

JTEKT

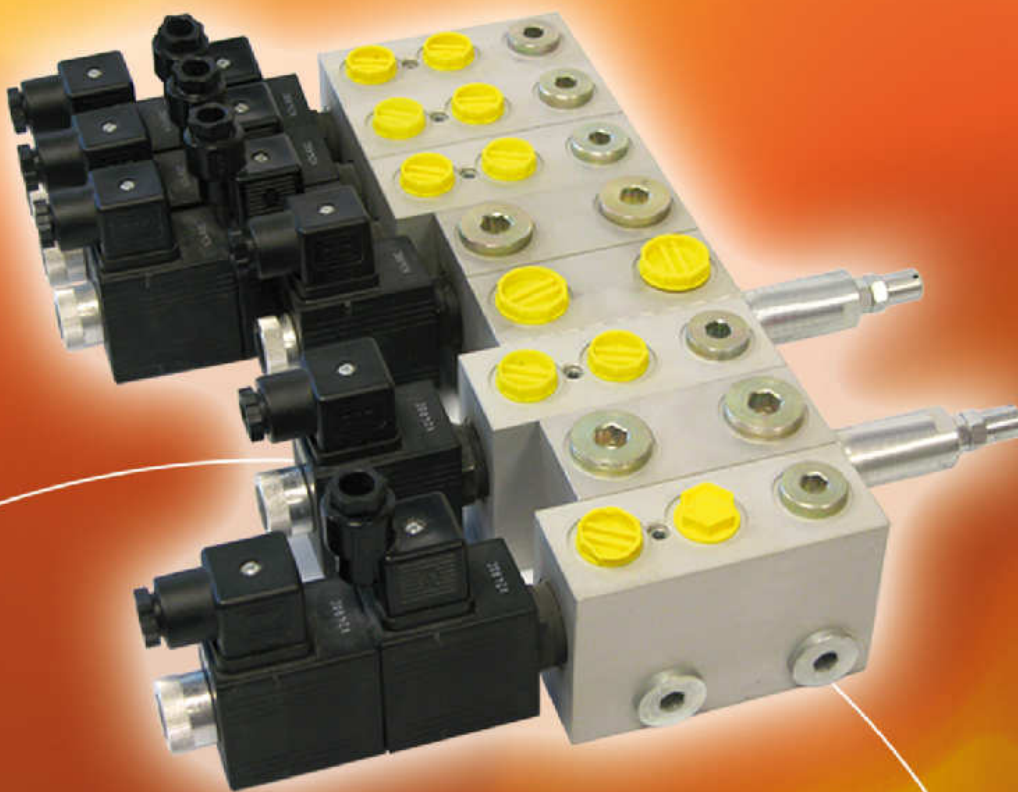
HYDRAULIC INNOVATION AT YOUR SERVICE

HPI

CATALOGUE **V50**



*HYDRAULIC DISTRIBUTION and
HYDRAULIC MAGNET
REGULATEUR of PRESSURE
REGULATIEUR of FLOW
ORDERS PROPORTIONAL REALISEES in CARTOUCHES
ASSOCIATIVE BLOCKS*



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SALES ORGANISATION ORGANISATION de VENTE VERKAUFSORGANISATION



UTILIZATION INSTRUCTIONS CATALOGUE V50

heading of the catalogue you will find :

GENERAL SUMMARY AND PRODUCT SELECTION GUIDE

Then you will find :

1 «CARTRIDGES » Programme

Every function is represented white space requirements, weight, characteristics :

- working limits
- pressure drop
- response time
- permissible internal leakage

Designation according to the codification table on each technical document D.T.

2 «BAF - MONOBLOCKS WITH CARTRIDGES » Programme

Every function is represented mounted on its block with space requirements and weight.

Characteristics of concerned function according to the corresponding technical document in the cartridges programme.

Designation according to the codification table on each technical document D.T.

3 « MBS® - hydraulic Modular Block System » Programme

Every function is represented mounted in its module with space requirements and weight. The pictograph (symbolic diagram) of the function is represented with the module's flowlines and the distribution junction parts chosen to constitute the complete block MBS®.

Characteristics of concerned function according to the corresponding technical document in the cartridges programme.

Designation according to the codification table on each technical document D.T.

To constitute a complex block please refer to cartridge Booklet 01/100GB and MBS® blocks Booklet 399 GB.

MANUFACTURING PROGRAMME

☞	COVER and INSTRUCTIONS	000 / 00 001 / 00
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☞	1 CARTRIDGES PROGRAMME	006 / 00
☞	2 "BAF" PROGRAMME Standard linear mounting monoblock with cartridges	129 / 00
☞	3 "MBS®" PROGRAMME Hydraulic Modular Block System	160 / 00
☞	4 COMPONENTS for in LINE MOUNTING	211 / 00
☞	5 TECHNICAL DOCUMENTS	230 / 00
	Filtration recommendations	
	Mounting recommendations	
	Cavities for 2 - 3 and 4 ways ports SAE J475 - Sizes 08 - 10 - 16 and recommendations for cavities execution	
	Cavities for 2 ways ports Metric - Size 58 and recommendations for cavities execution	

HYDRAULIC in CARTRIDGES

Since fluids have been used as a mean of power transmission, which placed MODERN HYDROMECHANICAL as an irreplaceable tool for:

Driving of machines - Strain transmission - Movements transmission

with a mass power never reached, components have been in a constant evolution.

Thanks to the quality of the materials, their treatment and machining precision, PUMPS, MOTORS and ACTUATORS on one hand and all DISTRIBUTION DEVICES, PRESSURE CONTROL and FLOW RATE CONTROL on the other hand, have never stopped being improved as a consequence of the use of always higher pressure associated with electric and electronic control.

The association of components for the realization of a circuit is generally done by:

- Connection, between them, by tubing **LINEAR MOUNTING**
- or juxtaposition of components **SANDWICH MOUNTING**

The appearance of CARTRIDGE components opens a new and very homogeneous associating method.

Thus, the function is SCREWED in the element chosen by the conceptor of the machine.

HYDRAULICS IN CARTRIDGES allows the incorporation of one or various functions directly into:

GENERATORS: *Hydraulic pumps, micro electro pump units, mini electro pump units, micro power packs, mini power packs, hydraulic stations*

RECEIVERS: *Actuators, hydraulic motors*

as complete sets, connecting power generation to pressure control, flow rate control and fluid distribution.

THE MAJOR ADVANTAGE of HYDRAULICS IN CARTRIDGES is EASINESS FOR:

1. Integration in a complete and independant set
2. Quick setting-up and removal, avoiding the setting down of tubing coupling or other elements.

HYDRAULICS IN CARTRIDGES favours mass mounting and reduces assembling costs.

HYDRAULICS IN CARTRIDGES allows the association of multiple functions.

HYDRAULICS IN CARTRIDGES improves machines maintenance.

Integrated in a block, they personalize the specific hydraulic circuit of the machine.

The modular aspect and the association of binary functions express, with HYDRAULICS IN CARTRIDGES, an unlimited possibility of creations of circuits and offer a solution to all requirements.

JTEKT-HPI propose 3 PROGRAMMES

1. **CARTRIDGES:**
with **ELECTRIC, MANUAL, HYDRAULIC** and **PROPORTIONAL CONTROL**
which can be mounted on:
2. **MANIFOLD BLOCKS «BAF»** with ports for **LINEAR MOUNTING**
3. **MODULE BLOCKS WITH MULTIPLE FUNCTIONS** for complex circuits
hydraulic Modular Block System «MBS®» meeting every request to compose your circuits.

F.T R 0260

The QUALITY of CONCEPTION, INVESTIGATION, MANUFACTURE and TESTS, the setting up of a QUALITY ASSURANCE, a COMPUTER SYSTEM OF HIGH LEVEL are the best guarantees for your requirements.

PRODUCTS SELECTION GUIDE

DISTRIBUTION Solenoid valves		Q maxi l/ mn	P maxi bar	CODES	Documents		DISTRIBUTION Solenoid valves		Q maxi l/ mn	P maxi bar	CODES	Documents	
Designation	Symbol				F.T	Page	Designation	Symbol				F.T	Page
Spool solenoid valve 2 ways - 2 positions Normally closed		18	300	CED 08 A01	50 1108	021/00	Spool solenoid valve 4 ways - 2 positions		24	300	CED 08 D51	50 1122	046/00
		18	300	CED 58 A01	50 1108	021/00			40	300	CED 10 D51	50 1123	048/00
		40	300	CED 10 A01	50 1110	024/00			60	300	CED 16 D51	50 1124	050/00
		60	300	CED 16 A01	50 1112	027/00							
Spool solenoid valve 2 ways - 2 positions Normally open		15	300	CED 08 A02	50 1108	021/00	Spool solenoid valve 4 ways - 2 positions		12	300	CED 08 D52	50 1122	046/00
		15	300	CED 58 A02	50 1108	021/00			25	300	CED 10 D52	50 1123	048/00
		30	300	CED 10 A02	50 1110	024/00			50	300	CED 16 D52	50 1124	050/00
		50	300	CED 16 A02	50 1112	027/00							
Pilot poppet solenoid valve 2 ways - 2 positions Normally closed		30	300	CED 58 A03	50 1101	008/00	Spool solenoid valve 4 ways - 2 positions		12	300	CED 08 D53	50 1122	046/00
		60	300	CED 10 A03	50 1102	010/00			25	300	CED 10 D53	50 1123	048/00
Pilot poppet solenoid valve 2 ways - 2 positions Normally open		140	250	CED 16 A03	50 1103	012/00	Spool solenoid valve 4 ways - 2 positions		50	300	CED 16 D53	50 1124	050/00
		30	300	CED 58 A04	50 1101	008/00			12	300	CED 08 D54	50 1122	046/00
Pilot poppet solenoid valve 2 ways - 2 positions Normally open		60	300	CED 10 A04	50 1102	010/00	Spool solenoid valve 4 ways - 2 positions		25	300	CED 10 D54	50 1123	048/00
		140	250	CED 16 A04	50 1103	012/00			50	300	CED 16 D54	50 1124	050/00
Pilot poppet solenoid valve 2 ways - 2 positions Normally closed		30	300	CED 58 A05	50 1101	008/00	Spool solenoid valve 4 ways - 2 positions		12	300	CED 08 D55	50 1122	046/00
		60	300	CED 10 A05	50 1102	010/00			25	300	CED 10 D55	50 1123	048/00
Pilot poppet solenoid valve 2 ways - 2 positions Normally open		140	250	CED 16 A05	50 1103	012/00	Spool solenoid valve 4 ways - 2 positions		50	300	CED 16 D55	50 1124	050/00
		30	300	CED 58 A06	50 1101	008/00			12	300	CED 08 D56	50 1122	046/00
Poppet solenoid valve 2 ways - 2 positions NC - bi-directional bi-tight		60	300	CED 10 A06	50 1102	010/00	Spool solenoid valve 4 ways - 2 positions		25	300	CED 10 D56	50 1123	048/00
		140	250	CED 16 A06	50 1103	012/00			50	300	CED 16 D56	50 1124	050/00
Poppet solenoid valve HP - 2 ways - 2 positions NC bi-directional - bi tight		30	300	CED 58 A07-1	50 1104	014/00	Spool solenoid valve 4 ways - 2 positions		18	300	CED 08 D57	50 1122	046/00
		30	250	CED 10 A07-1	50 1104	014/00			35	300	CED 10 D57	50 1123	048/00
		40	250	CED 16 A07-1	50 1105	016/00			60	300	CED 16 D57	50 1124	050/00
Poppet solenoid valve HP - 2 ways - 2 positions NC bi-directional - bi tight		60	300	CED 10 A07-2	50 1105	016/00	Spool solenoid valve 4 ways - 2 positions		18	300	CED 08 D58	50 1122	046/00
		30	300	CED 58 A07-2	50 1104	014/00			35	300	CED 10 D58	50 1123	048/00
Spool solenoid valve 3 ways - 2 positions		60	300	CED 10 A07-2	50 1105	016/00	Spool solenoid valve 4 ways - 2 positions		60	300	CED 16 D58	50 1124	050/00
		18	300	CED 08 B25	50 1114	031/00			35	300	CED 10 D59	50 1123	048/00
		35	300	CED 10 B25	50 1115	033/00			60	300	CED 16 D59	50 1124	050/00
Spool solenoid valve 3 ways - 2 positions		60	300	CED 16 B25	50 1116	035/00	Spool solenoid valve 4 ways - 3 positions		12	300	CED 08 E75	50 1126	054/00
		12	300	CED 08 B26	50 1114	031/00			25	300	CED 10 E75	50 1127	056/00
Spool solenoid valve 3 ways - 2 positions		25	300	CED 10 B26	50 1115	033/00	Spool solenoid valve 4 ways - 3 positions		50	300	CED 16 E75	50 1128	058/00
		45	300	CED 16 B26	50 1116	035/00			12	300	CED 08 E76	50 1126	054/00
Spool solenoid valve 3 ways - 2 positions		18	300	CED 08 B27	50 1114	031/00	Spool solenoid valve 4 ways - 3 positions		25	300	CED 10 E76	50 1127	056/00
		35	300	CED 10 B27	50 1115	033/00			50	300	CED 16 E76	50 1128	058/00
Spool solenoid valve 3 ways - 2 positions		60	300	CED 16 B27	50 1116	035/00	Spool solenoid valve 4 ways - 3 positions		12	300	CED 08 E77	50 1126	054/00
		12	300	CED 08 B28	50 1114	031/00			25	300	CED 10 E77	50 1127	056/00
Spool solenoid valve 3 ways - 2 positions		25	300	CED 10 B28	50 1115	033/00	Spool solenoid valve 4 ways - 3 positions		50	300	CED 16 E77	50 1128	058/00
		45	300	CED 16 B28	50 1116	035/00			12	300	CED 08 E78	50 1126	054/00
Spool solenoid valve 3 ways - 2 positions		18	300	CED 08 B29	50 1114	031/00	Spool solenoid valve 4 ways - 3 positions		25	300	CED 10 E78	50 1127	056/00
		25	300	CED 10 B29	50 1115	033/00			50	300	CED 16 E78	50 1128	058/00
Spool solenoid valve 3 ways - 2 positions		45	300	CED 16 B29	50 1116	035/00	Spool solenoid valve 4 ways - 3 positions		12	300	CED 08 E79	50 1126	054/00
		12	300	CED 08 B40	50 1114	031/00			25	300	CED 10 E79	50 1127	056/00
Spool solenoid valve 3 ways - 2 positions		25	300	CED 10 B40	50 1115	033/00	Spool solenoid valve 4 ways - 3 positions		50	300	CED 16 E79	50 1128	058/00
		45	300	CED 16 B40	50 1116	035/00			12	300	CED 08 E80	50 1126	054/00
Spool solenoid valve 3 ways - 2 positions		12	300	CED 08 B41	50 1114	031/00	Spool solenoid valve 4 ways - 3 positions		25	300	CED 10 E80	50 1127	056/00
		25	300	CED 10 B41	50 1115	033/00			50	300	CED 16 E80	50 1128	058/00
Spool solenoid valve 3 ways - 2 positions		45	300	CED 16 B41	50 1116	035/00	Spool solenoid valve 4 ways - 3 positions		18	300	CED 08 E81	50 1126	054/00
		18	300	CED 08 C45	50 1118	038/00			35	300	CED 10 E81	50 1127	056/00
Spool solenoid valve 3 ways - 3 positions		35	300	CED 10 C45	50 1119	040/00	Spool solenoid valve 4 ways - 3 positions		60	300	CED 16 E81	50 1128	058/00
		45	300	CED 16 C45	50 1120	042/00			18	300	CED 08 E82	50 1126	054/00
Spool solenoid valve 3 ways - 2 positions		12	300	CED 08 C46	50 1118	038/00	Spool solenoid valve 4 ways - 3 positions		35	300	CED 10 E82	50 1127	056/00
		25	300	CED 10 C46	50 1119	040/00			60	300	CED 16 E82	50 1128	058/00
Spool solenoid valve 3 ways - 2 positions		45	300	CED 16 C46	50 1120	042/00	Spool solenoid valve 4 ways - 3 positions		12	300	CED 08 E83	50 1126	054/00
		12	300	CED 08 C47	50 1118	038/00			25	300	CED 10 E83	50 1127	056/00
Spool solenoid valve 3 ways - 2 positions		25	300	CED 10 C47	50 1119	040/00	Spool solenoid valve 4 ways - 3 positions		50	300	CED 16 E83	50 1128	058/00
		45	300	CED 16 C47	50 1120	042/00			30	300	CED 10 E84	50 1127	056/00
Spool solenoid valve 4 ways - 2 positions		18	300	CED 08 D50	50 1122	046/00	Spool solenoid valve 2 ways - 2 positions Normally closed		30	300	CED 08 A03	50 1272	019/01
		35	300	CED 10 D50	50 1123	048/00			Spool solenoid valve 2 ways - 2 positions Normally closed		30	300	CED 08 A05
60	300	CED 16 D50	50 1124	050/00									

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PRODUCTS SELECTION GUIDE

DIRECTIONAL VALVES		Q maxi l / mn	P maxi bar	CODES	Documents		PRESSURE CONTROL		Q maxi l / mn	P maxi bar	CODES	Documents	
Designation	Symbol				F.T	Page	Designation	Symbol				F.T	Page
Poppet check valve with poppet		30	350	CMD 08 A12	50 1144	076/00		Pilot pressure reducing valve by-screw (T21) wheel (T30) or silding gauge (T40)	25	350	CHP 08 B18	501154	093/00
		30	350	CMD 58 A12					501154	093/00			
		60	350	CMD 10 A12					501154	093/00			
		150	350	CMD 16 A12									
Poppet check valve with inverted poppet		30	350	CMD 08 A13	50 1144	076/00		Pilot pressure reducing valve with inverse safety function	40	300	CHP 10 B21	50 1155	094/00
		30	350	CMD 58 A13									
		60	350	CMD 10 A13									
		150	350	CMD 16 A13									
Pilot poppet check valve		40	300	CHD 10 B32	50 1145	078/00		(overcenter-valve)	20	300	CHP 10 B31	50 1156	095/00
FLOW CONTROL		Q maxi l / mn	P maxi bar	CODES	Documents				Q maxi l / mn	P maxi bar	CODES	Documents	
Designation	Symbol				F.T	Page	Designation	Symbol				F.T	Page
Shuttle valve		40	300	CHD 10 B36	50 1146	079/00							
2 ways pilot valve Normally closed External vent		60	300	CHD 10 B65	50 1147	081/00		Not compensated flow ctrl. valve adjustment by screw (C15 or C21) wheel (C30) or star wheel (C50)	30	300	CMF 08 A19	50 1158	097/00
		30	300	CMF 58 A19					50 1158	097/00			
		60	300	CMF 10 A19					50 1158	097/00			
2 ways pilot valve Normally closed Internal drainage		60	300	CHD 10 B65	50 1147	081/00		Compensated flow control valve fixed adjustment (T10)	10	300	CMF 08 A20T	50 1159	098/00
		10	300	CMF 58 A20T					50 1159	098/00			
		360	300	CMF 10 A20T					50 1159	098/00			
2 ways pilot valve Normally open External vent		60	300	CHD 10 B66	50 1147	081/00		Compensated flow ctrl. valve adjustment by screw (T21) wheel (T30) or silding gauge (T40)	10	300	CMF 08 A20T	50 1160	100/00
		10	300	CMF 58 A20T					50 1160	100/00			
		30	300	CMF 10 A20T					50 1160	100/00			
2 ways pilot valve Normally open Internal drainage		60	300	CHD 10 B66	50 1147	081/00		Compensated flow ctrl. valve adjustment by screw (X21) wheel (X30) or silding gauge (X40)	40	300	CMF 08 A20X	50 1161	102/00
Pilot spool valve 3 ways + 1 way of piloting external vent		60	300	CHD 10 D70	50 1148	083/00		Fixed compensated inverted flow control valve	10	300	CMF 10 A22T	50 1162	104/00
Pilot spool valve 3 ways + 1 way of piloting internal drainage		60	300	CHD 10 D70	50 1148	083/00		Flow divider with priority flow fixed adjustment (T10)	25	300	CMF 08 B34T	50 1163	105/00
		60	300	CMF 10 B34T					50 1163	105/00			
		100	300	CMF 16 B34T					50 1163	105/00			
Logical element Normally closed		60	300	CHD 10 B30	50 1149	085/00		Flow divider with priority flow Adjustment by screw (T21) wheel (T30) or silding gauge(T40)	25	300	CMF 08 B34T	50 1164	106/00
		60	300	CMF 10 B34T					50 1164	106/00			
		60	300	CMF 16 B34T					50 1164	106/00			
Direct relief valve Adjustment by screw (C21)		30	350	CMP 08 A15	50 1151	087/00		Flow divider with priority flow Adjustment by screw (X21) wheel (X30) or silding gauge(X40)	60	300	CMF 10 B34X	50 1166	108/00
		30	350	CMP 58 A15									
		60	350	CMP 10 A15									
Direct relief valve Adjustment by screw (C21)		30	350	CMP 08 A17	50 1151	087/00		Flow divider 50/50 4 voies - 3 voies fonct. Réglage fixe (T10)	40	300	CHF 10 E38	50 1167	110/00
		30	350	CMP 10 A17									
		60	350	CMP 16 A17									
Pilot relief valve Adjustment by screw (T21) wheel (T30) and silding gauge (T40)		30	350	CHP 08 A16	50 1152	089/00	Mounting on BAF		See page 129/00				
		30	350	CHP 58 A16	50 1152	089/00	Mounting on MBS®		See page 160/00				
		60	350	CHP 10 A16	50 1152	089/00							
		120	350	CHP 16 A16	501153	091/00							

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1 CARTRIDGES

SUMMARY

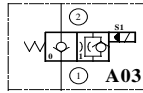
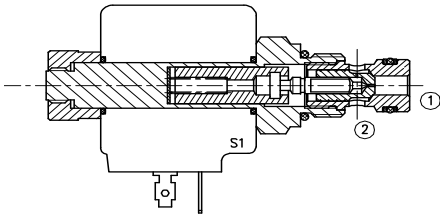
	N° Page
PILOT POPPET SOLENOID VALVES	
☛ 2/2 - 2 WAYS - 2 POSITIONS - Normally Open and Normally Closed	007 / 00
☛ VNF 3 G Normally closed	019 / 01
SPOOL SOLENOID VALVES	
☛ 2/2 - 2 WAYS - 2 POSITIONS	020 / 00
☛ 3/2 - 3 WAYS - 2 POSITIONS	029 / 00
☛ 3/3 - 3 WAYS - 3 POSITIONS	037 / 00
☛ 4/2 - 4 WAYS - 2 POSITIONS	044 / 00
☛ 4/3 - 4 WAYS - 3 POSITIONS	052 / 00
☛ Electrical connection according to spools control position	062 / 00
ACCESSORIES for solenoid valves	
☛ Coils - references and assignments	063 / 00
☛ Coils characteristics	
☛ Electrical connecteurs	
☛ Manual overrides	
☛ Collections of joints	
DIRECTIONAL VALVES	
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☛ Inverted non-return valve	
☛ Pilot non-return valve	
☛ Schuttle valve	
☛ Pilot valve 2 Ways NF & NO	
☛ Pilot valve 3 Ways	
☛ Logic element	
PRESSURE CONTROL	
☛ Direct-acting relief valve	086 / 00
☛ Inverted relief valve	
☛ Pilot relief valve	
☛ Pressure reducing valve	
☛ Overcenter valve	
☛ Pilot pressure reducing valve with inverse safety function	
FLOW CONTROL	
☛ Needle valve	096 / 00
☛ Compensated flow control valve	
☛ Fixed inverted compensated flow control valve	
☛ Flow divider with priority flow	
☛ Flow divider 50/50	
CARTRIDGES with PROPORTIONAL CONTROL	
☛ Pilot relief valve	112 / 00
☛ Pilot pressure restrictor	
☛ Compensated flow control valve	
☛ Compensated flow control valve with priority flow	
☛ Accessories : Drivers	
☛ Programmers - Connectors	
STANDARD CAVITY PLUGS	
☛ 2 ways - 3 ways and 4 ways	127 / 00
☛ Table of variants	
GENERAL SUMMARY	
☛	002 / 00

PILOT POPPET SOLENOID VALVES

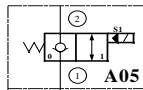
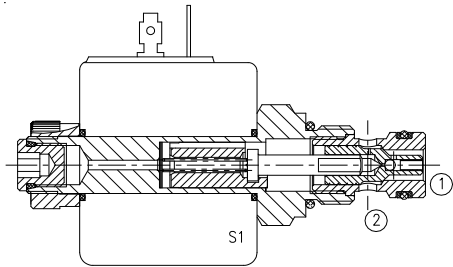
2 WAYS - 2 POSITIONS

Maximum pressure 300 bar

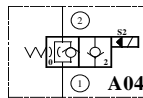
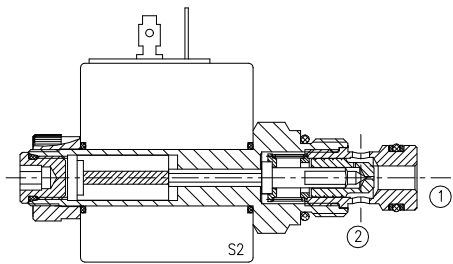
Max flow in l/mn N° Page



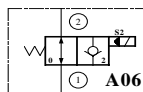
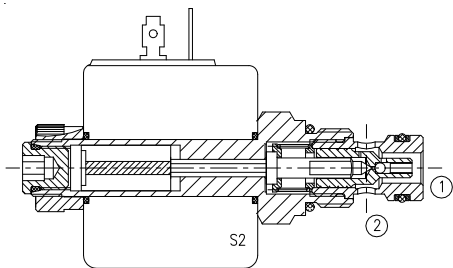
CED 58 A03	30	008 / 00
CED 10 A03	60	010 / 00
CED 16 A03	140	012 / 00



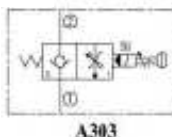
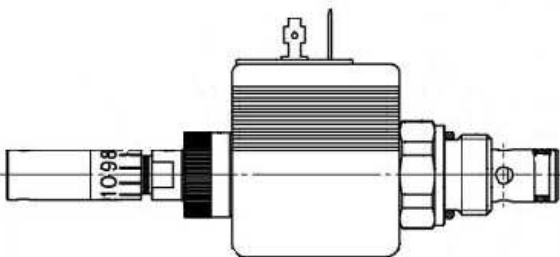
CED 08 A05	30	008 / 00
CED 58 A05	30	008 / 00
CED 10 A05	60	010 / 00
CED 16 A05	140	012 / 00



CED 58 A04	30	008 / 00
CED 10 A04	60	010 / 00
CED 16 A04	140	012 / 00



CED 08 A06	30	008 / 00
CED 58 A06	30	008 / 00
CED 10 A06	60	010 / 00
CED 16 A06	140	012 / 00



CEF 08 A303	30	013 / 01
CEF 10 A303	30	013 / 03
with poppet		

F.T 50 1100 1/2

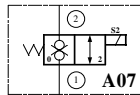
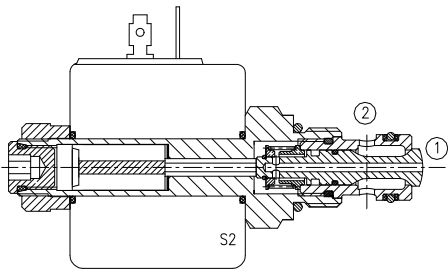
PILOT POPPET SOLENOID VALVES

2 WAYS - 2 POSITIONS

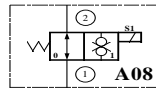
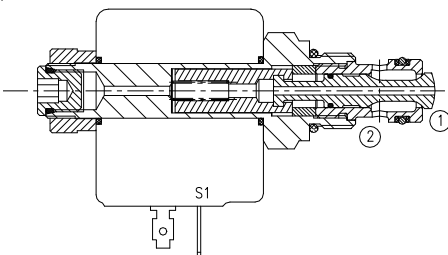
Maximum pressure 300 bar

Max flow
in l/mn

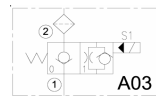
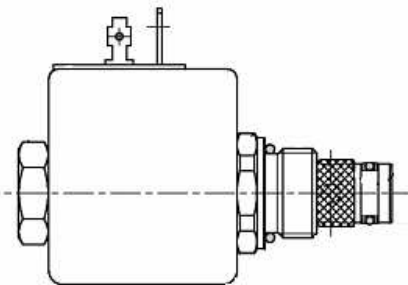
N° Page



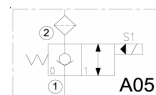
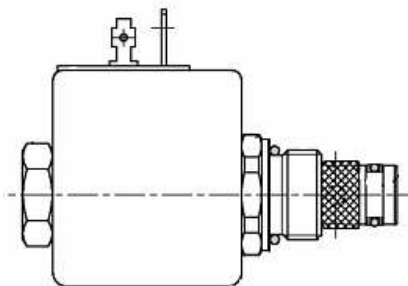
CED 08 A07-1	30	014 / 00
CED 58 A07-1	30	014 / 00
CED 58 A07-1	30	014 / 00
CED 10 A07-1	40	016 / 00
CED 10 A07-2	60	016 / 00
with poppet		



CED 08 A08	25	018 / 00
CED 58 A08	25	018 / 00
with poppet		



CED 08 A03	30	019 / 01
CED 08 A03	30	019 / 02
with poppet		



CED 08 A05	30	019 / 01
CED 08 A05	30	019 / 02
with poppet		

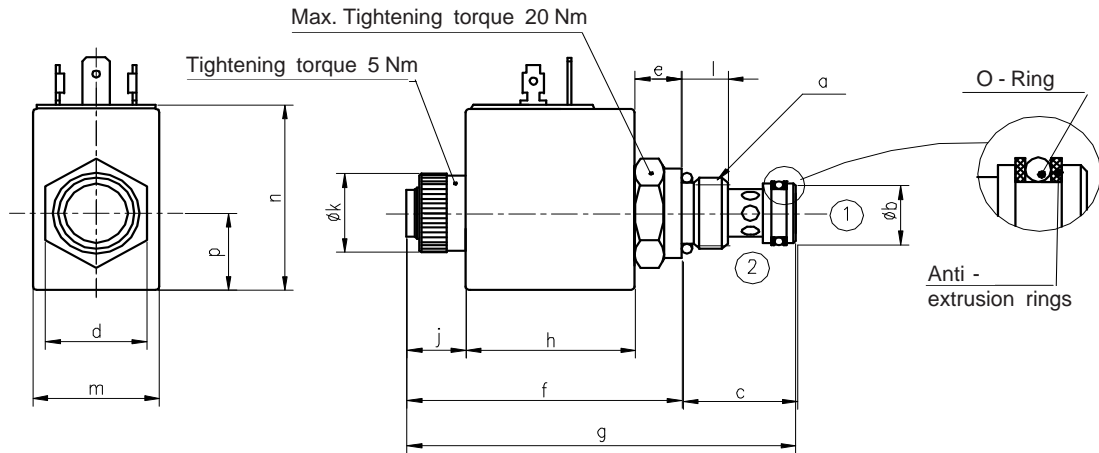
F.T 50 1100 2/2

PILOT POPPET SOLENOID VALVES

Size 08 - 3/4" 16 UNF
CED 08 A05 - CED 08 A06

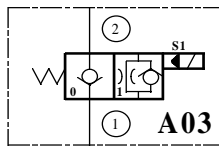
2 WAYS - 2 POSITIONS
Maximum pressure 300 bar

Size 58 - M 18 x 1,5
CED 58 A03 - CED 58 A04
CED 58 A05 - CED 58 A06



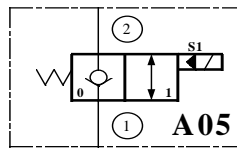
a Size	Port size	b	c	d	e	f	g	h	j	k	l	m		n		p	
												coil code 2	coil code 8	coil code 2	coil code 8	coil code 2	coil code 8
08*	3/4"-16UNF	12,65	27	24	11	65	92	40	14	20	11	36	29,5	47,8	47	23	19,5
58	M 18 x 1,50	15	27	22	11	65	92	40	14	20	11	36	29,5	47,8	47	23	19,5

* **Size 08 : only for functions A05 and A06**

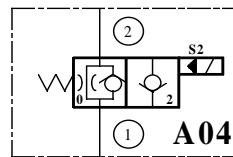


**Normally closed
not energized**

CED 58 A03
Max. flow : 30 l/mn

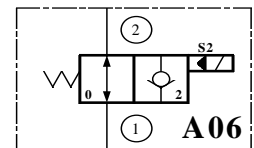


CED 08 A05 - CED 58 A05
Max. flow : 30 l/mn



**Normally open
not energized**

CED 58 A04
Max. flow : 30 l/mn



CED 08 A06 - CED 58 A06
Max. flow : 30 l/mn

Description: The distribution is provided by poppet in treated steel pilot controlled by a needle immovably attached to the electro-magnet core .

Working :

A03 and **A05** the poppet is normally closed at rest. The port 2 is in communication with the port 1 when the electro-magnet is energized.

A04 and **A06** the poppet is normally open at rest. The port 2 is blocked up when the electro-magnet is energized.

Codification C E D 58 A04 B 8 A O N

Size Code
58 = M18x1,5
08 = 3/4"16 UNF *for A05 & A06 only*

Function code
A04

Manual override
O= without manual override
For functions A03&A05:
A= screwing off version
C= pulling version
For functions A04&A06:
B= screwing version
E= pushing version

Voltages
A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt VAC* ou RAC*
F = 48 Volt VAC* ou RAC*
G = 110 Volt VAC* ou RAC*
H = 220 Volt VAC* ou RAC*

Coil Code = 8

Coil connexion
A = Electr.con.6,35 - DIN 43650
B = Kostal
D = Deutsch
F = Leadwires
J = AMP Junior

Connectors
See pages 072 / 00 & 073 / 00

Seals
N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 150°C

Characteristics : see overleaf

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 233 / 00 (T.08) and 236 / 00 (T.58)
Weight with coil (without connector) : 0,4 Kg

Mounting on BAF : Page 132 / 00
Mounting on MBS® : Page 175 / 00

seal kits:
Size 58 N° 200 110
size 08 N° 200 104

F.T. 50 1101 1/2

CHARACTERISTICS (cartridge only)

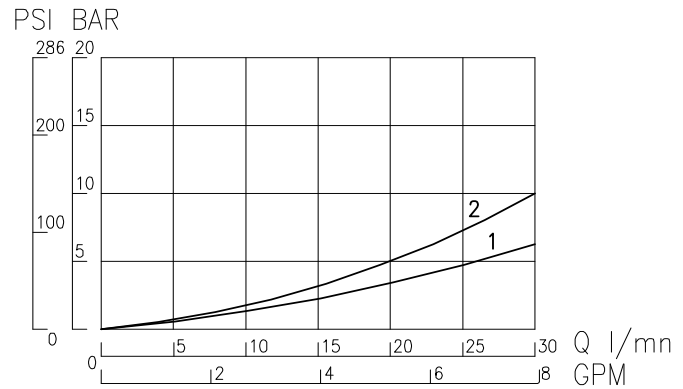
PILOT POPPET SOLENOID VALVE 2 WAYS - 2 POSITIONS

Size 08 - 3/4" 16 UNF
CED 08 A05 - CED 08 A06

Size 58 - M 18 x 1,5
CED 58 A03 - CED 58 A04 - CED 58 A05 - CED 58 A06

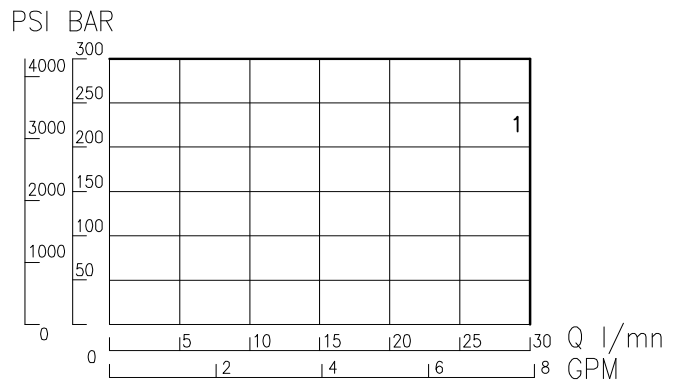
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
A03	1	2
A04	1	2
A05	1	2
A06	1	2



UTILIZATION LIMIT ON WORKING PRESSURE (under nominal voltage)

Type	Reference
A03	1
A04	1
A05	1
A06	1



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
A03	20 - 60	30 - 70
A04	20 - 60	30 - 70
A05	20 - 60	30 - 70
A06	20 - 60	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
A03	0	0
A04	0	0
A05	0	0
A06	0	0

Réduction des fuites après 5 minutes en pression

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

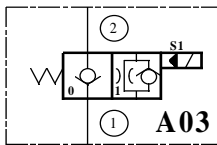
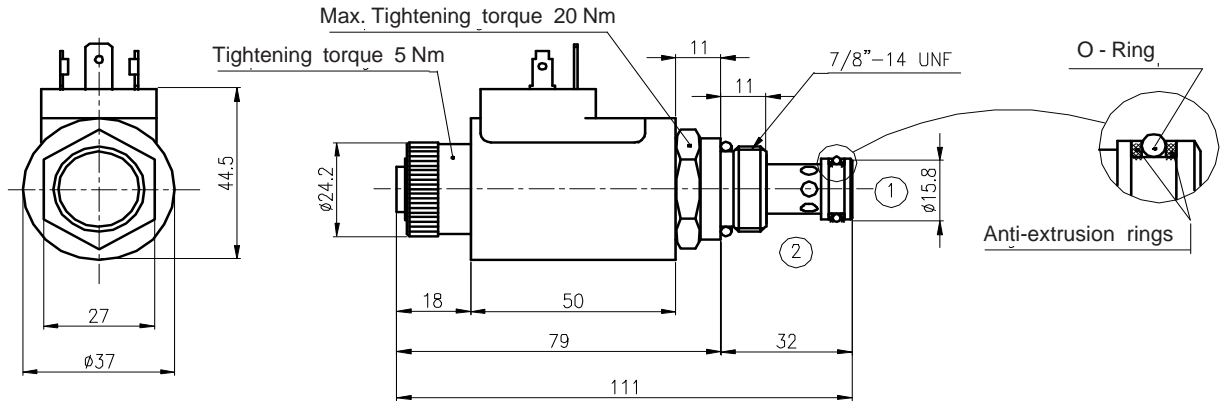
MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

PILOT POPPET SOLENOID VALVES

2 WAYS - 2 POSITIONS Maximum pressure 300 bar

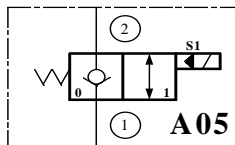
Size 10 - 7/8" 14 UNF

CED 10 A03 - CED 10 A04 - CED 10 A05 - CED 10 A06

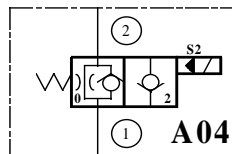


**Normally closed
not energized**

CED 10 A03
Max flow : 60 l/mn

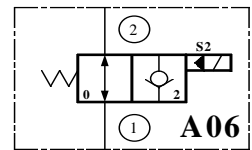


CED 10 A05
Max flow : 60 l/mn



**Normally open
not energized**

CED 10 A04
Max flow : 60 l/mn



CED 10 A06
Max flow : 60 l/mn

Description: The distribution is provided by poppet in treated steel pilot controlled by a needle immovably attached to the electro-magnet core .

