11110-10-22	16	5/8"	- 10	M 22x1.5	15	0.39	2.35	0.47	1.00	0.87	
OPB11110-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	2.40	0.47	1.05	1.06	
OPB11110-12-30	19	3/4"	- 12	M 30x2	22	0.59	2.62	0.55	1.18	1.18	
OPB11110-16-36	25	1"	- 16	M 36x2	28	0.79	3.17	0.55	1.27	1.42	

## METRIC 24° O-RING STANDARD CONNECTIONS

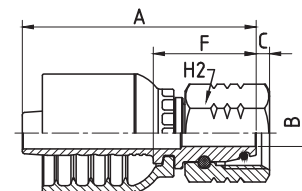
### OPB21512

O-RING METRIC FEMALE 24° CONE L.T.

DIN 20066/3865 (THRUST-WIRE NUT)

HEMBRA RECTA MILIMETRICA O-RING CON CONO 24° SERIE LIGERA L.T.

DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



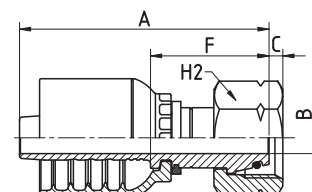
### OPB21513

O-RING METRIC FEMALE 24° CONE L.T.

DIN 20066/3865 (SLIP-ON NUT)

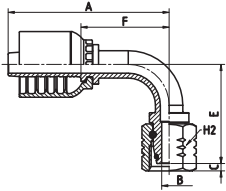
HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.

DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch					
	DN	inch			B	A	C	F	H <sub>2</sub>	
OPB21513-03-12	5	3/16"	- 03	M 12x1.5	6	0.12	1.70	0.07	0.86	0.55
OPB21512-04-12	6	1/4"	- 04	M 12x1.5	6	0.12	1.91	0.09	0.83	0.67
OPB21513-04-14	6	1/4"	- 04	M 14x1.5	8	0.16	1.96	0.07	0.87	0.67
OPB21513-04-16	6	1/4"	- 04	M 16x1.5	10	0.24	1.98	0.08	0.89	0.75
OPB21513-04-18	6	1/4"	- 04	M 18x1.5	12	0.28	1.94	0.09	0.86	0.87
OPB21512-05-14	8	5/16"	- 05	M 14x1.5	8	0.16	1.89	0.07	0.79	0.67
OPB21513-05-16	8	5/16"	- 05	M 16x1.5	10	0.24	2.00	0.08	0.89	0.75
OPB21513-05-18	8	5/16"	- 05	M 18x1.5	12	0.28	1.96	0.09	0.86	0.87
OPB21512-06-16	10	3/8"	- 06	M 16x1.5	10	0.24	2.07	0.12	0.91	0.75
OPB21513-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	2.03	0.09	0.88	0.87
OPB21513-06-22	10	3/8"	- 06	M 22x1.5	15	0.37	2.14	0.09	0.98	1.06
OPB21512-08-18	12	1/2"	- 08	M 18x1.5	12	0.28	2.37	0.11	1.14	0.87
OPB21513-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	2.22	0.09	1.00	1.06
OPB21513-08-26	12	1/2"	- 08	M 26x1.5	18	0.49	2.26	0.10	1.03	1.26
OPB21513-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	2.37	0.10	1.02	1.26
OPB21513-10-30	16	5/8"	- 10	M 30x2	22	0.59	2.69	0.14	1.34	1.42
OPB21512-12-26	19	3/4"	- 12	M 26x1.5	18	0.49	2.66	0.14	1.22	1.26
OPB21513-12-30	19	3/4"	- 12	M 30x2	22	0.59	2.55	0.14	1.11	1.42
OPB21513-12-36	19	3/4"	- 12	M 36x2	28	0.79	2.54	0.15	1.11	1.61

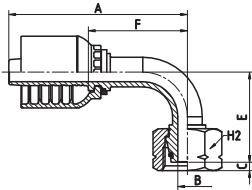
## METRIC 24° O-RING STANDARD CONNECTIONS



### OPB21592

**90° O-RING METRIC FEMALE SWEEP ELBOW 24° CONE L.T.  
DIN 20066/3865 (THRUST-WIRE NUT)**

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.  
DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB21593

**90° O-RING METRIC FEMALE SWEEP ELBOW 24° CONE L.T.  
DIN 20066/3865 (SLIP-ON NUT)**

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.  
DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	E	F
OPB21593-03-12	5	3/16"	- 03	M 12x1.5	6	0.12	1.87	0.07	1.18	1.02	0.55
OPB21592-04-12	6	1/4"	- 04	M 12x1.5	6	0.12	2.20	0.09	1.28	1.12	0.67
OPB21593-04-14	6	1/4"	- 04	M 14x1.5	8	0.16	2.24	0.07	1.24	1.16	0.67
OPB21593-04-16	6	1/4"	- 04	M 16x1.5	10	0.24	2.24	0.08	1.26	1.16	0.75
OPB21593-04-18	6	1/4"	- 04	M 18x1.5	12	0.28	2.24	0.09	1.30	1.16	0.87
OPB21593-05-16	8	5/16"	- 05	M 16x1.5	10	0.24	2.36	0.08	1.28	1.26	0.75
OPB21593-05-18	8	5/16"	- 05	M 18x1.5	12	0.28	2.36	0.09	1.38	1.26	0.87
OPB21592-06-16	10	3/8"	- 06	M 16x1.5	10	0.24	2.56	0.12	1.57	1.40	0.75
OPB21593-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	2.59	0.09	1.32	1.44	0.87
OPB21593-06-22	10	3/8"	- 06	M 22x1.5	15	0.37	2.59	0.09	1.38	1.44	1.06
OPB21592-08-18	12	1/2"	- 08	M 18x1.5	12	0.28	2.95	0.11	1.89	1.73	0.87
OPB21593-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	3.00	0.09	1.56	1.77	1.06
OPB21593-08-26	12	1/2"	- 08	M 26x1.5	18	0.49	2.99	0.10	1.57	1.77	1.26
OPB21593-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	3.38	0.10	2.09	2.03	1.26
OPB21593-10-30	16	5/8"	- 10	M 30x2	22	0.59	3.38	0.14	2.13	2.03	1.42
OPB21593-12-30	19	3/4"	- 12	M 30x2	22	0.59	3.86	0.14	2.32	2.42	1.42
OPB21593-16-36	25	1"	- 16	M 36x2	28	0.78	4.91	0.15	2.74	3.01	1.61

## METRIC 24° O-RING STANDARD CONNECTIONS

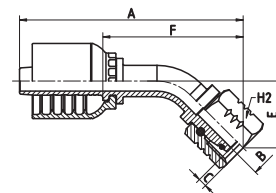
### OPB21542

45° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE L.T.

DIN 20066/3865 (THRUST-WIRE NUT)

HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24°

SERIE LIGERA L.T. - DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



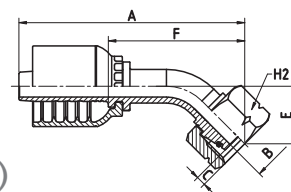
### OPB21543

45° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE L.T.

DIN 20066/3865 (SLIP-ON NUT)

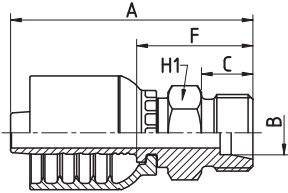
HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24°

SERIE LIGERA L.T. - DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	E	F
OPB21543-04-14	6	1/4"	- 04	M 14x1.5	8	0.16	2.58	0.07	0.65	1.50	0.67
OPB21543-04-16	6	1/4"	- 04	M 16x1.5	10	0.24	2.58	0.08	0.67	1.50	0.75
OPB21543-05-16	8	5/16"	- 05	M 16x1.5	10	0.24	2.74	0.08	0.69	1.63	0.75
OPB21543-05-18	8	5/16"	- 05	M 18x1.5	12	0.28	2.74	0.09	0.67	1.63	0.87
OPB21542-06-16	10	3/8"	- 06	M 16x1.5	10	0.24	3.03	0.12	0.85	1.87	0.75
OPB21543-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	2.87	0.09	0.65	1.71	0.87
OPB21543-06-22	10	3/8"	- 06	M 22x1.5	15	0.37	2.93	0.09	0.71	1.77	1.06
OPB21543-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	3.27	0.09	0.75	2.05	1.06
OPB21543-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	3.79	0.10	1.04	2.44	1.26
OPB21543-12-30	19	3/4"	- 12	M 30x2	22	0.59	4.23	0.14	1.12	2.80	1.42
OPB21543-16-36	25	1"	- 16	M 36x2	28	0.78	5.24	0.15	1.26	3.35	1.61

## METRIC 24° O-RING STANDARD CONNECTIONS



### OPB11210

METRIC MALE 24° CONE SEAT H.T. - DIN 20066/3861  
 MACHO MILIMETRICO CONO 24° SERIE PESADA H.T. - DIN 20066/3861

PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	F	H <sub>1</sub>
OPB11210-04-16	6	1/4"	- 04	M 16x1.5	8	0.16	2.09	0.47	1.00	0.67	
OPB11210-04-18	6	1/4"	- 04	M 18x1.5	10	0.24	2.13	0.47	1.04	0.75	
OPB11210-04-20	6	1/4"	- 04	M 20x1.5	12	0.28	2.22	0.47	1.14	0.87	
OPB11210-05-20	8	5/16"	- 05	M 20x1.5	12	0.28	2.24	0.47	1.14	0.87	
OPB11210-06-18	10	3/8"	- 06	M 18x1.5	10	0.28	2.22	0.47	1.07	0.75	
OPB11210-06-20	10	3/8"	- 06	M 20x1.5	12	0.28	2.30	0.47	1.15	0.87	
OPB11210-06-22	10	3/8"	- 06	M 22x1.5	14	0.31	2.38	0.55	1.22	0.87	
OPB11210-08-24	12	1/2"	- 08	M 24x1.5	16	0.37	2.47	0.55	1.24	0.94	
OPB11210-10-30	16	5/8"	- 10	M 30x2	20	0.59	2.76	0.63	1.41	1.18	
OPB11210-12-30	19	3/4"	- 12	M 30x2	20	0.59	2.89	0.63	1.46	1.18	
OPB11210-12-36	19	3/4"	- 12	M 36x2	25	0.78	3.05	0.71	1.61	1.42	
OPB11210-16-36	25	1"	- 16	M 36x2	25	0.78	3.56	0.71	1.67	1.42	
OPB11210-16-42	25	1"	- 16	M 42x2	30	0.98	3.64	0.79	1.74	1.81	



## METRIC 24° O-RING STANDARD CONNECTIONS

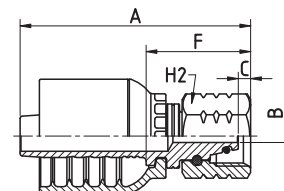
### OPB21612

O-RING METRIC FEMALE 24° CONE H.T.

DIN 20066/3865 (THRUST-WIRE NUT)

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.

DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



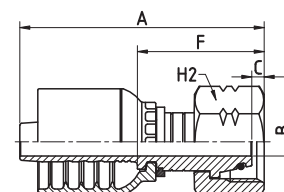
### OPB21613

O-RING METRIC FEMALE 24° CONE H.T.

DIN 20066/3865 (SLIP-ON NUT)

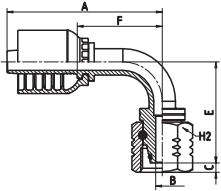
HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.

DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch					
	DN	inch			Size	mm	B	A	C	F
OPB21613-03-16	5	3/16"	- 03	M 16x1.5	8	0.13	1.69	0.13	0.85	0.75
OPB21613-04-14	6	1/4"	- 04	M 14x1.5	6	0.12	2.01	0.14	0.93	0.67
OPB21613-04-16	6	1/4"	- 04	M 16x1.5	8	0.16	1.95	0.13	0.87	0.75
OPB21613-04-18	6	1/4"	- 04	M 18x1.5	10	0.16	2.19	0.12	1.10	0.87
OPB21613-04-20	6	1/4"	- 04	M 20x1.5	12	0.28	2.10	0.10	1.01	0.94
OPB21613-05-18	8	5/16"	- 05	M 18x1.5	10	0.22	2.20	0.12	1.10	0.87
OPB21613-05-20	8	5/16"	- 05	M 20x1.5	12	0.22	2.08	0.10	0.98	0.94
OPB21613-06-20	10	3/8"	- 06	M 20x1.5	12	0.28	2.15	0.10	1.00	0.94
OPB21613-06-22	10	3/8"	- 06	M 22x1.5	14	0.28	2.44	0.12	1.28	1.06
OPB21613-08-24	12	1/2"	- 08	M 24x1.5	16	0.37	2.28	0.12	1.05	1.18
OPB21613-10-30	16	5/8"	- 10	M 30x2	20	0.49	2.55	0.14	1.20	1.42
OPB21612-12-30	19	3/4"	- 12	M 30x2	20	0.49	2.76	0.09	1.32	1.42
OPB21613-12-36	19	3/4"	- 12	M 36x2	25	0.59	2.78	0.18	1.34	1.61
OPB21612-16-36	25	1"	- 16	M 36x2	25	0.59	3.29	0.07	1.39	1.61
OPB21613-16-42	25	1"	- 16	M 42x2	30	0.78	3.29	0.25	1.39	1.97

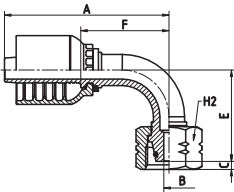
## METRIC 24° O-RING STANDARD CONNECTIONS



### OPB21692

**90° O-RING METRIC FEMALE SWEEP ELBOW 24° CONE H.T.  
DIN 20066/3865 (THRUST-WIRE NUT)**

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.  
DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPB21693

**90° O-RING METRIC FEMALE SWEEP ELBOW 24° CONE H.T.  
DIN 20066/3865 (SLIP-ON NUT)**

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.  
DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE	THREAD	PIPE	DIMENSIONS inch							
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	DN	inch	Size		mm	B	A	C	E	F	H <sub>2</sub>
OPB21693-04-16	6	1/4"	- 04	M 16x1.5	8	0.16	2.24	0.13	1.16	1.16	0.75
OPB21693-04-18	6	1/4"	- 04	M 18x1.5	10	0.16	2.24	0.12	1.22	1.16	0.87
OPB21693-04-20	6	1/4"	- 04	M 20x1.5	12	0.22	2.24	0.10	1.36	1.16	0.94
OPB21693-05-20	8	5/16"	- 05	M 20x1.5	12	0.22	2.36	0.10	1.34	1.26	0.94
OPB21693-06-20	10	3/8"	- 06	M 20x1.5	12	0.28	2.59	0.10	1.38	1.44	0.94
OPB21693-06-22	10	3/8"	- 06	M 22x1.5	14	0.28	2.59	0.12	1.46	1.44	1.06
OPB21693-06-24	10	3/8"	- 06	M 24x1.5	16	0.37	2.60	0.12	1.42	1.44	1.18
OPB21693-08-24	12	1/2"	- 08	M 24x1.5	16	0.37	3.00	0.12	1.59	1.77	1.18
OPB21693-10-30	16	5/8"	- 10	M 30x2	20	0.49	3.38	0.14	2.26	2.03	1.42
OPB21692-12-30	19	3/4"	- 12	M 30x2	20	0.49	3.86	0.09	2.66	2.42	1.42
OPB21693-12-36	19	3/4"	- 12	M 36x2	25	0.59	3.86	0.18	2.54	2.42	1.61
OPB21692-16-36	25	1"	- 16	M 36x2	25	0.59	5.03	0.07	3.39	3.13	1.61
OPB21693-16-42	25	1"	- 16	M 42x2	30	0.78	5.01	0.25	2.93	3.11	1.97

## METRIC 24° O-RING STANDARD CONNECTIONS

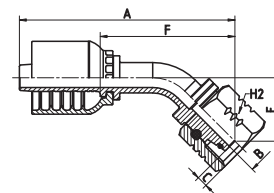
### OPB21642

45° O-RING METRIC FEMALE SWEEP ELBOW 24° CONE H.T.

DIN 20066/3865 (THRUST-WIRE NUT)

HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.

DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



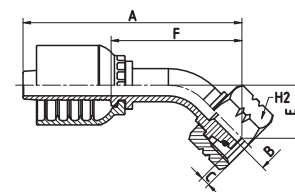
### OPB21643

45° O-RING METRIC FEMALE SWEEP ELBOW 24° CONE H.T.

DIN 20066/3865 (SLIP-ON NUT)

HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.

DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

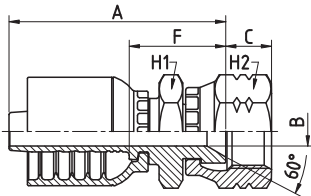


PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	F	H <sub>2</sub>
OPB21643-04-16	6	1/4"	- 04	M 16x1.5	8	0.16	2.50	0.13	0.59	1.42	0.75
OPB21643-04-18	6	1/4"	- 04	M 18x1.5	10	0.16	2.56	0.12	0.65	1.48	0.87
OPB21643-05-20	8	5/16"	- 05	M 20x1.5	12	0.22	2.78	0.10	0.73	1.67	0.94
OPB21643-06-20	10	3/8"	- 06	M 20x1.5	12	0.28	2.93	0.10	0.71	1.77	0.94
OPB21643-06-22	10	3/8"	- 06	M 22x1.5	14	0.28	2.99	0.12	0.77	1.83	1.06
OPB21643-08-24	12	1/2"	- 08	M 24x1.5	16	0.37	3.29	0.12	0.79	2.07	1.18
OPB21643-10-30	16	5/8"	- 10	M 30x2	20	0.49	3.93	0.14	1.16	2.58	1.42
OPB21642-12-30	19	3/4"	- 12	M 30x2	20	0.49	4.45	0.09	1.34	3.01	1.42
OPB21643-12-36	19	3/4"	- 12	M 36x2	25	0.59	4.39	0.18	1.28	2.95	1.61
OPB21643-16-42	25	1"	- 16	M 42x2	30	0.78	5.44	0.25	1.40	3.54	1.97

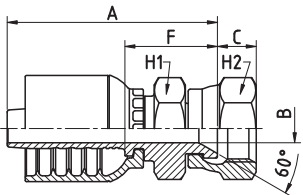
## JIS STANDARD CONNECTIONS

### OPB24011

**JIS METRIC FEMALE 60° CONE SEAT (KOMATSU) JIS B 8363  
(CRIMPED-BACK NUT)**  
**JIS HEMBRA RECTA, ASIENTO A 60° (KOMATSU) JIS B 8363  
(CRIMPADO DETRAS DE LA TUERCA)**



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPB24011-04-14	6	1/4"	- 04	M 14x1.5	0.16	1.99	0.41	0.91	0.75	0.75
OPB24011-04-18	6	1/4"	- 04	M 18x1.5	0.16	1.97	0.45	0.89	0.94	0.94
OPB24011-05-16	8	5/16"	- 05	M 16x1.5	0.22	1.99	0.37	0.89	0.83	0.83
OPB24011-06-14	10	3/8"	- 06	M 14x1.5	0.16	2.09	0.41	0.93	0.75	0.75
OPB24011-06-18	10	3/8"	- 06	M 18x1.5	0.28	2.09	0.45	0.93	0.94	0.94
OPB24011-08-22	12	1/2"	- 08	M 22x1.5	0.37	2.20	0.55	0.98	1.06	1.06
OPB24011-10-24	16	5/8"	- 10	M 24x1.5	0.49	2.40	0.59	1.05	1.26	1.26
OPB24011-12-30	19	3/4"	- 12	M 30x1.5	0.59	2.68	0.72	1.24	1.42	1.42
OPB24011-16-33	25	1"	- 16	M 33x1.5	0.78	3.21	0.84	1.31	1.61	1.61



### OPB23811

**JIS BSP FEMALE 60° CONE SEAT (TOYOTA) JIS B 8363**  
**JIS BSP HEMBRA RECTA ASIENTO A 60° (TOYOTA) JIS B 8363**

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPB23811-04-04	6	1/4"	- 04	1/4" - 19	0.16	1.81	0.33	0.73	0.75	0.75
OPB23811-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.07	0.39	0.91	0.87	0.87
OPB23811-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.13	0.45	0.91	1.06	1.06
OPB23811-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.46	0.53	1.02	1.26	1.26
OPB23811-16-16	25	1"	- 16	1" - 11	0.78	3.09	0.57	1.19	1.50	1.50

# OPB TYPE

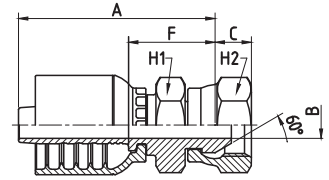


## JIS STANDARD CONNECTIONS

### OPB20711

JIS BSP FEMALE 60° CONE (NISSAN) JIS B 8363  
(CRIMPED-BACK NUT)

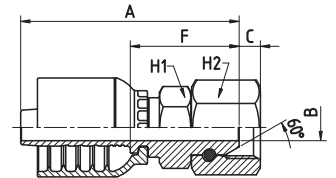
JIS BSP HEMBRA RECTA ASIENTO A 60° (NISSAN) JIS B 8363  
(CRIMPADO DETRAS DE LA TUERCA)



### OPB20712

JIS BSP FEMALE 60° CONE (NISSAN) JIS B 8363  
(THRUST-WIRE NUT)

JIS BSP HEMBRA RECTA ASIENTO A 60° (NISSAN) JIS B 8363  
(TUERCA GIRATORIA SOBRE LA ESPIGA)

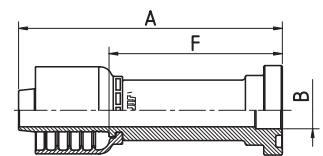


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPB20711-04-04	6	1/4"	- 04	1/4" - 19	0.16	1.97	0.18	0.89	0.75	0.75
OPB20711-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.13	0.25	0.97	0.87	0.87
OPB20711-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.26	0.26	1.04	1.06	1.06
OPB20712-10-12	16	5/8"	- 10	3/4" - 14	0.59	2.56	0.35	1.21	1.26	1.26
OPB20711-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.62	0.35	1.18	1.26	1.26

## KOMATSU FLANGE STANDARD CONNECTIONS

### OPB24111

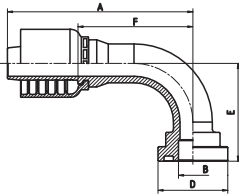
STRAIGHT KOMATSU FLANGE  
BRIDA RECTA KOMATSU



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	F		
OPB24111-10-10	16	5/8"	- 10	5/8"	0.55	3.94	1.34	2.59		



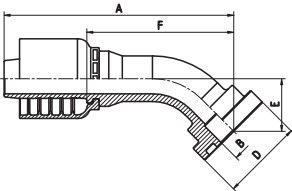
## KOMATSU FLANGE STANDARD CONNECTIONS



### OPB24191

90° KOMATSU FLANGE  
BRIDA CODO 90° KOMATSU

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPB24191-10-10	16	5/8"	- 10	5/8"	0.55	3.56	1.34	1.87	2.20

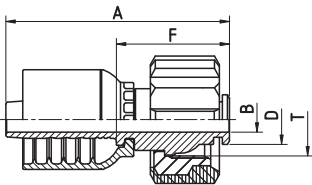


### OPB24141

45° KOMATSU FLANGE  
BRIDA CODO 45° KOMATSU

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPB24141-10-10	16	5/8"	- 10	5/8"	0.55	3.75	1.34	0.87	2.40

## WASH CLEANING STANDARD CONNECTIONS



### OPB24913

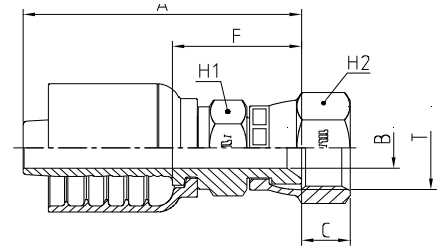
WASH CLEANER FEMALE (SLIP-ON NUT)  
HEMBRA RECTA ARANDELA DE DESGASTE  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPB24913-04-22	6	1/4"	- 04	M 22x1.5	0.16	2.42	0.55	1.34	1.06
OPB24913-05-22	8	5/16"	- 05	M 22x1.5	0.22	2.44	0.55	1.34	1.06
OPB24913-06-22	10	3/8"	- 06	M 22x1.5	0.28	2.50	0.55	1.34	1.06

## JIC STANDARD CONNECTIONS

### OPB22711KR

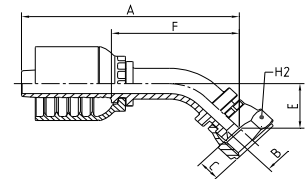
JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON  
SAE J516/ISO 12151-5 (CRIMPED-BACK NUT)  
JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO  
SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPB22711-03-04KR	5	3/16"	- 03	7/16" - 20	0.16	1.63	0.35	0.79	0.47	0.59
OPB22711-04-04KR	6	1/4"	- 04	7/16" - 20	0.16	1.89	0.35	0.81	0.47	0.59
OPB22711-04-06KR	6	1/4"	- 04	9/16" - 18	0.28	1.93	0.37	0.85	0.55	0.67
OPB22711-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.03	0.37	0.87	0.67	0.67
OPB22711-06-08KR	10	3/8"	- 06	3/4" - 16	0.37	2.20	0.42	0.85	0.75	0.87
OPB22711-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.42	1.06	0.75	0.87
OPB22711-08-10KR	12	1/2"	- 08	7/8" - 14	0.37	2.39	0.49	1.17	0.87	0.98
OPB22711-10-10KR	16	5/8"	- 10	7/8" - 14	0.37	2.51	0.49	1.16	0.87	0.98
OPB22711-12-12KR	19	3/4"	- 12	1.1/16" - 12	0.59	2.62	0.56	1.19	1.06	1.25

### OPB22541KR

45° ELBOW JIC FEMALE 37° CONE SEAT - SAE J516/ISO 12151-5  
(CRIMPED-BACK NUT)  
JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)

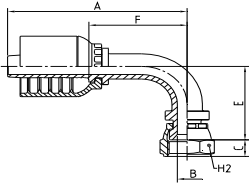


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB22541-04-04KR	6	1/4"	- 04	7/16" - 20	0.17	2.44	0.35	0.53	1.36	0.59
OPB22541-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.81	0.37	0.63	1.65	0.67
OPB22541-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	3.28	0.42	0.79	2.05	0.87
OPB22541-10-10KR	16	5/8"	- 10	7/8" - 14	0.49	3.79	0.49	0.89	2.44	0.98
OPB22541-12-12KR	19	3/4"	- 12	1.1/16" - 12	0.59	4.20	0.56	1.08	2.76	1.26

## JIC STANDARD CONNECTIONS

### OPB22591KR

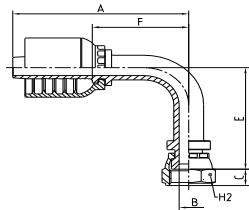
90° ELBOW JIC FEMALE 37° CONE SEAT - SAE J516/ISO 12151-5  
(CRIMPED-BACK NUT)  
JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB22591-04-04KR	6	1/4"	- 04	7/16" - 20	0.17	2.20	0.35	1.06	1.12	0.59
OPB22591-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.37	1.26	1.40	0.67
OPB22591-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	2.96	0.42	1.61	1.73	0.87
OPB22591-10-10KR	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.49	1.85	2.11	0.98
OPB22591-12-12KR	19	3/4"	- 12	1-1/16" - 12	0.59	3.88	0.56	2.28	2.44	1.26

### OPB24791KR

90° LONG DROP ELBOW JIC FEMALE 37° CONE SEAT - SAE J516/ISO 12151-5  
(CRIMPED-BACK NUT)  
JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPB24791-04-04KR	6	1/4"	- 04	7/16" - 20	0.17	2.20	0.35	1.77	1.12	0.59
OPB24791-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.37	2.17	1.40	0.67
OPB24791-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	2.96	0.42	2.52	1.73	0.87
OPB24791-10-10KR	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.49	2.76	2.11	0.98
OPB24791-12-12KR	19	3/4"	- 12	1.1/16" - 12	0.59	3.88	0.56	3.78	2.44	1.26

# OPNS TYPE

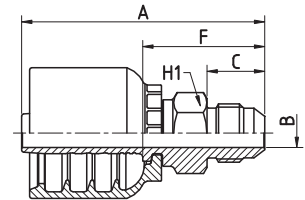


## JIC STANDARD CONNECTIONS

### OPNS12510

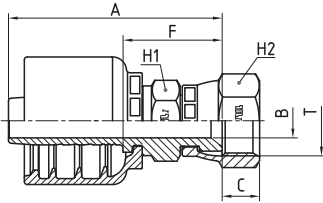
JIC MALE 37° CONE - SAE J516/J514

JIC MACHO RECTO ASIENTO A 37° - SAE J516/J514



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPNS12510-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.32	0.55	1.17	0.67
OPNS12510-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.50	0.65	1.34	0.75
OPNS12510-06-10	10	3/8"	- 06	7/8"-14	0.49	2.68	0.77	1.52	0.94
OPNS12510-08-06	12	1/2"	- 08	9/16" -18	0.28	2.48	0.55	1.26	0.75
OPNS12510-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.58	0.65	1.35	0.75
OPNS12510-08-10	12	1/2"	- 08	7/8" - 14	0.49	2.76	0.77	1.53	0.94
OPNS12510-08-12	12	1/2"	- 08	1.1/16" - 12	0.59	2.91	0.87	1.69	1.06
OPNS12510-10-10	16	5/8"	- 10	7/8" - 14	0.49	2.89	0.77	1.54	0.94
OPNS12510-10-12	16	5/8"	- 10	1.1/16" - 12	0.59	3.03	0.87	1.68	1.06
OPNS12510-12-10	19	3/4"	- 12	7/8" -14	0.49	3.07	0.77	1.63	1.06
OPNS12510-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	3.17	0.87	1.73	1.06
OPNS12510-12-14	19	3/4"	- 12	1.3/16" - 12	0.63	3.19	0.89	1.75	1.26
OPNS12510-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	3.29	0.91	1.85	1.34
OPNS12510-16-12	25	1"	- 16	1.1/16" - 12	0.59	3.66	0.87	1.76	1.26
OPNS12510-16-16	25	1"	- 16	1.5/16" - 12	0.78	3.78	0.91	1.88	1.34
OPNS12510-16-20	25	1"	- 16	1.5/8" - 12	1.02	3.98	0.96	2.08	1.65
OPNS12510-20-20	31	1.1/4"	- 20	1.5/8" - 12	1.02	3.09	0.96	1.02	1.65
OPNS12510-20-24	31	1.1/4"	- 20	1.7/8" - 12	1.26	3.33	1.08	1.26	1.97
OPNS12510-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.26	3.70	1.08	1.26	1.97
OPNS12510-32-32	51	2"	- 32	2.1/2" - 12	1.65	4.25	1.34	1.65	2.56

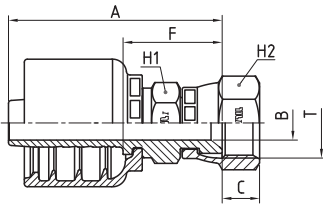
## JIC STANDARD CONNECTIONS



### OPNS22711

**JIC FEMALE 37° CONE SEAT DOUBLE EXAGON  
SAE J516/J514 (CRIMPED-BACK NUT)**

JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO SAE J516/J514  
(CRIMPADO DETRAS DE LA TUERCA)



### OPNS22711K

**JIC FEMALE 37° CONE SEAT DOUBLE EXAGON COMPACT  
SAE J516/J514 (CRIMPED-BACK NUT)**

JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO COMPACTO  
SAE J516/J514 (CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPNS22711-06-06K	10	3/8"	- 06	9/16" - 18	0.28	2.03	0.37	0.87	0.67	0.67
OPNS22711-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.20	0.42	0.85	0.75	0.87
OPNS22711-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.42	1.06	0.75	0.87
OPNS22711-08-10K	12	1/2"	- 08	7/8" - 14	0.37	2.39	0.49	1.17	0.87	0.98
OPNS22711-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	2.62	0.56	1.19	1.06	1.25

# OPNS TYPE

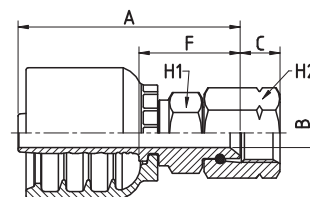


## JIC STANDARD CONNECTIONS

### OPNS22712

JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)

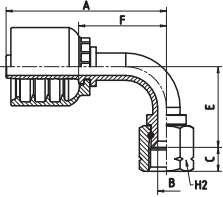
JIC HEMBRA RECTA ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPNS22712-06-04	10	3/8"	- 06	7/16" - 20	0.16	2.13	0.32	0.97	0.67	0.67
OPNS22712-06-05	10	3/8"	- 06	1/2" - 20	0.22	2.13	0.36	0.98	0.67	0.67
OPNS22712-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.13	0.36	0.97	0.67	0.75
OPNS22712-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.20	0.40	1.07	0.75	0.87
OPNS22712-06-10	10	3/8"	- 06	7/8" - 14	0.49	2.24	0.48	1.10	0.87	1.06
OPNS22712-08-06	12	1/2"	- 08	9/16" - 18	0.28	2.18	0.36	0.97	0.75	0.75
OPNS22712-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.40	1.08	0.75	0.87
OPNS22712-08-12	12	1/2"	- 08	1.1/16" - 12	0.49	2.41	0.56	1.19	1.06	1.26
OPNS22712-10-08	16	5/8"	- 10	3/4" - 16	0.37	2.44	0.40	1.11	0.87	0.87
OPNS22712-10-12	16	5/8"	- 10	7/8" - 14	0.59	2.51	0.56	1.16	1.06	1.26
OPNS22712-12-08	19	3/4"	- 12	3/4" - 16	0.37	2.61	0.40	1.19	1.06	0.87
OPNS22712-12-10	19	3/4"	- 12	7/8" - 14	0.49	2.61	0.48	1.19	1.06	1.06
OPNS22712-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	2.68	0.56	1.24	1.06	1.26
OPNS22712-12-14	19	3/4"	- 12	1.3/16" - 12	0.59	2.74	0.58	1.31	1.18	1.42
OPNS22712-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	2.72	0.60	1.28	1.26	1.50
OPNS22712-16-12	25	1"	- 16	1.1/16" - 12	0.49	3.23	0.56	1.33	1.26	1.26
OPNS22712-16-16	25	1"	- 16	1.5/16" - 12	0.78	3.25	0.60	1.35	1.26	1.50
OPNS22712-16-20	25	1"	- 16	1.5/8" - 12	1.02	3.58	0.64	1.69	1.61	1.97
OPNS22712-20-20	31	1.1/4"	- 20	1.5/8" - 12	1.02	3.78	0.64	1.71	1.61	1.97
OPNS22712-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.26	4.45	0.74	2.01	1.97	2.36
OPNS22712-32-32	51	2"	- 32	2.1/2" - 12	1.65	4.79	0.94	2.19	2.56	2.95



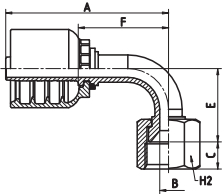
## JIC STANDARD CONNECTIONS



### OPNS22592

**90° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)**

JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS22593

**90° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(SLIP-ON NUT)**

JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/J514  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

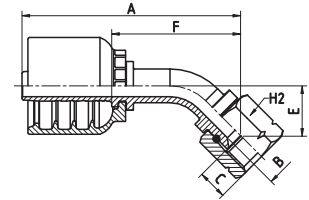
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS22592-06-05	10	3/8"	- 06	1/2" - 20	0.22	2.34	0.37	1.04	1.19	0.67
OPNS22592-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.36	1.28	1.40	0.75
OPNS22593-06-08	10	3/8"	- 06	3/4" - 16	0.28	2.59	0.42	1.16	1.44	0.87
OPNS22593-06-10	10	3/8"	- 06	7/8"-14	0.37	2.60	0.49	1.24	1.44	1.06
OPNS22592-08-06	12	1/2"	- 08	9/16" - 18	0.28	2.68	0.36	1.30	1.46	0.75
OPNS22592-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.96	0.40	1.61	1.73	0.87
OPNS22593-08-10	12	1/2"	- 08	7/8" - 14	0.37	3.00	0.49	1.42	1.77	1.06
OPNS22593-08-12	12	1/2"	- 08	1.1/16" - 12	0.49	2.99	0.54	1.42	1.77	1.26
OPNS22592-10-10	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.48	2.07	2.11	1.06
OPNS22593-10-12	16	5/8"	- 10	1.1/16" - 12	0.49	3.38	0.54	1.97	2.03	1.26
OPNS22592-12-10	19	3/4"	- 12	7/8" - 14	0.49	3.60	0.48	2.07	2.17	1.06
OPNS22592-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	3.88	0.56	2.28	2.44	1.26
OPNS22592-12-14	19	3/4"	- 12	1.3/16" - 12	0.59	3.88	0.58	2.28	2.44	1.42
OPNS22592-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	3.88	0.60	2.26	2.44	1.50
OPNS22592-16-16	25	1"	- 16	1.5/16" - 12	0.78	4.73	0.60	2.64	3.03	1.50
OPNS22592-16-20	25	1"	- 16	1.5/8" - 12	1.02	4.94	0.64	2.93	3.04	1.97
OPNS22592-20-20	31	1.1/4"	- 20	1.5/8" - 12	1.02	5.63	0.64	3.41	3.56	1.97
OPNS22592-20-24	31	1.1/4"	- 20	1.7/8" - 12	1.26	5.63	0.74	3.58	3.56	2.36
OPNS22592-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.26	6.69	0.74	3.96	4.25	2.36
OPNS22592-32-32	51	2"	- 32	2.1/2"-12	1.73	8.19	0.94	5.39	5.59	2.95

## JIC STANDARD CONNECTIONS

### OPNS22542

45° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)

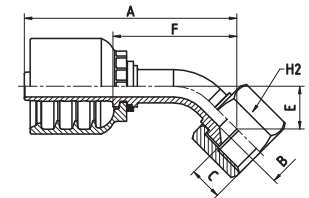
JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS22543

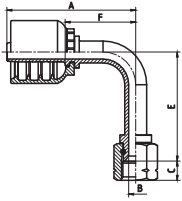
45° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(SLIP-ON NUT)

JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/J514  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)



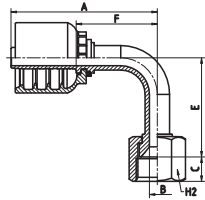
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS22542-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.81	0.36	0.65	1.65	0.75
OPNS22543-06-08	10	3/8"	- 06	3/4" - 16	0.28	2.77	0.42	0.55	1.61	0.87
OPNS22543-06-10	10	3/8"	- 06	7/8" - 14	0.37	2.83	0.49	0.61	1.67	1.06
OPNS22542-08-08	12	1/2"	- 08	3/4" - 16	0.37	3.27	0.40	0.79	2.05	0.87
OPNS22543-08-10	12	1/2"	- 08	7/8" - 14	0.37	3.17	0.49	0.67	1.95	1.06
OPNS22543-08-12	12	1/2"	- 08	1.1/16" - 12	0.49	3.19	0.54	0.67	1.97	1.26
OPNS22542-10-10	16	5/8"	- 10	7/8" - 14	0.49	3.79	0.48	1.00	2.44	1.06
OPNS22543-10-12	16	5/8"	- 10	1.1/16" - 12	0.49	3.71	0.54	0.94	2.36	1.26
OPNS22542-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	4.19	0.56	1.08	2.76	1.26
OPNS22542-12-14	19	3/4"	- 12	1.3/16" - 12	0.59	4.15	0.58	1.08	2.72	1.42
OPNS22542-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	4.19	0.60	1.08	2.76	1.50
OPNS22542-16-12	25	1"	- 16	1.1/16" - 12	0.59	4.75	0.56	1.08	2.85	1.26
OPNS22542-16-16	25	1"	- 16	1.5/16" - 12	0.78	5.28	0.60	1.27	3.39	1.50
OPNS22542-16-20	25	1"	- 16	1.5/8" - 12	1.02	5.44	0.64	1.42	3.54	1.97
OPNS22542-20-20	31	1.1/4"	- 20	1.5/8" - 12	1.02	6.14	0.64	1.63	4.07	1.97
OPNS22542-20-24	31	1.1/4"	- 20	1.7/8" - 12	1.26	6.26	0.74	1.75	4.19	2.36
OPNS22542-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.26	7.13	0.74	1.83	4.69	2.36
OPNS22542-32-32	51	2"	- 32	2.1/2" - 12	1.73	9.02	0.94	2.68	6.42	2.95

## JIC STANDARD CONNECTIONS



### OPNS24792

**90° LONG DROP JIC FEMALE 37° CONE SEAT - SAE J516/J514 (THRUST-WIRE NUT)**  
**JIC HEMBRA CODO LARGO 90° ASIENTO A 37° - SAE J516/J514 (TUERCA GIRATORIA SOBRE LA ESPIGA)**

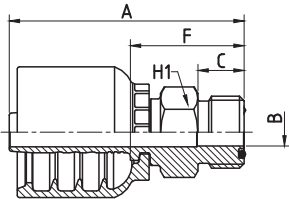


### OPNS24793

**90° LONG DROP JIC FEMALE 37° CONE SEAT - SAE J516/J514 (SLIP-ON NUT)**  
**JIC HEMBRA CODO LARGO 90° ASIENTO A 37° - SAE J516/J514 (TUERCA DESLIZABLE SOBRE LA ESPIGA)**

PART. REF.	HOSE BORE	THREAD	DIMENSIONS inch							
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	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPNS24792-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.38	2.17	1.40	0.75
OPNS24793-06-08	10	3/8"	- 06	3/4" - 16	0.28	2.59	0.43	2.43	1.44	0.87
OPNS24792-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.88	0.43	2.43	1.65	0.87
OPNS24793-08-10	12	1/2"	- 08	7/8" - 14	0.37	3.00	0.50	2.57	1.77	1.06
OPNS24792-10-10	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.50	2.58	2.11	1.06
OPNS24792-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	3.88	0.56	3.72	2.44	1.26
OPNS24792-16-16	25	1"	- 16	1.5/16" - 12	0.78	5.01	0.60	4.33	3.11	1.50



## ORFS STANDARD CONNECTIONS

### OPNS12410

**ORFS RIGID MALE - SAE J1453**  
**ORFS MACHO ASIENTO PLANO - SAE J1453**

PART. REF.	HOSE BORE	THREAD	DIMENSIONS inch							
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	DN	inch	Size		B	A	C	F	H <sub>1</sub>	
OPNS12410-06-06	10	3/8"	- 06	11/16" - 16	0.26	2.23	0.44	1.07	0.75	
OPNS12410-06-08	10	3/8"	- 06	13/16" - 16	0.37	2.34	0.50	1.18	0.87	
OPNS12410-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.43	0.50	1.20	0.87	
OPNS12410-08-10	12	1/2"	- 08	1" - 14	0.49	2.60	0.61	1.38	1.06	
OPNS12410-10-10	16	5/8"	- 10	1" - 14	0.49	2.72	0.61	1.37	1.06	
OPNS12410-10-12	16	5/8"	- 10	1.3/16" - 12	0.59	2.83	0.67	1.48	1.26	
OPNS12410-12-12	19	3/4"	- 12	1.3/16" - 12	0.59	2.97	0.67	1.54	1.26	
OPNS12410-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	3.03	0.69	1.59	1.50	
OPNS12410-16-16	25	1"	- 16	1.7/16" - 12	0.78	3.54	0.69	1.65	1.50	
OPNS12410-20-20	31	1.1/4"	- 20	1.11/16" - 12	1.02	3.89	0.69	1.82	1.81	
OPNS12410-24-24	38	1.1/2"	- 24	2" - 12	1.26	4.35	0.69	1.91	2.17	

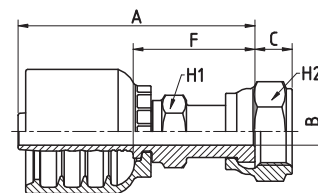
# OPNS TYPE



## ORFS STANDARD CONNECTIONS

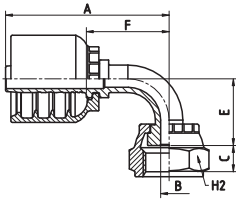
### OPNS22411

ORFS FEMALE - SAE J516/J1453 (CRIMPED-BACK NUT)  
 ORFS HEMBRA RECTA ASIENTO PLANO - SAE J516/J1453  
 (CRIMPADO DETRAS DE LA TUERCA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPNS22411-06-06	10	3/8"	- 06	11/16" - 16	0.28	1.46	0.37	1.22	0.63	0.87
OPNS22411-06-08	10	3/8"	- 06	13/16" - 16	0.37	1.64	0.43	1.40	0.75	0.94
OPNS22411-08-06	12	1/2"	- 08	11/16" - 16	0.28	1.57	0.37	1.26	0.63	0.87
OPNS22411-08-08	12	1/2"	- 08	13/16" - 16	0.37	1.73	0.43	1.41	0.75	0.94
OPNS22411-08-10	12	1/2"	- 08	1" - 14	0.45	1.83	0.53	1.51	0.94	1.18
OPNS22411-08-12	12	1/2"	- 08	1.3/16" - 12	0.55	1.96	0.57	1.65	1.10	1.42
OPNS22411-10-10	16	5/8"	- 10	1" - 14	0.45	1.92	0.53	1.52	0.94	1.18
OPNS22411-10-12	16	5/8"	- 10	1.3/16" - 12	0.55	2.05	0.57	1.65	1.10	1.42
OPNS22411-12-10	19	3/4"	- 12	1" - 14	0.45	2.09	0.53	1.61	1.10	1.18
OPNS22411-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	2.19	0.57	1.71	1.10	1.42
OPNS22411-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	2.26	0.59	1.79	1.42	1.61
OPNS22411-16-12	25	1"	- 16	1.3/16" - 12	0.55	3.70	0.57	1.80	1.42	1.42
OPNS22411-16-16	25	1"	- 16	1.7/16" - 12	0.78	2.45	0.59	1.82	1.42	1.61
OPNS22411-16-20	25	1"	- 16	1.11/16" - 12	1.02	2.57	0.58	1.94	1.61	1.97
OPNS22411-20-20	31	1.1/4"	- 20	1.11/16" - 12	1.02	3.68	0.58	1.93	1.61	1.97
OPNS22411-24-24	38	1.1/2"	- 24	2" - 12	1.26	4.41	0.62	2.13	1.97	2.36

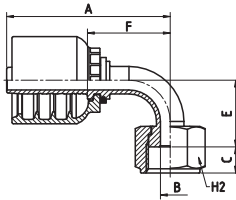
## ORFS STANDARD CONNECTIONS



### OPNS22491

90° ORFS FEMALE - SAE J516/J1453  
(CRIMPED-BACK NUT)

ORFS HEMBRA CODO 90° ASIENTO PLANO - SAE J516/J1453  
(CRIMPADO DETRAS DE LA TUERCA)



### OPNS22493

90° ORFS FEMALE - SAE J516/J1453  
(SLIP-ON NUT)

ORFS HEMBRA CODO 90° ASIENTO PLANO - SAE J516/J1453  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE	THREAD	DIMENSIONS inch							
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	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS22493-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.34	0.37	0.94	1.18	0.87
OPNS22493-06-08	10	3/8"	- 06	13/16" - 16	0.37	2.34	0.43	1.04	1.18	0.94
OPNS22491-08-06	12	1/2"	- 08	11/16" - 16	0.28	2.44	0.37	0.96	1.22	0.87
OPNS22493-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.82	0.43	1.18	1.59	0.94
OPNS22493-08-10	12	1/2"	- 08	1" - 14	0.45	2.82	0.53	1.18	1.59	1.18
OPNS22493-08-12	12	1/2"	- 08	1.3/16" - 12	0.55	2.79	0.57	1.48	1.56	1.42
OPNS22493-10-10	16	5/8"	- 10	1" - 14	0.45	3.24	0.53	1.48	1.89	1.18
OPNS22493-10-12	16	5/8"	- 10	1.3/16" - 12	0.55	3.24	0.57	1.61	1.89	1.42
OPNS22491-12-10	19	3/4"	- 12	1" - 14	0.45	3.37	0.53	1.50	1.93	1.18
OPNS22493-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	3.66	0.57	1.89	2.22	1.42
OPNS22493-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	3.66	0.58	1.87	2.22	1.61
OPNS22491-16-12	25	1"	- 16	1.3/16" - 12	0.55	4.17	0.57	1.89	2.27	1.42
OPNS22493-16-16	25	1"	- 16	1.7/16" - 12	0.78	4.71	0.58	2.20	2.81	1.61
OPNS22493-16-20	25	1"	- 16	1.11/16" - 12	1.02	4.67	0.58	2.20	2.78	1.97
OPNS22493-20-20	31	1.1/4"	- 20	1.11/16" - 12	1.02	5.34	0.58	2.60	3.27	1.97
OPNS22493-24-24	38	1.1/2"	- 24	2" - 12	1.26	6.46	0.58	3.13	4.02	2.36

# OPNS TYPE

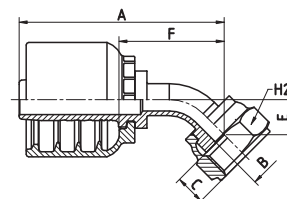


## ORFS STANDARD CONNECTIONS

### OPNS22441

45° ORFS FEMALE - SAE J516/J1453  
(CRIMPED-BACK NUT)

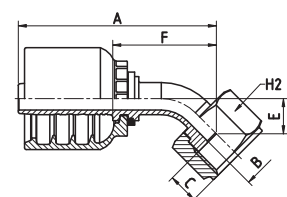
ORFS HEMBRA CODO 45° ASIENTO PLANO - SAE J516/J1453  
(CRIMPADO DETRAS DE LA TUERCA)



### OPNS22443

45° ORFS FEMALE - SAE J516/J1453  
(SLIP-ON NUT)

ORFS HEMBRA CODO 45° ASIENTO PLANO - SAE J516/J1453  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)



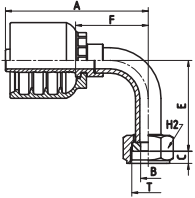
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS22443-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.44	0.37	0.43	1.28	0.87
OPNS22443-06-08	10	3/8"	- 06	13/16" - 16	0.37	2.50	0.43	0.49	1.34	0.94
OPNS22441-08-06	12	1/2"	- 08	11/16" - 16	0.28	2.52	0.37	0.43	1.30	0.87
OPNS22443-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.88	0.43	0.51	1.65	0.94
OPNS22443-08-10	12	1/2"	- 08	1" - 14	0.44	2.88	0.53	0.53	1.65	1.18
OPNS22443-08-12	12	1/2"	- 08	1.3/16" - 12	0.55	3.06	0.57	0.72	1.84	1.42
OPNS22443-10-10	16	5/8"	- 10	1" - 14	0.45	3.28	0.53	0.63	1.93	1.18
OPNS22443-10-12	16	5/8"	- 10	1.3/16" - 12	0.55	3.38	0.57	0.72	2.03	1.42
OPNS22441-12-10	19	3/4"	- 12	1" - 14	0.45	3.43	0.53	0.65	1.99	1.18
OPNS22443-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	3.82	0.57	0.85	2.38	1.42
OPNS22443-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	3.80	0.58	0.83	2.37	1.61
OPNS22443-16-16	25	1"	- 16	1.7/16" - 12	0.78	4.72	0.58	0.93	2.81	1.61
OPNS22443-16-20	25	1"	- 16	1.11/16" - 12	1.02	4.69	0.58	0.92	2.81	1.97
OPNS22443-20-20	31	1.1/4"	- 20	1.11/16" - 12	1.02	5.30	0.58	1.06	3.23	1.97
OPNS22443-24-24	38	1.1/2"	- 24	2" - 12	1.26	6.30	0.58	1.24	3.86	2.36



## ORFS STANDARD CONNECTIONS

### OPNS24493\*

**LONG DROP 90° ORFS FEMALE - SAE J516/J1453 (SLIP-ON NUT)**  
**ORFS HEMBRA CODO LARGO 90° ASIENTO PLANO - SAE J516/J1453**  
**(CRIMPADO DETRAS DE LA TUERCA)**



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>1</sub>
OPNS24493-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.40	0.37	2.11	1.24	0.87
OPNS24493-06-08	10	3/8"	- 06	13/16" - 16	0.26	2.40	0.43	2.09	1.24	0.94
OPNS24493-08-08	12	1/2"	- 08	13/16" - 16	0.39	2.68	0.43	2.50	1.46	0.94
OPNS24493-08-10	12	1/2"	- 08	1" - 14	0.38	2.67	0.53	2.50	1.44	1.18
OPNS24493-10-10	16	5/8"	- 10	1" - 14	0.38	2.95	0.53	2.70	1.60	1.18
OPNS24493-10-12	16	5/8"	- 10	1.3/16" - 12	0.50	2.95	0.57	2.85	1.60	1.42
OPNS24493-12-12	19	3/4"	- 12	1.3/16" - 12	0.61	3.23	0.57	3.78	1.79	1.42
OPNS24493-16-16	25	1"	- 16	1.7/16" - 12	0.81	4.20	0.58	4.47	2.30	1.61

\* NOT MADE FROM SOLID STOCK / CONSTRUIDOS CON SOLDADURA

# OPNS TYPE

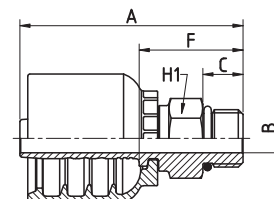


## SAE OR BOSS STANDARD CONNECTIONS

### OPNS13010

SAE MALE O-RING BOSS TYPE - SAE J516/J514

SAE MACHO TIPO O-RING BOSS - SAE J516/J514

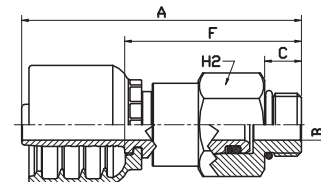


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPNS13010-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.17	0.39	1.01	0.67
OPNS13010-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.28	0.44	1.13	0.87
OPNS13010-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.36	0.44	1.14	0.87
OPNS13010-08-10	12	1/2"	- 08	7/8" - 14	0.49	2.48	0.50	1.26	0.98
OPNS13010-10-12	16	5/8"	- 10	1. 1/16" - 12	0.59	2.83	0.59	1.48	1.26
OPNS13010-12-12	19	3/4"	- 12	1. 1/16" - 12	0.59	2.99	0.59	1.56	1.26
OPNS13010-12-16	19	3/4"	- 12	1. 5/16" - 12	0.78	3.01	0.59	1.57	1.50
OPNS13010-16-16	25	1"	- 16	1. 5/16" - 12	0.78	3.52	0.59	1.62	1.50

### OPNS14310

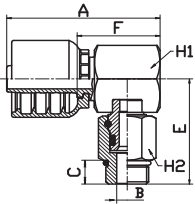
SAE SWIVEL MALE O-RING BOSS TYPE - SAE J516/J514

SAE MACHO GIRATORIO TIPO O-RING BOSS - SAE J516/J514



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPNS14310-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.96	0.39	1.81	0.87
OPNS14310-08-08	12	1/2"	- 08	3/4" - 16	0.37	3.23	0.44	2.00	1.06

## SAE OR BOSS STANDARD CONNECTIONS

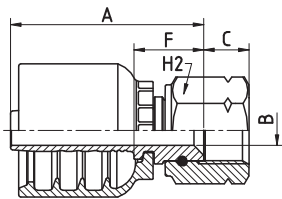


### OPNS14390\*

90° SAE SWIVEL MALE O-RING BOSS TYPE - SAE J516/J514  
 SAE MACHO GIRATORIO CODO 90° TIPO O-RING BOSS  
 SAE J516/J514

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch						
	DN	inch	Size		B	A	C	E	F	H <sub>1</sub>	H <sub>2</sub>
OPNS14390-06-06	10	3/8"	- 06	9/16" - 18	0.27	1.95	0.39	1.57	0.79	0.87	0.67
OPNS14390-06-08	10	3/8"	- 06	3/4" - 16	0.27	1.95	0.44	1.80	0.79	0.87	
OPNS14390-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.09	0.44	1.93	0.87	1.06	0.87

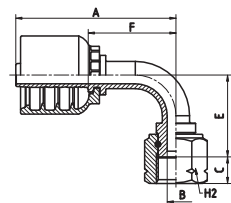
\* NOT MADE FROM SOLID STOCK / CONSTRUIDOS CON SOLDADURA



### OPNS22612

SAE FEMALE 45° CONE SEAT - SAE J516/J512  
 (THRUST-WIRE NUT)  
 SAE 45 HEMBRA RECTA ASIEN TO A 45° - SAE J516/J512  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>2</sub>	
OPNS22612-06-06	10	3/8"	- 06	5/8" - 18	0.28	1.81	0.43	0.65	0.87	
OPNS22612-12-12	19	3/4"	- 12	1.1/16" - 14	0.59	2.33	0.57	0.89	1.26	



### OPNS22692

90° SAE FEMALE SWEEP ELBOW 45° CONE SEAT  
 SAE J516/J512 (THRUST-WIRE NUT)  
 HEMBRA SAE CODO 90° ASIEN TO A 45° - SAE J516/512  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS22692-06-06	10	3/8"	- 06	5/8" - 18	0.28	2.56	0.43	1.30	1.40	0.87
OPNS22692-12-12	19	3/4"	- 12	1.1/6" - 14	0.59	3.88	0.57	2.28	2.44	1.26

# OPNS TYPE

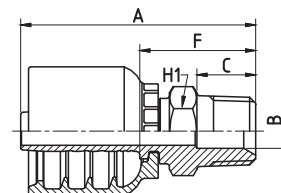


## NPTF STANDARD CONNECTIONS

### OPNS12810

NPTF MALE 30° CONE SEAT - SAE J516

NPTF MACHO CUERDA CONICA ASIENTO A 30° - SAE J516

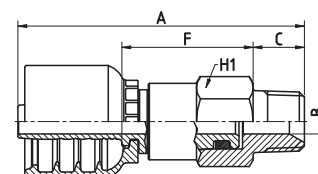


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPNS12810-06-04	10	3/8"	- 06	1/4" - 18	0.22	2.34	0.57	1.19	0.55
OPNS12810-06-06	10	3/8"	- 06	3/8" - 18	0.37	2.28	0.57	1.13	0.75
OPNS12810-06-08	10	3/8"	- 06	1/2" - 14	0.49	2.52	0.76	1.36	0.94
OPNS12810-08-06	12	1/2"	- 08	3/8" - 18	0.37	2.36	0.57	1.14	0.75
OPNS12810-08-08	12	1/2"	- 08	1/2" - 14	0.49	2.60	0.76	1.37	0.94
OPNS12810-08-12	12	1/2"	- 08	3/4" - 14	0.63	2.62	0.76	1.39	1.06
OPNS12810-10-08	16	5/8"	- 10	1/2" - 14	0.49	2.87	0.76	1.52	0.94
OPNS12810-10-12	16	5/8"	- 10	3/4" - 14	0.63	2.93	0.76	1.58	1.06
OPNS12810-12-08	19	3/4"	- 12	1/2" - 14	0.49	2.87	0.76	1.44	1.06
OPNS12810-12-12	19	3/4"	- 12	3/4" - 14	0.63	2.87	0.76	1.44	1.06
OPNS12810-12-16	19	3/4"	- 12	1" - 11.5	0.78	3.25	0.95	1.81	1.42
OPNS12810-16-12	25	1"	- 16	3/4" - 14	0.61	3.43	0.76	1.53	1.26
OPNS12810-16-16	25	1"	- 16	1" - 11.5	0.78	3.62	0.95	1.72	1.42
OPNS12810-16-20	25	1"	- 16	1.1/4" - 11.5	1.02	4.11	0.98	2.22	1.81
OPNS12810-20-20	31	1.1/4"	- 20	1.1/4" - 11.5	1.02	4.29	0.98	2.22	1.81
OPNS12810-24-24	38	1.1/2"	- 24	1.1/2" - 11.5	1.26	4.71	1.02	2.27	1.97
OPNS12810-32-32	51	2"	- 32	2" - 11.5	1.77	5.13	1.04	2.53	2.56

### OPNS14110

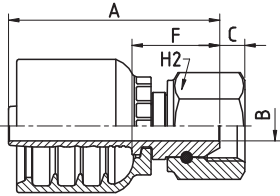
NPTF SWIVEL MALE 30° CONE SEAT - SAE J516

NPTF MACHO GIRATORIO CUERDA CONICA ASIENTO A 30° - SAE J516



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPNS14110-06-06	10	3/8"	- 06	3/8" - 18	0.28	3.15	0.57	1.99	0.87
OPNS14110-06-08	10	3/8"	- 06	1/2" - 14	0.37	3.33	0.76	2.17	0.94
OPNS14110-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.55	0.76	2.32	1.06
OPNS14110-12-12	19	3/4"	- 12	3/4" - 14	0.63	3.72	0.76	2.28	1.26
OPNS14110-16-16	25	1"	- 16	1" - 11.5	0.78	4.49	0.95	2.59	1.50

## NPTF STANDARD CONNECTIONS

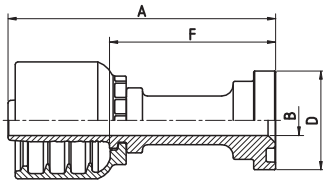


### OPNS22812

**NPSM FEMALE 30° CONE - SAE J514 (THRUST-WIRE NUT)**  
**NPSM HEMBRA RECTA ASIENTO A 30° CUERDA RECTA - SAE J514**  
**(TUERCA GIRATORIA SOBRE LA ESPIGA)**

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>2</sub>	
OPNS22812-06-06	10	3/8"	- 06	3/8" - 18	0.28	1.98	0.24	0.82		0.87
OPNS22812-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.12	0.26	0.90		1.06
OPNS22812-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.40	0.35	0.96		1.26
OPNS22812-16-16	25	1"	- 16	1" - 11.5	0.78	2.97	0.41	1.07		1.50

## FLANGE CODE 61 STANDARD CONNECTIONS



### OPNS23311

**FLANGE STRAIGHT HEAD CODE 61 - SAE J516/J518**  
**BRIDA RECTA CODIGO 61 - SAE J516/J518**

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	F		
OPNS23311-08-08	12	1/2"	- 08	1/2"	0.37	3.23	1.19	2.00		
OPNS23311-08-12	12	1/2"	- 08	3/4"	0.59	3.50	1.50	2.27		
OPNS23311-10-12	16	5/8"	- 10	3/4"	0.59	3.94	1.50	2.59		
OPNS23311-12-12	19	3/4"	- 12	3/4"	0.59	3.72	1.50	2.28		
OPNS23311-12-16	19	3/4"	- 12	1"	0.79	3.72	1.75	2.28		
OPNS23311-16-16	25	1"	- 16	1"	0.78	4.43	1.75	2.53		
OPNS23311-16-20	25	1"	- 16	1.1/4"	1.02	4.67	2.00	2.77		
OPNS23311-20-20	31	1.1/4"	- 20	1.1/4"	1.02	4.85	2.00	2.78		
OPNS23311-20-24	31	1.1/4"	- 20	1.1/2"	1.26	4.92	2.38	2.85		
OPNS23311-24-24	38	1.1/2"	- 24	1.1/2"	1.26	5.42	2.38	2.98		
OPNS23311-24-32	38	1.1/2"	- 24	2"	1.65	5.42	2.81	2.98		
OPNS23311-32-32	51	2"	- 32	2"	1.65	5.71	2.81	3.11		
OPNS23311-32-40	51	2"	- 32	2.1/2"	2.20	5.79	3.32	3.19		

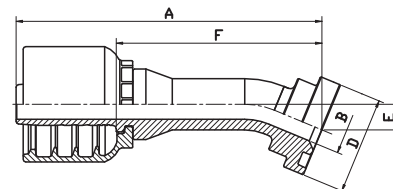
# OPNS TYPE



## FLANGE CODE 61 STANDARD CONNECTIONS

### OPNS23321

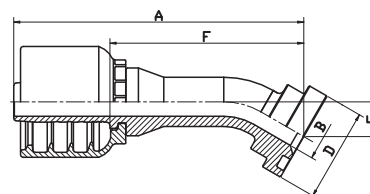
FLANGE HEAD 22.5° CODE 61 - SAE J516/J518  
BRIDA CODO 22.5° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPNS23321-08-08	12	1/2"	- 08	1/2"	0.37	3.74	1.19	0.31	2.52
OPNS23321-12-12	19	3/4"	- 12	3/4"	0.59	4.38	1.50	0.39	2.94
OPNS23321-12-16	19	3/4"	- 12	1"	0.79	4.38	1.75	0.39	2.94
OPNS23321-16-16	25	1"	- 16	1"	0.78	5.39	1.75	0.45	3.50
OPNS23321-20-20	31	1.1/4"	- 20	1.1/4"	1.02	6.00	2.00	0.47	3.94
OPNS23321-20-24	31	1.1/4"	- 20	1.1/2"	1.26	6.07	2.38	0.50	4.01

### OPNS23331

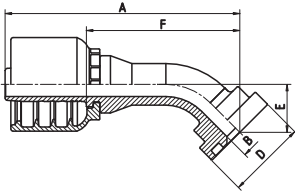
FLANGE HEAD 30° CODE 61 - SAE J516/J518  
BRIDA CODO 30° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPNS23331-08-08	12	1/2"	-08	1/2"	0.37	3.69	1.19	0.44	2.46
OPNS23331-12-12	19	3/4"	-12	3/4"	0.59	4.32	1.50	0.55	2.88
OPNS23331-12-16	19	3/4"	-12	1"	0.79	4.32	1.75	0.55	2.88
OPNS23331-16-16	25	1"	-16	1"	0.78	5.31	1.75	0.65	3.42
OPNS23331-20-20	31	1.1/4"	-20	1.1/4"	1.02	5.93	2.00	0.69	3.86
OPNS23331-24-24	38	1.1/2"	-24	1.1/2"	1.26	6.94	2.38	0.79	4.50



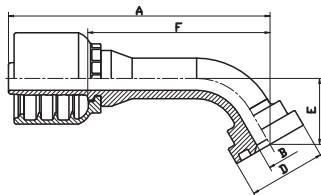
## FLANGE CODE 61 STANDARD CONNECTIONS



### OPNS23341

FLANGE HEAD 45° CODE 61 - SAE J516/J518  
BRIDA CODO 45° CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPNS23341-08-08	12	1/2"	- 08	1/2"	0.37	3.53	1.19	0.73	2.30
OPNS23341-08-12	12	1/2"	- 08	3/4"	0.59	3.57	1.50	0.75	2.34
OPNS23341-10-12	16	5/8"	- 10	3/4"	0.59	3.75	1.50	0.87	2.40
OPNS23341-12-12	19	3/4"	- 12	3/4"	0.59	4.13	1.50	0.91	2.70
OPNS23341-12-16	19	3/4"	- 12	1"	0.79	4.13	1.75	0.91	2.70
OPNS23341-16-16	25	1"	- 16	1"	0.78	5.11	1.75	1.08	3.21
OPNS23341-16-20	25	1"	- 16	1.1/4"	1.02	5.11	2.00	1.07	3.21
OPNS23341-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.69	2.00	1.16	3.62
OPNS23341-20-24	31	1.1/4"	- 20	1.1/2"	1.26	5.75	2.38	1.22	3.68
OPNS23341-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.67	2.38	1.36	4.23
OPNS23341-24-32	38	1.1/2"	- 24	2"	1.65	6.67	2.81	1.36	4.23
OPNS23341-32-32	51	2"	- 32	2"	1.65	7.48	2.81	1.54	4.88



### OPNS23361

FLANGE HEAD 60° CODE 61 - SAE J516/J518  
BRIDA CODO 60° CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPNS23361-08-08	12	1/2"	- 08	1/2"	0.37	4.04	1.19	1.02	2.81
OPNS23361-12-12	19	3/4"	- 12	3/4"	0.59	4.86	1.50	1.30	3.42
OPNS23361-16-16	25	1"	- 16	1"	0.78	5.98	1.75	1.54	4.09
OPNS23361-16-20	25	1"	- 16	1.1/4"	1.02	5.98	2.00	1.54	4.09
OPNS23361-20-20	31	1.1/4"	- 20	1.1/4"	1.02	6.79	2.00	1.69	4.72
OPNS23361-20-24	31	1.1/4"	- 20	1.1/2"	1.26	6.83	2.38	1.76	4.76
OPNS23361-24-24	38	1.1/2"	- 24	1.1/2"	1.26	8.09	2.38	2.00	5.65

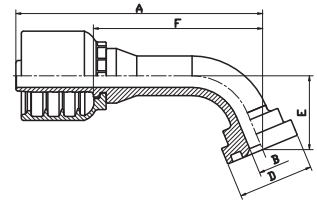
# OPNS TYPE



## FLANGE CODE 61 STANDARD CONNECTIONS

### OPNS23371

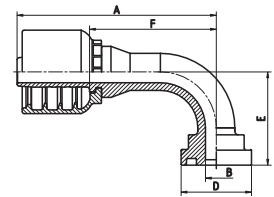
FLANGE HEAD 67.5° CODE 61 - SAE J516/J518  
BRIDA CODO 67.5° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPNS23371-08-08	12	1/2"	- 08	1/2"	0.37	3.90	1.19	1.17	2.67
OPNS23371-12-12	19	3/4"	- 12	3/4"	0.59	4.67	1.50	1.50	3.24
OPNS23371-12-16	19	3/4"	- 12	1"	0.79	4.67	1.75	1.50	3.24
OPNS23371-16-16	25	1"	- 16	1"	0.78	5.78	1.75	1.77	3.88
OPNS23371-20-20	31	1.1/4"	- 20	1.1/4"	1.02	6.56	2.00	1.97	4.49
OPNS23371-24-24	38	1.1/2"	- 24	1.1/2"	1.26	7.81	2.38	2.33	5.37

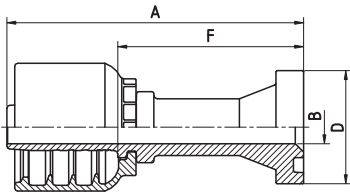
### OPNS23391

FLANGE HEAD 90° CODE 61 - SAE J516/J518  
BRIDA CODO 90° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPNS23391-08-08	12	1/2"	- 08	1/2"	0.37	3.37	1.19	1.57	2.15
OPNS23391-08-12	12	1/2"	- 08	3/4"	0.59	3.37	1.50	1.61	2.15
OPNS23391-10-12	16	5/8"	- 10	3/4"	0.59	3.50	1.50	1.87	2.15
OPNS23391-12-12	19	3/4"	- 12	3/4"	0.59	3.98	1.50	2.05	2.54
OPNS23391-12-16	19	3/4"	- 12	1"	0.79	3.98	1.75	2.05	2.54
OPNS23391-16-16	25	1"	- 16	1"	0.78	4.95	1.75	2.44	3.05
OPNS23391-16-20	25	1"	- 16	1.1/4"	1.02	4.95	2.00	2.44	3.05
OPNS23391-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.63	2.00	2.76	3.56
OPNS23391-20-24	31	1.1/4"	- 20	1.1/2"	1.26	5.63	2.38	2.83	3.56
OPNS23391-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.69	2.38	3.31	4.25
OPNS23391-24-32	38	1.1/2"	- 24	2"	1.65	6.85	2.81	3.31	4.25
OPNS23391-32-32	51	2"	- 32	2"	1.65	7.68	2.81	3.90	5.08

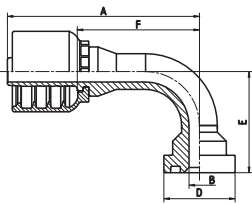
## FLANGE CODE 62 STANDARD CONNECTIONS



### OPNS23611

STRAIGHT SAE FLANGE CODE 62 - SAE J516/J518  
BRIDA RECTA CODIGO 62 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	F		
OPNS23611-08-08	12	1/2"	- 08	1/2"	0.37	3.28	1.25	2.05		
OPNS23611-08-12	12	1/2"	- 08	3/4"	0.59	3.92	1.63	2.69		
OPNS23611-10-08	16	5/8"	- 10	1/2"	0.37	3.40	1.25	2.05		
OPNS23611-10-12	16	5/8"	- 10	3/4"	0.59	4.11	1.63	2.76		
OPNS23611-12-12	19	3/4"	- 12	3/4"	0.59	4.15	1.63	2.72		
OPNS23611-12-16	19	3/4"	- 12	1"	0.79	4.63	1.88	3.19		
OPNS23611-16-16	25	1"	- 16	1"	0.78	5.14	1.88	3.24		
OPNS23611-16-20	25	1"	- 16	1.1/4"	1.02	5.43	2.13	3.54		
OPNS23611-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.40	2.13	3.33		
OPNS23611-20-24	31	1.1/4"	- 20	1.1/2"	1.26	5.63	2.50	3.56		
OPNS23611-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.06	2.50	3.65		
OPNS23611-32-32	51	2"	- 32	2"	1.65	6.85	3.13	4.25		



### OPNS23691

90° SAE FLANGE CODE 62 - SAE J516/J518  
BRIDA CODO 90° CODIGO 62 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	E	F	
OPNS23691-08-08	12	1/2"	- 08	1/2"	0.37	3.37	1.25	1.77	2.15	
OPNS23691-08-12	12	1/2"	- 08	3/4"	0.59	3.37	1.63	2.09	2.15	
OPNS23691-10-12	16	5/8"	- 10	3/4"	0.59	3.56	1.63	2.28	2.20	
OPNS23691-10-16	16	5/8"	- 10	1"	0.78	3.54	1.88	2.56	2.19	
OPNS23691-12-12	19	3/4"	- 12	3/4"	0.59	3.96	1.63	2.40	2.52	
OPNS23691-12-16	19	3/4"	- 12	1"	0.79	3.98	1.88	2.64	2.54	
OPNS23691-16-16	25	1"	- 16	1"	0.78	4.79	1.88	2.68	2.89	
OPNS23691-16-20	25	1"	- 16	1.1/4"	1.02	4.79	2.13	2.95	2.89	
OPNS23691-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.44	2.13	3.19	3.37	
OPNS23691-20-24	31	1.1/4"	- 20	1.1/2"	1.26	5.44	2.50	3.60	3.37	
OPNS23691-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.61	2.50	3.72	4.17	
OPNS23691-32-32	51	2"	- 32	2"	1.65	8.03	3.13	5.20	5.43	

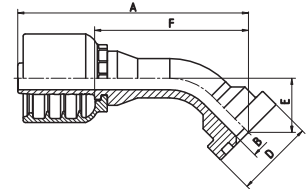
# OPNS TYPE



## FLANGE CODE 62 STANDARD CONNECTIONS

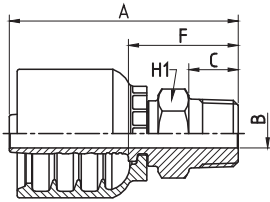
### OPNS23641

45° SAE FLANGE CODE 62 - SAE J516/J518  
BRIDA CODO 45° CODIGO 62 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPNS23641-08-08	12	1/2"	- 08	1/2"	0.37	3.67	1.25	0.87	2.44
OPNS23641-08-12	12	1/2"	- 08	3/4"	0.59	3.90	1.63	1.08	2.68
OPNS23641-10-12	16	5/8"	- 10	3/4"	0.59	4.01	1.63	1.22	2.66
OPNS23641-12-12	19	3/4"	- 12	3/4"	0.59	4.35	1.63	1.16	2.91
OPNS23641-12-16	19	3/4"	- 12	1"	0.79	4.55	1.88	1.32	3.11
OPNS23641-16-12	25	1"	- 16	3/4"	0.59	5.04	1.63	1.18	3.15
OPNS23641-16-16	25	1"	- 16	1"	0.78	5.18	1.88	1.28	3.29
OPNS23641-16-20	25	1"	- 16	1.1/4"	1.02	5.38	2.13	1.47	3.48
OPNS23641-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.83	2.13	1.47	3.76
OPNS23641-20-24	31	1.1/4"	- 20	1.1/2"	1.26	6.11	2.50	1.77	4.04
OPNS23641-24-24	38	1.1/2"	- 24	1.1/2"	1.26	7.09	2.50	1.73	4.65
OPNS23641-32-32	51	2"	- 32	2"	1.65	8.56	3.13	2.38	5.96

## BSPT STANDARD CONNECTIONS



### OPNS10710

**BSP MALE TAPERED**  
BSP MACHO CUERDA CONICA

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPNS10710-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.22	0.47	1.07	0.75
OPNS10710-06-08	10	3/8"	- 06	1/2" - 14	0.39	2.36	0.59	1.20	0.87
OPNS10710-08-04	12	1/2"	- 08	1/4" - 19	0.18	2.24	0.47	1.02	0.75
OPNS10710-08-08	12	1/2"	- 08	1/2" - 14	0.39	2.45	0.59	1.22	0.87
OPNS10710-10-08	16	5/8"	- 10	1/2" - 14	0.39	2.57	0.59	1.22	0.87
OPNS10710-10-12	16	5/8"	- 10	3/4" - 14	0.67	2.81	0.67	1.46	1.06
OPNS10710-12-12	19	3/4"	- 12	3/4" - 14	0.67	2.83	0.67	1.40	1.06
OPNS10710-16-16	25	1"	- 16	1" - 11	0.89	3.54	0.83	1.65	1.42
OPNS10710-20-20	31	1.1/4"	- 20	1.1/4" - 11	1.12	3.94	0.91	1.87	1.81
OPNS10710-24-24	38	1.1/2"	- 24	1.1/2" - 11	1.26	4.41	0.91	1.97	1.97
OPNS10710-32-32	51	2"	- 32	2" - 11	1.73	4.78	1.06	2.18	2.56

# OPNS TYPE

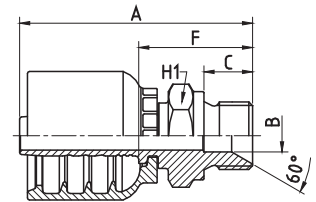


## BSP STANDARD CONNECTIONS

### OPNS10510

BSP MALE PARALLEL 60° CONE SEAT - BS5200

BSP MACHO CUERDA RECTA ASIENTO A 60° - BS5200

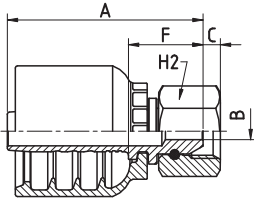


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
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	DN	inch	Size		B	A	D	F	H <sub>1</sub>	
OPNS10510-06-04	10	3/8"	- 06	1/4" - 19	0.20	2.18	0.43	1.02	0.75	
OPNS10510-06-06	10	3/8"	- 06	3/8" - 19	0.31	2.26	0.47	1.11	0.87	
OPNS10510-06-08	10	3/8"	- 06	1/2" - 14	0.43	2.36	0.55	1.20	1.06	
OPNS10510-08-06	12	1/2"	- 08	3/8" - 19	0.31	2.33	0.47	1.11	0.87	
OPNS10510-08-08	12	1/2"	- 08	1/2" - 14	0.43	2.45	0.55	1.22	1.06	
OPNS10510-08-10	12	1/2"	- 08	5/8" - 14	0.57	2.53	0.63	1.30	1.18	
OPNS10510-08-12	12	1/2"	- 08	3/4" - 14	0.67	2.57	0.63	1.34	1.26	
OPNS10510-10-10	16	5/8"	- 10	5/8" - 14	0.57	2.65	0.63	1.30	1.18	
OPNS10510-10-12	16	5/8"	- 10	3/4" - 14	0.67	2.69	0.63	1.34	1.26	
OPNS10510-12-12	19	3/4"	- 12	3/4" - 14	0.67	2.83	0.63	1.40	1.26	
OPNS10510-12-16	19	3/4"	- 12	1" - 11	0.89	2.99	0.75	1.56	1.61	
OPNS10510-16-16	25	1"	- 16	1" - 11	0.89	3.50	0.75	1.61	1.61	
OPNS10510-16-20	25	1"	- 16	1.1/4" - 11	1.12	3.66	0.79	1.76	1.97	
OPNS10510-20-20	31	1.1/4"	- 20	1.1/4" - 11	1.12	3.90	0.79	1.83	1.97	
OPNS10510-24-24	38	1.1/2"	- 24	1.1/2" - 11	1.32	4.39	0.87	1.95	2.17	
OPNS10510-32-32	51	2"	- 32	2" - 11	1.81	4.72	0.98	2.12	2.76	

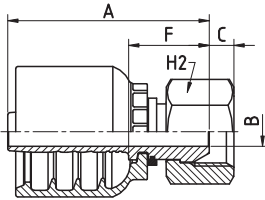


## BSP STANDARD CONNECTIONS



### OPNS20512

**BSP FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA RECTA ASIENTO A 60° - BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS20513

**BSP FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA RECTA ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPNS20512-06-04	10	3/8"	- 06	1/4" - 19	0.16	1.87	0.17	0.71	0.75
OPNS20513-06-06	10	3/8"	- 06	3/8" - 19	0.28	1.93	0.24	0.77	0.87
OPNS20513-06-08	10	3/8"	- 06	1/2" - 14	0.37	1.98	0.26	0.79	1.06
OPNS20512-08-06	12	1/2"	- 08	3/8" - 19	0.28	2.05	0.24	0.82	0.87
OPNS20513-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.07	0.26	0.80	1.06
OPNS20512-08-10	12	1/2"	- 08	5/8" - 14	0.48	2.09	0.40	0.86	1.10
OPNS20512-08-12	12	1/2"	- 08	3/4" - 14	0.59	2.15	0.35	0.92	1.26
OPNS20512-10-10	16	5/8"	- 10	5/8" - 14	0.49	2.20	0.40	0.85	1.10
OPNS20512-10-12	16	5/8"	- 10	3/4" - 14	0.59	2.26	0.35	0.91	1.26
OPNS20512-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.40	0.35	0.96	1.26
OPNS20512-12-16	19	3/4"	- 12	1" - 11	0.78	2.46	0.41	1.02	1.50
OPNS20512-16-16	25	1"	- 16	1" - 11	0.78	2.97	0.41	1.07	1.50

# OPNS TYPE

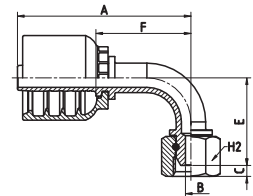


## BSP STANDARD CONNECTIONS

### OPNS20592

90° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200  
(THRUST-WIRE NUT)

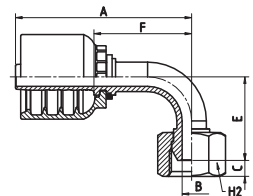
BSP HEMBRA CODO 90° ASIENTO A 60° - BS5200  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS20593

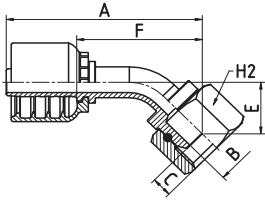
90° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200  
(SLIP-ON NUT)

BSP HEMBRA CODO 90° ASIENTO A 60° - BS5200  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)



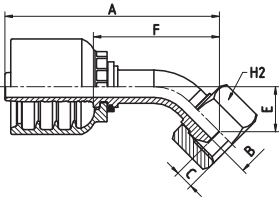
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS20593-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.59	0.24	1.24	1.44	0.87
OPNS20593-06-08	10	3/8"	- 06	1/2" - 14	0.37	2.59	0.26	1.26	1.44	1.06
OPNS20592-08-06	12	1/2"	- 08	3/8" - 19	0.28	2.99	0.24	1.61	1.77	0.87
OPNS20593-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.00	0.26	1.44	1.77	1.06
OPNS20592-08-10	12	1/2"	- 08	5/8" - 14	0.48	2.96	0.40	1.73	1.73	1.10
OPNS20592-08-12	12	1/2"	- 08	3/4" - 14	0.59	2.96	0.35	1.79	1.73	1.26
OPNS20592-10-10	16	5/8"	- 10	5/8" - 14	0.49	3.46	0.40	2.11	2.11	1.10
OPNS20592-10-12	16	5/8"	- 10	3/4" - 14	0.59	3.46	0.35	2.17	2.11	1.26
OPNS20592-12-12	19	3/4"	- 12	3/4" - 14	0.61	3.86	0.35	2.34	2.42	1.26
OPNS20592-12-16	19	3/4"	- 12	1" - 11	0.78	3.86	0.41	2.44	2.42	1.50
OPNS20592-16-16	25	1"	- 16	1" - 11	0.78	5.03	0.41	2.99	3.13	1.50

## BSP STANDARD CONNECTIONS



### OPNS20542

**45° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200  
(THRUST-WIRE NUT)**  
BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS20543

**45° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200  
(SLIP-ON NUT)**  
BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS20543-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.81	0.24	0.59	1.65	0.87
OPNS20543-06-08	10	3/8"	- 06	1/2" - 14	0.37	2.83	0.26	0.63	1.67	1.06
OPNS20543-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.17	0.26	0.67	1.95	1.06
OPNS20542-08-10	12	1/2"	- 08	5/8" - 14	0.48	3.37	0.40	0.89	2.15	1.10
OPNS20542-10-10	16	5/8"	- 10	5/8" - 14	0.49	3.83	0.40	1.02	2.48	1.10
OPNS20542-10-12	16	5/8"	- 10	3/4" - 14	0.59	3.87	0.35	1.06	2.52	1.26
OPNS20542-12-12	19	3/4"	- 12	3/4" - 14	0.61	4.21	0.35	1.12	2.78	1.26
OPNS20542-12-16	19	3/4"	- 12	1" - 11	0.78	4.29	0.41	1.18	2.85	1.50
OPNS20542-16-16	25	1"	- 16	1" - 11	0.78	5.48	0.41	1.44	3.58	1.50

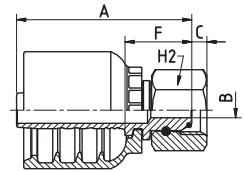
# OPNS TYPE



## BSP STANDARD CONNECTIONS

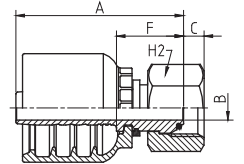
### OPNS20812

**BSP O-RING FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA RECTA CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS20813

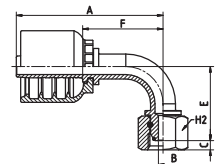
**BSP O-RING FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA RECTA CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPNS20812-06-04	10	3/8"	-06	1/4" - 19	0.16	1.87	0.19	0.71	0.75
OPNS20813-06-06	10	3/8"	-06	3/8" - 19	0.28	1.96	0.24	0.80	0.87
OPNS20813-08-08	12	1/2"	-08	1/2" - 14	0.37	2.02	0.26	0.80	1.06
OPNS20812-10-10	16	5/8"	-10	5/8" - 14	0.49	2.22	0.38	0.87	1.18
OPNS20812-12-12	19	3/4"	-12	3/4" - 14	0.59	2.42	0.33	0.98	1.26
OPNS20812-16-16	25	1"	-16	1" - 11	0.78	2.97	0.42	1.07	1.50
OPNS20812-16-20	25	1"	-16	1.1/4" - 11	1.03	3.11	0.41	1.21	1.97
OPNS20812-20-20	31	1.1/4"	-20	1.1/4" - 11	1.02	3.31	0.41	1.24	1.97
OPNS20812-20-24	31	1.1/4"	-20	1.1/2" - 11	1.26	3.23	0.49	1.16	2.36
OPNS20812-24-24	38	1.1/2"	-24	1.1/2" - 11	1.26	3.64	0.49	1.20	2.36
OPNS20812-24-32	38	1.1/2"	-24	2" - 11	1.66	3.62	0.63	1.18	2.76
OPNS20812-32-32	51	2"	-32	2" - 11	1.65	3.86	0.63	1.26	2.76

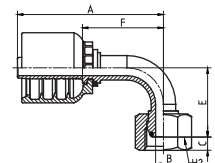
### OPNS20892

**90° BSP O-RING FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA CODO 90° CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS20893

**90° BSP O-RING FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA CODO 90° CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

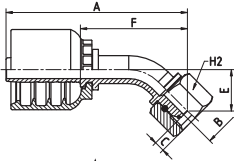


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS20892-06-04	10	3/8"	-06	1/4" - 19	0.16	2.56	0.19	1.30	1.40	0.75
OPNS20893-06-06	10	3/8"	-06	3/8" - 19	0.28	2.56	0.24	1.42	1.40	0.87
OPNS20893-08-08	12	1/2"	-08	1/2" - 14	0.37	2.98	0.26	1.65	1.75	1.06
OPNS20892-10-10	16	5/8"	-10	5/8" - 14	0.49	3.44	0.38	2.17	2.09	1.18
OPNS20892-12-12	19	3/4"	-12	3/4" - 14	0.59	3.86	0.33	2.36	2.42	1.26
OPNS20892-16-16	25	1"	-16	1" - 11	0.78	5.03	0.42	2.99	3.13	1.50
OPNS20892-16-20	25	1"	-16	1.1/4" - 11	1.03	5.03	0.41	3.09	3.13	1.97
OPNS20892-20-20	31	1.1/4"	-20	1.1/4" - 11	1.02	5.63	0.41	3.29	3.56	1.97
OPNS20892-20-24	31	1.1/4"	-20	1.1/2" - 11	1.26	5.63	0.49	3.33	3.56	2.36
OPNS20892-24-24	38	1.1/2"	-24	1.1/2" - 11	1.26	6.69	0.49	3.88	4.25	2.36
OPNS20892-32-32	51	2"	32	2" - 11	1.65	7.76	0.63	4.35	5.16	2.76

## BSP STANDARD CONNECTIONS

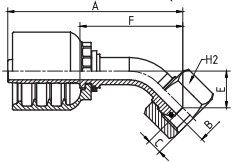
### OPNS20842

**45° BSP O-RING FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA CODO 45° CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



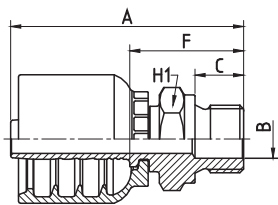
### OPNS20843

**45° BSP O-RING FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA CODO 45° CON O-RING ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
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	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS20843-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.91	0.24	0.73	1.75	0.87
OPNS20843-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.27	0.26	0.81	2.05	1.06
OPNS20842-10-10	16	5/8"	- 10	5/8" - 14	0.49	3.85	0.38	1.08	2.50	1.18
OPNS20842-12-12	19	3/4"	- 12	3/4" - 14	0.61	4.23	0.33	1.14	2.80	1.26
OPNS20842-16-16	25	1"	- 16	1" - 11	0.78	5.46	0.42	1.40	3.56	1.50
OPNS20842-20-20	31	1.1/4"	- 20	1.1/4" - 11	1.02	6.06	0.41	1.54	4.00	1.97
OPNS20842-24-24	38	1.1/2"	- 24	1.1/2" - 11	1.26	7.09	0.49	1.77	4.65	2.36
OPNS20842-32-32	51	2"	- 32	2" - 11	1.65	7.88	0.63	1.85	5.28	2.76



### OPNS10610

**BSP MALE FLAT SEAT**  
 BSP MACHO ASIENTO PLANO

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
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	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPNS10610-06-06	10	3/8"	- 06	3/8" - 19	0.37	2.26	0.47	1.11	0.87
OPNS10610-06-08	10	3/8"	- 06	1/2" - 14	0.51	2.36	0.55	1.20	1.06
OPNS10610-08-08	12	1/2"	- 08	1/2" - 14	0.51	2.45	0.55	1.22	1.06
OPNS10610-12-12	19	3/4"	- 12	3/4" - 14	0.71	2.83	0.63	1.40	1.26

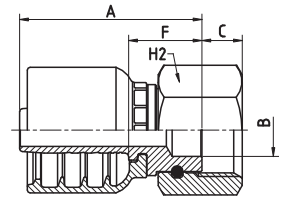
# OPNS TYPE



## BSP STANDARD CONNECTIONS

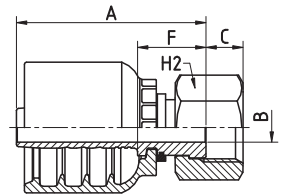
### OPNS20612

**BSP FEMALE FLAT SEAT (THRUST-WIRE NUT)**  
 BSP HEMBRA RECTA ASIENTO PLANO  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS20613

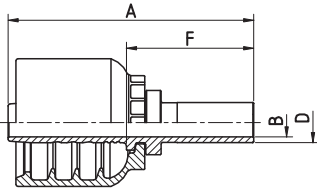
**BSP FEMALE FLAT SEAT (SLIP-ON NUT)**  
 BSP HEMBRA RECTA ASIENTO PLANO  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>2</sub>
OPNS20613-06-06	10	3/8"	- 06	3/8" - 19	0.28	1.81	0.35	0.65	0.87
OPNS20613-06-08	10	3/8"	- 06	1/2" - 14	0.37	1.85	0.39	0.69	1.06
OPNS20613-08-08	12	1/2"	- 08	1/2" - 14	0.37	1.93	0.39	0.70	1.06
OPNS20612-08-12	12	1/2"	- 08	3/4" - 14	0.59	2.05	0.45	0.82	1.26
OPNS20612-10-12	16	5/8"	- 10	3/4" - 14	0.59	2.17	0.45	0.81	1.26
OPNS20612-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.30	0.45	0.87	1.26
OPNS20612-12-16	19	3/4"	- 12	1" - 11	0.78	2.36	0.51	0.93	1.50
OPNS20612-16-16	25	1"	- 16	1" - 11	0.78	2.87	0.51	0.98	1.50



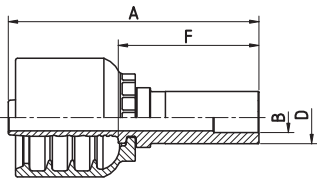
## METRIC STANDPIPE STANDARD CONNECTIONS



### OPNS22010

METRIC STANDPIPE STRAIGHT L.T. - DIN 2353  
TUBO LISO MILIMETRICO RECTO SERIE LIGERA L.T. - DIN 2353

PART. REF.	HOSE BORE		PIPE	DIMENSIONS inch						
	DN	inch		Size	mm	B	A			C
OPNS22010-06-10	10	3/8"	- 06	10	0.28	2.36	0.91	1.20		
OPNS22010-06-12	10	3/8"	- 06	12	0.31	2.36	0.91	1.20		
OPNS22010-06-15	10	3/8"	- 06	15	0.41	2.44	0.98	1.28		
OPNS22010-08-12	12	1/2"	- 08	12	0.31	2.44	0.91	1.22		
OPNS22010-08-15	12	1/2"	- 08	15	0.41	2.52	0.98	1.30		
OPNS22010-08-18	12	1/2"	- 08	18	0.49	2.56	1.02	1.33		
OPNS22010-10-18	16	5/8"	- 10	18	0.49	2.70	1.02	1.35		
OPNS22010-10-22	16	5/8"	- 10	22	0.59	2.78	1.10	1.43		
OPNS22010-12-18	19	3/4"	- 12	18	0.59	2.86	1.02	1.43		
OPNS22010-12-22	19	3/4"	- 12	22	0.59	2.93	1.10	1.50		
OPNS22010-16-28	25	1"	- 16	28	0.81	3.52	1.18	1.63		
OPNS22010-20-35	31	1.1/4"	- 20	35	1.02	3.98	1.42	1.91		
OPNS22010-24-42	38	1.1/2"	- 24	42	1.26	4.51	1.57	2.07		



### OPNS22110

METRIC STANDPIPE STRAIGHT H.T. - DIN 2353  
TUBO LISO MILIMETRICO RECTO SERIE PESADA H.T. - DIN 2353

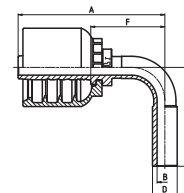
PART. REF.	HOSE BORE		PIPE	DIMENSIONS inch						
	DN	inch		Size	mm	B	A			C
OPNS22110-06-14	10	3/8"	- 06	14	0.31	2.60	1.14	1.44		
OPNS22110-08-14	12	1/2"	- 08	14	0.37	2.68	1.14	1.45		
OPNS22110-08-16	12	1/2"	- 08	16	0.41	2.72	1.18	1.49		
OPNS22110-10-20	16	5/8"	- 10	20	0.49	3.09	1.42	1.74		
OPNS22110-12-20	19	3/4"	- 12	20	0.59	3.25	1.42	1.81		
OPNS22110-12-25	19	3/4"	- 12	25	0.59	3.41	1.57	1.97		
OPNS22110-16-25	25	1"	- 16	25	0.59	3.92	1.57	2.02		
OPNS22110-16-30	25	1"	- 16	30	0.81	4.07	1.73	2.18		
OPNS22110-16-38	25	1"	- 16	38	1.02	4.31	1.97	2.41		
OPNS22110-20-30	31	1.1/4"	- 20	30	0.81	4.29	1.73	2.22		
OPNS22110-20-38	31	1.1/4"	- 20	38	1.02	4.53	1.97	2.46		
OPNS22110-24-38	38	1.1/2"	- 24	38	1.02	4.91	1.97	2.46		

## METRIC STANDPIPE STANDARD CONNECTIONS

### OPNS22090

90° METRIC STANDPIPE L.T. - DIN 2353

TUBO LISO MILIMETRICO CODO 90° SERIE LIGERA L.T. - DIN 2353

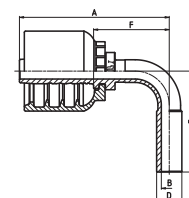


PART. REF.	HOSE BORE			PIPE	DIMENSIONS inch					
	DN	inch	Size		B	A	E	F		
OPNS22090-06-10	10	3/8"	- 06	10	0.28	2.50	1.67	1.34		
OPNS22090-06-12	10	3/8"	- 06	12	0.31	2.50	1.77	1.34		
OPNS22090-08-15	12	1/2"	- 08	15	0.41	2.88	2.05	1.65		
OPNS22090-08-18	12	1/2"	- 08	18	0.49	2.88	2.17	1.65		
OPNS22090-10-18	16	5/8"	- 10	18	0.49	3.28	2.32	1.93		
OPNS22090-12-22	19	3/4"	- 12	22	0.59	3.58	2.48	2.15		
OPNS22090-16-28	25	1"	- 16	28	0.78	4.56	2.95	2.66		
OPNS22090-20-35	31	1.1/4"	- 20	35	1.02	5.23	3.70	3.17		

### OPNS22190

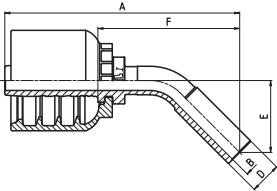
90° METRIC STANDPIPE H.T. - DIN 2353

TUBO LISO MILIMETRICO CODO 90° SERIE PESADA H.T. - DIN 2353



PART. REF.	HOSE BORE			PIPE	DIMENSIONS inch					
	DN	inch	Size		B	A	E	F		
OPNS22190-06-14	10	3/8"	- 06	14	0.37	2.54	2.01	1.38		
OPNS22190-08-14	12	1/2"	- 08	14	0.37	2.88	2.11	1.65		
OPNS22190-08-16	12	1/2"	- 08	16	0.41	2.92	2.17	1.69		
OPNS22190-10-20	16	5/8"	- 10	20	0.49	3.28	2.62	1.93		
OPNS22190-12-20	19	3/4"	- 12	20	0.59	3.58	2.72	2.15		
OPNS22190-12-25	19	3/4"	- 12	25	0.59	3.70	2.95	2.26		
OPNS22190-16-25	25	1"	- 16	25	0.59	4.32	3.01	2.42		
OPNS22190-16-30	25	1"	- 16	30	0.78	4.64	3.43	2.74		

## METRIC STANDPIPE STANDARD CONNECTIONS

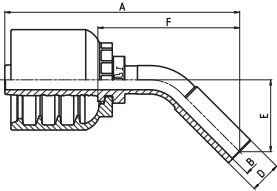


### OPNS22040

45° METRIC STANDPIPE L.T. - DIN 2353

TUBO LISO MILIMETRICO CODO 45° SERIE LIGERA L.T. - DIN 2353

PART. REF.	HOSE BORE			PIPE	DIMENSIONS inch					
	DN	inch	Size		mm	B	A	E	F	
OPNS22040-06-10	10	3/8"	- 06	10	0.28	3.03	0.91	1.87		
OPNS22040-06-12	10	3/8"	- 06	12	0.31	3.10	0.98	1.95		
OPNS22040-08-15	12	1/2"	- 08	15	0.41	3.50	1.10	2.28		
OPNS22040-10-18	16	5/8"	- 10	18	0.49	3.85	1.20	2.50		
OPNS22040-12-22	19	3/4"	- 12	22	0.59	4.15	1.26	2.72		
OPNS22040-16-28	25	1"	- 16	28	0.78	5.11	1.46	3.21		



### OPNS22140

45° METRIC STANDPIPE H.T. - DIN 2353

TUBO LISO MILIMETRICO CODO 45° SERIE PESADA H.T. - DIN 2353

PART. REF.	HOSE BORE			PIPE	DIMENSIONS inch					
	DN	inch	Size		mm	B	A	E	F	
OPNS22140-06-14	10	3/8"	- 06	14	0.37	3.31	1.14	2.15		
OPNS22140-08-16	12	1/2"	- 08	16	0.41	3.62	1.18	2.40		
OPNS22140-10-20	16	5/8"	- 10	20	0.49	4.06	1.42	2.72		
OPNS22140-12-25	19	3/4"	- 12	25	0.59	4.61	1.59	3.17		
OPNS22140-16-25	25	1"	- 16	25	0.59	5.13	1.61	3.23		

# OPNS TYPE

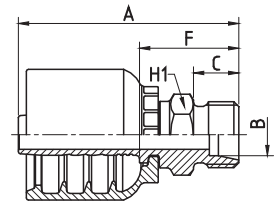


## METRIC 24° O-RING STANDARD CONNECTIONS

### OPNS11110

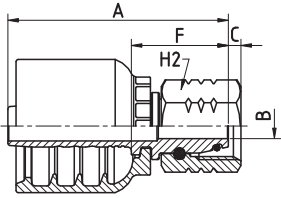
METRIC MALE 24° CONE SEAT L.T. - DIN 20066/3861

MACHO MILIMETRICO CONO 24° SERIE LIGERA L.T. - DIN 20066/3861



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS inch				
	DN	inch	Size			mm	B	A	C	F
OPNS11110-06-16	10	3/8"	- 06	M 16x1.5	10	0.28	2.11	0.43	0.95	0.67
OPNS11110-06-18	10	3/8"	- 06	M 18x1.5	12	0.35	2.13	0.43	0.97	0.75
OPNS11110-06-22	10	3/8"	- 06	M 22x1.5	15	0.39	2.17	0.47	1.01	0.87
OPNS11110-08-22	12	1/2"	- 08	M 22x1.5	15	0.39	2.23	0.47	1.01	0.87
OPNS11110-08-26	12	1/2"	- 08	M 26x1.5	18	0.49	2.26	0.47	1.04	1.06
OPNS11110-10-22	16	5/8"	- 10	M 22x1.5	15	0.39	2.35	0.47	1.00	0.87
OPNS11110-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	2.40	0.47	1.05	1.06
OPNS11110-12-30	19	3/4"	- 12	M 30x2	22	0.59	2.62	0.55	1.18	1.18
OPNS11110-16-36	25	1"	- 16	M 36x2	28	0.79	3.17	0.55	1.27	1.42
OPNS11110-20-45	31	1.1/4"	- 20	M 45x2	35	1.02	3.66	0.63	1.59	1.81
OPNS11110-24-52	38	1.1/2"	- 24	M 52x2	42	1.26	4.12	0.63	1.68	2.17

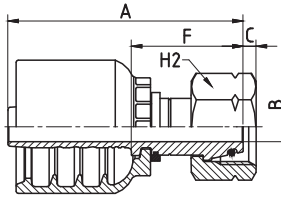
## METRIC 24° O-RING STANDARD CONNECTIONS



### OPNS21512

**O-RING METRIC FEMALE 24° CONE L.T. - DIN 20066/3865  
(THRUST-WIRE NUT)**

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.  
DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS21513

**O-RING METRIC FEMALE 24° CONE L.T. - DIN 20066/3865  
(SLIP-ON NUT)**

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.  
DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch					
	DN	inch			B	A	C	F	H <sub>1</sub>	
OPNS21512-06-16	10	3/8"	- 06	M 16x1.5	10	0.24	2.07	0.12	0.91	0.75
OPNS21513-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	2.03	0.09	0.88	0.87
OPNS21513-06-22	10	3/8"	- 06	M 22x1.5	15	0.37	2.14	0.09	0.98	1.06
OPNS21512-08-18	12	1/2"	- 08	M 18x1.5	12	0.28	2.37	0.11	1.14	0.87
OPNS21513-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	2.22	0.09	1.00	1.06
OPNS21513-08-26	12	1/2"	- 08	M 26x1.5	18	0.49	2.26	0.10	1.03	1.26
OPNS21513-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	2.37	0.10	1.02	1.26
OPNS21513-10-30	16	5/8"	- 10	M 30x2	22	0.59	2.69	0.14	1.34	1.42
OPNS21512-12-26	19	3/4"	- 12	M 26x1.5	18	0.49	2.66	0.14	1.22	1.26
OPNS21513-12-30	19	3/4"	- 12	M 30x2	22	0.59	2.55	0.14	1.11	1.42
OPNS21513-12-36	19	3/4"	- 12	M 36x2	28	0.79	2.54	0.15	1.11	1.61
OPNS21513-16-36	25	1"	- 16	M 36x2	28	0.78	3.06	0.15	1.16	1.61
OPNS21513-20-45	31	1.1/4"	- 20	M 45x2	35	1.02	3.36	0.20	1.30	1.97
OPNS21513-24-52	38	1.1/2"	- 24	M 52x2	42	1.26	3.74	0.20	1.29	2.36

## METRIC 24° O-RING STANDARD CONNECTIONS

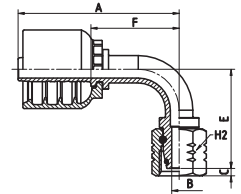
### OPNS21592

90° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE L.T.

DIN 20066/3865 (THRUST-WIRE NUT)

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.

DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



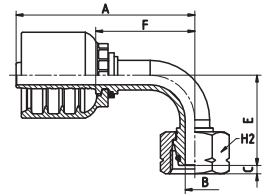
### OPNS21593

90° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE L.T.

DIN 20066/3865 (SLIP-ON NUT)

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.

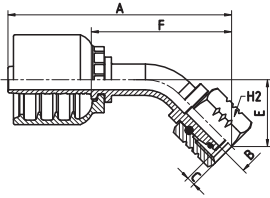
DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	E	F
OPNS21592-06-16	10	3/8"	- 06	M 16x1.5	10	0.24	2.56	0.12	1.57	1.40	0.75
OPNS21593-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	2.59	0.09	1.32	1.44	0.87
OPNS21593-06-22	10	3/8"	- 06	M 22x1.5	15	0.37	2.59	0.09	1.38	1.44	1.06
OPNS21592-08-18	12	1/2"	- 08	M 18x1.5	12	0.28	2.95	0.11	1.89	1.73	0.87
OPNS21593-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	3.00	0.09	1.56	1.77	1.06
OPNS21593-08-26	12	1/2"	- 08	M 26x1.5	18	0.49	2.99	0.10	1.57	1.77	1.26
OPNS21593-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	3.38	0.10	2.09	2.03	1.26
OPNS21593-10-30	16	5/8"	- 10	M 30x2	22	0.59	3.38	0.14	2.13	2.03	1.42
OPNS21593-12-30	19	3/4"	- 12	M 30x2	22	0.59	3.86	0.14	2.32	2.42	1.42
OPNS21593-16-36	25	1"	- 16	M 36x2	28	0.78	4.91	0.15	2.74	3.01	1.61
OPNS21593-20-45	31	1.1/4"	- 20	M 45x2	35	1.02	5.75	0.20	3.19	3.68	1.97
OPNS21593-24-52	38	1.1/2"	- 24	M 52x2	42	1.26	6.67	0.20	3.86	4.23	2.36



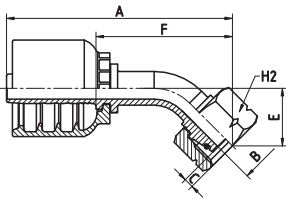
## METRIC 24° O-RING STANDARD CONNECTIONS



### OPNS21542

**45° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE L.T.  
DIN 20066/3865 (THRUST-WIRE NUT)**

HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.  
DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



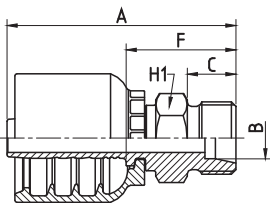
### OPNS21543

**45° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE L.T.  
DIN 20066/3865 (SLIP-ON NUT)**

HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24° SERIE LIGERA L.T.  
DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE	THREAD	PIPE	DIMENSIONS inch							
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	DN	inch	Size		mm	B	A	C	E	F	H <sub>2</sub>
OPNS21542-06-16	10	3/8"	- 06	M 16x1.5	10	0.24	3.03	0.12	0.85	1.87	0.75
OPNS21543-06-18	10	3/8"	- 06	M 18x1.5	12	0.28	2.87	0.09	0.65	1.71	0.87
OPNS21543-06-22	10	3/8"	- 06	M 22x1.5	15	0.37	2.93	0.09	0.71	1.77	1.06
OPNS21543-08-22	12	1/2"	- 08	M 22x1.5	15	0.37	3.27	0.09	0.75	2.05	1.06
OPNS21543-10-26	16	5/8"	- 10	M 26x1.5	18	0.49	3.79	0.10	1.04	2.44	1.26
OPNS21543-12-30	19	3/4"	- 12	M 30x2	22	0.59	4.23	0.14	1.12	2.80	1.42
OPNS21543-16-36	25	1"	- 16	M 36x2	28	0.78	5.24	0.15	1.26	3.35	1.61
OPNS21543-20-45	31	1.1/4"	- 20	M 45x2	35	1.02	5.98	0.20	1.42	3.92	1.97
OPNS21543-24-52	38	1.1/2"	- 24	M 52x2	42	1.26	7.05	0.20	1.75	4.61	2.36



### OPNS11210

**METRIC MALE 24° CONE SEAT H.T. - DIN 20066/3861**

MACHO MILIMETRICO CONO 24° SERIE PESADA H.T. - DIN 20066/3861

PART. REF.	HOSE BORE	THREAD	PIPE	DIMENSIONS inch							
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	DN	inch	Size		mm	B	A	C	F	H <sub>1</sub>
OPNS11210-06-18	10	3/8"	- 06	M 18x1.5	10	0.28	2.22	0.47	1.07	0.75
OPNS11210-06-20	10	3/8"	- 06	M 20x1.5	12	0.28	2.30	0.47	1.15	0.87
OPNS11210-06-22	10	3/8"	- 06	M 22x1.5	14	0.31	2.38	0.55	1.22	0.87
OPNS11210-08-24	12	1/2"	- 08	M 24x1.5	16	0.37	2.47	0.55	1.24	0.94
OPNS11210-10-30	16	5/8"	- 10	M 30x2	20	0.59	2.76	0.63	1.41	1.18
OPNS11210-12-30	19	3/4"	- 12	M 30x2	20	0.59	2.89	0.63	1.46	1.18
OPNS11210-12-36	19	3/4"	- 12	M 36x2	25	0.78	3.05	0.71	1.61	1.42
OPNS11210-16-36	25	1"	- 16	M 36x2	25	0.78	3.56	0.71	1.67	1.42
OPNS11210-16-42	25	1"	- 16	M 42x2	30	0.98	3.64	0.79	1.74	1.81
OPNS11210-20-52	31	1.1/4"	- 20	M 52x2	38	1.18	4.06	0.87	1.99	2.17

# OPNS TYPE



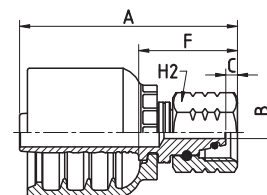
## METRIC 24° O-RING STANDARD CONNECTIONS

### OPNS21612

O-RING METRIC FEMALE 24° CONE H.T.

DIN 20066/3865 (THRUST-WIRE NUT)

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.  
DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)

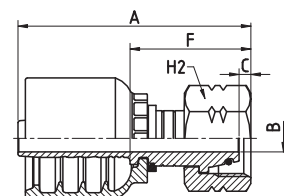


### OPNS21613

O-RING METRIC FEMALE 24° CONE H.T.

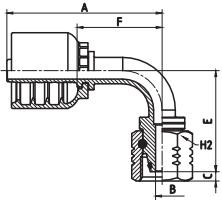
DIN 20066/3865 (SLIP-ON NUT)

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.  
DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch					
	DN	inch			Size	mm	B	A	C	F
OPNS21613-06-20	10	3/8"	- 06	M 20x1.5	12	0.28	2.15	0.10	1.00	0.94
OPNS21613-06-22	10	3/8"	- 06	M 22x1.5	14	0.28	2.44	0.12	1.28	1.06
OPNS21613-08-24	12	1/2"	- 08	M 24x1.5	16	0.37	2.28	0.12	1.05	1.18
OPNS21613-10-30	16	5/8"	- 10	M 30x2	20	0.49	2.55	0.14	1.20	1.42
OPNS21612-12-30	19	3/4"	- 12	M 30x2	20	0.49	2.76	0.09	1.32	1.42
OPNS21613-12-36	19	3/4"	- 12	M 36x2	25	0.59	2.78	0.18	1.34	1.61
OPNS21612-16-36	25	1"	- 16	M 36x2	25	0.59	3.29	0.07	1.39	1.61
OPNS21613-16-42	25	1"	- 16	M 42x2	30	0.78	3.29	0.25	1.39	1.97
OPNS21613-20-52	31	1.1/4"	- 20	M 52x2	38	1.02	3.55	0.31	1.48	2.36
OPNS21613-24-52	38	1.1/2"	- 24	M 52x2	38	1.02	4.39	0.31	1.95	2.36

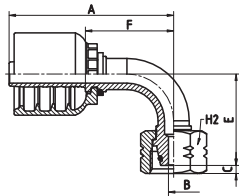
## METRIC 24° O-RING STANDARD CONNECTIONS



### OPNS21692

**90° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE H.T.  
DIN 20066/3865 (THRUST-WIRE NUT)**

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.  
DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPNS21693

**90° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE H.T.  
DIN 20066/3865 (SLIP-ON NUT)**

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.  
DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	E	F
OPNS21693-06-20	10	3/8"	- 06	M 20x1.5	12	0.28	2.59	0.10	1.38	1.44	0.94
OPNS21693-06-22	10	3/8"	- 06	M 22x1.5	14	0.28	2.59	0.12	1.46	1.44	1.06
OPNS21693-06-24	10	3/8"	- 06	M 24x1.5	16	0.37	2.60	0.12	1.42	1.44	1.18
OPNS21693-10-30	16	5/8"	- 10	M 30x2	20	0.49	3.38	0.14	2.26	2.03	1.42
OPNS21692-12-30	19	3/4"	- 12	M 30x2	20	0.49	3.86	0.09	2.66	2.42	1.42
OPNS21693-12-36	19	3/4"	- 12	M 36x2	25	0.59	3.86	0.18	2.54	2.42	1.61
OPNS21692-16-36	25	1"	- 16	M 36x2	25	0.59	5.03	0.07	3.39	3.13	1.61
OPNS21693-16-42	25	1"	- 16	M 42x2	30	0.78	5.01	0.25	2.93	3.11	1.97
OPNS21693-20-52	31	1.1/4"	- 20	M 52x2	38	1.02	5.75	0.31	3.37	3.68	2.36

# OPNS TYPE



## METRIC 24° O-RING STANDARD CONNECTIONS

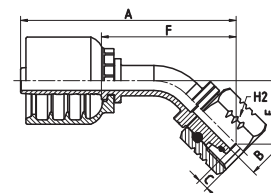
### OPNS21642

45° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE H.T.

DIN 20066/3865 (THRUST-WIRE NUT)

HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.

DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



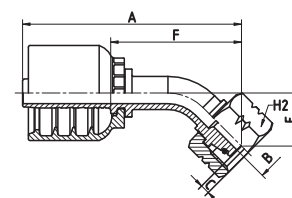
### OPNS21643

45° O-RING METRIC FEMALE SWEPT ELBOW 24° CONE H.T.

DIN 20066/3865 (SLIP-ON NUT)

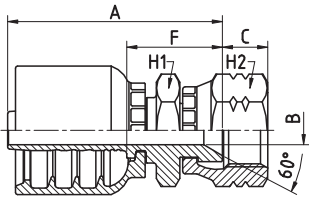
HEMBRA CODO 45° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T.

DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



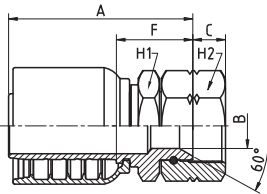
PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			B	A	C	E	F	H <sub>2</sub>	
OPNS21643-06-20	10	3/8"	- 06	M 20x1.5	12	0.28	2.93	0.10	0.71	1.77	0.94
OPNS21643-06-22	10	3/8"	- 06	M 22x1.5	14	0.28	2.99	0.12	0.77	1.83	1.06
OPNS21643-08-24	12	1/2"	- 08	M 24x1.5	16	0.37	3.29	0.12	0.79	2.07	1.18
OPNS21643-10-30	16	5/8"	- 10	M 30x2	20	0.49	3.93	0.14	1.16	2.58	1.42
OPNS21642-12-30	19	3/4"	- 12	M 30x2	20	0.49	4.45	0.09	1.34	3.01	1.42
OPNS21643-12-36	19	3/4"	- 12	M 36x2	25	0.59	4.39	0.18	1.28	2.95	1.61
OPNS21643-16-42	25	1"	- 16	M 42x2	30	0.78	5.44	0.25	1.40	3.54	1.97
OPNS21643-20-52	31	1.1/4"	- 20	M 52x2	38	1.02	6.12	0.31	1.56	4.06	2.36

## JIS STANDARD CONNECTIONS



### OPNS24011

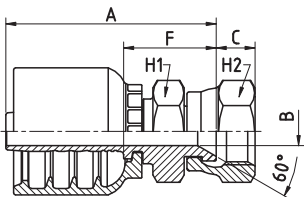
**JIS METRIC FEMALE 60° CONE SEAT (KOMATSU)  
JIS B 8363 (CRIMPED-BACK NUT)  
JIS HEMBRA RECTA ASIEN TO A 60° (KOMATSU)  
JIS B 8363 (CRIMPADO DETRAS DE LA TUERCA)**



### OPNS24012

**JIS METRIC FEMALE 60° CONE SEAT (KOMATSU)  
JIS B 8363 (THRUST-WIRE NUT)  
JIS HEMBRA RECTA MILIMETRICA ASIEN TO A 60° (KOMATSU)  
JIS B 8363 (TUERCA GIRATORIA SOBRE LA ESPIGA)**

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPNS24011-06-14	10	3/8"	- 06	M 14x1.5	0.16	2.09	0.41	0.93	0.75	0.75
OPNS24011-06-18	10	3/8"	- 06	M 18x1.5	0.28	2.09	0.45	0.93	0.94	0.94
OPNS24011-08-22	12	1/2"	- 08	M 22x1.5	0.37	2.20	0.55	0.98	1.06	1.06
OPNS24011-10-24	16	5/8"	- 10	M 24x1.5	0.49	2.40	0.59	1.05	1.26	1.26
OPNS24011-12-30	19	3/4"	- 12	M 30x1.5	0.59	2.68	0.72	1.24	1.42	1.42
OPNS24011-16-33	25	1"	- 16	M 33x1.5	0.78	3.21	0.84	1.31	1.61	1.61
OPNS24011-20-36	31	1.1/4"	- 20	M 36x1.5	0.78	3.68	0.79	1.61	1.81	1.81
OPNS24012-24-42	38	1.1/2"	- 24	M 42x1.5	1.02	4.17	0.74	1.73	2.17	2.17



### OPNS23811

**JIS BSP FEMALE 60° CONE SEAT (TOYOTA) JIS B 8363  
JIS BSP HEMBRA RECTA ASIEN TO A 60° (TOYOTA) JIS B 8363**

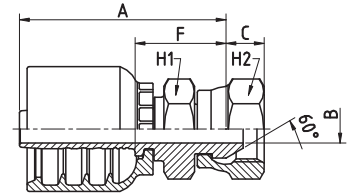
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPNS23811-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.07	0.39	0.91	0.87	0.87
OPNS23811-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.13	0.45	0.91	1.06	1.06
OPNS23811-12-12	19	3/4"	- 12	3/4" - 14	0.59	2.46	0.53	1.02	1.26	1.26
OPNS23811-16-16	25	1"	- 16	1" - 11	0.78	3.09	0.57	1.19	1.50	1.50

## JIS STANDARD CONNECTIONS

### OPNS20711

JIS BSP FEMALE 60° CONE SEAT (NISSAN) JIS B 8363  
(CRIMPED-BACK NUT)

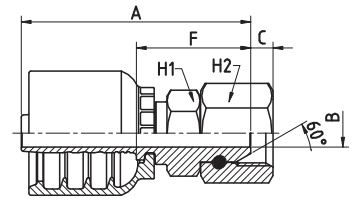
JIS BSP HEMBRA RECTA ASIENTO A 60° (NISSAN) JIS B 8363  
(CRIMPADO DETRAS DE LA TUERCA)



### OPNS20712

JIS BSP FEMALE 60° CONE SEAT (NISSAN) JIS B 8363  
(THRUST-WIRE NUT)

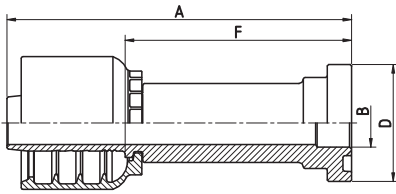
JIS BSP HEMBRA RECTA ASIENTO A 60° (NISSAN) JIS B 8363  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
<b>OPNS20711-06-06</b>	10	3/8"	- 06	3/8" - 19	0.28	2.13	0.25	0.97	0.87	0.87
<b>OPNS20711-08-08</b>	12 1/2"	- 08	1/2" - 14	0.37	2.26	0.26	1.04	1.06	1.06	
<b>OPNS20712-10-12</b>	16 5/8"	- 10	3/4" - 14	0.59	2.56	0.35	1.21	1.26	1.26	
<b>OPNS20711-12-12</b>	19 3/4"	- 12	3/4" - 14	0.59	2.62	0.35	1.18	1.26	1.26	



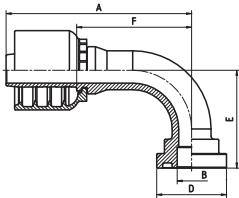
## KOMATSU FLANGE STANDARD CONNECTIONS



### OPNS24111

STRAIGHT KOMATSU FLANGE  
BRIDA RECTA KOMATSU

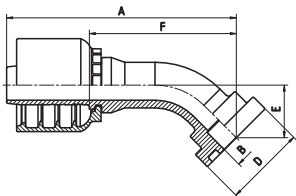
PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	F		
OPNS24111-10-10	16	5/8"	- 10	5/8"	0.55	3.94	1.34	2.59		



### OPNS24191

90° KOMATSU FLANGE  
BRIDA CODO 90° KOMATSU

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	
OPNS24191-10-10	16	5/8"	- 10	5/8"	0.55	3.56	1.34	1.87	2.20	



### OPNS24141

45° KOMATSU FLANGE  
BRIDA CODO 45° KOMATSU

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	
OPNS24141-10-10	16	5/8"	- 10	5/8"	0.55	3.75	1.34	0.87	2.40	

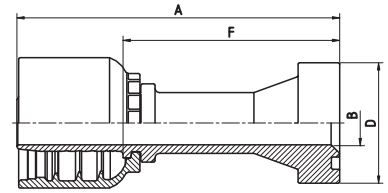
# OPNS TYPE



## SUPERCAT FLANGE STANDARD CONNECTIONS

### OPNS23911

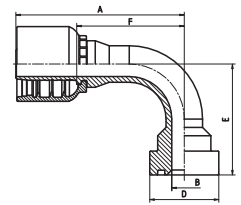
STRAIGHT SUPERCAT FLANGE  
BRIDA RECTA SUPERCAT



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	F	S
OPNS23911-12-12	19	3/4"	- 12	3/4"	0.59	4.37	1.63	2.93	0.56
OPNS23911-16-16	25	1"	- 16	1"	0.78	5.31	1.88	3.42	0.56
OPNS23911-16-20	25	1"	- 16	1.1/4"	1.02	5.53	2.13	3.63	0.56
OPNS23911-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.45	2.13	3.39	0.56
OPNS23911-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.14	2.50	3.70	0.56

### OPNS23991

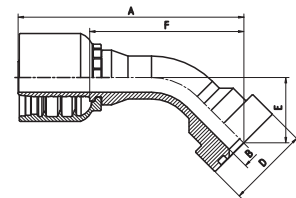
90° SUPERCAT FLANGE  
BRIDA CODO 90° SUPERCAT



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	E	F	S
OPNS23991-12-12	19	3/4"	- 12	3/4"	0.59	3.98	1.63	2.62	2.54	0.56
OPNS23991-16-16	25	1"	- 16	1"	0.78	4.95	1.88	3.01	3.05	0.56
OPNS23991-16-20	25	1"	- 16	1"	1.02	4.87	2.13	3.17	2.97	0.56
OPNS23991-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.43	2.13	3.43	3.37	0.56

### OPNS23941

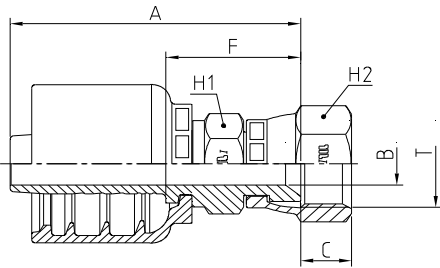
45° SUPERCAT FLANGE  
BRIDA CODO 45° SUPERCAT



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	E	F	S
OPNS23941-12-12	19	3/4"	- 12	3/4"	0.59	4.53	1.63	1.32	3.09	0.56
OPNS23941-16-16	25	1"	- 16	1"	0.78	5.42	1.88	1.44	3.53	0.56
OPNS23941-16-20	25	1"	- 16	1.1/4"	1.02	5.54	2.13	1.59	3.64	0.56
OPNS23941-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.96	2.13	1.63	3.90	0.56

## JIC STANDARD CONNECTIONS

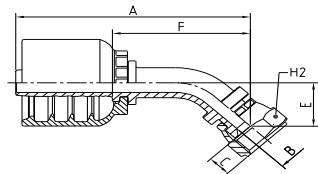
### OPNS22711 OPNS22711KR



JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON  
SAE J516/ISO 12151-5 (CRIMPED-BACK NUT)  
JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO SAE J516/  
ISO 12151-5 (CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPNS22711-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.03	0.37	0.87	0.67	0.67
OPNS22711-06-08KR	10	3/8"	- 06	3/4" - 16	0.37	2.20	0.42	0.85	0.75	0.87
OPNS22711-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.42	1.06	0.75	0.87
OPNS22711-08-10KR	12	1/2"	- 08	7/8" - 14	0.37	2.39	0.49	1.17	0.87	0.98
OPNS22711-12-12KR	19	3/4"	- 12	1.1/16" - 12	0.59	2.62	0.56	1.19	1.06	1.25
OPNS22711-16-16	25	1"	- 16	1.5/16" - 12	0.78	3.29	0.60	1.40	1.26	1.50
OPNS22711-20-20	31	1.1/4"	- 20	1.5/8" - 12	1.02	3.72	0.63	1.65	1.61	1.97
OPNS22711-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.26	4.28	0.73	1.83	1.97	2.36
VOPNS22711-32-32	51	2"	- 32"	2.1/2" - 12	1.65	4.60	0.93	1.99	2.56	2.95

### OPNS22541KR



45° ELBOW JIC FEMALE 37° CONE SEAT - SAE J516/ISO 12151-5  
(CRIMPED-BACK NUT)  
JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS22541-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.81	0.37	0.63	1.65	0.67
OPNS22541-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	3.28	0.42	0.79	2.05	0.87
OPNS22541-10-10KR	16	5/8"	- 10	7/8" - 14	0.49	3.79	0.49	0.89	2.44	0.98
OPNS22541-12-12KR	19	3/4"	- 12	1.1/16" - 12	0.59	4.20	0.56	1.08	2.76	1.26

# OPNS TYPE

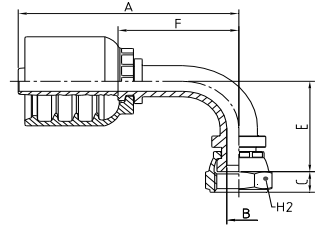


## JIC STANDARD CONNECTIONS

### OPNS22591KR

90° ELBOW JIC FEMALE 37° CONE SEAT - SAE J516/ISO 12151-5  
(CRIMPED-BACK NUT)

JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)