Working :

A03 and A05 the poppet is normally closed at rest. The port 2 is in communication with the port 1 when the electro-magnet is energized.

A04 and A06 the poppet is normally open at rest. The port 2 is blocked up when the electro-magnet is energized.

Codification C E D 10 A04 B 3 A O N

Size Code 10 = 7/8" 14 UNF **Function code**

Voltages A = 12 Volt DC **Coil Code = 3**
B = 24 Volt DC

E = 24 Volt VAC* ou RAC*
F = 48 Volt VAC* ou RAC*
G = 110 Volt VAC* ou RAC*
H = 220 Volt VAC* ou RAC*

Coil connexion
A = Electr.con.6,35 - DIN 43650
B = Kostal
D = Deutsch
F = Leadwires
J = AMP Junior

Manual override
O = without manual override
For functions A03&A05:
A = screwing off version
C = pulling version
For functions A04&A06:
B = screwing version
E = pushing version

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 150°C

Connectors
See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 233 / 00 (T.08) and 236 / 00 (T.58)
Weight with coil (without connector) : 0,4 Kg

Mounting on BAF : Page 132 / 00
Mounting on MBS® : Page 175 / 00

seal kits: N° 200 014

CHARACTERISTICS (cartridge only)

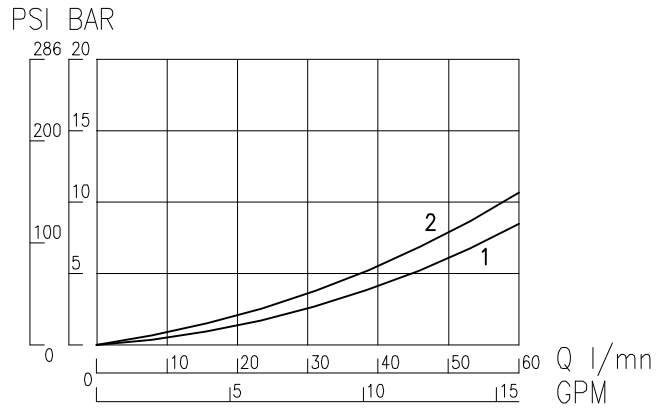
PILOT POPPET SOLENOID VALVE 2 WAYS - 2 POSITIONS

Size 10 - 7/8" 14 UNF

CED 10 A03 - CED 10 A04 - CED 10 A05 - CED 10 A06

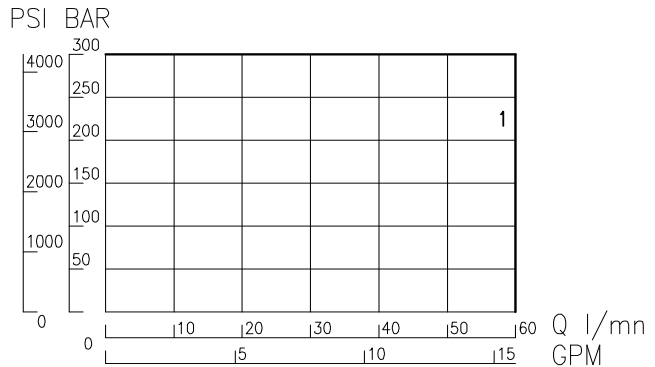
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
A03	1	2
A04	1	2
A05	1	2
A06	1	2



UTILIZATION LIMIT ON WORKING PRESSURE (under nominal voltage)

Type	Reference
A03	1
A04	1
A05	1
A06	1



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
A03	40	30
A04		
A05		
A06		

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
A03	0	5 drops /min
A04	0	5 drops /min
A05	0	5 drops /min
A06	0	5 drops /min

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

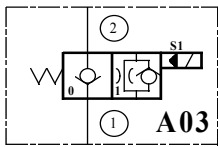
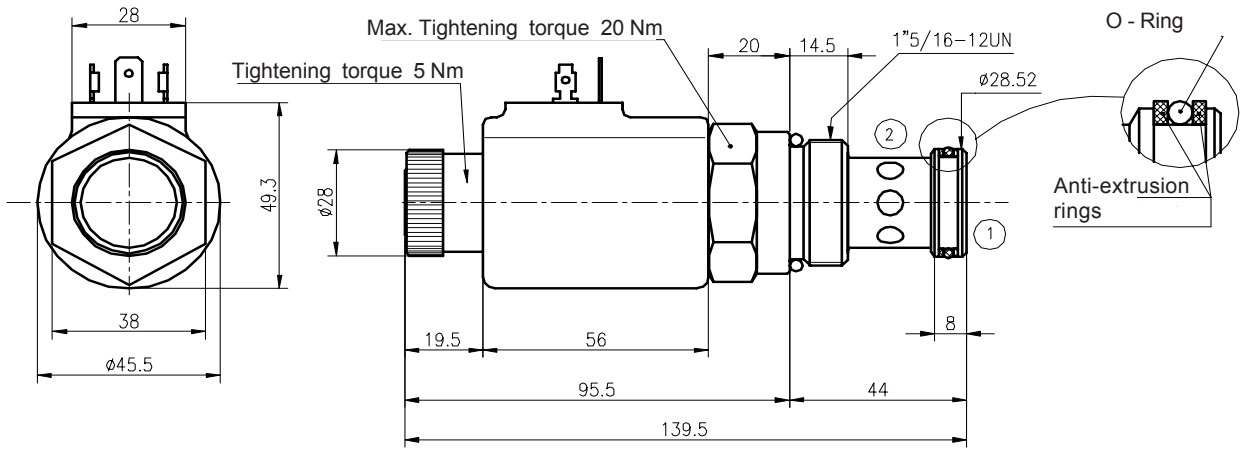
PUBLISHING 23 / 07 / 2001

V50 | 011 | 00

PILOT POPPET SOLENOID VALVES

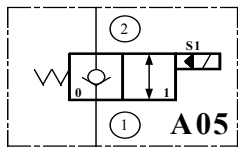
2 WAYS - 2 POSITIONS *Maximum pressure 250 bar*

Taille 16 - 1"5/16 12 UN CED 16 A03 - CED 16 A04 - CED 16 A05 - CED 16 A06

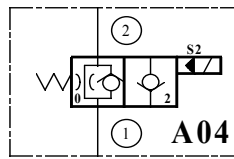


**Normally closed
not energized**

CED 16 A03
Max flow : 140 l/mn

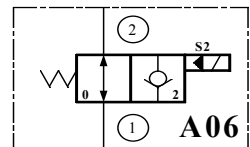


CED 16 A05
Max flow : 140 l/mn



**Normally open
not energized**

CED 16 A04
Max flow : 140 l/mn



CED 16 A06
Max flow : 140 l/mn

Description: The distribution is provided by poppet in treated steel pilot controlled by a needle immovably attached to the electro-magnet core .

Working :

A03 and **A05** the poppet is normally closed at rest. The port 2 is in communication with the port 1 when the electro-magnet is energized.

A04 and **A06** the poppet is normally open at rest. The port 2 is blocked up when the electro-magnet is energized.

Codification	C E D 16 A04 B 4 A O N
Size Code	16 = 1" 5/16 12 UNF Function code
Voltages	Coil Code = 3
A = 12 Volt DC	Coil connexion
B = 24 Volt DC	A = Electr.con.6,35 - DIN 43650
E = 24 Volt VAC* ou RAC*	B = Kostal
F = 48 Volt VAC* ou RAC*	D = Deutsch
G = 110 Volt VAC* ou RAC*	F = Leadwires
H = 220 Volt VAC* ou RAC*	J = AMP Junior
Connectors	Manual override
See pages 072 / 00 & 073 / 00	O = without manual override
	For functions A03&A05:
	A = screwing off version
	C = pulling version
	For functions A04&A06:
	B = screwing version
	E = pushing version
	N - Nitril seals - 40° + 100°C
	V - Viton seals - 20° + 150°C

Characteristics : see overleaf
Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 233 / 00 (T.08) and 236 / 00 (T.58)
Weight with coil (without connector) : 0,8 Kg
Mounting on BAF : Page 132 / 00
Mounting on MBS® : Page 175 / 00
seal kits: N° 200 120

F.T 50 1103 1/2

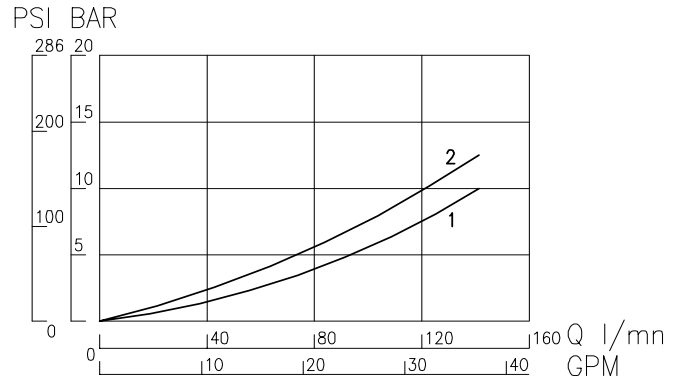
CHARACTERISTICS (cartridge only)

PILOT POPPET SOLENOID VALVES 2 WAYS - 2 POSITIONS

Size 16 - 1"5/16 12 UN CED 16 A03 - CED 16 A04 - CED 16 A05 - CED 16 A06

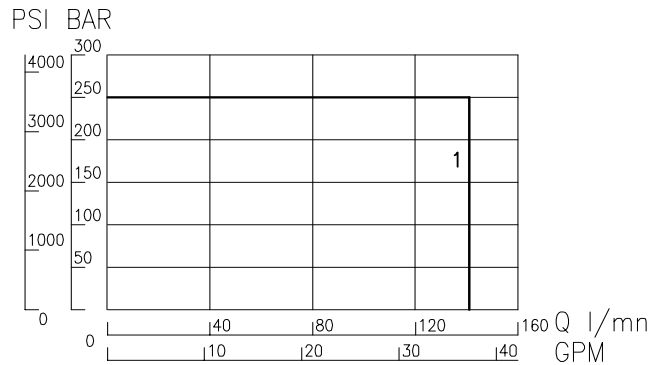
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
A03	1	2
A04	1	2
A05	1	2
A06	1	2



UTILIZATION LIMIT ON WORKING PRESSURE (under nominal voltage)

Type	Reference
A03	1
A04	1
A05	1
A06	1



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
A03	30 - 80	50 - 180
A04	30 - 100	40 - 120
A05		
A06		

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
A03	0	7 drops /min
A04	0	7 drops /min
A05	0	7 drops /min
A06	0	7 drops /min

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

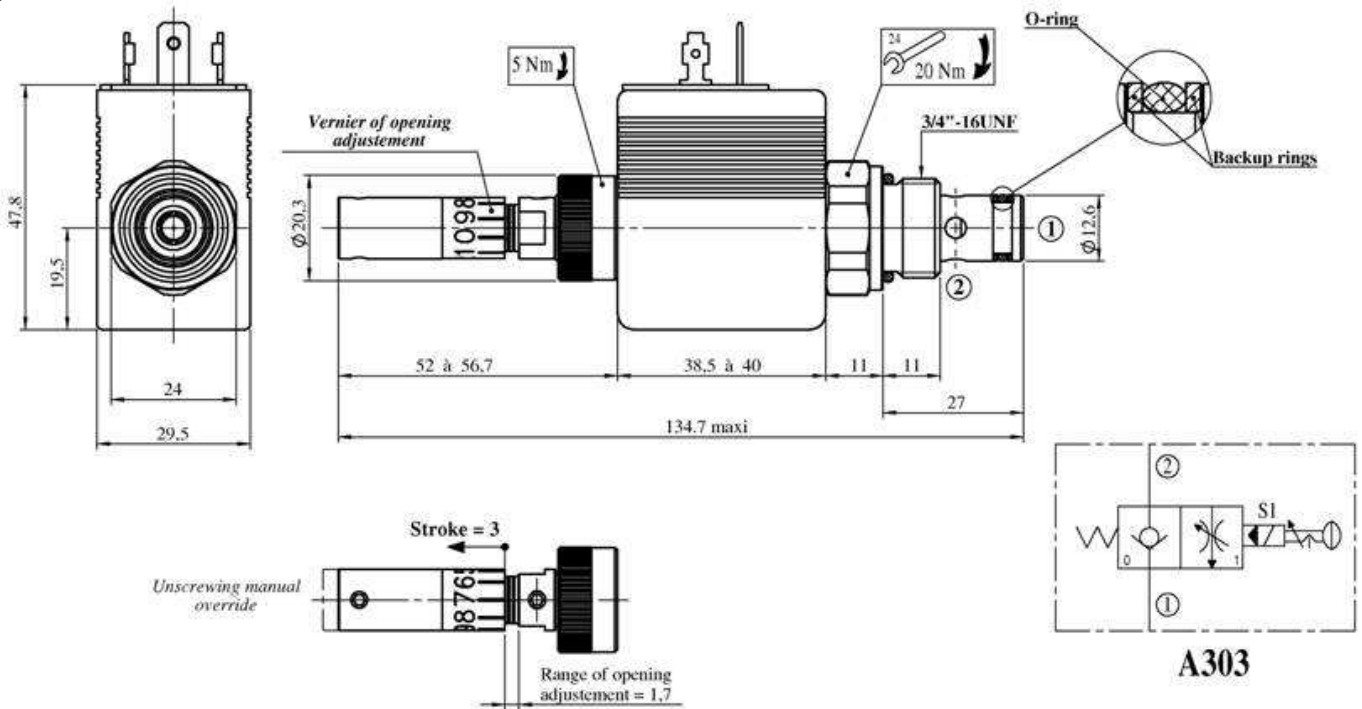
PILOTED POPPET TIGHT VALVE ELECTRICAL COMMAND with ADJUSTABLE SECTION

Normally Closed - NC

2 Ways

Size 08 - 3/4" 16 UNF CEF 08 A303 ... VN Ref.: T301295 with manual override

Ref. with coil: ref. here above followed by the coil code - see here below codification table

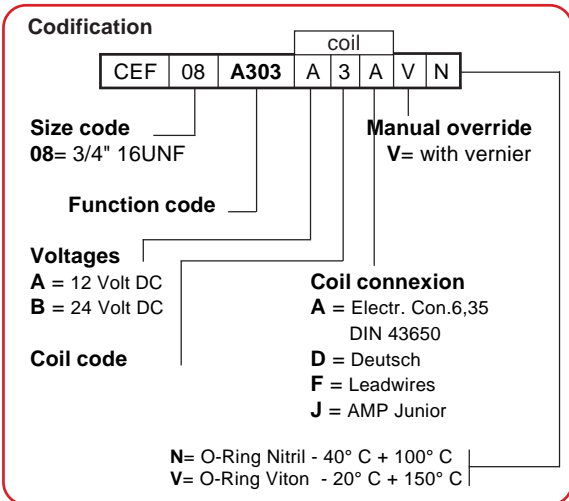


Description:

- De-energized: Flow is blocked from 2 to 1.
- Energized: Flow is possible from 1 to 2 with restriction.
- Energized: Flow is allowed from 2 to 1 through a manually and accurate adjustable section by a vernier at valve head.
- Functionality as ways flow regulator with by-pass at excess in combination with D71 pressure compensator.
- Functionality with **coil code 8** power **30W**.

Technical Characteristics

Adjustable section	0 at 12 mm ²
Max. pressure	300 bar
Coil code 8 & connections	see Codification table
Coil voltage	12 VDC (A8*) or 24 VDC (B8*)
Coil power	30 watt
Resistance	5,2 Ω = 12 V 19,9 Ω = 24 V
Duty cycle	ED 100%
Current	see curves
Max leakage, closed position	0 to 0,3 cm ³ /min to 200 bar
Temperature	- 40 °C + 100 °C
Filtration	ISO classe 18/16/13 - Page 231/00
Cavity	Size 08 - 7/8" 14 UNF - specific
Seal kit	N° T200104



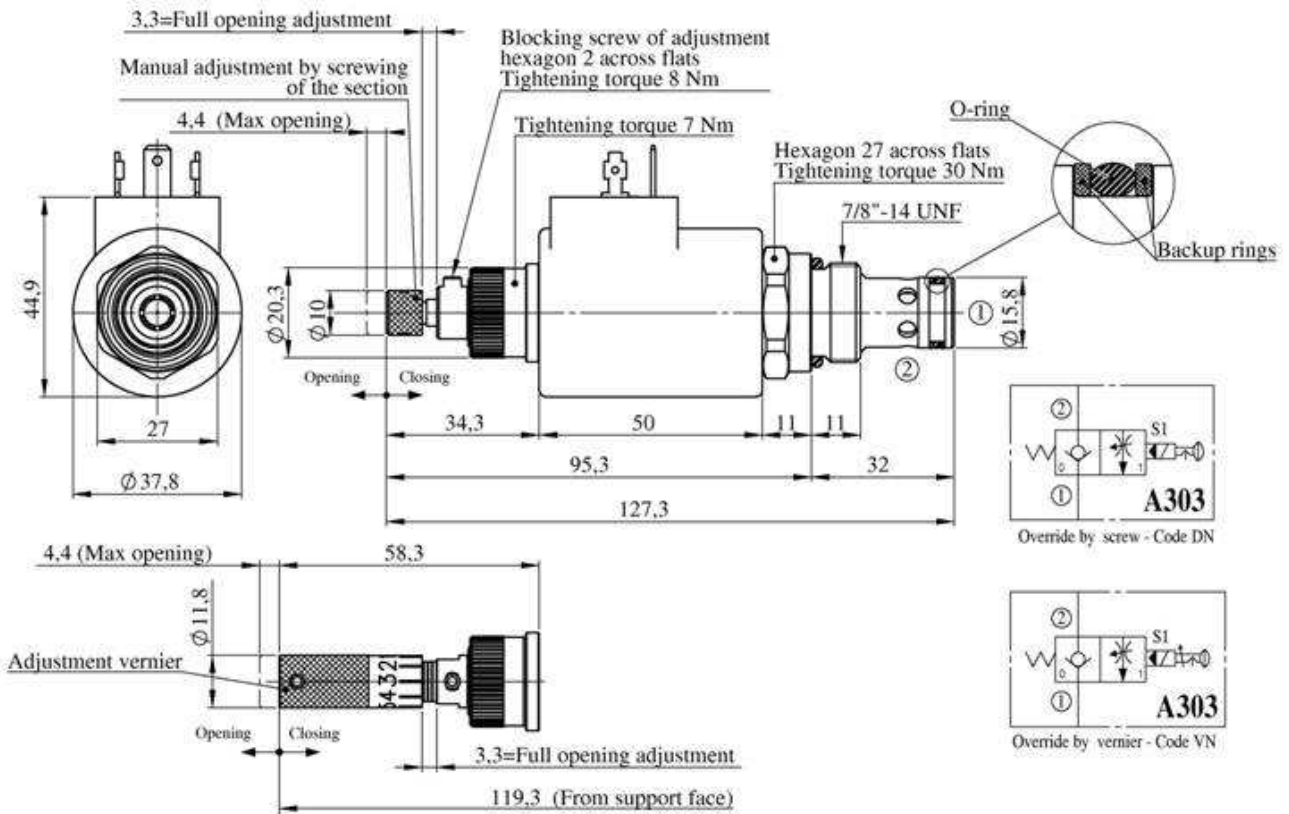
F.T 50 1383 1/2

Fluids : Mineral based or synthetic (seals compatible), with good lubrication properties. With a viscosity between 8 and 450 cSt at functioning temperature.

PILOTED POPPET TIGHT VALVE ELCTRICAL COMMAND with ADJUSTABLE SECTION Normally Closed - NC

2 Ways

Size 10 - 7/8" 14 UNF **CEF 10 A303 ... DN** Ref.: **T301308** adjustable by screw
 CEF 10 A303 ... VN Ref.: **T301309** adjustable by vernier

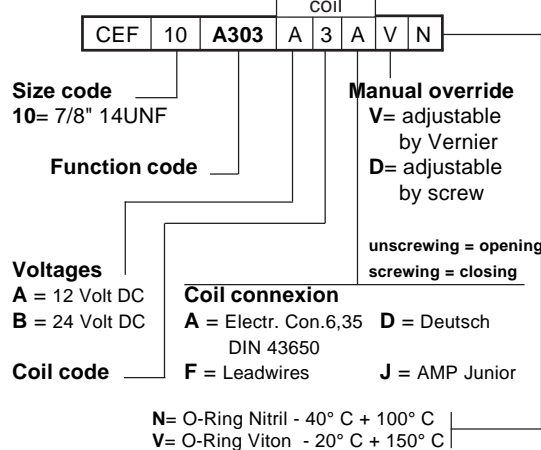


Description: De-energized: Flow is blocked from 2 to 1.
 Flow is possible from 1 to 2 with restriction.
 Energized: Flow is allowed from 2 to 1 through a manually and accurate adjustable section by a vernier at valve head.
 Fonctionality as 3 ways flow regulator with by-pass at excess in combination with D71 pressure compensator.
 Fonctionality with **coil code 3** power **26W**.

Technical Characteristics

Max flow	0 to 30 l/min
Max. pressure	300 bar
Coil code 3 & connections	see codification table
Voltage	12 VDC (A3*) or 24 VDC (B3*)
Coil power	26 watt
Resistance	5,5 Ω = 12 V 22,2 Ω = 24 V
Duty cycle	ED 100%
Current	see curves
Max leakage, closed position	0 to 0,3 cm³/min to 200 bar
Temperature	- 40 °C + 100 °C with std NBR seals
Filtration	ISO classe 18/16/13 - Page 231/00
Cavity	Size 10 - 7/8" 14 UNF -
Seal kit	N° T200104

Codification



Fluids: Mineral based or synthetic (seals compatible), with good lubrication properties. With a viscosity between 8 and 450 cSt at functioning temperature.

POPJET SOLENOID VALVES

BI-DIRECTIONAL - BI-TIGHT

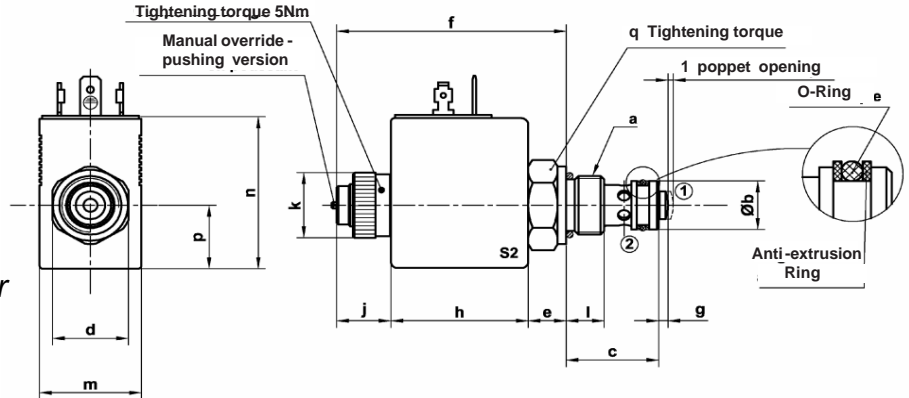
2 WAYS - 2 POSITIONS

Size 08 - 3/4" 16 UNF CED 08 A07

58 - M 18 x 1,5 CED 58 A07

STANDARD VERSION

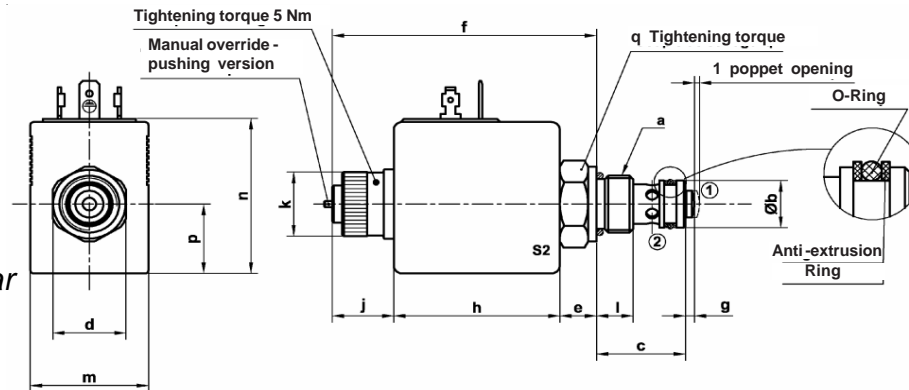
CED 08 A07 .8A E N **1**
 CED 58 A07 .8A E N **1**
 Maximum flow 30 l/mn
 Maximum pressure 300 bar



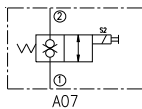
a	Implantation	b	c	d	e	f	g	h	j	k	l	m	n	p	q
Size															in Nm
08	3/4"-16UNF	12,65	27	24	11	66,70	2,7	40	15,70	20	11	29,5	47	19,5	40
58	M18x1,50	15	27	22	11	66,70	2,7	40	15,70	20	11	29,5	47	19,5	40

HIGHT PERFORMANCE VERSION

CED 58 A07 .5A E N **2**
 Maximum flow 30 l/mn
 Maximum pressure 300 bar



a	Implantation	b	c	d	e	f	g	h	j	k	l	m	n	p	q
Size															in Nm
08	3/4"-16UNF														
58	M18x1,50	15	27	22	11	79,50	2,7	50	18,50	20,3	11	35,5	49	22	40



Normally closed
 bi-directional - bi-tigh

Standard version

CED 08 A07 - 1
 CED 58 A07 - 1

High performance version

CED 58 A07 - 2

Coil Code

8

8

5

Description: A poppet spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.
Working: At rest position, recall by spring - At open position, the electro-magnet is energized by pushing.

Codification C E D 58 A07 B 8 A E N 1

Size Code
 08 = 3/4" 16 UNF
 58 = M18 X 1,5

Function code
 1 = Standard
 2 = High Perform.

Coil Code
 8 = Version 1 Standard
 5 = Version 2 High Perf.

Manual override
 E = pushing version
 B = screwing version
 C = pulling version

Coil connexion
 A = Electr.con.6,35 - DIN 43650
 B = Kostal
 D = Deutsch
 F = Leadwires
 J = AMP Junior

Seals
 N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 150°C

Voltagages
 A = 12 Volt DC
 B = 24 Volt DC
 E = 24 Volt VAC* ou RAC*
 F = 48 Volt VAC* ou RAC*
 G = 110 Volt VAC* ou RAC*
 H = 220 Volt VAC* ou RAC*

*VAC: coil with integrated bridge rectifier
 *RAC : use obligatorily a connector with bridge rectifier

Characteristics : see overleaf
Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 238 / 00
Weight with coil (without connector) : 0,3 Kg

Mounting on BAF : Page 132 / 00
Mounting on MBS® : Page 175 / 00

seal kits:
 Size 58 N° 200 110
 size 08 N° 200 104

Connectors

See pages 072 / 00 & 073 / 00

F.T 50 1104 1/2

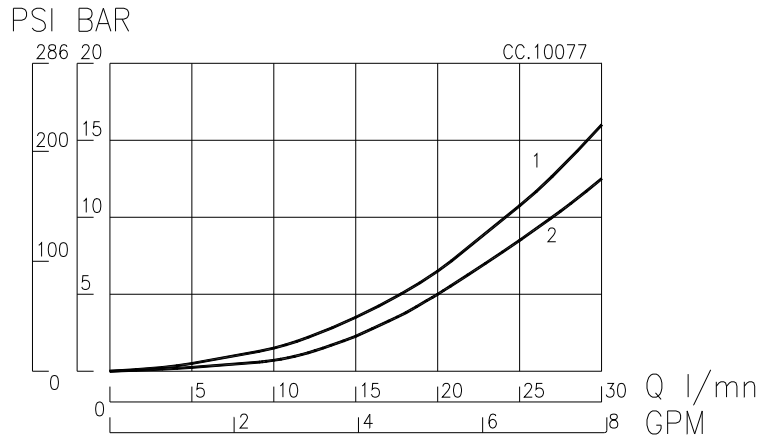
CHARACTERISTICS (cartridge only)

POPPET SOLENOID VALVES - BI-DIRECTIONAL - BI-TIGHT 2 WAYS - 2 POSITIONS

Size 08 - 3/4"16 UNF CED 08 A07
Size 58 - M 18 x 150 CED 58 A07

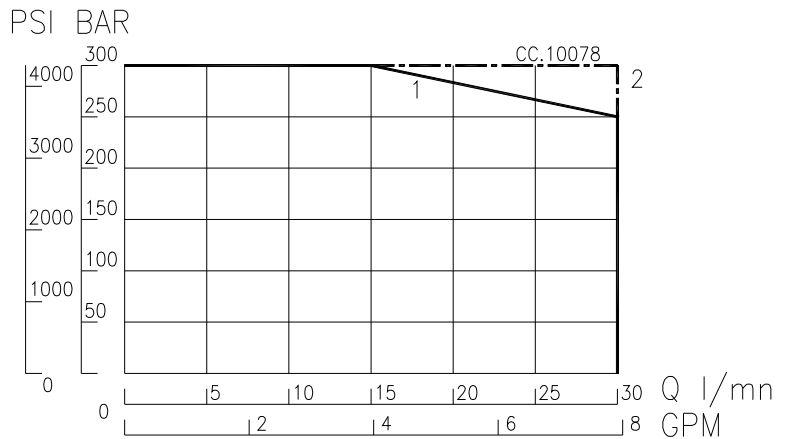
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
58 A07 - 1	1	1
08 A07 - 1	1	1
<small>Standard Version</small>		
58 A07 - 2	2	2
<small>High performance version</small>		



UTILIZATION LIMIT AT WORKING PRESSURE (under nominal voltage)

Type	② ⇒ ①	① ⇒ ②
58 A07 - 1	1	1
08 A07 - 1	1	1
<small>Standard Version</small>		
58 A07 - 2	2	2
<small>High performance version</small>		



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
58 A07 - 1	20 - 30	25 - 40
08 A07 - 1	20 - 30	25 - 40
<small>Standard Version</small>		
58 A07 - 2	20 - 30	25 - 40
<small>High performance version</small>		

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
58 A07 - 1	0	0
08 A07 - 1	0	0
<small>Standard Version</small>		
58 A07 - 2	0	0
<small>High performance version</small>		

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

POPET SOLENOID VALVES

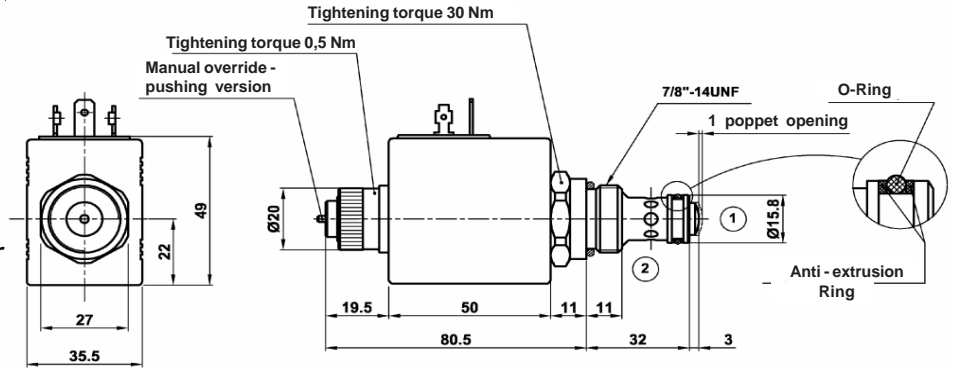
BI-DIRECTIONAL - BI-TIGHT

2 WAYS - 2 POSITIONS

Size 10 - 7/8" 14 UNF

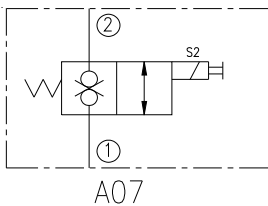
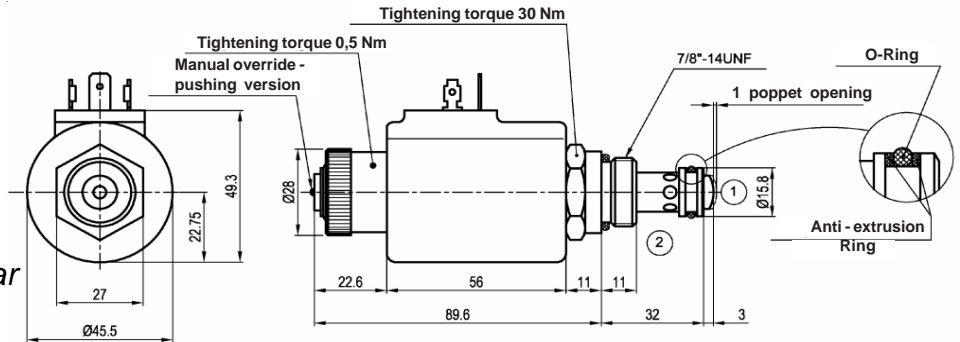
STANDARD VERSION

CED 10 A07 **1**
 Maximum flow 40 l/mn
 Maximum pressure 250 bar
 (see graphs overleaf)



HIGH PERFORMANCE VERSION

CED 10 A07 **2**
 Maximum flow 60 l/mn
 Maximum pressure 300 bar
 (see graphs overleaf)



Normally closed
 bi-directional - bi-tight

Standard version
 CED 10 A07 ... O N - 1

Coil code
5

High Performance version
 CED 10 A07 ... O N - 2

4

Description: A poppet spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.
Working: At rest position, recall by spring - At open position, the electro-magnet is energized by pushing.

F.T. 50 1105 1/2

Codification	C E D 10 A07 B 5 A O N 1	1 = Standard 2 = Hte Perform.
Size Code = 10 - 7/8" 14 UNF		
Function code		
Voltages		
A = 12 Volt DC		
B = 24 Volt DC		
E = 24 Volt RAC		
F = 48 Volt RAC		
G = 110 Volt RAC		
H = 220 Volt RAC		
Coil code	5 = Version 1 Standard 4 = Version 2 High Performance	
Coil Connexion	A = Electr. con.6,35 - DIN 43650 B = Kostal D = Deutsch F = Leadwires J = AMP Junior	Manual override O = without B = screwing version E = pulling version
Coil Connexion	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C	
Connectors	See pages 072 / 00 & 073 / 000	

Characteristics : see overleaf
Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 233 / 00 to 236 / 00
Weight with coil (without connector) : 0,3 Kg
Mounting on BAF : Page 132 / 00
Mounting on MBS® : Page 175 / 00
seal kits: N° 200 014

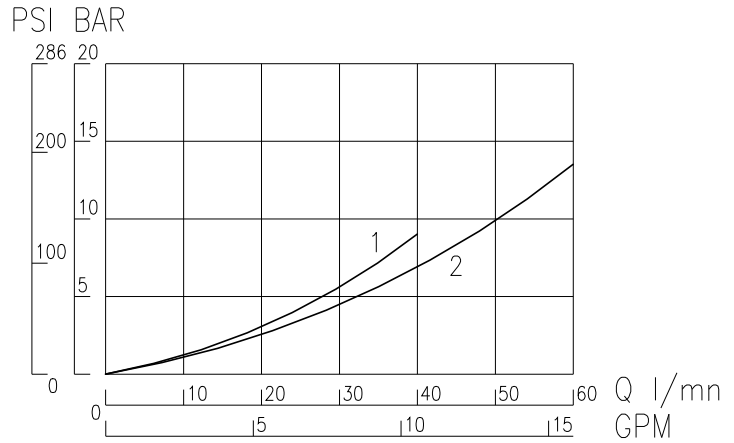
CHARACTERISTICS (cartridge only)

POPPET SOLENOID VALVES - BI-DIRECTIONAL - BI-TIGHT 2 WAYS - 2 POSITIONS

Size 10 - 7/8"14 UNF

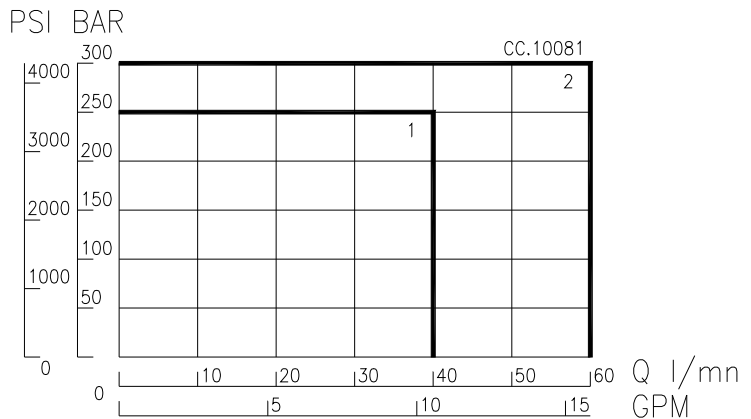
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
10 A07 - 1 Standard version Maximum flow 40 l/min	1	1
10 A07 - 2 High performance version Maximum flow 60 l/min	2	2



UTILIZATION LIMIT AT WORKING PRESSURE (under nominal voltage)

Type	② ⇒ ①	① ⇒ ②
10 A07 - 1 Standard version	1	1
10 A07 - 2 High performance version	2	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
10 A07 - 1 Standard version	25 - 40	25 - 40
10 A07 - 2 High performance version	25 - 40	30 - 50

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
10 A07 - 1 Standard version	0	0
10 A07 - 2 High performance version	0	0

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

PUBLISHING 01 / 11 / 2002

V50 | 017 | 00

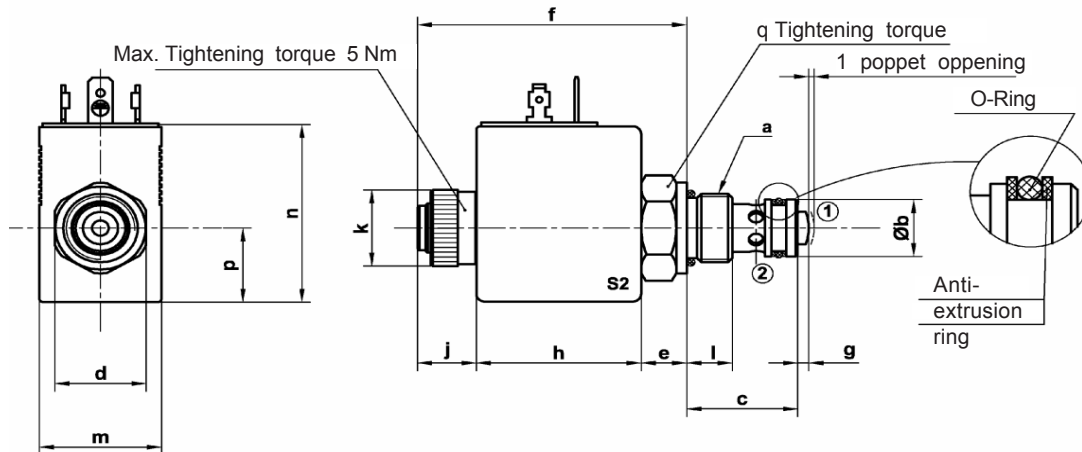
POPJET SOLENOID VALVE BI-DIRECTIONAL - BI-TIGHT

2 WAYS - 2 POSITIONS

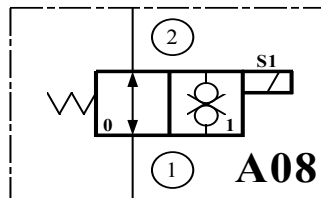
Maximum pressure 300 bar

Size 08 - 3/4" 16 UNF CED 08 A08

Size 58 - M 18 x 1,5 CED 58 A08



a	b	c	d	e	f	g	h	j	k	l	m	n	p	q	
Size	Implantation													in Nm	
08	3/4"-16UNF	12,65	27	24	11	65	2,7	40	14	20	11	29,5	47	19,5	40
58	M 18 x 1,50	15	27	22	11	65	2,7	40	14	20	11	29,5	47	19,5	40



Normally open
bi-directional - bi-tight
Max Flow: 25 l/min

Description: A poppet spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: At rest position, recall by spring - At open position, the electro-magnet is energized by pushing.