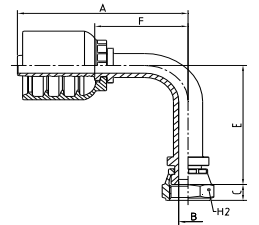


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS22591-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.37	1.26	1.40	0.67
OPNS22591-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	2.96	0.42	1.61	1.73	0.87
OPNS22591-10-10KR	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.49	1.85	2.11	0.98
OPNS22591-12-12KR	19	3/4"	- 12	1.1/16" - 12	0.59	3.88	0.56	2.28	2.44	1.26

### OPNS24791KR

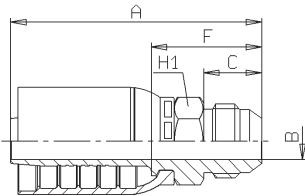
90° LONG DROP ELBOW JIC FEMALE 37° CONE SEAT - SAE J516/ISO 12151-5  
(CRIMPED-BACK NUT)

JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS24791-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.37	2.17	1.40	0.67
OPNS24791-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	2.96	0.42	2.52	1.73	0.87
OPNS24791-10-10KR	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.49	2.76	2.11	0.98
OPNS24791-12-12KR	19	3/4"	- 12	1.1/16" - 12	0.59	3.88	0.56	3.78	2.44	1.26

## JIC STANDARD CONNECTIONS



### OPS12510

JIC MALE 37° CONE - SAE J516/J514  
 JIC MACHO RECTO ASIENTO A 37° - SAE J516/514

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPS12510-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.61	0.55	1.13	0.67
OPS12510-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.58	0.65	1.35	0.75
OPS12510-08-10	12	1/2"	- 08	7/8" - 14	0.49	2.76	0.77	1.53	0.94
OPS12510-10-10	16	5/8"	- 10	7/8" - 14	0.49	2.89	0.77	1.54	0.94
OPS12510-12-12	19	3/4"	- 12	1.1/16" - 12	0.59	3.74	0.87	1.65	1.06
OPS12510-16-16	25	1"	- 16	1.5/16" - 12	0.78	4.17	0.91	1.84	1.37
OPS12510-20-20	31	1.1/4"	- 20	1.5/8" - 12	1.02	4.64	0.96	2.04	1.81
OPS12510-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.26	4.98	1.08	2.30	1.97
OPS12510-32-32	51	2"	- 32	2.1/2" - 12	1.65	6.52	1.34	2.78	2.56

### NEW OPS22711

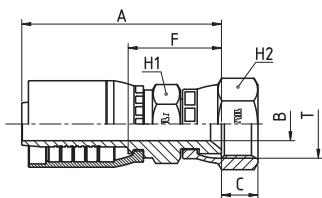
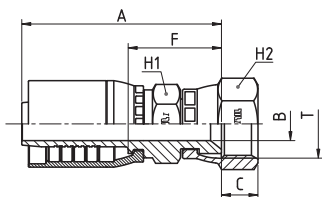
JIC FEMALE 37° CONE SEAT DOUBLE EXAGON  
 SAE J516/J514 (CRIMPED-BACK NUT)

JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO SAE J516/J514  
 (CRIMPADO DETRAS DE LA TUERCA)

### OPS22711K

JIC FEMALE 37° CONE SEAT DOUBLE EXAGON COMPACT  
 SAE J516/J514 (CRIMPED-BACK NUT)

JIC HEMBRA RECTA ASIENTO A 37° DOBLE HEXÁGONO COMPACTO  
 SAE J516/J514 (CRIMPADO DETRAS DE LA TUERCA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPS22711-06-06K	10	3/8"	- 06	9/16" - 18	0.28	2.03	0.37	0.87	0.67	0.67
OPS22711-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.42	1.06	0.75	0.87
OPS22711-12-12	19	3/4"	- 12	1.1/16" - 12	0.55	3.26	0.56	1.17	1.06	1.25

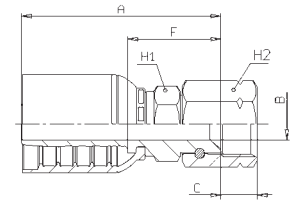
# OPS TYPE



## JIC STANDARD CONNECTIONS

### OPS22712

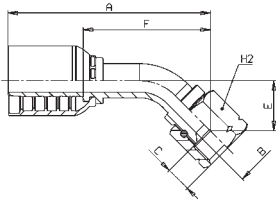
**JIC FEMALE 37° CONE SEAT - SAE J516/J514 (THRUST-WIRE NUT)**  
**JIC HEMBRA RECTA ASIENTO A 37° - SAE J516/J514**  
**(TUERCA GIRATORIA SOBRE LA ESPIGA)**



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPS22712-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.11	0.36	0.97	0.67	0.75
OPS22712-06-08	10	3/8"	- 06	3/4" - 16	0.37	2.20	0.40	1.07	0.75	0.87
OPS22712-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.40	1.08	0.75	0.87
OPS22712-08-10	12	1/2"	- 08	7/8" - 14	0.49	2.32	0.48	1.12	0.87	1.06
OPS22712-10-10	16	5/8"	- 10	7/8" - 14	0.49	2.44	0.48	1.11	0.87	1.06
OPS22712-10-12	16	5/8"	- 10	1.1/16" - 12	0.59	2.53	0.56	1.18	1.06	1.25
OPS22712-12-12	19	3/4"	- 12	1.1/16" - 12	0.55	3.35	0.56	1.26	1.06	1.25
OPS22712-12-14	19	3/4"	- 14	1.3/16" - 12	0.55	3.38	0.54	1.28	1.25	1.42
OPS22712-12-16	19	3/4"	- 12	1.5/16" - 12	0.75	3.43	0.6	1.34	1.25	1.62
OPS22712-16-16	25	1"	- 16	1.5/16" - 12	0.75	3.68	0.6	1.35	1.25	1.62
OPS22712-16-20	25	1"	- 16	1.5/8" - 12	1.02	4.07	0.64	1.74	1.62	1.97
OPS22712-20-16	31	1.1/4"	- 20	1.5/16" - 12	0.75	4.19	0.6	1.59	1.81	1.62
OPS22712-20-20	31	1.1/4"	- 20	1.5/8" - 12	0.97	4.35	0.64	1.75	1.62	1.97
OPS22712-20-24	31	1.1/4"	- 20	1.7/8" - 12	1.26	4.51	0.73	1.91	1.97	2.36
OPS22712-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.19	4.65	0.73	1.98	1.97	2.36
OPS22712-32-32	51	2"	- 32	2.1/2" - 12	1.53	5.87	0.93	2.13	2.56	2.95



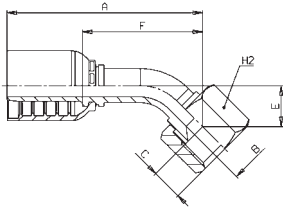
## JIC STANDARD CONNECTIONS



### OPS22742

**45° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)**

JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPS22743

**45° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(SLIP-ON NUT)**

JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/J514  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPS22742-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.81	0.38	0.65	1.65	0.75
OPS22742-08-08	12	1/2"	- 08	3/4" - 16	0.37	3.27	0.42	0.79	2.05	0.87
OPS22743-08-10	12	1/2"	- 08	7/8" - 14	0.37	3.17	0.50	0.67	1.95	1.06
OPS22742-10-10	16	5/8"	- 10	7/8" - 14	0.49	3.79	0.50	1.01	2.44	1.06
OPS22742-12-12	19	3/4"	- 12	1.1/16" - 12	0.55	4.40	0.56	0.88	2.32	1.25
OPS22742-16-16	25	1"	- 16	1.5/16" - 12	0.75	5.00	0.60	1.02	2.68	1.62
OPS22742-20-20	31	1.1/4"	- 20	1.5/8" - 12	0.97	6.94	0.64	1.63	4.35	1.97
OPS22742-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.19	7.85	0.73	2.15	5.18	2.36

# OPS TYPE

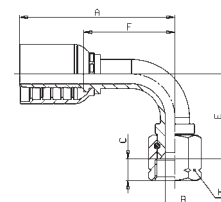


## JIC STANDARD CONNECTIONS

### OPS22792

90° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)

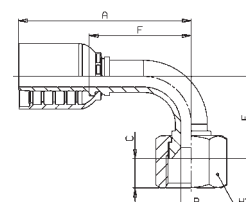
JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPS22793

90° JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(SLIP-ON NUT)

JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/J514  
(TUERCA DESLIZABLE SOBRE LA ESPIGA)

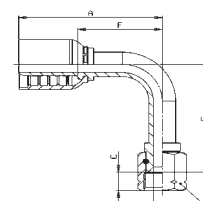


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPS22792-06-05	10	3/8"	- 06	1/2" - 20	0.22	2.34	0.37	1.04	1.19	0.67
OPS22792-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.55	0.38	1.28	1.39	0.75
OPS22792-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.95	0.42	1.61	1.73	0.87
OPS22793-08-10	12	1/2"	- 08	7/8" - 14	0.37	2.99	0.50	1.42	1.77	1.06
OPS22792-10-10	16	5/8"	- 10	7/8" - 14	0.49	3.47	0.50	2.07	2.11	1.06
OPS22793-10-12	16	5/8"	- 10	1.1/16" - 12	0.49	3.39	0.56	1.97	2.03	1.25
OPS22792-12-12	19	3/4"	- 12	1.1/16" - 12	0.55	4.13	0.56	1.86	2.03	1.25
OPS22792-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	4.13	0.60	2.11	2.03	1.62
OPS22792-16-16	25	1"	- 16	1.5/16" - 12	0.75	4.72	0.60	2.19	2.40	1.62
OPS22792-20-20	31	1.1/4"	- 20	1.5/8" - 12	0.97	6.38	0.64	3.43	3.78	1.97
OPS22792-24-24	38	1.1/2"	- 24	1.7/8" - 12	1.19	7.17	0.73	4.09	4.49	2.36

### OPS24792

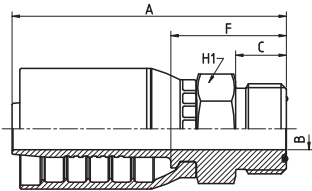
90° LONG DROP JIC FEMALE 37° CONE SEAT - SAE J516/J514  
(THRUST-WIRE NUT)

JIC HEMBRA CODO LARGO 90° ASIENTO A 37° - SAE J516/J514  
(TUERCA GIRATORIA SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPS24792-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.80	0.42	2.43	1.57	0.87
OPS24792-12-12	19	3/4"	- 12	1.1/16" - 12	0.55	4.13	0.56	3.73	2.03	1.25
OPS24792-16-16	25	1"	- 16	1.5/16" - 12	0.75	4.72	0.60	4.34	2.40	1.62

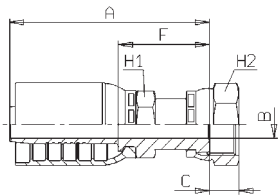
## ORFS STANDARD CONNECTIONS



### OPS12410

ORFS RIGID MALE - SAE J516/J1453  
ORFS MACHO ASIENTO PLANO - SAE J1453

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPS12410-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.43	0.50	1.20	0.87
OPS12410-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	3.62	0.67	1.52	1.25
OPS12410-16-16	25	1"	- 16	1.7/16" - 12	0.75	3.93	0.69	1.60	1.50
OPS12410-20-20	31	1.1/4"	- 20	1.11/16" - 12	0.97	4.43	0.69	1.83	1.81
OPS12410-24-24	38	1.1/2"	- 24	2" - 12	1.19	4.59	0.69	1.91	2.17



### OPS22411

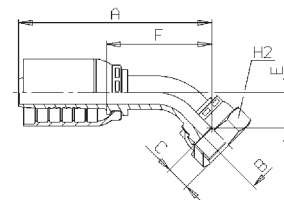
ORFS FEMALE - SAE J516/J1453 (CRIMPED-BACK NUT)  
ORFS HEMBRA RECTA ASIENTO PLANO - SAE J516/J1453  
(CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPS22411-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.38	0.37	1.22	0.63	0.87
OPS22411-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.64	0.43	1.41	1.75	0.94
OPS22411-10-10	16	5/8"	- 10	1" - 14	0.45	2.87	0.53	1.52	0.94	1.18
OPS22411-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	3.85	0.57	1.76	1.10	1.42
OPS22411-12-16	19	3/4"	- 12	1.7/16" - 12	0.75	4.03	0.60	1.93	1.37	1.62
OPS22411-16-16	25	1"	- 16	1.7/16" - 12	0.75	4.27	0.60	1.94	1.37	1.62
OPS22411-20-20	31	1.1/4"	- 20	1.11/16" - 12	0.97	4.84	0.60	2.24	1.81	1.97
OPS22411-24-24	38	1.1/2"	- 24	2" - 12	1.19	5.00	0.58	2.32	1.97	2.36

## ORFS STANDARD CONNECTIONS

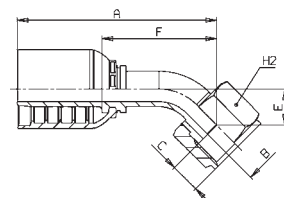
### OPS22441

**45° ORFS FEMALE - SAE J516/J1453 (CRIMPED-BACK NUT)**  
 ORFS HEMBRA CODO 45° ASIENTO PLANO - SAE J516/J1453  
 (CRIMPADO DETRAS DE LA TUERCA)



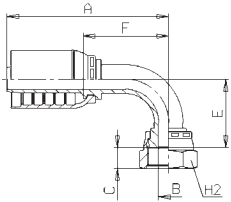
### OPS22443

**45° ORFS FEMALE - SAE J516/J1453 (SLIP-ON NUT)**  
 ORFS HEMBRA CODO 45° ASIENTO PLANO - SAE J516/J1453  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



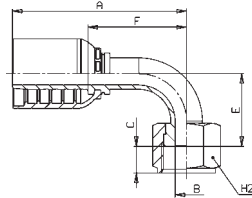
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPS22443-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.42	0.37	0.43	1.28	0.87
OPS22443-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.87	0.43	0.51	1.65	0.94
OPS22443-10-10	16	5/8"	- 10	1" - 14	0.45	3.28	0.53	0.62	1.93	1.18
OPS22441-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	4.59	0.57	0.83	2.50	1.42
OPS22441-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	4.70	0.60	0.94	2.62	1.62
OPS22441-16-16	25	1"	- 16	1.7/16" - 12	0.75	5.26	0.60	0.87	2.93	1.62
OPS22441-20-20	31	1.1/4"	- 20	1.11/16" - 12	0.97	5.89	0.60	1.00	3.29	1.97
OPS22441-20-24	31	1.1/4"	- 20	2" - 12	1.19	5.94	0.58	1.04	3.35	2.36
OPS22441-24-24	38	1.1/2"	- 24	2" - 12	1.19	6.32	0.58	1.10	3.64	2.36

## ORFS STANDARD CONNECTIONS



### OPS22491

**90° ORFS FEMALE - SAE J516/J1453 (CRIMPED-BACK NUT)**  
 ORFS HEMBRA CODO 90° ASIENTO PLANO - SAE J516/J1453  
 (CRIMPADO DETRAS DE LA TUERCA)

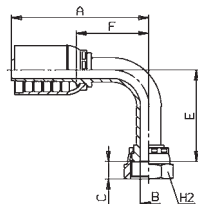


### OPS22493

**90° ORFS FEMALE - SAE J516/J1453 (SLIP-ON NUT)**  
 ORFS HEMBRA CODO 90° ASIENTO PLANO - SAE J516/J1453  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

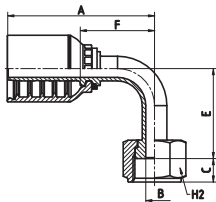
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
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	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPS22493-06-06	10	3/8"	- 06	11/16" - 16	0.28	2.34	0.37	0.94	1.18	0.87
OPS22493-08-08	12	1/2"	- 08	13/16" - 16	0.37	2.81	0.43	1.18	1.59	0.94
OPS22493-10-10	16	5/8"	- 10	1" - 14	0.45	3.24	0.53	1.48	1.89	1.18
OPS22491-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	4.45	0.57	1.87	2.36	1.42
OPS22491-12-16	19	3/4"	- 12	1.7/16" - 12	0.78	4.45	0.60	2.20	2.36	1.62
OPS22491-16-16	25	1"	- 16	1.7/16" - 12	0.75	5.24	0.60	2.13	2.91	1.62
OPS22491-20-20	31	1.1/4"	- 20	1.11/16" - 12	0.97	6.00	0.60	2.52	3.41	1.97
OPS22491-24-24	38	1.1/2"	- 24	2" - 12	1.19	6.40	0.58	2.72	3.72	2.36



### OPS24491

**LONG DROP 90° ORFS FEMALE - SAE J516/J1453 (CRIMPED-BACK NUT)**  
 ORFS HEMBRA CODO LARGO 90° ASIENTO PLANO  
 SAE J516/J1453 (CRIMPADO DETRAS DE LA TUERCA)



### OPS24493

**LONG DROP 90° ORFS FEMALE - SAE J516/J1453 (SLIP-ON NUT)**  
 ORFS HEMBRA CODO LARGO 90° ASIENTO PLANO  
 SAE J516/J1453 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
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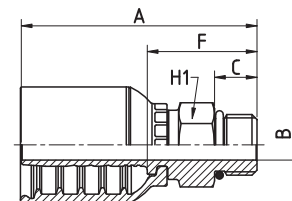
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPS24493-10-10	16	5/8"	- 10	1" - 14	0.45	2.97	0.53	2.72	1.61	1.18
OPS24491-12-12	19	3/4"	- 12	1.3/16" - 12	0.55	4.45	0.57	3.78	2.36	1.42
OPS24491-16-16	25	1"	- 16	1.7/16" - 12	0.75	5.24	0.60	4.51	2.91	1.62
OPS24491-20-20	31	1.1/4"	- 20	1.11/16" - 12	0.97	6.00	0.60	5.08	3.41	1.97

## SAE OR BOSS STANDARD CONNECTIONS

### OPS13010

SAE O-RING RIGID MALE - SAE J516/J514

SAE MACHO GIRATORIO TIPO O-RING BOSS - SAE J516/J514



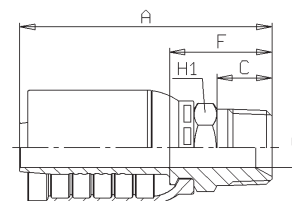
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPS13010-06-06	10	3/8"	- 06	9/16" - 18	0.28	2.17	0.39	1.01	0.67
OPS13010-08-08	12	1/2"	- 08	3/4" - 16	0.37	2.36	0.44	1.14	0.87
OPS13010-08-10	12	1/2"	- 08	7/8" - 14	0.49	2.48	0.50	1.26	1.00
OPS13010-12-12	19	3/4"	- 12	1.1/16" - 12	0.55	3.63	0.59	1.54	1.25
OPS13010-12-16	19	3/4"	- 12	1.5/16" - 12	0.78	3.65	0.59	1.56	1.50
OPS13010-16-16	25	1"	- 16	1.5/16" - 12	0.75	3.89	0.59	1.56	1.50
OPS13010-20-20	31	1.1/4"	- 20	1.5/8" - 12	0.97	4.25	0.59	1.65	1.81

## NPTF STANDARD CONNECTIONS

### OPS12810

NPTF MALE 30° CONE SEAT - SAE J516

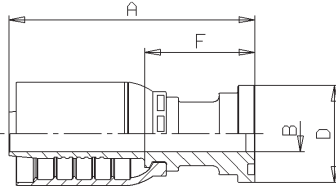
NPTF MACHO CUERDA CONICA ASIENTO A 30° - SAE J516



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPS12810-06-06	10	3/8"	- 06	3/8" - 18	0.37	2.28	0.57	1.13	0.75
OPS12810-08-08	12	1/2"	- 08	1/2" - 14	0.49	2.60	0.76	1.37	0.94
OPS12810-10-12	16	5/8"	- 10	3/4" - 14	0.63	2.93	0.76	1.58	1.06
OPS12810-12-12	19	3/4"	- 12	3/4" - 14	0.59	3.52	0.77	1.43	1.06
OPS12810-12-16	19	3/4"	- 12	1" - 11.5	0.78	3.74	0.96	1.65	1.37
OPS12810-16-16	25	1"	- 16	1" - 11.5	0.78	4.02	0.96	1.69	1.37
OPS12810-16-20	25	1"	- 16	1.1/4" - 11.5	1.02	4.61	0.98	2.28	1.81
OPS12810-20-20	31	1.1/4"	- 20	1.1/4" - 11.5	1.02	4.92	0.98	2.32	1.81
OPS12810-24-24	38	1.1/2"	- 24	1.1/2" - 11.5	1.26	5.06	1.02	2.38	1.97
OPS12810-32-32	51	2"	- 32	2" - 11.5	1.77	6.42	1.04	2.68	2.56



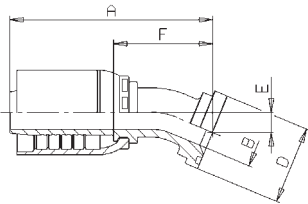
## FLANGE CODE 61 STANDARD CONNECTIONS



### OPS23311

STRAIGHT FLANGE HEAD CODE 61 - SAE J516/J518  
BRIDA RECTA CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch			
	DN	inch	Size		B	A	D	F
OPS23311-08-08	12	1/2"	- 08	1/2"	0.37	3.23	1.19	2.00
OPS23311-12-12	19	3/4"	- 12	3/4"	0.59	3.80	1.50	1.70
OPS23311-12-16	19	3/4"	- 12	1"	0.78	4.07	1.75	1.98
OPS23311-16-16	25	1"	- 16	1"	0.78	4.31	1.75	1.98
OPS23311-16-20	25	1"	- 16	1.1/4"	1.02	4.33	2.00	2.00
OPS23311-20-20	31	1.1/4"	- 20	1.1/4"	1.02	4.67	2.00	2.07
OPS23311-20-24	31	1.1/4"	- 20	1.1/2"	1.26	4.80	2.38	2.20
OPS23311-24-24	38	1.1/2"	- 24	1.1/2"	1.26	4.98	2.38	2.30
OPS23311-24-32	38	1.1/2"	- 24	2"	1.65	4.98	2.81	2.30
OPS23311-32-32	51	2"	- 32	2"	1.65	6.44	2.81	2.70
OPS23311-32-40	51	2"	- 32	2.1/2"	2.20	6.44	2.81	2.70



### OPS23321

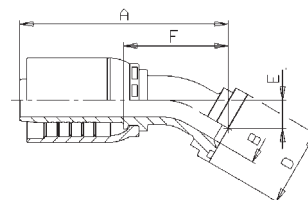
FLANGE HEAD 22.5° CODE 61 - SAE J516/J518  
BRIDA CODO 22.5° CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23321-12-12	19	3/4"	- 12	3/4"	0.59	4.37	1.50	0.41	2.26
OPS23321-12-16	19	3/4"	- 12	1"	0.78	4.37	1.75	0.41	2.26
OPS23321-16-16	25	1"	- 16	1"	0.75	4.84	1.75	0.45	2.50
OPS23321-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.67	2.00	0.47	3.07
OPS23321-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.34	2.38	0.53	3.66
OPS23321-32-32	51	2"	- 32	2"	1.65	8.84	2.81	0.77	5.10

## FLANGE CODE 61 STANDARD CONNECTIONS

### OPS23331

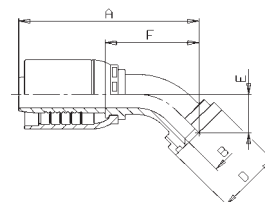
FLANGE HEAD 30° CODE 61 - SAE J516/J518  
BRIDA CODO 30° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23331-12-12	19	3/4"	- 12	3/4"	0.59	4.47	1.50	0.59	2.38
OPS23331-16-16	25	1"	- 16	1"	0.75	4.96	1.75	0.63	2.64
OPS23331-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.67	2.00	0.67	3.07
OPS23331-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.54	2.38	0.77	3.86
OPS23331-32-24	51	2"	- 32	1.1/2"	1.26	7.99	2.38	0.77	4.25
OPS23331-32-32	51	2"	- 32	2"	1.65	9.11	2.81	1.20	5.35

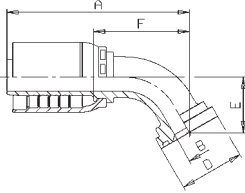
### OPS23341

FLANGE HEAD 45° CODE 61 - SAE J516/J518  
BRIDA CODO 45° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23341-08-08	12	1/2"	- 08	1/2"	0.37	3.54	1.19	0.73	2.30
OPS23341-12-12	19	3/4"	- 12	3/4"	0.59	4.61	1.50	0.98	2.52
OPS23341-12-16	19	3/4"	- 12	1"	0.78	4.61	1.75	0.96	2.52
OPS23341-16-16	25	1"	- 16	1"	0.75	5.14	1.75	1.04	2.80
OPS23341-16-20	25	1"	- 16	1.1/4"	1.02	5.14	2.00	1.04	2.80
OPS23341-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.91	2.00	1.14	3.31
OPS23341-20-24	31	1.1/4"	- 20	1.1/2"	1.26	5.96	2.38	1.18	3.37
OPS23341-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.83	2.38	1.30	4.15
OPS23341-24-32	38	1.1/2"	- 24	2"	1.65	6.75	2.81	1.50	4.07
OPS23341-32-32	51	2"	- 32	2"	1.65	9.53	2.81	1.91	5.79

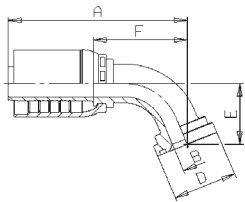
## FLANGE CODE 61 STANDARD CONNECTIONS



### OPS23361

FLANGE HEAD 60° CODE 61 - SAE J516/J518  
BRIDA CODO 60° CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23361-12-12	19	3/4"	- 12	3/4"	0.59	4.65	1.50	1.36	2.54
OPS23361-12-16	19	3/4"	- 12	1"	0.78	4.65	1.75	1.36	2.54
OPS23361-16-16	25	1"	- 16	1"	0.75	5.20	1.75	1.50	2.85
OPS23361-20-20	31	1.1/4"	- 20	1.1/4"	1.02	6.00	2.00	1.63	3.41
OPS23361-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.67	2.38	1.91	4.00
OPS23361-32-32	51	2"	- 32	2"	1.65	9.41	2.81	2.76	5.67



### OPS23371

FLANGE HEAD 67.5° CODE 61 - SAE J516/J518  
BRIDA CODO 67.5° CODIGO 61 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23371-12-12	19	3/4"	- 12	3/4"	0.59	4.63	1.50	1.56	2.52
OPS23371-12-16	19	3/4"	- 12	1"	0.78	4.63	1.75	1.56	2.52
OPS23371-16-16	25	1"	- 16	1"	0.75	5.18	1.75	1.73	2.85
OPS23371-20-20	31	1.1/4"	- 20	1.1/4"	1.02	6.00	2.00	1.89	3.41
OPS23371-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.69	2.38	2.20	4.02
OPS23371-32-32	51	2"	- 32	2"	1.65	9.43	2.81	3.21	5.69

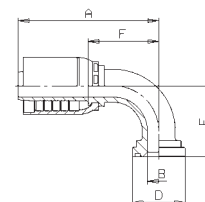
# OPS TYPE



## FLANGE CODE 61 STANDARD CONNECTIONS

### OPS23391

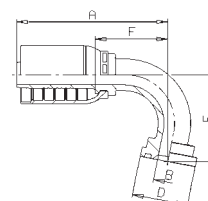
FLANGE HEAD 90° CODE 61 - SAE J516/J518  
BRIDA CODO 90° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23391-08-08	12	1/2"	- 08	1/2"	0.37	3.37	1.19	1.57	2.15
OPS23391-12-12	19	3/4"	- 12	3/4"	0.59	4.41	1.50	2.13	2.30
OPS23391-12-16	19	3/4"	- 12	1"	0.78	4.41	1.75	2.13	2.30
OPS23391-16-16	25	1"	- 16	1"	0.75	4.96	1.75	2.36	2.64
OPS23391-16-20	25	1"	- 16	1.1/4"	1.02	4.96	2.00	2.36	2.64
OPS23391-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.81	2.00	2.64	3.21
OPS23391-20-24	31	1.1/4"	- 20	1.1/2"	1.26	5.81	2.38	2.72	3.21
OPS23391-24-20	38	1.1/2"	- 24	1.1/4"	1.02	6.48	2.00	2.64	3.80
OPS23391-24-24	38	1.1/2"	- 24	1.1/2"	1.26	6.50	2.38	3.11	3.82
OPS23391-24-32	38	1.1/2"	- 24	2"	1.65	6.50	2.81	3.39	3.82
OPS23391-32-32	51	2"	- 32	2"	1.65	9.11	2.81	4.49	5.37
OPS23391-32-40	51	2"	- 32	2.1/2"	2.20	9.11	2.81	4.57	5.37

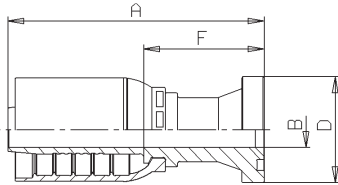
### OPS23301

FLANGE HEAD 101° CODE 61 - SAE J516/J518  
BRIDA CODO 101° CODIGO 61 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23301-12-12	19	3/4"	- 12	3/4"	0.59	4.21	1.50	2.36	2.13
OPS23301-20-20	31	1.1/4"	- 20	1.1/4"	1.02	5.61	2.00	2.95	3.01

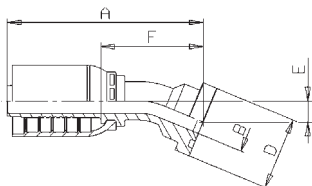
## FLANGE CODE 62 STANDARD CONNECTIONS



### OPS23611

STRAIGHT FLANGE HEAD CODE 62 - SAE J516/J518  
BRIDA RECTA CODIGO 62 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	F		
OPS23611-08-08	12	1/2"	- 08	1/2"	0.37	3.28	1.25	2.05		
OPS23611-10-12	16	5/8"	- 10	3/4"	0.59	4.11	1.63	2.76		
OPS23611-12-12	19	3/4"	- 12	3/4"	0.59	3.96	1.63	1.86		
OPS23611-12-16	19	3/4"	- 12	1"	0.78	4.35	1.88	2.26		
OPS23611-16-16	25	1"	- 16	1"	0.75	4.59	1.88	2.26		
OPS23611-16-20	25	1"	- 16	1.1/4"	1.02	4.75	2.13	2.42		
OPS23611-20-16	31	1.1/4"	- 20	1"	0.75	4.94	1.88	2.34		
OPS23611-20-20	31	1.1/4"	- 20	1.1/4"	0.97	5.10	2.13	2.50		
OPS23611-20-24	31	1.1/4"	- 20	1.1/2"	1.26	5.41	2.50	2.81		
OPS23611-24-24	38	1.1/2"	- 24	1.1/2"	1.19	5.53	2.50	2.85		
OPS23611-24-32	38	1.1/2"	- 24	2"	1.53	6.08	3.13	3.41		
OPS23611-32-32	51	2"	- 32	2"	1.53	7.30	3.13	3.56		



### OPS23621

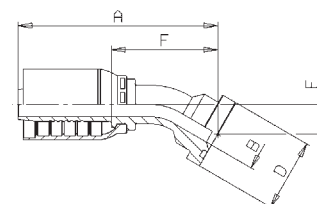
FLANGE HEAD 22.5° CODE 62 - SAE J516/J518  
BRIDA CODO 22.5° CODIGO 62 - SAE J516/J518

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch					
	DN	inch	Size		B	A	D	E	F	
OPS23621-16-16	25	1"	- 16	1"	0.75	5.08	1.88	0.55	2.76	
OPS23621-20-20	31	1.1/4"	- 20	1.1/4"	0.97	5.93	2.13	0.63	3.33	
OPS23621-24-24	38	1.1/2"	- 24	1.1/2"	1.19	6.85	2.50	0.77	4.17	
OPS23621-32-32	51	2"	- 32	2"	1.53	9.41	3.13	1.02	5.67	

## FLANGE CODE 62 STANDARD CONNECTIONS

### OPS23631

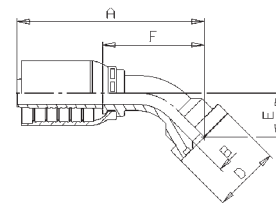
FLANGE HEAD 30° CODE 62 - SAE J516/J518  
BRIDA CODO 30° CODIGO 62 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23631-12-12	19	3/4"	- 12	3/4"	0.55	4.61	1.62	0.67	2.52
OPS23631-16-16	25	1"	- 16	1"	0.75	5.20	1.88	0.77	2.87
OPS23631-20-20	31	1.1/4"	- 20	1.1/4"	0.97	6.04	2.13	0.89	3.44
OPS23631-24-24	38	1.1/2"	- 24	1.1/2"	1.19	7.01	2.50	1.06	4.33
OPS23631-32-32	51	2"	- 32	2"	1.53	9.57	3.13	1.46	5.83

### OPS23641

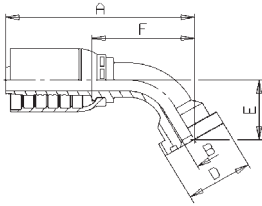
FLANGE HEAD 45° CODE 62 - SAE J516/J518  
BRIDA CODO 45° CODIGO 62 - SAE J516/J518



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23641-08-08	12	1/2"	- 08	1/2"	0.37	3.59	1.25	0.83	2.37
OPS23641-12-12	19	3/4"	- 12	3/4"	0.55	4.72	1.63	1.10	2.62
OPS23641-12-16	19	3/4"	- 12	1"	0.79	4.88	1.88	1.24	2.80
OPS23641-16-16	25	1"	- 16	1"	0.75	5.33	1.88	1.26	2.99
OPS23641-16-20	25	1"	- 16	1.1/4"	1.02	5.55	2.13	1.46	3.23
OPS23641-20-20	31	1.1/4"	- 20	1.1/4"	0.97	6.22	2.13	1.46	3.62
OPS23641-20-24	31	1.1/4"	- 20	1.1/2"	1.26	6.91	2.50	1.81	4.31
OPS23641-24-24	38	1.1/2"	- 24	1.1/2"	1.19	7.20	2.50	1.73	4.53
OPS23641-32-32	51	2"	- 32	2"	1.53	10.18	3.13	2.52	6.44



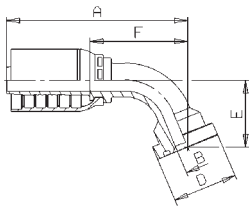
## FLANGE CODE 62 STANDARD CONNECTIONS



### OPS23661

**FLANGE HEAD 60° CODE 62 - SAE J516/J518**  
**BRIDA CODO 60° CODIGO 62 - SAE J516/J518**

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23661-12-12	19	3/4"	- 12	3/4"	0.55	4.72	1.63	1.50	2.62
OPS23661-16-16	25	1"	- 16	1"	0.75	5.33	1.88	1.73	2.99
OPS23661-20-20	31	1.1/4"	- 20	1.1/4"	0.97	6.22	2.13	2.01	3.62
OPS23661-32-32	51	2"	- 32	2"	1.53	9.80	3.13	3.35	6.06



### OPS23671

**FLANGE HEAD 67.5° CODE 62 - SAE J516/J518**  
**BRIDA CODO 67.5° CODIGO 62 - SAE J516/J518**

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23671-12-12	19	3/4"	- 12	3/4"	0.55	4.69	1.63	1.69	2.58
OPS23671-16-16	25	1"	- 16	1"	0.75	5.30	1.88	1.97	2.95
OPS23671-20-20	31	1.1/4"	- 20	1.1/4"	0.97	6.18	2.13	2.28	3.58
OPS23671-24-24	38	1.1/2"	- 24	1.1/2"	1.19	6.93	2.50	2.76	4.25
OPS23671-32-32	51	2"	- 32	2"	1.53	9.61	3.13	3.58	5.87

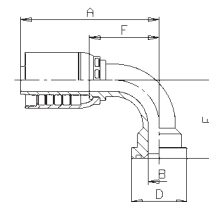
# OPS TYPE



## FLANGE CODE 62 STANDARD CONNECTIONS

### OPS23691

FLANGE HEAD 90° CODE 62 - SAE J516/J518  
BRIDA CODO 90° CODIGO 62 - SAE J516/J518

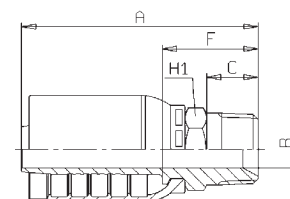


PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	D	E	F
OPS23691-08-08	12	1/2"	- 08	1/2"	0.37	3.37	1.25	1.77	2.15
OPS23691-10-12	16	5/8"	- 10	3/4"	0.59	3.44	1.63	2.38	2.11
OPS23691-10-16	16	5/8"	- 10	1"	0.78	3.54	1.88	2.52	2.20
OPS23691-12-12	19	3/4"	- 12	3/4"	0.55	4.41	1.63	2.28	2.30
OPS23691-12-16	19	3/4"	- 12	1"	0.79	4.41	1.88	2.52	2.30
OPS23691-16-16	25	1"	- 16	1"	0.75	4.96	1.88	2.64	2.64
OPS23691-16-20	25	1"	- 16	1 1/4"	1.02	4.96	2.13	2.95	2.64
OPS23691-20-16	31	1 1/4"	- 20	1"	0.75	5.49	1.88	2.64	2.89
OPS23691-20-20	31	1 1/4"	- 20	1 1/4"	0.97	5.81	2.13	3.07	3.21
OPS23691-20-24	31	1 1/4"	- 20	1 1/2"	1.26	6.28	2.50	3.56	3.68
OPS23691-24-24	38	1 1/2"	- 24	1 1/2"	1.19	6.50	2.50	3.72	3.82
OPS23691-24-32	38	1 1/2"	- 24	2"	1.65	6.50	3.13	4.43	3.82
OPS23691-32-32	51	2"	- 32	2"	1.53	9.11	3.13	5.35	5.37

## BSPT STANDARD CONNECTIONS

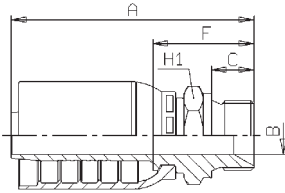
### OPS10710

BSP MALE TAPERED  
BSP MACHO CUERDA CONICA



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS inch				
	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPS10710-06-06	10	3/8"	- 06	3/8" - 18	0.28	2.22	0.47	1.07	0.75
OPS10710-08-08	12	1/2"	- 08	1/2" - 14	0.39	2.45	0.59	1.22	0.87
OPS10710-12-12	19	3/4"	- 12	3/4" - 14	0.67	3.46	0.67	1.37	1.06
OPS10710-16-16	25	1"	- 16	1" - 11	0.89	3.92	0.83	1.59	1.42

## BSP STANDARD CONNECTIONS

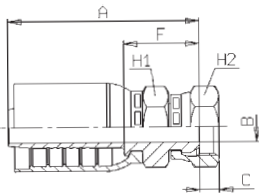


### OPS10510

**BSP MALE PARALLEL 60° CONE SEAT - BS5200**  
**BSP MACHO CUERDA RECTA ASIENTO A 60° - BS5200**

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
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	DN	inch	Size		B	A	C	F	H <sub>1</sub>
OPS10510-06-04	10	3/8"	- 06	1/4" - 19	0.20	2.18	0.43	1.02	0.75
OPS10510-06-06	10	3/8"	- 06	3/8" - 19	0.31	2.26	0.47	1.11	0.87
OPS10510-06-08	10	3/8"	- 06	1/2" - 14	0.43	2.36	0.55	1.20	1.06
OPS10510-08-06	12	1/2"	- 08	3/8" - 19	0.31	2.33	0.47	1.11	0.87
OPS10510-08-08	12	1/2"	- 08	1/2" - 14	0.43	2.45	0.55	1.22	1.06
OPS10510-10-12	16	5/8"	- 10	3/4" - 14	0.67	2.70	0.63	1.35	1.26
OPS10510-12-12	19	3/4"	- 12	3/4" - 14	0.67	3.59	0.63	1.50	1.26
OPS10510-16-16	25	1"	- 16	1" - 11	0.89	4.00	0.75	1.67	1.61

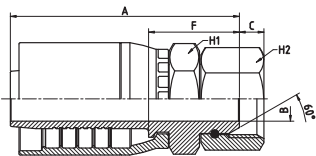


### OPS20711

**BSP FEMALE 60° CONE - BS5200 (CRIMPED-BACK NUT)**  
**BSP HEMBRA RECTA ASIENTO A 60° - BS5200**  
**(CRIMPADO DETRAS DE LA TUERCA)**

### OPS20712

**BSP FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
**BSP HEMBRA RECTA ASIENTO A 60° - BS5200**  
**(TUERCA GIRATORIA SOBRE LA ESPIGA)**



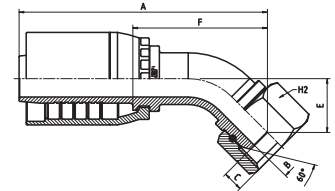
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch				
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	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
OPS20711-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.13	0.25	0.97	0.87	0.87
OPS20711-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.26	0.26	1.04	1.06	1.06
OPS20712-12-12	19	3/4"	- 12	3/4" - 14	0.55	3.46	0.35	1.37	1.25	1.25
OPS20712-16-16	25	1"	- 16	1" - 11	0.75	3.86	0.42	1.53	1.62	1.62
OPS20712-20-20	31	1.1/4"	- 20	1.1/4" - 11	0.97	4.56	0.39	1.96	1.97	1.97

## BSP STANDARD CONNECTIONS

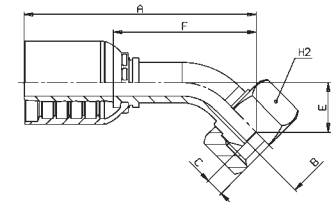
### OPS20742

**45° BSP FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPS20743

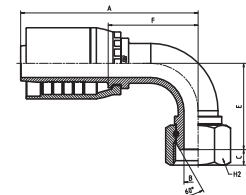
**45° BSP FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPS20743-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.81	0.24	0.59	1.65	0.87
OPS20743-08-08	12	1/2"	- 08	1/2" - 14	0.37	3.19	0.25	0.67	1.95	1.06
OPS20742-12-12	19	3/4"	- 12	3/4" - 14	0.55	4.49	0.35	0.96	2.40	1.25
OPS20742-16-16	25	1"	- 16	1" - 11	0.75	5.09	0.42	1.11	2.77	1.62

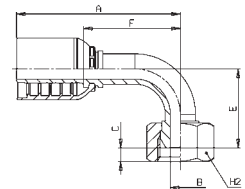
### OPS20792

**45° BSP FEMALE 60° CONE - BS5200 (THRUST-WIRE NUT)**  
 BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200  
 (TUERCA GIRATORIA SOBRE LA ESPIGA)



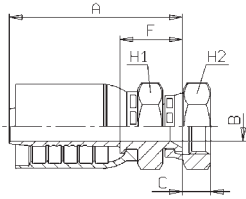
### OPS20793

**45° BSP FEMALE 60° CONE - BS5200 (SLIP-ON NUT)**  
 BSP HEMBRA CODO 45° ASIENTO A 60° - BS5200  
 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPS20793-06-06	10	3/8"	- 06	3/8" - 19	0.28	2.60	0.24	1.24	1.44	0.87
OPS20793-08-08	12	1/2"	- 08	1/2" - 14	0.37	2.99	0.25	1.44	1.77	1.06
OPS20792-12-12	19	3/4"	- 12	3/4" - 14	0.55	4.13	0.35	1.94	2.03	1.25
OPS20792-16-16	25	1"	- 16	1" - 11	0.75	4.72	0.42	2.30	2.40	1.62

## JIS STANDARD CONNECTIONS

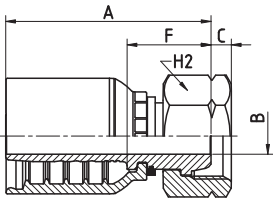


### OPS23811

**JIS BSP FEMALE 60° CONE SEAT JIS B 8363 (CRIMPED-BACK NUT)**  
**JIS BSP HEMBRA RECTA ASIENTO A 60° (NISSAN) JIS B 8363**  
**(CRIMPADO DETRAS DE LA TUERCA)**

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	F	H <sub>1</sub>	H <sub>2</sub>
<b>OPS23811-12-12</b>	19	3/4"	- 12	3/4" - 14	0.55	3.28	0.53	1.19	1.42	1.42

## METRIC MULTISEAL STANDARD CONNECTIONS



### OPS21313

**METRIC FEMALE MULTISEAL - DIN 20078/3868 (SLIP-ON NUT)**  
**HEMBRA RECTA MILIMETRICA MULTISELLO - DIN 20078/3868**  
**(TUERCA DESLIZABLE SOBRE LA ESPIGA)**

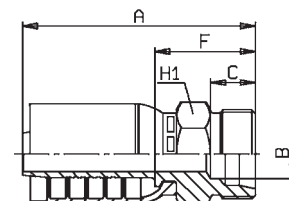
PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS inch				
	DN	inch	Size			mm	B	A	C	F
<b>OPS21313-08-22</b>	112	1/2"	- 08	M 22x1.5	15	0.37	2.37	0.22	1.14	1.06
<b>OPS21313-10-26</b>	16	5/8"	- 10	M 26x1.5	18	0.49	2.52	0.22	1.17	1.25

## METRIC 24° O-RING STANDARD CONNECTIONS

### OPS11210

METRIC MALE 24° CONE SEAT H.T. - DIN 20066/3861

MACHO MILIMETRICO CONO 24° SERIE PESADA H.T. - DIN 20066/3861



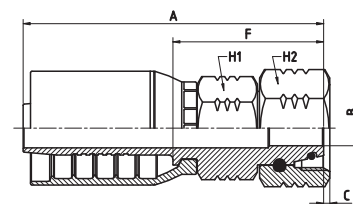
PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS inch				
	DN	inch	Size			mm	B	A	C	F
OPS11210-10-30	16	5/8"	- 10	M 30x2	20	0.59	2.76	0.63	1.41	1.18
OPS11210-12-36	19	3/4"	- 12	M 36x2	25	0.78	3.69	0.71	1.59	1.42
OPS11210-16-42	25	1"	- 16	M 42x2	30	0.98	4.02	0.79	1.69	1.81
OPS11210-20-52	31	1.1/4"	- 20	M 52x2	38	1.18	4.52	0.87	1.93	2.17

### OPS21612

O-RING METRIC FEMALE 24° CONE H.T.

DIN 20066/3865 (THRUST-WIRE NUT)

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T. - DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)

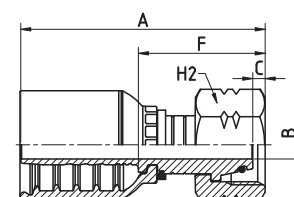


### OPS21613

O-RING METRIC FEMALE 24° CONE H.T.

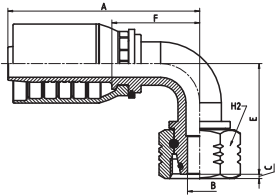
DIN 20066/3865 (SLIP-ON NUT)

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T. - DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS inch					
	DN	inch	Size			mm	B	A	C	F	H <sub>1</sub>
OPS21613-10-30	16	5/8"	- 10	M 30x2	20	0.49	2.89	0.17	1.54	-	1.42
OPS21612-12-36	19	3/4"	- 12	M 36x2	25	0.55	3.85	0.23	1.58	1.42	1.81
OPS21612-16-42	25	1"	- 16	M 42x2	30	0.75	4.15	0.34	1.82	1.62	1.97
OPS21612-20-52	31	1.1/4"	- 20	M 52x2	38	0.97	4.53	0.38	1.93	1.97	2.36

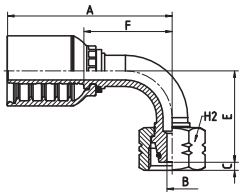
## METRIC 24° O-RING STANDARD CONNECTIONS



### OPS21692

**90° O-RING METRIC FEMALE 24° CONE H.T.  
DIN 20066/3865 (THRUST-WIRE NUT)**

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T. - DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)

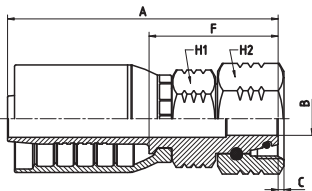


### OPS21693

**90° O-RING METRIC FEMALE 24° CONE H.T.  
DIN 20066/3865 (SLIP-ON NUT)**

HEMBRA CODO 90° MILIMETRICA CON O-RING CONO 24° SERIE PESADA H.T. - DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

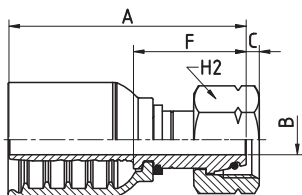
PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	E	F
<b>OPS21693-10-30</b>	16	5/8"	- 10	M 30x2	20	0.49	3.39	0.14	2.26	2.03	1.42
<b>OPS21692-12-36</b>	19	3/4"	- 12	M 36x2	25	0.55	4.06	0.23	2.58	1.95	1.81
<b>OPS21692-16-42</b>	25	1"	- 16	M 42x2	30	0.75	4.72	0.34	2.61	2.40	1.97



### OPS21512

**O-RING METRIC FEMALE 24° CONE L.T.  
DIN 20066/3865 (THRUST-WIRE NUT)**

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA L.T. - DIN 20066/3865 (TUERCA GIRATORIA SOBRE LA ESPIGA)



### OPS21513

**O-RING METRIC FEMALE 24° CONE L.T.  
DIN 20066/3865 (SLIP-ON NUT)**

HEMBRA RECTA MILIMETRICA CON O-RING CONO 24° SERIE PESADA L.T. - DIN 20066/3865 (TUERCA DESLIZABLE SOBRE LA ESPIGA)

PART. REF.	HOSE BORE		THREAD	PIPE	DIMENSIONS inch						
	DN	inch			Size	mm	B	A	C	F	H <sub>1</sub>
<b>OPS21513-08-22</b>	12	1/2"	- 08	M 22x1.5	15	0.37	2.49	0.09	1.27	-	1.06
<b>OPS21513-10-26</b>	16	5/8"	- 10	M 26x1.5	18	0.49	2.64	0.10	1.29	-	1.25
<b>OPS21512-12-30</b>	19	3/4"	- 12	M 30x2	22	0.55	3.71	0.17	1.49	1.26	1.42
<b>OPS21512-16-36</b>	25	1"	- 16	M 36x2	28	0.75	3.97	0.18	1.74	1.41	1.81

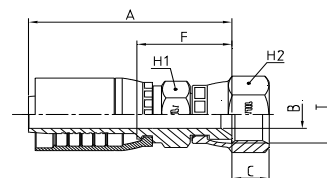


## JIC STANDARD CONNECTIONS

### OPS22711KR

JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON - SAE J516/ISO 12151-5  
(CRIMPED-BACK NUT)

JIC HEMBRA CODO ASIENTO A 37° DOBLE HEXÁGONO - SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)

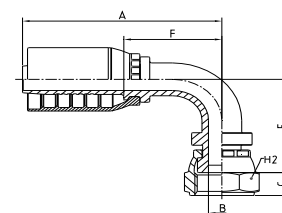


PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS22711-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.03	0.37	0.87	0.67	0.67
OPNS22711-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	2.28	0.42	1.06	0.75	0.87

### OPS22591KR

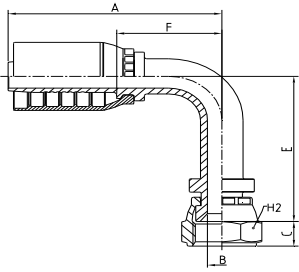
90° ELBOW JIC FEMALE 37° CONE SEAT SAE J516/ISO 12151-5  
(CRIMPED-BACK NUT)

JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/ISO 12151-5  
(CRIMPADO DETRAS DE LA TUERCA)



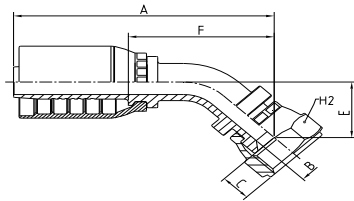
PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPS22591-06-06KR	10	3/8"	- 06	9/16" - 18	0.28	2.56	0.37	1.26	1.40	0.67
OPS22591-08-08KR	12	1/2"	- 08	3/4" - 16	0.37	2.96	0.42	1.61	1.73	0.87
OPS22591-10-10KR	16	5/8"	- 10	7/8" - 14	0.49	3.46	0.49	1.85	2.11	0.98

## JIC STANDARD CONNECTIONS



**OPS24791KR**  
**90° LONG DROP ELBOW JIC FEMALE 37° CONE SEAT SAE J516/ISO 12151-5 (CRIMPED-BACK NUT)**  
 JIC HEMBRA CODO 90° ASIENTO A 37° - SAE J516/ISO 12151-5 (CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPNS24791-08-08KR	12	1/2"	-08	3/4" - 16	0.37	2.96	0.42	2.52	1.73	0.87



**OPS22541KR**  
**45° ELBOW JIC FEMALE 37° CONE SEAT SAE J516/ISO 12151-5 (CRIMPED-BACK NUT)**  
 JIC HEMBRA CODO 45° ASIENTO A 37° - SAE J516/ISO 12151-5 (CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS inch					
	DN	inch	Size		B	A	C	E	F	H <sub>2</sub>
OPS22541-06-06KR	10	3/8"	-06	9/16" - 18	0.28	2.81	0.37	0.63	1.65	0.67
OPS22541-08-08KR	12	1/2"	-08	3/4" - 16	0.37	3.28	0.42	0.79	2.05	0.87
OPS22541-10-10KR	16	5/8"	-10	7/8" - 14	0.49	3.79	0.49	0.89	2.44	0.98

# CRIMPED FITTINGS



REFERENCE	PAGE	REFERENCE	PAGE	REFERENCE	PAGE
J029	283	M20712	255	M22411	215
M00110	193/234	M20812	201	M22441	219
M00120	193	M20813	201	M22443	219
M00310	195	M20842	203	M22491	217
M00820	195	M20843	203	M22493	217
M00830	195	M20882F	204	M22512	207
M00910	193	M20892	202	M22513	207
M00920	193	M20893	202	M22542	213
M01500	261	M21013	240	M22541KR	236
M01600	261	M21093	240	M22543	213
M01750	284	M21312	241	M22582F	214
M01800	261/284	M21313	241	M22592	211
M03400	194	M21342	243	M22591KR	235
M10050	259	M24343	243	M22593	211
M10510	197	M21392	242	M22612	221
M10610	204	M21393	242	M22692	221
M10710	196	M21512	245	M22711	208
M11110	244	M21513	245	M22711K	208
M11210	248	M21542	247	M22711KR	235
M11710	252	M21543	247	M22712	210
M11810	252	M21592	246	M22712K	209
M12410	214	M21593	246	M22812	223
M12510	206	M21612	249	M23301P	231
M12810	222	M21613	249	M23301S	232
M13010	220	M21642	251	M23301T	232
M14110R	223	M21643	251	M23311	224
M14310	220	M21692	250	M23321	225
M14390	221	M21693	250	M23331	226
M20512	198	M21713	252	M23341	227
M20513	198	M21813	253	M23361	228
M20542	200	M21893	253	M23371	229
M20543	200	M22010	234	M23391	230
M20592	199	M22040	239	M23391 LONG DROP	231
M20593	199	M22090	238	M23611	233
M20612	205	M22110	237	M23691	233
M20613	205	M22140	239	M23811	255
M20711	255	M22190	238	M23911	257

# CRIMPED FITTINGS

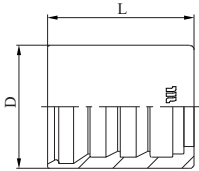


## SUMMARY

REFERENCE	PAGE	REFERENCE	PAGE	REFERENCE	PAGE
M23941	257	M43340	270	080210	260
M23991	257	M43390	269	080810	260
M24011	254	M43610	270		
M24012	254	M43630	272		
M24111	256	M43640	271		
M24141	256	M43660	272		
M24191	256	M43690	271		
M24493	218	M43710	273		
M24792	212	M43740	273		
M24791KR	236	M43790	273		
M24793	212	M43910	274		
M27411	216	M43920	274		
M30050	283	M43930	275		
M30510	262	M43940	275		
M31210	279	M43960	276		
M32810	264	M43970	276		
M40812	262	M43990	277		
M40842	263	M43990 LONG DROP	277		
M40892	263	M48510	278		
M41243	282	M48540	278		
M41293	282	M48590	278		
M41612	279	M49510WL	283		
M41613	279	M52810	285		
M41642	281	M57810	285		
M41643	281	M53410	287		
M41692	280	M53410...H00	287		
M41693	280	M53510	287		
M42411	266	M68510	288		
M42412	266	M68540	288		
M42441	268	M68590	288		
M42442	268	M68610	285		
M42491	267	M68640	286		
M42492	267	M68690	286		
M42512	264	M..IP	259		
M42542	265	0820..	289		
M42592	265	020310	258		
M43310	269	020910	258		

### M00110/M00120

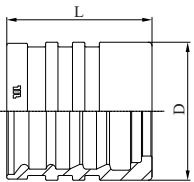
SKIVE FERRULE FOR WIRE BRAID HOSES  
 CASQUILLO CON PELADO PARA MANGUERAS CON TRENZA DE ACERO  
 SCHÄLFASSUNG FÜR STAHLGEFLECHTSCHLÄUCHE  
 GHIERA PER TUBI TRECCIATI CON PELATURA



PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M00120-03	5	3/16"	-03	17,0	23,9				
M00120-04	6	1/4"	-04	19,5	28,0				
M00120-05	8	5/16"	-05	20,0	28,6				
M00120-06	10	3/8"	-06	23,0	30,0				
M00120-08	12	1/2"	-08	26,7	32,0				
M00120-10	16	5/8"	-10	32,0	38,0				
M00120-12	19	3/4"	-12	35,8	41,7				
M00120-16	25	1"	-16	43,0	47,0				
M00110-20	31	1.1/4"	-20	50,5	59,0				
M00110-24	38	1.1/2"	-24	57,0	70,0				
M00110-32	51	1"	-32	70,0	72,0				

### M00910/M00920

SKIVE FERRULE FOR WIRE BRAID AND SPIRAL HOSES  
 CASQUILLO CON PELADO PARA MANGUERAS CON TRENZA Y ESPIRAL DE ACERO  
 SCHÄLFASSUNG FÜR STAHLGEFLECHT- UND SPIRALSCHLÄUCHE  
 GHIERA PER TUBI TRECCIATI E SPIRALATI CON PELATURA



PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M00910-03	5	3/16"	-03	20,6	26,0				
M00910-04	6	1/4"	-04	22,0	30,0				
M00910-05	8	5/16"	-05	24,0	31,0				
M00910-06	10	3/8"	-06	26,0	33,0				
M00910-08	12	1/2"	-08	30,0	34,0				
M00910-10	16	5/8"	-10	33,0	39,0				
M00920-12	19	3/4"	-12	38,0	40,0				
M00920-16	25	1"	-16	46,0	54,0				
M00920-20	31	1.1/4"	-20	57,0	60,0				
M00910-24	38	1.1/2"	-24	65,0	70,0				
M00910-32	51	2"	-32	79,0	72,0				

# MULTIFIT TYPE



## FERRULE

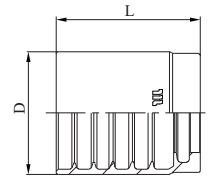
### M03400

NO-SKIVE FERRULE FOR WIRE BRAID HOSES

CASQUILLO SIN PELADO PARA MANGUERAS CON TRENZA DE ACERO

NICHT-SCHÄLFASSUNG FÜR STAHLGEFLECHTSCHLÄUCHE

GHIERA PER TUBI TRECCIATI SENZA PELATURA



PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M03400-03	5	3/16"	- 03	21,0	23,0				
M03400-04	6	1/4"	- 04	23,0	30,1				
M03400-05	8	5/16"	- 05	24,0	30,0				
M03400-06	10	3/8"	- 06	26,0	31,1				
M03400-08	12	1/2"	- 08	29,0	33,4				
M03400-10	16	5/8"	- 10	33,0	37,0				
M03400-12	19	3/4"	- 12	37,0	42,0				
M03400-16	25	1"	- 16	46,0	51,0				
M03400-20	31	1.1/4"	- 20	59,0	57,2				
M03400-24	38	1.1/2"	- 24	67,0	64,8				
M03400-32	51	2"	- 32	80,0	68,3				
M03400-38	60	2.3/8"	- 38	82,5	69,0				
M03400-40	63	2. 1/2"	- 40	88,2	68,8				
M03400-48	76	3"	- 48	103,0	75,0				



Available no-skive ferrule for one braid hoses for DN 6 (M03100-04) and DN 10 (M03100-06).

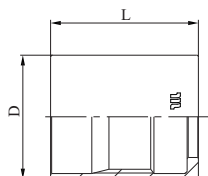
Disponible casquillo sin pelado para mangueras de una trenza para DN 6 (M03100-04) y DN 10 (M03100-06).

Verfügbar hülsen ohne abschälen für 1-drahtgeflechschläuche für DN 6 (M03100-04) und DN 10 (M03100-06)

Disponibile ghiera per tubi a una treccia senza pelatura per DN 6 (M03100-04) e DN 10 (M03100-06).