Codification C E D 58 A04 B 8 A O N

Size Code
58 = M18x1,5
08 = 3/4"16 UNF

Voltages
A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt VAC* ou RAC*
F = 48 Volt VAC* ou RAC*
G = 110 Volt VAC* ou RAC*
H = 220 Volt VAC* ou RAC*

*VAC: coil with integrated bridge rectifier

*RAC : use obligatorily a connector with bridge rectifier

Function code

Coil Code = 8

Coil connexion
A = Electr.con.6,35 - DIN 43650
B = Kostal
F = Leadwires
J = AMP Junior

Connectors

See pages 072 / 00 & 073 / 00

Manual override
O= without manual override
A= screwing off version

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 150°C

Characteristics : see overleaf

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 233 / 00 (T.08) and 236 / 00 (T.58)
Weight with coil (without connector) : 0,3 Kg

Mounting on BAF : Page 132 / 00
Mounting on MBS® : Page 175 / 00

seal kits: N° 200 010

F.T 50 1106 1/2

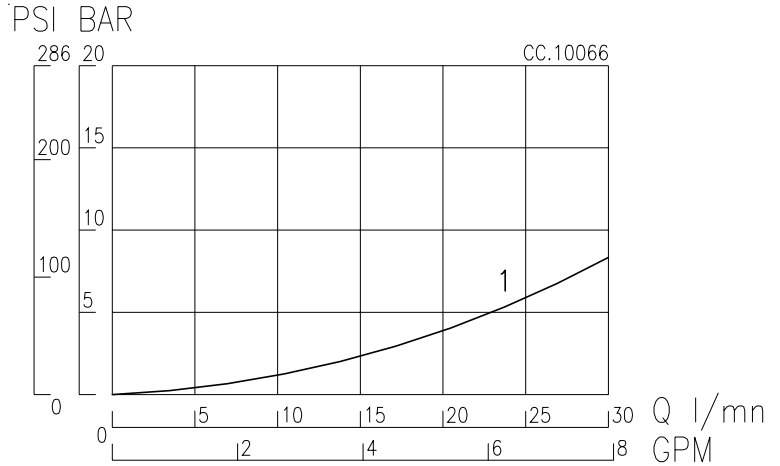
CHARACTERISTICS (cartridge only)

POPPET SOLENOID VALVES - BI-DIRECTIONAL - BI-TIGHT 2 WAYS - 2 POSITIONS

Size 08 - 3/4"16 UNF CED 08 A08
Size 58 - M 18 x 150 CED 58 A08

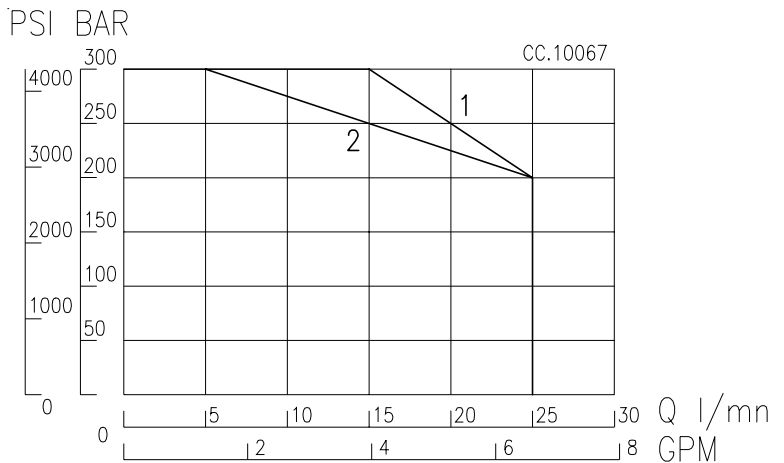
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
08 A08	1	1
58 A08	1	1



UTILIZATION LIMIT AT WORKING PRESSURE (under nominal voltage)

Type	② ⇒ ①	① ⇒ ②
08 A08	1	2
58 A08	1	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
08 A08	20 - 30	25 - 40
58 A08	20 - 30	25 - 40

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
08 A08	0	5 gouttes / mn
58 A08	0	5 gouttes / mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

PUBLISHING 26 / 02 / 2008

V50 | 019 | 00

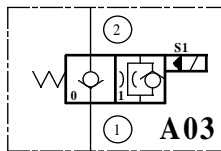
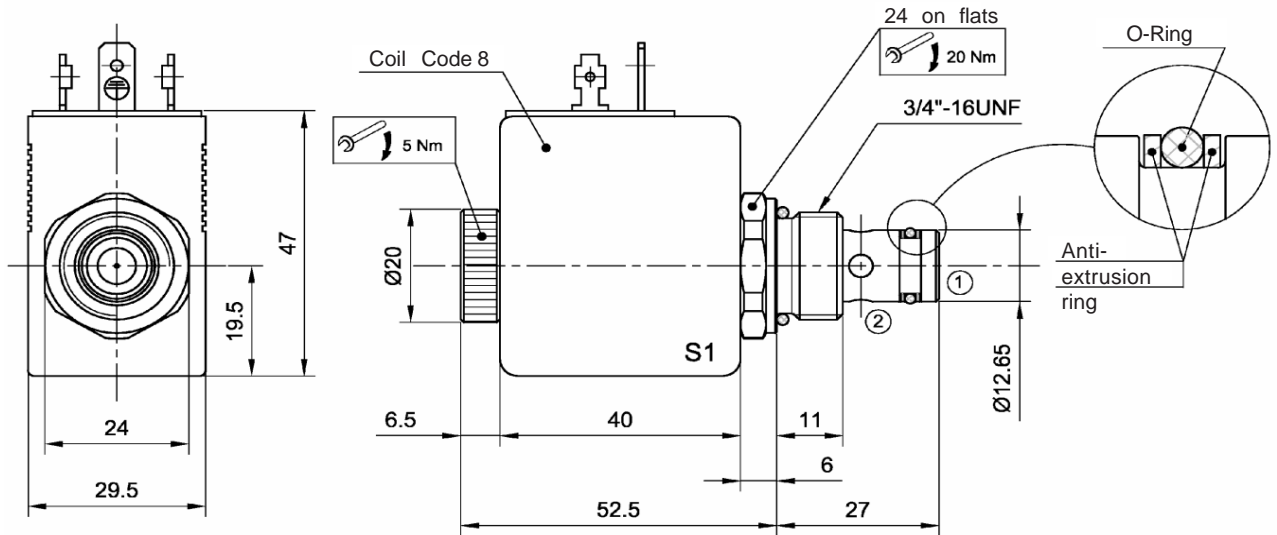
POPPET SOLENOID VALVE

2 WAYS - 2 POSITIONS

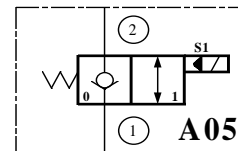
Taille 08 - 3/4" 16 UNF

VNF 3G

Maximum pressure 300 bar



Normally closed
not energized



CED 08 A03 - N° T301204

Max flow: 30 l/mn

CED 08 A05 - N° T301205

Max flow: 30 l/mn

Description : The distribution goes through a check valve made of processed steel guided by a solitary needle of the core of the electro-magnet.

Fonctionnement : A03 and A05 the check valve is normally closed when not working. The hole ② is in communication with the hole ① when the electro-magnet.

Codification C E D 58 A04 B 8 A O N

Size Code

08 = 3/4"16 UNF

Function code

Standard

Voltages

A = 12 Volt DC

B = 24 Volt DC

E = 24 Volt RAC*

F = 48 Volt RAC*

G = 110 Volt RAC*

H = 220 Volt RAC*

Coils Code

8= 30W

2= 22W

7= 18W

Coil connexion

A = Electr.con.6,35 - DIN 43650

B = Kostal

D = Deutsch

F = Leadwires

J = AMP Junior

Connectors

See pages 072 / 00 & 073 / 00

N - Nitril seals - 40° + 100°C

Characteristics : see overleaf

Tightening torques: Page 232 / 00

Caractéristiques des bobines: Page 063 / 00

Coils characteristics: Page 062 / 00

Temperature: see overleaf

Filtration recommendations: Page 231 / 00

Mounting Position: without restriction

Cavities : Page 233 / 00

Weight with coil (without connector) : 0,4 Kg

Mounting on BAF : Page 132 / 00

Mounting on MBS® : Page 175 / 00

seal kits: N° 200 104

*RAC : use obligatorily a connector with bridge rectifier

CHARACTERISTICS with COIL

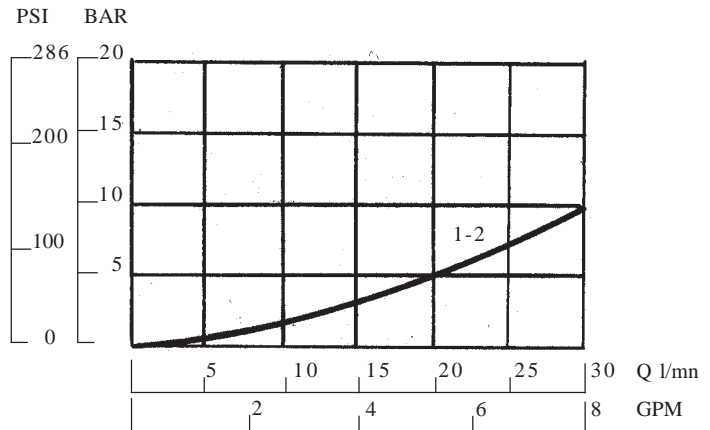
POPPET SOLENOID VALVES 2 WAYS - 2 POSITIONS

VNF 3G

Size 08 - 3/4"16 UNF CED 08 A03 - 3G - N° T301204
CED 58 A05 - 3G - N° T301205

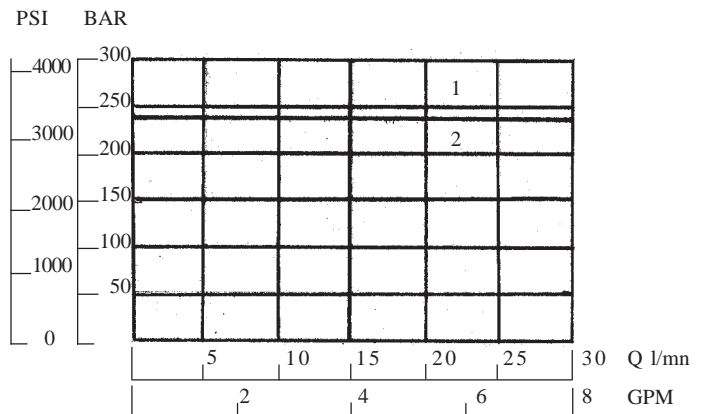
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
A03	1	1
A05	1	1



UTILIZATION LIMIT AT WORKING PRESSURE (under nominal voltage)

Type	Reperes	
	Coils codes B2 & B8	Coils code B7
A03	1	2
A05	1	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
A03	20 - 60	30 - 70
A05	20 - 60	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
A03	0	0
A05	0	0
Leakage reduction after 5 minutes under pressure		

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

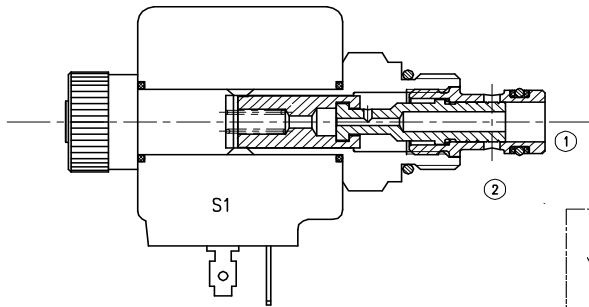
Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

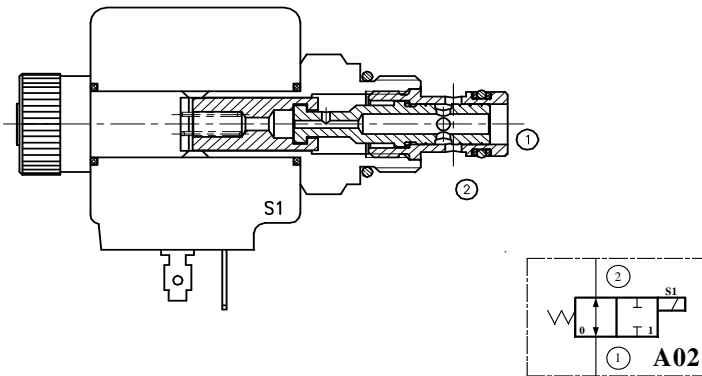
SPOOL SOLENOID VALVES

2 WAYS - 2 POSITIONS

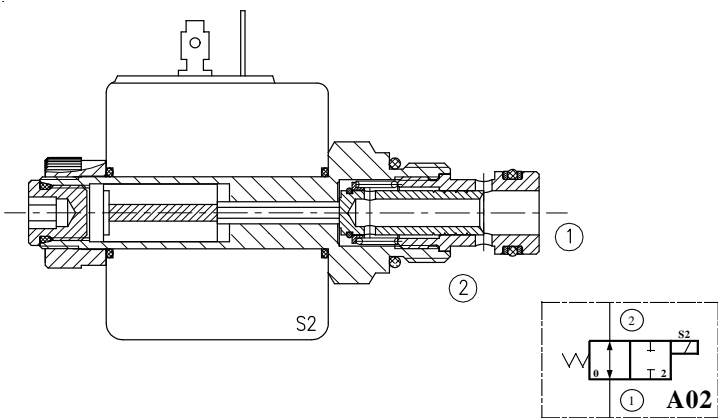
Maximum pressure 300 bar



	Max flow in l/mn	N° Page
CED 08 A01	18	021 / 00
CED 58 A01	18	021 / 00
CED 10 A01	40	024 / 00
CED 16 A01	60	027 / 00



CED 08 A02	15	021 / 00
CED 58 A02	15	021 / 00
CED 10 A02	60	024 / 00
CED 16 A02	50	027 / 00



CED 08 A02-2	15	023 / 00
CED 58 A02-2	15	023 / 00

Pushing Version

CED 10 A202	60	026 / 00
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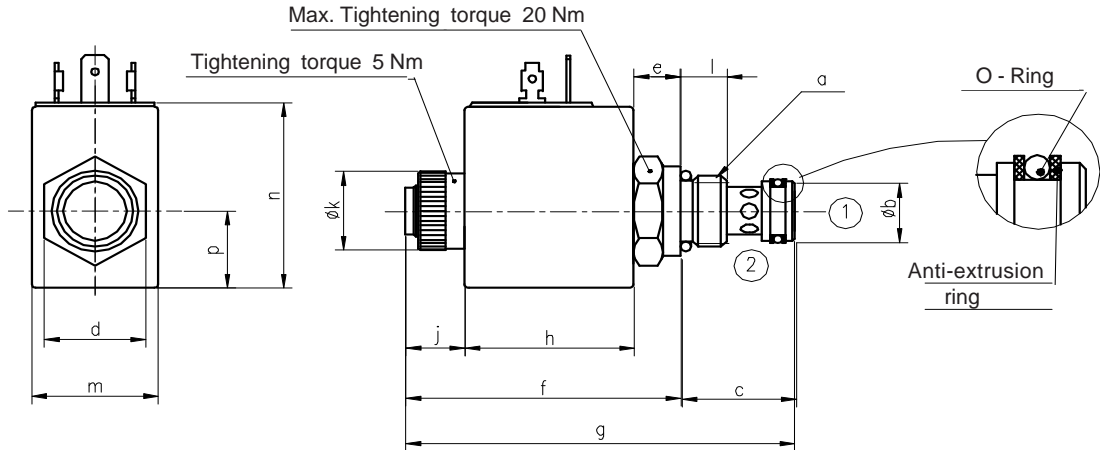
cushioned

SPOOL SOLENOID VALVES PULLING Version

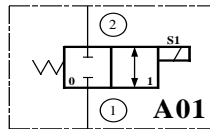
Size 08 - 3/4" 16 UNF
CED 08 A01 - CED 08 A02

2 WAYS - 2 POSITIONS
Maximum pressure 300 bar

Size 58 - M 18 x 1,5
CED 58 A01 -
CED 58 A02 ... 1

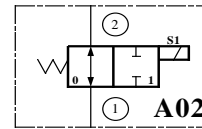


a Size	Port size	b	c	d	e	f	g	h	j	k	l	m		n		p	
												coil code 2	coil code 8	coil code 2	coil code 8	coil code 2	coil code 8
08*	3/4"-16UNF	12,65	27	24	11	65	92	40	14	20	11	36	29,5	47,8	47	23	19,5
58	M 18x1,50	15	27	22	11	65	92	40	14	20	11	36	29,5	47,8	47	23	19,5



**Normally closed
not energized**

CED 08 A01 Max flow: 18 l/mn
CED 58 A01 Max flow: 18 l/mn



**Normally open
not energized**

CED 08 A02 Max flow: 15 l/mn
CED 58 A02 ...1 Max flow: 15 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with short clearance in a treated steel housing.

Working : **A01** the spool is normally closed at rest. Port 2 is in communication with port 1 when the electro-magnet is energized.
A02 the spool is normally open at rest. The port 2 is blocked when the electro-magnet is energized.

Codification C E D 08 A02 B 8 A O N 1 Code 1 pour 58 A02 only

Size Code
08 = 3/4" 16 UNF **Function code**
58 = M 18 x 150

Voltages
A = 12 Volt DC **Coil Code = 8**
B = 24 Volt DC
E = 24 Volt VAC* ou RAC*
F = 48 Volt VAC* ou RAC*
G = 110 Volt VAC* ou RAC*
H = 220 Volt VAC* ou RAC*

Coil connexion
A = Electr.con.6,35 - DIN 43650
B = Kostal
D = Deutsch
F = Leadwires
J = AMP Junior

Manual override
O = without manual override
A = screwing off version
C = pulling version

Seals
N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 150°C

*VAC: coil with integrated bridge rectifier
*RAC : use obligatorily a connector with bridge rectifier

Connectors
See pages 072 / 00 & 073 / 00

Characteristics : see overleaf
Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 233 / 00 (T.08) and 238 / 00 (T.58)
Weight with coil (without connector) : 0,3 Kg
Mounting on BAF : Page 133 / 00
Mounting on MBS® : Page 176 / 00

seal kits:
Size 58 N° 200 110
Size 08 N° 200 104

CHARACTERISTICS (cartridge only)

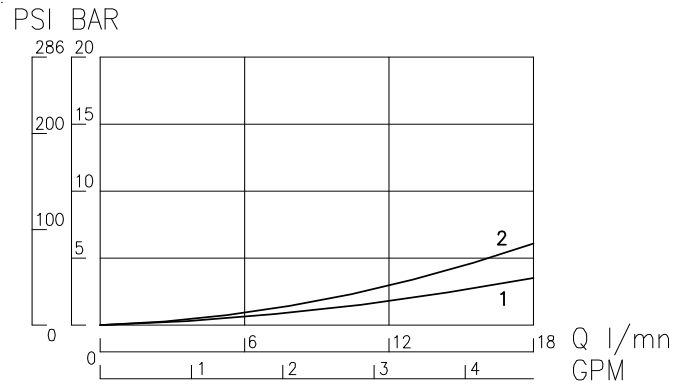
SPOOL SOLENOID VALVES - PULLING Version 2 WAYS - 2 POSITIONS

Size 08 - 3/4" 16 UNF
CED 08 A01 - CED 08 A02

Size 58 - M 18 x 1,5
CED 58 A01 - CED 58 A02 ... 1

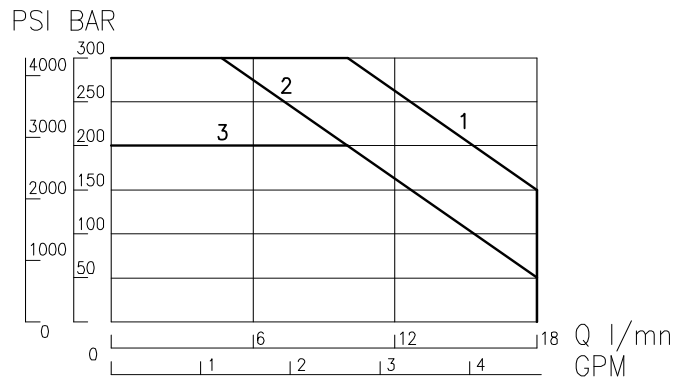
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
A01	1	1
A02	2	2



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	② ⇒ ①	① ⇒ ②
A01	1	2
A02	1	3



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
A01	30 - 60	30 - 50
A02	30 - 60	30 - 50

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
A01	10 cm ³ /mn	40 cm ³ /mn
A02	10 cm ³ /mn	40 cm ³ /mn
Leakage reduction after 5 minutes under pressure		

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

PUBLISHING 23 / 07 / 2001

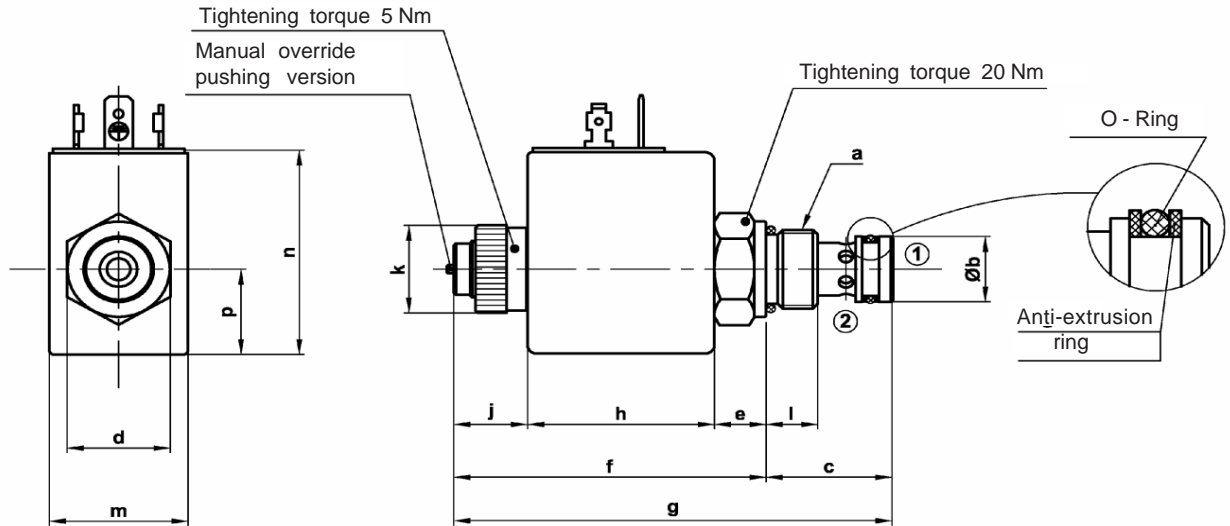
V50 | 022 | 00

SPOOL SOLENOID VALVES PUSHING Version

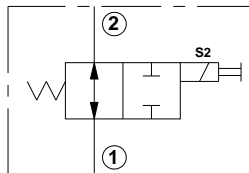
Size 08 - 3/4" 16 UNF
CED 08 A02 2

2 WAYS - 2 POSITIONS
Maximum pressure 300 bar

Size 58 - M 18 x 1,5
CED 58 A02 2



a Size	Implantation	b	c	d	e	f	g	h	j	k	l	m		n		p	
												coil code 2	coil code 8	coil code 2	coil code 8	coil code 2	coil code 8
08*	3/4"-16UNF	12,65	27	24	11	67	94	40	16	20	11	36	30	47,8	47	23	19,5
58	M 18x1,50	15	27	22	11	67	94	40	16	20	11	36	30	47,8	47	23	19,5



A02

Normally open
not energized
Max flow: 15 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Fonctionnement: The spool is normally open at rest. The port 2 is blocked when the electro-magnet is energized.

Codification C E D 58 A02 B 8 A O N 1 **PUSHING Version**

Size Code 58 = M 18 x 150 **Function code** A O N 1

Voltages
 A = 12 Volt DC
 B = 24 Volt DC
 E = 24 Volt VAC* ou RAC*
 F = 48 Volt VAC* ou RAC*
 G = 110 Volt VAC* ou RAC*
 H = 220 Volt VAC* ou RAC*

Coil Code = 8

Coil connexion
 A = Electr.con.6,35 - DIN 43650
 B = Kostal
 D = Deutsch
 F = Leadwires
 J = AMP Junior

Manual override
 O= without manual override
 B= screwing on version
 E= pushing version

Coil connexion
 N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 150°C

Connectors
See pages 072 / 00 & 073 / 00

*VAC: coil with integrated bridge rectifier
*RAC : use obligatorily a connector with bridge rectifier

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 238 / 00
Weight with coil (without connector) : 0,3 Kg

Mounting on BAF : Page 133 / 00
Mounting on MBS® : Page 176 / 00

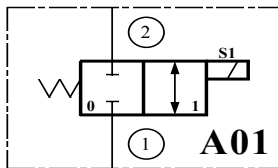
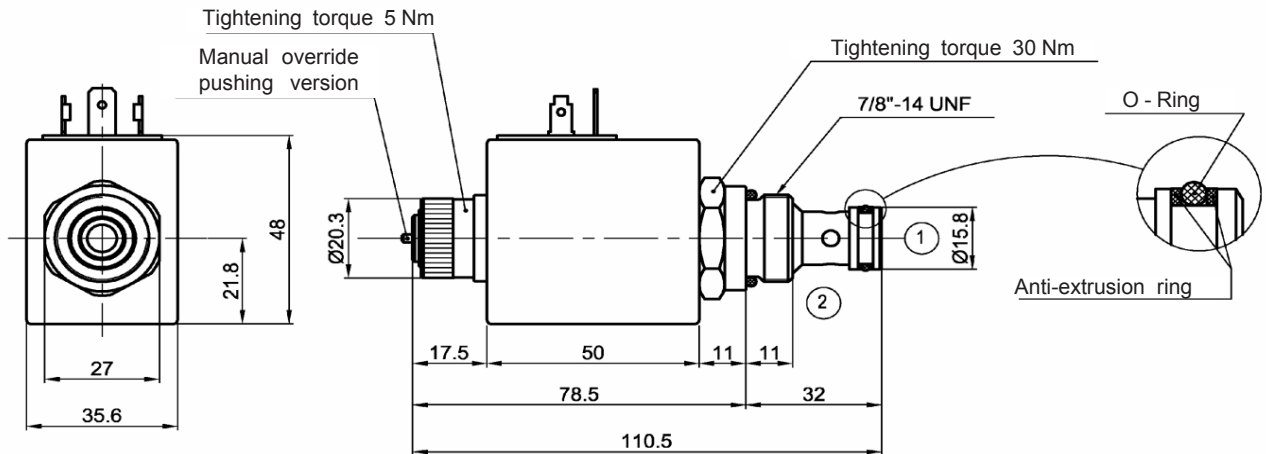
seal kits:
Size 58 N° 200 110
Size 08 N° 200 104

F.T 50 1109

SPOOL SOLENOID VALVES

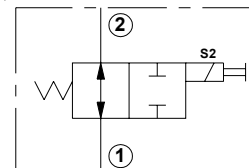
2 WAYS - 2 POSITIONS
Maximum pressure 300 bar

Size 10 - 7/8" 14 UNF CED 10 A01 - CED 10 A02 - 2



**Normally closed
not energized**

CED 10 A01 Max flow: 40 l/mn



**A02
Normally open
not energized**

CED 10 A02 Max flow: 60 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with short clearance in a treated steel housing.

Working: **A01** the spool is normally closed at rest. Port 2 is in communication with port 1 when the electro-magnet is energized.
A02 the spool is normally open at rest. The port 2 is blocked when the electro-magnet is energized.

Codification C E D 10 A02 B 5 A O N -2 Code 2 only for A02

Size Code 10 = 7/8"14 UNF **Function code** A O N -2

Voltages
A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt VAC* ou RAC*
F = 48 Volt VAC* ou RAC*
G = 110 Volt VAC* ou RAC*
H = 220 Volt VAC* ou RAC*

Coil Code = 5 **Coil connexion**
A = Electr.con.6,35 - DIN 43650
B = Kostal
D = Deutsch
F = Leadwires
J = AMP Junior

Manual override
O = without manual override
A = screwing off version
E = pushing version

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 150°C

Connectors See pages 072 / 00 & 073 / 00

Characteristics: see overleaf

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities: Page 233 / 00
Weight with coil (without connector): 0,3 Kg

Mounting on BAF: Page 133 / 00
Mounting on MBS®: Page 176 / 00

seal kits: N° 200 104

F.T 50 1110 1/2

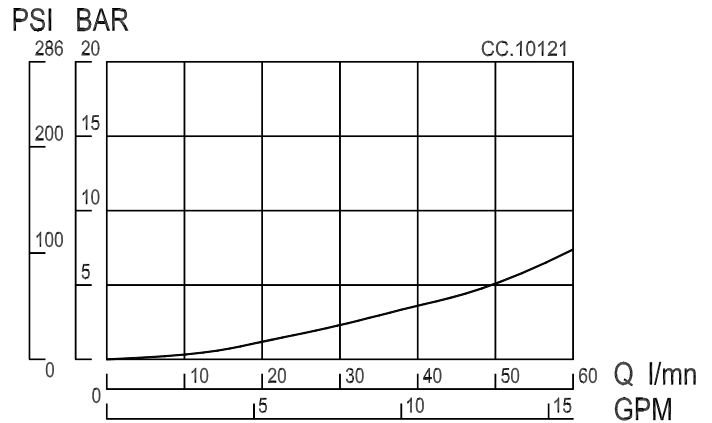
CHARACTERISTICS (cartridge only)

SPOOL SOLENOID VALVES 2 WAYS - 2 POSITIONS

Size 10 - 7/8" 14 UNF CED 10 A01 - CED 10 A02

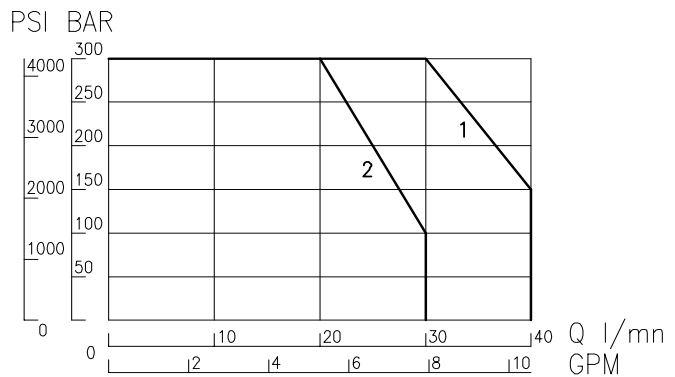
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
A01	1	1
A02	2	2



UTILIZATION LIMIT ON WORKING PRESSURE (under nominal voltage)

Type	② ⇒ ①	① ⇒ ②
A01	1	1
A02	1	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
A01	35 - 80	30 - 70
A02	35 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 BAR

Type	minimum	Maximum
A01	15 cm ³ /mn	80 cm ³ /mn
A02	15 cm ³ /mn	80 cm ³ /mn
Leakage reduction after 5 minutes under pressure		

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

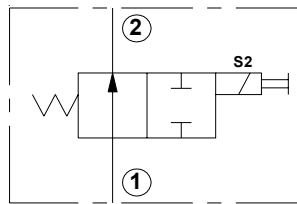
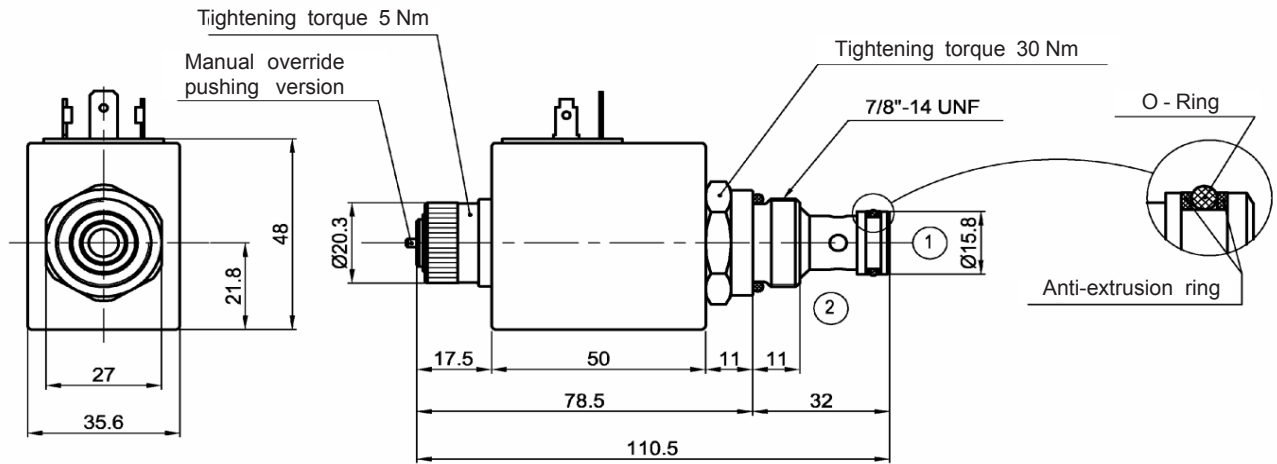
MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

CUSHIONED SPOOL SOLENOID VALVES

2 WAYS - 2 POSITIONS
Maximum pressure 300 bar

Size 10 - 7/8" 14 UNF

CED 10 A202 ... EN - 2
CED 10 A202 ... BN - 2



**Normally open
not energized**

CED 10 A202 ... EN-2
CED 10 A202 ... BN-2

(with pushing manual override)
(with screwing-on manual override)

Max flow: 60 l/mn
Max flow: 60 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Fonctionnement: The spool is normally open at rest. The port 2 is blocked when the electro-magnet is energized.

Codification C E D 10 A02 B 5 A E N 2 2ème Génération

Size Code 10 = 7/8" 14UNF	Function code	Coil Code = 5	Manual override B = screwing-on version E = pushing version
Voltages A = 12 Volt DC B = 24 Volt DC E = 24 Volt VAC* ou RAC* F = 48 Volt VAC* ou RAC* G = 110 Volt VAC* ou RAC* H = 220 Volt VAC* ou RAC*	Coil connexion A = Electr.con.6,35 - DIN 43650 B = Kostal D = Deutsch F = Leadwires J = AMP Junior	Coil connexion A = Electr.con.6,35 - DIN 43650 B = Kostal D = Deutsch F = Leadwires J = AMP Junior	Coil connexion N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C
*VAC: coil with integrated bridge rectifier			
*RAC : use obligatorily a connector with bridge rectifier			
Connectors See pages 072 / 00 & 073 / 00			

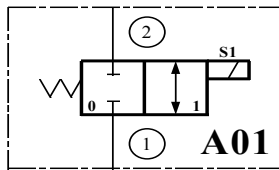
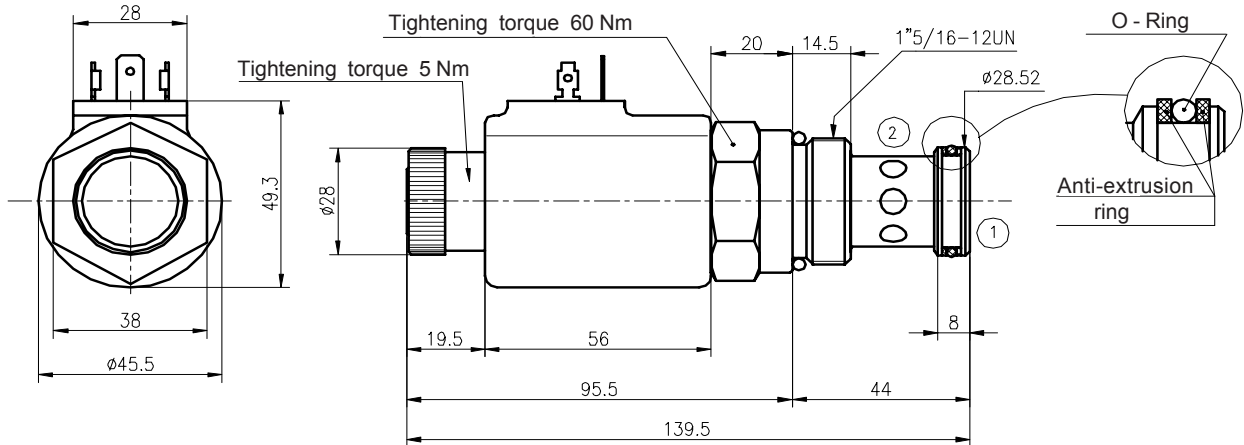
Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 233 / 00
Weight with coil (without connector) : 0,3 Kg
Mounting on BAF : Page 133 / 00
Mounting on MBS® : Page 176 / 00
seal kits: N° 200 014

F.T 50 1111

SPOOL SOLENOID VALVES

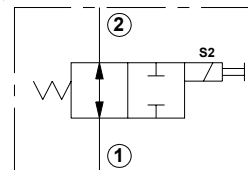
2WAYS - 2 POSITIONS
Maximum pressure 300 bar

Size 16 - 1" 5/16 12 UN CED 16 A01 - CED 16 A02



**Normally closed
not energized**

CED 16 A01 Max flow: 40 l/mn



**A02
Normally open
not energized**

CED 16 A02 Max flow: 60 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with short clearance in a treated steel housing.

Working: **A01** the spool is normally closed at rest. Port 2 is in communication with port 1 when the electro-magnet is energized.
A02 the spool is normally open at rest. The port 2 is blocked when the electro-magnet is energized.

Codification	C E D 16 A02 B 4 A O N
Size Code	16 = 1"5/16 12UN Function code
Voltages	Coil Code = 4
A = 12 Volt DC	Coil connexion A = Electr.con.6,35 - DIN 43650 B = Kostal
B = 24 Volt DC	
E = 24 Volt VAC* ou RAC*	
F = 48 Volt VAC* ou RAC*	
G = 110 Volt VAC* ou RAC*	Manual override O = without manual override A = screwing off version C = pulling version
H = 220 Volt VAC* ou RAC*	
	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C

Characteristics : see overleaf

- Tightening torques: Page 232 / 00
- Caractéristiques des bobines: Page 063 / 00
- Coils characteristics: Page 062 / 00
- Manual overrides: Page 074 / 00
- Temperature: see overleaf
- Filtration recommendations: Page 231 / 00
- Mounting Position: without restriction
- Cavities : Page 233 / 00
- Weight with coil (without connector) : 0,8 Kg

Mounting on BAF : Page 133 / 00
Mounting on MBS® : Page 176 / 00

seal kits: N° 200 104

Connectors See pages 072 / 00 & 073 / 00

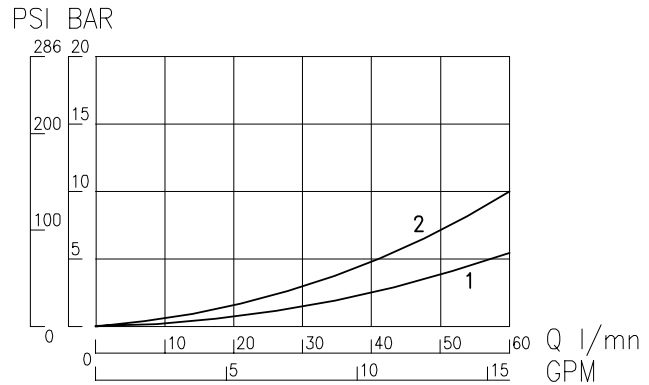
CHARACTERISTICS (cartridge only)

SPOOL SOLENOID VALVES 2 WAYS - 2 POSITIONS

Size 16 - 1" 5/16 12 UN CED 16 A01 - CED 16 A02

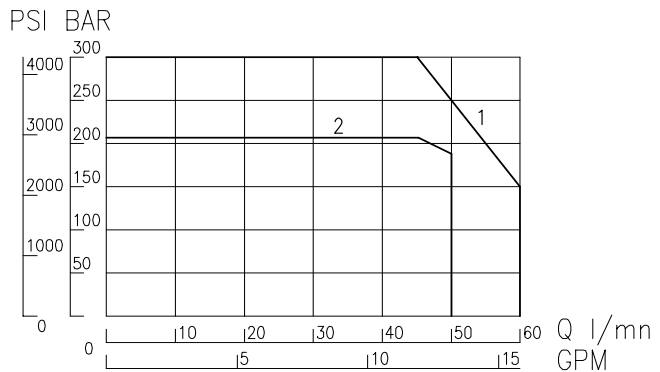
PRESSURE DROP

Type	② ⇒ ①	① ⇒ ②
A01	1	1
A02	2	2



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	② ⇒ ①	① ⇒ ②
A01	1	2
A02	1	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de-energized
A01	40 - 100	30 - 90
A02	40 - 100	30 - 90

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
A01	25 cm ³ /mn	100 cm ³ /mn
A02	25 cm ³ /mn	100 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

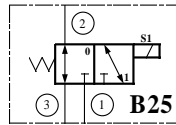
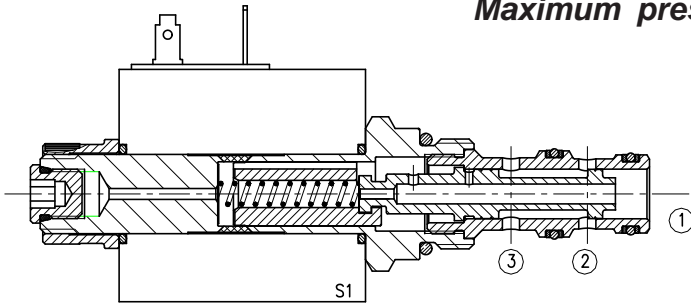
Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

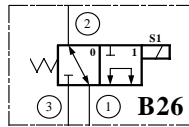
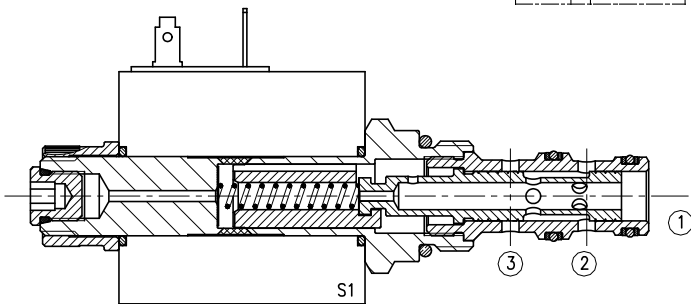
SPOOL SOLENOID VALVES

3 WAYS - 2 POSITIONS

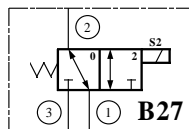
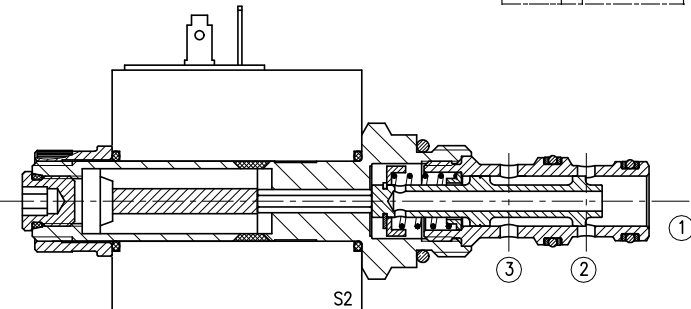
Maximum pressure 300 bar



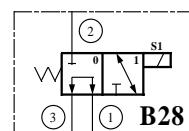
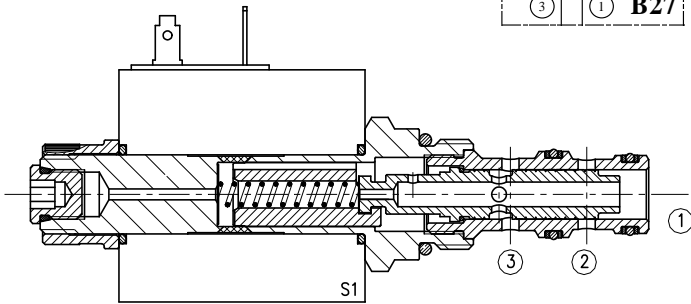
	Max flow in l/mn	N° Page
CED 08 B25	18	031 / 00
CED 10 B25	50	033 / 00
CED 16 B25	60	035 / 00



CED 08 B26	12	031 / 00
CED 58 B26	25	033 / 00
CED 10 B26	45	035 / 00



CED 08 B27	18	031 / 00
CED 10 B27	50	033 / 00
CED 16 B27	60	035 / 00



CED 08 B28	12	031 / 00
CED 10 B28	25	033 / 00
CED 16 B28	45	035 / 00

F.T 50 1113 1/2

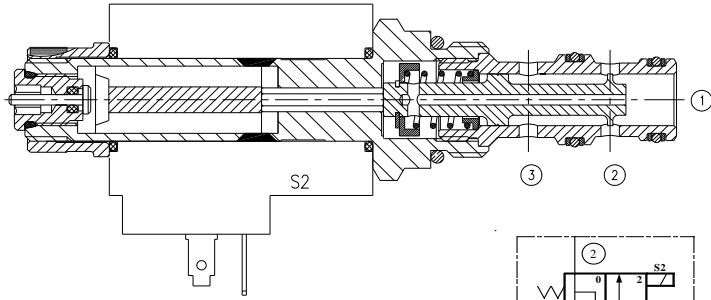
SPOOL SOLENOID VALVES

3 WAYS - 2 POSITIONS

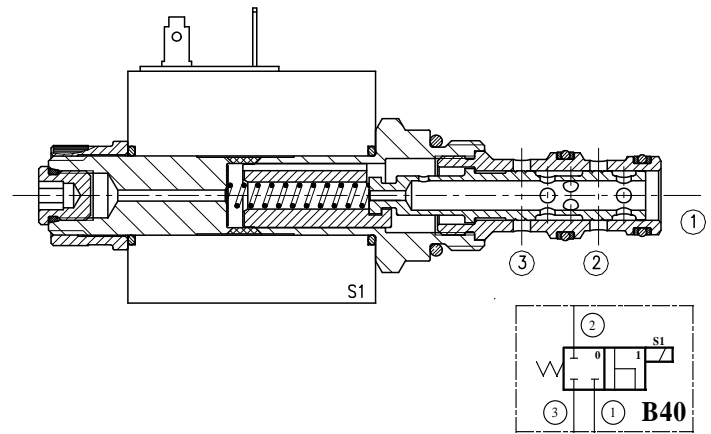
Maximum pressure 300 bar

Max flow
in l/mn

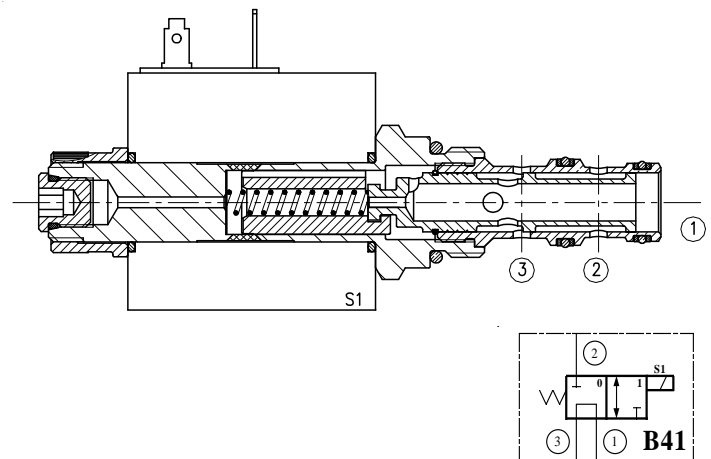
N° Page



CED 08 B29	12	031 / 00
CED 10 B29	25	033 / 00
CED 16 B29	45	035 / 00



CED 08 B40	12	031 / 00
CED 58 B40	25	033 / 00
CED 10 B40	45	035 / 00



CED 08 B41	12	031 / 00
CED 10 B41-2	25	033 / 00
CED 16 B41	45	035 / 00

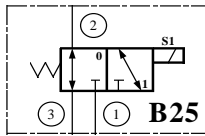
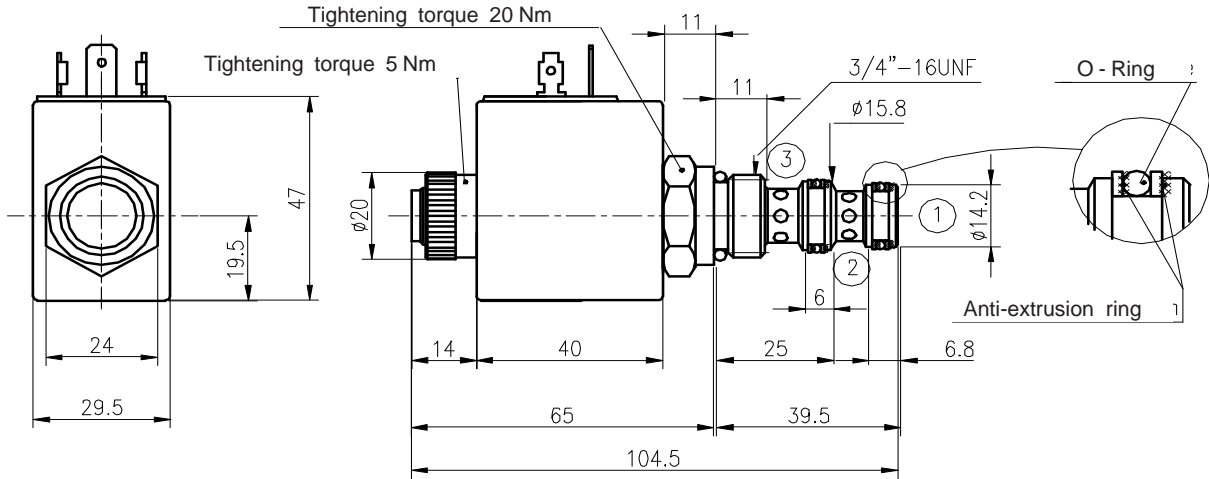
F.T 50 1113 2/2

SPOOL SOLENOID VALVES

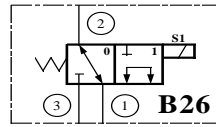
3 WAYS - 2 POSITIONS
Maximum pressure 300 bar

Size 08 - 3/4" 16 UNF

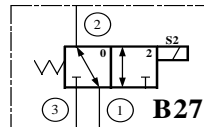
CED 08 B25 - CED 08 B26 - CED 08 B27 - CED 08 B28 -
 CED 08 B29 - CED 08 B40 - CED 08 B41 -



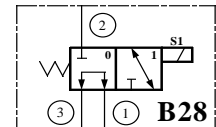
CED 08 B25
Débit maxi: 18 l/mn



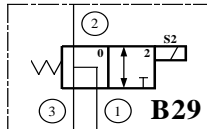
CED 08 B26
Débit maxi: 12 l/mn



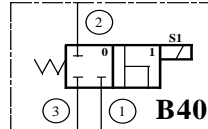
CED 08 B27
Débit maxi: 18 l/mn



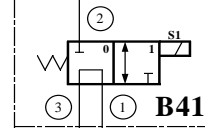
CED 08 B28
Débit maxi: 12 l/mn



CED 08 B29
Max flow: 12 l/mn



CED 08 B40
Max flow: 12 l/mn



CED 08 B41
Max flow: 12 l/mn

Description: A cylindrical spool with a suitable form in treaded steel slides with a short clearance in a treated steel housing.

Working: **Position 0** = closed by spring. **Position 1** = the electro-magnet is energized by pulling. **Position 2** = the electro-magnet is energized by pushing. Fluid distribution according to the pointer on the pictograms.

Codification C E D 08 B26 B 8 A O N

Size Code

08 = 3/4"16 UNF

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt VAC* ou RAC*
- F = 48 Volt VAC* ou RAC*
- G = 110 Volt VAC* ou RAC*
- H = 220 Volt VAC* ou RAC*

Coil Code = 8

Coil connexion

- A = Electr.con.6,35-DIN 43650
- B = Kostal
- D = Deutsch
- F = Leadwires
- J = AMP Junior

Manual override

O= without manual override

For functions B27&B29:

B= screwing version

E= pushing version

For others functions:

A= screwing off version

C= pulling version

- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 150°C

Connectors

See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

- Tightening torques: Page 232 / 00
- Caractéristiques des bobines: Page 063 / 00
- Coils characteristics: Page 062 / 00
- Manual overrides: Page 074 / 00
- Temperature: see overleaf
- Filtration recommendations: Page 231 / 00
- Mounting Position: without restriction
- Cavities: Page 234 / 00
- Weight with coil (without connector): 0,3 Kg

- Mounting on BAF: Page 134 / 00
- Mounting on MBS®: Page 179 / 00 - 180 / 00

seal kits: N° 200 106

*VAC: coil with integrated bridge rectifier

*RAC: use obligatorily a connector with bridge rectifier

F.T 50 1114 1/2

CHARACTERISTICS (cartridge only)

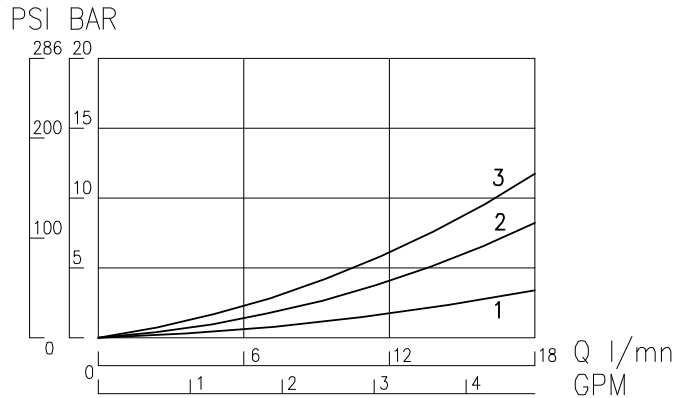
SPOOL SOLENOID VALVES 3 WAYS - 2 POSITIONS

Size 08 - 3/4" 16 UNF

CED 08 B25 - CED 08 B26 - CED 08 B27 - CED 08 B28 -
CED 08 B29 - CED 08 B40 - CED 08 B41 -

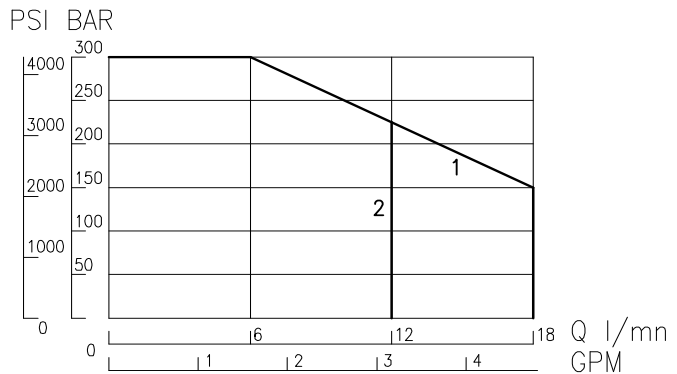
PRESSURE DROP

Type	② ⇄ ③	② ⇄ ①	③ ⇄ ①
B25	2	1	-
B26	-	3	3
B27	2	1	-
B28	-	1	3
B29	3	3	3
B40	3	3	3
B41	2	-	3



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Reference
B25	1
B26	2
B27	1
B28	2
B29	2
B40	2
B41	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
B25	40 - 80	30 - 70
B26	40 - 80	30 - 70
B27	40 - 80	30 - 70
B28	40 - 80	30 - 70
B29	40 - 80	30 - 70
B40	40 - 80	30 - 70
B41	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
B25	10 cm ³ /mn	40 cm ³ /mn
B26	10 cm ³ /mn	40 cm ³ /mn
B27	10 cm ³ /mn	40 cm ³ /mn
B28	10 cm ³ /mn	40 cm ³ /mn
B29	10 cm ³ /mn	40 cm ³ /mn
B40	10 cm ³ /mn	40 cm ³ /mn
B41	10 cm ³ /mn	40 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

PUBLISHING 10 / 10 / 2005

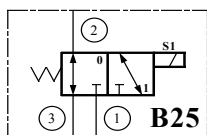
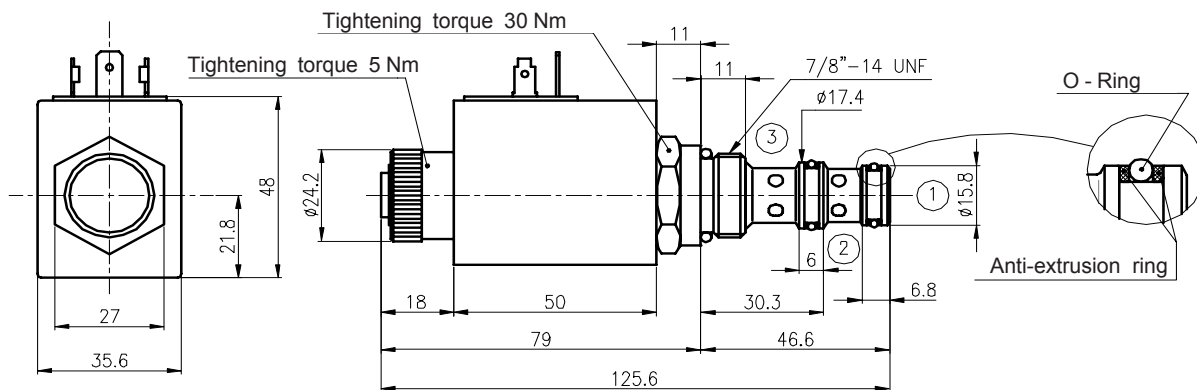
V50 | 032 | 00

SPOOL SOLENOID VALVES

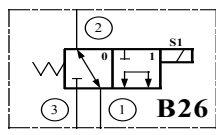
3 WAYS - 2 POSITIONS
Maximum pressure 300 bar

Size 10 - 7/8" 14 UNF

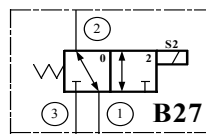
CED 10 B25 - CED 10 B26 - CED 10 B27 - CED 10 B28 -
CED 10 B29 - CED 10 B40 - CED 10 B41 -



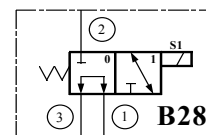
CED 10 B25
Max flow: 40 l/mn



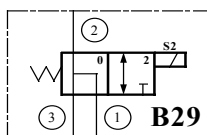
CED 10 B26
Max flow: 25 l/mn



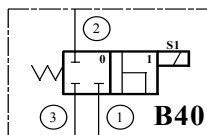
CED 10 B27
Max flow: 40 l/mn



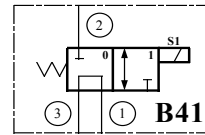
CED 10 B28
Max flow: 25 l/mn



CED 10 B29
Max flow: 25 l/mn



CED 10 B40
Max flow: 25 l/mn



CED 10 B41
Max flow: 25 l/mn

Description: A cylindrical spool with a suitable form in treaded steel slides with a short clearance in a treated steel housing.

Working: **Position 0** = closed by spring. **Position 1** = the electro-magnet is energized by pulling. **Position 2** = the electro-magnet is energized by pushing. Fluid distribution according to the pointer on the pictograms.

Codification C E D 10 B26 B 5 A O N

Size Code

10 = 7/8"14 UNF

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt VAC* ou RAC*
- F = 48 Volt VAC* ou RAC*
- G = 110 Volt VAC* ou RAC*
- H = 220 Volt VAC* ou RAC*

Coil Code = 5

Coil connexion

- A = Electr.con.6,35-DIN 43650
- B = Kostal
- F = Leadwires
- J = AMP Junior

Manual override

O= without manual override

For functions B27&B29:

B= screwing version

E= pushing version

For others functions:

A= screwing off version

C= pulling version

N -Nitril seals - 40° + 100°C

V -Viton seals - 20° + 150°C

Connectors

See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

Tightening torques: Page 232 / 00

Caractéristiques des bobines: Page 063 / 00

Coils characteristics: Page 062 / 00

Manual overrides: Page 074 / 00

Temperature: see overleaf

Filtration recommendations: Page 231 / 00

Mounting Position: without restriction

Cavities : Page 234 / 00

Weight with coil (without connector) : 0,4 Kg

Mounting on BAF : Page 134 / 00

Mounting on MBS® : Page 179 / 00 - 180 / 00

seal kits:

B25 at b40 N° 200 106

B41 N° 200 561

CHARACTERISTICS (cartridge only)

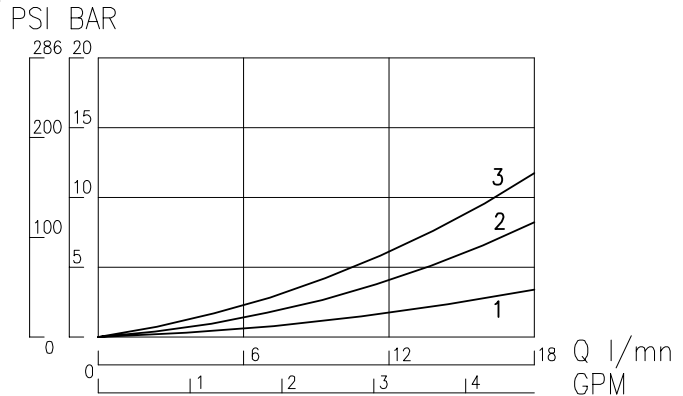
SPOOL SOLENOID VALVES 3 WAYS - 2 POSITIONS

Size 10 - 7/8" 14 UNF

CED 10 B25 - CED 10 B26 - CED 10 B27 - CED 10 B28 -
CED 10 B29 - CED 10 B40 - CED 10 B41 -

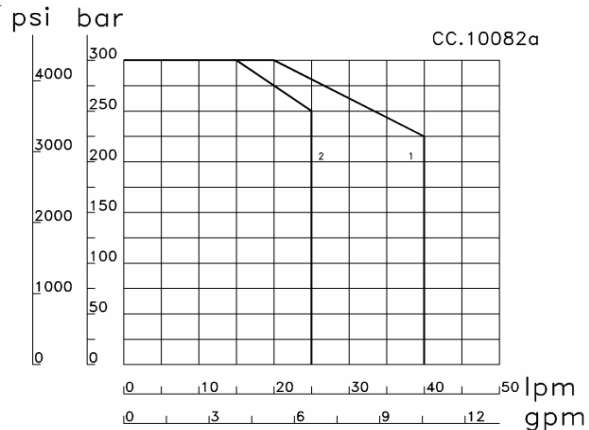
PRESSURE DROP

Type	② ⇄ ③	② ⇄ ①	③ ⇄ ①
B25	2	1	-
B26	-	3	3
B27	2	1	-
B28	-	1	3
B29	3	3	3
B40	3	3	3
B41	2	-	3



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Reference
B25	1
B26	2
B27	1
B28	2
B29	2
B40	2
B41	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
B25	40 - 80	30 - 70
B26	40 - 80	30 - 70
B27	40 - 80	30 - 70
B28	40 - 80	30 - 70
B29	40 - 80	30 - 70
B40	40 - 80	30 - 70
B41	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
B25	10 cm ³ /mn	40 cm ³ /mn
B26	10 cm ³ /mn	40 cm ³ /mn
B27	10 cm ³ /mn	40 cm ³ /mn
B28	10 cm ³ /mn	40 cm ³ /mn
B29	10 cm ³ /mn	40 cm ³ /mn
B40	10 cm ³ /mn	40 cm ³ /mn
B41	10 cm ³ /mn	40 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40 °C + 100 °C with standard Nitril seals.

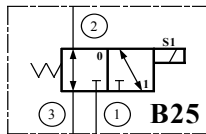
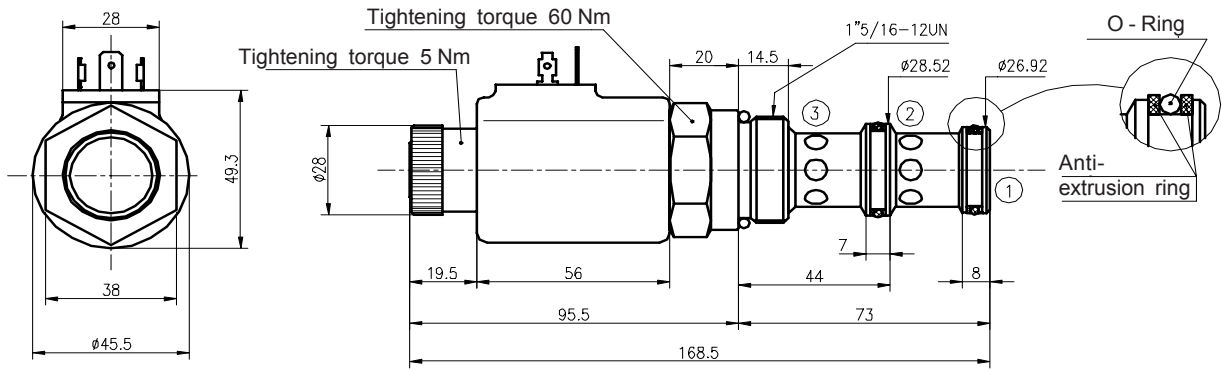
Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40 °C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40 °C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

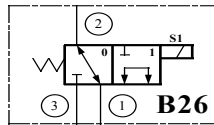
SPOOL SOLENOID VALVES

3WAYS - 2 POSITIONS
Maximum pressure 300 bar

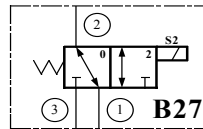
Size 16 - 1"5/16 12 UN CED 16 B25 - CED 16 B26 - CED 16 B27 - CED 16 B28 -
CED 16 B29 - CED 16 B40 - CED 16 B41 -



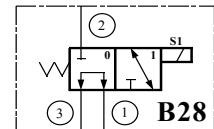
CED 16 B25
Max flow: 60 l/mn



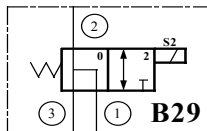
CED 16 B26
Max flow: 45 l/mn



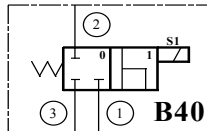
CED 16 B27
Max flow: 60 l/mn



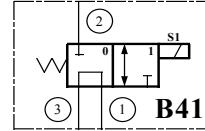
CED 16 B28
Max flow: 45 l/mn



CED 16 B29
Max flow: 45 l/mn



CED 16 B40
Max flow: 45 l/mn



CED 16 B41
Max flow: 45 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: **Position 0** = closed by spring. **Position 1** = the electro-magnet is energized by pulling. **Position 2** = the electro-magnet is energized by pushing. Fluid distribution according to the pointer on the pictograms.

Codification C E D 16 B26 B 5 A O N

Size Code	16 = 1" 5/16 12 UN	Function code	B26
Voltages	A = 12 Volt DC B = 24 Volt DC E = 24 Volt VAC F = 48 Volt VAC G = 110 Volt VAC H = 220 Volt VAC	Coil Code = 5	5
	Coil connexion		A = Electr.con.6,35-DIN 43650 B = Kostal F = Leadwires J = AMP Junior
		Manual override	O = without manual override
		For functions B27&B29:	B = screwing version E = pushing version
		For others functions:	A = screwing off version C = pulling version
			N - Nitril seals -40° + 100°C V - Viton seals -20° + 150°C

Connectors See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 234 / 00
Weight with coil (without connector) : 0,4 Kg
Mounting on BAF : Page 134 / 00
Mounting on MBS® : Page 179 / 00 - 180 / 00
seal kits: N° 200 122

F.T 50 1116 1/2

CHARACTERISTICS (cartridge only)

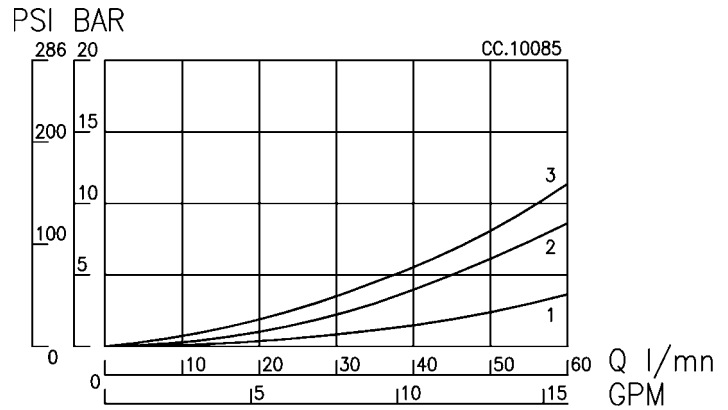
SPOOL SOLENOID VALVES 3 WAYS - 2 POSITIONS

Size 16 - 1"5/16 12 UN

CED 16 B25 - CED 16 B26 - CED 16 B27 - CED 16 B28 -
CED 16 B29 - CED 16 B40 - CED 16 B41 -

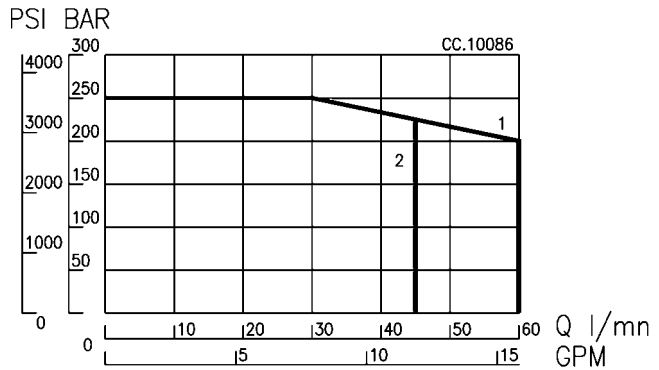
PRESSURE DROP

Type	② ⇄ ③	② ⇄ ①	③ ⇄ ①
B25	1	1	-
B26	-	3	3
B27	1	1	-
B28	-	1	3
B29	3	3	3
B40	3	3	3
B41	2	-	3



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Reference
B25	1
B26	2
B27	1
B28	2
B29	2
B40	2
B41	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
B25	40 - 100	30 - 80
B26	40 - 100	30 - 80
B27	40 - 100	30 - 80
B28	40 - 100	30 - 80
B29	40 - 100	30 - 80
B40	40 - 100	30 - 80
B41	40 - 100	30 - 80

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
B25	25 cm ³ /mn	100 cm ³ /mn
B26	25 cm ³ /mn	100 cm ³ /mn
B27	25 cm ³ /mn	100 cm ³ /mn
B28	25 cm ³ /mn	100 cm ³ /mn
B29	25 cm ³ /mn	100 cm ³ /mn
B40	25 cm ³ /mn	100 cm ³ /mn
B41	25 cm ³ /mn	100 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

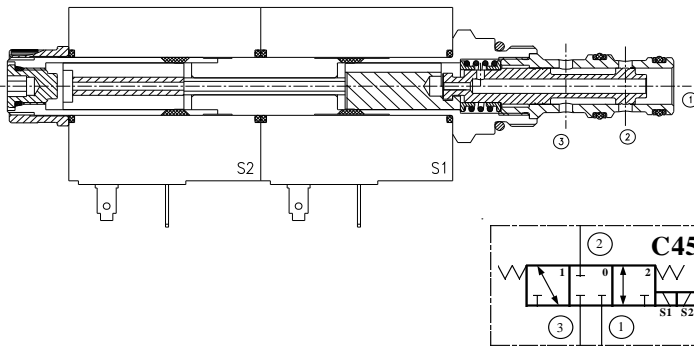
MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

SPOOL SOLENOID VALVES

3 WAYS - 3 POSITIONS

Maximum pressure 300 bar

Max flow in l/mn N° Page



CED 08 C45	18	038 / 00
CED 10 C45	35	040 / 00
CED 16 C45	60	042 / 00

on REQUEST

CED 08 C46	12	038 / 00
CED 10 C46	25	040 / 00
CED 16 C46	45	042 / 00

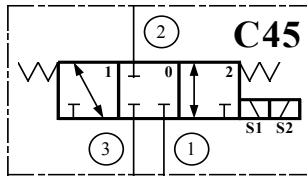
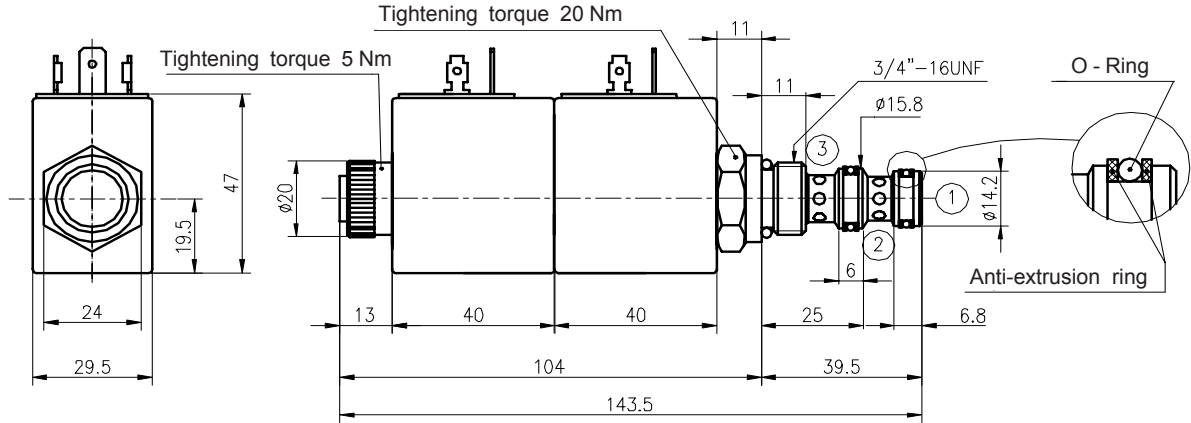
on REQUEST

CED 08 C47	12	038 / 00
CED 10 C47	25	040 / 00
CED 16 C47	45	042 / 00

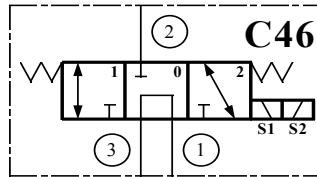
SPOOL SOLENOID VALVES

3 WAYS - 3 POSITIONS
Maximum pressure 300 bar

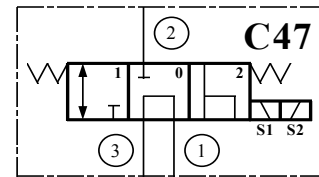
Size 08 - 3/4" 16 UNF CED 08 C45 - CED 08 C46 - CED 08 C47 -



CED 08 C45
Max flow : 18 l/mn



CED 08 C46
Max flow: 12 l/mn



CED 08 C47
Max flow: 12 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: At rest the spool is called back in position 0 by spring force. When the solenoid S1 is energized, the spool is in position 1 (see diagram). It goes in position 2 when the solenoid S2 is energized.

Fluid distribution according to the pointers on the pictograms.