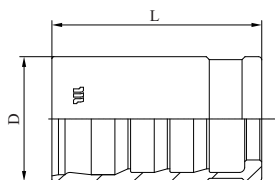


### M00310



NO-SKIVE FERRULE FOR TEXTILE BRAID HOSES  
 CASQUILLO SIN PELADO PARA MANGUERAS CON REFUERZO TEXTIL TRENZADO  
 NICHT-SCHÄLFASSUNG FÜR TEXTILGEFLECHTSCHLÄUCHE  
 GHIERA PER TUBI TESSILI SENZA PELATURA

PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M00310-03	5	3/16"	- 03	17,5	27,0				
M00310-04	6	1/4"	- 04	19,3	30,0				
M00310-05	8	5/16"	- 05	21,0	32,0				
M00310-06	10	3/8"	- 06	24,0	32,0				
M00310-08	12	1/2"	- 08	28,4	34,0				
M00310-10	16	5/8"	- 10	33,0	37,0				
M00310-12	19	3/4"	- 12	37,0	43,0				
M00310-16	25	1"	- 16	43,5	51,0				
M00310-20	31	1.1/4"	- 20	50,0	59,0				



### M00820/M00830

NO-SKIVE FERRULE FOR COMPACT HOSES  
 CASQUILLO SIN PELADO PARA MANGUERA COMPACTA  
 NICHT-SCHÄLFASSUNG FÜR KOMPAKT-SCHLÄUCHE  
 GHIERA PER TUBI COMPATTI SENZA PELATURA

PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M00820-03	5	3/16"	- 03	14,0	26,4				
M00830-04	6	1/4"	- 04	18,0	29,6				
M00830-05	8	5/16"	- 05	19,0	31,9				
M00820-06	10	3/8"	- 06	22,0	33,0				
M00820-08	12	1/2"	- 08	26,0	33,9				
M00820-10	16	5/8"	- 10	29,0	35,9				
M00820-12	19	3/4"	- 12	33,0	41,7				
M00820-16	25	1"	- 16	41,0	49,7				
M00820-20	31	1.1/4"	- 20	48,0	57,0				
M00820-24	38	1.1/2"	- 24	55,5	66,0				
M00820-32	51	2"	- 32	68,6	70,0				

**NEW**  
**NEW**

# MULTIFIT TYPE



## BS STANDARD CONNECTIONS

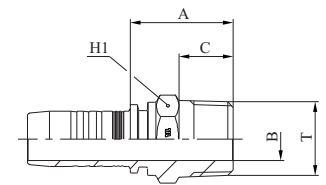
### M10710

BSP MALE TAPERED - ISO 7

MACHO BSP (BSPT) ROSCA CONICA - ISO 7

AGR KONISCH (BSPT GEWINDE NACH) - ISO 7

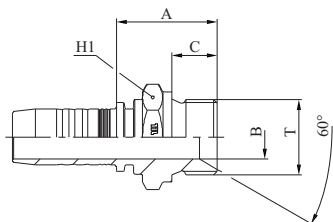
MASCHIO CONICO GAS - ISO 7



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	
M10710-03-02	5	3/16"	- 03	1/8" - 28	4,5	20,6	8,0		12	
M10710-03-04	5	3/16"	- 03	1/4" - 19	4,5	24,5	12,0		14	
M10710-04-02	6	1/4"	- 04	1/8" - 28	4,5	21,0	8,0		12	
M10710-04-04	6	1/4"	- 04	1/4" - 19	4,5	25,0	12,0		14	
M10710-04-06	6	1/4"	- 04	3/8" - 19	7,0	26,0	12,0		19	
M10710-04-08	6	1/4"	- 04	1/2" - 14	10,0	29,5	15,0		22	
M10710-05-04	8	5/16"	- 05	1/4" - 19	5,5	25,0	12,0		14	
M10710-05-06	8	5/16"	- 05	3/8" - 19	7,0	26,5	12,0		19	
M10710-05-08	8	5/16"	- 05	1/2" - 14	10,0	30,0	15,0		22	
M10710-06-06	10	3/8"	- 06	3/8" - 19	7,0	27,1	12,0		19	
M10710-06-08	10	3/8"	- 06	1/2" - 14	10,0	30,6	15,0		22	
M10710-08-04	12	1/2"	- 08	1/4" - 19	4,5	26,0	12,0		19	
M10710-08-08	12	1/2"	- 08	1/2" - 14	10,0	31,1	15,0		22	
M10710-10-08	16	5/8"	- 10	1/2" - 14	10,0	31,0	15,0		22	
M10710-10-12	16	5/8"	- 10	3/4" - 14	17,0	37,0	17,0		27	
M10710-12-12	19	3/4"	- 12	3/4" - 14	17,0	35,5	17,0		27	
M10710-16-12	25	1"	- 16	3/4" - 14	17,0	38,0	17,0		32	
M10710-16-16	25	1"	- 16	1" - 11	22,5	41,8	21,0		36	
M10710-20-20	31	1.1/4"	- 20	1.1/4" - 11	28,5	47,5	23,0		46	
M10710-24-24	38	1.1/2"	- 24	1.1/2" - 11	32,0	50,0	23,0		50	
M10710-32-32	51	2"	- 32	2" - 11	44,0	55,4	27,0		65	

## BS STANDARD CONNECTIONS

### M10510



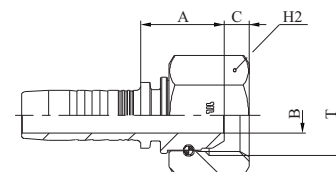
BSP MALE PARALLEL 60° CONE SEAT - BS5200 / ISO 8434-6  
 MACHO BSP PARALELO ASIEN TO A 60° - BS5200 / ISO 8434-6  
 AGR 60° INNENKONUS (BSP-GEWINDE NACH BS5200 / ISO 8434-6)  
 MASCHIO GAS CILINDRICO 60° - BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>1</sub>
M10510-03-02	5	3/16"	- 03	1/8" - 28	3,5	22,5	10,0		14
M10510-03-04	5	3/16"	- 03	1/4" - 19	5,0	25,0	11,0		19
M10510-04-02	6	1/4"	- 04	1/8" - 28	3,5	22,5	10,0		14
M10510-04-04	6	1/4"	- 04	1/4" - 19	5,0	25,5	11,0		19
M10510-04-06	6	1/4"	- 04	3/8" - 19	8,0	27,0	12,0		22
M10510-04-08	6	1/4"	- 04	1/2" - 14	11,0	30,0	14,0		27
M10510-05-04	8	5/16"	- 05	1/4" - 19	5,0	26,0	11,0		19
M10510-05-06	8	5/16"	- 05	3/8" - 19	8,0	27,5	12,0		22
M10510-06-04	10	3/8"	- 06	1/4" - 19	5,0	26,0	11,0		19
M10510-06-06	10	3/8"	- 06	3/8" - 19	8,0	28,1	12,0		22
M10510-06-08	10	3/8"	- 06	1/2" - 14	11,0	30,6	14,0		27
M10510-08-06	12	1/2"	- 08	3/8" - 19	8,0	28,1	12,0		22
M10510-08-08	12	1/2"	- 08	1/2" - 14	11,0	31,1	14,0		27
M10510-08-10	12	1/2"	- 08	5/8" - 14	14,5	33,1	16,0		30
M10510-08-12	12	1/2"	- 08	3/4" - 14	17,0	34,1	16,0		32
M10510-10-10	16	5/8"	- 10	5/8" - 14	14,5	33,1	16,0		30
M10510-10-12	16	5/8"	- 10	3/4" - 14	17,0	34,1	16,0		32
M10510-12-08	19	3/4"	- 12	1/2" - 14	11,0	32,0	14,0		27
M10510-12-12	19	3/4"	- 12	3/4" - 14	17,0	35,5	16,0		32
M10510-12-16	19	3/4"	- 12	1" - 11	22,5	39,5	19,0		41
M10510-16-12	25	1"	- 16	3/4" - 14	17,0	36,5	16,0		32
M10510-16-16	25	1"	- 16	1" - 11	22,5	40,8	19,0		41
M10510-16-20	25	1"	- 16	1.1/4" - 11	28,5	44,8	20,0		50
M10510-20-20	31	1.1/4"	- 20	1.1/4" - 11	28,5	46,5	20,0		50
M10510-20-24	31	1.1/4"	- 20	1.1/2" - 11	33,5	48,5	22,0		55
M10510-24-24	38	1.1/2"	- 24	1.1/2" - 11	33,5	49,5	22,0		55
M10510-32-32	51	2"	- 32	2" - 11	46,0	53,9	25,0		70

## BS STANDARD CONNECTIONS

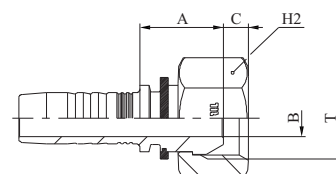
### M20512

BSP FEMALE 60° CONE - BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP ASIEN TO A 60° - BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKR 60° KONUS (BSP-GEWINDE NACH BS5200 / ISO 12151-6, GESTIFTETE MUTTER)  
 FEMMINA GAS CONO 60° - BS5200 / ISO 12151-6 (DADO SPINATO)



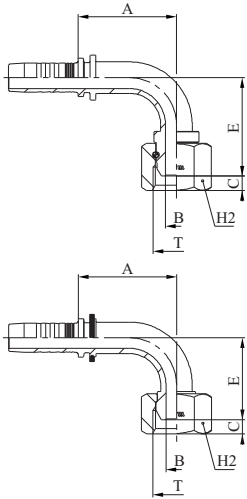
### M20513

BSP FEMALE 60° CONE - BS5200 / ISO 12151-6 (SLIP-ON NUT)  
 HEMBRA BSP ASIEN TO A 60° - BS5200 / ISO 12151-6 (TUERCA LIBRE)  
 DKR 60° KONUS (BSP-GEWINDE NACH BS5200 / ISO 12151-6, HINTERLEGTE MUTTER)  
 FEMMINA GAS CONO 60° - BS5200 / ISO 12151-6 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>2</sub>	
M20512-03-02	5	3/16"	- 03	1/8" - 28	3,1	14,8	4,4		14	
M20513-03-04	5	3/16"	- 03	1/4" - 19	4,0	16,5	5,4		19	
M20512-04-02	6	1/4"	- 04	1/8" - 28	3,1	15,5	4,4		14	
M20513-04-04	6	1/4"	- 04	1/4" - 19	4,0	17,0	5,4		19	
M20513-04-06	6	1/4"	- 04	3/8" - 19	7,0	19,1	6,0		22	
M20512-05-04	8	5/16"	- 05	1/4" - 19	4,1	17,5	4,2		19	
M20513-05-06	8	5/16"	- 05	3/8" - 19	7,0	19,1	6,0		22	
M20513-05-08	8	5/16"	- 05	1/2" - 14	9,3	20,5	6,5		27	
M20512-06-04	10	3/8"	- 06	1/4" - 19	4,1	18,1	4,2		19	
M20513-06-06	10	3/8"	- 06	3/8" - 19	7,0	19,6	6,0		22	
M20513-06-08	10	3/8"	- 06	1/2" - 14	9,3	20,0	6,5		27	
M20512-08-06	12	1/2"	- 08	3/8" - 19	7,1	20,9	6,0		22	
M20513-08-08	12	1/2"	- 08	1/2" - 14	9,3	20,4	6,5		27	
M20512-08-10	12	1/2"	- 08	5/8" - 14	12,1	21,9	10,2		28	
M20512-08-12	12	1/2"	- 08	3/4" - 14	15,0	23,4	9,0		32	
M20512-10-08	16	5/8"	- 10	1/2" - 14	9,8	24,0	6,5		27	
M20512-10-10	16	5/8"	- 10	5/8" - 14	12,5	21,7	10,2		28	
M20512-10-12	16	5/8"	- 10	3/4" - 14	15,0	23,2	9,0		32	
M20512-12-08	19	3/4"	- 12	1/2" - 14	9,8	25,0	6,5		27	
M20512-12-12	19	3/4"	- 12	3/4" - 14	15,0	24,5	9,0		32	
M20512-12-16	19	3/4"	- 12	1" - 11	19,8	26,0	10,5		38	
M20512-16-12	25	1"	- 16	3/4" - 14	15,0	25,5	9,0		32	
M20512-16-16	25	1"	- 16	1" - 11	19,8	27,3	10,5		38	

## BS STANDARD CONNECTIONS



### M20592

90° BSP FEMALE SWEEP ELBOW 60° CONE - BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP CODO DE 90° ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKR 90° BOGEN 60° KONUS - (BSP-GEWINDE NACH BS5200 / ISO 12151-6, GESTIFTETE MUTTER)  
 FEMMINA GAS 90° CONO 60° - BS5200 / ISO 12151-6 (DADO SPINATO)

### M20593

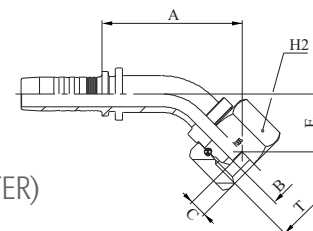
90° BSP FEMALE SWEEP ELBOW 60° CONE - BS5200 / ISO 12151-6 (SLIP-ON NUT)  
 HEMBRA BSP CODO DE 90° ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA LIBRE)  
 DKR 90° BOGEN 60° KONUS - (BSP-GEWINDE NACH BS5200 / ISO 12151-6, HINTERLEGTE MUTTER)  
 FEMMINA GAS 90° CONO 60° - BS5200 / ISO 12151-6 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M20592-03-02	5	3/16"	- 03	1/8" - 28	3,1	21,5	4,4	26,0	14	
M20593-03-04	5	3/16"	- 03	1/4" - 19	4,0	29,0	5,4	29,0	19	
M20592-04-02	6	1/4"	- 04	1/8" - 28	3,1	28,5	4,4	27,0	14	
M20593-04-04	6	1/4"	- 04	1/4" - 19	4,0	29,5	5,4	29,0	19	
M20593-04-06	6	1/4"	- 04	3/8" - 19	7,0	29,5	6,0	31,0	22	
M20592-05-04	8	5/16"	- 05	1/4" - 19	4,1	26,5	5,4	29,5	19	
M20593-05-06	8	5/16"	- 05	3/8" - 19	7,0	32,0	6,0	27,5	22	
M20593-05-08	8	5/16"	- 05	1/2" - 14	9,3	36,5	6,5	32,0	27	
M20592-06-04	10	3/8"	- 06	1/4" - 19	4,0	27,0	4,2	29,5	19	
M20593-06-06	10	3/8"	- 06	3/8" - 19	7,0	36,5	6,0	31,5	22	
M20593-06-08	10	3/8"	- 06	1/2" - 14	9,3	36,5	6,5	32,0	27	
M20592-08-06	12	1/2"	- 08	3/8" - 19	7,0	45,0	6,0	41,0	22	
M20593-08-08	12	1/2"	- 08	1/2" - 14	9,3	45,0	6,5	36,5	27	
M20592-08-10	12	1/2"	- 08	5/8" - 14	12,1	44,0	10,2	44,0	28	
M20592-08-12	12	1/2"	- 08	3/4" - 14	15,0	44,0	9,0	45,5	32	
M20592-10-08	16	5/8"	- 10	1/2" - 14	9,3	53,5	6,5	54,5	27	
M20592-10-10	16	5/8"	- 10	5/8" - 14	12,5	53,5	10,2	53,5	28	
M20592-10-12	16	5/8"	- 10	3/4" - 14	15,0	53,5	9,0	55,0	32	
M20592-12-08	19	3/4"	- 12	1/2" - 14	9,3	45,5	6,5	44,0	27	
M20592-12-12	19	3/4"	- 12	3/4" - 14	15,5	61,5	9,0	59,5	32	
M20592-12-16	19	3/4"	- 12	1" - 11	19,8	61,5	10,5	62,0	38	
M20592-16-12	25	1"	- 16	3/4" - 14	15,0	64,5	9,0	59,5	32	
M20592-16-16	25	1"	- 16	1" - 11	19,8	79,5	10,5	76,0	38	

## BS STANDARD CONNECTIONS

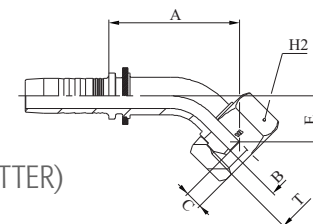
### M20542

45° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP CODO DE 45° ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKR 45° BOGEN 60° KONUS - (BSP-GEWINDE NACH BS5200 / ISO 12151-6, GESTIFTETE MUTTER)  
 FEMMINA GAS 45° CONO 60° - BS5200 / ISO 12151-6 (DADO SPINATO)



### M20543

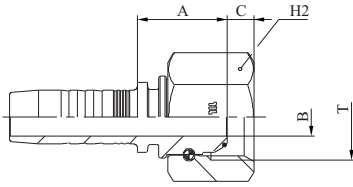
45° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200 / ISO 12151-6 (SLIP-ON NUT)  
 HEMBRA BSP CODO DE 45° ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA LIBRE)  
 DRK 45° BOGEN 60° KONUS - (BSP-GEWINDE NACH BS5200 / ISO 12151-6, HINTERLEGTE MUTTER)  
 FEMMINA GAS 45° CONO 60° - BS5200 / ISO 12151-6 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M20542-03-02	5	3/16"	- 03	1/8" - 28	3,1	31,0	4,4	15,0		14
M20543-03-04	5	3/16"	- 03	1/4" - 19	4,0	35,5	5,4	14,5		19
M20542-04-02	6	1/4"	- 04	1/8" - 28	3,1	35,5	4,4	14,5		14
M20543-04-04	6	1/4"	- 04	1/4" - 19	4,0	36,0	5,4	15,0		19
M20543-04-06	6	1/4"	- 04	3/8" - 19	7,0	37,5	6,0	16,0		19
M20542-05-04	8	5/16"	- 05	1/4" - 19	4,0	35,5	5,4	16,0		19
M20543-05-06	8	5/16"	- 05	3/8" - 19	7,0	38,0	6,0	13,5		22
M20543-06-06	10	3/8"	- 06	3/8" - 19	7,0	42,0	6,0	15,0		22
M20543-06-08	10	3/8"	- 06	1/2" - 14	9,3	42,5	6,5	16,0		27
M20542-08-06	12	1/2"	- 08	3/8" - 19	7,1	52,0	6,0	20,0		22
M20543-08-08	12	1/2"	- 08	1/2" - 14	9,3	49,5	6,5	17,0		27
M20542-08-10	12	1/2"	- 08	5/8" - 14	12,1	54,5	10,2	22,5		28
M20542-08-12	12	1/2"	- 08	3/4" - 14	15,0	57,0	9,0	25,0		32
M20542-10-10	16	5/8"	- 10	5/8" - 14	12,5	63,0	10,2	26,0		28
M20542-10-12	16	5/8"	- 10	3/4" - 14	15,0	64,0	9,0	27,0		32
M20542-12-08	19	3/4"	- 12	1/2" - 14	9,3	55,5	6,5	22,5		27
M20542-12-12	19	3/4"	- 12	3/4" - 14	15,5	70,5	9,0	28,5		32
M20542-12-16	19	3/4"	- 12	1" - 11	19,8	72,5	10,5	30,0		38
M20542-16-16	25	1"	- 16	1" - 11	19,8	91,0	10,5	36,5		38

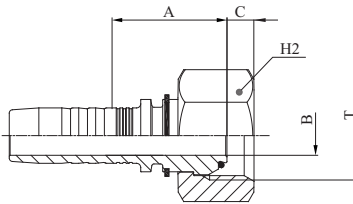
## BS STANDARD CONNECTIONS

### M20812



**BSP O-RING FEMALE 60° CONE - BS5200 / ISO 12151-6 (THRUST-WIRE NUT)**  
 HEMBRA BSP CON O-RING ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKOR 60° KONUS MIT O-RING -  
 (BSP-GEWINDE NACH BS5200 / ISO 12151-6 GESTIFTETE MUTTER)  
 FEMMINA GAS CONO 60° O-RING - BS5200 / ISO 12151-6 (DADO SPINATO)

### M20813



**BSP O-RING FEMALE 60° CONE - BS5200 / ISO 12151-6 (SLIP-ON NUT)**  
 HEMBRA BSP CON O-RING ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA LIBRE)  
 DKOR 60° KONUS MIT O-RING  
 (BSP-GEWINDE NACH BS5200 / ISO 12151-6 HINTERLEGTE MUTTER)  
 FEMMINA GAS CONO 60° O-RING BS5200 / ISO 12151-6 (DADO PASSANTE)

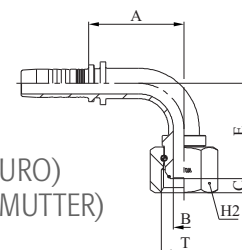
PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>2</sub>
M20813-03-04	5	3/16"	- 03	1/4" - 19	4,0	16,5	4,9		19
M20813-04-04	6	1/4"	- 04	1/4" - 19	4,0	17,5	4,9		19
M20812-06-04	10	3/8"	- 06	1/4" - 19	4,0	18,1	4,9		19
M20813-06-06	10	3/8"	- 06	3/8" - 19	7,0	20,4	6,1		22
M20813-06-08	10	3/8"	- 06	1/2" - 14	9,3	21,0	6,5		27
M20813-08-08	12	1/2"	- 08	1/2" - 14	9,3	20,4	6,5		27
M20812-10-10	16	5/8"	- 10	5/8" - 14	12,5	22,1	9,7		28
M20812-12-12	19	3/4"	- 12	3/4" - 14	15,0	25,0	8,5		32
M20812-16-12	25	1"	- 16	3/4" - 14	15,0	26,0	8,5		32
M20812-16-16	25	1"	- 16	1" - 11	19,8	27,3	10,6		38
M20812-16-20	25	1"	- 16	1.1/4" - 11	26,1	30,8	10,5		50
M20812-20-16	31	1.1/4"	- 20	1" - 11	19,8	29,0	10,5		38
M20812-20-20	31	1.1/4"	- 20	1.1/4" - 11	26,0	31,5	10,5		50
M20812-20-24	31	1.1/4"	- 20	1.1/2" - 11	32,1	29,5	12,5		60
M20812-24-20	38	1.1/2"	- 24	1.1/4" - 11	26,0	31,5	10,5		50
M20812-24-24	38	1.1/2"	- 24	1.1/2" - 11	32,0	30,5	12,5		60
M20812-24-32	38	1.1/2"	- 24	2" - 11	42,0	30,0	16,1		70
M20812-32-32	51	2"	- 32	2" - 11	42,0	31,9	16,1		70



## BS STANDARD CONNECTIONS

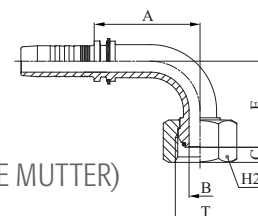
### M20892

90° BSP O-RING FEMALE SWEPT ELBOW 60° CONE - BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP CON O-RING CODO DE 90° ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKOR 90° BOGEN 60° KONUS MIT O-RING (BSP-GEWINDE NACH BS5200 / ISO 12151-6, GESTIFTETE MUTTER)  
 FEMMINA GAS 90° CONO 60° O-RING - BS5200 / ISO 12151-6 (DADO SPINATO)



### M20893

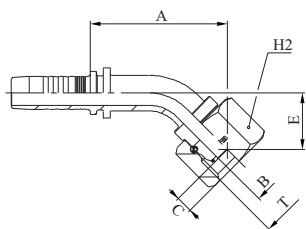
90° BSP O-RING FEMALE SWEPT ELBOW 60° CONE - BS5200 / ISO 12151-6 (SLIP-ON NUT)  
 HEMBRA BSP CON O-RING CODO DE 90° ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA LIBRE)  
 DKOR 90° BOGEN 60° KONUS MIT O-RING (BSP-GEWINDE NACH BS5200 / ISO 12151-6 HINTERLEGTE MUTTER)  
 FEMMINA GAS 90° CONO 60° O-RING BS5200 / ISO 12151-6 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M20893-03-04	5	3/16"	- 03	1/4" - 19	4,0	29,0	4,9	29,0		19
M20893-04-04	6	1/4"	- 04	1/4" - 19	4,0	28,5	4,9	28,5		19
M20892-06-04	10	3/8"	- 06	1/4" - 19	4,0	35,5	4,9	33,0		19
M20893-06-06	10	3/8"	- 06	3/8" - 19	7,0	35,5	6,1	36,0		22
M20893-08-08	12	1/2"	- 08	1/2" - 14	9,3	44,5	6,5	42,0		27
M20892-10-10	16	5/8"	- 10	5/8" - 14	12,5	53,0	9,7	55,0		30
M20892-12-12	19	3/4"	- 12	3/4" - 14	15,0	61,5	8,5	60,0		32
M20892-12-16	19	3/4"	- 12	1" - 11	19,8	61,5	10,5	62,0		38
M20892-16-12	25	1"	- 16	3/4" - 14	15,0	79,5	8,5	60,0		32
M20892-16-16	25	1"	- 16	1" - 11	19,8	79,5	10,6	76,0		38
M20892-16-20	25	1"	- 16	1.1/4" - 11	26,1	79,5	10,5	78,5		50
M20892-20-16	31	1.1/4"	- 20	1" - 11	19,8	79,5	10,5	76,0		38
M20892-20-20	31	1.1/4"	- 20	1.1/4" - 11	26,0	90,5	10,5	83,5		50
M20892-20-24	31	1.1/4"	- 20	1.1/2" - 11	32,1	90,5	12,5	84,5		60
M20892-24-20	38	1.1/2"	- 24	1.1/4" - 11	26,0	95,0	10,5	90,5		50
M20892-24-24	38	1.1/2"	- 24	1.1/2" - 11	32,0	108,0	12,5	98,5		60
M20892-32-32	51	2"	- 32	2" - 11	42,0	131,0	16,1	110,5		70

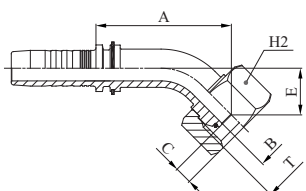
## BS STANDARD CONNECTIONS

### M20842



45° BSP O-RING FEMALE SWEEP ELBOW 60° CONE BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP CON O-RING CODO DE 45° ASIENTO A 60°  
 BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKOR 45° BOGEN 60° KONUS MIT O-RING  
 (BSP-GEWINDE NACH BS5200 / ISO 12151-6, GESTIFTETE MUTTER)  
 FEMMINA GAS 45° CONO 60° O-RING  
 BS5200 / ISO 12151-6 (DADO SPINATO)

### M20843



45° BSP O-RING FEMALE SWEEP ELBOW 60° CONE BS5200 / ISO 12151-6 (SLIP-ON NUT)  
 HEMBRA BSP CON O-RING CODO DE 45° ASIENTO A 60°  
 BS5200 / ISO 12151-6 (TUERCA LIBRE)  
 DKOR 45° BOGEN 60° KONUS MIT O-RING  
 (BSP-GEWINDE NACH BS5200 / ISO 12151-6, HINTERLEGTE MUTTER)  
 FEMMINA GAS 45° CONO 60° O-RING  
 BS5200 / ISO 12151-6 (DADO PASSANTE)

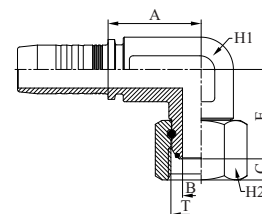
PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
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	DN	inch	Size	T	B	A	C	E		H <sub>2</sub>
M20843-04-04	6	1/4"	- 04	1/4" -19	4,0	36,0	4,9	15,0		19
M20843-06-06	10	3/8"	- 06	3/8" -19	7,0	44,5	6,1	18,5		22
M20843-08-08	12	1/2"	- 08	1/2" -14	9,3	52,0	6,5	20,5		27
M20842-10-10	16	5/8"	- 10	5/8" -14	12,5	63,5	9,7	27,5		30
M20842-12-12	19	3/4"	- 12	3/4" -14	15,5	71,0	8,5	29,0		32
M20842-16-12	25	1"	- 16	3/4" -14	15,0	79,5	8,5	29,0		32
M20842-16-16	25	1"	- 16	1" -11	19,8	90,5	10,6	35,6		38
M20842-16-20	25	1"	- 16	1.1/4" - 11	26,0	93,0	10,5	38,0		50
M20842-20-20	31	1.1/4"	- 20	1.1/4" - 11	26,0	101,5	10,5	39,0		50
M20842-20-24	31	1.1/4"	- 20	1.1/2" - 11	32,0	118,5	12,5	40,5		60
M20842-24-20	38	1.1/2"	- 24	1.1/4" - 11	26,0	106,5	10,5	42,0		50
M20842-24-24	38	1.1/2"	- 24	1.1/2" -11	32,0	118,0	12,5	45,0		60
M20842-32-32	51	2"	- 32	2" -11	42,0	134,0	16,1	47,0		70

## BS STANDARD CONNECTIONS

### M20882F

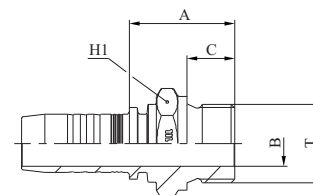
90° BSP O-RING FEMALE COMPACT ELBOW 60° CONE  
 BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP CON O-RING CODO COMPACTO DE 90° ASIENTO A 60°  
 BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKOR 90° KOMPAKTBOGEN 60° KONUS MIT O-RING  
 (BSP-GEWINDE NACH BS5200 / ISO 12151-6, GESTIFTETE MUTTER)  
 FEMMINA GAS 90° CONO 60° O-RING TIPO COMPATTO  
 BS5200 / ISO 12151-6 (DADO SPINATO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>1</sub>
M20882-04-04F	6	1/4"	- 04	1/4" - 19	4,0	20,0	4,9	22,0	14	19
M20882-06-06F	10	3/8"	- 06	3/8" - 19	7,0	23,1	6,1	27,5	19	22
M20882-08-08F	12	1/2"	- 08	1/2" - 14	9,3	24,9	6,5	31,1	22	27
M20882-10-10F	16	5/8"	- 10	5/8" - 14	12,5	24,6	9,7	32,5	24	28
M20882-12-12F	19	3/4"	- 12	3/4" - 14	15,0	37,5	8,5	36,0	27	32
M20882-16-16F	25	1"	- 16	1" - 11	20,0	51,8	10,6	44,0	36	38

### M10610

BSP MALE FLAT SEAT  
 MACHO BSP CARA PLANA  
 AGR FLACH DICHTEND  
 MASCHIO GAS CILINDRICO SEDE PIANA



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	
M10610-04-04	6	1/4"	- 04	1/4" - 19	6,0	25,5	11,0	19		
M10610-06-06	10	3/8"	- 06	3/8" - 19	9,5	28,1	12,0	22		
M10610-06-08	10	3/8"	- 06	1/2" - 14	13,0	30,6	14,0	27		
M10610-08-08	12	1/2"	- 08	1/2" - 14	13,0	31,1	14,0	27		
M10610-12-12	19	3/4"	- 12	3/4" - 14	18,0	35,5	16,0	32		

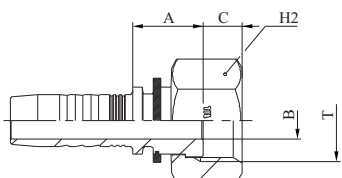
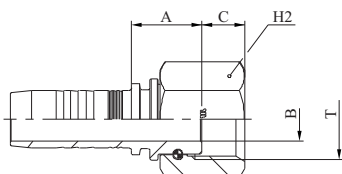
## BS STANDARD CONNECTIONS

### M20612

BSP FEMALE FLAT SEAT (THRUST-WIRE NUT)  
 HEMBRA BSP CARA PLANA (TUERCA CON SEGURO)  
 DKR FLACHDICHTEND (BSP-GEWINDE, GESTIFTETE MUTTER)  
 FEMMINA GAS SEDE PIANA (DADO SPINATO)

### M20613

BSP FEMALE FLAT SEAT (SLIP-ON NUT)  
 HEMBRA BSP CARA PLANA (TUERCA LIBRE)  
 DKR FLACHDICHTEND (BSP-GEWINDE, HINTERLEGTE MUTTER)  
 FEMMINA GAS SEDE PIANA (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>2</sub>

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>2</sub>
M20613-04-04	6	1/4"	- 04	1/4" - 19	4,0	14,5	7,9		19
M20613-05-06	8	5/16"	- 05	3/8" - 19	7,0	16,0	9,0		22
M20613-06-06	10	3/8"	- 06	3/8" - 19	7,0	16,6	9,0		22
M20613-06-08	10	3/8"	- 06	1/2" - 14	9,3	17,5	9,8		27
M20613-08-08	12	1/2"	08	1/2" - 14	9,3	17,9	9,8		27
M20612-08-12	12	1/2"	- 08	3/4" - 14	15,0	20,9	11,5		32
M20612-10-12	16	5/8"	- 10	3/4" - 14	15,0	20,7	11,5		32
M20612-12-12	19	3/4"	- 12	3/4" - 14	15,0	22,0	11,5		32
M20612-12-16	19	3/4"	- 12	1" - 11	19,8	23,5	13,0		38
M20612-16-16	25	1"	- 16	1" - 11	19,8	24,8	13,0		38

# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

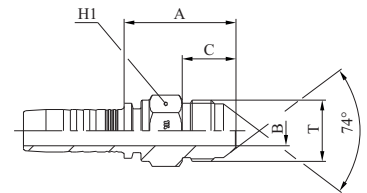
### M12510

JIC MALE 37° CONE - SAE J516 / ISO 12151-5

MACHO JIC ASIENTO A 37° - SAE J516 / ISO 12151-5

AGJ 37° AUSSENKONUS (UNF-GEWINDE NACH SAE J516 / ISO 12151-5)

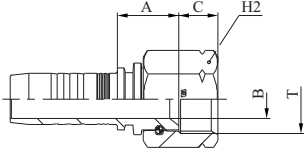
MASCHIO JIC CONO 37° - SAE J516 / ISO 12151-5



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>1</sub>
M12510-04-04	6	1/4"	-04	7/16" - 20	4,0	28,0	14,0		12
M12510-04-05	6	1/4"	-04	1/2" - 20	5,5	29,0	14,0		14
M12510-04-06	6	1/4"	-04	9/16" - 18	7,0	29,0	14,0		17
M12510-05-04	8	5/16"	-05	7/16" - 20	4,0	29,0	14,0		14
M12510-05-05	8	5/16"	-05	1/2" - 20	5,5	29,0	14,0		14
M12510-05-06	8	5/16"	-05	9/16" - 18	7,0	29,0	14,0		17
M12510-06-05	10	3/8"	-06	1/2" - 20	5,5	29,5	14,0		17
M12510-06-06	10	3/8"	-06	9/16" - 18	7,0	29,6	14,0		17
M12510-06-08	10	3/8"	-06	3/4" - 16	9,3	34,1	16,5		19
M12510-06-10	10	3/8"	-06	7/8" - 14	12,5	38,6	19,5		24
M12510-08-06	12	1/2"	-08	9/16" - 18	7,0	32,0	14,0		19
M12510-08-08	12	1/2"	-08	3/4" - 16	9,3	34,4	16,5		19
M12510-08-10	12	1/2"	-08	7/8" - 14	12,5	38,9	19,5		24
M12510-08-12	12	1/2"	-08	1.1/16" - 12	15,0	42,9	22,0		27
M12510-10-10	16	5/8"	-10	7/8" - 14	12,5	39,2	19,5		24
M12510-10-12	16	5/8"	-10	1.1/16" - 12	15,0	42,7	22,0		27
M12510-12-10	19	3/4"	-12	7/8" - 14	12,5	41,5	19,5		27
M12510-12-12	19	3/4"	-12	1.1/16" - 12	15,0	44,0	22,0		27
M12510-12-14	19	3/4"	-12	1.3/16" - 12	16,0	44,5	22,5		32
M12510-12-16	19	3/4"	-12	1.5/16" - 12	19,8	47,0	23,0		34
M12510-16-12	25	1"	-16	1.1/16" - 12	15,0	44,8	22,0		32
M12510-16-16	25	1"	-16	1.5/16" - 12	19,8	47,8	23,0		34
M12510-16-20	25	1"	-16	1.5/8" - 12	26,0	52,8	24,3		42
M12510-20-20	31	1.1/4"	-20	1.5/8" - 12	26,0	53,5	24,3		42
M12510-20-24	31	1.1/4"	-20	1.7/8" - 12	32,0	60,5	27,5		50
M12510-24-24	38	1.1/2"	-24	1.7/8" - 12	32,0	60,5	27,5		50
M12510-32-32	51	2"	-32	2.1/2" - 12	42,0	71,8	34,0		65

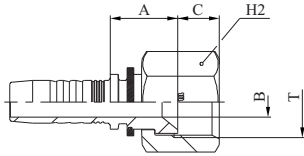
## SAE STANDARD CONNECTIONS

### M22512



JIC FEMALE 37° CONE SEAT - SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
 HEMBRA JIC ASIEN TO A 37° - SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)  
 DKJ 37° DICHTKOPF (UNF-GEWINDE NACH SAE J516 / ISO 12151-5, GESTIFTETE MUTTER)  
 FEMMINA JIC CONO 37° - SAE J516 / ISO 12151-5 (DADO SPINATO)

### M22513



JIC FEMALE 37° CONE SEAT - SAE J516 / ISO 12151-5 (SLIP-ON NUT)  
 HEMBRA JIC ASIEN TO A 37° - SAE J516 / ISO 12151-5 (TUERCA LIBRE)  
 DKJ 37° DICHTKOPF (UNF-GEWINDE NACH SAE J516 / ISO 12151-5, HINTERLEGTE MUTTER)  
 FEMMINA JIC CONO 37° - SAE J516 / ISO 12151-5 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>2</sub>
M22513-03-04	5	3/16"	-03	7/16" - 20	3,0	15,1	9,0		15
M22512-03-05	5	3/16"	-03	1/2" - 20	4,0	15,5	9,2		17
M22512-04-04	6	1/4"	-04	7/16" - 20	4,0	15,5	8,2		17
M22512-04-05	6	1/4"	-04	1/2" - 20	4,0	15,8	9,2		17
M22513-04-06	6	1/4"	-04	9/16" - 18	4,0	16,5	9,8		19
M22512-05-04	8	5/16"	-05	7/16" - 20	4,0	15,5	8,2		17
M22512-05-05	8	5/16"	-05	1/2" - 20	5,5	16,0	9,2		17
M22512-05-06	8	5/16"	-05	9/16" - 18	7,0	15,7	9,7		19
M22513-05-08	8	5/16"	-05	3/4" - 16	5,5	16,7	10,7		22
M22512-06-05	10	3/8"	-06	1/2" - 20	5,5	16,6	9,5		17
M22512-06-06	10	3/8"	-06	9/16" - 18	7,0	16,1	9,2		19
M22513-06-08	10	3/8"	-06	3/4" - 16	7,0	17,3	10,7		22
M22513-06-10	10	3/8"	-06	7/8" - 14	9,3	18,1	12,4		27
M22512-08-08	12	1/2"	-08	3/4" - 16	9,3	19,9	10,2		22
M22513-08-10	12	1/2"	-08	7/8" - 14	9,3	18,5	12,4		27
M22513-08-12	12	1/2"	-08	1.1/16" - 12	12,5	21,8	13,8		32
M22512-10-10	16	5/8"	-10	7/8" - 14	12,5	19,9	12,3		27
M22513-10-12	16	5/8"	-10	1.1/16" - 12	12,5	21,7	13,8		32
M22512-12-08	19	3/4"	-12	3/4" - 16	9,3	21,5	10,2		22
M22512-12-10	19	3/4"	-12	7/8" - 14	12,5	21,5	12,3		27
M22512-12-12	19	3/4"	-12	1.1/16" - 12	15,0	22,5	14,2		32
M22512-12-14	19	3/4"	-12	1.3/16" - 12	15,0	23,1	14,8		36
M22512-12-16	19	3/4"	-12	1.5/16" - 12	19,8	23,0	15,2		38
M22512-16-12	25	1"	-16	1.1/16" - 12	15,0	23,3	14,4		32
M22512-16-16	25	1"	-16	1.5/16" - 12	19,8	23,8	15,2		38
M22512-16-20	25	1"	-16	1.5/8" - 12	26,0	29,8	16,2		50
M22512-20-20	31	1.1/4"	-20	1.5/8" - 12	26,0	30,0	16,2		50
M22512-20-24	31	1.1/4"	-20	1.7/8" - 12	32,0	35,0	18,8		60
M22512-24-24	38	1.1/2"	-24	1.7/8" - 12	32,0	35,0	18,8		60
M22512-32-24	51	2"	-32	1.7/8" - 12	32,0	37,0	18,8		60
M22512-32-32	51	2"	-32	2.1/2" - 12	44,0	35,4	24,0		75

## SAE STANDARD CONNECTIONS

### M22711

JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON - SAE J516 / ISO 12151-5 (CRIMPED-BACK NUT)

HEMBRA JIC ASIENTO A 37° DOBLE TUERCA - SAE J516 / ISO 12151-5 (TUERCA PRENSADA)

DKJ 37° MIT KONTERSECHSKANT (UNF GEWINDE NACH SAE J516 / ISO 12151-5, VORGEKRIMPTE MUTTER)

FEMMINA JIC CONO 37° DOPPIO ESAGONO SAE J516 / ISO 12151-5 (DADO PRESSATO)

### M22711K

JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON - SAE J516 / ISO 12151-5 (CRIMPED-BACK COMPACT NUT)

HEMBRA JIC ASIENTO A 37° DOBLE TUERCA

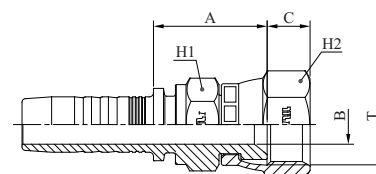
SAE J516 / ISO 12151-5 (TUERCA TIPO COMPACTO PRENSADA)

DKJ (KOMPAKT) 37° MIT KONTERSECHSKANT

(UNF GEWINDE NACH SAE J516 / ISO 12151-5, VORGEKRIMPTE MUTTER)

FEMMINA JIC CONO 37° DOPPIO ESAGONO

SAE J516 / ISO 12151-5 (DADO PRESSATO COMPATTO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H1	H2
M22711-03-04K	5	3/16"	- 03	7/16" - 20	4,0	20	9		12	15
M22711-04-04K	6	1/4"	- 04	7/16" - 20	4,0	20,5	9		12	15
M22711-04-06K	6	1/4"	- 04	9/16" - 18	7,0	21,6	9,5		14	17
M22711-06-06K	10	3/8"	- 06	9/16" - 18	7,0	22,1	9,5		17	17
M22711-06-08	10	3/8"	- 06	3/4" - 16	9,3	21,7	10,7		19	22
M22711-08-08	12	1/2"	- 08	3/4" - 16	9,3	26,9	10,7		19	22
M22711-08-10K	12	1/2"	- 08	7/8" - 14	9,3	29,6	12,5		22	25
M22711-10-10K	16	5/8"	- 10	7/8" - 14	9,3	29,5	12,5		22	25
M22711-12-12	19	3/4"	- 12	1.1/16" - 12	15	30,1	14,1		27	32
M22711-16-16	25	1"	- 16	1.5/16" - 12	19,8	35,5	15,3		32	38
M22711-20-20	31	1.1/4"	- 20	1.5/8" - 12	26,0	42,0	16,1		41	50
M22711-24-24	38	1.1/2"	- 24	1.7/8" - 12	32,0	46,5	18,6		50	60
M22711-32-32	51	2"	- 32	2.1/2" - 12	42,0	50,5	23,5		65	75



### M22712K

JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON - SAE J516 / ISO 12151-5 (THRUST-WIRE COMPACT NUT)

HEMBRA JIC ASIENTO A 37° DOBLE TUERCA

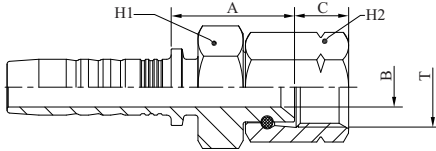
SAE J516 / ISO 12151-5 (TUERCA TIPO COMPACTO CON SEGURO)

DKJ KOMPAKT 37° DK MIT KONTERSECHSKANT

(UNF-GEWINDE NACH SAE J516 / ISO 12151-5, GESTIFTETE MUTTER)

FEMMINA JIC CONO 37° DOPPIO ESAGONO

SAE J516 / ISO 12151-5 (DADO SPINATO COMPATTO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M22712-03-04K	5	3/16"	- 03	7/16" - 20	4,0	20,5	8,2		12	15
M22712-04-04K	6	1/4"	- 04	7/16" - 20	4,0	21,0	8,2		12	15
M22712-04-06K	6	1/4"	- 04	9/16" - 18	7,0	24,1	9,2		14	17
M22712-06-06K	10	3/8"	- 06	9/16" - 18	7,0	24,6	9,2		17	17
M22712-08-10K	12	1/2"	- 08	7/8" - 14	12,5	28,4	12,6		22	25
M22712-10-10K	16	5/8"	- 10	7/8" - 14	12,5	29,0	12,6		22	25

## SAE STANDARD CONNECTIONS

### M22712

JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)

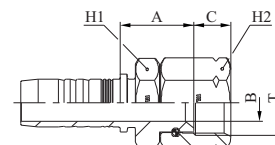
HEMBRA JIC ASIENTO A 37° DOBLE TUERCA SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)

DKJ 37° DK MIT KONTERSECHSKANT

(UNF-GEWINDE NACH SAE J516 / ISO 12151-5, GESTIFTETE MUTTER)

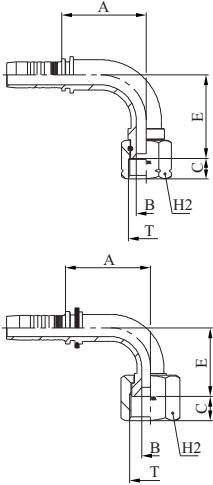
FEMMINA JIC CONO 37° DOPPIO ESAGONO

SAE J516 / ISO 12151-5 (DADO SPINATO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M22712-03-04	5	3/16"	- 03	7/16" - 20	4,0	20,5	8,2		12	17
M22712-04-04	6	1/4"	- 04	7/16" - 20	4,0	21,0	8,2		12	17
M22712-04-05	6	1/4"	- 04	1/2" - 20	4,0	21,5	9,2		12	17
M22712-04-06	6	1/4"	- 04	9/16" - 18	7,0	24,1	9,2		14	19
M22712-05-05	8	5/16"	- 05	1/2" - 20	5,5	21,5	9,2		14	17
M22712-05-06	8	5/16"	- 05	9/16" - 18	7,0	24,1	9,2		14	19
M22712-05-08	8	5/16"	- 05	3/4" - 16	9,3	26,0	10,6		19	22
M22712-06-04	10	3/8"	- 06	7/16" - 20	4,0	24,5	8,2		17	17
M22712-06-05	10	3/8"	- 06	1/2" - 20	5,5	25,0	9,2		17	17
M22712-06-06	10	3/8"	- 06	9/16" - 18	7,0	24,6	9,2		17	19
M22712-06-08	10	3/8"	- 06	3/4" - 16	9,3	27,1	10,2		19	22
M22712-06-10	10	3/8"	- 06	7/8" - 14	12,5	28,0	12,3		22	27
M22712-08-06	12	1/2"	- 08	9/16" - 18	7,0	24,7	9,2		19	19
M22712-08-08	12	1/2"	- 08	3/4" - 16	9,3	27,4	10,2		19	22
M22712-08-10	12	1/2"	- 08	7/8" - 14	12,5	28,4	12,3		22	27
M22712-08-12	12	1/2"	- 08	1.1/16" - 12	14,0	30,0	14,2		27	32
M22712-10-08	16	5/8"	- 10	3/4" - 16	9,3	28,5	10,2		22	22
M22712-10-10	16	5/8"	- 10	7/8" - 14	12,5	29,0	12,3		22	27
M22712-10-12	16	5/8"	- 10	1.1/16" - 12	15,0	29,5	14,2		27	32
M22712-12-08	19	3/4"	12	3/4" - 16	9,3	30,0	10,2		27	22
M22712-12-10	19	3/4"	- 12	7/8" - 14	12,5	30,0	12,3		27	27
M22712-12-12	19	3/4"	- 12	1.1/16" - 12	15,0	31,5	14,2		27	32
M22712-12-14	19	3/4"	- 12	1.3/16" - 12	15,0	33,0	14,8		30	36
M22712-12-16	19	3/4"	- 12	1.5/16" - 12	19,8	32,5	15,2		32	38
M22712-16-12	25	1"	- 16	1.1/16" - 12	12,5	33,8	14,2		32	32
M22712-16-16	25	1"	- 16	1.5/16" - 12	19,8	34,3	15,2		32	38
M22712-16-20	25	1"	- 16	1.5/8" - 12	26,0	42,8	16,2		41	50
M22712-20-16	31	1.1/4"	- 20	1.5/16" - 12	19,8	36,0	15,2		38	38
M22712-20-20	31	1.1/4"	- 20	1.5/8" - 12	26,0	43,5	16,2		41	50
M22712-24-24	38	1.1/2"	- 24	1.7/8" - 12	32,0	51,0	18,8		50	60
M22712-32-32	51	2"	- 32	2.1/2" - 12	42,0	55,5	24,0		65	75

## SAE STANDARD CONNECTIONS



### M22592

90° JIC FEMALE SWEPT ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
 HEMBRA JIC CODO DE 90° ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)  
 DKJ 90° BOGEN 37° DICHTKOPF (UNF-GEWINDE NACH SAE J516 / ISO 12151-5, GESTIFTETE MUTTER)  
 FEMMINA JIC 90° CONO 37° SAE J516 / ISO 12151-5 (DADO SPINATO)

### M22593

90° JIC FEMALE SWEPT ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (SLIP-ON NUT)  
 HEMBRA JIC CODO DE 90° ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA LIBRE)  
 DKJ 90° BOGEN 37° DICHTKOPF (UNF-GEWINDE NACH SAE J516 / ISO 12151-5, HINTERLEGTE MUTTER)  
 FEMMINA JIC 90° CONO 37° SAE J516 / ISO 12151-5 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M22593-03-04	5	3/16"	-03	7/16" - 20	3,0	26,0	9,0	23,5		15
M22592-04-04	6	1/4"	-04	7/16" - 20	4,0	28,5	8,2	27,0		17
M22592-04-05	6	1/4"	-04	1/2" - 20	4,0	28,5	9,2	27,5		17
M22593-04-06	6	1/4"	-04	9/16" - 18	4,0	29,5	9,8	28,0		19
M22593-04-08	6	1/4"	-04	3/4" - 16	7,0	29,3	11,0	30,5		22
M22592-05-05	8	5/16"	-05	1/2" - 20	5,5	29,5	9,2	27,5		17
M22592-05-06	8	5/16"	-05	9/16" - 18	7,0	31,0	9,2	28,5		19
M22592-06-05	10	3/8"	-06	1/2" - 20	5,5	30,1	9,5	26,5		17
M22592-06-06	10	3/8"	-06	9/16" - 18	7,0	35,5	9,2	32,5		19
M22593-06-08	10	3/8"	-06	3/4" - 16	7,0	36,5	10,7	29,5		22
M22593-06-10	10	3/8"	-06	7/8" - 14	9,3	36,5	12,4	31,5		27
M22592-08-06	12	1/2"	-08	9/16" - 18	7,0	37,0	9,2	33,0		19
M22592-08-08	12	1/2"	-08	3/4" - 16	9,3	44,0	10,2	41,0		22
M22593-08-10	12	1/2"	-08	7/8" - 14	9,3	45,0	12,4	36,0		27
M22593-08-12	12	1/2"	-08	1.1/16" - 12	12,5	45,0	13,8	36,0		32
M22592-10-10	16	5/8"	-10	7/8" - 14	12,5	53,5	12,3	52,5		27
M22593-10-12	16	5/8"	-10	1.1/16" - 12	12,5	51,5	13,8	50,0		32
M22592-12-10	19	3/4"	-12	7/8" - 14	12,5	55,0	12,3	52,5		27
M22592-12-12	19	3/4"	-12	1.1/16" - 12	15,0	62,0	14,2	58,0		32
M22592-12-14	19	3/4"	-12	1.3/16" - 12	15,0	62,0	14,8	58,0		36
M22592-12-16	19	3/4"	-12	1.5/16" - 12	19,8	62,0	15,2	57,5		38
M22592-16-16	25	1"	-16	1.5/16" - 12	19,8	77,0	15,2	67,0		38
M22592-16-20	25	1"	-16	1.5/8" - 12	26,0	77,5	16,2	74,5		50
M22592-20-20	31	1.1/4"	-20	1.5/8" - 12	26,0	90,5	16,2	86,5		50
M22592-20-24	31	1.1/4"	-20	1.7/8" - 12	32,0	90,5	18,8	91,0		60
M22592-24-24	38	1.1/2"	-24	1.7/8" - 12	32,0	108,0	18,8	100,5		60
M22592-32-32	51	2"	-32	2.1/2" - 12	44,0	142,0	24,0	137,0		75

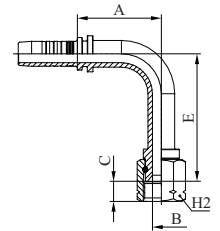
# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

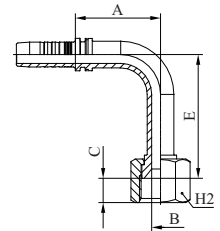
### M24792

90° JIC FEMALE LONG DROP ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
 HEMBRA JIC CODO LARGO DE 90° ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)  
 DKJ 90° BOGEN 37° DICHTKOPF (UNF-GEWINDE NACH SAE J516 / ISO 12151-5, GESTIFTETE MUTTER)  
 FEMMINA JIC 90° CONO 37° CURVA LUNGA - SAE J516 / ISO 12151-5 (DADO SPINATO)



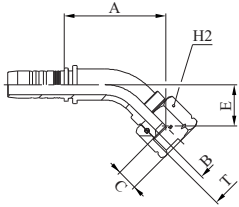
### M24793

90° JIC FEMALE LONG DROP ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (SLIP-ON NUT)  
 HEMBRA JIC CODO LARGO DE 90° ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA LIBRE)  
 DKJ 90° BOGEN 37° DICHTKOPF (UNF-GEWINDE NACH SAE J516 / ISO 12151-5, HINTERLEGTE MUTTER)  
 FEMMINA JIC 90° CONO 37° CURVA LUNGA - SAE J516 / ISO 12151-5 (DADO PASSANTE)



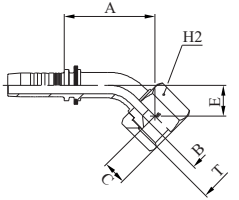
PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		B	A	C	E	H <sub>2</sub>	
M24792-04-04	6	1/4"	- 04	7/16" - 20	4,0	28,5	8,2	45,0	17	
M24792-04-05	6	1/4"	- 04	1/2" - 20	4,0	28,5	9,2	45,0	17	
M24793-04-06	6	1/4"	- 04	9/16" - 18	4,0	29,5	9,8	55,5	19	
M24792-06-06	10	3/8"	- 06	9/16" - 18	7,0	35,5	9,2	55,0	19	
M24793-06-08	10	3/8"	- 06	3/4" - 16	7,0	36,5	10,7	61,5	22	
M24792-08-08	12	1/2"	- 08	3/4" - 16	9,4	40,6	10,3	61,5	22	
M24793-08-10	12	1/2"	- 08	7/8" - 14	9,4	45,0	12,4	65,0	27	
M24792-10-10	16	5/8"	- 10	7/8" - 14	12,5	53,5	12,3	65,5	27	
M24792-12-12	19	3/4"	- 12	1.1/16" - 12	15,0	62,0	14,2	94,5	32	
M24792-16-16	25	1"	- 16	1.5/16" - 12	19,8	77,0	15,2	110,0	38	

## SAE STANDARD CONNECTIONS



### M22542

45° JIC FEMALE SWEPT ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
 HEMBRA JIC CODO DE 45° ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)  
 DKJ 45° BOGEN 37° DICHTKOPF (UNF-GEWINDE NACH SAE J516 / ISO 12151-5, GESTIFTETE MUTTER)  
 FEMMINA JIC 45° CONO 37° - SAE J516 / ISO 12151-5 (DADO SPINATO)



### M22543

45° JIC FEMALE SWEPT ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (SLIP-ON NUT)  
 HEMBRA JIC CODO DE 45° ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA LIBRE)  
 DKJ 45° BOGEN 37° DICHTKOPF (UND-GEWINDE NACH SAE J516 / ISO 12151-5, HINTERLEGTE MUTTER)  
 FEMMINA JIC 45° CONO 37° - SAE J516 / ISO 12151-5 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M22542-03-04	5	3/16"	-03	7/16" - 20	4,0	35,0	8,2	14,5		17
M22542-04-04	6	1/4"	-04	7/16" - 20	4,0	35,5	8,2	14,5		17
M22542-04-05	6	1/4"	-04	1/2" - 20	4,0	35,7	9,2	14,5		17
M22543-04-06	6	1/4"	-04	9/16" - 18	4,0	35,5	9,8	14,0		19
M22542-05-05	8	5/16"	-05	1/2" - 20	5,5	37,5	9,2	14,5		17
M22542-05-06	8	5/16"	-05	9/16" - 18	7,0	38,0	9,2	14,5		19
M22542-06-06	10	3/8"	-06	9/16" - 18	7,0	42,0	9,2	16,5		19
M22543-06-08	10	3/8"	-06	3/4" - 16	7,0	41,0	10,7	14,0		22
M22543-06-10	10	3/8"	-06	7/8" - 14	9,3	42,5	12,4	15,5		27
M22542-08-08	12	1/2"	-08	3/4" - 16	9,3	52,0	10,2	20,0		22
M22543-08-10	12	1/2"	-08	7/8" - 14	9,3	49,5	12,4	17,0		27
M22543-08-12	12	1/2"	-08	1.1/16" - 12	12,5	50,0	13,8	17,0		32
M22542-10-10	16	5/8"	-10	7/8" - 14	12,5	62,0	12,3	25,5		27
M22543-10-12	16	5/8"	-10	1.1/16" - 12	12,5	60,0	13,8	24,0		32
M22542-12-12	19	3/4"	-12	1.1/16" - 12	15,0	70,0	14,2	27,5		32
M22542-12-14	19	3/4"	-12	1.3/16" - 12	15,0	69,0	14,8	27,5		36
M22542-12-16	19	3/4"	-12	1.5/16" - 12	19,8	70,0	15,2	27,5		38
M22542-16-12	25	1"	-16	1.1/16" - 12	15,0	72,5	14,2	27,5		32
M22542-16-16	25	1"	-16	1.5/16" - 12	19,8	86,0	15,2	32,0		38
M22542-16-20	25	1"	-16	1.5/8" - 12	26,0	90,0	16,2	36,0		50
M22542-20-20	31	1.1/4"	-20	1.5/8" - 12	26,0	103,5	16,2	41,5		50
M22542-20-24	31	1.1/4"	-20	1.7/8" - 12	32,0	106,5	18,8	44,5		60
M22542-24-24	38	1.1/2"	-24	1.7/8" - 12	32,0	119,0	18,8	46,5		60
M22542-32-32	51	2"	-32	2.1/2" - 12	44,0	163,0	24,0	68,0		75

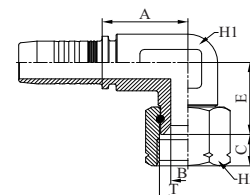
# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

### M22582F

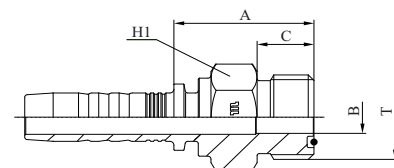
90° JIC FEMALE COMPACT ELBOW 37° CONE SEAT  
 SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
 HEMBRA JIC CODO COMPACTO DE 90° ASIENTO A 37°  
 SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)  
 DKJ 90° KOMPAKT BOGEN 37° DICHTKOPF  
 (UNF-GEWINDE NACH SAE J516 / ISO 12151-5, GESTIFTETE MUTTER)  
 FEMMINA JIC 90° TIPO COMPATTO CONO 37°  
 SAE J516 / ISO 12151-5 (DADO SPINATO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>1</sub>
M22582-04-04F	6	1/4"	- 04	7/16" - 20	4,0	20,0	8,2	20,5	14	17
M22582-04-06F	6	1/4"	- 04	9/16" - 18	7,0	20,0	9,2	21,5	14	19
M22582-06-06F	10	3/8"	- 06	9/16" - 18	7,0	23,1	9,2	24,0	19	19
M22582-06-08F	10	3/8"	- 06	3/4" - 16	9,3	26,6	10,2	28,0	22	22
M22582-08-08F	12	1/2"	- 08	3/4" - 16	9,3	24,9	10,2	28,0	22	22
M22582-08-10F	12	1/2"	- 08	7/8" - 14	12,5	24,9	12,3	29,0	22	27
M22582-12-12F	19	3/4"	- 12	1.1/16" - 12	15,0	37,5	14,2	33,0	27	32
M22582-16-16F	25	1"	- 16	1.5/16" - 12	20,0	51,8	15,2	40,0	36	38

### M12410

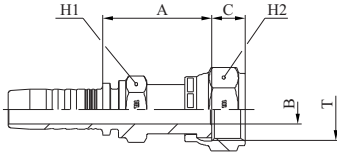
ORFS MALE - SAE J516 / ISO 12151-1  
 MACHO ORFS - SAE J516 / ISO 12151-1  
 ORFS AUSSENGEWINDE NACH SAE J516 / ISO 12151-1  
 MASCHIO ORFS - SAE J516 / ISO 12151-1



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	
M12410-04-04	6	1/4"	- 04	9/16" - 18	4,0	24,0	9,8		16	
M12410-04-06	6	1/4"	- 04	11/16" - 16	6,7	26,6	11,2		19	
M12410-05-06	8	5/16"	- 05	11/16" - 16	6,7	27,0	11,2		19	
M12410-06-06	10	3/8"	- 06	11/16" - 16	6,7	27,6	11,2		19	
M12410-06-08	10	3/8"	- 06	13/16" - 16	9,3	30,0	12,8		22	
M12410-08-08	12	1/2"	- 08	13/16" - 16	9,3	30,6	12,8		22	
M12410-08-10	12	1/2"	- 08	1" - 14	12,5	35,0	15,5		27	
M12410-08-12	12	1/2"	- 08	1.3/16" - 12	15,0	37,5	17,0		32	
M12410-10-08	16	5/8"	- 10	13/16" - 16	9,3	30,5	12,8		22	
M12410-10-10	16	5/8"	- 10	1" - 14	12,5	34,7	15,5		27	
M12410-10-12	16	5/8"	- 10	1.3/16" - 12	15,0	37,5	17,0		32	
M12410-12-12	19	3/4"	- 12	1.3/16" - 12	15,0	39,0	17,0		32	
M12410-12-16	19	3/4"	- 12	1.7/16" - 12	19,8	40,5	17,5		38	
M12410-16-16	25	1"	- 16	1.7/16" - 12	19,8	41,8	17,5		38	
M12410-16-20	25	1"	- 16	1.11/16" - 12	26,0	44,0	17,5		46	
M12410-20-20	31	1.1/4"	- 20	1.11/16" - 12	26,0	46,3	17,5		46	
M12410-24-24	38	1.1/2"	- 24	2" - 12	32,0	48,6	17,5		55	

## SAE STANDARD CONNECTIONS

### M22411



ORFS FEMALE - SAE J516 / ISO 12151-1 PULLBACK TYPE (CRIMPED BACK-NUT)  
 HEMBRA ORFS - SAE J516 / ISO 12151-1 CUELLO LARGO (TUERCA PENSADA)  
 ORFS IG - SAE J516 / ISO 12151-1 RÜCKZUGSAUSFÜHRUNG (VERPRESSTE MUTTER)  
 FEMMINA ORFS - SAE J516 / ISO 12151-1 VERSIONE RETRAIBILE (DADO PRESSATO)

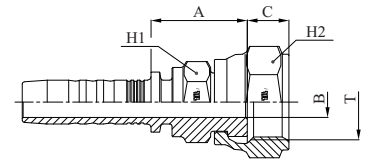
PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M22411-04-04	6	1/4"	- 04	9/16" - 18	4,0	27,5	8,0		13	19
M22411-04-06	6	1/4"	- 04	11/16" - 16	7,0	30,0	9,5		16	22
M22411-04-08	6	1/4"	- 04	13/16" - 16	9,3	34,5	11,0		19	24
M22411-05-04	8	5/16"	- 05	9/16" - 18	4,0	28,5	8,0		16	19
M22411-05-06	8	5/16"	- 05	11/16" - 16	7,0	30,5	9,5		16	22
M22411-06-04	10	3/8"	- 06	9/16" - 18	4,0	29,0	8,0		16	19
M22411-06-06	10	3/8"	- 06	11/16" - 16	7,0	31,1	9,5		16	22
M22411-06-08	10	3/8"	- 06	13/16" - 16	9,3	35,6	11,0		19	24
M22411-08-06	12	1/2"	- 08	11/16" - 16	7,0	31,9	9,5		19	22
M22411-08-08	12	1/2"	- 08	13/16" - 16	9,3	35,9	11,0		19	24
M22411-08-10	12	1/2"	- 08	1" - 14	11,5	38,4	13,5		24	30
M22411-08-12	12	1/2"	- 08	1.3/16" - 12	13,9	41,9	14,5		28	36
M22411-10-08	16	5/8"	- 10	13/16" - 16	9,3	36,0	11,0		24	24
M22411-10-10	16	5/8"	- 10	1" - 14	11,5	38,7	13,5		24	30
M22411-10-12	16	5/8"	- 10	1.3/16" - 12	13,9	42,0	14,5		28	36
M22411-12-10	19	3/4"	- 12	1" - 14	11,5	41,0	13,5		28	30
M22411-12-12	19	3/4"	- 12	1.3/16" - 12	13,9	43,5	14,5		28	36
M22411-12-16	19	3/4"	- 12	1.7/16" - 12	19,8	45,5	15,0		36	41
M22411-16-12	25	1"	- 16	1.3/16" - 12	13,9	45,8	14,5		36	36
M22411-16-16	25	1"	- 16	1.7/16" - 12	19,8	46,3	15,0		36	41
M22411-16-20	25	1"	- 16	1.11/16" - 12	26,0	49,5	14,8		41	50
M22411-20-20	31	1.1/4"	- 20	1.11/16" - 12	26,0	49,0	14,8		41	50
M22411-24-24	38	1.1/2"	- 24	2" - 12	32,0	54,0	15,8		50	60



## SAE STANDARD CONNECTIONS

### M27411

ORFS FEMALE - SAE J516 / ISO 12151-1 SHORT TYPE (CRIMPED BACK-NUT)  
 HEMBRA ORFS - SAE J516 / ISO 12151-1 CUELLO CORTO (TUERCA Prensada)  
 ORFS VERPRESSTE MUTTER - SAE J516 / ISO 12151-1  
 KURZE AUSFÜHRUNG (CRIMPED BACK-NUT)  
 FEMMINA ORFS - SAE J516 / ISO 12151-1 VERSIONE CORTA (DADO PRESSATO)

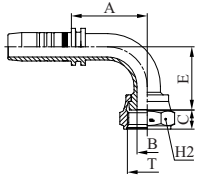


PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H1	H2
M27411-04-04	6	1/4"	- 04	9/16" - 18	4,0	20,5	8,0		13	19
M27411-04-06	6	1/4"	- 04	11/16" - 16	7,0	22,0	9,5		16	22
M27411-05-06	8	5/16"	- 05	11/16" - 16	7,0	25,5	9,5		16	22
M27411-06-06	10	3/8"	- 06	11/16" - 16	7,0	26,0	9,5		16	22
M27411-06-08	10	3/8"	- 06	13/16" - 16	9,3	25,0	11,0		19	24
M27411-08-08	12	1/2"	- 08	13/16" - 16	9,3	25,5	11,0		19	24
M27411-08-10	12	1/2"	- 08	1" - 14	11,5	26,5	13,5		24	30
M27411-08-12	12	1/2"	- 08	1.3/16" - 12	13,9	29,0	14,5		28	36
M27411-10-10	16	5/8"	- 10	1" - 14	11,5	26,5	13,5		24	30
M27411-10-12	16	5/8"	- 10	1.3/16" - 12	13,9	29,0	14,5		28	36
M27411-12-12	19	3/4"	- 12	1.3/16" - 12	13,9	30,5	14,5		28	36
M27411-16-16	25	1"	- 16	1.7/16" - 12	19,8	33,0	15,0		36	41