Codification C E D 08 C46 B 8 A O N

Size Code	08 = 3/4"16 UNF	Function code	C46
Voltages	A = 12 Volt DC B = 24 Volt DC E = 24 Volt VAC* ou RAC* F = 48 Volt VAC* ou RAC* G = 110 Volt VAC* ou RAC* H = 220 Volt VAC* ou RAC*	Coil Code = 8	
		Coil connexion	A = Electr.con.6,35-DIN 43650 B = Kostal F = Leadwires J = AMP Junior
			Manual override O = without manual override D = Dual control screwing off S1 / screwing S2 hold position E = pushing version
			N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C

*VAC: coil with integrated bridge rectifier
*RAC : use obligatorily a connector with bridge rectifier

Connectors
See pages 072 / 00 & 073 / 00

Characteristics : see *overleaf*

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see *overleaf*
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 234 / 00
Weight with coil (without connector) : 0,6 Kg

Mounting on BAF : Page 135 / 00
Mounting on MBS® : Page 181 / 00

seal kits: N° 200 106

F.T 50 1118 1/2

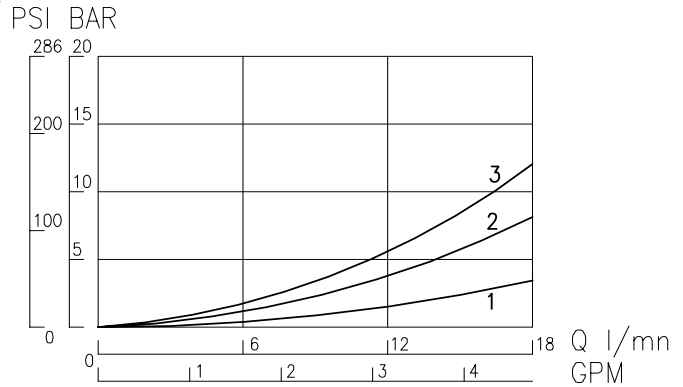
CHARACTERISTICS (cartridge only)

SPOOL SOLENOID VALVES 3 WAYS - 3 POSITIONS

Size 08 - 3/4" 16 UNF CED 08 C45 - CED 08 C46 - CED 08 C47

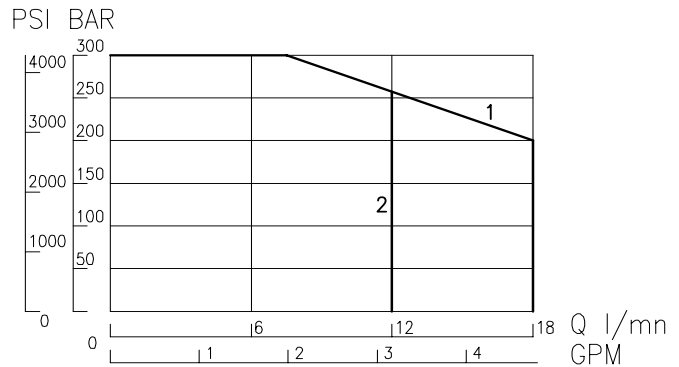
PRESSURE DROP

Type	② ⇄ ③	② ⇄ ①	③ ⇄ ①
C45	2	1	-
C46	2	1	3
C47	2	1	3



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Reference
C45	1
C46	2
C47	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
C45	40 - 80	30 - 70
C46	40 - 80	30 - 70
C47	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
C45	10 cm ³ /mn	40 cm ³ /mn
C46	10 cm ³ /mn	40 cm ³ /mn
C47	10 cm ³ /mn	40 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

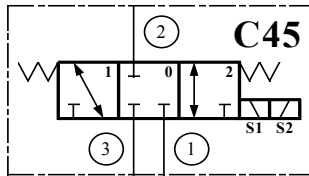
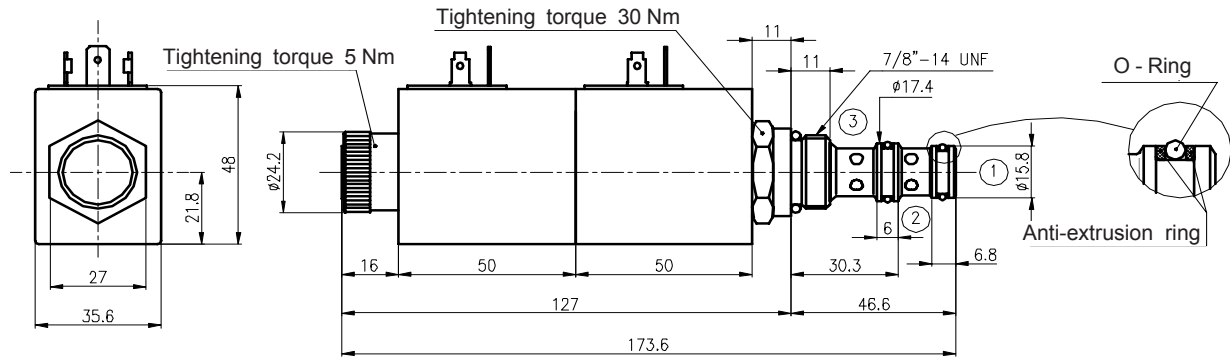
Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

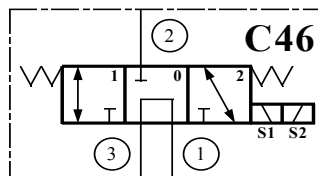
SPOOL SOLENOID VALVES

3 WAYS - 3 POSITIONS
Maximum pressure 300 bar

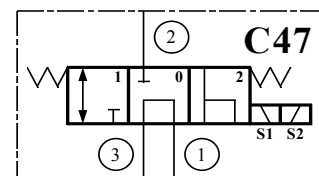
Size 10 - 7/8" 14 UNF CED 10 C45 - CED 10 C46 - CED 10 C47 -



CED 10 C45
Max flow: 35 l/mn



CED 10 C46
Max flow: 25 l/mn



CED 10 C47
Max flow: 25 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: At rest the spool is called back in position 0 by spring force. When the solenoid S1 is energized, the spool is in position 1 (see diagram). It goes in position 2 when the solenoid S2 is energized.

Fluid distribution according to the pointers on the pictograms.

Codification C E D 10 C46 B 5 A O N

Size Code	10 = 7/8"14 UNF	Function code	C46
Voltages	A = 12 Volt DC B = 24 Volt DC E = 24 Volt VAC F = 48 Volt VAC G = 110 Volt VAC H = 220 Volt VAC	Coil Code	5
	Coil connexion		A = Electr.con.6,35-DIN 43650 B = Kostal D = Deutsch F = Leadwires J = AMP Junior
		Manual override	O = without manual override D = Dual control screwing off S1 / screwing S2 hold position
			N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C

Connectors See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

- Tightening torques:** Page 232 / 00
- Caractéristiques des bobines:** Page 063 / 00
- Coils characteristics:** Page 062 / 00
- Manual overrides:** Page 074 / 00
- Temperature:** see overleaf
- Filtration recommendations:** Page 231 / 00
- Mounting Position:** without restriction
- Cavities :** Page 234 / 00
- Weight with coil (without connector) :** 0,7 Kg
- Mounting on BAF :** Page 135 / 00
- Mounting on MBS® :** Page 181 / 00
- seal kits:** N° 200 106

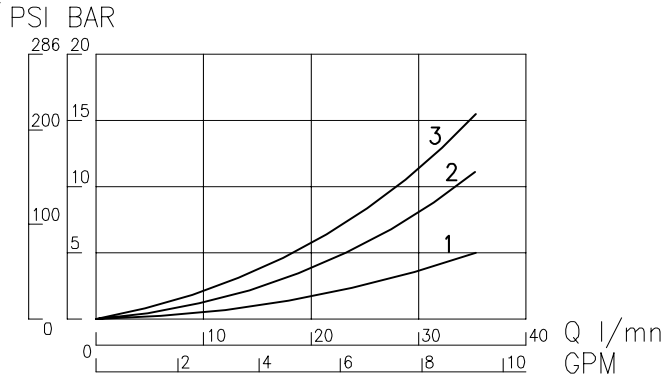
CHARACTERISTICS (cartridge only)

SPOOL SOLENOID VALVES 3 WAYS - 3 POSITIONS

ISize 10 - 7/8" 14 UNF CED 10 C45 - CED 10 C46 - CED 10 C47

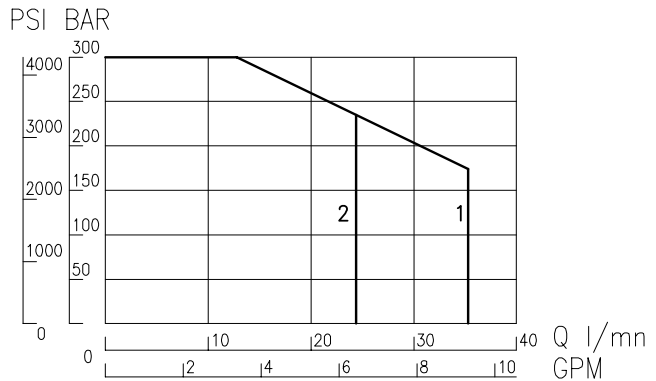
PRESSURE DROP

Type	② ⇄ ③	② ⇄ ①	③ ⇄ ①
C45	2	1	-
C46	2	1	3
C47	2	1	3



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Reference
C45	1
C46	2
C47	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
C45	40 - 80	30 - 70
C46	40 - 80	30 - 70
C47	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
C45	15 cm ³ /mn	80 cm ³ /mn
C46	15 cm ³ /mn	80 cm ³ /mn
C47	15 cm ³ /mn	80 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

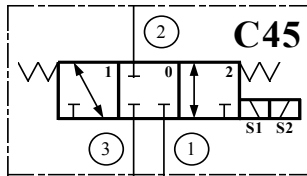
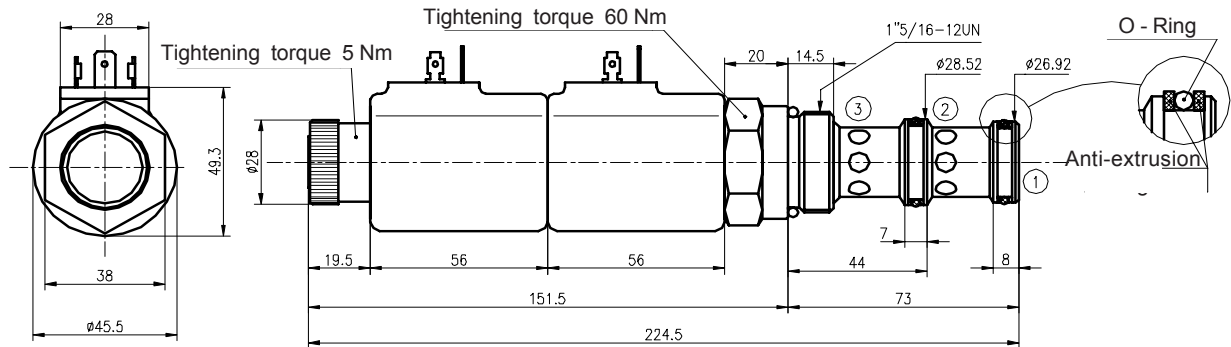
MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

F.T 50 1119 2/2

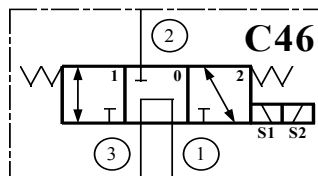
SPOOL SOLENOID VALVES

3 WAYS - 3 POSITIONS
Maximum pressure 300 bar

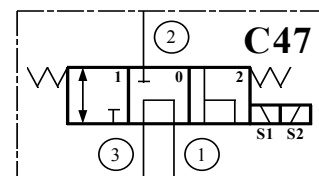
Size 16 - 1" 5/16" 12 UN CED 16 C45 - CED 16 C46 - CED 16 C47



CED 16 C45
Max flow: 60 l/mn



CED 16 C46
Max flow: 45 l/mn



CED 16 C47
Max flow: 45 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: At rest the spool is called back in position 0 by spring force. When the solenoid S1 is energized, the spool is in position 1 (see diagram). It goes in position 2 when the solenoid S2 is energized.
Fluid distribution according to the pointers on the pictograms.

Codification C E D 16 C46 B 4 A O N

Size Code

16 = 1" 5/16 12 UN

Function code

Manual override

O = without manual override

D = Dual control

screwing off S1 /

screwing S2

hold position

Voltages

A = 12 Volt DC

B = 24 Volt DC

E = 24 Volt VAC

F = 48 Volt VAC

G = 110 Volt VAC

H = 220 Volt VAC

Coil connexion

A = Electr.con.6,35-DIN 43650

B = Kostal

Connectors See pages 072 / 00 & 073 / 00

N - Nitril seals - 40° + 100°C

V - Viton seals - 20° + 150°C

Characteristics : see overleaf

Tightening torques: Page 232 / 00

Caractéristiques des bobines: Page 063 / 00

Coils characteristics: Page 062 / 00

Manual overrides: Page 074 / 00

Temperature: see overleaf

Filtration recommendations: Page 231 / 00

Mounting Position: without restriction

Cavities : Page 234 / 00

Weight with coil (without connector) : 0,7 Kg

Mounting on BAF : Page 135 / 00

Mounting on MBS® : Page 181 / 00

seal kits: N° 200 122

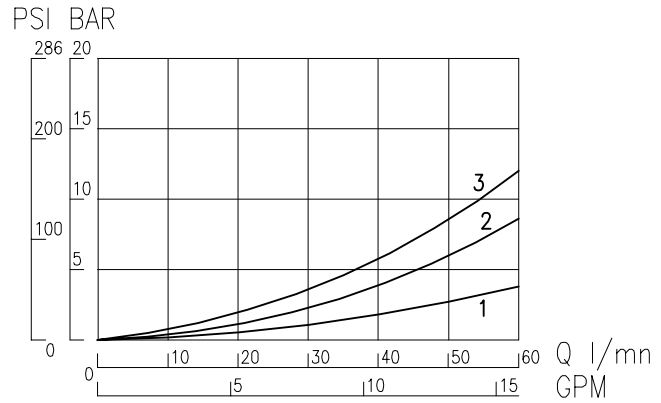
CHARACTERISTICS (cartridge only)

SPOOL SOLENOID VALVES 3 WAYS - 3 POSITIONS

Size 16 - 1" 5/16" 12 UN CED 16 C45 - CED 16 C46 - CED 16 C47

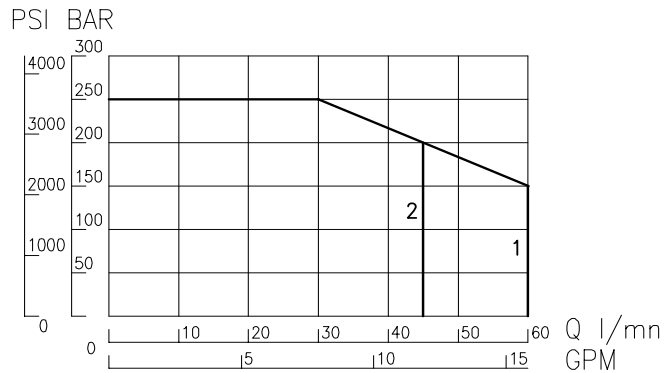
PRESSURE DROP

Type	② ⇔ ③	② ⇔ ①	③ ⇔ ①
C45	2	1	-
C46	2	1	3
C47	2	1	3



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Reference
C45	1
C46	2
C47	2



RESPONSE TIME In ms start of opening and closing

Type	energized	de - energized
C45	40 - 100	30 - 80
C46	40 - 100	30 - 80
C47	40 - 100	30 - 80

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
C45	25 cm ³ /mn	100 cm ³ /mn
C46	25 cm ³ /mn	100 cm ³ /mn
C47	25 cm ³ /mn	100 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

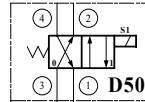
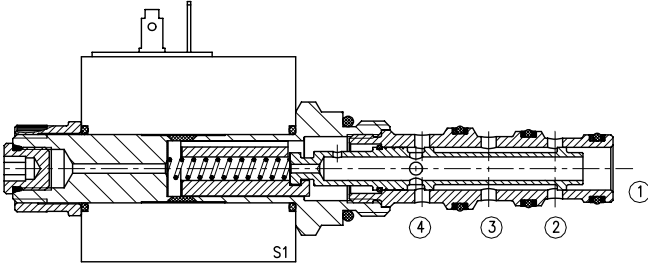
F.T 50 1120 2/2

SPOOL SOLENOID VALVES

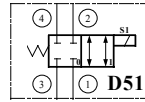
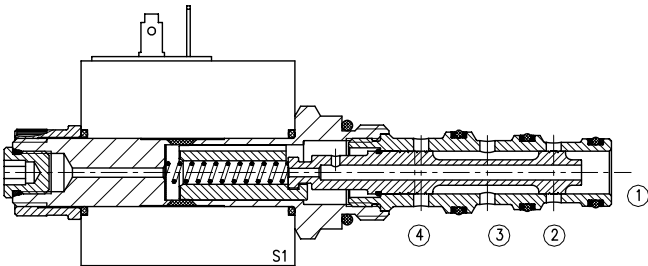
4 WAYS - 2 POSITIONS

Maximum pressure 300 bar

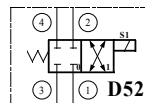
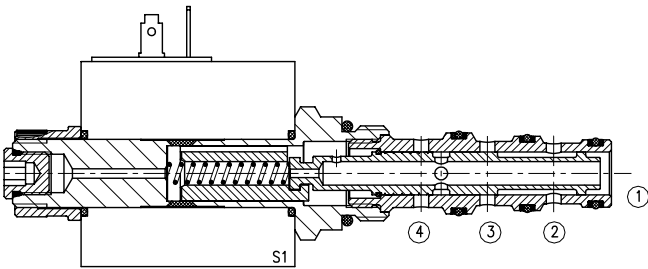
Max flow
in l/mn N° Page



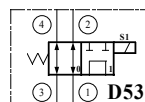
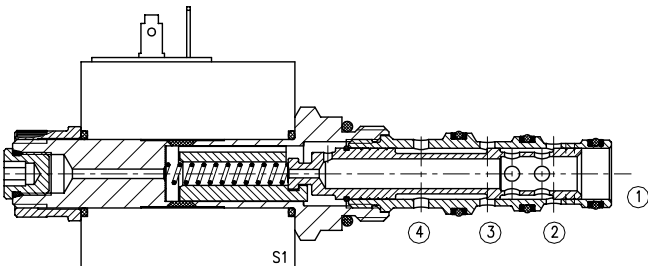
CED 08 D50	18	046 / 00
CED 10 D50-1	35	048 / 00
CED 10 D50-2	35	048 / 00
CED 16 D50	60	050 / 00



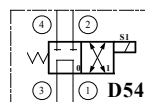
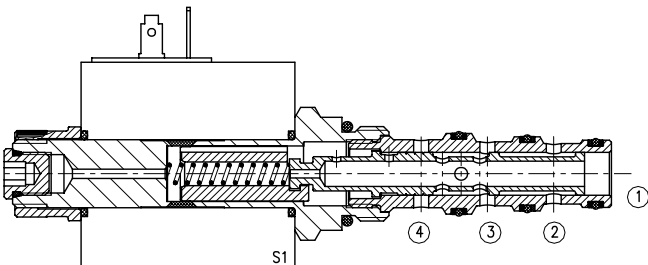
CED 08 D51	18	046 / 00
CED 10 D51	25	048 / 00
CED 16 D51	60	050 / 00



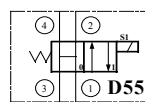
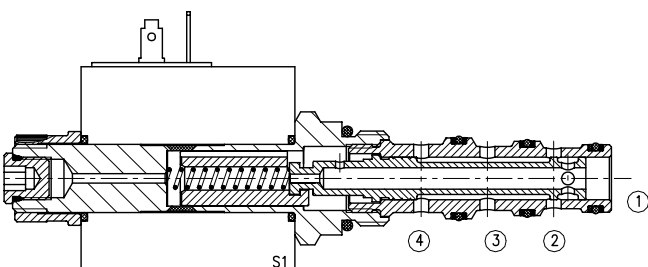
CED 08 D52	12	046 / 00
CED 10 D52	25	048 / 00
CED 16 D52	60	050 / 00



CED 08 D53	12	046 / 00
CED 10 D53-1	25	048 / 00
CED 16 D53	50	050 / 00



CED 08 D54	12	046 / 00
CED 10 D54	25	048 / 00
CED 16 D54	50	050 / 00



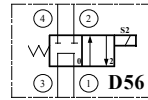
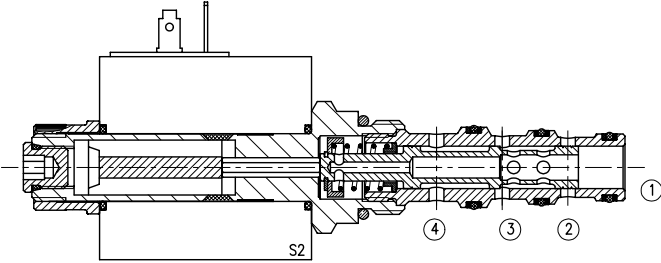
CED 08 D55	12	046 / 00
CED 10 D55	25	048 / 00
CED 16 D55	50	050 / 00

F.T. 50 1121 1/2

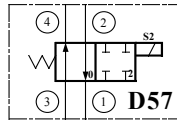
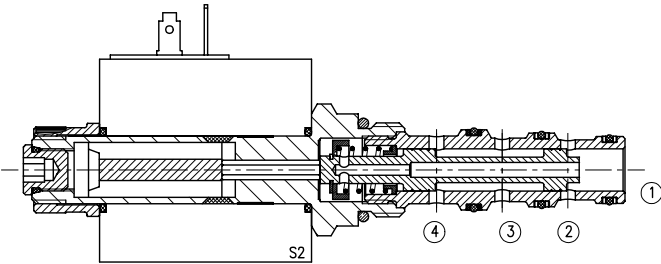
SPOOL SOLENOID VALVES

4 WAYS - 2 POSITIONS

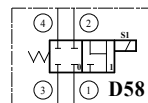
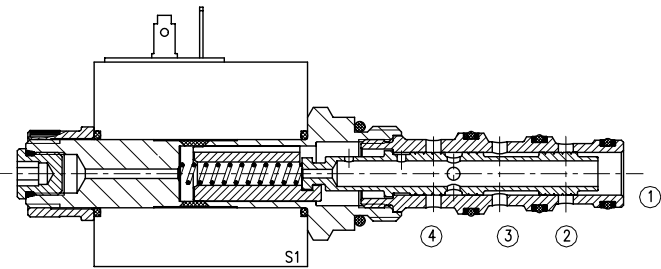
Maximum pressure 300 bar



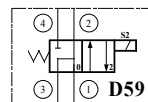
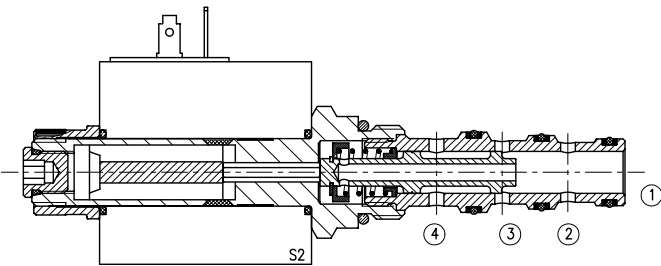
	Max flow in l/mn	N° Page
CED 08 D56	12	046 / 00
CED 10 D56	25	048 / 00
CED 16 D56	50	050 / 00



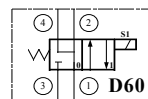
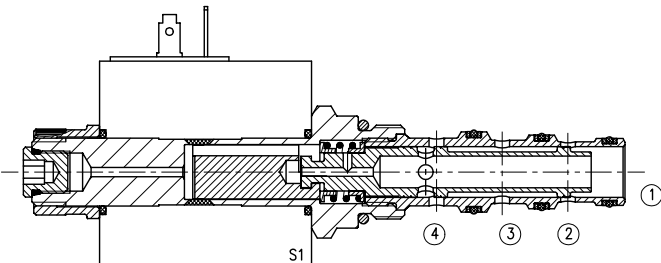
CED 08 D57	12	046 / 00
CED 10 D57	25	048 / 00
CED 16 D57	50	050 / 00



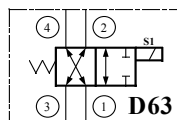
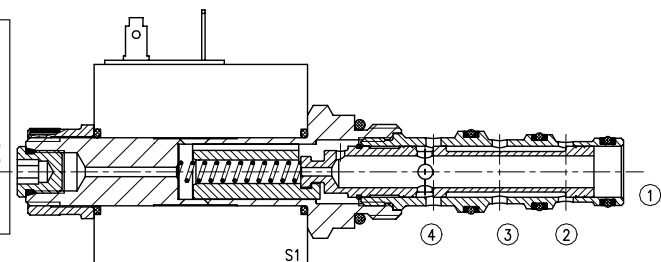
CED 08 D58	12	046 / 00
CED 10 D58	25	048 / 00
CED 16 D58	50	050 / 00



CED 08 D59	18	046 / 00
CED 10 D59	35	048 / 00
CED 16 D59	60	050 / 00



CED 08 D60	18	046 / 00
CED 10 D60-1	35	048 / 00
CED 16 D60-2	35	048 / 00
CED 16 D60	60	050 / 00



CED 10 D63-2	25	048 / 00
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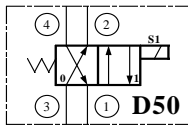
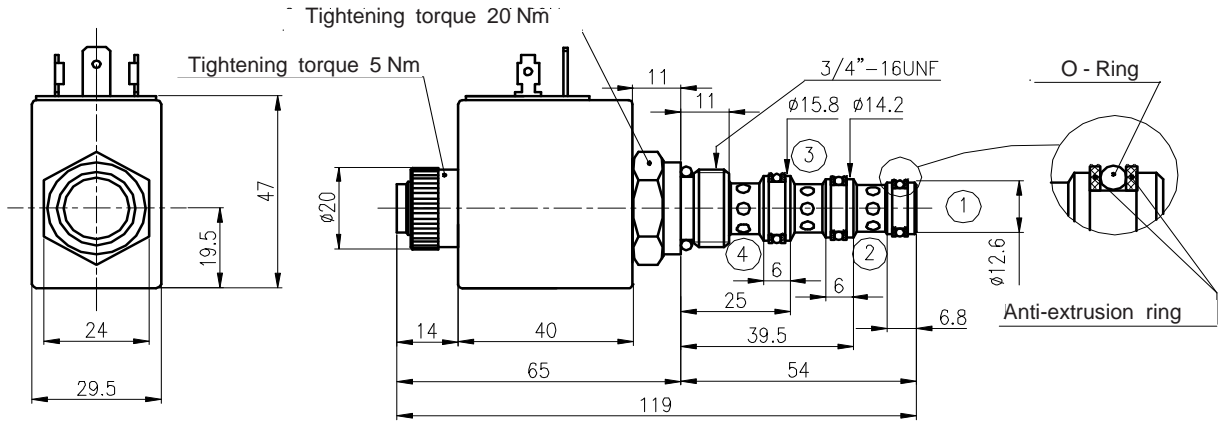
F.T. 50 1121 2/2

SPOOL SOLENOID VALVES

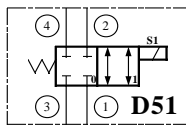
4 WAYS - 2 POSITIONS

Maximum pressure 300 bar

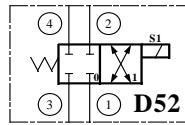
Size 08 - 3/4" 16 UNF CED 08 D50 - CED 08 D51 - CED 08 D52 - CED 08 D53 -
 CED 08 D54 - CED 08 D55 - CED 08 D56 - CED 08 D57 -
 CED 08 D58 - CED 08 D59 - CED 08 D60 -



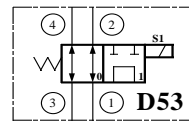
CED 08 D50
Max flow: 18 l/mn



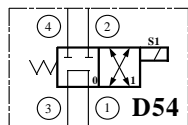
CED 08 D51
Max flow: 18 l/mn



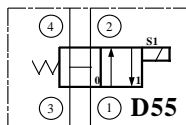
CED 08 D52
Max flow: 12 l/mn



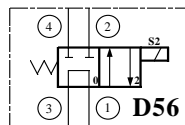
CED 08 D53
Max flow: 12 l/mn



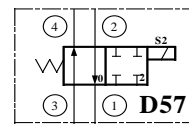
CED 08 D54
Max flow: 12 l/mn



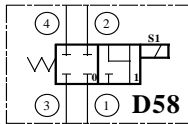
CED 08 D55
Max flow: 12 l/mn



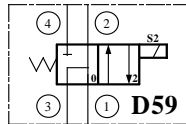
CED 08 D56
Max flow: 12 l/mn



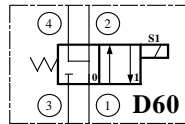
CED 08 D57
Max flow: 12 l/mn



CED 08 D58
Max flow: 12 l/mn



CED 08 D59
Max flow: 18 l/mn



CED 08 D60
Max flow: 18 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: At rest the spool is called back in position 0 by spring force. When the solenoid S1 is energized, the spool is in position 1 (see diagram). It goes in position 2 when the solenoid S2 is energized.

Fluid distribution according to the pointers on the pictograms.

Codification C E D 08 D50 B 8 A O N

Size Code
08 = 3/4"16 UNF

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt VAC* ou RAC*
- F = 48 Volt VAC* ou RAC*
- G = 110 Volt VAC* ou RAC*
- H = 220 Volt VAC* ou RAC*

Coil Code = 8

Coil connexion

- A = Electr.con.6,35-DIN 43650
- B = Kostal
- F = Leadwires
- J = AMP Junior

Manual override

- O = without manual override
- F/functions D56-D57-D59:**
- B = screwing version
- E = pushing version
- for other functions:**
- A = screwing off version
- C = pulling version

- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 150°C

Connectors

See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

- Tightening torques:** Page 232 / 00
- Caractéristiques des bobines:** Page 063 / 00
- Coils characteristics:** Page 062 / 00
- Manual overrides:** Page 074 / 00
- Temperature:** see overleaf
- Filtration recommendations:** Page 231 / 00
- Mounting Position:** without restriction
- Cavities :** Page 235 / 00
- Weight with coil (without connector) :** 0,3 Kg

- Mounting on BAF :** Page 136 / 00
- Mounting on MBS® :** Page 181 / 00 - 183 / 00

seal kits: N° 200 108

CHARACTERISTICS (cartridge only)

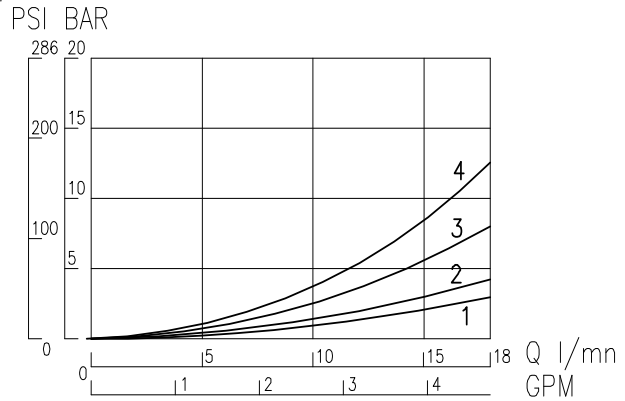
SPOOL SOLENOID VALVES 4 WAYS - 2 POSITIONS

Size 08 - 3/4" 16 UNF

CED 08 D50 - CED 08 D51 - CED 08 D52 - CED 08 D53 - CED 08 D54 - CED 08 D55 -
CED 08 D56 - CED 08 D57 - CED 08 D58 - CED 08 D59 - CED 08 D60 -

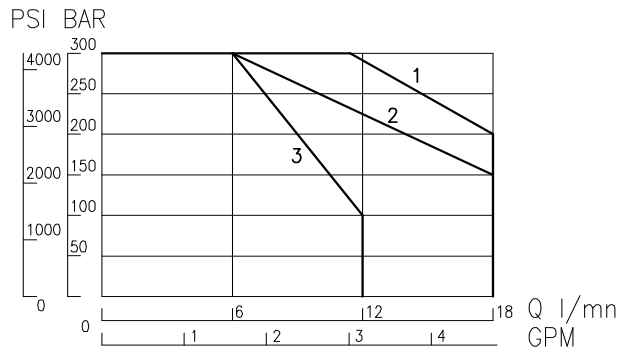
PRESSURE DROP

Type	③ ⇔ ①	③ ⇔ ②	③ ⇔ ④	② ⇔ ①	④ ⇔ ①
D50	-	3	3	1	4
D51	-	-	2	1	-
D52	-	3	-	-	4
D53	4	-	3	4	-
D54	4	3	-	-	4
D55	4	4	3	1	-
D56	4	-	3	1	-
D57	-	-	2	1	-
D58	-	3	-	1	4
D59	2	3	-	1	-
D60					



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	every voltage
D50	2
D51	1
D52	3
D53	3
D54	3
D55	3
D56	3
D57	1
D58	3
D59	2
D60	



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
D50	40 - 80	30 - 70
D51	40 - 80	30 - 70
D52	40 - 80	30 - 70
D53	40 - 80	30 - 70
D54	40 - 80	30 - 70
D55	40 - 80	30 - 70
D56	40 - 80	30 - 70
D57	40 - 80	30 - 70
D58	40 - 80	30 - 70
D59	40 - 80	30 - 70
D60	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
D50	15 cm ³ /mn	40 cm ³ /mn
D51	15 cm ³ /mn	40 cm ³ /mn
D52	15 cm ³ /mn	40 cm ³ /mn
D53	15 cm ³ /mn	40 cm ³ /mn
D54	15 cm ³ /mn	40 cm ³ /mn
D55	15 cm ³ /mn	40 cm ³ /mn
D56	15 cm ³ /mn	40 cm ³ /mn
D57	15 cm ³ /mn	40 cm ³ /mn
D58	15 cm ³ /mn	40 cm ³ /mn
D59	15 cm ³ /mn	40 cm ³ /mn
D60	15 cm ³ /mn	40 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids : Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

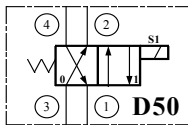
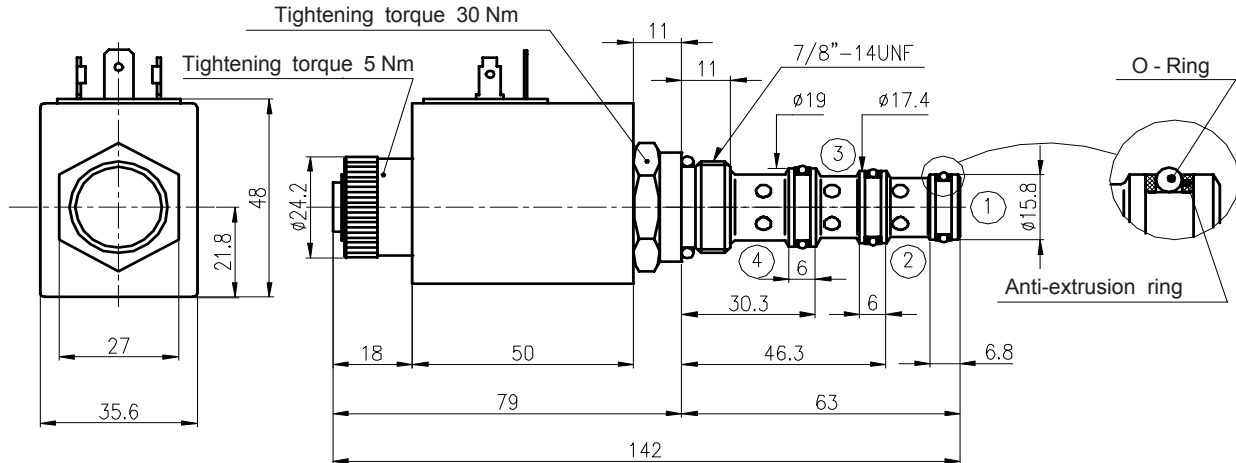
SPOOL SOLENOID VALVES

4 WAYS - 2 POSITIONS

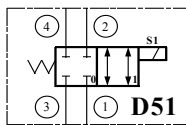
Maximum pressure 300 bar

Size 10 - 7/8" 14 UNF

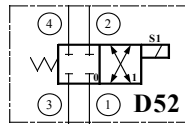
CED 10 D50 - CED 10 D51 - CED 10 D52 - CED 10 D53 - CED 10 D54 - CED 10 D55 - CED 10 D56 - CED 10 D57 - CED 10 D58 - CED 10 D59 - CED 10 D60 - CED 10 D63 = **Standard - Code 1**
 CED 10 D50 - CED 10 D53 - CED 10 D60 - CED 10 D63 = **HP High Performance - Code 2**



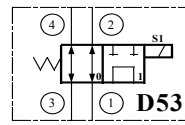
CED 10 D50
Max flow: 35 l/mn



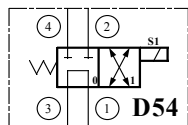
CED 10 D51
Max flow: 25 l/mn



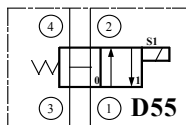
CED 10 D52
Max flow: 25 l/mn



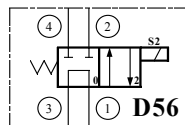
CED 10 D53
Max flow: 25 l/mn



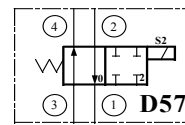
CED 10 D54
Max flow: 25 l/mn



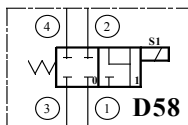
CED 10 D55
Max flow: 25 l/mn



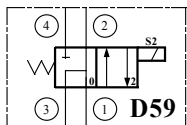
CED 10 D56
Max flow: 25 l/mn



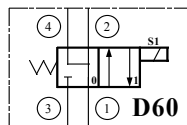
CED 10 D57
Max flow: 25 l/mn



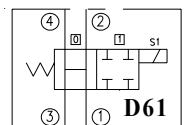
CED 10 D58
Max flow: 25 l/mn



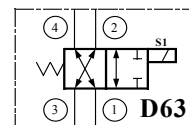
CED 10 D59
Max flow: 35 l/mn



CED 10 D60
Max flow: 35 l/mn



CED 10 D61
Max flow: 35 l/mn



CED 10 D63
Max flow: 25 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a reated steel housing.

Working: At rest the spool is called back in position 0 by spring force. When the solenoid is energized, the spool is called in position 1 for pull-controls S1 and in position 2 for push-controls S2.

Fluid distribution according to the pointers on the pictograms.

Codification C E D 10 D50 B 5 A O N 1 1=Standard (all functions)
 2=High Perf. (D50-D53-D60-D63)

Size Code 10 = 7/8"14 UNF
Function code

Voltages
 A = 12 Volt DC
 B = 24 Volt DC
 E = 24 Volt VAC* ou RAC*
 F = 48 Volt VAC* ou RAC*
 G = 110 Volt VAC* ou RAC*
 H = 220 Volt VAC* ou RAC*

Coil Code = 5
Coil connexion
 A = Electr.con.6,35-DIN 43650
 B = Kostal
 D = Deutsch
 F = Leadwires
 J = AMP Junior

Manual override
 O = without manual override
F/functions D56-D57-D59:
 B = screwing version
 E = pushing version
for other functions:
 A = screwing off version
 C = pulling version

N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 150°C

Connectors
 See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 235 / 00
Weight with coil (without connector) : 0,4 Kg
Mounting on BAF : Page 136 / 00
Mounting on MBS® : Page 182 / 00 - 183 / 00

seal kits:
 Code 1 - Std N° 200 108
 Code 2 - HP N° 200 569

PUBLISHING 26 / 02 / 2008

CHARACTERISTICS (cartridge only)

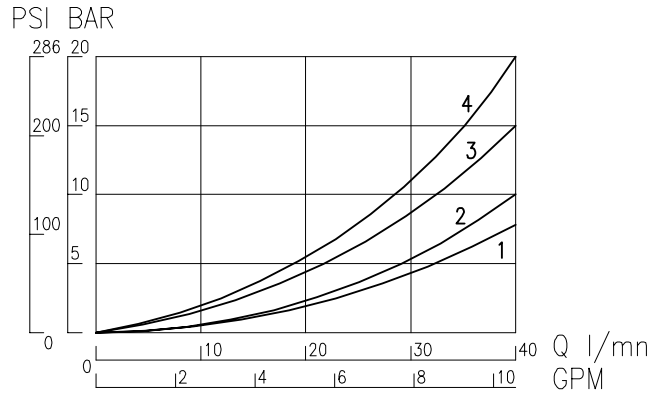
SPOOL SOLENOID VALVE 4 WAYS - 2 POSITIONS

Size 10 - 7/8" 14 UNF

CED 10 D50 - CED 10 D51 - CED 10 D52 - CED 10 D53 - CED 10 D54 - CED 10 D55 - CED 10 D56 - CED 10 D57 - CED 10 D58 - CED 10 D59 - CED 10 D60 - CED 10 D63 = **Standard - Code 1**
 CED 10 D50 - CED 10 D53 - CED 10 D60 - CED 10 D63 = **HP High Performance - Code 2**

PRESSURE DROP

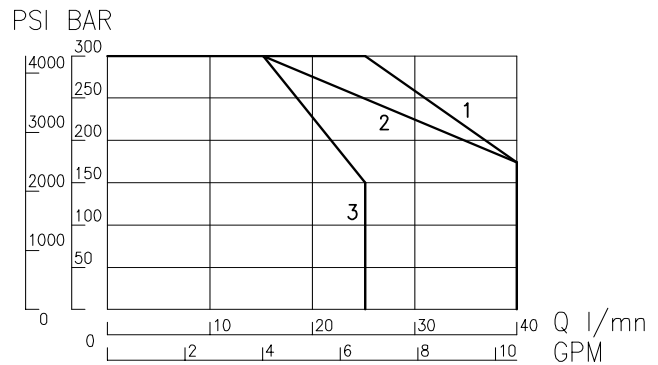
Type	③ ⇄ ①	③ ⇄ ②	③ ⇄ ④	② ⇄ ①	④ ⇄ ①
D50	-	3	3	1	4
D50-2 (HP)					
D51	-	-	2	1	-
D52	-	3	-	-	4
D53	4	-	3	4	-
D53-2 (HP)					
D54	4	3	-	-	4
D55	4	4	3	1	-
D56	4	-	3	1	-
D57	-	-	2	1	-
D58	-	3	-	1	4
D59	2	3	-	1	-
D60					
D60-2 (HP)					
D63					
D63-2 (HP)					



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Every voltage
D50	2
D50-2 (HP)	
D51	1
D52	3
D53	3
D53-2 (HP)	
D54	3
D55	3
D56	3
D57	1
D58	3

Type	Every voltage
D59	2
D60	
D60-2 (HP)	
D63	
D63-2 (HP)	



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
D50	40 - 80	30 - 70
D50-2 (HP)	40 - 80	30 - 70
D51	40 - 80	30 - 70
D52	40 - 80	30 - 70
D53	40 - 80	30 - 70
D53-2 (HP)	40 - 80	30 - 70
D54	40 - 80	30 - 70
D55	40 - 80	30 - 70
D56	40 - 80	30 - 70
D57	40 - 80	30 - 70
D58	40 - 80	30 - 70
D59	40 - 80	30 - 70
D60	40 - 80	30 - 70
D60-2 (HP)	40 - 80	30 - 70
D63	40 - 80	30 - 70
D63-2 (HP)	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
D50	15 cm ³ /mn	80 cm ³ /mn
D50-2 (HP)	15 cm ³ /mn	80 cm ³ /mn
D51	15 cm ³ /mn	80 cm ³ /mn
D52	15 cm ³ /mn	80 cm ³ /mn
D53	15 cm ³ /mn	80 cm ³ /mn
D53-2 (HP)	15 cm ³ /mn	80 cm ³ /mn
D54	15 cm ³ /mn	80 cm ³ /mn
D55	15 cm ³ /mn	80 cm ³ /mn
D56	15 cm ³ /mn	80 cm ³ /mn
D57	15 cm ³ /mn	80 cm ³ /mn
D58	15 cm ³ /mn	80 cm ³ /mn
D59	15 cm ³ /mn	80 cm ³ /mn
D60	15 cm ³ /mn	80 cm ³ /mn
D60-2 (HP)	15 cm ³ /mn	80 cm ³ /mn
D63	15 cm ³ /mn	80 cm ³ /mn
D63-2 (HP)	15 cm ³ /mn	80 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.

Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C

Oil Temperature at 40°C

Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

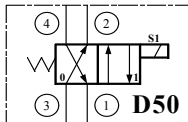
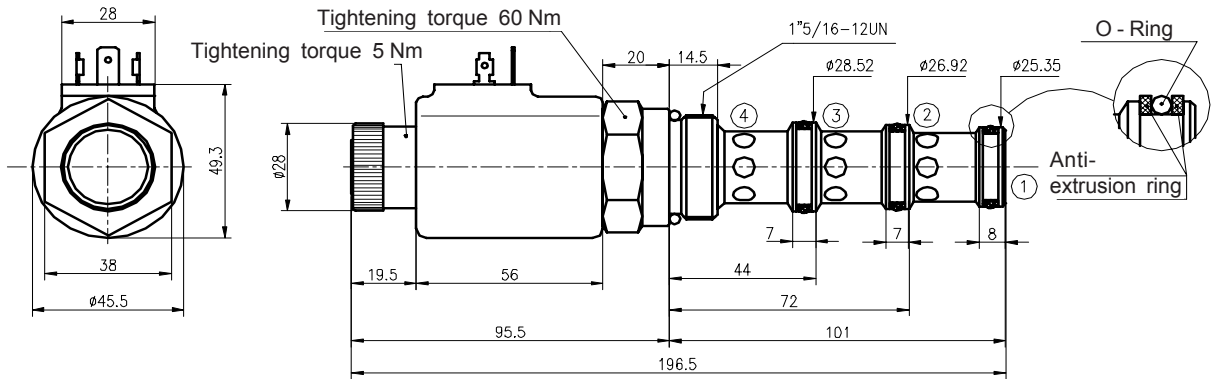
SPOOL SOLENOID VALVES

4 WAYS - 2 POSITIONS

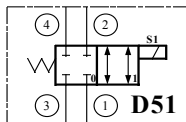
Maximum pressure 300 bar

Size 16 - 1"5/16 12 UN

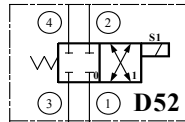
CED 16 D50 - CED 16 D51 - CED 16 D52 - CED 16 D53 - CED 16 D54 - CED 16 D55 -
CED 16 D56 - CED 16 D57 - CED 16 D58 - CED 16 D59 - CED 16 D60



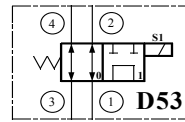
CED 16 D50
Max flow: 60 l/mn



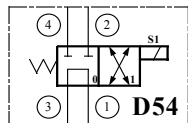
CED 16 D51
Max flow: 60 l/mn



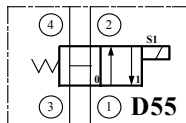
CED 16 D52
Max flow: 60 l/mn



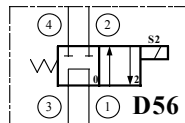
CED 16 D53
Max flow: 50 l/mn



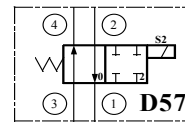
CED 16 D54
Max flow: 50 l/mn



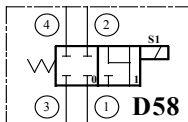
CED 16 D55
Max flow: 50 l/mn



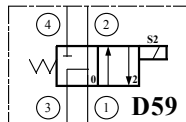
CED 16 D56
Max flow: 50 l/mn



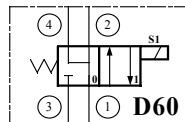
CED 16 D57
Max flow: 50 l/mn



CED 16 D58
Max flow: 50 l/mn



CED 16 D59
Max flow: 60 l/mn



CED 16 D60
Max flow: 60 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: At rest the spool is called back in position 0 by spring force. When the solenoid is energized, the spool is called in position 1 for pull-controls S1 and in position 2 for push-controls S2.

Fluid distribution according to the pointers on the pictograms.

Codification C E D 16 D50 B 4 A O N

Size Code 16 = 1" 5/16 12 UN **Function code**

Voltages **Coil Code** = 4

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt VAC* ou RAC*
- F = 48 Volt VAC* ou RAC*
- G = 110 Volt VAC* ou RAC*
- H = 220 Volt VAC* ou RAC*

- Coil connexion**
- A = Electr.con.6,35-DIN 43650
 - B = Kostal
 - D = Deutsch
 - F = Leadwires
 - J = AMP Junior

- Manual override**
- O = without manual override
- F/functions D56-D57-D59:**
- B = screwing version
 - E = pushing version
- for other functions:**
- A = screwing off version
 - C = pulling version

Connectors
See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

- Tightening torques: Page 232 / 00
- Caractéristiques des bobines: Page 063 / 00
- Coils characteristics: Page 062 / 00
- Manual overrides: Page 074 / 00
- Temperature: see overleaf
- Filtration recommendations: Page 231 / 00
- Mounting Position: without restriction
- Cavities : Page 235 / 00
- Weight with coil (without connector) : 0,9 Kg
- Mounting on BAF : Page 136 / 00
- Mounting on MBS® : Page 182 / 00 - 183 / 00
- seal kits: N° 200 124

F.T 50 1124 1/2

CHARACTERISTICS (cartridge only)

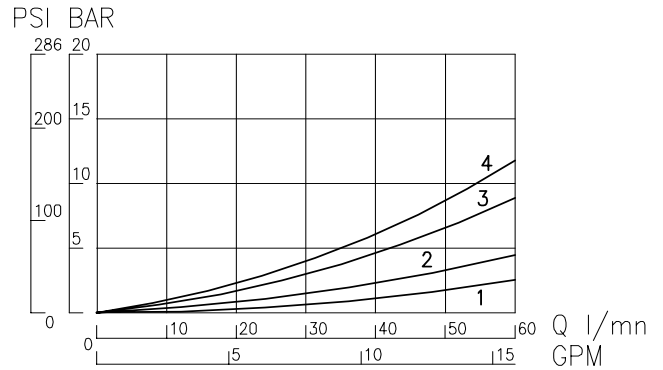
SPOOL SOLENOID VALVES 4 WAYS - 2 POSITIONS

Size 16 - 1"5/16 12 UN

CED 16 D50 - CED 16 D51 - CED 16 D52 - CED 16 D53 - CED 16 D54 - CED 16 D55 -
CED 16 D56 - CED 16 D57 - CED 16 D58 - CED 16 D59 - CED 16 D60

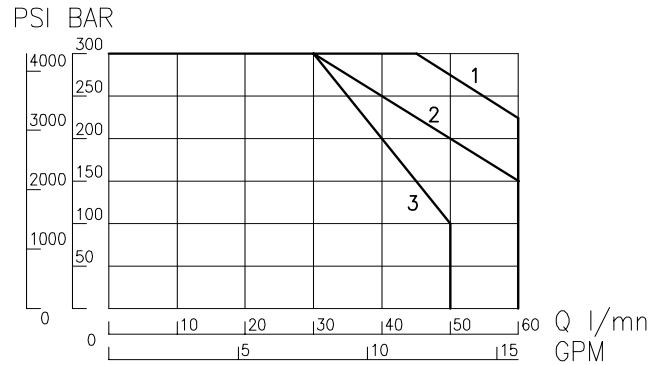
PRESSURE DROP

Type	③ ⇄ ①	③ ⇄ ②	③ ⇄ ④	② ⇄ ①	④ ⇄ ①
D50	-	3	3	1	4
D51	-	-	2	1	-
D52	-	3	-	-	4
D53	4	-	3	4	-
D54	4	3	-	-	4
D55	4	4	3	1	-
D56	4	-	3	1	-
D57	-	-	2	1	-
D58	-	3	-	1	4
D59	2	3	-	1	-
D60					



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Every voltage
D50	2
D51	1
D52	3
D53	3
D54	3
D55	3
D56	3
D57	1
D58	3
D59	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
D50	40 - 100	30 - 80
D51	40 - 100	30 - 80
D52	40 - 100	30 - 80
D53	40 - 100	30 - 80
D54	40 - 100	30 - 80
D55	40 - 100	30 - 80
D56	40 - 100	30 - 80
D57	40 - 100	30 - 80
D58	40 - 100	30 - 80
D59	40 - 100	30 - 80
D60	40 - 100	30 - 80

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
D50	25 cm ³ /mn	100 cm ³ /mn
D51	25 cm ³ /mn	100 cm ³ /mn
D52	25 cm ³ /mn	100 cm ³ /mn
D53	25 cm ³ /mn	100 cm ³ /mn
D54	25 cm ³ /mn	100 cm ³ /mn
D55	25 cm ³ /mn	100 cm ³ /mn
D56	25 cm ³ /mn	100 cm ³ /mn
D57	25 cm ³ /mn	100 cm ³ /mn
D58	25 cm ³ /mn	100 cm ³ /mn
D59	25 cm ³ /mn	100 cm ³ /mn
D60	25 cm ³ /mn	100 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.

Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

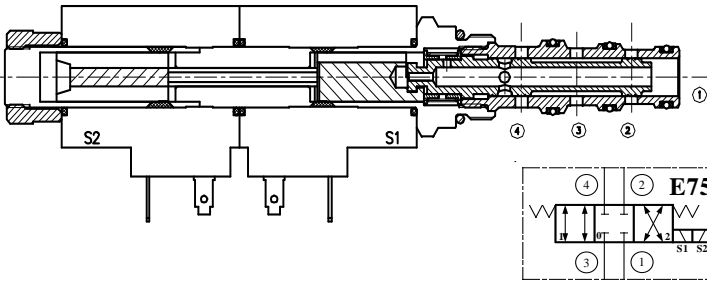
MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

SPOOL SOLENOID VALVES

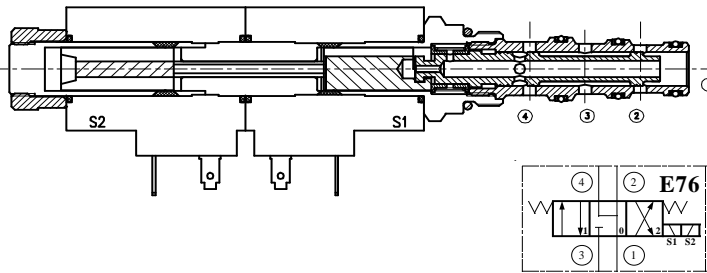
4 WAYS - 3 POSITIONS

Maximum pressure 300 bar

Max flow in l/mn N° Page

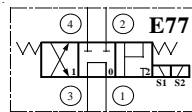


CED 08 E75	18	054 / 00
CED 10 E75-1	35	056 / 00
CED 10 E75-2	50	058 / 00
CED 16 E75	60	060 / 00

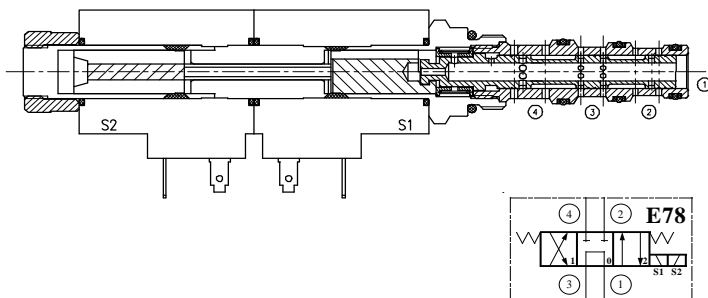


CED 08 E76	18	054 / 00
CED 10 E76-1	35	056 / 00
CED 10 E76-2	50	058 / 00
CED 16 E76	60	060 / 00

ON REQUEST



CED 08 E77	8	054 / 00
CED 10 E77	25	056 / 00
CED 16 E77	50	060 / 00



CED 08 E78	18	054 / 00
CED 10 E78-1	35	056 / 00
CED 10 E78-2	50	058 / 00
CED 16 E78	60	060 / 00

F.T 50 1125 1/2

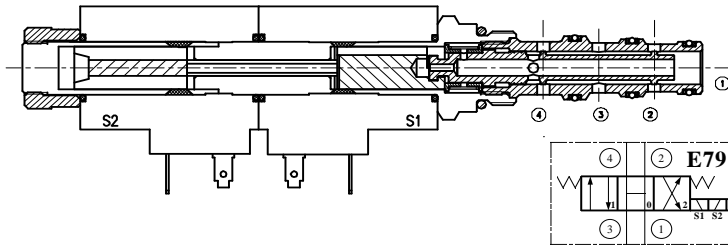
SPOOL SOLENOID VALVES

4 WAYS - 3 POSITIONS

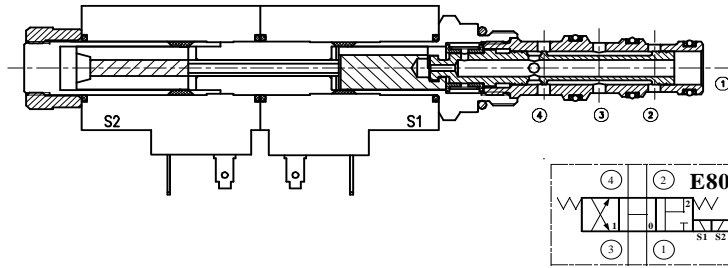
Maximum pressure 300 bar

Max flow
in l/mn

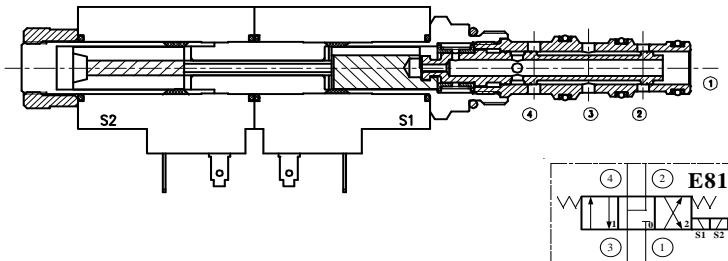
N° Page



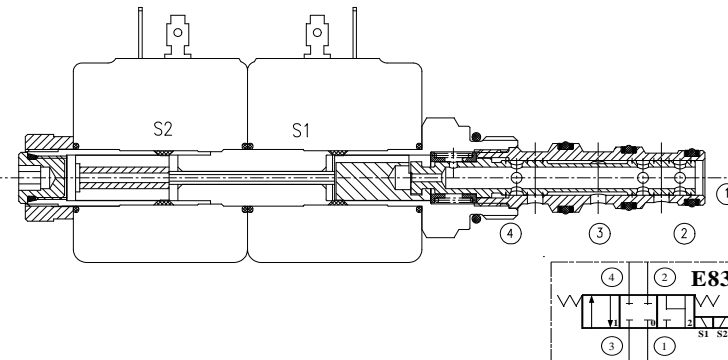
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CED 10 E79-1	25	056 / 00
CED 10 E79-2	40	058 / 00
CED 16 E79	50	060 / 00



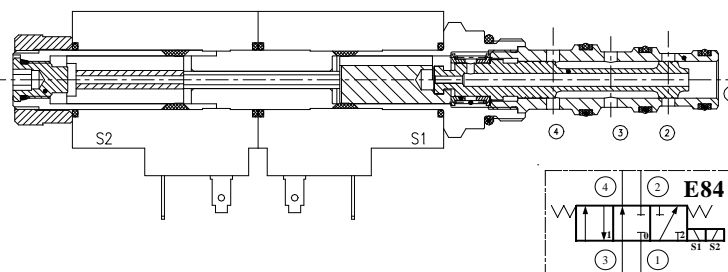
CED 08 E80	18	054 / 00
CED 10 E80	25	056 / 00
CED 16 E80	50	060 / 00



CED 08 E81	18	054 / 00
CED 10 E81	35	056 / 00
CED 16 E81	60	060 / 00



CED 08 E83	18	054 / 00
CED 10 E83	35	056 / 00
CED 16 E83	60	060 / 00



CED 10 E84	30	056 / 00
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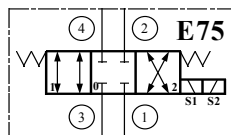
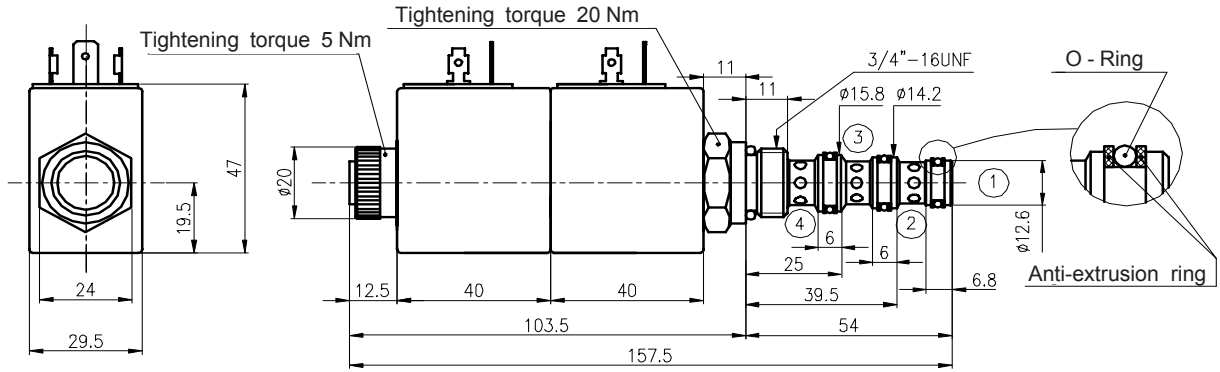
F.T 50 1125 2/2

SPOOL SOLENOID VALVES

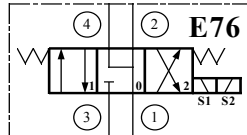
4 WAYS - 3 POSITIONS
Maximum pressure 300 bar

Size 08 - 3/4" 16 UNF

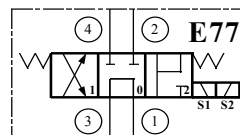
CED 08 E75 - CED 08 E76 - CED 08 E77 - CED 08 E78 -
CED 08 E79 - CED 08 E80 - CED 08 E81 - CED 08 E83



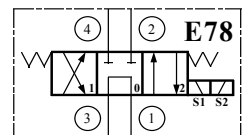
CED 08 E75
Max flow: 18 l/mn



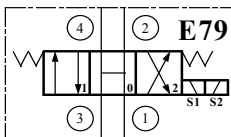
CED 08 E76
Max flow: 18 l/mn



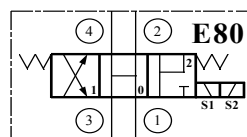
CED 08 E77
Max flow: 8 l/mn



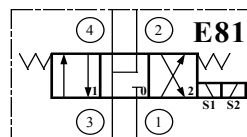
CED 08 E78
Max flow: 8 l/mn



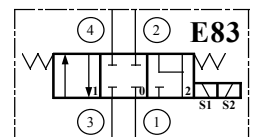
CED 08 E79
Max flow: 8 l/mn



CED 08 E80
Max flow: 18 l/mn



CED 08 E81
Max flow: 18 l/mn



CED 08 E83
Max flow: 18 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: At rest the spool is called back in position 0 by spring force. When the solenoid S1 is energized, the spool is called in position 1 (see diagram). It goes in position 2 when the solenoid S2 is energized.

The solenoids must be alternately energized.

Fluid distribution according to the pointers on the pictograms.

Codification C E D 08 E76 B 8 A O N

Size Code

08 = 3/4" 16 UNF

Function code

Manual override

O = without manual override

B = screwing version

E = pushing version

D = dual control

screwing off S1 /

screwing S2

hold position

Voltages

A = 12 Volt DC

B = 24 Volt DC

E = 24 Volt VAC* ou RAC*

F = 48 Volt VAC* ou RAC*

G = 110 Volt VAC* ou RAC*

H = 220 Volt VAC* ou RAC*

Coil Code = 8

Coil connexion

A = Electr.con.6,35-DIN 43650

B = Kostal

F = Leadwires

J = AMP Junior

N - Nitril seals - 40° + 100°C

V - Viton seals - 20° + 150°C

Connectors

See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

Tightening torques: Page 232 / 00

Caractéristiques des bobines: Page 063 / 00

Coils characteristics: Page 062 / 00

Manual overrides: Page 074 / 00

Temperature: see overleaf

Filtration recommendations: Page 231 / 00

Mounting Position: without restriction

Cavities : Page 235 / 00

Weight with coil (without connector) : 0,6 Kg

Mounting on BAF : Page 137 / 00

Mounting on MBS® : Page 184 / 00 - 185 / 00

seal kits: N° 200 108

*VAC: coil with integrated bridge rectifier

*RAC : use obligatorily a connector with bridge rectifier

CHARACTERISTICS (cartridge only)

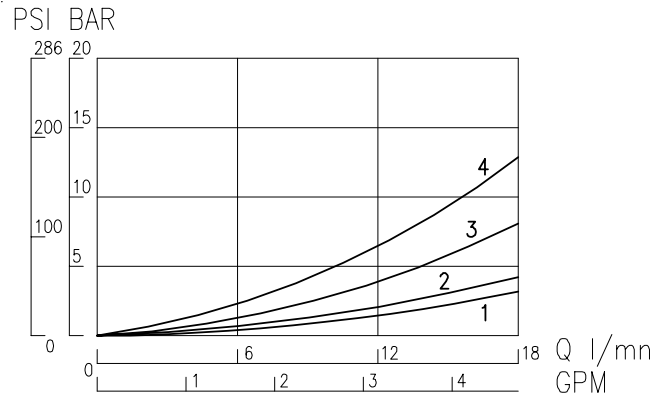
SPOOL SOLENOID VALVES 4 WAYS - 3 POSITIONS

Size 08 - 3/4" 16 UNF

CED 08 E75 - CED 08 E76 - CED 08 E77 - CED 08 E78 -
CED 08 E79 - CED 08 E80 - CED 08 E81 - CED 08 E83

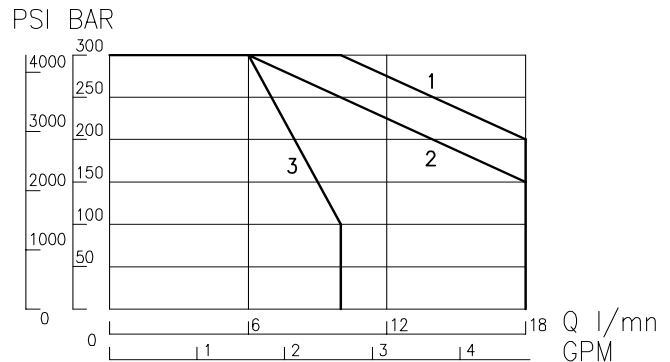
PRESSURE DROP

Type	③ ⇒ ①	③ ⇒ ②	③ ⇒ ④	② ⇒ ①	④ ⇒ ①
E75	-	3	3	1	4
E76	-	3	3	1	4
E77	4	3	3	2	4
E78	4	4	4	2	4
E79	4	3	3	4	4
E80	4	3	3	4	4
E81	-	3	3	1	4
E83	-	-	3	1	4



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Reference
E75	2
E76	1
E77	3
E78	3
E79	3
E80	3
E81	2
E83	2



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
E75	40 - 80	30 - 70
E76	40 - 80	30 - 70
E77	40 - 80	30 - 70
E78	40 - 80	30 - 70
E79	40 - 80	30 - 70
E80	40 - 80	30 - 70
E81	40 - 80	30 - 70
E83	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
E75	10 cm ³ /mn	40 cm ³ /mn
E76	10 cm ³ /mn	40 cm ³ /mn
E77	10 cm ³ /mn	40 cm ³ /mn
E78	10 cm ³ /mn	40 cm ³ /mn
E79	10 cm ³ /mn	40 cm ³ /mn
E80	10 cm ³ /mn	40 cm ³ /mn
E81	10 cm ³ /mn	40 cm ³ /mn
E83	10 cm ³ /mn	40 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

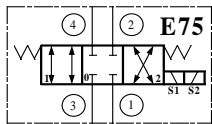
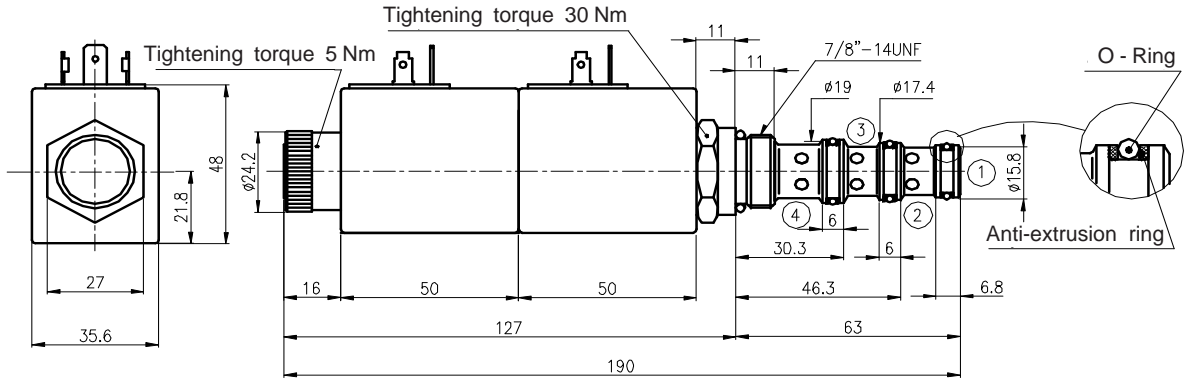
SPOOL SOLENOID VALVES

4 WAYS - 3 POSITIONS
Maximum pressure 300 bar

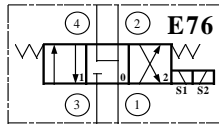
Standard - Code 1

Size 10 - 7/8" 14 UNF

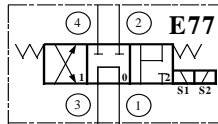
CED 10 E75 - CED 10 E76 - CED 10 E77 - CED 10 E78 - CED 10 E79
 CED 10 E80 - CED 10 E81 - CED 10 E83 - CED 10 E84



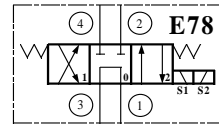
CED 10 E75
Max flow: 35 l/mn



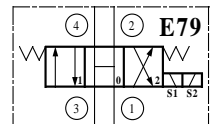
CED 10 E76
Max flow: 35 l/mn



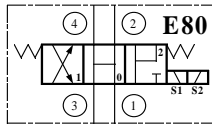
CED 10 E77
Max flow: 25 l/mn



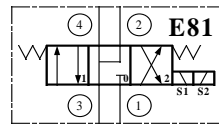
CED 10 E78
Max flow: 25 l/mn



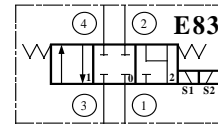
CED 10 E79
Max flow: 25 l/mn



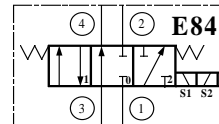
CED 10 E80
Max flow: 25 l/mn



CED 10 E81
Max flow: 35 l/mn



CED 10 E83
Max flow: 35 l/mn



CED 10 E84
Max flow: 30 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working : At rest the spool is called back in position 0 by spring force. When the solenoid S1 is energized, the spool is called in position 1 (see diagram). It goes in position 2 when the solenoid S2 is energized.

The solenoids must be alternately energized.

Fluid distribution according to the pointers on the pictograms.

Codification C E D 10 E76 B 5 A O N 1 — 1 = Standard

Size Code

10 = 7/8" 14 UNF

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt VAC* ou RAC*
- F = 48 Volt VAC* ou RAC*
- G = 110 Volt VAC* ou RAC*
- H = 220 Volt VAC* ou RAC*

*VAC: coil with integrated bridge rectifier

*RAC : use obligatorily a connector with bridge rectifier

Coil Code = 5

Coil connexion

- A = Electr.con.6,35-DIN 43650
- B = Kostal
- D = Deutsch
- F = Leadwires
- J = AMP Junior

Connectors

See pages 072 / 00 & 073 / 00

Manual override

- O= without manual override
- D= dual control screwing off S1 / screwing S2 hold position
- E= pushing version

- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 150°C

Characteristics : see overleaf

- Tightening torques:** Page 232 / 00
- Caractéristiques des bobines:** Page 063 / 00
- Coils characteristics:** Page 062 / 00
- Manual overrides:** Page 074 / 00
- Temperature:** see overleaf
- Filtration recommendations:** Page 231 / 00
- Mounting Position:** without restriction
- Cavities :** Page 235 / 00
- Weight with coil (without connector) :** 0,7 Kg
- Mounting on BAF :** Page 137 / 00
- Mounting on MBS® :** Page 184 / 00 - 185 / 00
- seal kits:** N° 200 018

F.T. 50 1127 1/2

CHARACTERISTICS (cartridge only)

SPOOL SOLENOID VALVES 4 WAYS - 3 POSITIONS

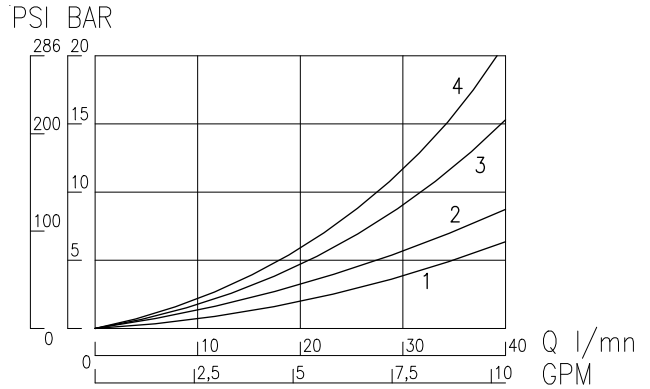
Standard - Code 1

Size 10 - 7/8" 14 UNF

CED 10 E75 - CED 10 E76 - CED 10 E77 - CED 10 E78 - CED 10 E79
CED 10 E80 - CED 10 E81 - CED 10 E83 - CED 10 E84

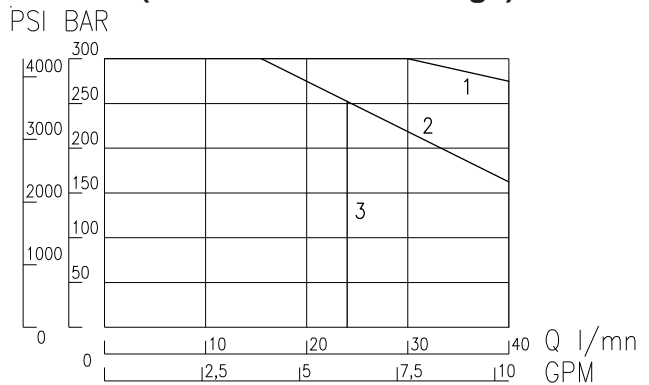
PRESSURE DROP

Type	③ ⇄ ①	③ ⇄ ②	③ ⇄ ④	② ⇄ ①	④ ⇄ ①
E75 ... 1	-	3	3	1	4
E76 ... 1	-	3	3	1	4
E77 ... 1	4	3	3	2	4
E78 ... 1	2	4	4	2	4
E79 ... 1	4	3	3	4	4
E80 ... 1	4	3	3	4	4
E81 ... 1	-	3	3	1	4
E83 ... 1	-	-	3	1	4
E84 ... 1	-	3	3	1	-



UTILIZATION LIMIT in WORKING PRESSURE (under nominal voltage)

Type	Reference
E75 ... 1	1
E76 ... 1	1
E77 ... 1	3
E78 ... 1	3
E79 ... 1	3
E80 ... 1	3
E81 ... 1	2
E83 ... 1	2
E84 ... 1	3



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
E75 ... 1	40 - 80	30 - 70
E76 ... 1	40 - 80	30 - 70
E77 ... 1	40 - 80	30 - 70
E78 ... 1	40 - 80	30 - 70
E79 ... 1	40 - 80	30 - 70
E80 ... 1	40 - 80	30 - 70
E81 ... 1	40 - 80	30 - 70
E83 ... 1	40 - 80	30 - 70
E84 ... 1	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
E75 ... 1	15 cm ³ /mn	80 cm ³ /mn
E76 ... 1	15 cm ³ /mn	80 cm ³ /mn
E77 ... 1	15 cm ³ /mn	80 cm ³ /mn
E78 ... 1	15 cm ³ /mn	80 cm ³ /mn
E79 ... 1	15 cm ³ /mn	80 cm ³ /mn
E80 ... 1	15 cm ³ /mn	80 cm ³ /mn
E81 ... 1	15 cm ³ /mn	80 cm ³ /mn
E83 ... 1	15 cm ³ /mn	80 cm ³ /mn
E84 ... 1	15 cm ³ /mn	80 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

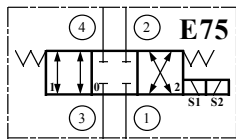
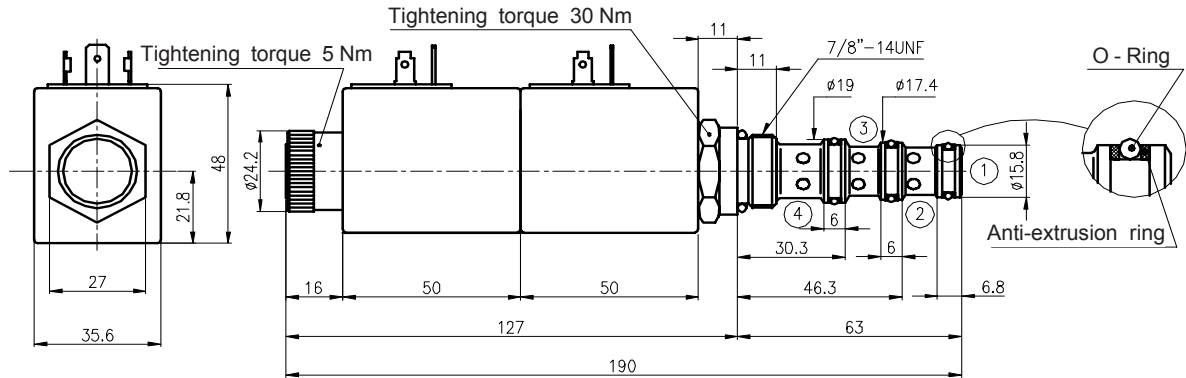
SPOOL SOLENOID VALVES

4 WAYS - 3 POSITIONS
Maximum pressure 300 bar

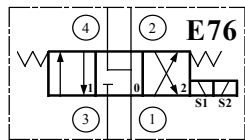
High Performance - Code 2

Size 10 - 7/8" 14 UNF

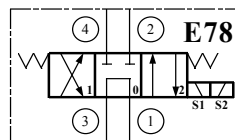
CED 10 E75 - CED 10 E76 - CED 10 E78 - CED 10 E79



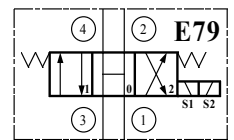
CED 10 E75
Max flow: 50 l/mn



CED 10 E76
Max flow: 50 l/mn



CED 10 E78
Max flow: 40 l/mn



CED 10 E79
Max flow: 40 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working : At rest the spool is called back in position 0 by spring force. When the solenoid S1 is energized, the spool is called in position 1 (see diagram). It goes in position 2 when the solenoid S2 is energized.