## SAE STANDARD CONNECTIONS

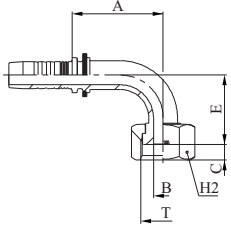
### M22491

90° ORFS FEMALE SWEPT ELBOW - SAE J516 / ISO 12151-1 (CRIMPED BACK-NUT)  
 HEMBRA ORFS CODO DE 90° - SAE J516 / ISO 12151-1 (TUERCA PRENSADA)  
 DK 90° BOGEN ORFS (UNF-GEWINDE NACH SAE J516 / ISO 12151-1, PRESSMUTTER)  
 FEMMINA ORFS 90° - SAE J516 / ISO 12151-1 (DADO PRESSATO)



### M22493

90° ORFS FEMALE SWEPT ELBOW - SAE J516 / ISO 12151-1 (SLIP-ON NUT)  
 HEMBRA ORFS CODO DE 90° - SAE J516 / ISO 12151-1 (TUERCA LIBRE)  
 DK 90° BOGEN ORFS (UNF-GEWINDE NACH SAE J516 / ISO 12151-1, HINTERLEGTE MUTTER)  
 FEMMINA ORFS 90° - SAE J516 / ISO 12151-1 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M22493-04-04	6	1/4"	-04	9/16" - 18	4,0	27,5	8,2	22,0		17
M22493-04-06	6	1/4"	-04	11/16" - 16	7,0	27,5	9,5	22,0		22
M22493-05-06	8	5/16"	-05	11/16" - 16	7,0	32,0	9,5	23,0		22
M22491-06-04	10	3/8"	-06	9/16" - 18	4,0	28,0	8,0	23,0		19
M22493-06-06	10	3/8"	-06	11/16" - 16	6,0	30,0	9,5	24,0		22
M22493-06-08	10	3/8"	-06	13/16" - 16	9,3	30,0	11,0	26,5		24
M22491-08-06	12	1/2"	-08	11/16" - 16	7,0	30,9	9,5	24,5		22
M22493-08-08	12	1/2"	-08	13/16" - 16	9,3	40,5	11,0	30,0		24
M22493-08-10	12	1/2"	-08	1" - 14	11,5	40,5	13,5	30,0		30
M22493-08-12	12	1/2"	-08	1.3/16" - 12	13,9	39,5	14,5	37,5		36
M22491-10-08	16	5/8"	-10	13/16" - 16	9,3	41,5	11,0	34,0		24
M22493-10-10	16	5/8"	-10	1" - 14	11,5	48,0	13,5	37,5		30
M22493-10-12	16	5/8"	-10	1.3/16" - 12	13,9	48,0	14,5	41,0		36
M22491-12-10	19	3/4"	-12	1" - 14	11,5	49,0	13,5	38,0		30
M22493-12-12	19	3/4"	-12	1.3/16" - 12	13,9	56,5	14,5	48,0		36
M22493-12-16	19	3/4"	-12	1.7/16" - 12	19,8	56,5	14,8	47,5		41
M22491-16-12	25	1"	-16	1.3/16" - 12	13,9	57,6	14,5	48,0		36
M22493-16-16	25	1"	-16	1.7/16" - 12	19,8	71,5	14,8	56,0		41
M22493-16-20	25	1"	-16	1.11/16" - 12	26,0	71,5	14,8	58,5		50
M22493-20-20	31	1.1/4"	-20	1.11/16" - 12	26,0	83,0	14,8	66,0		50
M22493-24-24	38	1.1/2"	-24	2" - 12	32,0	102,0	14,8	79,5		60

# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

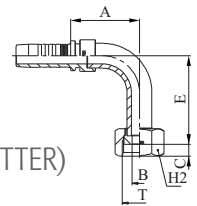
### M24493\*

90° ORFS FEMALE LONG DROP ELBOW - SAE J516 / ISO 12151-1 (SLIP-ON NUT)

HEMBRA ORFS CODO DE 90° LARGO - SAE J516 / ISO 12151-1 (TUERCA LIBRE)

DK 90° BOGEN ORFS LANGE SCHENKEL (UNF-GEWINDE NACH SAE J516 / ISO 12151-1, HINTERLEGTE MUTTER)

FEMMINA ORFS A 90° CURVA LUNGA - SAE J516 / ISO 12151-1 (DADO PASSANTE)

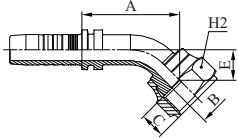


PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M24493-04-04	6	1/4"	- 04	9/16" - 18	4,4	24,5	8,2	45,5		17
M24493-04-06	6	1/4"	- 04	11/16" - 16	7,0	24,5	9,5	53,5		22
M24493-06-06	10	3/8"	- 06	11/16" - 16	7,0	31,5	9,5	53,5		22
M24493-06-08	10	3/8"	- 06	13/16" - 16	6,7	32,0	11,0	53,5		24
M24493-08-08	12	1/2"	- 08	13/16" - 16	10,0	37,0	11,0	63,5		24
M24493-08-10	12	1/2"	- 08	1" - 14	9,6	37,0	13,5	64,0		30
M24493-10-10	16	1/2"	- 10	1" - 14	9,6	41,0	13,5	69,0		30
M24493-10-12	16	5/8"	- 10	1.3/16" - 12	12,7	41,0	14,5	73,0		36
M24493-12-12	19	5/8"	- 12	1.3/16" - 12	15,5	45,5	14,5	96,0		36
M24493-16-16	25	1"	- 16	1.7/16" - 12	20,6	58,5	14,8	113,5		41

\* Brazed solution / Con soldadura / Löttausführung / Con saldatura

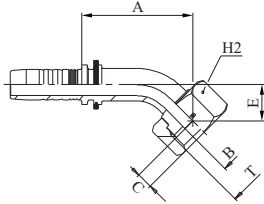
## SAE STANDARD CONNECTIONS

### M22441



45° ORFS FEMALE SWEPT ELBOW - SAE J516 / ISO 12151-1 (CRIMPED-BACK NUT)  
 HEMBRA ORFS CODO DE 45° - SAE J516 / ISO 12151-1 (TUERCA Prensada)  
 DK 45° BOGEN ORFS (UNF-GEWINDE NACH SAE J516 / ISO 12151-1, PRESSMUTTER)  
 FEMMINA ORFS 45° - SAE J516 / ISO 12151-1 (DADO PRESSATO)

### M22443



45° ORFS FEMALE SWEPT ELBOW - SAE J516 / ISO 12151-1 (SLIP-ON NUT)  
 HEMBRA ORFS CODO DE 45° - SAE J516 / ISO 12151-1 (TUERCA LIBRE)  
 DK 45° BOGEN ORFS (UNF-GEWINDE NACH SAE J516 / ISO 12151-1, HINTERLEGTE MUTTER)  
 FEMMINA ORFS 45° - SAE J516 / ISO 12151-1 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M22443-04-04	6	1/4"	-04	9/16" - 18	4,0	31,0	8,2	10,5		17
M22443-04-06	6	1/4"	-04	11/16" - 16	7,0	31,0	9,5	10,5		22
M22443-05-06	8	5/16"	-05	11/16" - 16	7,0	34,0	9,5	10,5		22
M22443-06-06	10	3/8"	-06	11/16" - 16	7,0	32,5	9,5	11,0		22
M22443-06-08	10	3/8"	-06	13/16" - 16	9,3	34,0	11,0	12,5		24
M22441-08-06	12	1/2"	-08	11/16" - 16	7,0	33,0	9,5	11,0		22
M22443-08-08	12	1/2"	-08	13/16" - 16	9,3	42,0	11,0	13,0		24
M22443-08-10	12	1/2"	-08	1" - 14	11,5	42,0	13,5	13,5		30
M22443-08-12	12	1/2"	-08	1.3/16" - 12	13,9	46,5	14,5	18,5		36
M22443-10-10	16	5/8"	-10	1" - 14	11,5	49,0	13,5	16,0		30
M22443-10-12	16	5/8"	-10	1.3/16" - 12	13,9	51,5	14,5	18,5		36
M22441-12-10	19	3/4"	-12	1" - 14	11,5	50,5	13,5	16,5		30
M22443-12-12	19	3/4"	-12	1.3/16" - 12	13,9	60,5	14,5	21,5		36
M22443-12-16	19	3/4"	-12	1.7/16" - 12	19,8	61,0	14,8	21,0		41
M22441-16-12	25	1"	-16	1.3/16" - 12	14,5	66,0	14,5	21,0		36
M22443-16-16	25	1"	-16	1.7/16" - 12	19,8	72,0	14,8	23,5		41
M22443-16-20	25	1"	-16	1.11/16" - 12	26,0	74,0	14,8	25,2		50
M22443-20-20	31	1.1/4"	-20	1.11/16" - 12	26,0	82,0	14,8	27,0		50
M22443-24-24	38	1.1/2"	-24	2" - 12	32,0	98,0	14,8	31,5		60

# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

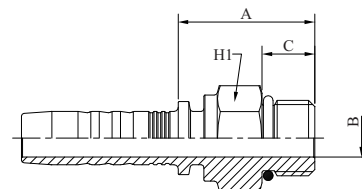
### M13010

SAE MALE O-RING BOSS TYPE - SAE J516 / ISO 11926

MACHO SAE CON O-RING TIPO BOSS - SAE J516 / ISO 11926

AGJO SAE O-RING (UNF-GEWINDE NACH SAE J516 / ISO 11926)

MASCHIO SAE O-RING - SAE J516 / ISO 11926



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H1
M13010-04-04	6	1/4"	- 04	7/16" - 20	4,0	24,0	9,1		14
M13010-04-06	6	1/4"	- 04	9/16" - 18	7,1	24,5	9,9		17
M13010-06-06	10	3/8"	- 06	9/16" - 18	7,0	25,6	9,9		17
M13010-06-08	10	3/8"	- 06	3/4" - 16	9,3	28,6	11,1		22
M13010-06-10	10	3/8"	- 06	7/8" - 14	12,5	31,5	12,7		25
M13010-08-08	12	1/2"	- 08	3/4" - 16	9,3	28,9	11,1		22
M13010-08-10	12	1/2"	- 08	7/8" - 14	12,5	31,9	12,7		25
M13010-08-12	12	1/2"	- 08	1.1/16" - 12	15,0	38,5	15,1		32
M13010-10-10	16	5/8"	- 10	7/8" - 14	12,5	32,0	12,7		25
M13010-10-12	16	5/8"	- 10	1.1/16" - 12	15,0	37,7	15,1		32
M13010-12-12	19	3/4"	- 12	1.1/16" - 12	15,0	39,5	15,1		32
M13010-12-16	19	3/4"	- 12	1.5/16" - 12	19,8	40,0	15,1		38
M13010-16-16	25	1"	- 16	1.5/16" - 12	19,8	41,0	15,1		38
M13010-20-20	31	1.1/4"	- 20	1.5/8" - 12	26,0	43,5	15,1		46

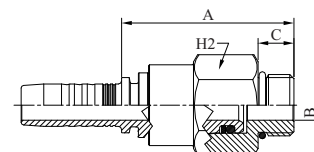
### M14310\*

SAE SWIVEL MALE O-RING BOSS TYPE - SAE J516 / ISO 11926

MACHO SAE GIRATORIO CON O-RING TIPO BOSS - SAE J516 / ISO 11926

AGJO SAE O-RING DREHBAR (UNF-GEWINDE NACH SAE J516 / ISO 11926)

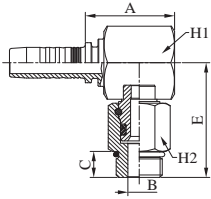
MASCHIO SAE O-RING GIREVOLE - SAE J516 / ISO 11926



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H2
M14310-04-04	6	1/4"	- 04	7/16" - 20	4,0	41,0	9,1		17
M14310-04-06	6	1/4"	- 04	9/16" - 18	7,0	44,0	9,9		22
M14310-06-06	10	3/8"	- 06	9/16" - 18	7,0	45,9	9,9		22
M14310-06-08	10	3/8"	- 06	3/4" - 16	7,0	47,8	11,1		22
M14310-08-08	12	1/2"	- 08	3/4" - 16	9,3	50,9	11,1		27
M14310-08-10	12	1/2"	- 08	7/8" - 14	9,3	42,2	13,0		27
M14310-08-12	12	1/2"	- 08	1.1/16" - 12	12,5	49,4	15,0		32
M14310-10-10	16	5/8"	- 10	7/8" - 14	9,3	41,4	13,0		27
M14310-12-12	19	3/4"	- 12	1.1/16" - 12	12,5	47,8	15,0		32

\* Not to be used as a live swivel / No usar como una pieza giratoria viva / Nicht zu benutzen als Drehverschraubung / Da non usare come applicazione rotante

## SAE STANDARD CONNECTIONS

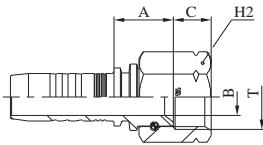


### M14390\*

90° SAE SWIVEL MALE O-RING BOSS TYPE - SAE J516 / ISO 11926  
 MACHO SAE GIRATORIO CON O-RING CODO COMPACTO DE 90° TIPO BOSS - SAE J516 / ISO 11926  
 AGJO 90° KOMPAKT BOGEN DREHBAR MIT O-RING (UNF-GEWINDE NACH J516 / ISO 11926)  
 MASCHIO SAE O-RING GIREVOLE 90° - SAE J516 / ISO 11926

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>1</sub>
M14390-06-06	10	3/8"	- 06	9/16" - 18	5,7	20,1	9,9	40,0	22	17
M14390-06-08	10	3/8"	- 06	3/4" - 16	7,0	20,1	11,1	44,4	22	22
M14390-08-08	12	1/2"	- 08	3/4" - 16	9,3	22,1	11,1	49,0	27	22
M14390-08-10	12	1/2"	- 08	7/8" - 14	9,3	27,5	13,0	47,5	27	27
M14390-10-10	16	5/8"	- 10	7/8" - 14	9,3	28,0	13,0	47,5	27	27
M14390-12-12	19	3/4"	- 12	1.1/16" - 12	12,5	27,5	15,0	55,5	32	32

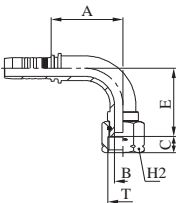
\* Brazed solution - Not to be used as a live swivel / Solución soldada - No usar como pieza giratoria viva / Lötanschluss - Nicht zu benutzen als Drehverschraubung / Con soldatura - Da non usare come applicazione rotante



### M22612

SAE FEMALE 45° CONE SEAT - SAE J516/J512 (THRUST-WIRE NUT)  
 HEMBRA SAE ASIENTO A 45° - SAE J516/J512 (TUERCA CON SEGURO)  
 DKJ DICKTKOPF GERADE 45° KONUS (UNF-GEWINDE NACH J516/J512, GESTIFTETE MUTTER)  
 FEMMINA SAE CONO 45° - SAE J516/J512 (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C		H <sub>2</sub>
M22612-04-04	6	1/4"	- 04	7/16" - 20	4,0	15,5	8,2			17
M22612-05-06	8	5/16"	- 05	5/8" - 18	7,0	16,5	10,8			22
M22612-06-06	10	3/8"	- 06	5/8" - 18	7,0	16,6	10,8			22
M22612-12-12	19	3/4"	- 12	1.1/16" - 14	15,0	22,7	14,4			32



### M22692

90° SAE FEMALE SWEPT ELBOW 45° CONE SEAT - SAE J516/J512 (THRUST-WIRE NUT)  
 HEMBRA SAE CODO DE 90° ASIENTO A 45° - SAE J516/J512 (TUERCA CON SEGURO)  
 DKJ 90° BOGEN 45° KONUS (UNF-GEWINDE NACH SAE J516/J512, GESTIFTETE MUTTER)  
 FEMMINA SAE 90° CONO 45° - SAE J516/J512 (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M22692-04-04	6	1/4"	- 04	7/16" - 20	4,0	28,3	8,0	27,0		17
M22692-06-06	10	3/8"	- 06	5/8" - 18	7,0	35,5	10,8	33,0		22
M22692-12-12	19	3/4"	- 12	1.1/6" - 14	15,0	62,0	14,4	58,0		32

## SAE STANDARD CONNECTIONS

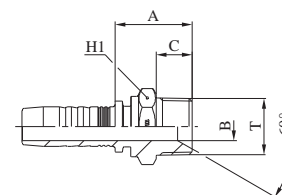
### M12810

NPTF MALE 60° CONE SEAT - SAE J516/J514

MACHO NPTF ASIENTO A 60° - SAE J516/J514

AGN 60° INNENKONUS (NPTF-GEWINDE) - SAE J516/J514

MASCHIO NPTF CONO 60° - SAE J516 /J514

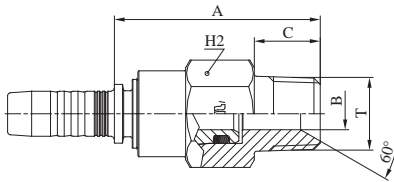


PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>1</sub>
M12810-03-02	5	3/16"	- 03	1/8" - 27	4,0	23,6	10,0		12
M12810-03-04	5	3/16"	- 03	1/4" - 18	5,5	29,1	14,5		14
M12810-04-02	6	1/4"	- 04	1/8" - 27	4,0	24,1	10,0		12
M12810-04-04	6	1/4"	- 04	1/4" - 18	5,5	29,0	14,5		14
M12810-04-06	6	1/4"	- 04	3/8" - 18	9,3	31,5	14,5		19
M12810-04-08	6	1/4"	- 04	1/2" - 14	9,3	33,5	19,2		24
M12810-05-04	8	5/16"	- 05	1/4" - 18	5,5	30,0	14,5		14
M12810-05-06	8	5/16"	- 05	3/8" - 18	9,3	32,0	14,5		19
M12810-06-04	10	3/8"	- 06	1/4" - 18	5,5	30,1	14,5		14
M12810-06-06	10	3/8"	- 06	3/8" - 18	9,3	28,6	14,5		19
M12810-06-08	10	3/8"	- 06	1/2" - 14	12,5	34,6	19,2		24
M12810-08-06	12	1/2"	- 08	3/8" - 18	9,3	28,9	14,5		19
M12810-08-08	12	1/2"	- 08	1/2" - 14	12,5	34,9	19,2		24
M12810-08-12	12	1/2"	- 08	3/4" - 14	16,0	35,4	19,2		27
M12810-10-08	16	5/8"	- 10	1/2" - 14	12,5	38,7	19,2		24
M12810-10-12	16	5/8"	- 10	3/4" - 14	16,0	40,2	19,2		27
M12810-12-12	19	3/4"	- 12	3/4" - 14	16,0	36,5	19,2		27
M12810-12-08	19	3/4"	- 12	1/2" - 14	12,5	36,5	13,6		27
M12810-12-16	19	3/4"	- 12	1" - 11,5	19,8	46,0	24,2		36
M12810-16-12	25	1"	- 16	3/4" - 14	15,5	38,8	19,2		32
M12810-16-16	25	1"	- 16	1" - 11,5	19,8	43,8	24,2		36
M12810-16-20	25	1"	- 16	1.1/4" - 11,5	26,0	56,3	25,0		46
M12810-20-20	31	1.1/4"	- 20	1.1/4" - 11,5	26,0	56,5	25,0		46
M12810-24-24	38	1.1/2"	- 24	1.1/2" - 11,5	32,0	57,6	26,0		50
M12810-32-32	51	2"	- 32	2" - 11,5	45,0	64,3	26,5		65
M12810-40-40	63	2.1/2"	- 40	2.1/2" - 8	55,4	78,0	39,9		80
M12810-48-48	76	3"	- 48	3" - 8	68,9	86,0	41,5		100



## SAE STANDARD CONNECTIONS

### M14110R\*

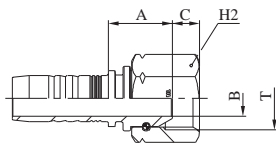


NPTF SWIVEL MALE 60° CONE SEAT - SAE J516/J514  
 MACHO NPTF GIRATORIO ROSCA ASIEN TO A 60° - SAE J516/J514  
 AGN 60° INNENKONUS (NPTF-GEWINDE) - SAE J516/J514  
 MASCHIO NPTF CONO 60° GIREVOLE - SAE J516/J514

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>2</sub>
M14110-04-02R	6	1/4"	- 04	1/8" - 27	3,0	41,9	10,0		17
M14110-04-04R	6	1/4"	- 04	1/4" - 18	4,0	46,4	14,5		17
M14110-04-06R	6	1/4"	- 04	3/8" - 18	7,0	46,4	14,5		19
M14110-06-04R	10	3/8"	- 06	1/4" - 18	4,0	50,5	14,5		22
M14110-06-06R	10	3/8"	- 06	3/8" - 18	7,0	50,5	14,5		22
M14110-06-08R	10	3/8"	- 06	1/2" - 14	9,3	55,2	19,2		24
M14110-08-06R	12	1/2"	- 08	3/8" - 18	7,0	51,5	14,5		27
M14110-08-08R	12	1/2"	- 08	1/2" - 14	9,3	59,0	19,2		27
M14110-12-12R	19	3/4"	- 12	3/4" - 14	16,0	57,9	19,2		32
M14110-16-16R	25	1"	- 16	1" - 11,5	19,8	65,8	24,2		38

\* Not to be used as a live swivel / No usar como una pieza giratoria viva / Nicht zu benutzen als Drehverschraubung / Da non usare come applicazione rotante

### M22812



NPSM FEMALE 60° CONE - SAE J516/J514 (THRUST-WIRE NUT)  
 HEMBRA NPSM ASIEN TO A 60° - SAE J516/J514 (TUERCA CON SEGURO)  
 DK NPSM 60° KONUS - SAE J516/J514 (NPTF-GEWINDE, GESTIFTETE MUTTER)  
 FEMMINA NPSM CONO 60° - SAE J516/J514 (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>2</sub>
M22812-04-04	6	1/4"	- 04	1/4" - 18	4,0	17,5	4,2		19
M22812-06-04	10	3/8"	- 06	1/4" - 18	4,0	18,0	4,2		19
M22812-06-06	10	3/8"	- 06	3/8" - 18	7,0	20,9	6,0		22
M22812-08-08	12	1/2"	- 08	1/2" - 14	9,3	22,8	6,5		27
M22812-12-12	19	3/4"	- 12	3/4" - 14	15,0	24,5	9,0		32
M22812-16-16	25	1"	- 16	1" - 11,5	19,8	27,3	10,5		38

# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

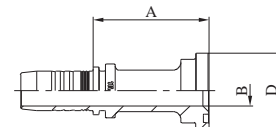
### M23311

ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3

BRIDA ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3

ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3

FLANGIA ISO/SAE CODE 61 - SAE J516 / ISO 12151-3

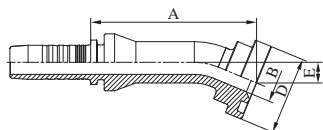


PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D			
M23311-08-08	12	1/2"	- 08	1/2"	9,3	50,9	30,3			
M23311-08-12	12	1/2"	- 08	3/4"	15,0	57,7	38,0			
M23311-10-08	16	5/8"	- 10	3/4"	9,3	51,0	30,3			
M23311-10-12	16	1/2"	- 10	3/4"	15,0	65,7	38,0			
M23311-12-12	19	3/4"	- 12	3/4"	15,0	58,0	38,0			
M23311-12-16	19	3/4"	- 12	1"	20,0	58,0	44,6			
M23311-12-20	19	3/4"	- 12	1.1/4"	26,0	69,5	51,0			
M23311-16-12	25	1"	- 16	3/4"	15,0	60,5	38,0			
M23311-16-16	25	1"	- 16	1"	19,8	64,3	44,6			
M23311-16-20	25	1"	- 16	1.1/4"	26,0	70,3	51,0			
M23311-20-16	31	1.1/4"	- 20	1"	20,0	64,5	44,6			
M23311-20-20	31	1.1/4"	- 20	1.1/4"	26,0	70,5	51,0			
M23311-20-24	31	1.1/4"	- 20	1.1/2"	32,0	72,5	60,5			
M23311-24-24	38	1.1/2"	- 24	1.1/2"	32,0	75,6	60,5			
M23311-24-32	38	1.1/2"	- 24	2"	42,0	75,6	71,6			
M23311-32-32	51	2"	- 32	2"	42,0	78,9	71,6			
M23311-32-40	51	2"	- 32	2.1/2"	56,0	80,9	84,3			
M23311-38-40	60	2.3/8"	- 38	2.1/2"	56,0	84,0	84,3			
M23311-40-32	63	2.1/2"	- 40	2"	42,0	78,5	71,6			
M23311-40-40	63	2.1/2"	- 40	2.1/2"	56,0	84,0	84,3			
M23311-40-48	63	2.1/2"	- 40	3"	68,9	79,0	101,6			
M23311-40-56	63	2.1/2"	- 40	3.1/2"	79,0	90,5	114,3			
M23311-40-64	63	2.1/2"	- 40	4"	90,0	96,5	127,0			
M23311-48-48	76	3"	- 48	3"	69,0	86,0	101,6			
M23311-56-56	90	3.1/2"	- 56	3.1/2"	79,0	94,5	114,3			
M23311-64-64	102	4"	- 64	4"	90,0	100,5	127,0			

## SAE STANDARD CONNECTIONS

### M23321

22,5° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 22,5° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 22,5° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 22,5° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	
M23321-08-08	12	1/2"	- 08	1/2"	9,3	63,9	30,3	8,0	
M23321-12-12	19	3/4"	- 12	3/4"	15,0	74,7	38,0	9,8	
M23321-12-16	19	3/4"	- 12	1"	20,0	74,7	44,6	9,8	
M23321-16-16	25	1"	- 16	1"	19,8	88,8	44,6	11,5	
M23321-16-20	25	1"	- 16	1.1/4"	26,0	88,5	51,0	11,5	
M23321-16-24	25	1"	- 16	1.1/2"	32,0	88,5	60,5	11,5	
M23321-20-20	31	1.1/4"	- 20	1.1/4"	26,0	100,0	51,0	12,0	
M23321-20-20018	31	1.1/4"	- 20	1.1/4"	26,0	99,0	51,0	18,0	
M23321-20-24	31	1.1/4"	- 20	1.1/2"	32,0	101,8	60,5	12,8	
M23321-24-24	38	1.1/2"	- 24	1.1/2"	32,0	116,5	60,5	14,0	
M23321-24-24023	38	1.1/2"	- 24	1.1/2"	32,0	115,0	60,5	23,0	
M23321-24-32	38	1.1/2"	- 24	2"	42,0	116,5	71,6	14,0	
M23321-32-32	51	2"	- 32	2"	42,0	134,5	71,6	15,0	
M23321-40-40*	63	2.1/2"	- 40	2.1/2"	52,0	72,0	84,3	14,0	
M23321-40-48*	63	2.1/2"	- 40	3"	52,0	79,0	101,6	17,0	
M23321-48-48*	76	3"	- 48	3"	61,0	111,0	101,6	20,5	

\* All items are made from solid with the exception of (\*) / Todos los ítems son fabricados sin soldadura exceptuando (\*) / Mit Ausnahme der mit (\*) bezeichneten Positionen sind alle Armaturen in einteiliger Ausführung / Ad eccezione di (\*) tutte le referenze sono a pezzo unico

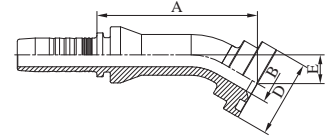
# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

### M23331

30° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 30° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 30° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 30° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



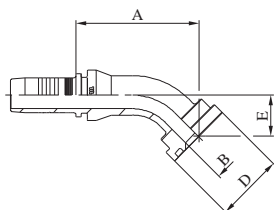
PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D	E		
M23331-08-08	12	1/2"	- 08	1/2"	9,3	62,6	30,3	11,2		
M23331-08-12	12	1/2"	- 08	3/4"	15,0	63,5	38,0	11,5		
M23331-12-12	19	3/4"	- 12	3/4"	15,0	73,2	38,0	13,9		
M23331-12-16	19	3/4"	- 12	1"	20,0	73,2	44,6	13,9		
M23331-16-16	25	1"	- 16	1"	19,8	86,8	44,6	16,4		
M23331-16-20	25	1"	- 16	1.1/4"	26,0	87,0	51,0	16,5		
M23331-20-20	31	1.1/4"	- 20	1.1/4"	26,0	98,0	51,0	17,4		
M23331-20-24	31	1.1/4"	- 20	1.1/2"	32,0	100,0	60,5	18,5		
M23331-20-24044	31	1.1/4"	- 20	1.1/2"	32,0	131,5	60,5	44,0		
M23331-24-24	38	1.1/2"	- 24	1.1/2"	32,0	114,3	60,5	20,0		
M23331-24-32	38	1.1/2"	- 24	2"	42,0	114,5	71,6	20,0		
M23331-32-32	51	2"	- 32	2"	42,0	132,0	71,6	22,0		
M23331-40-40*	63	2.1/2"	- 40	2.1/2"	52,0	79,5	84,3	20,5		
M23331-40-48*	63	2.1/2"	- 40	3"	52,0	85,5	101,6	24,5		
M23331-48-48*	76	3"	- 48	3"	61,0	110,5	101,6	27,5		

\* All items are made from solid with the exception of (\*) / Todos los ítems son fabricados sin soldadura exceptuando (\*) / Mit Ausnahme der mit (\*) bezeichneten Positionen sind alle Armaturen in einteiliger Ausführung / Ad eccezione di (\*) tutte le referenze sono a pezzo unico

## SAE STANDARD CONNECTIONS

### M23341

45° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 45° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 45° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 45° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE	FLANGE	DIMENSIONS mm			
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	DN	inch	Size		B	A	D	E		
M23341-06-08	10	3/8"	- 06	1/2"	9,3	52,5	30,3	17,0		
M23341-08-08	12	1/2"	- 08	1/2"	9,3	58,5	30,3	18,5		
M23341-08-12	12	1/2"	- 08	3/4"	15,0	59,5	38,0	19,0		
M23341-08-16	12	1/2"	- 08	1"	20,0	59,5	44,6	19,0		
M23341-10-12	16	5/8"	- 10	3/4"	15,0	61,0	38,0	22,0		
M23341-12-12	19	3/4"	- 12	3/4"	15,0	68,5	38,0	23,0		
M23341-12-16	19	3/4"	- 12	1"	20,0	68,5	44,6	23,0		
M23341-16-12	25	1"	- 16	3/4"	15,0	74,5	38,0	23,0		
M23341-16-16	25	1"	- 16	1"	19,8	81,5	44,6	27,5		
M23341-16-20	25	1"	- 16	1.1/4"	26,0	81,5	51,0	27,5		
M23341-20-16	31	1.1/4"	- 20	1"	19,8	84,5	44,6	29,5		
M23341-20-20	31	1.1/4"	- 20	1.1/4"	26,0	92,0	51,0	29,5		
M23341-20-24	31	1.1/4"	- 20	1.1/2"	32,0	93,5	60,5	31,0		
M23341-24-24	38	1.1/2"	- 24	1.1/2"	32,0	107,5	60,5	34,5		
M23341-24-32	38	1.1/2"	- 24	2"	42,0	107,5	71,6	34,5		
M23341-32-32	51	2"	- 32	2"	42,0	124,0	71,6	39,0		
M23341-32-40	51	2"	- 32	2.1/2"	56,0	136,5	84,3	49,5		
M23341-40-32	63	2.1/2"	- 40	2"	42,0	152,0	71,5	48,5		
M23341-40-40*	63	2.1/2"	- 40	2.1/2"	56,0	74,5	84,3	30,0		
M23341-40-48*	63	2.1/2"	- 40	3"	52,0	79,5	101,6	36,0		
M23341-48-48*	76	3"	- 48	3"	61,0	109,0	101,6	41,0		
M23341-56-56*	90	3.1/2"	- 56	3.1/2"	79,0	115,0	114,3	47,5		
M23341-56-64*	90	3.1/2"	- 56	4"	79,0	118,5	127,0	51,0		
M23341-64-64*	102	4"	- 64	4"	90,0	132,0	127,0	56,5		

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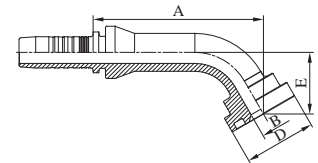
# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

### M23361

60° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 60° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 60° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 60° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3

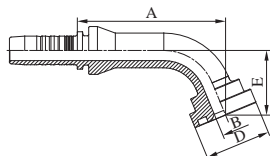


PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M23361-08-08	12	1/2"	- 08	1/2"	9,3	71,5	30,3	25,8
M23361-08-12	12	1/2"	- 08	3/4"	15,0	72,5	38,0	26,5
M23361-12-12	19	3/4"	- 12	3/4"	15,0	86,9	38,0	33,0
M23361-12-16	19	3/4"	- 12	1"	20,0	87,0	44,6	33,0
M23361-16-16	25	1"	- 16	1"	19,8	104,0	44,6	39,0
M23361-16-20	25	1"	- 16	1.1/4"	26,0	104,0	44,6	39,0
M23361-20-20	31	1.1/4"	- 20	1.1/4"	26,0	120,0	51,0	43,0
M23361-20-20065	31	1.1/4"	- 20	1.1/4"	26,0	107,5	51,0	65,0
M23361-20-24	31	1.1/4"	- 20	1.1/2"	32,0	121,0	60,5	44,7
M23361-24-20	38	1.1/2"	- 24	1.1/4"	26,0	141,5	51,0	46,5
M23361-24-24	38	1.1/2"	- 24	1.1/2"	32,0	143,6	60,5	50,7
M23361-24-32	38	1.1/2"	- 24	2"	42,0	143,5	71,6	51,0
M23361-32-32	51	2"	- 32	2"	42,0	129,0	71,6	58,0
M23361-40-40*	63	2.1/2"	- 40	2.1/2"	52,0	84,5	84,3	47,5
M23361-40-48*	63	2.1/2"	- 40	3"	52,0	88,5	101,6	55,0
M23361-48-48*	76	3"	- 48	3"	61,0	120,0	101,6	64,0

\* All items are made from solid with the exception of (\*) / Todos los ítems son fabricados sin soldadura exceptuando (\*) / Mit Ausnahme der mit (\*) bezeichneten Positionen sind alle Armaturen in einteiliger Ausführung / Ad eccezione di (\*) tutte le referenze sono a pezzo unico

## SAE STANDARD CONNECTIONS

### M23371



67,5° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 67,5° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 67,5° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 67,5° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M23371-08-08	12	1/2"	- 08	1/2"	9,3	67,9	30,3	29,3
M23371-08-12	12	1/2"	- 08	3/4"	15,0	68,5	38,0	30,5
M23371-08-16	12	1/2"	- 08	1"	20,0	68,5	44,6	30,5
M23371-12-12	19	3/4"	- 12	3/4"	15,0	82,2	38,0	38,0
M23371-12-16	19	3/4"	- 12	1"	20,0	82,2	44,6	38,0
M23371-12-20	19	3/4"	- 12	1.1/4"	26,0	82,5	51,0	38,0
M23371-16-16	25	1"	- 16	1"	19,8	98,6	44,6	45,0
M23371-16-20	25	1"	- 16	1.1/4"	26,0	98,5	51,0	45,0
M23371-20-20	31	1.1/4"	- 20	1.1/4"	26,0	114,0	51,0	50,0
M23371-20-24	31	1.1/4"	- 20	1.1/2"	32,0	115,0	60,5	52,0
M23371-24-24	38	1.1/2"	- 24	1.1/2"	32,0	136,4	60,5	59,2
M23371-24-32	38	1.1/2"	- 24	2"	42,0	136,5	71,6	59,0
M23371-32-32	51	2"	- 32	2"	42,0	162,0	71,6	68,5
M23371-32-32085	51	2"	- 32	2"	42,0	151,5	71,6	85,0
M23371-32-40	51	2"	- 32	2.1/2"	56,0	171,5	84,3	83,5
M23371-40-40*	63	2.1/2"	- 40	2.1/2"	52,0	87,5	84,3	57,5
M23371-40-48*	63	2.1/2"	- 40	3"	52,0	91,0	101,6	65,0

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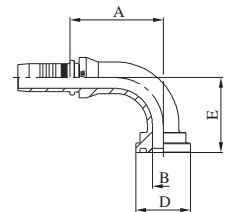
# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

### M23391

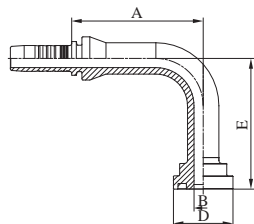
90° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 90° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 90° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 90° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M23391-06-08	10	3/8"	- 06	1/2"	9,3	45,0	30,3	35,0
M23391-06-08041	10	3/8"	- 06	1/2"	9,3	45,0	30,3	41,0
M23391-08-08	12	1/2"	- 08	1/2"	9,3	54,5	30,3	40,0
M23391-08-12	12	1/2"	- 08	3/4"	15,0	54,5	38,0	41,0
M23391-08-16	12	1/2"	- 08	1"	20,0	54,5	44,6	66,0
M23391-10-08	16	5/8"	- 10	1/2"	9,3	56,0	30,3	46,5
M23391-10-12	16	5/8"	- 10	3/4"	15,0	56,0	38,0	47,5
M23391-12-12	19	3/4"	- 12	3/4"	15,0	64,5	38,0	52,0
M23391-12-16	19	3/4"	- 12	1"	20,0	64,5	44,6	52,0
M23391-12-20	19	3/4"	- 12	1.1/4"	26,0	64,5	51,0	52,0
M23391-16-16	25	1"	- 16	1"	19,8	77,5	44,6	62,0
M23391-16-20	25	1"	- 16	1.1/4"	26,0	77,5	51,0	62,0
M23391-16-24	25	1"	- 16	1.1/2"	32,0	77,5	60,5	64,0
M23391-20-16	31	1.1/4"	- 20	1"	20,0	80,0	44,6	66,0
M23391-20-20	31	1.1/4"	- 20	1.1/4"	26,0	90,5	51,0	70,0
M23391-20-24	31	1.1/4"	- 20	1.1/2"	32,0	90,5	60,5	72,0
M23391-20-32	31	1.1/4"	- 20	2"	42,0	93,5	71,6	76,0
M23391-24-20	38	1.1/2"	- 24	1.1/4"	26,0	104,5	51,0	75,0
M23391-24-24	38	1.1/2"	- 24	1.1/2"	32,0	108,0	60,5	84,0
M23391-24-32	38	1.1/2"	- 24	2"	42,0	108,0	71,6	84,0
M23391-32-24	51	2"	- 32	1.1/2"	32,0	133,0	60,5	84,0
M23391-32-32	51	2"	- 32	2"	42,0	129,0	71,6	99,0
M23391-32-40	51	2"	- 32	2.1/2"	56,0	132,5	84,3	116,0
M23391-40-32	63	2.1/2"	- 40	2"	42,0	149,5	71,6	114,0
M23391-40-40*	63	2.1/2"	- 40	2.1/2"	52,0	88,5	84,3	88,0
M23391-40-48*	63	2.1/2"	- 40	3"	52,0	88,5	101,6	95,0
M23391-48-48*	76	3"	- 48	3"	61,0	124,0	101,6	115,0
M23391-48-56*	76	3"	- 48	3.1/2"	61,0	124,0	114,3	115,0
M23391-56-56*	90	3.1/2"	- 56	3.1/2"	79,0	134,5	114,3	134,5
M23391-64-64*	102	4"	- 64	4"	90,0	153,5	127,0	158,5

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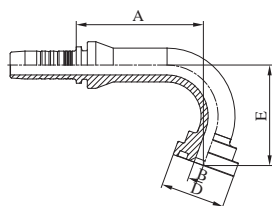
## SAE STANDARD CONNECTIONS



### M23391 LONG DROP

90° LONG DROP ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 90° LARGA ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 90° LONG DROP ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 90° CURVA LUNGA ISO/SAE CODE 61 - SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M23391-16-20117	25	1"	- 16	1.1/4"	26,0	77,5	51,0	117
M23391-16-24107	25	1"	- 16	1.1/2"	32,0	77,5	60,5	107
M23391-20-20091	31	1.1/4"	- 20	1.1/4"	26,0	90,5	51,0	91
M23391-20-20100	31	1.1/4"	- 20	1.1/4"	26,0	90,5	51,0	100
M23391-20-20112	31	1.1/4"	- 20	1.1/4"	26,0	90,5	51,0	112
M23391-20-20130	31	1.1/4"	- 20	1.1/4"	26,0	90,5	51,0	130
M23391-20-20168	31	1.1/4"	- 20	1.1/4"	26,0	90,5	51,0	168
M23391-20-24118	31	1.1/4"	- 20	1.1/2"	32,0	90,5	60,5	118
M23391-20-24130	31	1.1/4"	- 20	1.1/2"	32,0	90,5	60,5	130
M23391-24-24148	38	1.1/2"	- 24	1.1/2"	32,0	108,0	60,5	148
M23391-24-24172	38	1.1/2"	- 24	1.1/2"	32,0	108,0	60,5	172
M23391-24-32115	38	1.1/2"	- 24	2"	42,0	108,0	71,6	115
M23391-24-32172	38	1.1/2"	- 24	2"	42,0	108,0	71,6	172
M23391-32-32203	51	2"	- 32	2"	42,0	129,0	71,6	203



### M23301P

110° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 110° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 110° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 110° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M23301-08-12P	12	1/2"	- 08	3/4"	15,0	47,5	38,0	48,5
M23301-12-12P	19	3/4"	- 12	3/4"	15,0	89,0	38,0	62
M23301-12-16P	19	3/4"	- 12	1"	20,0	89,0	44,6	62
M23301-16-16P	25	1"	- 16	1"	19,8	88,5	44,6	79
M23301-16-20133P	25	1"	- 16	1.1/4"	26,0	77,0	51,0	133
M23301-20-20P	31	1.1/4"	- 20	1.1/4"	26,0	102,0	51,0	89
M23301-20-24P	31	1.1/4"	- 20	1.1/2"	32,0	108,5	60,5	93
M23301-24-24119P	38	1.1/2"	- 24	1.1/2"	32,0	105,5	60,5	119
M23301-32-32P	51	2"	- 32	2"	42,0	142,0	71,6	123

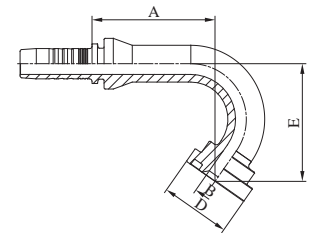
# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

### M23301S

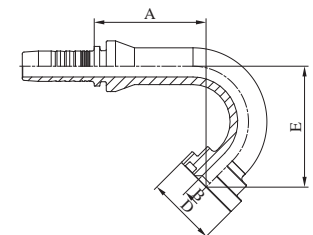
125° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 125° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 125° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 125° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D	E		
M23301-32-32151S	51	2"	- 32	2"	42,0	118,5	71,6	151,0		

### M23301T

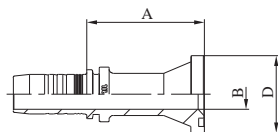
135° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 135° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 135° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 135° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D	E		
M23301-12-12T	19	3/4"	- 12	3/4"	15,0	74,5	38,0	70,0		
M23301-12-16T	19	3/4"	- 12	1"	20,0	74,5	44,6	70,0		
M23301-16-16T	25	1"	- 16	1"	19,8	70,0	44,6	88,5		

## SAE STANDARD CONNECTIONS

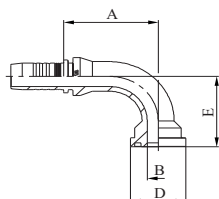
### M23611



ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 ISO/SAE CODE 62 FLANSCH - SAE J516/ISO 12151-3  
 FLANGIA ISO/SAE CODE 62 - SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
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	DN	inch	Size		B	A	D			
M23611-08-08	12	1/2"	- 08	1/2"	9,3	52,1	31,8			
M23611-08-12	12	1/2"	- 08	3/4"	15,0	68,4	41,5			
M23611-10-08	16	5/8"	- 10	1/2"	9,3	52,0	31,8			
M23611-10-12	16	5/8"	- 10	3/4"	15,0	70,2	41,5			
M23611-10-16	16	5/8"	- 10	1"	20,0	80,0	47,7			
M23611-12-12	19	3/4"	- 12	3/4"	15,0	69,0	41,5			
M23611-12-16	19	3/4"	- 12	1"	20,0	81,0	47,7			
M23611-16-16	25	1"	- 16	1"	19,8	82,3	47,7			
M23611-16-20	25	1"	- 16	1.1/4"	26,0	89,8	54,2			
M23611-20-16	31	1.1/4"	- 20	1"	20,0	82,5	47,7			
M23611-20-20	31	1.1/4"	- 20	1.1/4"	26,0	84,5	54,2			
M23611-20-24	31	1.1/4"	- 20	1.1/2"	32,0	90,5	63,7			
M23611-24-24	38	1.1/2"	- 24	1.1/2"	32,0	92,6	63,7			
M23611-32-32	51	2"	- 32	2"	42,0	107,9	79,6			



### M23691

90° ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 90° ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 90° ISO/SAE CODE 61 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 90° ISO/SAE CODE 62 - SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
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	DN	inch	Size		B	A	D	E		
M23691-08-08	12	1/2"	- 08	1/2"	9,3	54,5	31,8	45,0		
M23691-08-12	12	1/2"	- 08	3/4"	15,0	54,5	41,5	53,0		
M23691-10-08	16	5/8"	- 10	1/2"	9,3	57,5	31,8	45,0		
M23691-10-12	16	5/8"	- 10	3/4"	15,0	56,0	41,5	58,0		
M23691-10-16	16	5/8"	- 10	1"	19,8	55,7	47,7	65,0		
M23691-12-12	19	3/4"	- 12	3/4"	15,0	64,0	41,5	59,0		
M23691-12-16	19	3/4"	- 12	1"	20,0	64,5	47,7	65,0		
M23691-16-16	25	1"	- 16	1"	19,8	73,5	47,7	68,0		
M23691-16-20	25	1"	- 16	1.1/4"	26,0	73,5	54,2	75,0		
M23691-20-16	31	1.1/4"	- 20	1"	20,0	82,5	47,7	68,0		
M23691-20-20	31	1.1/4"	- 20	1.1/4"	26,0	85,5	54,2	81,0		
M23691-20-24	31	1.1/4"	- 20	1.1/2"	32,0	85,5	63,7	91,5		
M23691-24-24	38	1.1/2"	- 24	1.1/2"	32,0	106,0	63,7	94,5		
M23691-24-32	38	1.1/2"	- 24	2"	42,0	106,0	79,6	110,5		
M23691-32-32	51	2"	- 32	2"	42,0	138,0	79,6	132,0		

# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

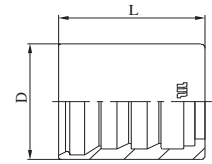
### M00110/M00120

SKIVE FERRULE FOR WIRE BRAID HOSES

CASQUILLO CON PELADO PARA MANGUERAS CON TRENZA DE ACERO

SCHÄLFASSUNG FÜR STAHLGEFLECHTSCHLÄUCHE

GHIERA PER TUBI TRECCIATI CON PELATURA



PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M00120-03	5	3/16"	- 03	17,0	23,9				
M00120-04	6	1/4"	- 04	19,5	28,0				
M00120-05	8	5/16"	- 05	20,0	28,6				
M00120-06	10	3/8"	- 06	23,0	30,0				
M00120-08	12	1/2"	- 08	26,7	32,0				
M00120-10	16	5/8"	- 10	32,0	38,0				
M00120-12	19	3/4"	- 12	35,8	41,7				
M00120-16	25	1"	- 16	43,0	47,0				
M00110-20	31	1.1/4"	- 20	50,5	59,0				
M00110-24	38	1.1/2"	- 24	57,0	70,0				
M00110-32	51	1"	- 32	70,0	72,0				

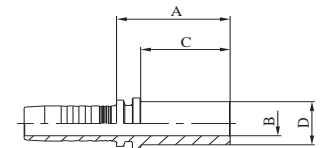
### M22010

METRIC STANDPIPE LIGHT DUTY - DIN 2353 / ISO 8434-1

ESPIGA LISA METRICA RECTA SERIE LIGERA - DIN 2353 / ISO 8434-1

BEL - DIN 2353 / ISO 8434-1

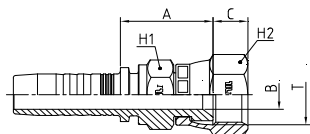
ESTREMITÀ TUBOLARE SERIE LEGGERA - DIN 2353 / ISO 8434-1



PART. REF.	HOSE BORE			PIPE	DIMENSIONS mm					
	DN	inch	Size		D	B	A	C		
M22010-03-04	5	3/16"	- 03	4	2,0	29,6	22,0			
M22010-03-06	5	3/16"	- 03	6	3,0	28,6	22,0			
M22010-04-06	6	1/4"	- 04	6	3,0	29,5	22,0			
M22010-05-08	8	5/16"	- 05	8	5,5	30,0	22,0			
M22010-05-10	8	5/16"	- 05	10	7,0	30,5	23,0			
M22010-06-10	10	3/8"	- 06	10	7,0	30,6	23,0			
M22010-06-12	10	3/8"	- 06	12	8,0	30,6	23,0			
M22010-06-15	10	3/8"	- 06	15	10,5	32,6	25,0			
M22010-08-12	12	1/2"	- 08	12	8,0	30,9	23,0			
M22010-08-15	12	1/2"	- 08	15	10,5	32,9	25,0			
M22010-08-18	12	1/2"	- 08	18	12,5	33,9	26,0			
M22010-10-18	16	5/8"	- 10	18	12,5	34,2	26,0			
M22010-10-22	16	5/8"	- 10	22	15,0	36,2	28,0			
M22010-12-18	19	3/4"	- 12	18	15,0	36,2	26,0			
M22010-12-22	19	3/4"	- 12	22	15,0	38,0	28,0			
M22010-16-28	25	1"	- 16	28	20,5	41,3	30,0			
M22010-20-35	31	1.1/4"	- 20	35	26,0	48,5	36,0			
M22010-24-42	38	1.1/2"	- 24	42	32,0	52,6	40,0			

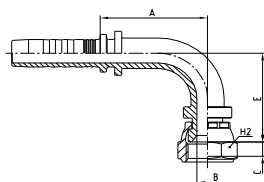
## SAE STANDARD CONNECTIONS

### M22711 M22711KR



JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON - SAE J516 / ISO 12151-5 (CRIMPED-BACK NUT)  
HEMBRA JIC ASIENTO A 37° DOBLE TUERCA - SAE J516 / ISO 12151-5 (CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H1
M22711-03-04KR	5	3/16"	- 03	7/16" - 20	4,0	20,0	9,0	12	15
M22711-04-04KR	6	1/4"	- 04	7/16" - 20	4,0	20,5	9,0	12	15
M22711-04-06KR	6	1/4"	- 04	9/16" - 18	7,0	21,6	9,5	14	17
M22711-06-06KR	10	3/8"	- 06	9/16" - 18	7,0	22,1	9,5	17	17
M22711-06-08KR	10	3/8"	- 06	3/4" - 16	9,3	21,7	10,7	19	22
M22711-08-08KR	12	1/2"	- 08	3/4" - 16	9,3	26,9	10,7	19	22
M22711-08-10KR	12	1/2"	- 08	7/8" - 14	9,3	29,6	12,5	22	25
M22711-10-10KR	16	5/8"	- 10	7/8" - 14	9,3	29,5	12,5	22	25
M22711-12-12KR	19	3/4"	- 12	1.1/16" - 12	15,0	30,1	14,1	27	32
M22711-16-16	25	1"	- 16	1.5/16" - 12	19,8	35,5	15,3	32	38
M22711-20-20	31	1.1/4"	- 20	1.5/8" - 12	26,0	42,0	16,1	41	50
M22711-24-24	38	1.1/2"	- 24	1.7/8" - 12	32,0	46,5	18,6	50	60
M22711-32-32	51	2"	- 32	2.1/2" - 12	42,0	50,5	23,5	65	75



### M22591KR

90° ELBOW JIC FEMALE SWEEP ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
HEMBRA JIC CODO DE 90° ASIENTO A 37° - SAE J516 / ISO 12151-5 (CRIMPADO DETRAS DE LA TUERCA)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	E
M22591-04-04KR	6	1/4"	- 04	7/16" - 20	4,2	28,5	9,0	26	15
M22591-06-06KR	10	3/8"	- 06	9/16" - 18	7,0	35,5	9,5	32	17
M22591-08-08KR	12	1/2"	- 08	3/4" - 16	9,3	44,0	10,7	41	22
M22591-10-10KR	16	5/8"	- 10	7/8" - 14	12,5	53,5	12,5	47	25
M22591-12-12KR	19	3/4"	- 12	1.1/16" - 12	15,0	62,0	14,1	58	32

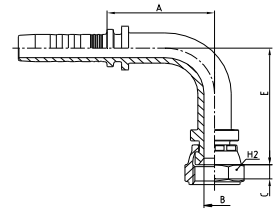
# MULTIFIT TYPE



## SAE STANDARD CONNECTIONS

### M24791KR

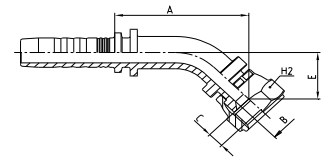
90° LONG DROP ELBOW JIC FEMALE 37° CONE SEAT - SAE J516 / ISO 12151-5 (CRIMPED-BACK NUT)  
HEMBRA JIC CODO LARGO DE 90° ASIENTO A 37° - SAE J516 / ISO 12151-5 (CRIMPADO DETRAS DE LA TUERCA)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	E
M24791-04-04KR	6	1/4"	- 04	7/16" - 20	4,2	28,5	9,0	45	15
M24791-06-06KR	10	3/8"	- 06	9/16" - 18	7,0	35,5	9,5	55	17
M24791-08-08KR	12	1/2"	- 08	3/4" - 16	9,3	44,0	10,7	64	22
M24791-10-10KR	16	5/8"	- 10	7/8" - 14	12,5	53,5	12,5	70	25
M24791-12-12KR	19	3/4"	- 12	1.1/16" - 12	15,0	62,0	14,1	96	32

### M22541KR

45° JIC FEMALE SWEPT ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (CRIMPED-BACK NUT)  
HEMBRA JIC CODO DE 45° ASIENTO A 37° - SAE J516 / ISO 12151-5 (CRIMPADO DETRAS DE LA TUERCA)

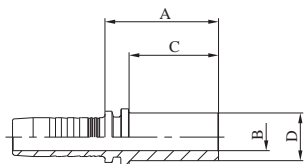


PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	E
M22541-04-04KR	6	1/4"	- 04	7/16" - 20	4,2	34,5	9,0	13,5	15
M22541-06-06KR	10	3/8"	- 06	9/16" - 18	7,0	42,0	9,5	16	17
M22541-08-08KR	12	1/2"	- 08	3/4" - 16	9,3	52,0	10,7	20	22
M22541-10-10KR	16	5/8"	- 10	7/8" - 14	12,5	62,0	12,5	22,5	25
M22541-12-12KR	19	3/4"	- 12	1.1/16" - 12	15,0	70,0	14,1	27,5	32



## DIN STANDARD CONNECTIONS

### M22110



METRIC STANDPIPE HEAVY DUTY - DIN 2353 / ISO 8434-1  
 ESPIGA LISA METRICA RECTA SERIE PESADA - DIN 2353 / ISO 8434-1  
 BES - DIN 2353 / ISO 8434-1  
 ESTREMITÀ TUBOLARE SERIE PESANTE - DIN 2353 / ISO 8434-1

PART. REF.	HOSE BORE			PIPE	DIMENSIONS mm				
	DN	inch	Size		D	B	A	C	
M22110-03-08	5	3/16"	- 03	8	3,0	30,6	24,0		
M22110-03-10	5	3/16"	- 03	10	3,0	29,5	22,0		
M22110-04-08	6	1/4"	- 04	8	4,0	31,5	24,0		
M22110-04-10	6	1/4"	- 04	10	4,0	33,5	26,0		
M22110-04-12	6	1/4"	- 04	12	7,0	33,5	26,0		
M22110-05-12	8	5/16"	- 05	12	7,0	33,5	26,0		
M22110-06-14	10	3/8"	- 06	14	8,0	36,6	29,0		
M22110-08-14	12	1/2"	- 08	14	9,3	36,9	29,0		
M22110-08-16	12	1/2"	- 08	16	10,5	37,9	30,0		
M22110-10-20	16	5/8"	- 10	20	12,5	44,2	36,0		
M22110-12-20	19	3/4"	- 12	20	15,0	46,0	36,0		
M22110-12-25	19	3/4"	- 12	25	15,0	50,0	40,0		
M22110-16-25	25	1"	- 16	25	15,0	51,3	40,0		
M22110-16-30	25	1"	- 16	30	20,5	55,3	44,0		
M22110-16-38	25	1"	- 16	38	26,0	61,3	50,0		
M22110-20-30	31	1.1/4"	- 20	30	20,5	56,5	44,0		
M22110-20-38	31	1.1/4"	- 20	38	26,0	62,5	50,0		
M22110-24-38	38	1.1/2"	- 24	38	26,0	62,6	50,0		

## DIN STANDARD CONNECTIONS

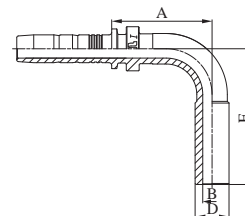
### M22090

90° METRIC STANDPIPE LIGHT DUTY - DIN 2353 / ISO 8434-1

ESPIGA LISA METRICA SERIE LIGERA CODO DE 90° - DIN 2353 / ISO 8434-1

BEL 90° BOGEN - DIN 2353 / ISO 8434-1

ESTREMITÀ TUBOLARE 90° SERIE LEGGERA - DIN 2353 / ISO 8434-1



PART. REF.	HOSE BORE			PIPE	DIMENSIONS mm					
	DN	inch	Size		D	B	A	E		
M22090-03-06	5	3/16"	- 03	6	3,0	22,5		34,0		
M22090-04-06	6	1/4"	- 04	6	3,0	23,0		34,0		
M22090-05-10	8	5/16"	- 05	10	7,0	29,5		40,0		
M22090-06-10	10	3/8"	- 06	10	7,0	34,0		42,5		
M22090-06-12	10	3/8"	- 06	12	8,0	34,0		45,0		
M22090-08-12	12	1/2"	- 08	12	8,0	34,5		45,0		
M22090-08-15	12	1/2"	- 08	15	10,5	42,0		52,0		
M22090-08-18	12	1/2"	- 08	18	12,5	42,0		55,0		
M22090-10-18	16	5/8"	- 10	18	12,5	49,0		59,0		
M22090-10-22	16	5/8"	- 10	22	15,0	53,5		63,0		
M22090-12-22	19	3/4"	- 12	22	15,0	54,5		63,0		
M22090-16-28	25	1"	- 16	28	19,8	67,5		75,0		
M22090-20-35	31	1.1/4"	- 20	35	26,0	80,5		94,0		

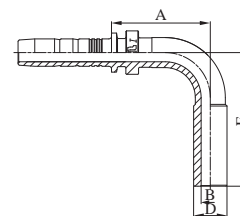
### M22190

90° METRIC STANDPIPE HEAVY DUTY - DIN 2353 / ISO 8434-1

ESPIGA LISA METRICA SERIE PESADA CODO DE 90° - DIN 2353 / ISO 8434-1

BES 90° BOGEN - DIN 2353 / ISO 8434-1

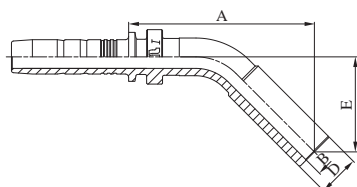
ESTREMITÀ TUBOLARE 90° SERIE PESANTE - DIN 2353 / ISO 8434-1



PART. REF.	HOSE BORE			PIPE	DIMENSIONS mm					
	DN	inch	Size		D	B	A	E		
M22190-04-08	6	1/4"	- 04	8	4,0	27,0		38,0		
M22190-04-10	6	1/4"	- 04	10	6,0	27,0		41,0		
M22190-04-12	6	1/4"	- 04	12	7,0	27,0		44,0		
M22190-05-12	8	5/16"	- 05	12	7,0	30,5		44,0		
M22190-06-14	10	3/8"	- 06	14	9,3	35,0		51,0		
M22190-08-14	12	1/2"	- 08	14	9,3	42,0		53,5		
M22190-08-16	12	1/2"	- 08	16	10,5	43,0		55,0		
M22190-10-20	16	5/8"	- 10	20	12,5	49,0		66,5		
M22190-12-20	19	3/4"	- 12	20	15,0	54,5		69,0		
M22190-12-25	19	3/4"	- 12	25	15,0	57,5		75,0		
M22190-16-25	25	1"	- 16	25	15,0	61,5		76,5		
M22190-16-30	25	1"	- 16	30	19,8	69,5		87,0		

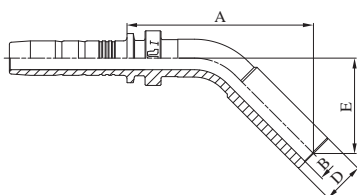
## DIN STANDARD CONNECTIONS

### M22040



45° METRIC STANDPIPE LIGHT DUTY - DIN 2353 / ISO 8434-1  
 EPIGA LISA METRICA SERIE LIGERA CODO DE 45° - DIN 2353 / ISO 8434-1  
 BEL 45° BOGEN - DIN 2353 / ISO 8434-1  
 ESTREMITÀ TUBOLARE 45° SERIE LEGGERA - DIN 2353 / ISO 8434-1

PART. REF.	HOSE BORE			PIPE	DIMENSIONS mm					
	DN	inch	Size		D	B	A	E		
M22040-03-06	5	3/16"	- 03	6	3,0	37,5		20,5		
M22040-04-06	6	1/4"	- 04	6	3,0	38,0		20,5		
M22040-05-10	8	5/16"	- 05	10	7,0	44,5		22,5		
M22040-06-10	10	3/8"	- 06	10	7,0	47,5		23,0		
M22040-06-12	10	3/8"	- 06	12	8,0	49,5		25,0		
M22040-08-15	12	1/2"	- 08	15	10,5	58,0		28,0		
M22040-10-18	16	5/8"	- 10	18	12,5	63,5		30,5		
M22040-12-22	19	3/4"	- 12	22	15,0	69,0		32,0		
M22040-16-28	25	1"	- 16	28	19,8	81,5		37,0		



### M22140

45° METRIC STANDPIPE HEAVY DUTY - DIN 2353 / ISO 8434-1  
 EPIGA LISA METRICA SERIE PESADA CODO DE 45° - DIN 2353 / ISO 8434-1  
 BES 45° BOGEN - DIN 2353 / ISO 8434-1  
 ESTREMITÀ TUBOLARE 45° SERIE PESANTE - DIN 2353 / ISO 8434-1

PART. REF.	HOSE BORE			PIPE	DIMENSIONS mm					
	DN	inch	Size		D	B	A	E		
M22140-04-08	6	1/4"	- 04	8	4,0	42,0		22,0		
M22140-04-10	6	1/4"	- 04	10	6,0	44,0		24,0		
M22140-06-14	10	3/8"	- 06	14	9,3	54,5		29,0		
M22140-08-16	12	1/2"	- 08	16	10,5	61,0		30,0		
M22140-10-20	16	5/8"	- 10	20	12,5	69,0		36,0		
M22140-12-25	19	3/4"	- 12	25	15,0	80,5		40,5		
M22140-16-25	25	1"	- 16	25	15,0	82,0		41,0		