The solenoids must be alternately energized.

Fluid distribution according to the pointers on the pictograms.

Codification C E D 10 E76 B 5 A O N 2 — 2 = High Perform.

Size Code

10 = 7/8" 14 UNF

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt VAC* ou RAC*
- F = 48 Volt VAC* ou RAC*
- G = 110 Volt VAC* ou RAC*
- H = 220 Volt VAC* ou RAC*

Coil Code = 5

- Coil connexion**
- A = Electr.con.6,35-DIN 43650
 - B = Kostal
 - D = Deutsch
 - F = Leadwires
 - J = AMP Junior

Manual override

- O = without manual override
- D = dual control screwing off S1 / screwing S2 hold position
- E = pushing version

- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 150°C

Connectors

See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

- Tightening torques: Page 232 / 00
- Caractéristiques des bobines: Page 063 / 00
- Coils characteristics: Page 062 / 00
- Manual overrides: Page 074 / 00
- Temperature: see overleaf
- Filtration recommendations: Page 231 / 00
- Mounting Position: without restriction
- Cavities : Page 235 / 00
- Weight with coil (without connector) : 0,7 Kg

- Mounting on BAF : Page 137 / 00
- Mounting on MBS® : Page 184 / 00 - 185 / 00

seal kits: N° 200 569

*VAC: coil with integrated bridge rectifier

*RAC : use obligatorily a connector with bridge rectifier

CHARACTERISTICS (cartridge only)

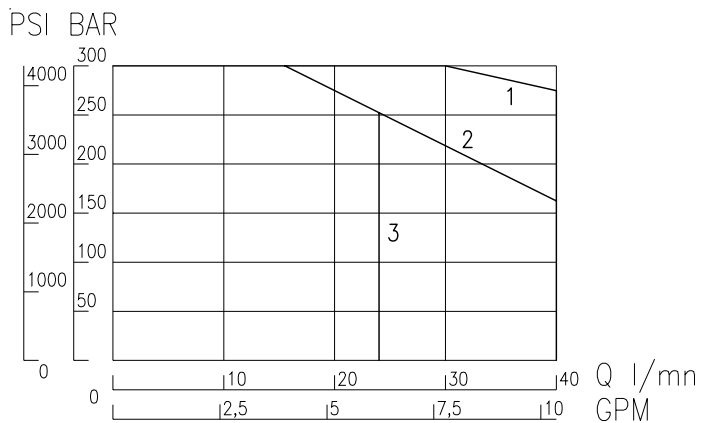
4 WAYS - 3 POSITIONS
Maximum pressure 300 bar

High Performance - Code 2

Size 10 - 7/8" 14 UNF CED 10 E75 - CED 10 E76 - CED 10 E78 - CED 10 E79

UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Markers
E75 ... 2	1
E76 ... 2	1
E78 ... 2	1
E79 ... 2	1



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
E75 ... 2	40 - 80	30 - 70
E76 ... 2	40 - 80	30 - 70
E78 ... 2	40 - 80	30 - 70
E79 ... 2	40 - 80	30 - 70

PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	minimum	Maximum
E75 ... 2	15 cm ³ /mn	80 cm ³ /min
E76 ... 2	15 cm ³ /mn	80 cm ³ /min
E78 ... 2	15 cm ³ /mn	80 cm ³ /min
E79 ... 2	15 cm ³ /mn	80 cm ³ /min

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
 Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
 Oil Temperature at 40°C
 Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
 Nominal voltage hot coil.

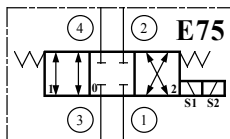
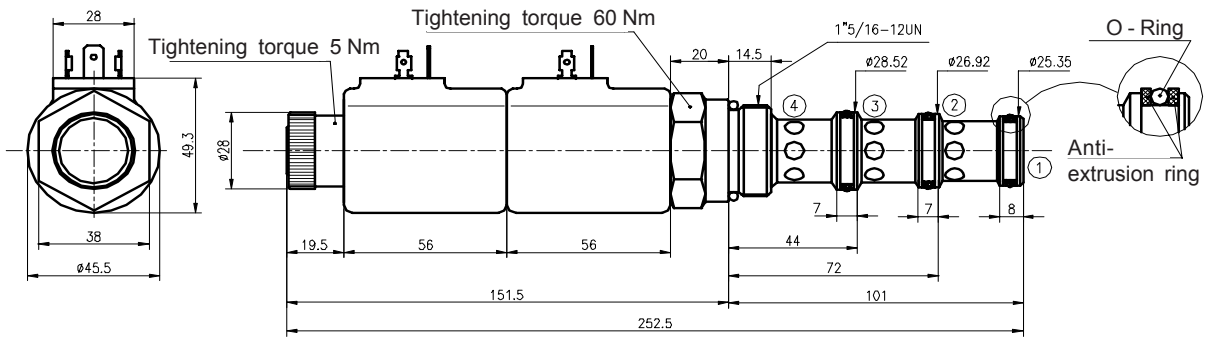
MOUNTING RECOMMENDATIONS: See **F.T 50 1266** - Page 232 / 00

F.T 50 1128 2/2

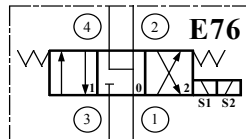
SPOOL SOLENOID VALVES

4 WAYS - 3 POSITIONS
Maximum pressure 300 bar

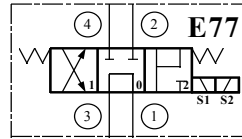
Size 16 - 1"5/16 12 UNF CED 16 E75 - CED 16 E76 - CED 16 E77 - CED 16 E78 -
CED 16 E79 - CED 16 E80 - CED 16 E81 - CED 16 E83 -



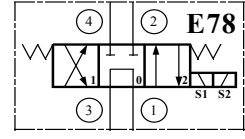
CED 16 E75
Max flow: 60 l/mn



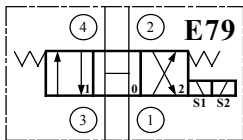
CED 16 E76
Max flow: 60 l/mn



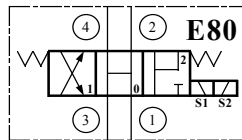
CED 16 E77
Max flow: 50 l/mn



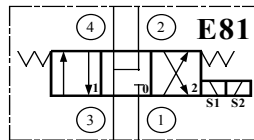
CED 16 E78
Max flow: 50 l/mn



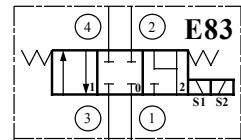
CED 16 E79
Max flow: 50 l/mn



CED 16 E80
Max flow: 50 l/mn



CED 16 E81
Max flow: 60 l/mn



CED 16 E83
Max flow: 60 l/mn

Description: A cylindrical spool with a suitable form in treated steel slides with a short clearance in a treated steel housing.

Working: At rest the spool is called back in position 0 by spring force. When the solenoid S1 is energized, the spool is called in position 1 (see diagram). It goes in position 2 when the solenoid S2 is energized.

The solenoids must be alternately energized.

Fluid distribution according to the pointers on the pictograms.

Codification	C E D 16 E76 B 9 A O N
Size Code	16 = 1" 5/16 16 UNF
Function code	E76
Coil Code	9
Coil connexion	A = Electr.con.6,35-DIN 43650 B = Kostal
Manual override	O = without manual override B = screwing version E = pushing version D = Dual control screwing off S1 / screwing S2 hold position
Seals	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C
Connectors	See pages 072 / 00 & 073 / 00

Characteristics : see overleaf

Tightening torques: Page 232 / 00
Caractéristiques des bobines: Page 063 / 00
Coils characteristics: Page 062 / 00
Manual overrides: Page 074 / 00
Temperature: see overleaf
Filtration recommendations: Page 231 / 00
Mounting Position: without restriction
Cavities : Page 235 / 00
Weight with coil (without connector) : 0,9 Kg

Mounting on BAF : Page 137 / 00
Mounting on MBS® : Page 184 / 00 - 185 / 00

seal kits: N° 200 124

*VAC: coil with integrated bridge rectifier

*RAC : use obligatorily a connector with bridge rectifier

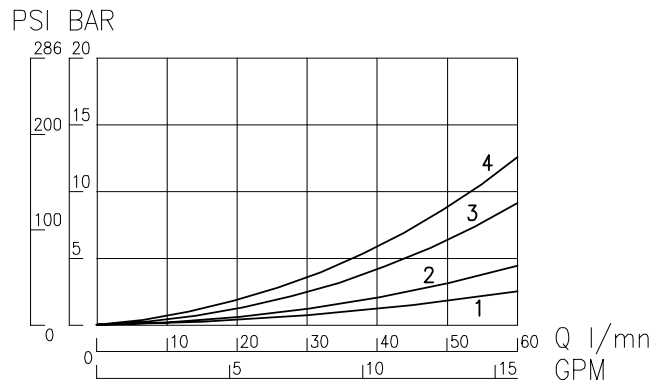
CHARACTERISTICS (cartridge only)

SPOOL SOLENOID VALVES 4 WAYS - 3 POSITIONS

Size 16 - 1"5/16 12 UNF CED 16 E75 - CED 16 E76 - CED 16 E77 - CED 16 E78 -
CED 16 E79 - CED 16 E80 - CED 16 E81 - CED 16 E83 -

PRESSURE DROP

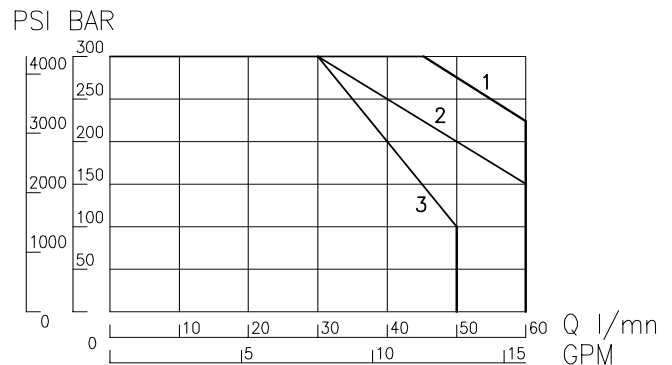
Type	③ ↔ ①	③ ↔ ②	③ ↔ ④	② ↔ ①	④ ↔ ①
E75	-	3	3	1	4
E76	-	3	3	1	4
E77	4	3	3	2	4
E78	4	4	4	2	4
E79	4	3	3	4	4
E80	4	3	3	4	4
E81	-	3	3	1	4
E83	-	-	3	1	4



UTILIZATION LIMIT at WORKING PRESSURE (under nominal voltage)

Type	Every voltage	HP*
E75	2	
E76	1	
E77	3	
E78	3	
E79	3	
E80	3	
E81	2	
E83	2	

* 12 & 24V DC only



RESPONSE TIME in ms start of opening and closing

Type	energized	de - energized
E75	40 - 100	30 - 80
E76	40 - 100	30 - 80
E77	40 - 100	30 - 80
E78	40 - 100	30 - 80
E79	40 - 100	30 - 80
E80	40 - 100	30 - 80
E81	40 - 100	30 - 80
E83	40 - 100	30 - 80

Type	minimum	Maximum
E75	25 cm ³ /mn	100 cm ³ /mn
E76	25 cm ³ /mn	100 cm ³ /mn
E77	25 cm ³ /mn	100 cm ³ /mn
E78	25 cm ³ /mn	100 cm ³ /mn
E79	25 cm ³ /mn	100 cm ³ /mn
E80	25 cm ³ /mn	100 cm ³ /mn
E81	25 cm ³ /mn	100 cm ³ /mn
E83	25 cm ³ /mn	100 cm ³ /mn
E84	25 cm ³ /mn	100 cm ³ /mn

Leakage reduction after 5 minutes under pressure

Fluids: Mineral based oil or synthetic fluid (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperatur.

Working Temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient Temperature 22°C +/- 2°C
Oil Temperature at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.
Nominal voltage hot coil.

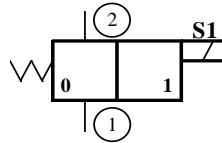
MOUNTING RECOMMENDATIONS: See F.T 50 1266 - Page 232 / 00

CODING of POSITIONS DEPENDING on the CONTROL of the SOLENOID

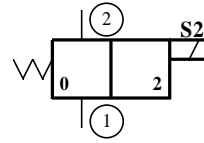
Position 0: at rest
 Position 1: S1 energized
 Position 2: S2 energized

DIRECT - ACTING SOLENOID VALVES

2 Ways - 2 Positions

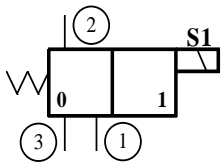


**Solenoid S1
-pulling**

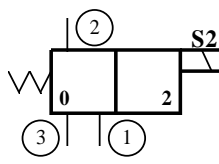


**Solenoid S2
-pushing**

3 Ways - 2 Positions

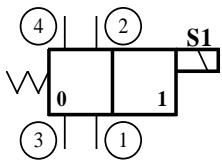


**Solenoid S1
-pulling**

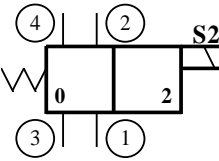


**Solenoid S2
-pushing**

4 Ways - 2 Positions

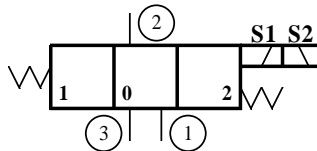


**Solenoid S1
-pulling**



**Solenoid S2
-pushing**

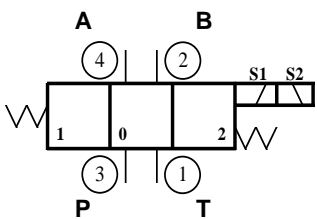
3 Ways - 3 Positions



**Solenoid S1
-pulling**

Solenoid S1 - tpulling and S2 - pushing

4 Ways - 3 Positions

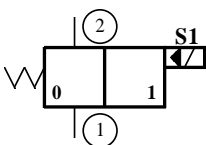


**Solenoid S1
-pulling**

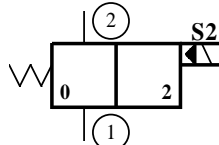
Solenoid S1 - pulling and S2 - pushing

PILOT SOLENOID VALVES

2 Ways - 2 Positions



**Solenoid S1
-pulling**



**Solenoid S2
-pushing**

ACCESSORIES for SOLENOID VALVES

COILS - Références and assignments **064 / 00**

COILS CHARACTERISTICS:

SIZE 08 - 58 - Standard	Code 2	066 / 00
SIZE 08 - 58 - Standard MBS® Block	Code 7	067 / 00
SIZE 08 - 58 - High Performance MBS® Block	Code 8	068 / 00
SIZE 10 - Standard	Code 3	069 / 00
SIZE 10 - High Performance	Code 5	070 / 00
SIZE 16 - Standard	Code 4	071 / 00

ELECTRICAL CONNECTORS **072 / 00**

MANUAL OVERRIDES **074 / 00**

SEAL KITS **074 / 01**

(Corresponding reference mentioned on every cartridge Technical Document)

COIL REFERENCES and ASSIGNMENTS DIRECT CURRENT

(Connectors not included - See F.T 50 1142 Page 074 / 00)


CONNEXIONS	SIZES 58 / 08 (boring ø13)						SIZES 10 (boring ø16)						SIZES 16 (boring ø19)							
	12 V C.C		24 V C.C		Page		12 V C.C		24 V C.C		Page		12 V C.C		24 V C.C		Page			
	Reference	Power	Reference	Power			Reference	Power	Reference	Power			Reference	Power	Reference	Power			Reference	Power
DIN. 43650	A7A 100 674	18 W	B7A 100 675	18 W	067 / 00	A5A 100 532	35 W	B5A 100 533	35 W	070 / 00	A4A 100 467	33 W	B4A 100 018	33 W	071 / 00	A9A 102 433	48 W	B9A 102 434	48 W	071 / 00
	A8A 101 255	30 W	B8A 101 256	30 W	068 / 00	A3A 100 217	26 W	B3A 100 015	26 W	069 / 00										
LEADWIRES	A7F 100 682	18 W	B7F 100 683	18 W	067 / 00	A5F 102 084	35 W	B5F 102 118	35 W	070 / 00										
	A8F 101 748	30 W	B8F 101 749	30 W	068 / 00															
AMP JUNIOR			B2J 102 558	22 W	066 / 00	A5J 102 484	35 W	B5J 102 989	35 W	070 / 00										
			B7J 102 563	18 W	067 / 00															
	A8J 101 750	30 W	B8J 101 751	30 W	068 / 00															
KOSTAL	A2B 100 469	22 W	B2B 100 017	22 W	066 / 00	A3B 100 470	26 W	B3B 100 014	26 W	069 / 00	A4B 100 471	33 W	B4B 100 019	33 W	071 / 00					
DEUTSCH						A5D 102 686	35 W	B5D 103 240	35 W	070 / 00										

Consult us for availability

COIL REFERENCES and ASSIGNEMENTS ALTERNATING CURRENT

(Connectors not included - See F.T 50 1142 Page 074 / 00)

SIZES 58 / 08 (boring Ø 13)									
CONNEXIONS	24 VAC (Bridge rectifier incorporated to the coil)		48 VAC (Bridge rectifier incorporated to the coil)		110 VAC (Bridge rectifier incorporated to the coil)		220 VAC (Bridge rectifier incorporated to the coil)		Page
	Reference	Power	Reference	Power	Reference	Power	Reference	Power	
DIN. 43650 All functions except 58A07 Code 2	J8A 101 257	30 W	F8A 101 258	30 W	G8A 101 259	30 W	M8A 101 260	30 W	068 / 00
DIN. 43650	24 RAC Bridge rectifier 100 613		48 RAC Bridge rectifier 100 750		110 RAC Bridge rectifier 100 751		220 RAC Bridge rectifier 100 752		Page
	Reference	Power	Reference	Power	Reference	Power	Reference	Power	
Except mounting on MBS® Blocks	E2A 100 479	22 W	F2A 100 491	22 W	G2A 100 503	22 W			066 / 00
Mounting on MBS® Blocks	E7A 100 676	18 W	F7A 100 677	18 W	G7A 100 678	18 W			067 / 00
All functions except 58A07 Code 2	E8A 102 060	30 W	F8A 102 061	30 W	G8A 102 062	30 W	H8A 102 063	30 W	068 / 00
Function 58A07 Code 2	E5A 100 534	35 W	F5A 100 535	35 W	G5A 100 536	35 W	H5A 100 537	35 W	070 / 00
SIZES 58 / 08 (boring Ø 13)									
Functions A03 - A05 - A04 - A06	E3A 100 480	26 W	F3A 100 492	26 W	G3A 100 504	26 W	H3A 100 516	26 W	069 / 00
Fonction 10A07 Code 2	E4A 10 0 481	33 W	F4A 100 493	33 W	G4A 100 505	33 W			071 / 00
All functions except 58A07 Code 2	E5A 100 534	35 W	F5A 100 535	35 W	G5A 100 536	35 W	H5A 100 537	35 W	070 / 00
SIZES 58 / 08 (boring Ø 13)									
All functions	E4A 100 481	33 W	F4A 100 493	33 W	G4A 100 505	33 W			071 / 00
DIN. 43650 Particular use							M8A 101 260	30 W	

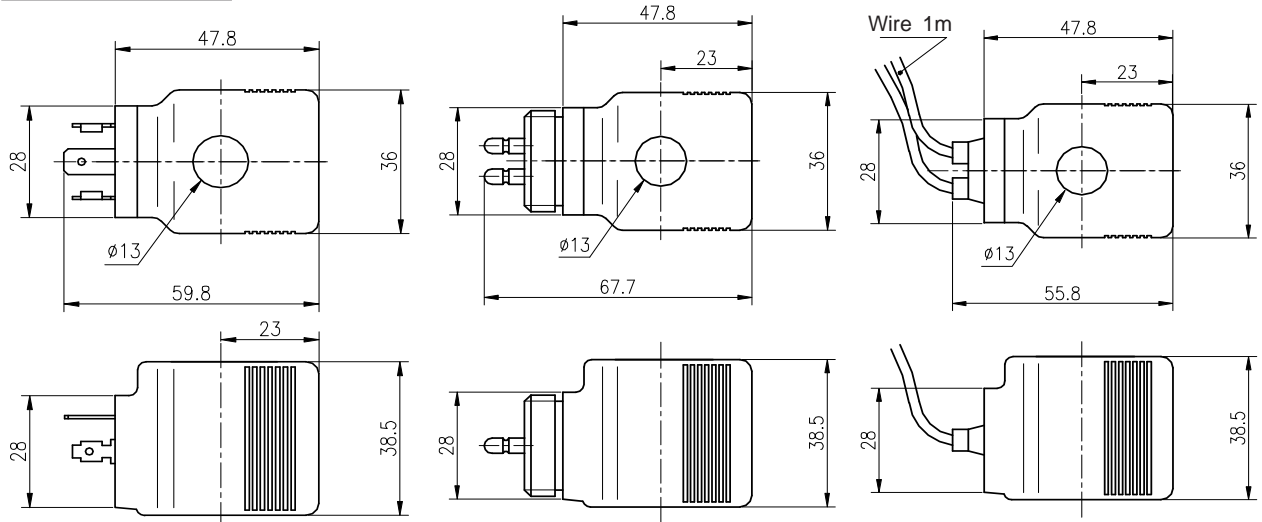
 Consult us for availability

SOLENOID VALVES

COILS DIAMETER 13 for SIZES 08 and 58

Power 22 Watt

CODE 2



ELECTRICAL CONNECTION 6,35 - DIN 43 650 - Code A

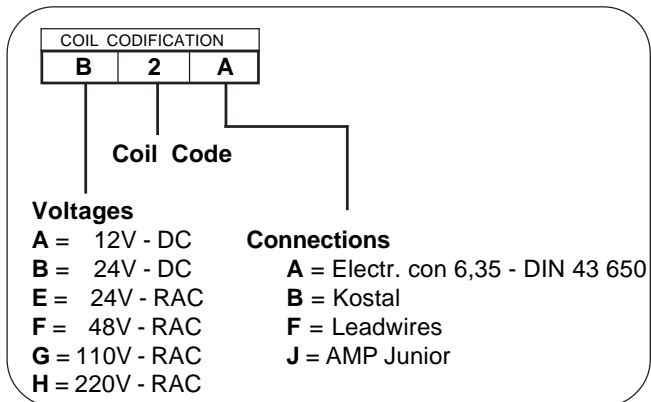
KOSTAL - M 27 x 1 - Code B (on request)

LEADWIRES - Code F (on request) (wire length 0,50 m)

CURRENT	VOLTAGE (Volt)			INTENSITY (Amp.)		RESISTANCE (Ohms) Ω ± 5% at 20%	FUNCTIONING at NOMINAL VOLTAGE	CONNECTION TYPE	CODIFICATION <small>(elect. con 6,35 without connector)</small>
	NOMINAL	MINI	MAXI	at 20° C	under heat				
DIRECT DC	12	8,4	15,6	1,88	1,29	6,38	ED 100%	B	-
	24	16,8	31,2	0,94	0,638	25,5	ED 100%	A - B - F - J	B2A
ALTERNATING RAC*	24	21,6	26,4	0,98	0,66	24,48	ED 100%	A	E2A
	48	43,2	52,8	0,50	0,34	96	ED 100%	A	F2A
	110	99	121	0,19	0,13	579	ED 100%	A	G2A
	220	198	242	0,10	0,07	2200	ED 100%	-	-

Technical Characteristics :

- Power :** 22 Watt
- Working voltage :** ± 10% of the nominal voltage
- Coil insulation :** Class H - 180°C - VDE 0580
- Wire insulation :** Class H - 180°C - VDE 0580
- Ambient temperature :** - 30°C + 50°C
- Maximum working temperature :** 150°C
- Coil Protection :** Without connection : IP00
With connector : IP65 - DIN 40050
- Coil weight :** 0,20 Kg



F.T 50 1134

References and assignments of coils: F.T 50 1132 - Page 064/00
Connectors: F.T 50 1140 - Page 072/00

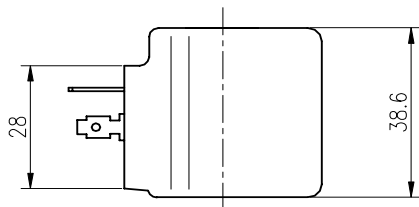
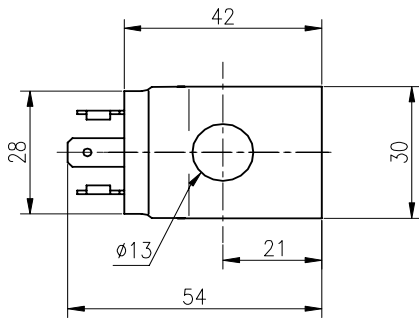
* For Alternating current - AC - the use of a connector with bridge rectifier is **obligatory**.

SOLENOID VALVES

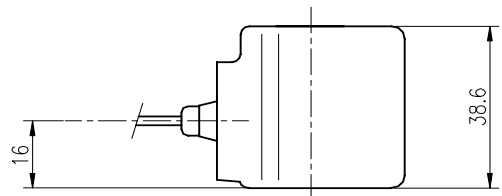
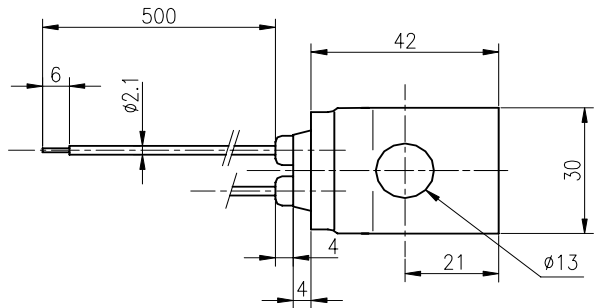
COILS DIAMETER 13 for SIZES 08 and 58

Power 18 Watt

CODE 7



ELECTRIC CONNECTION
6,35 - DIN 43 650 - Code A



LEADWIRES - Code F

CURRENT	VOLTAGE (Volt)			INTENSITY (Amp.)		RESISTANCE (Ohms) $\Omega \pm 5\%$ at 20%	WORKING at NOMINAL VOLTAGE	CONNECTION TYPE	CODIFICATION <small>(elect. con. 6,35 without connector)</small>
	NOMINAL	MINI	MAXI	at 20° C	under heat				
DIRECT DC	12	10,8	13,2	1,54	1,12	7,7	ED 100%	A - F	A7A
	24	21,6	26,4	0,77	0,55	31	ED 100%	A - F - J	B7A
ALTERNATING RAC*	24	21,6	26,4	0,800	0,54	27	ED 100%	A	E7A
	48	43,2	52,8	0,407	0,28	106	ED 100%	A	F7A
	110	98	121	0,155	0,10	630	ED 100%	A	G7A
	220	198	242	0,079	0,05	2500	ED 100%	-	-

Technical Characteristics :

Power : 18 Watt
Working voltage : $\pm 10\%$ of the nominal voltage

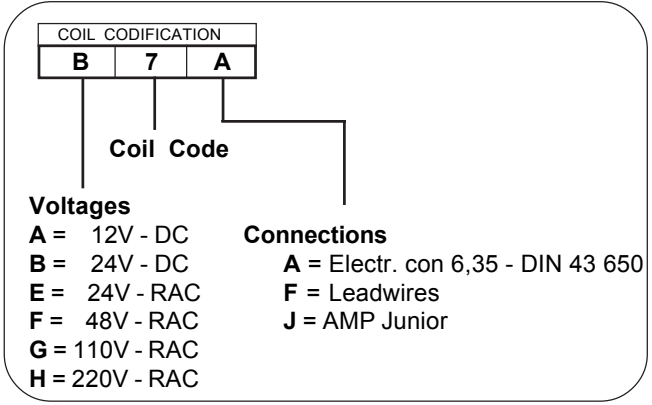
Coil insulation : Class H - 180°C - VDE 0580
Wire insulation : Class H - 180°C - VDE 0580

Ambient temperature: - 30°C + 50°C
Maximum working temperature: 150°C

Coil Protection: Without connection : IP00
With connector : IP65 - DIN 40050

Coil weight: 0,14 Kg

References and assignments of coils: F.T 50 1132 - Page 064/00
Connectors: F.T 50 1140 - Page 072/00



F.T 50 1135

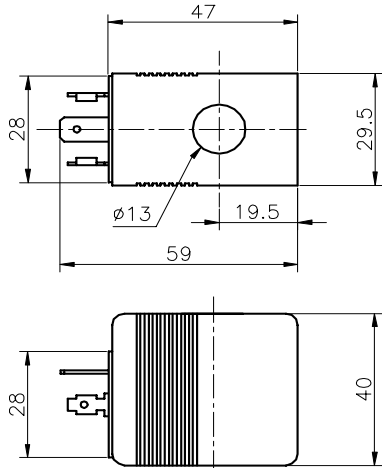
* For Alternating current - AC - the use of a connector with bridge rectifier is **obligatory**.

SOLENOID VALVES

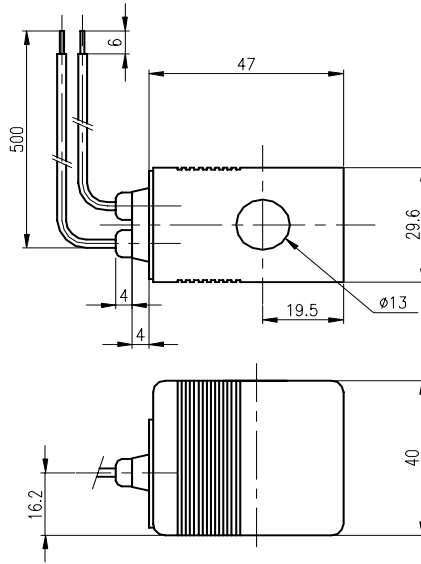
COILS HP forr MBS DIAMETER 13 for SIZES 08 and 58

Power 30 Watt

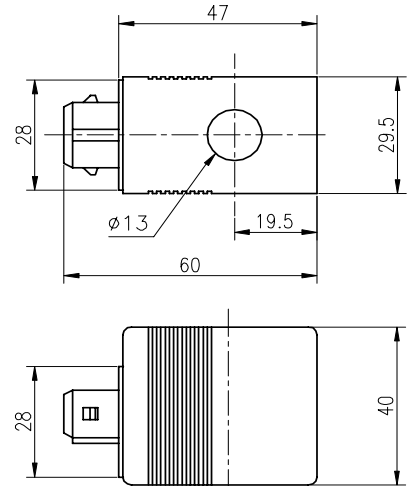
CODE 8



ELECTRICAL CONNECTION
6,35 - DIN 43 650 - Code A



LEADWIRES - Code F
(wire length 0,60m)



AMP Junior - Code J

CURRENT	VOLTAGE (Volt)			INTENSITY (Amp.)		RESISTANCE (Ohms) Ω ± 5% at 20%	WORKING at NOMINAL VOLTAGE	CONNECTION TYPE	CODIFICATION (elect.con. 6,35 without connector)	REFERENCES		
	NOMINAL	MINI	MAXI	at 20 °C	under heat							
DIRECT DC	12	8,4	15,6	2,28	1,67	5,2	ED 100%	A	A8A	101 255		
								F	A8F	101 748		
								J	A8J	101 750		
	24	16,8	31,2	1,18	0,84	19,9	ED 100%	A	B8A	101 256		
								F	B8F	101 749		
								J	B8J	101 751		
ALTERNATING VAC and RAC	24	21,6	26,4	1,35	0,99	16	ED 100%	A	E8A	101 257	VAC with integrated bridge rectifier	RAC use obligatorly a connector with bridge rectifier
	48	43,2	52,8	0,67	0,49	64,3	ED 100%	A	F8A	101 258	E8A	102 060
	110	98	121	0,30	0,22	330	ED 100%	A	G8A	101 259	F8A	102 061
	220	198	242	0,13	0,10	1470	ED 100%	A	H8A	101 260	G8A	102 062
											H8A	102 063

Technical Characteristics :

Power : 30 Watt
Working voltage : ± 10% of the nominal voltage

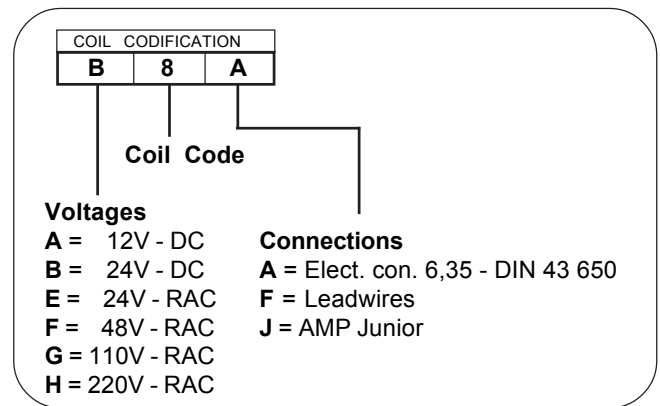
Coil insulation : Class H - 180°C - VDE 0580
Wire insulation : Class H - 180°C - VDE 0580

Ambient temperature: - 30°C + 50°C
Maximum working temperature: 150°C

Coil Protection: Without connection : IP00
With connector : IP65 - DIN 40050

Coil weight: 0,19 Kg

References and assignments of coils: F.T 50 1132 - Page 064/00
Connectors: F.T 50 1140 - Page 072/00



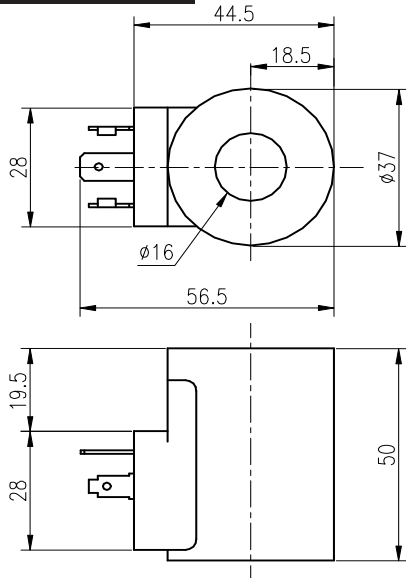
F.T 50 1136

SOLENOID VALVES

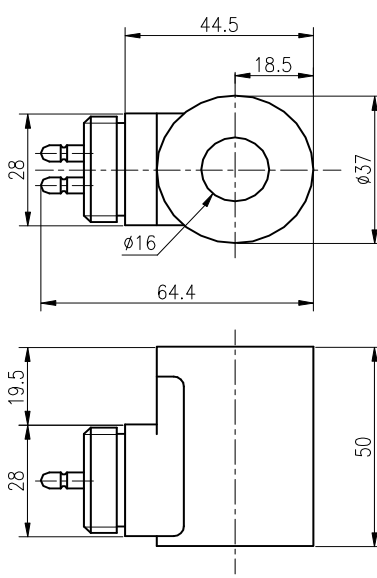
COILS DIAMETER 16 forr SIZES 10 and 62

Power 26 Watt

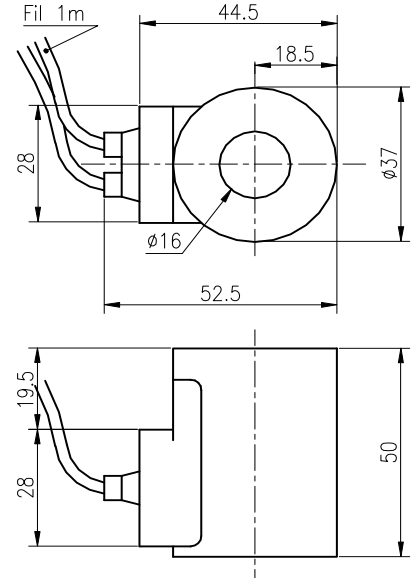
CODE 3



ELECTRICAL CONNECTION
6,35 - DIN 43 650 - Code A



KOSTAL - M 27 x 1 - Code B
(on request)

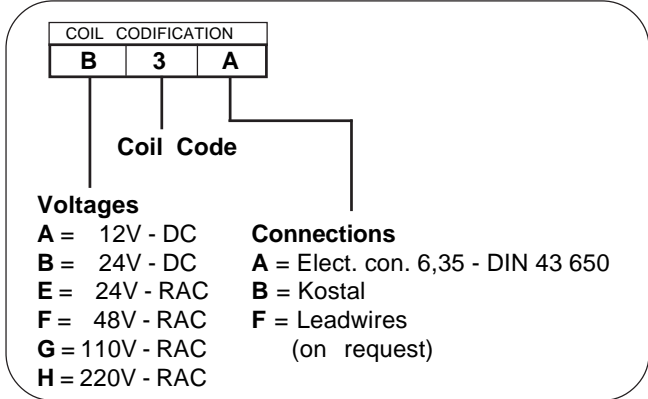


LEADWIRES - Code F (on request)
(wire length 0,50m)

CURRENT	VOLTAGE (Volt)			INTENSITY (Amp.)		RESISTANCE (Ohms) Ω ± 5% at 20%	WORKING at NOMINAL VOLTAGE	CONNECTION TYPE	CODIFICATION <small>(elct. con. 6,35 without connector)</small>
	NOMINAL	MINI	MAXI	at 20° C	under heat				
DIRECT DC	12	8,4	15,6	2,18	1,46	5,5	ED 100%	A - B	A3A
	24	16,8	31,2	1,08	0,83	22,2	ED 100%	A - B	B3A
ALTERNATING RAC*	24	21,6	26,4	1,21	0,88	17,8	ED 100%	A	E3A
	48	43,2	52,8	0,60	0,44	72	ED 100%	A	F3A
	110	99	121	0,27	0,19	540	ED 100%	A	G3A
	220	198	242	0,13	0,09	2200	ED 100%	A	H3A

Technical Characteristics :

- Power :** 26 Watt
- Working voltage :** ± 10% of the nominal voltage
- Coil insulation :** Class H - 180°C - VDE 0580
- Wire insulation :** Class H - 180°C - VDE 0580
- Ambient temperature:** - 30°C + 50°C
- Maximum working temperature:** 150°C
- Coil Protection:** Without connection : IP00
With connector : IP65 - DIN 40050
- Coil weight:** 0,23 Kg



References and assignments of coils: F.T 50 1132 - Page 064/00
Connectors: F.T 50 1140 - Page 072/00

* For Alternating current - AC - the use of a connector with bridge rectifier is **obligatory**.