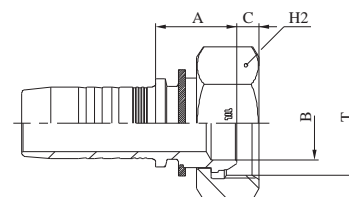
# MULTIFIT TYPE



## DIN STANDARD CONNECTIONS

### M21013

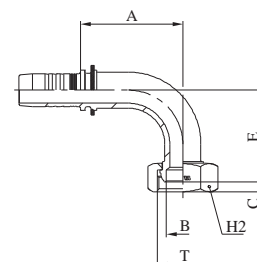
METRIC FEMALE 60° CONE - DIN 20078/3863  
 HEMBRA METRICA ASIEN TO A 60° - DIN 20078/3863  
 DKM 60° KONUS - DIN 20078/3863  
 FEMMINA METRICA CONO 60° - DIN 20078/3863



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C		H <sub>2</sub>
M21013-10-30	16	5/8"	- 10	M 30x1,5	20,0	20,0	8,1			36
M21013-12-30	19	3/4"	- 12	M 30x1,5	20,0	21,0	8,1			36
M21013-16-38	25	1"	- 16	M 38x1,5	26,0	22,8	7,6			46
M21013-20-45	31	1.1/4"	- 20	M 45x1,5	33,0	23,5	8,1			50
M21013-24-52	38	1.1/2"	- 24	M 52x1,5	40,0	25,0	8,1			60

### M21093

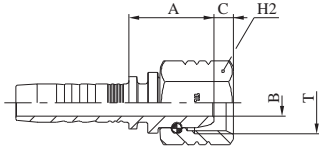
90° METRIC FEMALE SWEPT ELBOW 60° CONE - DIN 20078/3863  
 HEMBRA METRICA CODO DE 90° ASIEN TO A 60° - DIN 20078/3863  
 DKM 90° BOGEN 60° KONUS - DIN 20078/3863  
 FEMMINA METRICA 90° CONO 60° - DIN 20078/3863



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M21093-12-30	19	3/4"	- 12	M 30x1,5	20,0	61,5	8,1	54,5		36
M21093-16-38	25	1"	- 16	M 38x1,5	26,0	76,5	7,6	63,0		46
M21093-20-45	31	1.1/4"	- 20	M 45x1,5	33,0	92,0	8,1	81,0		50

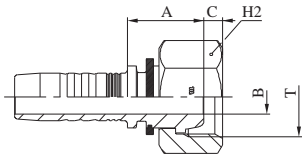
## DIN STANDARD CONNECTIONS

### M21312



METRIC FEMALE MULTISEAL - DIN 20078/3868 (THRUST-WIRE NUT)  
 HEMBRA METRICA ASIEN TO UNIVERSAL - DIN 20078/3868 (TUERCA CON SEGURO)  
 DKL UNIVERSALKONUS - DIN 20078/3868 (GESTIFTETE MUTTER)  
 FEMMINA METRICA CONO UNIVERSALE - DIN 20078/3868 (DADO SPINATO)

### M21313



METRIC FEMALE MULTISEAL - DIN 20078/3868 (SLIP-ON NUT)  
 HEMBRA METRICA ASIEN TO UNIVERSAL - DIN 20078/3868 (TUERCA LIBRE)  
 DKL UNIVERSALKONUS - DIN 20078/3868 (HINTERLEGTE MUTTER)  
 FEMMINA METRICA CONO UNIVERSALE - DIN 20078/3868 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M21313-03-12	5	3/16"	- 03	M 12x1,5	6	3,0	18,6	3,7		14
M21312-04-12	6	1/4"	- 04	M 12x1,5	6	4,0	19,5	4,0		17
M21313-04-14	6	1/4"	- 04	M 14x1,5	8	4,0	19,5	3,8		17
M21313-04-16	6	1/4"	- 04	M 16x1,5	10	4,0	19,5	4,0		19
M21313-05-16	8	5/16"	- 05	M 16x1,5	10	5,5	19,5	4,0		19
M21313-05-18	8	5/16"	- 05	M 18x1,5	12	5,5	19,6	4,0		22
M21312-06-14	10	3/8"	- 06	M 14x1,5	8	4,0	19,5	3,9		17
M21312-06-16	10	3/8"	- 06	M 16x1,5	10	7,0	21,6	5,0		19
M21313-06-18	10	3/8"	- 06	M 18x1,5	12	7,0	20,1	4,0		22
M21313-06-22	10	3/8"	- 06	M 22x1,5	15	7,0	21,1	5,2		27
M21312-08-18	12	1/2"	- 08	M 18x1,5	12	7,0	23,0	5,9		22
M21313-08-22	12	1/2"	- 08	M 22x1,5	15	9,3	21,5	5,2		27
M21313-10-26	16	5/8"	- 10	M 26x1,5	18	12,5	22,1	5,5		32

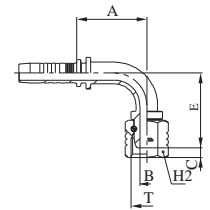
# MULTIFIT TYPE



## DIN STANDARD CONNECTIONS

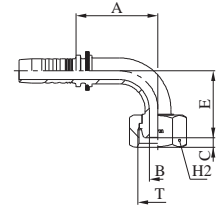
### M21392

90° METRIC FEMALE SWEPT ELBOW MULTISEAL DIN 20078/3868 (THRUST-WIRE NUT)  
 HEMBRA METRICA CODO DE 90° ASIENTO UNIVERSAL DIN 20078/3868 (TUERCA CON SEGURO)  
 DKL UNIVERSALKONUS 90° BOGEN - DIN 20078/3868 (GESTIFTETE MUTTER)  
 FEMMINA METRICA 90° CONO UNIVERSALE - DIN 20078/3868 (DADO SPINATO)



### M21393

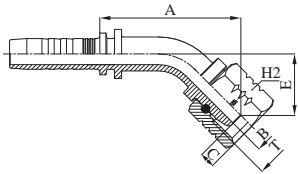
90° METRIC FEMALE SWEPT ELBOW MULTISEAL DIN 20078/3868 (SLIP-ON NUT)  
 HEMBRA METRICA CODO DE 90° ASIENTO UNIVERSAL DIN 20078/3868 (TUERCA LIBRE)  
 DKL UNIVERSALKONUS 90° BOGEN - DIN 20078/3868 (HINTERLEGTE MUTTER)  
 FEMMINA METRICA 90° CONO UNIVERSALE - DIN 20078/3868 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M21393-03-12	5	3/16"	- 03	M 12x1,5	6	3,0	26,0	3,7	27,0	14
M21392-04-12	6	1/4"	- 04	M 12x1,5	6	4,0	28,0	4,0	30,5	17
M21393-04-14	6	1/4"	- 04	M 14x1,5	8	4,0	29,5	3,8	29,5	17
M21393-04-16	6	1/4"	- 04	M 16x1,5	10	4,0	29,5	4,0	29,5	19
M21393-05-16	8	5/16"	- 05	M 16x1,5	10	5,5	32,0	4,0	29,0	19
M21393-05-18	8	5/16"	- 05	M 18x1,5	12	7,0	32,0	4,0	30,5	22
M21392-06-16	10	3/8"	- 06	M 16x1,5	10	7,0	35,5	5,0	38,0	19
M21393-06-18	10	3/8"	- 06	M 18x1,5	12	7,0	36,5	4,0	31,5	22
M21393-06-22	10	3/8"	- 06	M 22x1,5	15	7,0	36,5	5,2	32,0	27
M21393-08-22	12	1/2"	- 08	M 22x1,5	15	9,3	45,0	5,2	36,5	27
M21393-10-26	16	5/8"	- 10	M 26x1,5	18	12,5	51,5	5,5	50,0	32
M21392-12-26	19	3/4"	- 12	M 26x1,5	18	12,5	61,5	3,6	63,0	32

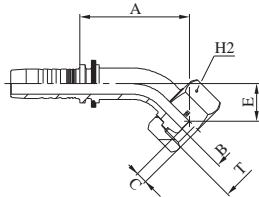
## DIN STANDARD CONNECTIONS

### M21342



45° METRIC FEMALE SWEPT ELBOW MULTISEAL DIN 20078/3868 (THRUST-WIRE NUT)  
 HEMBRA METRICA CODO DE 45° ASIENTO UNIVERSAL DIN 20078/3868 (TUERCA CON SEGURO)  
 DKL UNIVERSALKONUS 45° BOGEN - DIN 20078/3868 (GESTIFTETE MUTTER)  
 FEMMINA METRICA 45° CONO UNIVERSALE - DIN 20078/3868 (DADO SPINATO)

### M21343



45° METRIC FEMALE SWEPT ELBOW MULTISEAL DIN 20078/3868 (SLIP-ON NUT)  
 HEMBRA METRICA CODO DE 45° ASIENTO UNIVERSAL DIN 20078/3868 (TUERCA LIBRE)  
 DKL UNIVERSALKONUS 45° BOGEN - DIN 20078/3868 (HINTERLEGTE MUTTER)  
 FEMMINA METRICA 45° CONO UNIVERSALE - DIN 20078/3868 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E
M21343-04-14	6	1/4"	- 04	M 14x1,5	8	4,0	36,5	3,8	15,0		17
M21343-04-16	6	1/4"	- 04	M 16x1,5	10	4,0	36,5	4,0	15,0		19
M21342-05-14	8	5/16"	- 05	M 14x1,5	8	4,0	40,0	3,9	19,5		17
M21343-05-16	8	5/16"	- 05	M 16x1,5	10	5,5	39,0	4,0	15,0		19
M21342-06-16	10	3/8"	- 06	M 16x1,5	10	4,0	46,0	5,0	20,0		19
M21343-06-18	10	3/8"	- 06	M 18x1,5	12	7,0	42,0	4,0	15,5		22
M21343-06-22	10	3/8"	- 06	M 22x1,5	15	7,0	42,5	5,2	15,5		27
M21343-08-22	12	1/2"	- 08	M 22x1,5	15	9,3	49,5	5,2	17,0		27
M21343-10-26	16	5/8"	- 10	M 26x1,5	18	12,5	60,0	5,5	24,0		32



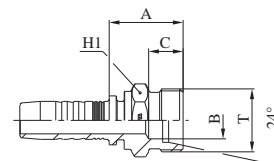
# MULTIFIT TYPE



## DIN STANDARD CONNECTIONS

### M11110

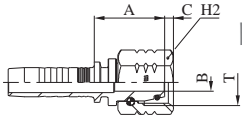
METRIC MALE 24° CONE SEAT LIGHT DUTY - DIN 20066 / ISO 12151-2  
 MACHO METRICO ASIENTO A 24° SERIE LIGERA DIN 20066 / ISO 12151-2  
 CEL - DIN 20066 / ISO 12151-2  
 MASCHIO METRICO 24° SERIE LEGGERA - DIN 20066 / ISO 12151-2



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M11110-03-12	5	3/16"	- 03	M 12x1,5	6	3,0	21,0	10,0		14	
M11110-04-12	6	1/4"	- 04	M 12x1,5	6	4,0	21,5	10,0		14	
M11110-04-14	6	1/4"	- 04	M 14x1,5	8	4,0	21,5	10,0		14	
M11110-04-16	6	1/4"	- 04	M 16x1,5	10	7,0	23,5	11,0		17	
M11110-04-18	6	1/4"	- 04	M 18x1,5	12	9,0	23,5	11,0		19	
M11110-05-16	8	5/16"	- 05	M 16x1,5	10	7,0	24,0	11,0		17	
M11110-05-18	8	5/16"	- 05	M 18x1,5	12	9,0	24,0	11,0		19	
M11110-06-16	10	3/8"	- 06	M 16x1,5	10	7,0	24,1	11,0		17	
M11110-06-18	10	3/8"	- 06	M 18x1,5	12	9,0	24,6	11,0		19	
M11110-06-22	10	3/8"	- 06	M 22x1,5	15	10,0	25,6	12,0		22	
M11110-06-26	10	3/8"	- 06	M 26x1,5	18	12,5	26,5	12,0		27	
M11110-08-16	12	1/2"	- 08	M 16x1,5	10	7,0	24,5	11,0		22	
M11110-08-18	12	1/2"	- 08	M 18x1,5	12	9,3	24,5	11,0		22	
M11110-08-22	12	1/2"	- 08	M 22x1,5	15	10,0	25,6	12,0		22	
M11110-08-26	12	1/2"	- 08	M 26x1,5	18	12,5	26,4	12,0		27	
M11110-10-22	16	5/8"	- 10	M 22x1,5	15	10,0	25,5	12,0		22	
M11110-10-26	16	5/8"	- 10	M 26x1,5	18	12,5	26,7	12,0		27	
M11110-10-30	16	5/8"	- 10	M 30x2	22	15,0	28,5	14,0		30	
M11110-12-26	19	3/4"	- 12	M 26x1,5	18	15,0	28,5	12,0		27	
M11110-12-30	19	3/4"	- 12	M 30x2	22	15,0	30,0	14,0		30	
M11110-12-36	19	3/4"	- 12	M 36x2	28	19,8	31,2	14,0		36	
M11110-16-36	25	1"	- 16	M 36x2	28	20,0	32,3	14,0		36	
M11110-20-45	31	1.1/4"	- 20	M 45x2	35	26,0	40,5	16,0		46	
M11110-24-52	38	1.1/2"	- 24	M 52x2	42	32,0	42,6	16,0		55	

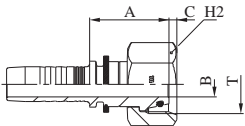
## DIN STANDARD CONNECTIONS

### M21512



**METRIC O-RING FEMALE 24° CONE LIGHT DUTY - DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)**  
 HEMBRA METRICA CON O-RING ASIEN TO A 24° SERIE LIGERA DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)  
 DKOL - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)  
 FEMMINA METRICA CONO 24° O-RING SERIE LEGGERA DIN 20066 / ISO 12151-2 (DADO SPINATO)

### M21513



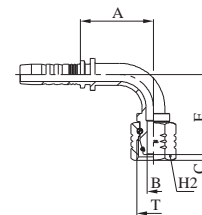
**METRIC O-RING FEMALE 24° CONE LIGHT DUTY - DIN 20066 / ISO 12151-2 (SLIP-ON NUT)**  
 HEMBRA METRICA CON O-RING ASIEN TO A 24° SERIE LIGERA DIN 20066 / ISO 12151-2 (TUERCA LIBRE)  
 DKOL - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)  
 FEMMINA METRICA CONO 24° O-RING SERIE LEGGERA DIN 20066 / ISO 12151-2 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M21513-03-12	5	3/16"	- 03	M 12x1,5	6	3,0	21,9	1,7		14
M21513-03-14	5	3/16"	- 03	M 14x1,5	8	4,5	24,5	1,7		17
M21512-04-12	6	1/4"	- 04	M 12x1,5	6	3,0	21,1	2,2		17
M21513-04-14	6	1/4"	- 04	M 14x1,5	8	4,0	22,1	1,7		17
M21513-04-16	6	1/4"	- 04	M 16x1,5	10	6,0	22,6	2,1		19
M21513-04-18	6	1/4"	- 04	M 18x1,5	12	7,0	21,9	2,3		22
M21512-05-14	8	5/16"	- 05	M 14x1,5	8	4,0	20,0	1,7		17
M21513-05-16	8	5/16"	- 05	M 16x1,5	10	6,0	22,6	2,1		19
M21513-05-18	8	5/16"	- 05	M 18x1,5	12	7,0	21,9	2,3		22
M21512-06-16	10	3/8"	- 06	M 16x1,5	10	6,0	23,1	3,0		19
M21513-06-18	10	3/8"	- 06	M 18x1,5	12	7,0	22,4	2,3		22
M21513-06-22	10	3/8"	- 06	M 22x1,5	15	9,3	25,0	2,3		27
M21512-08-18	12	1/2"	- 08	M 18x1,5	12	7,0	29,0	2,9		22
M21513-08-22	12	1/2"	- 08	M 22x1,5	15	9,3	25,4	2,3		27
M21513-08-26	12	1/2"	- 08	M 26x1,5	18	12,5	26,1	2,5		32
M21512-10-18	16	5/8"	- 10	M 18x1,5	12	7,0	29,0	2,9		22
M21512-10-22	16	5/8"	- 10	M 22x1,5	15	9,5	26,5	2,4		27
M21513-10-26	16	5/8"	- 10	M 26x1,5	18	12,5	26,0	2,5		32
M21513-10-30	16	5/8"	- 10	M 30x2	22	15,0	34,0	3,6		36
M21513-10-36	16	5/8"	- 10	M 36x2	28	20,0	30,5	3,8		41
M21512-12-26	19	3/4"	- 12	M 26x1,5	18	12,5	31,1	3,6		32
M21513-12-30	19	3/4"	- 12	M 30x2	22	15,0	28,2	3,6		36
M21513-12-36	19	3/4"	- 12	M 36x2	28	20,0	28,3	3,8		41
M21512-16-30	25	1"	- 16	M 30x2	22	15,0	34,0	3,6		36
M21513-16-36	25	1"	- 16	M 36x2	28	19,8	29,4	3,8		41
M21513-16-45	25	1"	- 16	M 45x2	35	26,0	39,0	5,1		50
M21512-20-36	31	1.1/4"	- 20	M 36x2	28	19,8	35,5	5,0		41
M21513-20-45	31	1.1/4"	- 20	M 45x2	35	26,0	32,9	5,1		50
M21513-20-52	31	1.1/4"	- 20	M 52x2	42	32,0	32,5	5,1		60
M21512-24-45	38	1.1/2"	- 24	M 45x2	35	26,0	42,5	5,8		50
M21513-24-52	38	1.1/2"	- 24	M 52x2	42	32,0	32,8	5,1		60

## DIN STANDARD CONNECTIONS

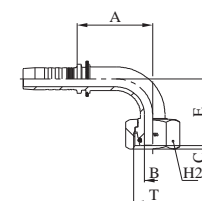
### M21592

90° METRIC O-RING FEMALE SWEEP ELBOW 24° CONE LIGHT DUTY  
 DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)  
 HEMBRA METRICA CON O-RING CODO DE 90° ASIENTO A 24° SERIE LIGERA  
 DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)  
 DKOL 90° BOGEN - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)  
 FEMMINA METRICA 90° CONO 24° O-RING SERIE LEGGERA DIN 20066 / ISO 12151-2 (DADO SPINATO)



### M21593

90° METRIC O-RING FEMALE SWEEP ELBOW 24° CONE LIGHT DUTY  
 DIN 20066 / ISO 12151-2 (SLIP-ON NUT)  
 HEMBRA METRICA CON O-RING CODO DE 90° ASIENTO A 24° SERIE LIGERA  
 DIN 20066 / ISO 12151-2 (TUERCA LIBRE)  
 DKOL 90° BOGEN - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)  
 FEMMINA METRICA 90° CONO 24° O-RING SERIE LEGGERA DIN 20066 / ISO 12151-2 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E
M21593-03-12	5	3/16"	- 03	M 12x1,5	6	3,0	26,0	1,7	30,0		14
M21593-03-14	5	3/16"	- 03	M 14x1,5	8	4,0	29,0	1,7	31,5		17
M21592-04-12	6	1/4"	- 04	M 12x1,5	6	3,0	28,5	2,2	32,5		17
M21593-04-14	6	1/4"	- 04	M 14x1,5	8	4,0	29,5	1,7	31,5		17
M21593-04-16	6	1/4"	- 04	M 16x1,5	10	6,0	29,5	2,1	32,0		19
M21593-04-18	6	1/4"	- 04	M 18x1,5	12	7,0	29,5	2,3	33,0		22
M21592-05-14	8	5/16"	- 05	M 14x1,5	8	4,0	31,0	1,7	33,0		17
M21593-05-16	8	5/16"	- 05	M 16x1,5	10	6,0	32,0	2,1	32,5		19
M21593-05-18	8	5/16"	- 05	M 18x1,5	12	7,0	32,0	2,3	32,5		22
M21593-05-22	8	5/16"	- 05	M 22x1,5	15	9,3	36,0	2,3	35,0		27
M21592-06-16	10	3/8"	- 06	M 16x1,5	10	6,0	35,5	3,0	40,0		19
M21593-06-18	10	3/8"	- 06	M 18x1,5	12	7,0	36,5	2,3	33,5		22
M21593-06-22	10	3/8"	- 06	M 22x1,5	15	9,3	36,5	2,3	35,0		27
M21592-08-18	12	1/2"	- 08	M 18x1,5	12	7,0	44,0	2,9	48,0		22
M21593-08-22	12	1/2"	- 08	M 22x1,5	15	9,3	45,0	2,3	39,5		27
M21593-08-26	12	1/2"	- 08	M 26x1,5	18	12,5	45,0	2,5	40,0		32
M21592-10-22	16	5/8"	- 10	M 22x1,5	15	9,3	53,5	3,0	57,5		27
M21593-10-26	16	5/8"	- 10	M 26x1,5	18	12,5	51,5	2,5	53,0		32
M21593-10-30	16	5/8"	- 10	M 30x2	22	15,0	51,5	3,6	54,0		36
M21592-12-26	19	3/4"	- 12	M 26x1,5	18	12,5	61,5	3,6	63,0		32
M21593-12-30	19	3/4"	- 12	M 30x2	22	15,0	61,5	3,6	59,0		36
M21593-12-36	19	3/4"	- 12	M 36x2	28	19,8	61,5	3,8	61,0		41
M21592-16-30	25	1"	- 16	M 30x2	22	15,0	79,5	3,6	80,5		36
M21593-16-36	25	1"	- 16	M 36x2	28	19,8	76,5	3,8	69,5		41
M21593-16-45	25	1"	- 16	M 45x2	35	26,0	79,0	5,1	72,0		50
M21592-20-36	31	1.1/4"	- 20	M 36x2	28	19,8	93,5	5,0	92,0		41
M21593-20-45	31	1.1/4"	- 20	M 45x2	35	26,0	93,5	5,1	81,0		50
M21592-24-36	38	1.1/2"	- 24	M 36x2	28	19,8	97,0	5,0	68,0		41
M21593-24-52	38	1.1/2"	- 24	M 52x2	42	32,0	107,5	5,1	98,0		60

## DIN STANDARD CONNECTIONS

### M21542

45° METRIC O-RING FEMALE SWEPT ELBOW 24° CONE LIGHT DUTY

DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)

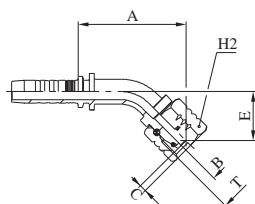
HEMBRA METRICA CON O-RING CODO DE 45° ASIEN TO A 24° SERIE LIGERA

DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)

DKOL 45° BOGEN - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)

FEMMINA METRICA 45° CONO 24° O-RING SERIE LEGGERA

DIN 20066 / ISO 12151-2 (DADO SPINATO)



### M21543

45° METRIC O-RING FEMALE SWEPT ELBOW 24° CONE LIGHT DUTY

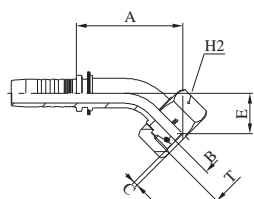
DIN 20066 / ISO 12151-2 (SLIP-ON NUT)

HEMBRA METRICA CON O-RING CODO DE 45° ASIEN TO A 24° SERIE LIGERA

DIN 20066 / ISO 12151-2 (TUERCA LIBRE)

DKOL 45° BOGEN - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)

FEMMINA METRICA 45° CONO 24° O-RING SERIE LEGGERA DIN 20066 / ISO 12151-2 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E

PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E
M21543-03-12	5	3/16"	- 03	M 12x1,5	6	3,0	35,0	1,7	16,0		14
M21542-04-12	6	1/4"	- 04	M 12x1,5	6	3,0	39,0	2,2	18,0		17
M21543-04-14	6	1/4"	- 04	M 14x1,5	8	4,0	38,0	1,7	16,5		17
M21543-04-16	6	1/4"	- 04	M 16x1,5	10	6,0	38,0	2,1	17,0		19
M21543-04-18	6	1/4"	- 04	M 18x1,5	12	7,0	38,5	2,3	17,5		22
M21543-05-16	8	5/16"	- 05	M 16x1,5	10	6,0	41,5	2,1	17,5		19
M21543-05-18	8	5/16"	- 05	M 18x1,5	12	7,0	41,5	2,3	17,0		22
M21542-06-16	10	3/8"	- 06	M 16x1,5	10	6,0	47,5	3,0	21,5		19
M21543-06-18	10	3/8"	- 06	M 18x1,5	12	7,0	43,5	2,3	16,5		22
M21543-06-22	10	3/8"	- 06	M 22x1,5	15	9,3	45,0	2,3	18,0		27
M21542-08-18	12	1/2"	- 08	M 18x1,5	12	7,0	56,5	2,9	25,0		22
M21543-08-22	12	1/2"	- 08	M 22x1,5	15	9,3	52,0	2,3	19,0		27
M21543-08-26	12	1/2"	- 08	M 26x1,5	18	12,5	52,5	2,5	19,5		32
M21542-10-22	16	5/8"	- 10	M 22x1,5	15	9,3	65,5	2,4	29,0		27
M21543-10-26	16	5/8"	- 10	M 26x1,5	18	12,5	62,0	2,5	26,5		32
M21542-12-26	19	3/4"	- 12	M 26x1,5	18	12,5	73,0	3,6	31,0		32
M21543-12-30	19	3/4"	- 12	M 30x2	22	15,0	71,0	3,6	28,5		36
M21543-12-36	19	3/4"	- 12	M 36x2	28	19,8	72,0	3,8	30,0		41
M21543-16-36	25	1"	- 16	M 36x2	28	19,8	85,0	3,8	32,0		41
M21542-20-36	31	1.1/4"	- 20	M 36x2	28	19,8	107,5	5,0	44,0		41
M21543-20-45	31	1.1/4"	- 20	M 45x2	35	26,0	99,5	5,1	36,0		50
M21542-24-36	38	1.1/2"	- 24	M 36x2	28	19,8	117,5	5,0	37,0		41
M21543-24-52	38	1.1/2"	- 24	M 52x2	42	32,0	117,0	5,1	44,5		60

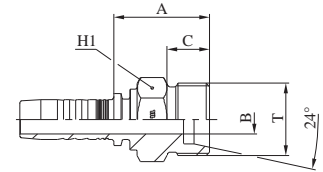
# MULTIFIT TYPE



## DIN STANDARD CONNECTIONS

### M11210

METRIC MALE 24° CONE SEAT HEAVY DUTY - DIN 20066 / ISO 12151-2  
 MACHO METRICO ASIEN TO A 24° - SERIE PESADA DIN 20066 / ISO 12151-2  
 CES - DIN 20066 / ISO 12151-2  
 MASCHIO METRICO 24° - SERIE PESANTE DIN 20066 / ISO 12151-2

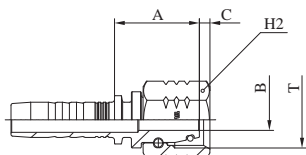


PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M11210-04-16	6	1/4"	- 04	M 16x1,5	8	4,0	25,5	12,0		17
M11210-04-18	6	1/4"	- 04	M 18x1,5	10	6,0	26,5	12,0		19
M11210-04-20	6	1/4"	- 04	M 20x1,5	12	7,0	29,0	12,0		22
M11210-05-16	8	5/16"	- 05	M 16x1,5	8	5,5	26,0	12,0		17
M11210-05-18	8	5/16"	- 05	M 18x1,5	10	7,0	26,5	12,0		19
M11210-05-20	8	5/16"	- 05	M 20x1,5	12	7,0	29,0	12,0		22
M11210-06-18	10	3/8"	- 06	M 18x1,5	10	7,0	27,1	12,0		19
M11210-06-20	10	3/8"	- 06	M 20x1,5	12	7,0	29,1	12,0		22
M11210-06-22	10	3/8"	- 06	M 22x1,5	14	8,0	31,1	14,0		22
M11210-08-22	12	1/2"	- 08	M 22x1,5	14	9,3	31,5	14,0		22
M11210-08-24	12	1/2"	- 08	M 24x1,5	16	9,3	31,6	14,0		24
M11210-10-30	16	5/8"	- 10	M 30x2	20	15,0	35,7	16,0		30
M11210-10-36	16	5/8"	- 10	M 36x2	25	19,8	40,0	18,0		36
M11210-12-30	19	3/4"	- 12	M 30x2	20	15,0	37,0	16,0		30
M11210-12-36	19	3/4"	- 12	M 36x2	25	19,8	41,0	18,0		36
M11210-16-36	25	1"	- 16	M 36x2	25	19,8	42,3	18,0		36
M11210-16-42	25	1"	- 16	M 42x2	30	25,0	44,3	20,0		46
M11210-20-52	31	1.1/4"	- 20	M 52x2	38	30,0	50,5	22,0		55

## DIN STANDARD CONNECTIONS

### M21612

METRIC O-RING FEMALE 24° CONE HEAVY DUTY  
 DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)  
 HEMBRA METRICA CON O-RING ASIEN TO A 24° SERIE PESADA  
 DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)  
 DKOS - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)  
 FEMMINA METRICA CONO 24° O-RING SERIE PESANTE  
 DIN 20066 / ISO 12151-2 (DADO SPINATO)



### M21613

METRIC O-RING FEMALE 24° CONE HEAVY DUTY - DIN 20066 / ISO 12151-2 (SLIP-ON NUT)  
 HEMBRA METRICA CON O-RING ASIEN TO A 24° SERIE PESADA  
 DIN 20066 / ISO 12151-2 (TUERCA LIBRE)  
 DKOS - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)  
 FEMMINA METRICA CONO 24° O-RING SERIE PESANTE  
 DIN 20066 / ISO 12151-2 (DADO PASSANTE)



PART. REF.	HOSE BORE	THREAD	PIPE	DIMENSIONS mm						
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	DN	inch	Size	T	mm	B	A	C		H <sub>2</sub>
M21613-03-14	5	3/16"	- 03	M 14x1,5	6	2,5	25,5	3,5		17
M21613-03-16	5	3/16"	- 03	M 16x1,5	8	3,2	21,9	3,4		19
M21613-04-14	6	1/4"	- 04	M 14x1,5	6	3,0	23,5	3,5		17
M21613-04-16	6	1/4"	- 04	M 16x1,5	8	4,0	22,2	3,4		19
M21613-04-18	6	1/4"	- 04	M 18x1,5	10	4,0	28,0	3,0		22
M21613-04-20	6	1/4"	04	M 20x1,5	12	7,0	25,7	2,5		24
M21613-05-18	8	5/16"	- 05	M 18x1,5	10	5,5	28,0	3,0		22
M21613-05-20	8	5/16"	- 05	M 20x1,5	12	5,5	24,8	2,5		24
M21613-06-18	10	3/8"	- 06	M 18x1,5	10	7,0	28,5	3,0		22
M21613-06-20	10	3/8"	- 06	M 20x1,5	12	7,0	25,3	2,5		24
M21613-06-22	10	3/8"	- 06	M 22x1,5	14	7,0	32,6	3,0		27
M21613-06-24	10	3/8"	- 06	M 24x1,5	16	7,0	32,0	3,0		30
M21612-08-20	12	1/2"	- 08	M 20x1,5	12	7,0	29,0	2,5		24
M21612-08-22	12	1/2"	- 08	M 22x1,5	14	7,0	27,5	2,5		27
M21613-08-24	12	1/2"	- 08	M 24x1,5	16	9,3	26,7	3,0		30
M21613-08-30	12	1/2"	- 08	M 30x2	20	12,5	37,0	3,5		36
M21612-10-24	16	5/8"	- 10	M 24x1,5	16	9,3	29,5	4,0		30
M21613-10-30	16	5/8"	- 10	M 30x2	20	12,5	30,6	3,5		36
M21613-10-36	16	5/8"	- 10	M 36x2	25	15,0	40,0	4,5		41
M21612-12-24	19	3/4"	- 12	M 24x1,5	16	9,3	30,5	4,0		30
M21612-12-30	19	3/4"	- 12	M 30x2	20	12,5	33,5	2,2		36
M21613-12-36	19	3/4"	- 12	M 36x2	25	15,0	34,1	4,5		41
M21612-16-30	25	1"	- 16	M 30x2	20	12,5	34,5	2,2		36
M21612-16-36	25	1"	- 16	M 36x2	25	15,0	35,3	1,7		41
M21613-16-42	25	1"	- 16	M 42x2	30	19,8	35,4	6,3		50
M21613-20-52	31	1.1/4"	- 20	M 52x2	38	26,0	37,5	8,0		60
M21613-24-52	38	1.1/2"	- 24	M 52x2	38	26,0	49,6	8,0		60



## DIN STANDARD CONNECTIONS

### M21692

90° METRIC O-RING FEMALE SWEPT ELBOW 24° CONE HEAVY DUTY

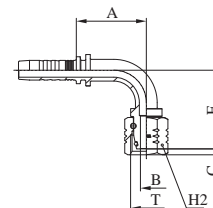
DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)

HEMBRA METRICA CON O-RING CODO DE 90° ASIENTO A 24° SERIE PESADA

DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)

DKOS 90° BOGEN - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)

FEMMINA METRICA 90° CONO 24° O-RING SERIE PESANTE DIN 20066 / ISO 12151-2 (DADO SPINATO)



### M21693

90° METRIC O-RING FEMALE SWEPT ELBOW 24° CONE HEAVY DUTY

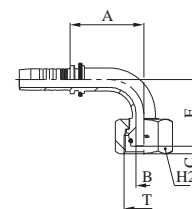
DIN 20066 / ISO 12151-2 (SLIP-ON NUT)

HEMBRA METRICA CON O-RING CODO DE 90° ASIENTO A 24° SERIE PESADA

DIN 20066 / ISO 12151-2 (TUERCA LIBRE)

DKOS 90° BOGEN - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)

FEMMINA METRICA 90° CONO 24° O-RING SERIE PESANTE DIN 20066 / ISO 12151-2 (DADO PASSANTE)



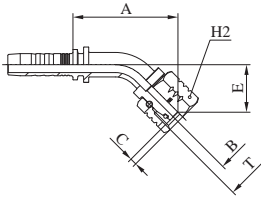
PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M21693-03-14	5	3/16"	- 03	M 14x1,5	6	3,0	26,0	3,5	30,0	17
M21693-03-16	5	3/16"	- 03	M 16x1,5	8	3,0	26,0	3,4	29,5	19
M21693-04-14	6	1/4"	- 04	M 14x1,5	6	3,0	29,5	3,5	32,5	17
M21693-04-16	6	1/4"	- 04	M 16x1,5	8	4,0	29,5	3,4	29,5	19
M21693-04-18	6	1/4"	- 04	M 18x1,5	10	4,0	29,5	3,0	31,0	22
M21693-04-20	6	1/4"	- 04	M 20x1,5	12	5,5	29,5	2,5	34,5	24
M21693-05-18	8	5/16"	- 05	M 18x1,5	10	4,0	32,0	3,0	33,5	22
M21693-05-20	8	5/16"	- 05	M 20x1,5	12	5,5	32,0	2,5	34,0	24
M21692-06-18	10	3/8"	- 06	M 18x1,5	10	4,0	35,5	3,9	42,5	22
M21693-06-20	10	3/8"	- 06	M 20x1,5	12	7,0	36,5	2,5	35,0	24
M21693-06-22	10	3/8"	- 06	M 22x1,5	14	7,0	36,5	3,0	37,0	27
M21693-06-24	10	3/8"	- 06	M 24x1,5	16	9,3	36,5	3,0	36,0	30
M21692-08-22	12	1/2"	- 08	M 22x1,5	14	7,0	44,0	2,5	48,5	27
M21693-08-24	12	1/2"	- 08	M 24x1,5	16	9,3	45,0	3,0	40,5	30
M21693-08-30	12	1/2"	- 08	M 30x2	20	12,5	45,0	3,5	44,5	36
M21692-10-24	16	5/8"	- 10	M 24x1,5	16	9,3	55,0	4,0	60,0	30
M21693-10-30	16	5/8"	- 10	M 30x2	20	12,5	51,5	3,5	57,5	36
M21692-12-30	19	3/4"	- 12	M 30x2	20	12,5	61,5	2,2	67,5	36
M21693-12-36	19	3/4"	- 12	M 36x2	25	15,0	61,5	4,5	64,5	41
M21692-16-36	25	1"	- 16	M 36x2	25	15,0	79,5	1,7	86,0	41
M21693-16-42	25	1"	- 16	M 42x2	30	19,8	79,0	6,3	74,5	50
M21693-20-52	31	1.1/4"	- 20	M 52x2	38	26,0	93,5	8,0	85,5	60
M21692-24-52	38	1.1/2"	- 24	M 52x2	38	24,7	91,5	8,8	95,5	60



## DIN STANDARD CONNECTIONS

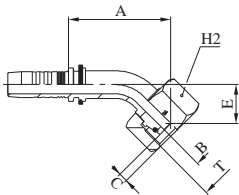
### M21642

45° METRIC O-RING FEMALE SWEEP ELBOW 24° CONE HEAVY DUTY  
 DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)  
 HEMBRA METRICA CON O-RING CODO DE 45° CONO 24° SERIE PESADA  
 DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)  
 DKOS 45° BOGEN - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)  
 FEMMINA METRICA 45° CONO 24° O-RING SERIE PESANTE  
 DIN 20066 / ISO 12151-2 (DADO SPINATO)



### M21643

45° METRIC O-RING FEMALE SWEEP ELBOW 24° CONE HEAVY DUTY  
 DIN 20066 / ISO 12151-2 (SLIP-ON NUT)  
 HEMBRA METRICA CON O-RING CODO DE 45° ASIEN TO A 24° SERIE PESADA  
 DIN 20066 / ISO 12151-2 (TUERCA LIBRE)  
 DKOS 45° BOGEN - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)  
 FEMMINA METRICA 45° CONO 24° O-RING SERIE PESANTE  
 DIN 20066 / ISO 12151-2 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E
M21643-04-14	6	1/4"	-04	M 14x1,5	6	3,0	38,5	3,5	17,5		17
M21643-04-16	6	1/4"	-04	M 16x1,5	8	4,0	36,0	3,4	15,0		19
M21643-04-18	6	1/4"	-04	M 18x1,5	10	4,0	37,5	3,0	16,5		22
M21643-05-18	8	5/16"	-05	M 18x1,5	10	4,0	42,5	3,0	18,0		22
M21643-05-20	8	5/16"	-05	M 20x1,5	12	5,5	42,5	2,5	18,5		24
M21642-06-18	10	3/8"	-06	M 18x1,5	10	4,0	49,0	3,9	23,0		22
M21643-06-20	10	3/8"	-06	M 20x1,5	12	7,0	45,0	2,5	18,0		24
M21643-06-22	10	3/8"	-06	M 22x1,5	14	7,0	46,5	3,0	19,5		27
M21642-08-22	12	1/2"	-08	M 22x1,5	14	7,0	57,5	2,5	25,5		27
M21643-08-24	12	1/2"	-08	M 24x1,5	16	9,3	52,5	3,0	20,0		30
M21643-10-30	16	5/8"	-10	M 30x2	20	12,5	65,5	3,5	29,5		36
M21642-12-30	19	3/4"	-12	M 30x2	20	12,5	76,5	2,2	34,0		36
M21643-12-36	19	3/4"	-12	M 36x2	25	15,0	75,0	4,5	32,5		41
M21642-16-36	25	1"	-16	M 36x2	25	15,0	98,0	1,7	43,5		41
M21643-16-42	25	1"	-16	M 42x2	30	19,8	90,0	6,3	35,5		50
M21643-20-52	31	1.1/4"	-20	M 52x2	38	26,0	103,0	8,0	39,5		60

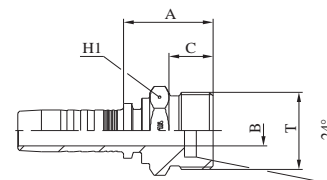
# MULTIFIT TYPE



## NF STANDARD CONNECTIONS

### M11710

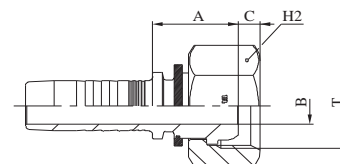
FRENCH METRIC MALE 24° CONE SEAT MILLIMETRIC TYPE  
 MACHO METRICO FRANCES ASIEN TO A 24° TIPO MILIMETRICO  
 AGFM 24° INNENKONUS (FR. REIHE MILL.)  
 MASCHIO METRICO 24° SERIE MILLIMETRICA FRANCESE



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M11710-10-2718	16	5/8"	- 10	M 27x1,5	18	12,5	28,7	14,0		28
M11710-10-2720	16	5/8"	- 10	M 27x1,5	20	12,5	28,7	14,0		28
M11710-12-30	19	3/4"	- 12	M 30x1,5	22	15,0	30,0	14,0		30
M11710-12-33	19	3/4"	- 12	M 33x1,5	25	15,0	31,0	14,0		34

### M21713

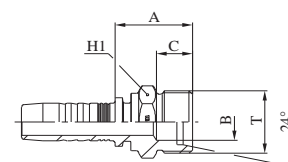
FRENCH METRIC FEMALE MILLIMETRIC TYPE (SLIP-ON NUT)  
 HEMBRA METRICA FRANCES TIPO MILIMETRICO (TUERCA LIBRE)  
 DKFM (FR. REIHE MILL., HINTERLEGTE MUTTER)  
 FEMMINA METRICA SERIE MILLIMETRICA FRANCESE (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M21713-10-2718	16	5/8"	- 10	M 27x1,5	18	12,5	22,2	5,1		32
M21713-10-2720	16	5/8"	- 10	M 27x1,5	20	12,5	22,2	5,1		32
M21713-12-30	19	3/4"	- 12	M 30x1,5	22	15,0	25,5	4,1		36
M21713-12-33	19	3/4"	- 12	M 33x1,5	25	15,0	25,5	4,1		38
M21713-16-36	25	1"	- 16	M 36x1,5	28	19,8	27,8	4,8		41
M21713-16-39	25	1"	- 16	M 39x1,5	30	19,8	28,3	4,3		46

### M11810

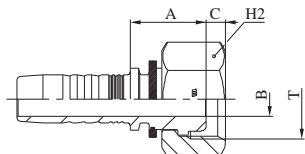
FRENCH METRIC MALE 24° CONE SEAT GAZ TYPE  
 MACHO METRICO FRANCES ASIEN TO A 24° TIPO GAZ  
 AGF 24° INNENKONUS (FR. REIHE GAS)  
 MASCHIO METRICO 24° SERIE GAZ FRANCESE



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M11810-05-20	8	5/16"	- 05	M 20x1,5	13,25	8,0	27,0	12,0		22
M11810-06-20	10	3/8"	- 06	M 20x1,5	13,25	8,0	27,6	12,0		22
M11810-06-24	10	3/8"	- 06	M 24x1,5	16,75	12,0	28,1	12,0		24
M11810-08-24	12	1/2"	- 08	M 24x1,5	16,75	12,0	28,4	12,0		24
M11810-10-30	16	5/8"	- 10	M 30x1,5	21,25	15,0	31,7	14,0		30
M11810-12-36	19	3/4"	- 12	M 36x1,5	26,75	21,0	34,0	14,0		36
M11810-16-45	25	1"	- 16	M 45x1,5	33,50	26,0	39,3	16,0		46

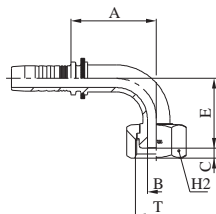
## NF STANDARD CONNECTIONS

### M21813



FRENCH METRIC FEMALE GAZ TYPE (SLIP-ON NUT)  
 HEMBRA METRICA FRANCES TIPO GAZ (TUERCA LIBRE)  
 DKF (FR. REIHE GAS, HINTERLEGTE MUTTER)  
 FEMMINA METRICA SERIE GAZ FRANCESE (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	H <sub>2</sub>
M21813-04-20	6	1/4"	- 04	M 20x1,5	13,25	7,0	22,1	4,3			24
M21813-05-20	8	5/16"	- 05	M 20x1,5	13,25	7,0	22,1	4,3			24
M21813-06-20	10	3/8"	- 06	M 20x1,5	13,25	7,0	22,6	4,3			24
M21813-06-24	10	3/8"	- 06	M 24x1,5	16,75	9,3	25,6	4,0			30
M21813-08-24	12	1/2"	- 08	M 24x1,5	16,75	9,3	26,5	4,0			30
M21813-08-30	12	1/2"	- 08	M 30x1,5	21,25	12,5	23,6	5,1			36
M21813-10-30	16	5/8"	- 10	M 30x1,5	21,25	12,5	23,7	5,1			36
M21813-12-36	19	3/4"	- 12	M 36x1,5	26,75	15,0	27,0	4,8			41
M21813-16-45	25	1"	- 16	M 45x1,5	33,50	19,8	26,8	4,6			50



### M21893

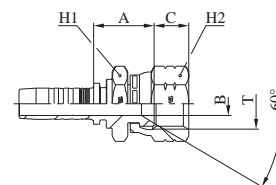
90° FRENCH METRIC FEMALE GAZ TYPE (SLIP-ON NUT)  
 HEMBRA METRICA FRANCES CODO DE 90° TIPO GAZ (TUERCA LIBRE)  
 DKF 90° BOGEN (FR. REIHE MILL., HINTERLEGTE MUTTER)  
 FEMMINA METRICA 90° SERIE GAZ FRANCESE (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E
M21893-05-20	8	5/16"	- 05	M 20x1,5	13,25	7,0	32,0	4,3	29,5		24
M21893-06-20	10	3/8"	- 06	M 20x1,5	13,25	7,0	36,5	4,3	33,5		24
M21893-08-24	12	1/2"	- 08	M 24x1,5	16,75	12,0	45,0	4,0	41,0		30
M21893-10-30	16	5/8"	- 10	M 30x1,5	21,25	12,5	51,5	5,1	53,5		36
M21893-12-36	19	3/4"	- 12	M 36x1,5	26,75	15,0	61,5	4,8	60,0		41

## JIS STANDARD CONNECTIONS

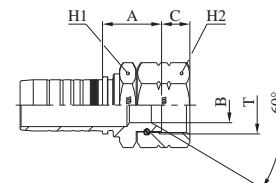
### M24011

JIS METRIC FEMALE 60° CONE SEAT (KOMATSU) JIS B 8363 (CRIMPED-BACK NUT)  
 HEMBRA METRICA JIS ASIEN TO A 60° (KOMATSU) JIS B 8363 (TUERCA PRENSADA)  
 DK KOMATSU MIT 60° KONUS (NACH JIS B 8363, PRESSMUTTER)  
 FEMMINA METRICA GIAPPONESE CONO 60° TIPO KOMATSU JIS B 8363 (DADO PRESSATO)



### M24012

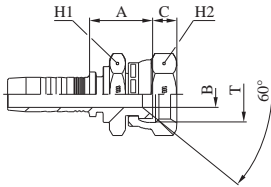
JIS METRIC FEMALE 60° CONE SEAT (KOMATSU) JIS B 8363 (THRUST-WIRE NUT)  
 HEMBRA METRICA JIS ASIEN TO A 60° (KOMATSU) JIS B 8363 (TUERCA CON SEGURO)  
 DK KOMATSU MIT 60° KONUS (NACH JIS B 8363, GESTIFTETE MUTTER)  
 FEMMINA METRICA GIAPPONESE CONO 60° TIPO KOMATSU JIS B 8363 (DADO SPINATO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M24011-04-14	6	1/4"	- 04	M 14x1,5	4,0	23,0	10,5		19	19
M24011-04-18	6	1/4"	- 04	M 18x1,5	4,0	22,6	11,5		24	24
M24011-05-16	8	5/16"	- 05	M 16x1,5	5,5	22,5	9,3		21	21
M24011-06-14	10	3/8"	- 06	M 14x1,5	4,0	23,6	10,5		19	19
M24011-06-18	10	3/8"	- 06	M 18x1,5	7,0	23,6	11,5		24	24
M24011-08-22	12	1/2"	- 08	M 22x1,5	9,3	24,9	14,0		27	27
M24011-10-24	16	5/8"	- 10	M 24x1,5	12,5	26,7	15,1		32	32
M24011-12-30	19	3/4"	- 12	M 30x1,5	15,0	31,5	18,3		36	36
M24011-16-33	25	1"	- 16	M 33x1,5	19,8	33,3	21,3		41	41
M24011-20-36	31	1.1/4"	- 20	M 36x1,5	19,8	41,0	20,0		46	46
M24012-24-42	38	1.1/2"	- 24	M 42x1,5	26,0	44,0	18,8		55	55

## JIS STANDARD CONNECTIONS

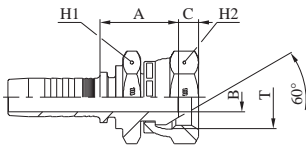
### M23811



JIS BSP FEMALE 60° CONE SEAT (TOYOTA) - JIS B 8363 (CRIMPED-BACK NUT)  
 HEMBRA JIS BSP ASIENTO A 60° (TOYOTA) - JIS B 8363 (TUERCA PRENSADA)  
 DK TOYOTA MIT 60° KONUS MIT KONTERSECHSKANT (NACH JIS B 8363, PRESSMUTTER)  
 FEMMINA GAS GIAPPONESE CONO 60° TIPO TOYOTA JIS B 8363 (DADO PRESSATO)

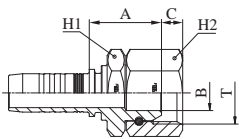
PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M23811-04-04	6	1/4"	- 04	1/4" - 19	4,0	18,5	8,3		19	19
M23811-06-06	10	3/8"	- 06	3/8" - 19	7,0	23,1	10,0		22	22
M23811-08-08	12	1/2"	- 08	1/2" - 14	9,3	23,0	11,5		27	27
M23811-12-12	19	3/4"	- 12	3/4" - 14	15,0	26,0	13,5		32	32
M23811-16-16	25	1"	- 16	1" - 11	19,8	30,3	14,5		38	38

### M20711



JIS BSP FEMALE 60° CONE (NISSAN) - JIS B 8363 (CRIMPED-BACK NUT)  
 HEMBRA JIS BSP ASIENTO A 60° (NISSAN) - JIS B 8363 (TUERCA PRENSADA)  
 DK NISSAN MIT 60° KONUS MIT KONTERSECHSKANT (NACH JIS B 8363, PRESSMUTTER)  
 FEMMINA GIAPPONESE CONO 60° TIPO NISSAN JIS B 8363 (DADO PRESSATO)

### M20712



JIS BSP FEMALE 60° CONE (NISSAN) - JIS B 8363 (THRUST-WIRE NUT)  
 HEMBRA JIS BSP ASIENTO A 60° (NISSAN) - JIS 8363 (TUERCA CON SEGURO)  
 DK NISSAN MIT 60° KONUS MIT KONTERSECHSKANT (NACH JIS B 8363, GESTIFTETE MUTTER)  
 FEMMINA GIAPPONESE CONO 60° TIPO NISSAN JIS B 8363 (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M20711-04-04	6	1/4"	- 04	1/4" - 19	4,0	22,5	4,5		19	19
M20711-06-06	10	3/8"	- 06	3/8" - 19	7,0	24,6	6,4		22	22
M20711-08-08	12	1/2"	- 08	1/2" - 14	9,3	26,4	6,7		27	27
M20712-10-08	16	5/8"	- 10	1/2" - 14	9,3	28,8	6,5		27	27
M20712-10-12	16	5/8"	- 10	3/4" - 14	15,0	30,7	9,0		32	32
M20711-12-12	19	3/4"	- 12	3/4" - 14	15,0	30,0	8,9		32	32
M20712-16-16	25	1"	- 16	1" - 11	19,8	35,5	10,5		38	38

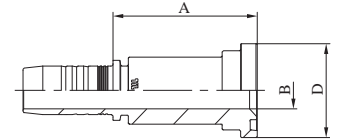
# MULTIFIT TYPE



## ORIGINAL EQUIPMENT CONNECTIONS

### M24111

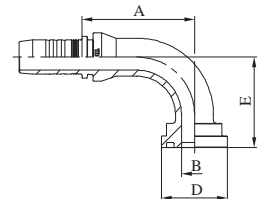
STRAIGHT KOMATSU FLANGE  
BRIDA RECTA KOMATSU  
FLANSCH GERADE KOMATSU  
FLANGIA DRITTA SERIE KOMATSU



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D			
M24111-08-10	12	1/2"	- 08	5/8"	14,0	66,0	34,0			
M24111-10-10	16	5/8"	- 10	5/8"	14,0	65,7	34,0			
M24111-12-10	19	3/4"	- 12	5/8"	14,0	66,5	34,0			

### M24191

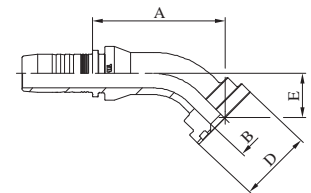
90° KOMATSU FLANGE  
BRIDA KOMATSU CODO DE 90°  
FLANSCH 90° BOGEN KOMATSU  
FLANGIA 90° SERIE KOMATSU



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	C	E		
M24191-10-10	16	5/8"	- 10	5/8"	14,0	56,0	34,0	47,5		
M24191-12-10	19	3/4"	- 12	5/8"	14,0	56,0	34,0	47,5		

### M24141

45° KOMATSU FLANGE  
BRIDA KOMATSU CODO DE 45°  
FLANSCH 45° BOGEN KOMATSU  
FLANGIA 45° SERIE KOMATSU



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	C	E		
M24141-10-10	16	5/8"	- 10	5/8"	14,0	61,0	34,0	22,0		

## ORIGINAL EQUIPMENT CONNECTIONS

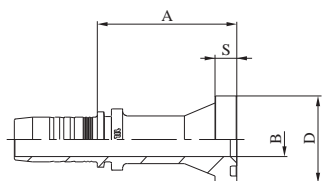
### M23911

STRAIGHT SUPERCAT FLANGE

BRIDA RECTA SUPERCAT

FLANSCH GERADE SUPERCAT

FLANGIA DRITTA SERIE SUPERCAT



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D	S		
M23911-12-12	19	3/4"	- 12	3/4"	15,0	74,5	41,5	14,3		
M23911-16-16	25	1"	- 16	1"	19,8	86,8	47,7	14,3		
M23911-16-20	25	1"	- 16	1.1/4"	26,0	92,3	54,0	14,3		
M23911-20-20	31	1.1/4"	- 20	1.1/4"	26,0	86,0	54,0	14,3		
M23911-24-24	38	1.1/2"	- 24	1.1/2"	32,0	94,0	63,6	14,3		

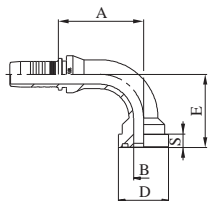
### M23991

90° SUPERCAT FLANGE

BRIDA SUPERCAT CODO DE 90°

FLANSCH 90° BOGEN SUPERCAT

FLANGIA 90° SERIE SUPERCAT



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D	E	S	
M23991-12-12	19	3/4"	- 12	3/4"	15,0	64,5	41,5	64,5	14,3	
M23991-16-16	25	1"	- 16	1"	19,8	77,5	47,7	76,5	14,3	
M23991-16-20	25	1"	- 16	1.1/4"	26,0	75,5	54,0	80,5	14,3	
M23991-20-20	31	1.1/4"	- 20	1.1/4"	26,0	85,5	54,0	87,0	14,3	

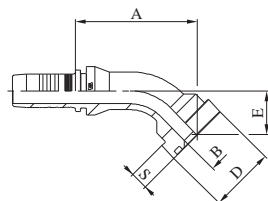
### M23941

45° SUPERCAT FLANGE

BRIDA SUPERCAT CODO DE 45°

FLANSCH 45° BOGEN SUPERCAT

FLANGIA 45° SERIE SUPERCAT



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D	E	S	
M23941-12-12	19	3/4"	- 12	3/4"	15,0	77,0	41,5	32,0	14,3	
M23941-16-16	25	1"	- 16	1"	19,8	89,5	47,7	36,5	14,3	
M23941-16-20	25	1"	- 16	1.1/4"	26,0	92,5	54,0	40,5	14,3	
M23941-20-20	31	1.1/4"	- 20	1.1/4"	26,0	99,0	54,0	41,5	14,3	



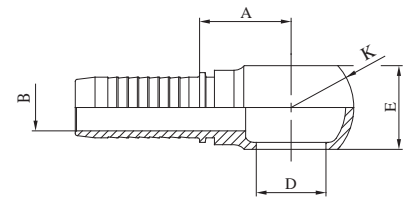
# MULTIFIT TYPE



## BANJO CONNECTIONS

### O20310

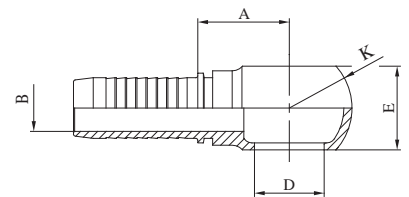
BSP BANJO  
 BSP BANJO  
 RINGNIPPEL, ZÖLLIG (BSP GEWINDE)  
 OCCHIELLO GAS



PART. REF.	HOSE BORE			BSP BOLT	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	K
O20310-04-04	6	1/4"	- 04	1/4" - 19	4,1	22	13,3	14,0	24,0
O20310-04-06	6	1/4"	- 04	3/8" - 19	4,1	21	16,7	18,0	28,0
O20310-05-04	8	5/16"	- 05	1/4" - 19	5,1	22	13,3	14,0	24,0
O20310-05-06	8	5/16"	- 05	3/8" - 19	5,1	23	16,7	18,0	28,0
O20310-06-06	10	3/8"	- 06	3/8" - 19	7,1	24,1	16,7	18,0	28,0
O20310-06-08	10	3/8"	- 06	1/2" - 14	7,1	27,1	21,2	22,0	35,0
O20310-08-08	12	1/2"	- 08	1/2" - 14	9,6	27,5	21,2	22,0	35,0
O20310-10-10	16	5/8"	- 10	5/8" - 14	12,1	28,2	23,0	23,5	38,0
O20310-12-12	19	3/4"	- 12	3/4" - 14	15,0	36,5	26,7	29,0	45,0
O20310-16-16	25	1"	- 16	1" - 11	20,0	44,5	33,4	36,0	54,0

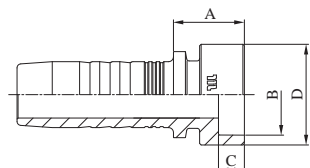
### O20910

METRIC BANJO - DIN 7642  
 BANJO METRICO - DIN 7642  
 RINGNIPPEL, METRISCH - DIN 7642  
 OCCHIELLO METRICO - DIN 7642



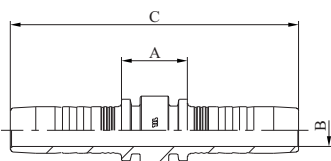
PART. REF.	HOSE BORE			MATIC BOLT	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	K
O20910-04-12	6	1/4"	- 04	M12 x 1,5	4,1	21	12,0	12,0	20,0
O20910-04-14	6	1/4"	- 04	M14 x 1,5	4,1	21,5	14,0	14,0	24,0
O20910-05-14	8	5/16"	- 05	M14 x 1,5	5,1	23,1	14,0	14,0	24,0
O20910-06-14	10	3/8"	- 06	M14 x 1,5	7,1	24,1	14,0	14,0	24,0
O20910-06-16	10	3/8"	- 06	M16 x 1,5	7,1	24,1	16,0	18,0	28,0
O20910-06-18	10	3/8"	- 06	M18 x 1,5	7,1	27,1	18,0	20,0	32,0
O20910-08-18	12	1/2"	- 08	M18 x 1,5	9,6	27,5	18,0	20,0	32,0
O20910-08-22	12	1/2"	- 08	M22 x 1,5	9,6	27,5	22,0	22,0	35,0
O20910-10-22	16	5/8"	- 10	M22 x 1,5	12,1	28,2	22,0	23,5	38,0
O20910-12-26	19	3/4"	- 12	M26 x 1,5	15,0	36,5	26,0	29,0	45,0

### M..IP



**BRAZING TAIL**  
**ESPIGA SOLDABLE (SALVAVIDAS)**  
**EINLÖTNIPPEL**  
**INSERTO A SALDARE**

PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	B	A	C	D		
M03IP06	5	3/16"	- 03	6,0	11,5	5,0	10,0		
M04IP08	6	1/4"	- 04	8,0	13,0	5,0	12,0		
M05IP10	8	5/16"	- 05	10,0	13,5	6,0	14,0		
M06IP12	10	3/8"	- 06	12,0	13,5	6,0	16,0		
M06IP14	10	3/8"	- 06	14,0	13,5	6,0	18,0		
M08IP15	12	1/2"	- 08	15,0	14,0	6,0	20,0		
M08IP16	12	1/2"	- 08	16,0	14,0	6,0	20,0		
M10IP18	16	5/8"	- 10	18,0	15,0	7,0	23,0		
M12IP22	19	3/4"	- 12	22,0	16,0	7,0	26,0		
M16IP28	25	1"	- 16	28,0	18,5	8,0	34,0		
M20IP35	31	1.1/4"	- 20	35,0	21,5	9,0	40,0		
M24IP40	38	1.1/2"	- 24	40,0	21,5	9,0	50,0		
M32IP50	51	2"	- 32	50,0	23,0	10,0	60,0		
M40IP60	63	2.1/2"	- 40	60,0	22,0	10,0	73,0		
M48IP70	76	3"	- 48	70,0	38,0	10,0	89,0		



### M10050

**DOUBLE CONNECTOR**  
**CONECTOR DOBLE**  
**SCHLAUCHVERBINDER - DOPPELNIPPEL**  
**DOPPIO INSERTO**

PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	B	A	C			
M10050-03-03	5	3/16"	- 03	3,0	15,5	58,5			
M10050-04-04	6	1/4"	- 04	4,0	14,0	69,0			
M10050-05-05	8	5/16"	- 05	5,5	14,0	70,0			
M10050-06-06	10	3/8"	- 06	7,0	14,7	73,5			
M10050-08-08	12	1/2"	- 08	9,3	15,8	78,0			
M10050-10-10	16	5/8"	- 10	12,5	15,4	84,0			
M10050-12-12	19	3/4"	- 12	15,0	18,5	91,5			
M10050-16-16	25	1"	- 16	19,8	22,6	119,0			
M10050-20-20	31	1.1/4"	- 20	26,0	23,0	128,0			
M10050-24-24	38	1.1/2"	- 24	32,0	23,5	147,5			

## ACCESSORIES

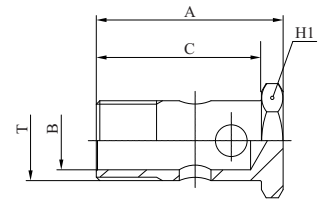
### O80210

#### BSP BOLT

TORNILLO PASADOR BSP

HOHLSCHRAUBE ZÖLLIG

VITE GAS FORATA



PART. REF.	HOSE BORE			DIMENSIONS mm					
				T	B	A	C		Hi
O80210-04				1/4" - 19	7,0	32,0	25,0		17
O80210-06				3/8" - 19	9,0	38,0	31,0		22
O80210-08				1/2" - 14	13,0	46,0	38,0		27
O80210-10				5/8" - 14	13,5	49,0	41,0		30
O80210-12				3/4" - 14	17,0	56,0	46,0		32
O80210-16				1" - 11	22,0	69,0	58,0		41

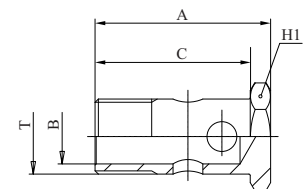
### O80810

#### METRIC BOLT - DIN 7643

TORNILLO PASADOR METRICO - DIN 7643

HOHLSCHRAUBE - METRISCH - DIN 7643

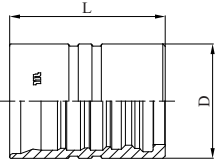
VITE METRICA FORATA - DIN 7643



PART. REF.	HOSE BORE			DIMENSIONS mm					
				T	B	A	C		Hi
O80810-12				M12 x 1,5	6,0	28,0	23,0		17
O80810-14				M14 x 1,5	8,0	32,0	25,0		19
O80810-16				M16 x 1,5	9,0	38,0	31,0		22
O80810-18				M18 x 1,5	11,0	44,0	36,0		24
O80810-22				M22 x 1,5	13,0	46,0	38,0		27
O80810-26				M26 x 1,5	17,0	56,0	46,0		32

## FERRULE

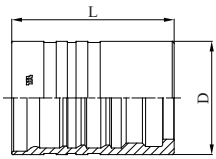
### M01500



**DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (4 PLY)**  
 CASQUILLOS DE PELADO INTERNO Y EXTERNO PARA MANGUERAS  
 CON REFUERZO EN ESPIRAL (4 ESPIRALES)  
 PRESSFASSUNG INNEN- UND AUSSENSCHÄLUNG FÜR HÖCHSTDRUCKSCHLÄUCHE (4-LAGIG)  
 GHIERA PER TUBI SPIRALATI CON DOPPIA PELATURA (4 SPIRALI)

PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M01500-10	16	5/8"	- 10	35,0	40,9				
M01500-12	19	3/4"	- 12	40,0	51,4				
M01500-16	25	1"	- 16	48,0	64,5				
M01500-20	31	1.1/4"	- 20	57,0	84,0				
M01500-24	38	1.1/2"	- 24	64,3	94,0				
M01500-32	51	2"	- 32	83,5	107,0				

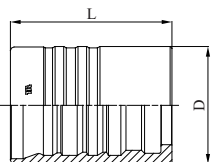
### M01600



**DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (6 PLY)**  
 CASQUILLOS DE PELADO INTERNO Y EXTERNO PARA MANGUERAS  
 CON REFUERZO EN ESPIRAL (6 ESPIRALES)  
 PRESSFASSUNG INNEN- UND AUSSENSCHÄLUNG FÜR HÖCHSTDRUCKSCHLÄUCHE (6-LAGIG)  
 GHIERA PER TUBI SPIRALATI CON DOPPIA PELATURA (6 SPIRALI)

PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M01600-20	31	1.1/4"	- 20	60,0	85,0				
M01600-24	38	1.1/2"	- 24	68,0	96,0				

### M01800



**DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (6 PLY)**  
 CASQUILLOS DE PELADO INTERNO Y EXTERNO PARA MANGUERAS  
 CON REFUERZO EN ESPIRAL (6 ESPIRALES)  
 PRESSFASSUNG FÜR INNEN- UND AUSSENSCHÄLUNG FÜR SPEZIAL-SPIRALSCHLÄUCHE (6-LAGIG)  
 GHIERA A PELATURA INTERNA/ESTERNA PER TUBI SPIRALATI  
 (6 SPIRALI) PER APPLICAZIONI ESTREMAMENTE SEVERE

PART. REF.	HOSE BORE			DIMENSIONS mm					
	DN	inch	Size	D	L				
M01800-20	31	1.1/4"	- 20	64,5	88,2				
M01800-32	51	2"	- 32	86,5	108,0				

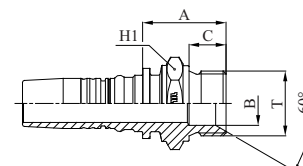
# INTERLOCK PLUS TYPE



## BS STANDARD CONNECTIONS

### M30510

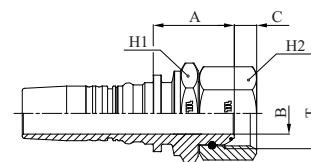
BSP MALE PARALLEL 60° CONE SEAT - BS5200 / ISO 8434-6  
 MACHO BSP PARALELO ASIENTO A 60° - BS5200 / ISO 8434-6  
 AGR 60° INNENKONUS - BS5200/ISO 8464-6  
 MASCHIO GAS CILINDRICO CONO 60° - BS5200 / ISO 8434-6



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	
M30510-12-12	19	3/4"	- 12	3/4" - 14	17,0	36,9	16,0	32		
M30510-12-16	19	3/4"	- 12	1" - 11	22,5	43,0	19,0	41		
M30510-16-16	25	1"	- 16	1" - 11	22,5	42,8	19,0	41		
M30510-16-20	25	1"	- 16	1.1/4" - 11	29,0	47,5	20,0	50		
M30510-20-20	31	1.1/4"	- 20	1.1/4" - 11	28,5	50,5	20,0	50		
M30510-24-24	38	1.1/2"	- 24	1.1/2" - 11	33,5	54,4	22,0	55		
M30510-32-32	51	2"	- 32	2" - 11	42,0	57,8	25,0	70		

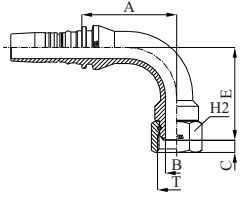
### M40812

BSP O-RING FEMALE 60° CONE - BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP CON O-RING ASIENTO A 60° - BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKOR 60° KONUS MIT O-RING - BS5200 / ISO 12151-6 (STIFTMUTTER)  
 FEMMINA GAS CONO 60° O-RING - BS5200 / ISO 12151-6 (DADO SPINATO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M40812-12-12	19	3/4"	- 12	3/4" - 14	14,5	38,8	8,5	32	32	
M40812-12-16	19	3/4"	- 12	1" - 11	19,0	40,0	10,6	32	41	
M40812-16-12	25	1"	- 16	3/4" - 14	15,0	40,0	8,5	38	32	
M40812-16-16	25	1"	- 16	1" - 11	19,5	44,4	10,6	41	41	
M40812-16-20	25	1"	- 16	1.1/4" - 11	26,0	43,5	10,1	41	50	
M40812-20-16	31	1.1/4"	- 20	1" - 11	19,0	50,0	10,6	50	41	
M40812-20-20	31	1.1/4"	- 20	1.1/4" - 11	25,0	52,4	10,1	50	50	
M40812-20-24	31	1.1/4"	- 20	1.1/2" - 11	32,0	51,5	12,5	50	60	
M40812-24-20	38	1.1/2"	- 24	1.1/4" - 11	26,0	52,5	10,1	60	50	
M40812-24-24	38	1.1/2"	- 24	1.1/2" - 11	32,0	51,3	12,5	60	60	
M40812-32-32	51	2"	- 32	2" - 11	42,0	51,6	16,1	70	70	

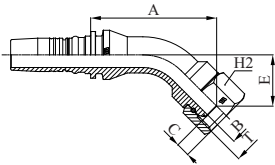
### M40892



90° BSP O-RING FEMALE SWEEP ELBOW 60° CONE BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP CON O-RING CODO DE 90° ASIENTO A 60°  
 BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKOR 90° BOGEN 60° KONUS MIT O-RING - BS5200 / ISO 12151-6 (STIFTMUTTER)  
 FEMMINA GAS 90° CONO 60° O-RING - BS5200 / ISO 12151-6 (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M40892-12-12	19	3/4"	- 12	3/4" - 14	14,5	72,4	8,5	70,0		32
M40892-12-16	19	3/4"	- 12	1" - 11	19,0	72,0	10,6	71,0		41
M40892-16-16	25	1"	- 16	1" - 11	19,5	82,2	10,6	80,5		41
M40892-16-20	31	1.1/4"	- 20	1.1/4" - 11	25,0	95,0	10,1	78,5		50
M40892-20-20	31	1.1/4"	- 20	1.1/4" - 11	25,0	98,5	10,1	98,0		50
M40892-24-24	38	1.1/2"	- 24	1.1/2" - 11	32,0	111,5	12,5	109,0		60
M40892-32-32	51	2"	- 32	2" - 11	42,0	143,2	16,1	140,5		70

### M40842



45° BSP O-RING FEMALE SWEEP ELBOW 60° CONE BS5200 / ISO 12151-6 (THRUST-WIRE NUT)  
 HEMBRA BSP CON O-RING CODO DE 45° ASIENTO A 60°  
 BS5200 / ISO 12151-6 (TUERCA CON SEGURO)  
 DKOR 45° BOGEN 60° KONUS MIT O-RING - BS5200 / ISO 12151-6 (STIFTMUTTER)  
 FEMMINA GAS 45° CONO 60° O-RING - BS5200 / ISO 12151-6 (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M40842-12-12	19	3/4"	- 12	3/4" - 14	14,5	88,0	8,5	35,0		32
M40842-12-16	19	3/4"	- 12	1" - 11	19,0	89,5	10,6	36,5		41
M40842-16-12	25	1"	- 16	3/4" - 14	15,0	105,5	8,5	36,0		32
M40842-16-16	25	1"	- 16	1" - 11	19,5	97,0	10,6	40,0		41
M40842-16-20	25	1"	- 16	1.1/4" - 11	26,0	108,5	10,1	38,0		50
M40842-20-16	31	1.1/4"	- 20	1" - 11	19,0	118,0	10,6	47,5		41
M40842-20-20	31	1.1/4"	- 20	1.1/4" - 11	25,0	120,0	10,1	49,5		50
M40842-20-24	31	1.1/4"	- 20	1.1/2" - 11	32,0	114,5	12,5	40,0		60
M40842-24-24	38	1.1/2"	- 24	1.1/2" - 11	32,0	126,5	12,5	50,0		60
M40842-32-32	51	2"	- 32	2" - 11	42,0	162,6	16,1	66,5		70

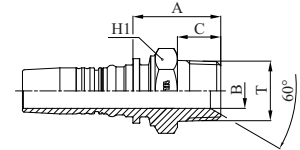
# INTERLOCK PLUS TYPE



## SAE STANDARD CONNECTIONS

### M32810

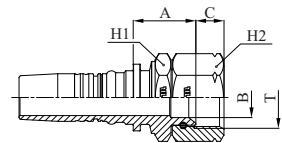
NPTF MALE 60° CONE SEAT - SAE J516/J514  
 MACHO NPTF ASIENTO A 60° - SAE J516/J514  
 AGN 60° INNENKONUS (NPTF-GEWINDE) - SAE J516/J514  
 MASCHIO NPTF CONO 60° - SAE J516/J514



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	
M32810-12-12	19	3/4"	- 12	3/4" - 14	16,0	42,9	19,2		32	
M32810-16-16	25	1"	- 16	1" - 11,5	19,5	49,3	24,2		41	
M32810-20-20	31	1.1/4"	- 20	1.1/4" - 11,5	26,0	61,0	25,0		46	
M32810-24-24	38	1.1/2"	- 24	1.1/2" - 11,5	32,0	62,6	26,0		50	
M32810-32-32	51	2"	- 32	2" - 11,5	42,0	66,8	26,5		70	

### M42512

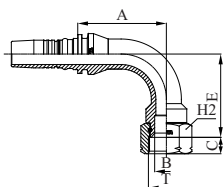
JIC FEMALE 37° CONE SEAT - SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
 HEMBRA JIC ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)  
 JDKJ 37° KONUS - SAE J516 / ISO 12151-5 (KONTERSECHSKANT UND STIFTMUTTER)  
 FEMMINA JIC CONO 37° - SAE J516 / ISO 12151-5 (DADO SPINATO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M42512-12-12	19	3/4"	- 12	1.1/16" - 12	15,0	36,2	14,2		32	32
M42512-12-16	19	3/4"	- 16	1.5/16" - 12	21,7	33,0	15,2		41	41
M42512-16-16	25	1"	- 16	1.5/16" - 12	21,7	40,7	15,2		41	41
M42512-16-20	25	1"	- 16	1.5/8" - 12	26,0	50,0	16,2		50	50
M42512-20-20	31	1.1/4"	- 20	1.5/8" - 12	26,0	51,4	16,2		50	50
M42512-20-24	31	1.1/4"	- 20	1.7/8" - 12	30,5	54,0	18,8		55	60
M42512-24-24	38	1.1/2"	- 24	1.7/8" - 12	31,0	54,5	18,8		55	60
M42512-32-32	51	2"	- 32	2.1/2" - 12	42,0	54,2	24,0		70	75



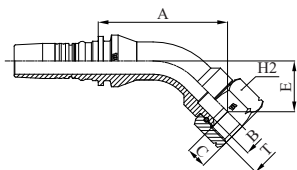
### M42592



90° JIC FEMALE SWEPT ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
 HEMBRA JIC CODO DE 90° ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)  
 JDKJ 90° BOGEN, 37° KONUS - SAE J516 / ISO 12151-5 (STIFTMUTTER)  
 FEMMINA JIC 90° CONO 37° - SAE J516 / ISO 12151-5 (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M42592-12-12	19	3/4"	- 12	1.1/16" - 12	15,0	72,4	14,2	66,0		32
M42592-12-16	19	3/4"	- 12	1.5/16" - 12	21,7	72,5	15,2	71,5		41
M42592-16-16	25	1"	- 16	1.5/16" - 12	21,7	82,3	15,2	77,5		41
M42592-20-20	31	1.1/4"	- 20	1.5/8" - 12	26,0	98,5	16,2	92,0		50
M42592-20-24	31	1.1/4"	- 20	1.7/8" - 12	32,0	101,5	18,8	108,0		60
M42592-24-24	38	1.1/2"	- 24	1.7/8" - 12	32,0	115,5	18,8	106,0		60
M42592-32-32	51	2"	- 32	2.1/2" - 12	42,0	144,7	24,0	137,0		75

### M42542



45° JIC FEMALE SWEPT ELBOW 37° CONE SEAT - SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)  
 HEMBRA JIC CODO DE 45° ASIENTO A 37° - SAE J516 / ISO 12151-5 (TUERCA CON SEGURO)  
 DKJ 45° BOGEN 37° KONUS - SAE J516 / ISO 12151-5 (STIFTMUTTER)  
 FEMMINA JIC 45° CONO 37° - SAE J516 / ISO 12151-5 (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M42542-12-12	19	3/4"	- 12	1.1/16" - 12	15,0	86,0	14,2	33,0		32
M42542-16-16	25	1"	- 16	1.5/16" - 12	21,7	95,0	15,2	37,0		41
M42542-20-20	31	1.1/4"	- 20	1.5/8" - 12	26,0	115,5	16,2	45,0		50
M42542-24-24	38	1.1/2"	- 24	1.7/8" - 12	32,0	126,5	18,8	50,0		60
M42542-32-32	51	2"	- 32	2.1/2" - 12	42,0	161,0	24,0	63,5		75

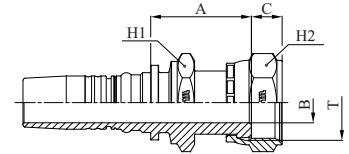
# INTERLOCK PLUS TYPE



## SAE STANDARD CONNECTIONS

### M42411

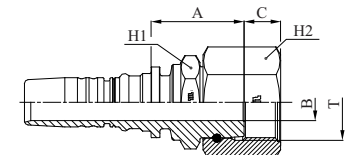
ORFS FEMALE - SAE J516 / ISO 12151-1 PULLBACK TYPE (CRIMPED BACK-NUT)  
 HEMBRA ORFS - SAE J516 / ISO 12151-1 CUELLO LARGO (TUERCA Prensada)  
 ORFS IG - SAE J516 / ISO 12151-1 RÜCKZUGSAUSFÜHRUNG (VERPRESSTE MUTTER)  
 FEMMINA ORFS - SAE J516 / ISO 12151-1 VERSIONE RETRAIBILE (DADO PRESSATO)



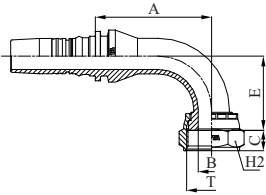
PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M42411-10-10	16	5/8"	- 10	1" - 14	11,5	39,5	13,5		24	30
M42411-12-12	19	3/4"	- 12	1.3/16" - 12	14,5	45,9	14,5		32	36
M42411-12-16	19	3/4"	- 12	1.7/16" - 12	19,0	46,5	15,0		36	41
M42411-16-12	25	1"	- 16	1.3/16" - 12	14,5	47,5	14,5		38	36
M42411-16-16	25	1"	- 16	1.7/16" - 12	19,5	48,5	15,0		41	41
M42411-16-20	25	1"	- 16	1.11/16" - 12	24,0	48,5	14,8		41	50
M42411-20-20	31	1.1/4"	- 20	1.11/16" - 12	25,0	54,8	14,8		50	50
M42411-24-24	38	1.1/2"	- 24	2" - 12	31,0	57,8	15,8		60	60

### M42412

ORFS FEMALE - SAE J516 / ISO 12151-1 HEAVY TYPE (THRUST-WIRE NUT)  
 HEMBRA ORFS - SAE J516 / ISO 12151-1 SERIE PESADA (TUERCA CON SEGURO)  
 ORFS MUTTER GESTIFTET - SAE J516 / ISO 12151-1 SCHWERE REIHE (THRUST-WIRE NUT)  
 FEMMINA ORFS - SAE J516 / ISO 12151-1 SERIE PESANTE (DADO SPINATO)



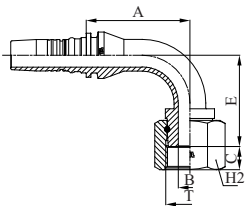
PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	H <sub>1</sub>	H <sub>2</sub>
M42412-12-12	19	3/4"	- 12	1.3/16" - 12	14,5	37,0	14,0		32	36
M42412-16-16	25	1"	- 16	1.7/16" - 12	19,5	42,0	15,0		41	46
M42412-20-20	31	1.1/4"	- 20	1.11/16" - 12	25,0	52,0	15,0		50	55
M42412-24-24	38	1.1/2"	- 24	2" - 12	31,0	55,0	15,0		60	60



### M42491

90° ORFS FEMALE SWEPT ELBOW - SAE J516 / ISO 12151-1 (CRIMPED BACK-NUT)  
 HEMBRA ORFS CODO 90° - SAE J516 / ISO 12151-1 (TUERCA Prensada)  
 90° ORFS BOGEN (VERPRESSTE MUTTER) - SAE J516 / ISO 12151-1  
 FEMMINA ORFS 90° - SAE J516 / ISO 12151-1 (DADO PRESSATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M42491-10-12	16	5/8"	- 10	1.3/16" - 12	14,5	51,0	14,5	47,0		36
M42491-12-12	19	3/4"	- 12	1.3/16" - 12	14,5	65,5	14,5	48,0		36
M42491-12-12109	19	3/4"	- 12	1.3/16" - 12	14,5	65,5	14,5	109,0		36
M42491-12-16	19	3/4"	- 12	1.7/16" - 12	19,5	70,5	15,0	53,0		41
M42491-16-16	25	1"	- 16	1.7/16" - 12	19,5	85,0	15,0	54,0		41
M42491-16-16128	25	1"	- 16	1.7/16" - 12	19,5	85,0	15,0	128,0		41
M42491-16-20	25	1"	- 16	1.11/16" - 12	24,0	85,0	14,8	58,0		50
M42491-20-20	31	1.1/4"	- 20	1.11/16" - 12	25,0	98,5	14,8	65,0		50
M42491-24-24	38	1.1/2"	- 24	2" - 12	31,0	115,7	15,8	79,5		60



### M42492

90° ORFS FEMALE SWEPT ELBOW - SAE J516 / ISO 12151-1 HEAVY TYPE (THRUST-WIRE-NUT)  
 HEMBRA ORFS CODO 90° - SAE J516 / ISO 12151-1 SERIE PESADA (TUERCA CON SEGURO)  
 90° ORFS BOGEN - SCHWERE REIHE SAE J516 / ISO 12151-1 (GESHFTE MUTTER)  
 FEMMINA ORFS 90° - SAE J516 / ISO 12151-1 SERIE PESANTE (DADO SPINATO)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		T	B	A	C	E	H <sub>2</sub>
M42492-12-12	19	3/4"	- 12	1.3/16" - 12	14,5	72,5	14,0	70,5		36
M42492-16-16	25	1"	- 12	1.7/16" - 12	19,5	82,5	15,0	84,5		46
M42492-20-20	31	1.1/4"	- 20	1.11/16" - 12	25,0	98,5	15,0	98,0		55
M42492-24-24	38	1.1/2"	- 24	2" - 12	31,0	111,5	15,0	109,0		60

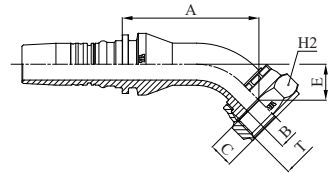
# INTERLOCK PLUS TYPE



## SAE STANDARD CONNECTIONS

### M42441

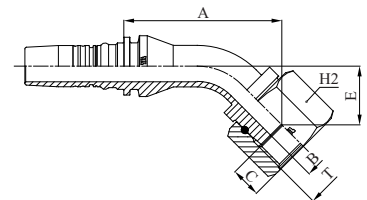
45° ORFS FEMALE SWEPT ELBOW - SAE J516 / ISO 12151-1 (CRIMPED BACK-NUT)  
 HEMBRA ORFS CODO DE 45° CARA PLANA - SAE J516 / ISO 12151-1 (TUERCA PRENSADA)  
 DK ORFS 45° - SAE J516 / ISO 12151-1 (PRESSMUTTER)  
 FEMMINA ORFS 45° - SAE J516 / ISO 12151-1 (DADO PRESSATO)



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		B	A	C	E	H <sub>2</sub>
M42441-10-12	16	5/8"	- 10	1.3/16" - 12	14,5	55,5	14,5	21,5	36
M42441-12-12	19	3/4"	- 12	1.3/16" - 12	14,5	69,0	14,5	21,5	36
M42441-12-16	19	3/4"	- 12	1.7/16" - 12	19,0	77,5	15,0	25,0	41
M42441-16-16	25	1"	- 16	1.7/16" - 12	19,5	84,0	15,0	22,0	41
M42441-20-20	31	1.1/4"	- 20	1.11/16" - 12	25,0	96,5	14,8	26,0	50
M42441-24-24	38	1.1/2"	- 24	2" - 12	31,0	112,0	15,8	31,5	60

### M42442

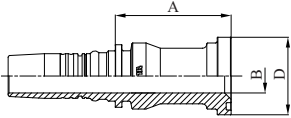
45° ORFS FEMALE SWEPT ELBOW  
 SAE J516 / ISO 12151-1 HEAVY TYPE (THRUST-WIRE-NUT)  
 HEMBRA ORFS CODO DE 45°  
 SAE J516 / ISO 12151-1 SERIE PESADA (TUERCA CON SEGURO)  
 45° ORFS BOGEN (GESHTETE MUTTER) - SAE J516 / ISO 12151-1  
 FEMMINA ORFS 45° - SAE J516 / ISO 12151-1 SERIE PESANTE (DADO SPINATO)



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	C	E	H <sub>2</sub>
M42442-12-12	19	3/4"	- 12	1.3/16" - 12	14,5	89,0	14,0	36,0	36
M42442-16-16	25	1"	- 16	1.7/16" - 12	19,5	100,0	15,0	42,5	46
M42442-20-20	31	1.1/4"	- 20	1.11/16" - 12	25,0	119,5	15,0	49,5	55
M42442-24-24	38	1.1/2"	- 24	2" - 12	31,0	128,5	15,0	52,0	60

### M43310

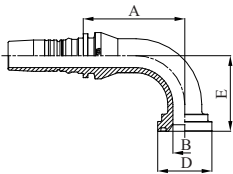
ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 SAE FLANSCH GERADE - SAE J516 / ISO 12151-3  
 FLANGIA ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	inch	Size		B	A	D			
M43310-10-16	16	5/8"	- 10	1"	20,0	63,5	44,6			
M43310-12-12	19	3/4"	- 12	3/4"	16,0	59,9	38,0			
M43310-12-16	19	3/4"	- 12	1"	20,0	65,7	44,6			
M43310-16-12	25	1"	- 16	3/4"	16,0	67,0	38,0			
M43310-16-16	25	1"	- 16	1"	20,0	66,7	44,6			
M43310-16-20	25	1"	- 16	1.1/4"	26,0	73,0	51,0			
M43310-20-20	31	1.1/4"	- 20	1.1/4"	26,0	75,0	51,0			
M43310-20-24	31	1.1/4"	- 20	1.1/2"	32,0	80,0	60,5			
M43310-24-24	38	1.1/2"	- 24	1.1/2"	32,0	80,6	60,5			
M43310-24-32	38	1.1/2"	- 24	2"	42,0	88,3	71,6			
M43310-32-32	51	2"	- 32	2"	42,0	82,8	71,6			

### M43390

90° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA CODO 90° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 SAE FLANSCH 90° BOGEN - SAE J516 / ISO 12151-3  
 FLANGIA 90° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		B	A	D	E		
M43390-10-16	16	5/8"	- 10	1"	20,0	70,5	44,6	52,0		
M43390-12-12	19	3/4"	- 12	3/4"	16,0	71,8	38,0	52,0		
M43390-12-16	19	3/4"	- 12	1"	20,0	72,4	44,6	52,0		
M43390-16-16	25	1"	- 16	1"	20,0	83,4	44,6	62,0		
M43390-16-20	25	1"	- 16	1.1/4"	26,0	83,4	51,0	62,0		
M43390-20-16	31	1.1/4"	- 20	1"	19,8	96,5	44,6	66,0		
M43390-20-20	31	1.1/4"	- 20	1.1/4"	26,0	99,0	51,0	70,0		
M43390-20-24	31	1.1/4"	- 20	1.1/2"	32,0	98,7	60,5	72,0		
M43390-24-24	38	1.1/2"	- 24	1.1/2"	32,0	111,6	60,5	84,0		
M43390-24-32	38	1.1/2"	- 24	2"	42,0	111,5	71,6	84,0		
M43390-32-32	51	2"	- 32	2"	42,0	133,7	71,6	99,0		

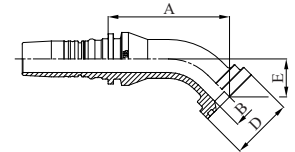
# INTERLOCK PLUS TYPE



## SAE STANDARD CONNECTIONS

### M43340

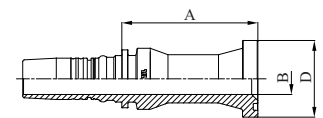
45° ISO/SAE CODE 61 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA CODO 45° ISO/SAE CODIGO 61 - SAE J516 / ISO 12151-3  
 SAE FLANSCH 45° BOGEN - SAE J516 / ISO 12151-3  
 FLANGIA 45° ISO/SAE CODE 61 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M43340-12-12	19	3/4"	- 12	3/4"	16,0	75,6	38,0	23,0
M43340-12-16	19	3/4"	- 12	1"	20,0	76,0	44,6	23,0
M43340-16-16	25	1"	- 16	1"	20,0	87,0	44,6	27,3
M43340-16-20	25	1"	- 16	1.1/4"	26,0	87,5	51,0	27,3
M43340-20-20	31	1.1/4"	- 20	1.1/4"	26,0	100,5	51,0	29,5
M43340-20-24	31	1.1/4"	- 20	1.1/2"	32,0	101,5	60,5	31,0
M43340-24-24	38	1.1/2"	- 24	1.1/2"	32,0	111,0	60,5	34,5
M43340-24-32	38	1.1/2"	- 24	2"	42,0	113,0	71,6	34,5
M43340-32-32	51	2"	- 32	2"	42,0	128,7	71,6	39,0

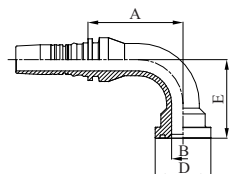
### M43610

ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 ISO/SAE CODE 62 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA ISO/SAE CODE 62 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	
M43610-10-12	16	5/8"	- 10	3/4"	16,0	64,0	41,4	
M43610-10-16	16	5/8"	- 10	1"	20,0	81,5	47,7	
M43610-12-12	19	3/4"	- 12	3/4"	16,0	71,4	41,4	
M43610-12-16	19	3/4"	- 12	1"	20,0	83,4	47,7	
M43610-16-12	25	1"	- 16	3/4"	16,0	80,3	41,4	
M43610-16-16	25	1"	- 16	1"	20,0	84,7	47,7	
M43610-16-20	25	1"	- 16	1.1/4"	26,0	89,0	54,2	
M43610-20-16	31	1.1/4"	- 20	1"	20,0	87,2	47,7	
M43610-20-20	31	1.1/4"	- 20	1.1/4"	26,0	91,1	54,2	
M43610-20-24	31	1.1/4"	- 20	1.1/2"	32,0	97,2	63,7	
M43610-24-20	38	1.1/2"	- 24	1.1/4"	26,0	101,2	54,2	
M43610-24-24	38	1.1/2"	- 24	1.1/2"	32,0	97,7	63,7	
M43610-24-32	38	1.1/2"	- 24	2"	42,0	112,8	79,6	
M43610-32-24	51	2"	- 32	1.1/2"	32,0	117,0	63,7	
M43610-32-32	51	2"	- 32	2"	42,0	112,8	79,6	

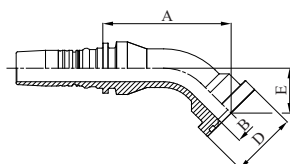
### M43690



90° ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA CODO 90° ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 90° ISO/SAE CODE 62 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 90° ISO/SAE CODE 62 - SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M43690-10-12	16	5/8"	- 10	3/4"	16,0	57,5	41,4	60,5
M43690-12-12	19	3/4"	- 12	3/4"	16,0	72,4	41,4	59,0
M43690-12-16	19	3/4"	- 12	1"	20,0	72,4	47,7	65,0
M43690-16-12	25	1"	- 16	3/4"	16,0	81,3	41,4	62,0
M43690-16-16	25	1"	- 16	1"	20,0	81,1	47,7	68,0
M43690-16-20	25	1"	- 16	1.1/4"	26,0	78,6	54,2	76,0
M43690-20-16	31	1.1/4"	- 20	1"	20,0	98,5	47,7	79,0
M43690-20-20	31	1.1/4"	- 20	1.1/4"	26,0	98,5	54,2	81,0
M43690-20-24	31	1.1/4"	- 20	1.1/2"	32,0	98,5	63,7	91,5
M43690-24-20	38	1.1/2"	- 24	1.1/4"	26,0	111,2	54,2	91,0
M43690-24-24	38	1.1/2"	- 24	1.1/2"	32,0	112,5	63,7	94,5
M43690-24-32	38	1.1/2"	- 24	2"	42,0	112,5	79,6	110,5
M43690-32-32	51	2"	- 32	2"	42,0	140,7	79,6	132,0

### M43640



45° ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA CODO 45° ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 45° ISO/SAE CODE 62 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 45° ISO/SAE CODE 62 - SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M43640-10-12	16	5/8"	- 10	3/4"	16,0	71,0	41,4	31,0
M43640-10-16	16	5/8"	- 10	1"	20,0	83,5	47,7	32,5
M43640-12-12	19	3/4"	- 12	3/4"	16,0	81,0	41,4	28,0
M43640-12-16	19	3/4"	- 12	1"	20,0	85,4	47,7	32,3
M43640-16-12	25	1"	- 16	3/4"	16,0	87,0	41,4	28,0
M43640-16-16	25	1"	- 16	1"	20,0	91,4	47,7	32,3
M43640-16-20	25	1"	- 16	1.1/4"	26,0	93,7	54,2	37,5
M43640-20-16	31	1.1/4"	- 20	1"	20,0	106,5	47,7	36,0
M43640-20-20	31	1.1/4"	- 20	1.1/4"	26,0	108,0	54,2	37,5
M43640-20-24	31	1.1/4"	- 20	1.1/2"	32,0	115,0	63,7	45,0
M43640-24-20	38	1.1/2"	- 24	1.1/4"	26,0	124,5	54,2	43,0
M43640-24-24	38	1.1/2"	- 24	1.1/2"	32,0	124,3	63,7	44,0
M43640-24-32	38	1.1/2"	- 24	2"	42,0	135,6	79,6	55,4
M43640-32-32	51	2"	- 32	2"	42,0	154,0	79,6	60,5



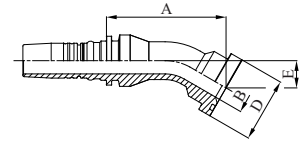
# INTERLOCK PLUS TYPE



## SAE STANDARD CONNECTIONS

### M43630

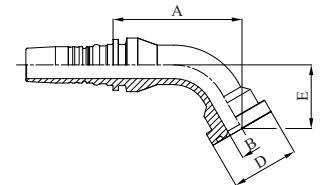
30° ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA CODO 30° ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 30° ISO/SAE CODE 62 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 30° ISO/SAE CODE 62 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	
M43630-12-12	19	3/4"	- 12	3/4"	16,0	87,0	41,4	17,5	
M43630-16-16	25	1"	- 16	1"	20,0	98,5	47,7	20,0	
M43630-20-20	31	1.1/4"	- 20	1.1/4"	26,0	115,5	54,2	23,0	
M43630-24-24	38	1.1/2"	- 24	1.1/2"	32,0	133,5	63,7	27,0	
M43630-32-32	51	2"	- 32	2"	42,0	166,5	79,6	60,5	

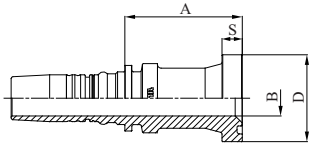
### M43660

60° ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA CODO 60° ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 60° ISO/SAE CODE 62 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA 60° ISO/SAE CODE 62 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	
M43660-12-12	19	3/4"	- 12	3/4"	16,0	98,5	41,4	39,0	
M43660-12-16	19	3/4"	- 12	1"	20,0	101,5	47,7	44,0	
M43660-16-16	25	1"	- 16	1"	20,0	107,5	47,7	52,0	
M43660-20-20	31	1.1/4"	- 20	1.1/4"	26,0	130,0	54,2	59,0	
M43660-20-24	31	1.1/4"	- 20	1.1/2"	32,0	136,0	63,7	67,5	
M43660-24-24	38	1.1/2"	- 24	1.1/2"	32,0	154,0	63,7	61,5	
M43660-32-32	51	2"	- 32	2"	42,0	197,5	79,5	85,0	

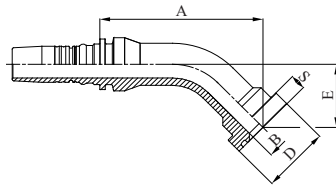
### M43710



FLANGE PLUS (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)  
 BRIDA PLUS (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)  
 GERADER FLANSCH SCHWERE REIHE (SAE J518 CODE 62 - ISO 6162-2 KOMPATIBLER ANSCHLUSS)  
 FLANGIA PLUS (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)

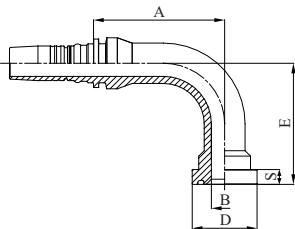
PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	S	
M43710-10-12	16	5/8"	- 10	3/4"	16,0	51,5	41,4	9,0	
M43710-12-12	19	3/4"	- 12	3/4"	14,5	71,5	41,4	10,0	
M43710-16-16	25	1"	- 16	1"	19,5	64,0	47,7	11,0	
M43710-20-20	31	1.1/4"	- 20	1.1/4"	25,0	81,0	54,2	12,0	

### M43740



45° FLANGE PLUS (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)  
 BRIDA PLUS CODO 45° (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)  
 45°-BOGEN FLANSCH SCHWERE REIHE  
 (SAE J518 CODE 62 - ISO 6162-2 KOMPATIBLER ANSCHLUSS)  
 FLANGIA PLUS 45° (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43740-10-12	16	5/8"	- 10	3/4"	16,0	72,5	41,4	32,0	9,0
M43740-12-12	19	3/4"	- 12	3/4"	14,5	113,0	41,4	40,0	10,0
M43740-16-16	25	1"	- 16	1"	19,5	113,5	47,7	43,0	11,0
M43740-20-20	31	1.1/4"	- 20	1.1/4"	25,0	133,5	54,2	50,0	12,0



90° FLANGE PLUS (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)  
 BRIDA PLUS CODO 90° (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)  
 90°-BOGEN FLANSCH SCHWERE REIHE  
 (SAE J518 CODE 62 - ISO 6162-2 KOMPATIBLER ANSCHLUSS)  
 FLANGIA PLUS 90° (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)

### M43790

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43790-10-12	16	5/8"	- 10	3/4"	16,0	61,5	41,4	60,5	9,0
M43790-12-12	19	3/4"	- 12	3/4"	14,5	93,0	41,4	75,0	10,0
M43790-16-16	25	1"	- 16	1"	19,5	90,0	47,7	90,0	11,0
M43790-20-20	31	1.1/4"	- 20	1.1/4"	25,0	115,0	54,0	110,0	12,0

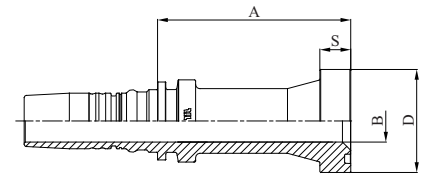
# INTERLOCK PLUS TYPE



## ORIGINAL EQUIPMENT CONNECTIONS

### M43910

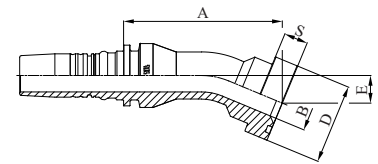
STRAIGHT SUPERCAT SERIES FLANGE  
BRIDA RECTA SUPERCAT  
FLANSCH GERADE SUPERCAT  
FLANGIA DRITTA SERIE SUPERCAT



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	S
M43910-12-12	19	3/4"	- 12	3/4"	16,0	77,0	41,5	14,3
M43910-12-16	19	3/4"	- 12	1"	20,0	88,5	47,7	14,3
M43910-16-16	25	1"	- 16	1"	20,0	89,5	47,7	14,3
M43910-16-20	25	1"	- 16	1.1/4"	26,0	93,5	54,0	14,3
M43910-20-20	31	1.1/4"	- 20	1.1/4"	26,0	95,2	54,0	14,3
M43910-20-24	31	1.1/4"	- 20	1.1/2"	32,0	98,5	63,6	14,3
M43910-24-24	38	1.1/2"	- 24	1.1/2"	32,0	99,2	63,6	14,3
M43910-24-32	38	1.1/2"	- 24	2"	42,0	115,0	79,3	14,3
M43910-32-24	51	2"	- 32	1.1/2"	32,0	119,0	63,6	14,3
M43910-32-32	51	2"	- 32	2"	42,0	114,0	79,3	14,3

### M43920

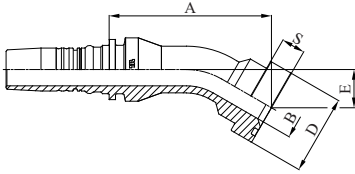
22,5° SUPERCAT SERIES FLANGE  
CODO 22,5° BRIDA SERIE SUPERCAT  
22,5° FLANSCH SERIE SUPERCAT  
FLANGIA 22,5° SERIE SUPERCAT



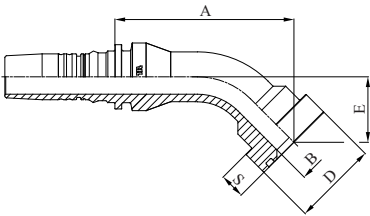
PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43920-12-12	19	3/4"	- 12	3/4"	16,0	94,5	41,5	14,5	14,3
M43920-12-16	19	3/4"	- 12	1"	20,0	102,0	47,7	16,5	14,3
M43920-16-16	25	1"	- 16	1"	20,0	111,0	47,7	16,5	14,3
M43920-16-20	25	1"	- 16	1.1/4"	26,0	115,5	54,0	19,0	14,3
M43920-20-20	31	1.1/4"	- 20	1.1/4"	26,0	122,0	54,0	18,0	14,3
M43920-20-24	31	1.1/4"	- 20	1.1/2"	32,0	139,0	63,6	23,0	14,3
M43920-24-24	38	1.1/2"	- 24	1.1/2"	32,0	138,0	63,6	20,0	14,3

### M43930

30° SUPERCAT SERIES FLANGE  
 CODO 30° BRIDA SERIE SUPERCAT  
 30° FLANSCH SERIE SUPERCAT  
 FLANGIA 30° SERIE SUPERCAT



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43930-12-12	19	3/4"	- 12	3/4"	16,0	92,0	41,5	20,0	14,3
M43930-12-16	19	3/4"	- 12	1"	20,0	99,5	47,7	22,5	14,3
M43930-16-16	25	1"	- 16	1"	20,0	108,5	47,7	23,0	14,3
M43930-16-20	25	1"	- 16	1.1/4"	26,0	112,5	54,0	26,0	14,3
M43930-20-20	31	1.1/4"	- 20	1.1/4"	26,0	119,0	54,0	25,0	14,3
M43930-20-24	31	1.1/4"	- 20	1.1/2"	32,0	135,5	63,6	32,0	14,3
M43930-24-24	38	1.1/2"	- 24	1.1/2"	32,0	135,0	63,6	28,0	14,3
M43930-24-32	38	1.1/2"	- 24	2"	42,0	151,5	79,3	36,0	14,3
M43930-32-32	51	2"	- 32	2"	42,0	171,5	79,3	37,5	14,3



### M43940

45° SUPERCAT SERIES FLANGE  
 BRIDA SUPERCAT CODO DE 45°  
 FLANSCH 45° BOGEN SUPERCAT  
 FLANGIA 45° SERIE SUPERCAT

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43940-12-12	19	3/4"	- 12	3/4"	16,0	85,0	41,5	32,0	14,3
M43940-12-16	19	3/4"	- 12	1"	20,0	92,0	47,7	35,5	14,3
M43940-16-16	25	1"	- 16	1"	20,0	100,4	47,7	36,7	14,3
M43940-16-20	25	1"	- 16	1.1/4"	26,0	104,0	54,0	40,5	14,3
M43940-20-20	31	1.1/4"	- 20	1.1/4"	26,0	110,5	54,0	40,5	14,3
M43940-20-24	31	1.1/4"	- 20	1.1/2"	32,0	125,5	63,6	50,5	14,3
M43940-24-24	38	1.1/2"	- 24	1.1/2"	32,0	125,5	63,6	45,3	14,3
M43940-24-32	38	1.1/2"	- 24	2"	42,0	139,5	79,3	56,5	14,3
M43940-32-32	51	2"	- 32	2"	42,0	158,5	79,3	61,5	14,3

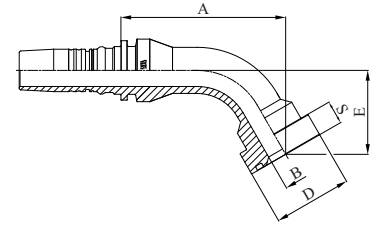
# INTERLOCK PLUS TYPE



## ORIGINAL EQUIPMENT CONNECTIONS

### M43960

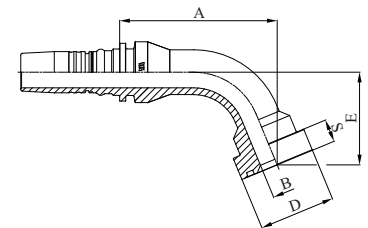
60° SUPERCAT SERIES FLANGE  
 CODO 60° BRIDA SERIE SUPERCAT  
 60° FLANSCH SERIE SUPERCAT  
 FLANGIA 60° SERIE SUPERCAT



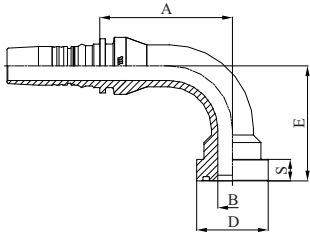
PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43960-12-12	19	3/4"	- 12	3/4"	16,0	101,5	41,5	44,0	14,3
M43960-12-16	19	3/4"	- 12	1"	20,0	106,5	47,7	48,0	14,3
M43960-16-16	25	1"	- 16	1"	20,0	122,0	47,7	51,0	14,3
M43960-16-16055	25	1"	- 16	1"	20,0	117,5	47,7	55,0	14,3
M43960-16-20	25	1"	- 16	1.1/4"	26,0	122,5	54,0	55,0	14,3
M43960-20-20	31	1.1/4"	- 20	1.1/4"	26,0	135,5	54,0	56,0	14,3
M43960-20-24	31	1.1/4"	- 20	1.1/2"	32,0	149,0	63,6	69,0	14,3
M43960-24-24	38	1.1/2"	- 24	1.1/2"	32,0	154,5	63,6	63,0	14,3
M43960-32-32	51	2"	- 32	2"	42,0	202,0	79,3	86,5	14,3
M43960-32-32150	51	2"	- 32	2"	42,0	196,5	79,3	150,0	14,3

### M43970

67,5° SUPERCAT SERIES FLANGE  
 CODO 67,5° BRIDA SERIE SUPERCAT  
 67,5° FLANSCH SERIE SUPERCAT  
 FLANGIA 67,5° SERIE SUPERCAT



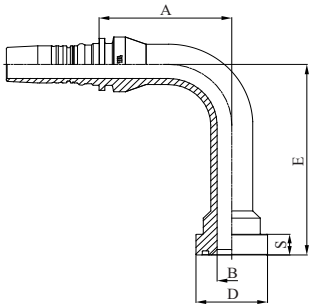
PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43970-12-12	19	3/4"	- 12	3/4"	16,0	95,5	41,5	49,5	14,3
M43970-12-16	19	3/4"	- 12	1"	20,0	100,0	47,7	54,0	14,3
M43970-16-16	25	1"	- 16	1"	20,0	115,0	47,7	58,0	14,3
M43970-16-20	25	1"	- 16	1.1/4"	26,0	115,0	54,0	62,0	14,3
M43970-20-20	31	1.1/4"	- 20	1.1/4"	26,0	128,0	54,0	64,0	14,3
M43970-20-24	31	1.1/4"	- 20	1.1/2"	32,0	139,5	63,6	78,0	14,3
M43970-24-24	38	1.1/2"	- 24	1.1/2"	32,0	146,0	63,6	72,0	14,3
M43970-32-32	51	2"	- 32	2"	42,0	189,5	79,3	99,0	14,3



### M43990

90° SUPERCAT SERIES FLANGE  
BRIDA SUPERCAT CODO DE 90°  
FLANSCH 90° BOGEN SUPERCAT  
FLANGIA 90° SERIE SUPERCAT

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43990-12-12	19	3/4"	- 12	3/4"	16,0	72,5	41,5	64,5	14,3
M43990-12-16	19	3/4"	- 12	1"	20,0	75,5	47,7	69,5	14,3
M43990-16-16	25	1"	- 16	1"	20,0	88,5	47,7	76,5	14,3
M43990-16-20	25	1"	- 16	1.1/4"	26,0	86,5	54,0	80,5	14,3
M43990-20-20	31	1.1/4"	- 20	1.1/4"	26,0	98,5	54,0	85,0	14,3
M43990-20-24	31	1.1/4"	- 20	1.1/2"	32,0	104,5	63,6	101,0	14,3
M43990-24-24	38	1.1/2"	- 24	1.1/2"	32,0	112,5	63,6	96,5	14,3
M43990-24-32	38	1.1/2"	- 24	2"	42,0	115,0	79,3	112,0	14,3
M43990-32-32	51	2"	- 32	2"	42,0	144,0	79,3	133,5	14,3



### M43990 LONG DROP

90° LONG DROP SUPERCAT SERIES FLANGE  
CODO 90° LARGO BRIDA SERIE SUPERCAT  
90° LANGER SCHENKEL FLANSCH SERIE SUPERCAT  
FLANGIA 90° SERIE SUPERCAT CURVA LUNGA

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				
	DN	inch	Size		B	A	D	E	S
M43990-16-16132	25	1"	- 16	1"	20,0	88,5	47,7	132,0	14,3
M43990-16-16150	25	1"	- 16	1"	20,0	88,5	47,7	150,0	14,3
M43990-16-20150	25	1"	- 16	1.1/4"	26,0	88,5	54,0	150,0	14,3
M43990-20-20092	31	1.1/4"	- 20	1.1/4"	26,0	98,5	54,0	92,0	14,3
M43990-20-20150	31	1.1/4"	- 20	1.1/4"	26,0	98,5	54,0	150,0	14,3
M43990-20-24135	31	1.1/4"	- 20	1.1/2"	32,0	98,5	63,6	135,0	14,3
M43990-24-24106	38	1.1/2"	- 24	1.1/2"	32,0	112,5	63,6	106,0	14,3

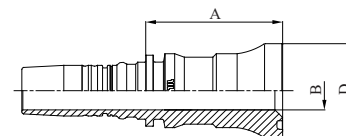
# INTERLOCK PLUS TYPE



## XTRAFLANGE

### M48510

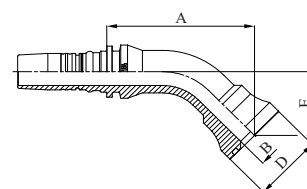
XTRAFLANGE (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)  
 BRIDA XTRAFLANGE (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)  
 XTRAFLANSCH GERADE (SAE J518 CODE 62 - ISO 6162-2 KOMPATIBLER ANSCHLUSS)  
 XTRAFLANGIA (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			WEIGHT
	DN	inch	Size		B	A	D	
M48510-12-12	19	3/4"	- 12	3/4"	14,5	64,0	41,4	0,4
M48510-16-16	25	1"	- 16	1"	19,5	68,3	47,7	0,6
M48510-20-20	31	1.1/4"	- 20	1.1/4"	25,0	88,0	54,4	1,0
M48510-24-24	38	1.1/2"	- 24	1.1/2"	31,0	102,0	63,7	1,4
M48510-32-32	51	2"	- 32	2"	41,0	129,0	79,6	2,7

### M48540

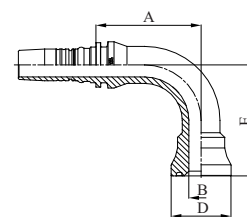
45° XTRAFLANGE (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)  
 BRIDA CODO 45° XTRAFLANGE (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)  
 45°-BOGEN XTRAFLANSCH (SAE J518 CODE 62 - ISO 6162-2 KOMPATIBLER ANSCHLUSS)  
 XTRAFLANGIA 45° (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				WEIGHT
	DN	inch	Size		B	A	D	E	
M48540-12-12	19	3/4"	- 12	3/4"	14,5	92,5	41,4	38,0	0,5
M48540-16-16	25	1"	- 16	1"	19,5	101,5	47,7	45,0	0,7
M48540-20-20	31	1.1/4"	- 20	1.1/4"	25,0	138,0	54,4	62,5	1,3
M48540-24-24	38	1.1/2"	- 24	1.1/2"	31,0	155,0	63,7	71,5	1,9
M48540-32-32	51	2"	- 32	2"	41,0	193,5	79,6	92,5	3,9

### M48590

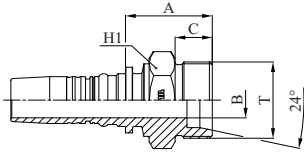
90° XTRAFLANGE (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)  
 BRIDA CODO 90° XTRAFLANGE (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)  
 XTRAFLANSCH 90° BOGEN (SAE J518 CODE 62 - ISO 6162-2 KOMPATIBLER ANSCHLUSS)  
 XTRAFLANGIA 90° (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				WEIGHT
	DN	inch	Size		B	A	D	E	
M48590-12-12	19	3/4"	- 12	3/4"	14,5	75,5	41,4	75,0	0,5
M48590-16-16	25	1"	- 16	1"	19,5	83,5	47,7	90,0	0,8
M48590-20-20	31	1.1/4"	- 20	1.1/4"	25,0	107,0	54,4	120,0	1,5
M48590-24-24	38	1.1/2"	- 24	1.1/2"	31,0	122,0	63,7	140,0	2,2
M48590-32-32	51	2"	- 32	2"	41,0	147,5	79,6	180,0	4,3



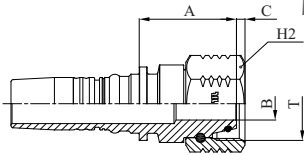
### M31210



METRIC MALE 24° CONE SEAT HEAVY DUTY - DIN 20066 / ISO 12151-2  
 MACHO METRICO ASIEN TO A 24° - SERIE PESADA DIN 20066 / ISO 12151-2  
 CES - DIN 20066 / ISO 12151-2  
 MASCHIO METRICO 24° - SERIE PESANTE DIN 20066 / ISO 12151-2

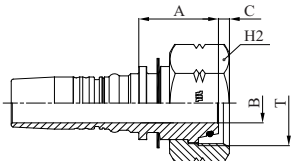
PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M31210-10-30	16	5/8"	- 10	M 30x2	20	12,0	36,8	16,0		30
M31210-12-30	19	3/4"	- 12	M 30x2	20	14,5	38,5	16,0		32
M31210-12-36	19	3/4"	- 12	M 36x2	25	14,5	43,4	18,0		36
M31210-16-36	25	1"	- 16	M 36x2	25	19,5	45,0	18,0		36
M31210-16-42	35	1"	- 16	M 42x2	30	19,5	46,8	20,0		46
M31210-20-52	31	1.1/4"	- 20	M 52x2	38	25,0	55,0	22,0		55
M31210-24-52	38	1.1/2"	- 24	M 52x2	38	30,5	55,6	22,0		55

### M41612



METRIC O-RING FEMALE 24° CONE HEAVY DUTY - DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)  
 HEMBRA METRICA CON O-RING ASIEN TO A 24° SERIE PESADA  
 DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)  
 DKOS - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)  
 FEMMINA METRICA CONO 24° O-RING SERIE PESANTE DIN 20066 / ISO 12151-2 (DADO SPINATO)

### M41613



METRIC O-RING FEMALE 24° CONE HEAVY DUTY - DIN 20066 / ISO 12151-2 (SLIP-ON NUT)  
 HEMBRA METRICA CON O-RING ASIEN TO A 24° SERIE PESADA  
 DIN 20066 / ISO 12151-2 (TUERCA LIBRE)  
 DKOS - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)  
 FEMMINA METRICA CONO 24° O-RING SERIE PESANTE DIN 20066 / ISO 12151-2 (DADO PASSANTE)

PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	mm	B	A	C
M41613-10-30	16	5/8"	- 10	M 30x2	20	12,0	37,1	3,5		36
M41612-10-24	16	5/8"	- 10	M 24x1,5	16	9,3	31,0	4,0		30
M41612-12-30	19	3/4"	- 12	M 30x2	20	12,5	43,9	3,2		36
M41613-12-36	19	3/4"	- 12	M 36x2	25	14,5	42,1	3,4		41
M41613-12-42	19	3/4"	- 12	M 42x2	30	19,0	35,8	5,3		50
M41612-16-36	25	1"	- 16	M 36x2	25	16,0	46,8	4,1		41
M41613-16-42	25	1"	- 16	M 42x2	30	19,5	46,3	5,3		50
M41613-16-52	25	1"	- 16	M 52x2	38	26,0	50,5	8,0		60
M41612-20-42	31	1.1/4"	- 20	M 42x2	30	19,0	47,5	6,1		50
M41613-20-52	31	1.1/4"	- 20	M 52x2	38	26,0	41,7	8,0		60
M41612-24-52	38	1.1/2"	- 24	M 52x2	38	29,0	52,5	8,8		60

# INTERLOCK PLUS TYPE



## DIN STANDARD CONNECTIONS

### M41692

90° METRIC O-RING FEMALE SWEPT ELBOW 24° CONE HEAVY DUTY

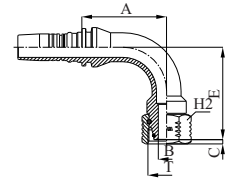
DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)

HEMBRA METRICA CON O-RING CODO DE 90° ASIEN TO A 24° SERIE PESADA

DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)

DKOS 90° BOGEN - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)

FEMMINA METRICA 90° CONO 24° O-RING SERIE PESANTE DIN 20066 / ISO 12151-2 (DADO SPINATO)



### M41693

90° METRIC O-RING FEMALE SWEPT ELBOW 24° CONE HEAVY DUTY

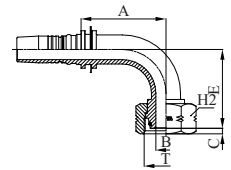
DIN 20066 / ISO 12151-2 (SLIP-ON NUT)

HEMBRA METRICA CON O-RING CODO DE 90° ASIEN TO A 24° SERIE PESADA

DIN 20066 / ISO 12151-2 (TUERCA LIBRE)

DKOS 90° BOGEN - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)

FEMMINA METRICA 90° CONO 24° O-RING SERIE PESANTE DIN 20066 / ISO 12151-2 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm				
	DN	inch	Size			T	B	A	C	E
M41693-10-30	16	5/8"	- 10	M 30x2	20	12,0	52,5	3,5	57,5	36
M41692-12-30	19	3/4"	- 12	M 30x2	25	12,5	63,8	3,2	68,5	36
M41693-12-36	19	3/4"	- 12	M 36x2	25	14,5	67,0	3,4	67,5	41
M41692-16-36	25	1"	- 16	M 36x2	25	16,0	81,7	4,1	89,0	41
M41693-16-42	25	1"	- 16	M 42x2	30	19,5	81,6	5,3	75,5	50
M41692-20-42	31	1.1/4"	- 20	M 42x2	30	19,0	103,5	6,1	90,0	50
M41693-20-52	31	1.1/4"	- 20	M 52x2	38	26,0	100,0	8,0	86,5	60

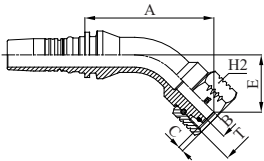
### M41642

45° METRIC O-RING FEMALE SWEPT ELBOW 24° CONE HEAVY DUTY  
DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)

HEMBRA METRICA CON O-RING CODO DE 45° CONO 24° SERIE PESADA  
DIN 20066 / ISO 12151-2 (TUERCA CON SEGURO)

DKOS 45° BOGEN - DIN 20066 / ISO 12151-2 (GESTIFTETE MUTTER)

FEMMINA METRICA 45° CONO 24° O-RING SERIE PESANTE DIN 20066 / ISO 12151-2 (DADO SPINATO)



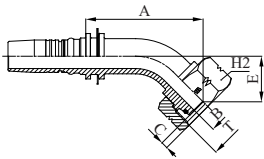
### M41643

45° METRIC O-RING FEMALE SWEPT ELBOW 24° CONE HEAVY DUTY  
DIN 20066 / ISO 12151-2 (SLIP-ON NUT)

HEMBRA METRICA CON O-RING CODO DE 45° ASIEN TO A 24° SERIE PESADA  
DIN 20066 / ISO 12151-2 (TUERCA LIBRE)

DKOS 45° BOGEN - DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)

FEMMINA METRICA 45° CONO 24° O-RING SERIE PESANTE DIN 20066 / ISO 12151-2 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E
M41643-10-30	16	5/8"	- 10	M 30x2	20	12,0	66,5	3,5	29,5		36
M41642-12-30	19	3/4"	- 12	M 30x2	20	12,5	79,2	3,2	34,8		36
M41643-12-36	19	3/4"	- 12	M 36x2	25	14,5	81,0	3,4	33,5		41
M41642-16-36	25	1"	- 16	M 36x2	25	16,0	103,0	4,1	45,5		41
M41643-16-42	25	1"	- 16	M 42x2	30	19,5	93,1	5,3	36,0		50
M41642-20-42	31	1.1/4"	- 20	M 42x2	30	19,0	116,5	6,1	44,5		50
M41643-20-52	31	1.1/4"	- 20	M 52x2	38	26,0	110,0	8,0	40,0		60

# INTERLOCK PLUS TYPE



## DIN STANDARD CONNECTIONS

### M41293

90° METRIC O-RING FEMALE MEDIUM/LONG DROP ELBOW 24° CONE HEAVY DUTY  
DIN 20066 / ISO 12151-2 (SLIP-ON NUT)

CODO 90° METRICO MEDIO/LARGO 24° O-RING SERIE PESADA

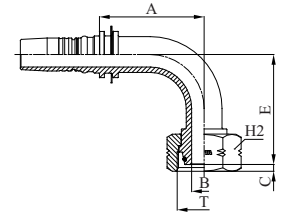
DIN 20066 / ISO 12151-2 (TUERCA CON PASADOR)

90° BOGEN O-RING METRISCH 24° KONUS H.T.

DIN 20066 / ISO 12151-2 (HINTERLEGTE MUTTER)

FEMMINA METRICA O-RING SERIE PESANTE CONO 24° CURVA 90° MEDIO/LUNGA

DIN 20066 / ISO 12151-2 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E
M41293-10-30	16	5/8"	- 10	M 30x2	20	12,0	53,0	3,5	60,0		36
M41293-12-36	19	3/4"	- 12	M 36x2	25	14,5	67,0	3,4	67,5		41
M41293-16-42	25	1"	- 16	M 42x2	30	19,5	81,5	5,3	86,0		50
M41293-20-52	31	1.1/4"	- 20	M 52x2	38	26,1	100,0	8,0	92,0		60

### M41243

45° METRIC O-RING FEMALE MEDIUM/LONG DROP ELBOW 24° CONE HEAVY DUTY  
DIN 20066/ ISO 12151-2 (SLIP-ON NUT)

CODO 45° METRICO MEDIO/LARGO 24° O-RING SERIE PESADA

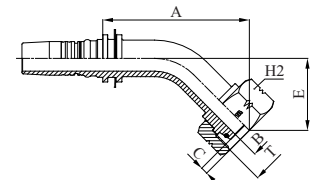
DIN 20066/ ISO 12151-2 (TUERCA CON PASADOR)

45° BOGEN O-RING METRISCH 24° KONUS H.T.

DIN 20066/ ISO 12151-2 (HINTERLEGTE MUTTER)

FEMMINA METRICA O-RING SERIE PESANTE CONO 24° CURVA 45° MEDIO/LUNGA

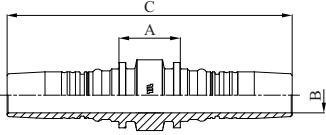
DIN 20066 / ISO 12151-2 (DADO PASSANTE)



PART. REF.	HOSE BORE			THREAD	PIPE	DIMENSIONS mm					
	DN	inch	Size			T	mm	B	A	C	E
M41243-10-30	16	5/8"	- 10	M 30x2	20	12,0	77,5	3,5	35,0		36
M41243-12-36	19	3/4"	- 12	M 36x2	25	14,5	101,0	3,4	45,0		41
M41243-16-42	25	1"	- 16	M 42x2	30	19,5	112,0	5,3	55,0		50
M41243-20-52	31	1.1/4"	- 20	M 52x2	38	26,1	133,0	8,0	63,0		60

### M30050

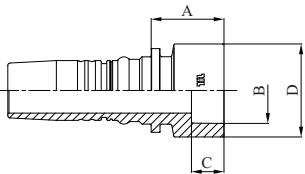
DOUBLE CONNECTOR  
CONNECTOR DOBLE  
DOPPELVERBINDER  
DOPPIO INSERTO



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		B	A	C			
M30050-20-20	31	1.1/4"	- 20		25,0	42,0	206,0			
M30050-24-24	38	1.1/2"	- 24		31,0	42,5	228,5			
M30050-32-32	51	2"	- 32		41,0	42,5	244,5			

### M49510WL

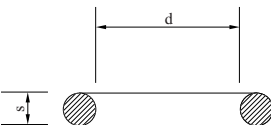
WELDING TAIL  
ESPIGA SOLDABLE  
VERSCHWEISSNIPPEL  
INSERTO A SALDARE



PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm					
	DN	inch	Size		B	A	C	D		
M49510-10-18WL	16	5/8"	- 10		18,1	20,5	10,0	26,0		
M49510-12-22WL	19	3/4"	- 12		22,1	27,5	12,0	34,0		
M49510-16-28WL	25	1"	- 16		28,1	31,5	14,0	40,0		
M49510-20-35WL	31	1.1/4"	- 20		35,1	33,0	14,0	49,0		

### JO29

OPTIONAL INTERLOCK PLUS O-RING  
INTERLOCK PLUS O-RING OPCIONAL  
OPTIONAL INTERLOCK PLUS O-RING  
O-RING INTERLOCK PLUS OPZIONALE



PART. REF.	HOSE BORE			O-RING SIZE (dxs mm)	MATERIAL
	DN	inch	Size		
JO29171318	16	5/8"	- 10	13,20x1,80	NBR 90 Shore A
JO29191618	19	3/4"	- 12	15,60x1,78	NBR 90 Shore A
JO29262218	25	1"	- 16	21,95x1,78	NBR 90 Shore A
JO29322818	31	1.1/4"	- 20	28,30x1,78	NBR 90 Shore A
JO29383518	38	1.1/2"	- 24	34,65x1,78	NBR 90 Shore A
JO29514718	51	2"	- 32	47,35x1,78	NBR 90 Shore A

## DIAMONDSPIR HOSE RANGE

### M01750

DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (4 PLY)

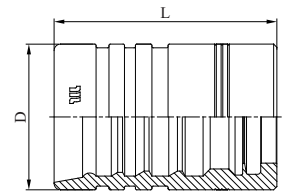
CASQUILLOS DE PELADO INTERNO Y EXTERNO PARA MANGUERAS

CON REFUERZO EN ESPIRAL (4 ESPIRALES)

PRESSFASSUNG FÜR INNEN- UND AUSSENSCHÄLUNG FÜR SPEZIAL-SPIRALSCHLÄUCHE (4-LAGIG)

GHIERA A PELATURA INTERNA/ESTERNA PER TUBI SPIRALATI

(4 SPIRALI) PER APPLICAZIONI ESTREMAMENTE SEVERE



PART. REF.	HOSE BORE			DIMENSIONS mm			
	DN	inch	Size	D	L	C	H <sub>1</sub>

M01750-12	19	3/4"	- 12	45,1	69,0		
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### M01800

DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (6 PLY)

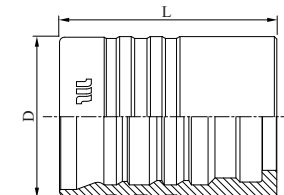
CASQUILLOS DE PELADO INTERNO Y EXTERNO PARA MANGUERAS

CON REFUERZO EN ESPIRAL (6 ESPIRALES)

PRESSFASSUNG FÜR INNEN- UND AUSSENSCHÄLUNG FÜR SPEZIAL-SPIRALSCHLÄUCHE (6-LAGIG)

GHIERA A PELATURA INTERNA/ESTERNA PER TUBI SPIRALATI

(6 SPIRALI) PER APPLICAZIONI ESTREMAMENTE SEVERE

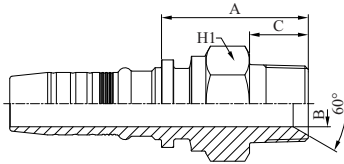


PART. REF.	HOSE BORE			DIMENSIONS mm			
	DN	inch	Size	D	L	C	H <sub>1</sub>

M01800-16	25	1"	- 16	53,5	69,0		
M01800-20	31	1.1/4"	- 20	64,5	88,2		
M01800-24	38	1.1/2"	- 24	73,0	97,8		
M01800-32	51	2"	- 32	86,5	108,0		
M01800-40	63	2.1/2"	- 40	103,0	135,0		
M01800-48	76	3"	- 48	113,5	125,0		

## DIAMONDSPIR HOSE RANGE

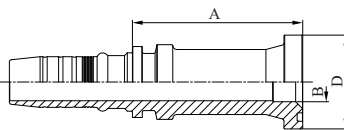
### M52810/M57810



NPTF MALE 60° CONE SEAT - SAE J516/J514  
 MACHO NPTF ASIENTO A 60° - SAE J516/J514  
 AG NPTF KONUS 60° - SAE J516/J514  
 MASCHIO NPTF CONO 60° - SAE J516/J514

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm			
	DN	inch	Size		T	B	A	C
M52810-12-12	19	3/4"	12	3/4" - 14	15,0	49,4	21,0	32
M57810-16-16	25	1"	- 16	1" - 11.5	19,0	60,4	24,2	41
M57810-20-20	31	1.1/4"	- 20	1.1/4" - 11.5	26,1	63,9	28,0	46
M57810-24-24	38	1.1/2"	- 24	1.1/2" - 11.5	32,1	70,4	30,0	55
M57810-32-32	51	2"	- 32	2" - 11.5	42,0	75,5	35,0	70
M57810-40-40	63	2.1/2"	- 40	2.1/2" - 8	55,4	94,5	43,0	80
M57810-48-48	76	3"	- 48	3" - 8	62,5	123,5	51,5	100

### M68610



ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 ISO/SAE CODE 62 FLANSCH - SAE J516 / ISO 12151-3  
 FLANGIA DRITTA SAE CODE 62 - SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm		
	DN	inch	Size		B	A	D
M68610-12-12	19	3/4"	-12	3/4"	16,0	74,0	41,4
M68610-16-16	25	1"	- 16	1"	20,0	86,0	47,7
M68610-20-20	31	1.1/4"	- 20	1.1/4"	26,0	91,0	54,2
M68610-24-24	38	1.1/2"	- 24	1.1/2"	32,0	97,5	63,7
M68610-32-32	51	2"	- 32	2"	42,0	112,5	79,6
M68610-32-40 *	51	2"	- 32	2.1/2"	51,5	124,0	107,8
M68610-40-32	63	2.1/2"	- 40	2"	41,0	115,0	79,6
M68610-40-40 *	63	2.1/2"	- 40	2.1/2"	51,5	127,0	107,8
M68610-48-48 *	76	3"	- 48	3"	63,0	167,0	131,9

\* Manuli specification / Manuli spezifikatjon / Especificación Manuli / Specifica Manuli



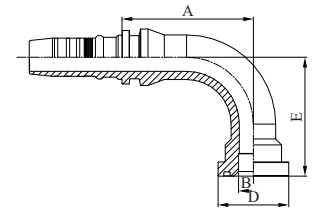
# XTRALOCK TYPE



## DIAMONDSPIR HOSE RANGE

### M68690

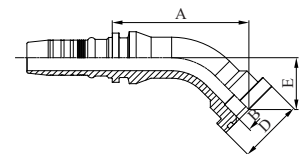
90° ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 90° ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 90° ISO/SAE CODE 62 FLANSCH - SAE J516 / ISO12151-3  
 FLANGIA 90° ISO/SAE CODE 62 - SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M68690-12-12	19	3/4"	-12	3/4"	16,0	75,0	41,4	59,0
M68690-16-16	25	1"	-16	1"	20,0	89,0	47,7	80,0
M68690-20-20	31	1.1/4"	-20	1.1/4"	24,0	110,0	54,2	93,0
M68690-24-24	38	1.1/2"	-24	1.1/2"	38,5	125,0	63,7	110,0
M68690-32-32	51	2"	-32	2"	42,0	148,0	79,6	136,0

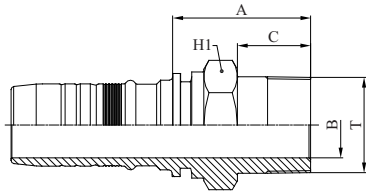
### M68640

45° ISO/SAE CODE 62 FLANGE - SAE J516 / ISO 12151-3  
 BRIDA 45° ISO/SAE CODIGO 62 - SAE J516 / ISO 12151-3  
 45° ISO/SAE CODE 62 FLANSCH - SAE J516 / ISO12151-3  
 FLANGIA 45° ISO/SAE CODE 62 - SAE J516 / ISO 12151-3



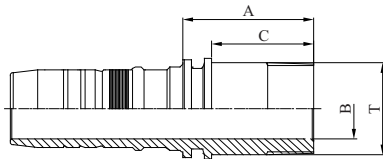
PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	inch	Size		B	A	D	E
M68640-16-16	25	1"	-16	1"	20,0	98,5	47,7	38,0
M68640-20-20	31	1.1/4"	-20	1.1/4"	24,0	121,5	54,2	43,5
M68640-24-24	38	1.1/2"	-24	1.1/2"	38,5	136,0	63,7	50,0
M68640-32-32	51	2"	-32	2"	42,0	160,0	79,6	61,0

## DIAMONDSPIR HOSE RANGE



### M53410

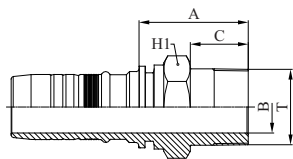
API MALE WITH HEXAGONAL BODY (API 5B THREAD)  
 MACHO API CON CUERPO HEXAGONAL (ROSCA API 5B)  
 VERBINDER API SECHSKANT (API 5B GEWINDE)  
 MASCHIO API CON CORPO ESAGONALE (FILETTATURA API 5B)



### M53410...H00

API MALE WITH CYLINDRICAL BODY (API 5B THREAD)  
 MACHO API CON CUERPO CILINDRICO (ROSCA API 5B)  
 VERBINDER API ZYLINDRISCH (API 5B GEWINDE)  
 MASCHIO API CON CORPO CILINDRICO (FILETTATURA API 5B)

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>1</sub>
M53410-32-32	51	2"	- 32	2" - 11,5	41	119,5	55,0		70
M53410-32-32H00	51	2"	- 32	2" - 11,5	41	76,5	60		-
M53410-40-40	63	2.1/2"	- 40	2.1/2" - 8	51,5	135,0	63,0		80
M53410-40-40H00	63	2.1/2"	- 40	2.1/2" - 8	51,5	99,5	81		-
M53410-48-48	76	3"	- 48	3" - 8	62,5	143,5	71,5		100
M53410-48-48H00	76	3"	- 48	3" - 8	62,5	115	100		-
M53410-48-64	76	3"	-48	4" - 8	62,5	171,5	76,0		120
M53410-48-64H00	76	3"	- 48	4" - 8	62,5	151,5	118		-



### M53510

NPT MALE  
 MACHO NPT  
 NPT-SCHRAUBVERBINDUNG  
 NPT MASCHIO

PART. REF.	HOSE BORE			THREAD	DIMENSIONS mm				
	DN	inch	Size		T	B	A	C	H <sub>1</sub>
M53510-32-32	51	2"	- 32	2" - 11,5	41,0	119,5	55,0	70	
M53510-40-40	63	2.1/2"	- 40	2.1/2" - 8	51,5	135,0	63,0	80	
M53510-48-48	76	3"	- 48	3" - 8	62,5	143,5	71,5	100	

# XTRALOCK TYPE



## XTRAFLANGE

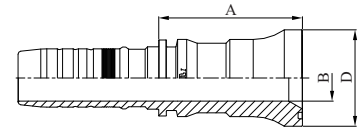
### M68510

XTRAFLANGE (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)

BRIDA RECTA XTRAFLANGE (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)

XTRAFLANSCH GERADE (SAE J518 CODE 62 / ISO 6162-2 KOMPATIBLER ANSCHLUSS)

XTRAFLANGIA (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			W.P.	WEIGHT
	DN	inch	Size		B	A	D		
M68510-16-16	25	1"	- 16	1"	20,0	69,5	47,7	560	0,6
M68510-20-20	31	1.1/4"	- 20	1.1/4"	24,0	88,0	54,4	560	1,0
M68510-20-24	31	1.1/4"	- 20	1.1/2"	30,5	100,0	63,7	560	1,3
M68510-24-24	38	1.1/2"	- 24	1.1/2"	30,5	102,0	63,7	560	1,4
M68510-32-32	51	2"	- 32	2"	41,0	129,0	79,6	450	2,7
M68510-40-40	63	2.1/2"	- 40	2.1/2"	51,5	149,0	99,2	350	4,4

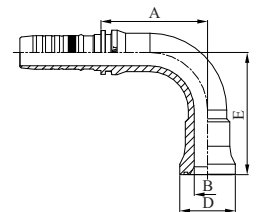
### M68590

90° XTRAFLANGE (SAE J518 CODE 62 AND ISO 6162-2 PORT COMPATIBLE)

BRIDA 90° XTRAFLANGE (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)

XTRAFLANSCH 90° BOGEN (J518 CODE 62 / ISO 6162-2 KOMPATIBLER ANSCHLUSS)

XTRAFLANGIA 90° (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				W.P.	WEIGHT
	DN	inch	Size		B	A	D	E		
M68590-16-16	25	1"	- 16	1"	20,0	84,2	47,7	90,0	560	0,8
M68590-20-20	31	1.1/4"	- 20	1.1/4"	24,0	107,0	54,4	120,0	560	1,5
M68590-24-24	38	1.1/2"	- 24	1.1/2"	30,5	122,2	63,7	140,0	560	2,2
M68590-32-32	51	2"	- 32	2"	41,0	147,5	79,6	180,0	450	4,3

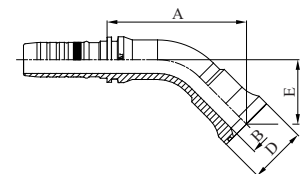
### M68540

45° XTRAFLANGE (SAE J518 CODE 62 AND ISO 6162-2 PORT COMPATIBLE)

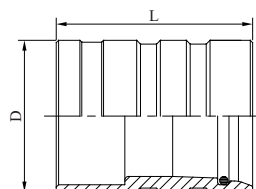
BRIDA 45° XTRAFLANGE (COMPATIBLE CON SAE J518 CODIGO 62 / ISO 6162-2)

XTRAFLANSCH 45° BOGEN (SAE J518 CODE 62 / ISO 6162-2 KOMPATIBLER ANSCHLUSS)

XTRAFLANGIA 45° (COMPATIBILE CON PORTA SAE J518 CODE 62 / ISO 6162-2)



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm				W.P.	WEIGHT
	DN	inch	Size		B	A	D	E		
M68540-16-16	25	1"	- 16	1"	20,0	103,0	47,7	45,0	560	0,7
M68540-20-20	31	1.1/4"	- 20	1.1/4"	24,0	138,0	54,4	62,5	560	1,4
M68540-24-24	38	1.1/2"	- 24	1.1/2"	30,5	155,0	63,7	71,5	560	1,9
M68540-32-32	51	2"	- 32	2"	41,0	193,5	79,6	92,5	450	4,0



### O820..

ANTI-KINK SLEEVE  
CASQUILLO ANTI-COLAPSO  
KNICKSCHUTZHÜLSE  
GHIERA ANTI-KINK

PART. REF.	HOSE BORE			DIMENSIONS mm
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	DN	inch	Size		D	L		
O82040-12	19	3/4"	- 12		45,0	67,0		
O82040-16	25	1"	- 16		52,0	81,0		
O82068-16	25	1"	- 16		55,0	75,0		
O82060-20	31	1.1/4"	- 20		64,0	84,0		
O82062-20	31	1.1/4 "	- 20		64,0	83,0		
O82068-20	31	1.1/4 "	- 20		65,5	83,0		
O82060-24	38	1.1/2"	- 24		72,0	102,0		
O82068-24	38	1.1/2"	- 24		73,0	99,0		
O82068-32	51	2"	- 32		86,5	116,0		
O82068-40	63	2.1/2"	- 40		103,0	148,5		
O82068-48	76	3"	- 48		112,0	156,5		



The following assembling instructions are strongly recommended on heavy duty applications.

Se recomienda seguir atentamente las instrucciones de ensamblaje, particularmente en caso de aplicación extremadamente severa.

Bei schweren Anwendungen empfehlen wir unbedingt die folgenden Verarbeitungshinweise einzuhalten.

Si raccomanda di seguire attentamente le seguenti istruzioni d'assemblaggio in particolare in caso di applicazioni estremamente severe.

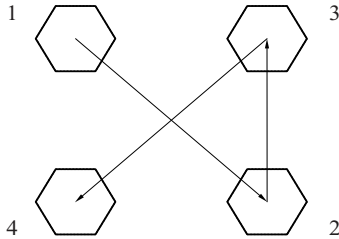
## M437x0 - M686x0

PART. REF.	FLANGE SIZE	SPLIT FLANGE TYPE	ONE-PIECE FLANGE TYPE	OR (NBR 90 ShA) SAE J515	METRIC BOLT DIMENSIONS (Class. 10.9)	UNC BOLT DIMENSIONS (Grade 8)	BOLT THREAD LENGTH (mm)	BOLT TORQUE (Nm)
M437x0-12-12	3/4"		O83607-12	24,99x3,53	M 10	3/8-16	35	70
M686x0-12-12	3/4"		O83607-12	24,99x3,53	M 10	3/8-16	35	70
M437x0-16-16	1"		O83607-16	32,92x3,53	M 12	7/16-14	45	130
M686x0-16-16	1"		O83607-16	32,92x3,53	M 12	7/16-14	45	130
M437x0-20-20	1.1/4"		O83607-20	37,69x3,53	M 14	1/2-13	45	180
M686x0-20-20	1.1/4"		O83607-20	37,69x3,53	M 14	1/2-13	45	180
M686x0-24-24	1.1/2"		O83607-24	47,22x3,53	M 16	5/8-11	55	290
M686x0-32-32	2"		O83607-32	56,74x3,53	M 20	3/4-10	70	450
M686x0-40-32	2"		O83609-32	56,74x3,53	M 20	3/4-10	70	450
M686x0-40-40	2.1/2"		O83607-40	69,44x3,53	M 24	1-8	80	550
M686x0-48-48	3"		O83607-48	85,32x3,53	M 30	1.1/4-7	90	650

## M485x0 - M685x0

PART. REF.	FLANGE SIZE	ONE-PIECE FLANGE TYPE	OR (NBR 90 ShA) SAE J515	METRIC BOLT DIMENSIONS (Class. 10.9)	UNC BOLT DIMENSIONS (Grade 8)	BOLT THREAD LENGTH (mm)	BOLT TORQUE (Nm)
M485x0-12-12	3/4"	O88507-12	24,99x3,53	M 10	3/8-16	45	70
M485x0-16-16	1"	O88507-16	32,92x3,53	M 12	7/16-14	50	130
M685x0-16-16	1"	O88507-16	32,92x3,53	M 12	7/16-14	50	130
M485x0-20-20	1.1/4"	O88507-20	37,69x3,53	M 14	1/2-13	65	180
M685x0-20-20	1.1/4"	O88507-20	37,69x3,53	M 14	1/2-13	65	180
M485x0-24-24	1.1/2"	O88507-24	47,22x3,53	M 16	5/8-11	75	290
M685x0-24-24	1.1/2"	O88507-24	47,22x3,53	M 16	5/8-11	75	290
M485x0-32-32	2"	O88507-32	56,74x3,53	M 20	3/4-10	95	450
M685x0-32-32	2"	O88507-32	56,74x3,53	M 20	3/4-10	95	450
M685x0-40-40	2.1/2"	O88507-40	69,44x3,53	M 24	1-8	110	550

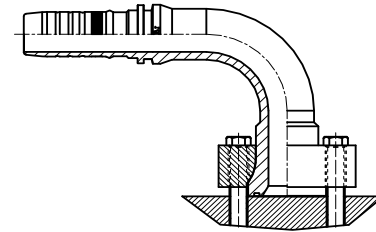
**SCREWS HAVE TO BE TORQUED WITH THE FOLLOWING SCHEME:**  
 LOS TORNILLOS DEBEN SER AJUSTADOS DE ACUERDO AL SIGUIENTE ESQUEMA:  
 SCHRAUBEN SOLLTEN GEMÄSS FOLGENDER SKIZZE ÜBER KREUZ ANGEZOGEN WERDEN:  
 I BULLONI DEVONO ESSERE LEGGERMENTE SERRATI SEGUENDO LO SCHEMA SEGUENTE:



**During the installation it is recommended to apply a light torque to each screw before the final one to avoid:**  
 - misalignments between flanges and clamps  
 - clamp halves damages during installation

Es importante que todos tornillos estén preajustados antes de aplicar el valor final del apriete recomendado para evitar desalineación entre las bridas y las abrazaderas o daños en las mediaslunas durante la instalación.

**XTRAFLANGE ASSEMBLING SCHEME:**  
 ESQUEMA PARA ENSAMBLAR UN XTRAFLANGE:  
 XTRAFLANSCH ANBAUSKIZZE:  
 SCHEMA D'ASSEMBLAGGIO DELLE XTRAFLANGE:



Um Beschädigungen und Spannungen an Vollflanschen, Flanschhälften und Flanschen selbst zu vermeiden, ist es wichtig, alle Schrauben zuerst nur handfest, gleichmässig anzuziehen, bevor sie mit dem empfohlenen Drehmoment festgezogen werden.

È importante che tutti i bulloni siano leggermente avvitati prima di applicare i valori di serraggio finali raccomandati al fine di evitare: • disallineamenti tra flange e controflange (clamps) • danneggiare le mezze controflange durante l'installazione.

## XTRALOCK FITTINGS CRIMPING OPERATION



The crimping operation to apply XTRALOCK fittings must be carried out with proper high performance crimping/assembly machines (crimping force higher than 2800-3000 kN) and approved by Manuli Hydraulics, in order to guarantee the optimum couplings assembly deformations and hose gripping; ■ Special crimping machines with long die sets are requested for the large size XTRALOCK fittings (double crimping operation is not recommended); ■ The use of uncut split flanges (one piece flanges) is recommended for the best performance of the assemblies in heavy duty applications; ■ It is recommended to follow the detailed assembly instructions supplied by Manuli Hydraulics to customers, assemblers and operators using the integrated package DIAMONDSPIR hose & XTRALOCK fittings.

La operación de prensado para aplicar las conexiones XTRALOCK debe ser llevada a cabo con máquinas de alto comportamiento para prensado/ensamble (fuerza de prensado mayor que 2800-3000 kN) y aprobadas por Manuli Hydraulics, para garantizar las óptimas deformaciones de acople y ensamble y agarre de la manguera; ■ Las máquinas especiales con largos juegos de dados son requeridas para las conexiones XTRALOCK de mayor tamaño (una operación de doble prensado no es recomendada); ■ Se recomienda el uso de bridas no cortadas (bridas de una pieza) para el mejor desempeño de los ensambles en aplicaciones de trabajo pesado; ■ Se recomienda seguir las instrucciones detalladas de ensamble suministradas por Manuli Hydraulics a los clientes, ensambladores y operadores usando el paquete integrado Manguera DIAMONDSPIR & racores XTRALOCK.

Die Einbindung von XTRALOCK Armaturen muß mit entsprechenden Hochleistungspressen (Presskraft größer 2800-3000 kN) durchgeführt werden die von Manuli Hydraulics zugelassen sind; ■ Für große Nennweiten sind Spezialpressen mit langen Pressbacken erforderlich. Doppelpressungen sind nicht zu empfehlen; ■ Für beste Haltbarkeit und Performance der Schlauchleitung unter härtesten Bedingungen empfehlen wir den Einsatz von Vollflanschen; ■ Wir empfehlen sich strikt an die Anweisungen zur Einbindung zu halten, wie sie von Manuli Hydraulics zur Verfügung gestellt werden und aussch. die integrierte Lösung DIAMONDSPIR™ Schlauch & XTRALOCK Armatur zu verwenden.

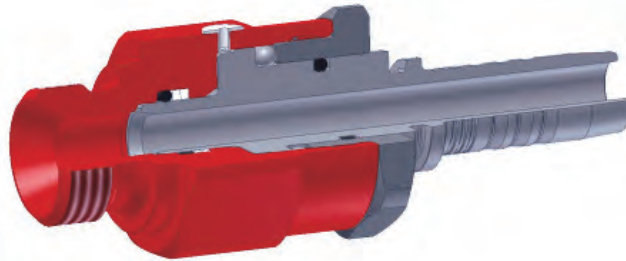
Il crimpaggio per applicare i raccordi XTRALOCK deve avvenire su presse che possano garantire performance di un certo livello (forza di crimpaggio superiore a 2800-3000 kN) e che siano approvate da Manuli Hydraulics al fine di garantire un'ottima deformazione dei raccordi nonché una perfetta presa degli stessi sul tubo; ■ Si richiedono presse speciali dotate di morsetti lunghi per raccordi XTRALOCK di grandi dimensioni (non è consigliata la doppia pressatura); ■ Si raccomanda l'utilizzo di flange a pezzo unico per ottenere una migliore riuscita degli assemblati in applicazioni molto severe; ■ Si consiglia di seguire le istruzioni dettagliate che Manuli Hydraulics fornisce ai clienti, agli assemblatori e a tutti gli operatori che utilizzano il pacchetto integrato formato da tubo DIAMONDSPIR™ & raccordi XTRALOCK.

# ROTOFIT COUPLINGS

## TECHNICAL DATA

**ROTOFIT** eliminates hose twist and torque that may cause premature hose failure

**DIRECT to PORT concept:**  
avoids the use of adapters,  
allow the direct connection to  
port.



**DIRECT to HOSE concept:**  
less sealing surfaces lead to oil  
leakage risk reduction.

### Performance

- 15 Alternating Rotations a Minute
- Full Flow Design Minimizes Pressure Drop
- Cr3 Surface Coating

### Benefit:

- Reduction of Possible Leakage Points
- Reduction of Assembly Cost
- Higher Safety in Severe Working Conditions

## TECHNICAL DATA ROTOFIT MULTIFIT STEM

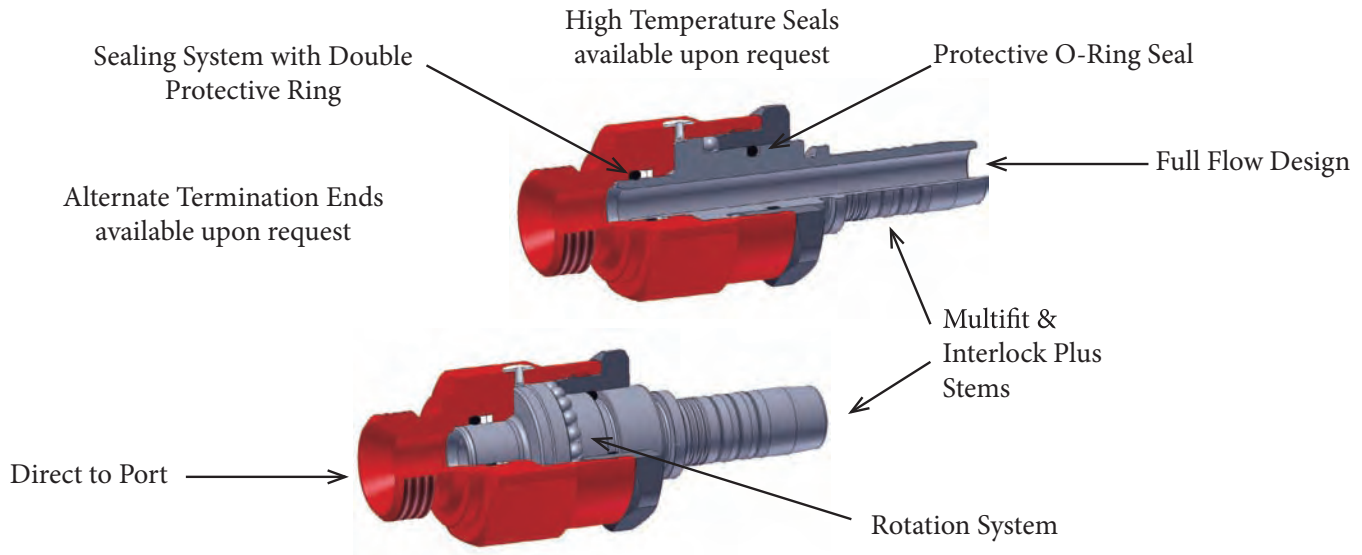
HOSE BORE			WORKING PRESSURE (DYNAMIC)		ROTATION per MINUTE	MAX ROTATION ANGLE	WORKING TEMPERATURE (STD. SEALS)		MINIMUM BURST PRESSURE	
mm	inch	Dash	MPa	PSI	RPM	( )	C	F	MPa	PSI
10	3/8"	06	35	5075	15	40	-30+110	-22+230	140	20300
12	1/2"	08	35	5075	15	40	-30+110	-22+230	140	20300
16	5/8"	10	35	5075	15	40	-30+110	-22+230	140	20300
19	3/4"	12	35	5075	15	40	-30+110	-22+230	140	20300
25	1"	16	35	5075	15	40	-30+110	-22+230	140	20300

## TECHNICAL DATA ROTOFIT INTERLOCK PLUS STEM

HOSE BORE			WORKING PRESSURE (DYNAMIC)		ROTATION per MINUTE	MAX ROTATION ANGLE	WORKING TEMPERATURE (STD. SEALS)		MINIMUM BURST PRESSURE	
mm	inch	Dash	MPa	PSI	RPM	( )	C	F	MPa	PSI
19	3/4"	12	42	6090	15	40	-30+110	-22+230	168	24360
25	1"	16	42	6090	15	40	-30+110	-22+230	168	24360







Range Extension in Progress thru 2"

### ROTOFIT MULTIFIT STEM

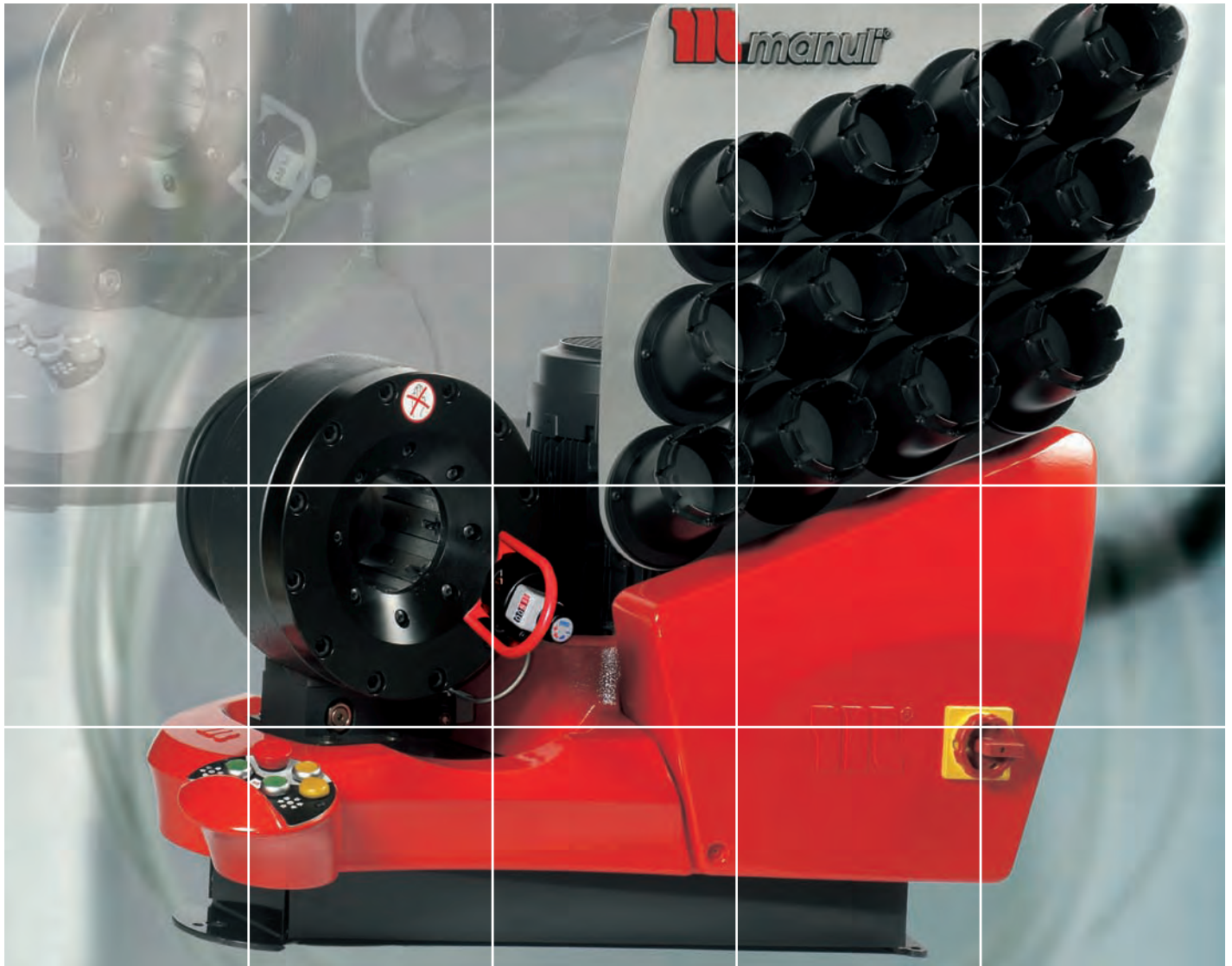
Part Number Series	Thread Style	Specifications	Sizes
MR10510	Male BSP Parallel 60 deg ConeSeat	BS5200 / ISO 8434-6	3/8" thru 1"
MR20812	Female BSP O-ring 60 deg Cone seat	BS5200 / ISO 12151-6	3/8" thru 1"
MR13210	Male SAE ORB	SAE J1926-2	3/8" thru 1"
MR11910	Male Metric Heavy	ISO 6149-2	3/8" thru 1"
MR22411	Female ORFS	SAE J516 / ISO 12151-1	3/8" thru 1"
MR22711	Female JIC 37 deg cone	SAE J 516 / ISO 12151-5	3/8" thru 1"

### ROTOFIT INTERLOCK PLUS STEM

Part Number Series	Thread Style	Specifications	Sizes
MR30510	Male BSP Parallel 60 deg ConeSeat	BS5200 / ISO 8434-6	3/4" thru 1"
MR40812	Female BSP O-ring 60 deg Cone seat	BS5200 / ISO 12151-6	3/4" thru 1"
MR33210	Male SAE ORB	SAE J1926-2	3/4" thru 1"
MR31910	Male Metric Heavy	ISO 6149-2	3/4" thru 1"
MR42411	Female ORFS	SAE J516 / ISO 12151-1	3/4" thru 1"
MR42712	Female JIC 37 deg cone	SAE J 516 / ISO 12151-5	3/4" thru 1"



# ASSEMBLING MACHINES



Manuli Hydraulics assembling machines are part of the complete product range and are designed according to high quality standards and optimised through the long Manuli experience in the hydraulic market.

Manuli assembling machines are recommended for high performance and safe hose assembling procedure. Assembling machines are tested and approved with laboratory testing and field validated.

The product offers overview published in the following pages is a guideline to select the proper machine with reference to the applications and performance requested.





Special machines not included in the present catalogue are available upon request, as well as the original spare parts. Manuli products have to be assembled strictly in accordance with Manuli instructions and limitations and the original assembling informations chart is the only official guide to select proper hose and fittings combinations and determine crimping compatibility.

Don't mix and match: use always Manuli original fittings and hoses.




# CRIMPING MACHINES

MODEL	MACHINE TYPE	APPLICATION SECTOR	INDICATIVE CAPACITY	CRIMP FORCE (TONS)	VOLTAGE	WEIGHT (KG. LBS)
MHP80 	hand pump, portable	on-site repair	2wb: 1" max. 4ws: 1/2" max.	80	-	28 kg (60 lbs)
MVB140 	benchtop, cage dies	on site repair, after market service	2wb: 1-1/4" max. 4ws: 1-1/4" max.	140	110V, 1ph, 60Hz	80kg (176 lbs)
MB137 PLUS 	benchtop	after market service	2wb: 1-1/4" max. 4ws: 1-1/4" max.	137	220V, 3ph, 60Hz 110V, 1ph, 60Hz	100 kg (220 lbs)
MB240 	benchtop	after market service	2wb: 2" max. 4ws: 2" max. 6ws: 1" max.	240	240V, 3ph, 60Hz	190 kg (418 lbs)
MB350 	benchtop	after market service	2wb: 3" max. Textile and suction hose: 4" max. 4ws: 2" max. 6ws: 2" max.	350	240V, 3ph, 60Hz	280 kg (617 lbs)
MV240 	for mobile van	on site repair mobile van	2wb: 2" max. 4ws: 2" max. 6ws: 1" max.	240	12dc or 24dc	125 kg (275 lbs)
MS140 	stand-type SCS control	assembling production unit	2wb: 1-1/4" max. 4ws: 1-1/4" max.	140	240V, 3ph, 60Hz	675 kg (1485 lbs)
MS320 	stand-type SCS control	assembling production unit	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	320	240V, 3ph, 60Hz	1330 kg (2900 lbs)
MS400 	stand-type SCS control	assembling production unit	2wb: 3" max. 4ws: 3" max. 6ws: 3" max.	400	240V, 3ph, 60Hz	2000 kg (4400 lbs)
MS500 	stand-type SCS control	assembling production unit	4" max. heavy duty hydraulic hoses 8" max. industrial hoses	450	240V, 3ph, 60Hz	3000 kg (6614 lbs)


# CUTTING MACHINES

MODEL	MACHINE TYPE	APPLICATION SECTOR	INDICATIVE CAPACITY	VOLTAGE	WEIGHT (KG. LBS)
 <p>M22 CUT PLUS</p>	benchtop	after market service	2wb: 1-1/4" max. 4ws: 1-1/4" max.	240V, 3ph, 60Hz	43 kg (95 lbs)
 <p>M40 CUT</p>	stand-type	after market service smoke absorption integrated	2wb: 2" max. 4ws: 1-1/2" max.	240V, 3ph, 60Hz	240 kg (529 lbs)
 <p>M75 CUT</p>	stand-type	production unit	2wb: 2" max. 4ws: 2" max. 6ws: 2" max.	240V, 3ph, 60Hz	215 kg (474 lbs)
 <p>M90 CUT</p>	stand-type	production unit	2wb: 3" max. 4ws: 3" max. 6ws: 3" max.	240V, 3ph, 60Hz	260 kg (573 lbs)


# SKIVING MACHINES

MODEL	MACHINE TYPE	APPLICATION SECTOR	INDICATIVE CAPACITY	VOLTAGE	WEIGHT (KG. LBS)
 <p>MH SKY PLUS</p>	manual, portable	after market service	2wb: 2" max. 4ws: 2" max.	-	3 kg (6 lbs)
 <p>M50 SKY PLUS</p>	benchtop	after market service	2wb: 2" max. 4ws: 2" max.	240V, 3ph, 60Hz	45 kg (100 lbs)
 <p>M205 SKY PLUS</p>	stand-type	production unit	2wb: 2" max. 4ws: 2" max. 6ws: 3" with original tools		



# INSERT PUSHING MACHINES

MODEL	MACHINE TYPE	APPLICATION SECTOR	INDICATIVE CAPACITY	AIR INPUT	WEIGHT (KG. LBS)
M1500 INS 	benctop	production unit	2wb: 2" max. 4ws: 2" max. 6ws: 2" max.	116 psi	70 kg (155 lbs)

# MARKING MACHINES

MODEL	MACHINE TYPE	APPLICATION SECTOR	INDICATIVE CAPACITY	VOLTAGE	WEIGHT (KG. LBS)
M50 MARK 	benctop	after market service	wide hose range	-	34 kg (75 lbs)

# PRESSURE TEST MACHINES

MODEL	MACHINE TYPE	APPLICATION SECTOR	INDICATIVE CAPACITY	AIR INPUT	WEIGHT (KG. LBS)
MTB1500 	stand-type	production unit	wide hose range Max. Pressure: 21755 psi	116 psi	175 kg (385 lbs)
MTB2500 	benctop	after market service	wide hose range Max. Pressure: 36259 psi	116 psi	175 kg (385 lbs)



# ADDITIONAL PRODUCT RANGE

## Q.Safe

Q.safe is Manuli solution for connect and disconnect two parts of a hydraulic system Fastly, Easily and Safely. Each Q.Safe series grant connection and disconnection between machine and its implements, also providing seal against leakage in both situations of connection and disconnection. All series are provided with an environmentally friendly Cr3+ (trivalent chrome) surface coating for an excellent resistance to corrosion, exceeding the ISO 4520 requirements (salt spray resistance: 240 hours for white corrosion and 400 for red corrosion). Accessories, spare parts kits, check valves and quick couplings direct hose integration complete the product range for more than **700** references.



## REFRI

Manuli Refrigeration offer consists of reinforced rubber hoses, fittings, hose assemblies and kits. The Refrigeration offer is designed specifically to satisfy the most restricted requirements aimed to the development of:

- bus air conditioning and mobile refrigeration systems for "on-road industrial vehicles"
- air conditioning systems applied on off-highway industrial vehicles such as: agri-cultural machines, earth-moving machines, forestry machines, etc.

A special "field-attachable" fitting technology allowing a convenient mounting and disassembly operation is part of the product offer, in particular:

- Frigoclic® fitting range technology
- Reusable fitting range technology

Furthermore crimped fitting solutions are completely integrated on all hose lines.



## MINING

Complete package of hoses, inserts, staple-lock adaptors and ball valves specially designed for mining equipment and long walls installations (coal and soft rock mining), underground and open pit mines (soft-rock and hard-rock mines), high pressure and heavy duty hydraulic lines, medium pressure lines, return lines for mining applications.



## WATERCLEANING & BLASTING

The water cleaning hose range is dedicated to hobby and professional water cleaning machines, with cold and hot water (not suitable for vapour steam applications). It is designed according to safety norm IEC-2 with safety factor burst/working pressure 4:1. The water blasting hose range is designed with criteria of maximum robustness and easy handling, complete with a dedicated fitting solution, in consideration of safety and performance aspects connected with blasting applications. Safety factor burst/working pressure is 2,5:1, it complies with international specifications: (AS/NZ 4233.2, RMA-USA, ISO 7751, BFPA-UK, prEN1829-2).



## GOLDEN drill

The hose construction with wire spiral reinforcement, 4 or 6 plies, used in the hydraulic hose sector, considerably simplifies the technology currently used by the oil drilling sector, involving much more thick and heavy structures. This technical choice favors the hose flexibility to guarantee high robustness and reliability.

Full API Certification up to 3" 7500psi Goldendrill Hose Line  
Integrated coupling solution with internal/external skive solution to ensure superior performance  
Full line of traditional and integrated API Style Termination ends

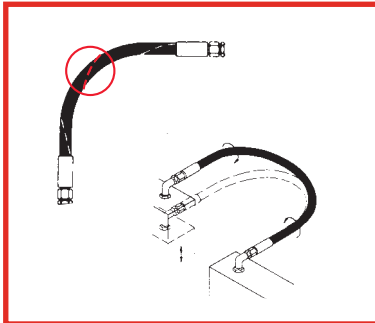


# WARNING

## ADVERTENCIAS

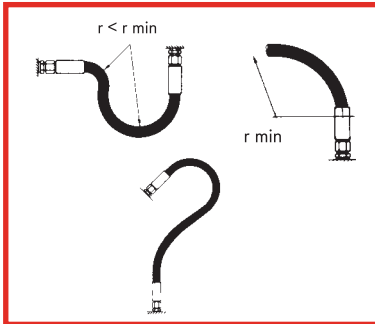
### HOSE INSTALLATION GUIDE GUÍA DE INSTALACIÓN DE LA MANGUERA

#### NO - WRONG USE



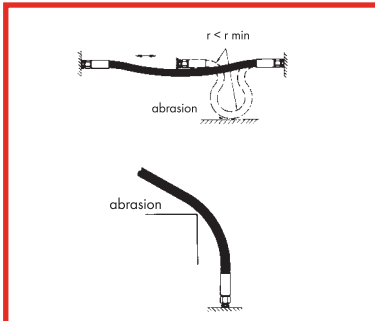
Avoid to twist the hose assembly. During installation avoid moving parts that can cause twisting effects on the hose assemblies

Evite torcer la manguera. Durante la instalación evite partes en movimiento que puedan causar excesivo radio de curvatura a las mangueras



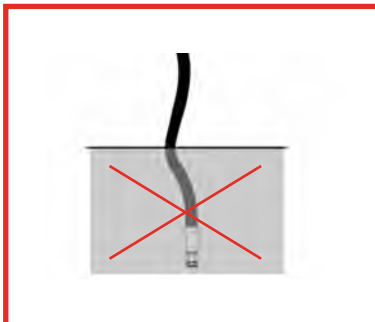
Use proper fittings to avoid tight bend radius. Do not start hose bending closer than 1,5 times "d" to the ferrule.

Use los racores apropiados para evitar un excesivo radio de curvatura. No inicie la flexión de la manguera más cerca que 1,5 veces "d" del casquillo.



Avoid interference with objects that can cause abrasion or damage to the hose. On flexing applications, pay particular attention to avoid tensile stress or abrasion.

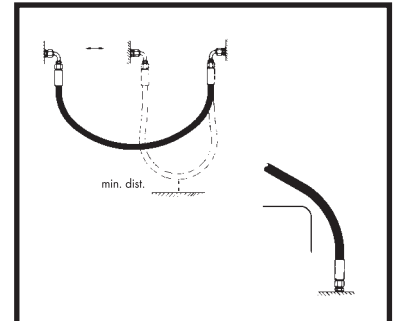
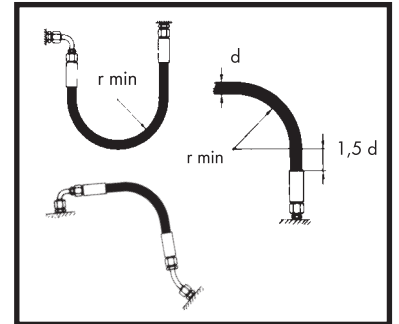
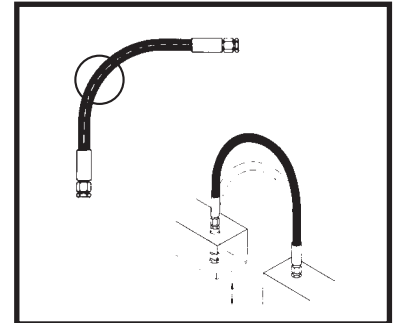
Evite la interferencia con objetos que puedan causar la abrasión o puedan dañar a la manguera. En aplicaciones flexibles, preste particular atención para evitar tensiones o abrasión.



The hydraulic hoses of the Manuli product range are not designed for immersion in the service fluid. This type of special applications should be avoided or carefully studied (pg 21).

La gama de productos de las mangueras hidráulicas Manuli no están diseñadas para la inmersión en el fluido de servicio. Este tipo de aplicaciones especiales debe evitarse o estudiarse cuidadosamente (pg 21).

#### YES - CORRECT USE



**For detailed information concerning the recommended practices for Hydraulic Hose assemblies, please refer to SAE J1273. This document should be used as a guide to be considered when selecting, routing, fabricating, installing, replacing, maintaining and storing hose for hydraulic systems.**

Para información mas detallada referente a las practicas recomendadas para el ensamble de manguera hidraulica por favor consultar la norma SAE J1273. Este documento deberia ser usado como guia para seleccionar, fabricar, instalar, reemplazar, reparar y almacenar manguera cuando se trate de sistemas hidraulicos.



# WARNING

## ADVERTENCIAS

### ! PRODUCT SELECTION

The foregoing description of the Manuli® hoses, fittings and hose assemblies, manufactured by Manuli Rubber Industries and subsidiaries, and the general installation instructions are provided as information to be considered when selecting hose, fittings and hose assemblies for a particular application. Additional factors which must be considered in selecting proper hoses, fittings and hose assemblies for any particular application include hose size, hose length, involved fluids, ambient and operating temperatures, system operating pressures, static head pressures and installation design for the application. Failure to consider all material factors in selecting a hose, fitting and hose assembly for a particular application can result in reducing the hose assembly life or other failures which can result in serious bodily injury or property damage. If there are any questions concerning the use of Manuli® hoses, fittings and hose assemblies for a particular application, please contact Manuli Rubber Industries.

### ! PRODUCT INSTALLATION

The foregoing description of Manuli® hoses, fittings and hose assemblies and the general installation instructions are provided as information to be considered when installing Manuli® products.

Proper installation of hoses and fittings is essential to the safe and proper operation of hose assemblies.

Additional factors which must be considered in achieving a proper installation include correct minimum bend radius to avoid hose collapse, possible abrasion of hoses on rough surfaces or cutting edges, correct hose length given the relation of potential movement between hose ends, possible twisting or torsion of hoses in operation or installation, and possible high temperature in areas around the hoses. Failure to consider all material factors with respect to installation and improper installation of hoses, fittings and hose assemblies can result in reducing the hose assembly life or other failures that could result in serious bodily injury or property damage.

### ! SELECCIÓN DEL PRODUCTO

La anterior descripción de las mangueras Manuli®, las conexiones y el ensamble de mangueras, fabricadas por Manuli Rubber Industries y sus subsidiarias, y las instrucciones generales de instalación son suministradas como información a ser considerada cuando seleccione la manguera, las conexiones y ensambles de manguera para una aplicación particular. Los factores adicionales, los cuales deben ser considerados para seleccionar la manguera apropiada, las conexiones y ensambles de mangueras para una aplicación particular incluyen tamaño y longitud de la manguera, fluidos involucrados, temperaturas de ambiente y de operación, presiones de sistema de operación, presión estática y diseños de instalación para la aplicación. Los fallos al considerar todos los factores materiales al seleccionar una manguera, conexiones y ensamble para una particular aplicación pueden convertirse en la reducción de la vida útil del ensamble de la manguera u otras fallas que pueden resultar en una seria herida corporal o daño a la propiedad. Si hay algunas preguntas sobre el uso de las mangueras Manuli®, conexiones y ensamble de mangueras para una aplicación particular, por favor contacte a Manuli Rubber Industries.

### ! INSTALACIÓN DEL PRODUCTO

La anterior descripción de las mangueras Manuli, conexiones y ensambles de mangueras, y las instrucciones generales de instalación son suministradas como información a ser considerada cuando instale productos Manuli®. La instalación apropiada de mangueras y conexiones es esencial para la seguridad y apropiada operación de los ensambles de mangueras. Los factores adicionales los cuales deben ser considerados para obtener una correcta instalación incluyen el conocimiento del radio mínimo de curvatura para evitar el colapso de la manguera, posible abrasión de la manguera sobre superficies duras o bordes cortantes, longitud correcta de la manguera dada la relación del movimiento potencial entre las puntas de la manguera, posible torsión de las mangueras en operación o instalación, y posibles altas temperaturas en áreas alrededor de las mangueras. Los fallos al considerar todos los factores materiales con respecto a la instalación, e incorrecta instalación de mangueras, conexiones y ensambles pueden convertirse en una reducción de la vida útil del ensamble de la manguera u otros fallos que pueden originar serias heridas corporales y daño a la propiedad.

### ! HOSE INTEGRATION

Manuli® hoses and fittings are designed as integral parts of hose assembly system to be used together and they should only be used together or in conjunction with other types of fittings for the Manuli® hose recommended by Manuli Rubber Industries and subsidiaries.

Failure to do so may result in reducing the hose assembly life or other failures which can result in serious bodily injury or property damage.

Product Selection, Product Installation and Hose Integration guide lines are essential to the proper operation and safe use of the Manuli® hoses, fittings, hose assemblies and related equipment. Improper installation of the hoses, fittings and hose assemblies can result in serious injury or property damage.

Further information on selection, installation and maintenance of hose and hose assemblies is described in "SAE Recommended Practice J1273 2001".

If you have any questions regarding the proper product selection and hose installation, please contact the Manuli Technical Center based in Italy.

#### **WARNING!**

Failure or improper selection or improper use of any of the products found on this Manuli catalogue or related items can cause death, personal injury and/or property damage. Before using any product, it is important that you analyze all aspects of your application and review the information explained in the current catalogue.

**MRI reserves the right to modify any data. Eventual and any kind of modification can be carried out without any notice.**

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### ! INTEGRACIÓN DE LA MANGUERA

Las mangueras y conexiones Manuli® están diseñadas como partes integrales del sistema de ensamble de mangueras para ser usados conjuntamente. Eventualmente, algún otro tipo de conexión puede ser utilizado previa recomendación de Manuli Rubber Industries o una Subsidiaria.

Un fallo en lo anterior podría reducir la vida útil del ensamble de la manguera u otros fallos que podrían convertirse en serias heridas corporales o daños a la propiedad.

Las guías para la selección del producto, instalación e integración son esenciales para la operación apropiada y uso seguro de las mangueras, conexiones y máquinas de ensamble Manuli® y equipo relacionado. La instalación inapropiada de las mangueras, conexiones y ensambles de mangueras pueden resultar en serias heridas o daños a la propiedad.

Más información sobre selección, instalación y mantenimiento de las mangueras se describe en la Norma "SAE recomendación J1273 NOV 91".

Si tiene alguna pregunta sobre la selección apropiada e instalación de la manguera por favor contacte al Centro Técnico de Manuli® en Italia.

#### **ADVERTENCIA!**

El descuido o una inadecuada selección o un inadecuado uso de alguno de los productos descritos en el catalogo de Manuli pueden causar muerte, lesión personal y/o daño a la propiedad.

Antes de usar algún producto, es importante que usted analice todos los aspectos relacionados con su correcta aplicación previa revisión de la información presentada en este catálogo.

**MRI se reserva el derecho de modificar algún dato. Eventualmente, algunas modificaciones pueden realizarse sin notificaciones alguna.**

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# SALES TERMS & CONDITIONS

## CONDICIONES DE VENTA

### STANDARD TERMS AND CONDITIONS OF SALES MANULI RUBBER INDUSTRIES ("MRI")

ALL GOODS AND SERVICES PROVIDED BY MRI ARE FURNISHED ONLY ON THE TERMS AND CONDITIONS STATED BELOW:

1. **PURPOSE.** These standard terms and conditions of sales apply to the relationship involving the supply of products by any company of Manuli Rubber Group, Hydraulic Business Unit (referred to below as MRI) to professional operators (referred to below as Buyer or Buyers).
2. **SUPPLY ORDERING PROCESS.** The Buyer may issue purchase orders to MRI in the following ways:
  - 2.A) By fax
  - 2.B) By e-mail
  - 2.C) On-line, only in the case of Buyers previously authorized to do so by means of a suitable activation procedure. This activation is essential if orders are to be placed on-line. The Buyer activation is by allocation of an identity code (user-id) and password to enable it to be recognized each time an order is placed, and takes place by filling in and returning the schedule set out in the home page of MRI's web site as described in the Request for Information section. The Buyer has the right to refuse the request for activation or cancel an existing activation.
3. **CONTRACT FORMATION.** All orders for MRI goods are subject to written acceptance by MRI by e-mail, fax or post. For on-line orders to MRI as described in point 2.C above, the authorized Buyer is first identified through his user-id and password, then selects the products, quantities and delivery address as guided by the system and issued the supply order. The order sent to MRI on-line is accepted only if specifically confirmed by this latter by e-mail, fax or post.

Any and all terms in Buyer's purchase orders, acknowledgments, confirmations, or other business forms ("Buyer's Forms") which vary, conflict with or add to, or are in any way inconsistent with, the terms provided below are REJECTED by MRI and shall not be part of any agreement between the Buyer and MRI unless specifically agreed to in a writing document signed by MRI. MRI's acceptance of a purchase order or the commencement of performance by MRI shall neither change nor add to this Agreement; THE TERMS PROVIDED BELOW SHALL PREVAIL OVER ANY VARYING, ADDITIONAL OR CONFLICTING TERMS IN THE BUYER'S FORMS. For all on-line orders, these Standard Terms and Conditions of Sale, as available to the Buyer on the web site [www.manuli-hydraulics.com](http://www.manuli-hydraulics.com), are applicable.
4. **INFORMATION MADE AVAILABLE TO THE BUYER.** Before the issue of the purchase order, MRI will provide the Buyer with all the commercial information on the products that it may require. After the order has been placed, MRI will inform the Buyer of the stages of the order through MRI service structure or, for those Buyers in possession of User\_ID and Password, through MRI's web site.
5. **PRICES.** MRI reserves the right to alter the prices, discounts and payment conditions in force when the contract is confirmed and the Buyer expressly acknowledges and agrees upon such right. However, any modifications will become effective after notification of these has been issued, and they will apply only to the part of the supply that has not been completed. In such a case the Buyer may cancel the contract for the part not completed within 2 (two) weeks of the issue of notification of the increase and MRI shall have no liability, directly or indirectly, whatsoever.
6. **TAXES.** Prices do not include country, federal, state or local taxes, now or hereafter enacted, applicable to the goods sold, which tax or taxes will be added by MRI to the sales prices where MRI has the legal obligation to collect them, and will be paid by the Buyer or reimbursed by the Buyer to MRI if paid by MRI, unless the Buyer provides MRI with a proper tax exemption certificate.
7. **SHIPPING, TITLE AND DELIVERY.** Shipments shall be EXW as such term is defined in the Incoterms 2000, unless differently agreed upon in writing. Shipping dates are approximate and are based to a great extent on prompt receipt by MRI of all necessary information from the Buyer. MRI shall not be liable for any loss or expense incurred by the Buyer in the event that MRI fails to meet the specified delivery schedule(s) due to production or other delays due to unforeseen circumstances.
8. **RETURNS.** MRI will accept returns only upon prior agreement and at conditions to be defined between the parties.
9. **TOLERANCES.** Due to MRI's requirements, tolerances of +/-10% of the confirmed quantities, as and if applicable, are always allowed and accepted.
10. **PAYMENT.** Payment shall be made within the agreed upon period from the date of invoice, in the agreed upon currency at the address shown on the invoice. If payment in full is not received by MRI by the due date, the Buyer shall be in breach hereof. The Buyer will incur a charge of 0.6% per month on the unpaid balance to cover the administration costs of collection. Such charges may be in addition to other remedies exercisable by MRI. The amount of credit may be changed or credit withdrawn by MRI at any time. On any order on which credit is not extended by MRI, shipment or delivery shall be made, at MRI's election, Cash on order (in whole or part), letters of credit with all costs of collection paid by the Buyer or other terms as agreed between the parties.
11. **SUSPENSION OF THE CONTRACT.** Should the Buyer fail to comply in whole or in part even with only one of the supply conditions or if there are any changes of any kind in the Buyer's company name, form or trading capacity, as well as in the event of proven difficulty in meeting the payments to MRI or third parties, MRI will have the right to suspend any further deliveries and convert any premiums that have matured, bank transfers or other deeds of payment unless a suitable guarantee is issued.
12. **FORCE MAJEURE.** MRI shall not be responsible for any delay or failure to perform due to causes beyond its reasonable control. These causes shall include, without limitation, fire, flood, earthquake, accident, acts of the public enemy, war, acts of terrorism, riot, epidemic, quarantine restrictions, labor dispute, labor shortages, interruption of transportation, inability to secure raw materials or machinery, extraordinary increases in such raw materials prices, rationing or embargoes, acts of God, acts of Government or any agency thereof, acts of any state or local government or any agency thereof, and judicial action. Similar causes shall excuse the Buyer for failure to take goods ordered by the Buyer, provided reasonable notice is given to MRI of such contingency. However, the Buyer shall not be excused from the terms hereof for (i) any goods shipped prior to receipt of such notice; or (ii) goods already in transit when the contingency occurs.
13. **LIMITATION OF LIABILITIES.** THE BUYER AND MRI AGREE THAT (I) THE SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF ANY WARRANTY CONCERNING THE GOODS SHALL BE REPAIR OR REPLACEMENT OF THOSE GOODS OR THEIR COMPONENT PARTS OR REFUND OF THE PURCHASE PRICE; AND (II) MRI SHALL HAVE THE EXCLUSIVE RIGHT TO SELECT ANY SUCH REMEDY IN ITS SOLE DISCRETION.

MRI SHALL NOT BE LIABLE FOR CONTINGENT, INCIDENTAL OR CONSEQUENTIAL DAMAGES TO PERSONS OR PROPERTY AND MRI'S SOLE LIABILITIES AND BUYER'S EXCLUSIVE REMEDIES HEREUNDER ARE AS PROVIDED IN THESE STANDARD TERMS AND CONDITIONS OF SALES. MRI SHALL NOT BE LIABLE FOR ANY EXCESS REPROCUREMENT COSTS, SPECIFIC PERFORMANCE OR DELAY IN DELIVERY.



# SALES TERMS & CONDITIONS

## CONDICIONES DE VENTA

Notwithstanding any implication to the contrary, MRI shall have no liability whatsoever unless and until the Buyer shall have paid the full purchase price of all goods delivered.

14. **WARRANTY AND CLAIMS.** MRI warrants that the Products will be free of defects in material and workmanship for a period equal to twelve (12) months from the date of shipping from MRI to the Buyer or, with the sole exception of assembly machines, within two thousand (2000) hours of use, whichever comes first. In case of claims presented in the correct way and regarded as founded, MRI agrees to replace or repair the defective product when these are returned to its premises.
- a. This warranty does not cover any faults caused by normal deterioration, accelerated deterioration caused by special physical, chemical or electrochemical conditions, insufficient maintenance or incorrect repair, failure to follow the storage, user and operating instructions, use of unsuitable materials, the effects of a chemical or electrolyte process, assembly operations not carried out using only MRI's original parts or MRI's original certified parts, using MRI's assembly machines and in strict accordance with MRI's latest assembly instructions to be found always updated at [www.manuli-hydraulics.com](http://www.manuli-hydraulics.com), or any other faults arising as a result of circumstances over which the supplier has no control. This warranty does not cover faults caused by modifications made by the customer or a third party, or assembly or installation operations carried out by these latter without observance of the operating and installation conditions and/or the technical specifications of the products.
- b. IN NO EVENT SHALL MRI BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. NO PRODUCT IS WARRANTED AS BEING FIT FOR A PARTICULAR PURPOSE. The warranties described above apply only if (i) the Product has not been misused, tampered or abused in any manner nor have repairs been attempted thereon; (ii) written notice of failure within the warranty period is forwarded to MRI and MRI's direction for properly identifying Products returned under warranty are followed; and (iii) with the return, a notice authorizing MRI to examine and disassemble returned Products to the extent MRI deems it necessary to ascertain the cause of failure. The warranties stated herein are exclusive. THERE ARE NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, BEYOND THOSE SET FORTH HEREIN, and MRI does not assume any other obligation or liability in connection with the sale or use of the Products.
- c. The receipt by the Buyer or its customer(s) of any of the Products shall constitute the Buyer's unqualified acceptance of same and waiver by the Buyer of all claims hereunder (OTHER THAN CLAIMS NOT DISCOVERABLE UPON RECEIPT AND INSPECTION) unless the Buyer gives written notice of the same to MRI within eight (8) days after its receipt or, in the event of concealed defects, the claim should be sent to MRI in writing within eight (8) days of their discovery, and in any case within a period of twelve (12) months from shipping from MRI to the Buyer, or, with the sole exception of assembly machines, within two thousand (2000) hours of use, whichever comes first. In any case, whenever possible, the Buyer shall send MRI a sample of the defective product to follow up the claim procedure.
- d. No claim of any kind, where as to Products delivered or for delay in delivery or failure to deliver, and whether or not based on negligence, shall be greater in amount than the purchase price of the Products with respect to which such claim is made. IN NO EVENT SHALL MRI BE LIABLE FOR INDIRECT, INCIDENTAL SPECIAL, OR CONSEQUENTIAL DAMAGES, WHETHER OR NOT CAUSED BY OR RESULTING FROM THE NEGLIGENCE THEREOF. It is expressly understood that any technical advice furnished by MRI with respect to the use of the Products, shall not be deemed to be a representation that the Products may be so used successfully or that such use will offer any specific result, and MRI does not assume any obligation or liability for any advice given or results obtained.
- e. The Buyer shall indemnify and hold MRI harmless against any and all loss damage, cost, or expense of any kind incurred by reason of any negligence, breach or other fault of the Buyer imposed by law upon MRI for damages assessed because of property damage or bodily injuries or death sustained or resulting from the sale, use, or handling of the Products except to the extent caused by the negligence of or breach of this Agreement by MRI, and the MRI has notified the Buyer in writing of any third party's claims or demands within sixty (60) days after MRI received notice thereof.
15. **RESERVE.** For the orders sent to MRI on-line, these will be accepted only after the correct completion of the activation procedure described in point 2.C above, which takes place using a user-id and password. The Buyer is aware that the revelation of the user-id and password to unauthorized parties would enable these to make orders in his name. Consequently, the Buyer will guard his identity code and password with maximum diligence and reserve, as he will be held responsible for any abusive use of these. MRI will take no responsibility for abusive use of the user-id and password, and the order will remain fully valid and effective after confirmation of it has been issued.
- a. The Buyer agrees to exonerate MRI from any action, request or claim, including claims for compensation for damages, deriving directly or indirectly from the use or abuse of the user-id and password by any party.
- b. The Buyer agrees to inform MRI of the loss or theft of the password, whereupon MRI will deactivate the password in question and issue a new one.
16. **ENTIRE AGREEMENT.** THESE TERMS AND CONDITIONS, INCLUDING THE LIMITED WARRANTY AND DISCLAIMER AND LIMITATIONS OF LIABILITY, ARE A COMPLETE AND FULL EXPRESSION OF THE AGREEMENT BETWEEN THE PARTIES. The terms hereof may not be varied, supplemented, qualified, modified, waived or interpreted by any prior or subsequent course of performance or conduct between the parties (including the shipment of goods hereunder) or by any usage of the trade or by conflicting or additional terms upon the face or reverse of any form to which this is attached or a part of, nor may it be modified by any agent, employee, or representatives of MRI unless such modification or representation is made in writing and signed by a duly authorized officer of MRI. Stenographic or clerical errors are subject to correction.
17. **SEVERABILITY.** If any term of this Agreement is held to be illegal or unenforceable, such term shall be severed from this Agreement and the remaining terms shall remain in force.
18. **ASSIGNS.** This Agreement shall be binding on and inure to the benefit of the successors and assigns of the entire business and goodwill of either MRI or Buyer, or of that part of the business of either used in the performance of such contract, but shall not be otherwise assignable by Buyer.
19. **PROPRIETARY RIGHTS.** Trademarks, service marks and other product identifications are MRI's property at all times and shall only be used in connection with the products. The Buyer shall not remove or deface any such marks.
20. **CORRESPONDENCE.** All correspondence regarding this contract will be sent to MRI's Customer Service structure:  
fax: +39 02 62713383;  
telephone: +39 02 62713450;  
help desk: +39 02 62713456;  
email address: [customerservice@manulirubber.com](mailto:customerservice@manulirubber.com)
21. **INTERPRETATION.** The validity, performance and construction of these terms and conditions and any sale made hereunder shall be governed by the laws of the Italy. All the terms hereof shall be interpreted in the manner which enhances its enforceability.





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