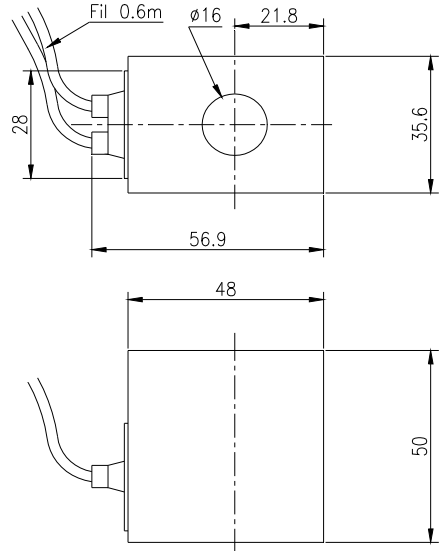
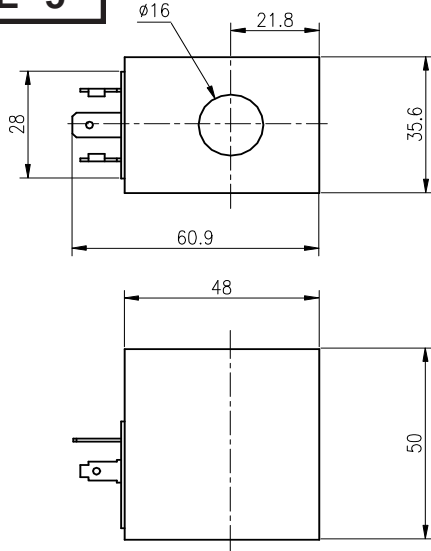
F.T 50 1137

SOLENOID VALVES

COILS DIAMETER 16 for SIZES 10 and 62

Power 35 Watt

CODE 5



ELECTRICAL CONNECTION Code A
6,35 - DIN 43 650

12V DC - A5A - N° 100 532
24V DC - B5A - N° 100 533

LEADWIRES - Code F
(wire length 0,60m)

12V DC - A5F - N° 102 084
24V DC - B5F - N° 102 118

CURRENT	VOLTAGE (Volt)			INTENSITY (Amp.)		RESISTANCE (Ohms) $\Omega \pm 5\%$ at 20%	WORKING at NOMINAL VOLTAGE	CONNECTION TYPE	CODIFICATION <small>(elect. con. 6,35 without connector)</small>
	NOMINAL	MINI	MAXI	at 20 °C	under heat				
DIRECT DC	12	8,4	15,6	2,92	2,10	4,1	ED 100%	A - D - F - J	A5A
	24	16,8	31,2	1,45	1,08	16,6	ED 100%	A - F	B5A
ALTERNATING RAC*	24	21,6	26,4	1,62	1,18	15,5	ED 100%	A	E5A
	48	43,2	52,8	0,81	0,59	62	ED 100%	A	F5A
	110	99	121	0,34	0,25	338	ED 100%	A	G5A
	220**	198	242	0,16	0,12	1400	ED 100%	A	H5A

Technical Characteristics :

- Power :** 35 Watt
- Working voltage :** $\pm 10\%$ of the nominal voltage
- Coil insulation :** Class H - 180°C - VDE 0580
- Wire insulation :** Class H - 180°C - VDE 0580
- Ambient temperature:** - 30°C + 50°C
- Maximum working temperature:** 150°C
- Coil Protection:** Without connection : IP00
With connector : IP65 - DIN 40050

Coil weight:

References and assignments of coils: F.T 50 1132 - Page 064/00
Connectors: F.T 50 1140 - Page 072/00

COIL CODIFICATION

B	5	A
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Coil Code

Voltages

A = 12V - DC	Connections
B = 24V - DC	A = Elect. con. 6,35 - DIN 43 650
E = 24V - RAC	D = Deutsch
F = 48V - RAC	F = Leadwires
G = 110V - RAC	J = AMP Junior
H = 220V - RAC (Power 30 Watt)	

F.T 50 1138

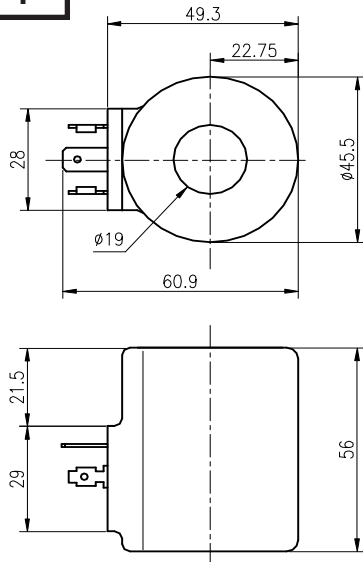
* For Alternating current - AC - the use of a connector with bridge rectifier is **obligatory**.

SOLENOID VALVES

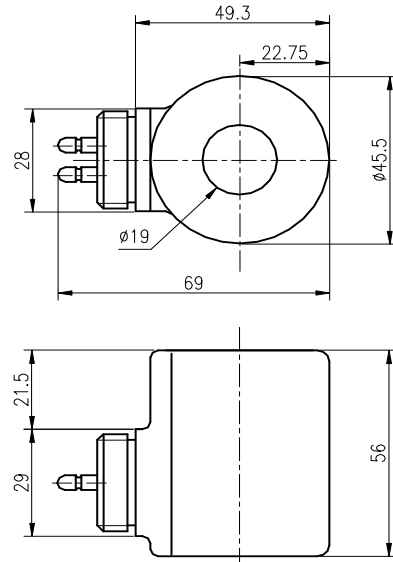
COILS DIAMETER 19 for SIZES 16 and 73

Power 33 Watt

CODE 4



ELECTRICAL CONNECTION
6,35 - DIN 43 650 - Code A

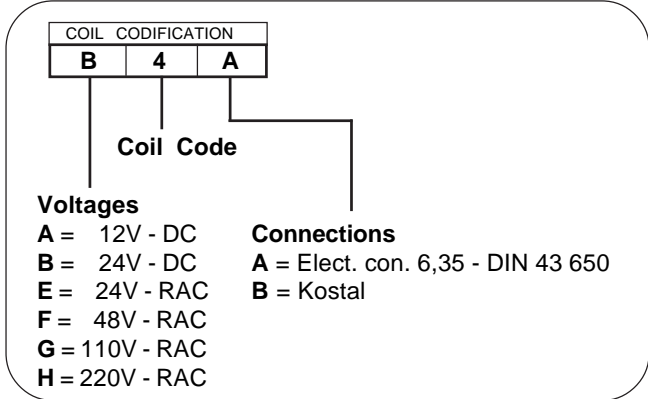


KOSTAL - M 27 x 1 - Code B
(on request)

CURRENT	VOLTAGE (Volt)			INTENSITY (Amp.)		RESISTANCE (Ohms) $\Omega \pm 5\%$ at 20%	WORKING at NOMINAL VOLTAGE	CONNECTION TYPE	CODIFICATION <small>(elect. con. 6,35 without connector)</small>
	NOMINAL	MINI	MAXI	at 20° C	under heat				
DIRECT DC	12	8,4	15,6	2,75	1,87	4,35	ED 100%	A - B	A4A
	24	16,8	31,2	1,38	0,91	17,4	ED 100%	A - B	B4A
ALTERNATING RAC*	24	21,6	26,4	1,61	1,18	13,4	ED 100%	A	E4A
	48	43,2	52,8	0,79	0,59	54,4	ED 100%	A	F4A
	110	99	121	0,34	0,25	287	ED 100%	A	G4A
	220	198	242	0,17	0,12	1190	ED 100%	A	H4A

Technical Characteristics :

- Power :** 33 Watt
- Working voltage :** $\pm 10\%$ of the nominal voltage
- Coil insulation :** Class H - 180°C - VDE 0580
- Wire insulation :** Class H - 180°C - VDE 0580
- Ambient temperature :** - 30°C + 50°C
- Maximum working temperature :** 150°C
- Coil Protection :** Without connection : IP00
With connector : IP65 - DIN 40050
- Coil weight :** 0,34 Kg



F.T 50 1139

References and assignments of coils: F.T 50 1132 - Page 064/00
Connectors: F.T 50 1140 - Page 072/00

* For Alternating current - AC - the use of a connector with bridge rectifier is **obligatory**.

SOLENOID VALVES

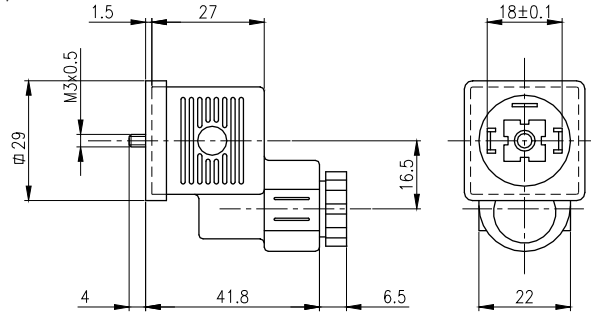
ELECTRICAL CONNECTORS DIN 43 650 - ISO 4400

DIRECT CURRENT - DC

In line

12 Volt DC
24 Volt DC

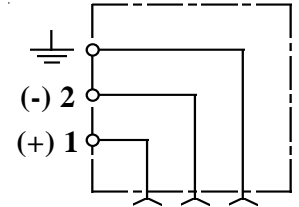
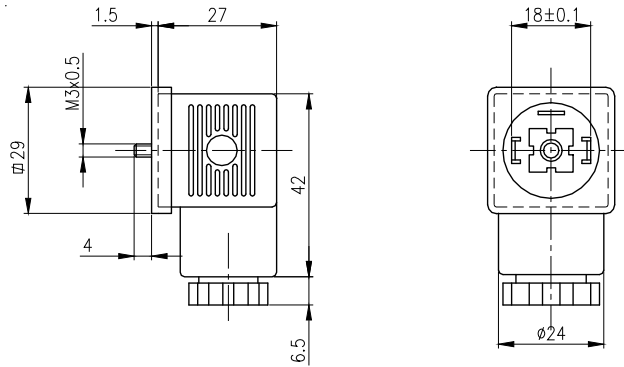
N° 100 960



Angle

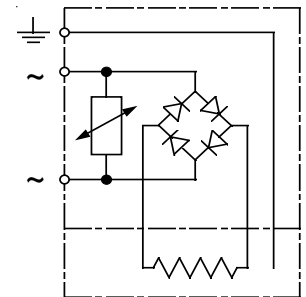
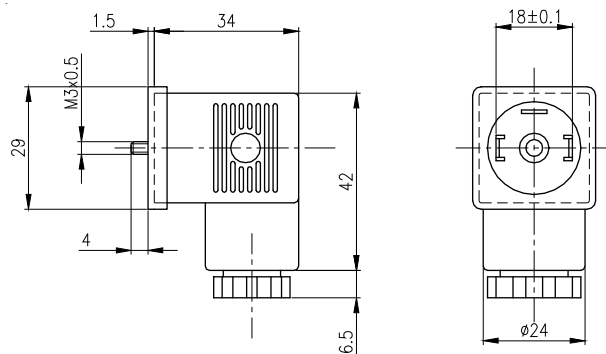
12 Volt DC
24 Volt DC

N° 100 612



ALTERNATING CURRENT - AC

24 Volt AC **N° 100 613**
48 Volt AC **N° 100 750**
110 Volt AC **N° 100 751**
220 Volt AC **N° 100 752**



General Characteristics

Nominal voltage DC:	300 V
Nominal voltage AC :	250 V
Nominal current:	10 A
Maxi current:	16 A
Contact resistance:	< 4 m Ohm
Maxi section carrying:	1,5 mm ²
Protection class:	IP65
Insulation class:	VDE 0110.1-89

F.T 50 1140

SOLENOID VALVES

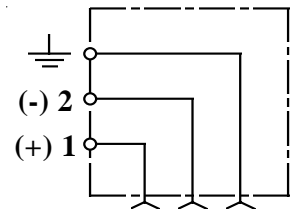
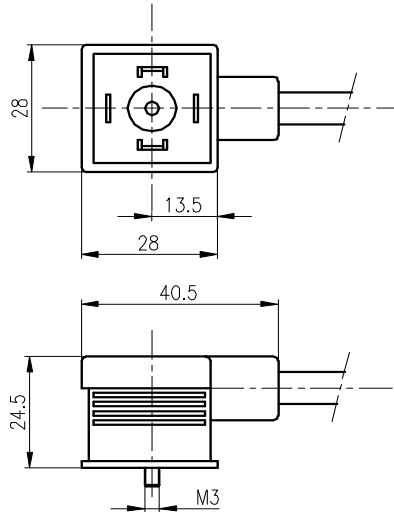
ELECTRICAL CONNECTORS with COMPOUND-FILLED WIRING DIN 43 650 - ISO 4400

DIRECT CURRENT - DC

Angle

12 Volt DC
24 Volt DC

N° 101 637

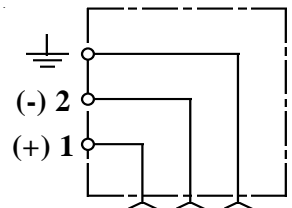
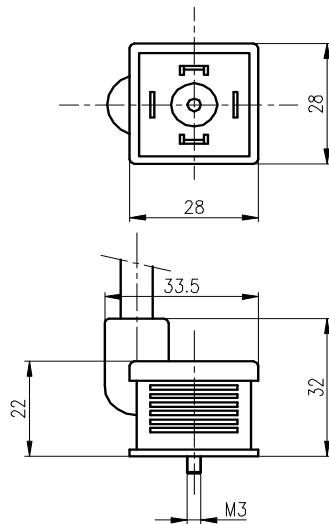


DIRECT CURRENT - DC

In line

12 Volt DC
24 Volt DC

N° 101 638



General characteristics:	Nominal voltage DC:	300 V
	Nominal voltage AC:	250 V
	Nominal current:	10 A
	Maxi current:	16 A
	Contact resistance:	< 4 m Ohm
	Maxi section carrying:	1,5 mm ²
	Protection class:	IP65
	Insulation class:	VDE 0110.1-89

- Material Informations**
- Wiring: length 2,5 m
 - PVC Cable H05 VVF 3G 0,75 mm²
 - Double eart position (pos. 6/12)
 - NBR seals

F.T 50 1141

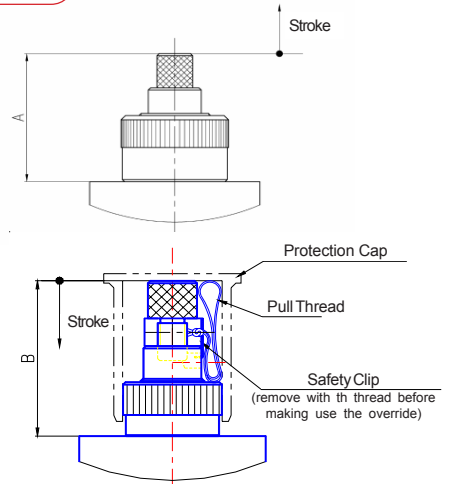
MANUAL OVERRIDES for SOLENOID VALVES

Code
A

**POSITION "S1"
UPHOLD
by SCREWING
OFF the KNURL**

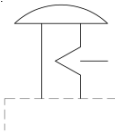


**A03 - A05 - A01 - A02 - A08
B25 - B26 - B28 - B40 - B41 -
D50 - D51 - D52 - D53 - D54 -
D55 - D58 - D60**



Code
B

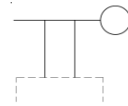
**POSITION "S2"
UPHOLD
by SCREWING
the KNURL**



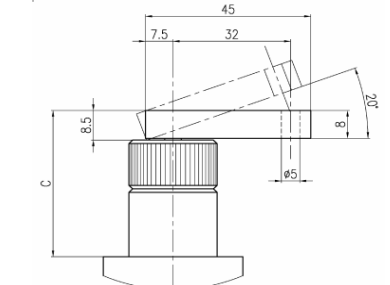
**A04 - A06 - A07 -
B27 - B29 -
D56 - D57 - D59**

Code
C

**POSITION "S1"
NOT UPHOLD
by PULLING
the LEVER**

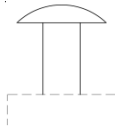


A03 - A05 - A07 -

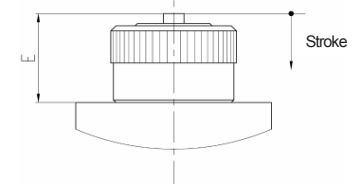


Code
E

**POSITION "S1"
NOT UPHOLD
by PUSHING on
the PUSHER**



**A02 - A04 - A06 - A07 -
B27 - B29 - B43 - C45 -
D56 - D57 - D59 - D60 -
E75 - E76 - E78 - E79 - E81 - E85 -**

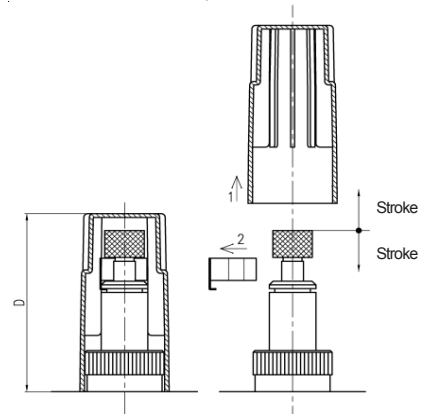


Code
D

**UPHOLD POSITIONS
by SCREWING OFF
position "S1"
by SCREWING
position "S2"**



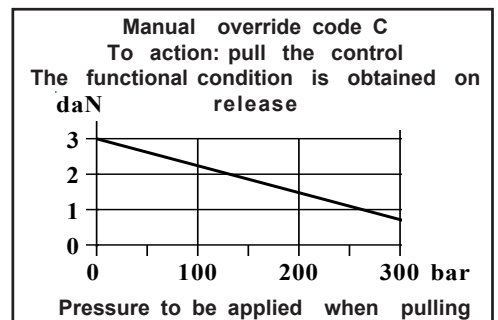
**C45
E75 - E76 - E77 - E78 - E79 -
E80 - E81 - E83**



Size	Port sizes	Dimensions (height of the override)				
		A	B	C	D	E
58	M 18 x 1,50	27	33	40	47,5	15
08	3/4" 16 UNF 2B	29	36,9	42	47,5	17
10	7/8" 14 UNF 2B	29	36,9	42	47,5	17
16	1" 5/16 12 UNF 2B	35	45,4	45	-	23

EXAMPLE of CODIFICATION: CED 10 E75 A5A D N

The manual overrides should not be used during working cycles, but only **exceptionnally** for repairing operations.



SET of SEALS for CARTRIDGES

SIZE 58 - M 18 x 1,5		
Number of ways	Applications	References
2 WAYS	A00 - A01 - A02 - A03 - A04 - A05 - A06 - A07 - A08 - A12 A13 - A14 - A15 - A16 - A17 - A19 - A20 - A22 - A44	200 110

SIZE 08 - 3/4" 16 UNF		
Number of ways	Applications	References
2 WAYS	A00 - A01 - A02 - A12 - A13 - A14 - A15 - A16 - A17 - A19 - A20 - A22 - A44	200 104
3 WAYS	B00 - B18 - B25 - B26 - B27 - B28 - B29 - B30 - B31 - B32 B34 - B36 - B40 - B41 - C45 - C46 - C47 - B65 - B66	200 106
4 WAYS	D00 - D33 - E35 - D50 - D51 - D52 - D53 - D54 - D55 - D56 - D57 - D58 - D59 - D60 - D70 - E75 - E76 - E77 - E78 - E79 - E80 - E81 - E83	200 108

SIZE 10 - 7/8" 14 UNF		
Number of ways	Applications	References
2 WAYS	A00 - A01 - A02 - A03 - A04 - A05 - A06 - A07 - A08 A12 - A13 - A14 - A15 - A16 - A17 - A19 - A20 - A22 - A44	200 014
2 WAYS Ø 12	A20 - A22 - A120 - A121	200 567
3 WAYS	B00 - B18 - B25 - B26 - B27 - B28 - B29 - B30 - B31 B32 - B36 - B40 - C45 - C46 - C47 - B65 - B66	200 016
3 WAYS Ø 12	B31 - B34 - B41 - B134 - B135	200 561
4 WAYS	D00 - D33 - E35 - D50 - D51 - D52 - D53 - D54 - D55 - D56 - D57 - D58 - D59 - D60 - D70 - E75 - E76 - E77 - E78 - E79 - E80 - E81 - E83	200 018
4 WAYS Ø 12	D50 - D51 - D53 - D55 - D60 - D61 - D63 D75 - E76 - E78 - E79 - E81	200 569

SIZE 16 - 1" 5/16 12 UN		
Number of ways	Applications	References
2 WAYS	A00 - A01 - A02 - A03 - A04 - A05 - A06 - A12 - A13 A14 - A15 - A16 - A17 - A19 - A20 - A22 - A44	200 120
3 WAYS	B00 - B18 - B25 - B26 - B27 - B28 - B29 - B30 - B31 - B32 B34 - B36 - B40 - B41 - C45 - C46 - C47 - B65 - B66 - D70	200 122
4 WAYS	D00 - D33 - E35 - D50 - D51 - D52 - D53 - D54 - D55 - D56 - D57 - D58 - D59 - D60 - D70 - E75 - E76 - E77	200 124

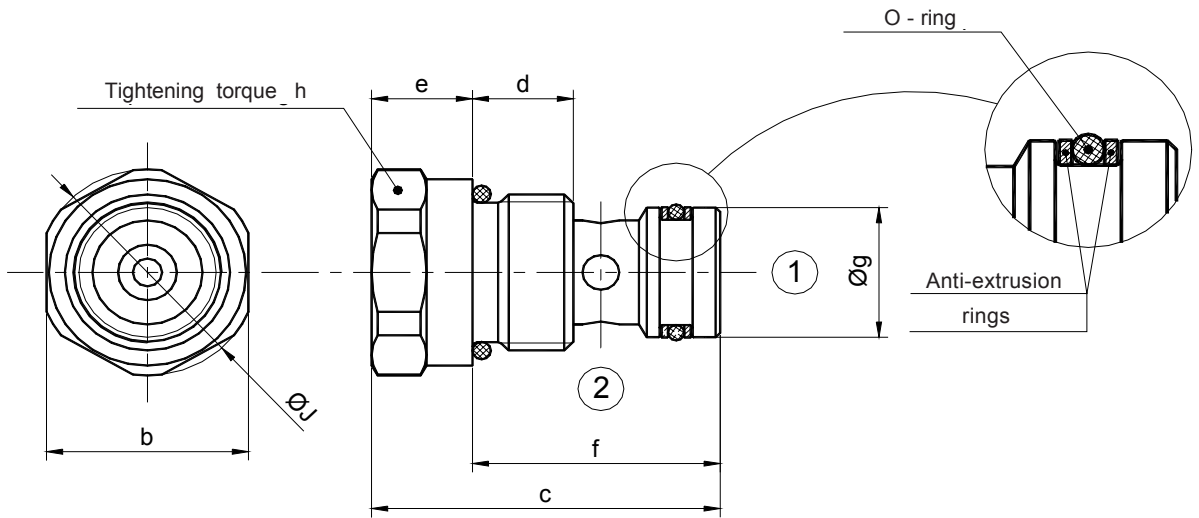
F.T 50 1271

DIRECTIONAL VALVES

Maximum pressure 300 / 350 bar (depending on the valve type)

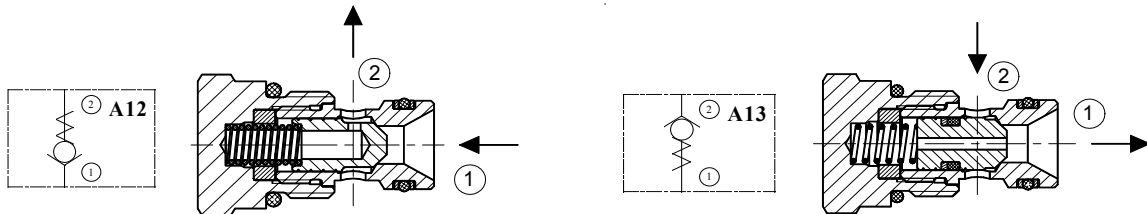
		Max flow in l/mn	N° Page
NON-RETURN VALVES (CHECK VALVES)	CMD 08 A12 CMD 58 A12	30	076 / 00
	CMD 10 A12	60	076 / 00
	CMD 16 A12	150	076 / 00
INVERTED NON-RETURN VALVES	CMD 08 A13 CMD 58 A13	25	076 / 00
	CMD 10 A13	60	076 / 00
	CMD 16 A13	150	076 / 00
PILOT NON-RETURN VALVES	CHD 10 B32	40	078 / 00
SHUTTLE VALVES	CHD 10 B36	40	079 / 00
PILOT 2 WAYS VALVES NF	CHD 10 B67	60	080 / 01
PILOT 2 WAYS VALVES NC	CHD 10 B65	60	081 / 00
PILOT 3 WAYS VALVES NO	CHD 10 B66	60	081 / 00
PILOT 3 WAYS VALVES	CHD 10 D70	70	083 / 00
LOGIC ELEMENT	CHD 10 B30	60	085 / 00
	CHD 16 B30	100	085 / 00

NON-RETURN VALVES (CHECK VALVES)



Designation A12	Size	a Port size	Q Maxi l/mn	Max. pressure bar	b	c	d	e	f	g	h Tightening torque Nm	j	Weight Kg
CMD 58 A12	58	M18x150	30	350	22	38	11	11	27	14,95	20	23,8	0,08
CMD 08 A12	08	3/4"-16UNF	30	350	24	38	11	11	27	12,65	20	25,6	0,08
CMD 10 A12	10	7/8"-14UNF	60	350	27	43	11	11	32	15,80	60	29,6	0,09
CMD 16 A12	16	1 5/16-12UN	150	350	38	64	14,5	20	44	28,52	85	40	0,30

Designation A13	Size	a Port size	Q Maxi l/mn	Max. pressure bar	b	c	d	e	f	g	h Tightening torque Nm	j	Weight Kg
CMD 58 A13	58	M18x150	30	350	22	38	11	11	27	14,95	20	23,8	0,08
CMD 08 A13	08	3/4"-16UNF	30	350	24	38	11	11	27	12,65	20	25,6	0,08
CMD 10 A13	10	7/8"-14UNF	60	350	27	43	11	11	32	15,80	60	29,6	0,09
CMD 16 A13	16	1 5/16-12UN	150	350	38	64	14,5	20	44	28,52	85	40	0,30



Description: A poppet in treated steel called back by a spring, lies on the seat of a treated steel housing.

Working: Function **A12** Flow direction: ① ⇒ ② Free outflow.

Function **A13** Flow direction: ② ⇒ ① Free outflow.

Codification C M D 10 A12 M 10 O N

Size Code

- 58 = M 18 x 150
- 08 = 3/4" 16 UNF
- 10 = 7/8" 14 UNF
- 16 = 1" 5/16 12 UN

Function code

Standard

Adjustment

- 10 = fixed

O = Standard (all Sizes)
See curves overleaf

A = Sizes 58/08 A12 only- spring 5 bar

B = Sizes 58/08 A12 only- spring 10 bar

R = Sizes 58/08 A12 only- spring 0,3 bar

N - Nitril seals - 40° + 100°C

V - Viton seals - 20° + 150°C

- Characteristics :** see overleaf
- Temperature :** see overleaf
- Filtration :** ISO code 16/13 - Page 231/ 000
- Mounting montage:** without restriction
- Cavities :** Page 233 / 000 (T.08/10/16) and 238 / 000 (T.58)
- Recommendations for valves mounting into the cavities:** Page 232 / 000
- Mounting on BAF :** Page 138 / 000
- Mounting on MBS® :** Page 186 / 000

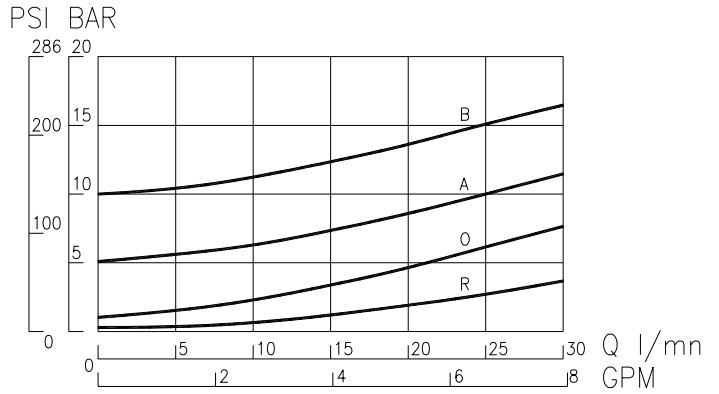
F.T 50 1144 1/2

Seal kits: Size 58 N° 200 110 Size 10 N° 200 114
 Size 08 N° 200 104 Size 16 N° 200 120

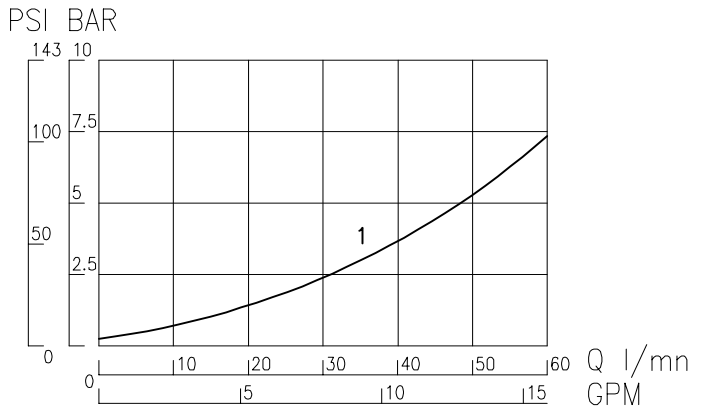
CHARACTERISTICS (cartridge only)

NON-RETURN VALVES (CHECK VALVES) Maximum pressure 350 bar

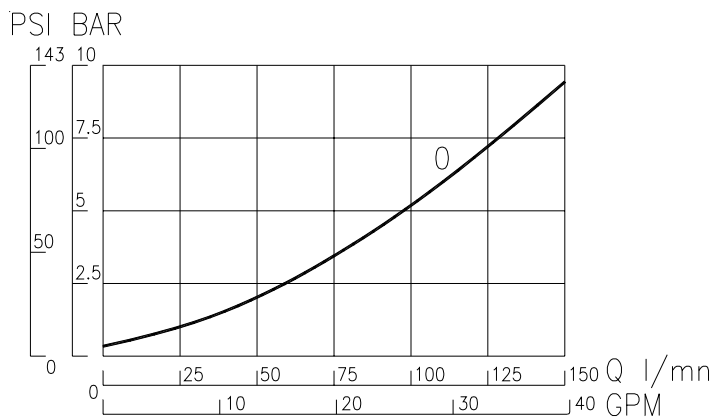
Type		① ⇒ ②	② ⇒ ①
SAE J475	METRIC	SPRING	
CMD 08 A12	CMD 58 A12	0 A B R	
CMD 08 A13	CMD 58 A13		0



Type		① ⇒ ②	② ⇒ ①
SAE J475	METRIC	SPRING	
CMD 10 A12	CMD 62 A12	0	
CMD 10 A13	CMD 62 A13		0



Type		① ⇒ ②	② ⇒ ①
SAE J475	METRIC	SPRING	
CMD 16 A12	-	0	
CMD 16 A13	-		0



Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties. Viscosity between 8 and 450 cSt at working temperature.

Working temperature: -40°C + 120°C with standard Nitril seals.

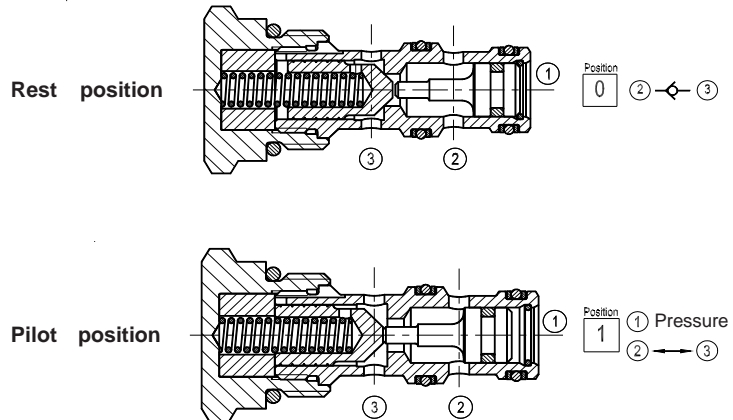
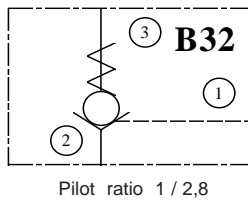
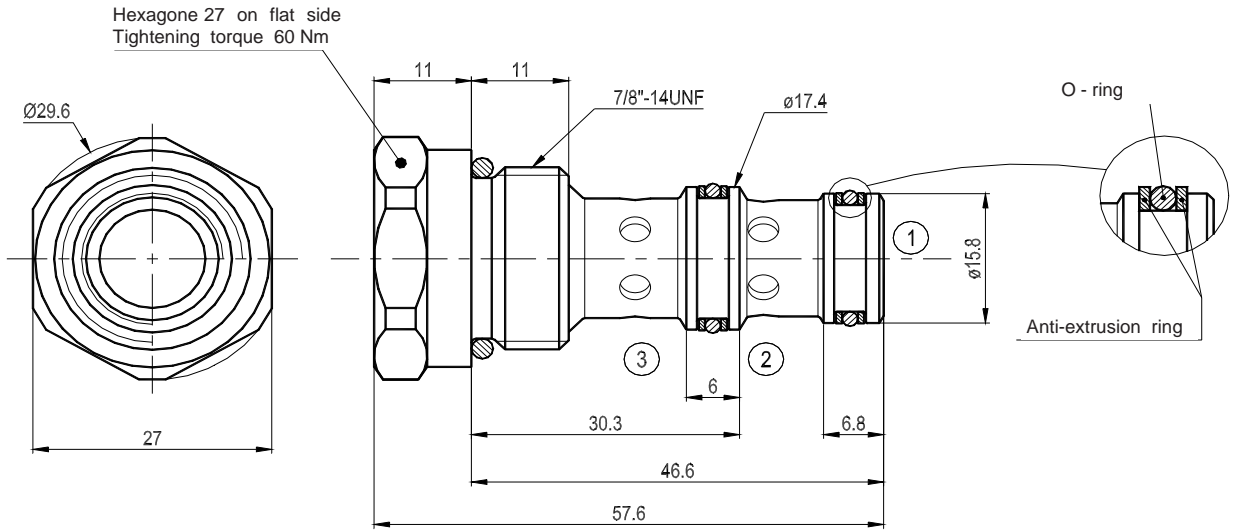
Executed measures: Ambient temperature 22°C +/- 2°C
Temperature of oil at 40°C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

PILOT NON-RETURN VALVES

SIZE 10 - 7/8" 14 UNF

Maximum pressure 300 bar

Maximum flow 40 l/mn



Pressure at opening beginning ② ⇒ ③ ——— | **10 bar - Spring N° 101 283**
 ——— | **4 bar - Spring N° 100 547**

Working: Free outflow from ② ⇒ ③ ③ ⇒ ② blocked up.
 Flow from ③ ⇒ ② possible when pilot pressure applied in ①.

Codification C H D 10 B32 P 10 O N

Size Code 10 = 7/8" 14 UNF **Function code** B32

Standard P **Standard** 10

Standard O = Standard 10 bar
 A = 4 bar

Standard N - Nitril seals -40° + 100°C
 V - Viton seals -20° + 150°C

Temperature : see overleaf
Filtration : ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Page 234 / 00

Weight: 0,4 Kg

Mounting on monoblock: Page 139 / 00
Mounting on MBS®: Page 187 / 00

Seal kits: N° 200 016

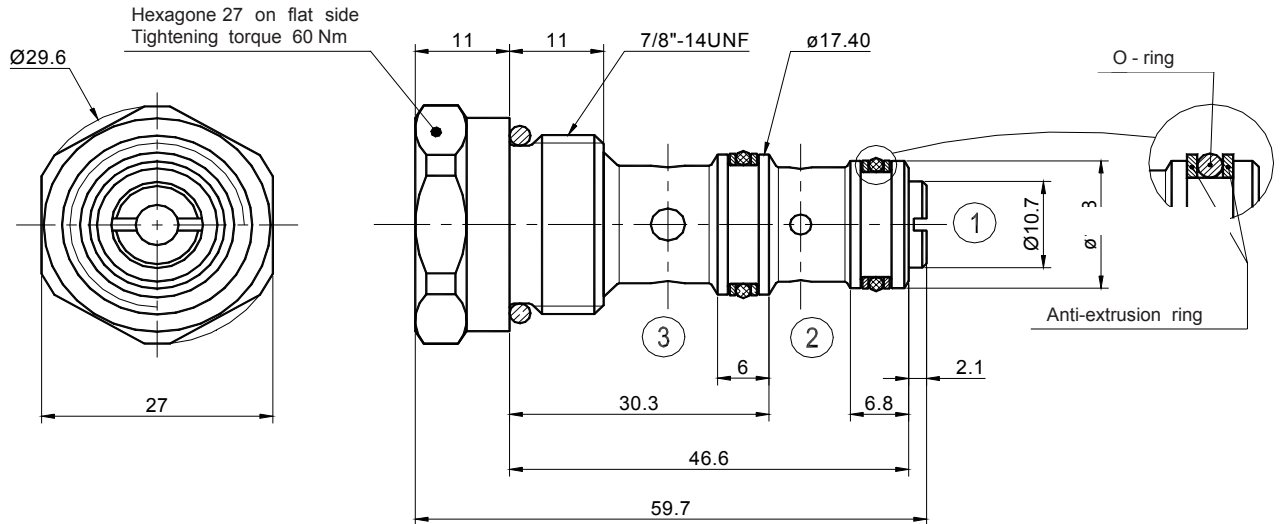
F.T. 50 1145

SHUTTLE VALVE

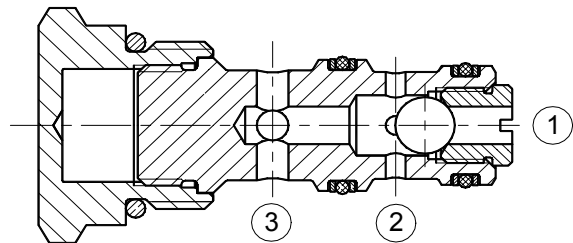
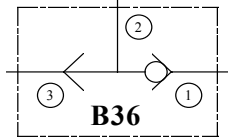
SIZE 10 - 7/8" 14UNF

Maximum pressure: 300 bar

Maximum flow: 40 l/mn



- Intake in ①
- Intake in ③
- Output in ②



Working: Pressure in ① ⇒ ② - ③ blocked.

Pressure in ③ ⇒ ② - ① blocked.

Codification	C H D 10 B36 P 10 O N
Size code	10 = 7/8" 14 UNF
Function code	B36
Standard	P 10 O N

Standard

Standard

Standard

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 150°C

Characteristics: see overleaf

Temperature: see overleaf

Filtration: ISO code 16/13 - Page 230 / 00

Mounting position: without restriction

Cavities: Page 233 / 00

Weight: 0,3 Kg

Mounting on monoblock: Page 139 / 00

Mounting on MBS@: Page 186 / 00

Seal kits: N° 200 016

F.T 50 1146 1/2

CHARACTERISTICS (cartridge only)

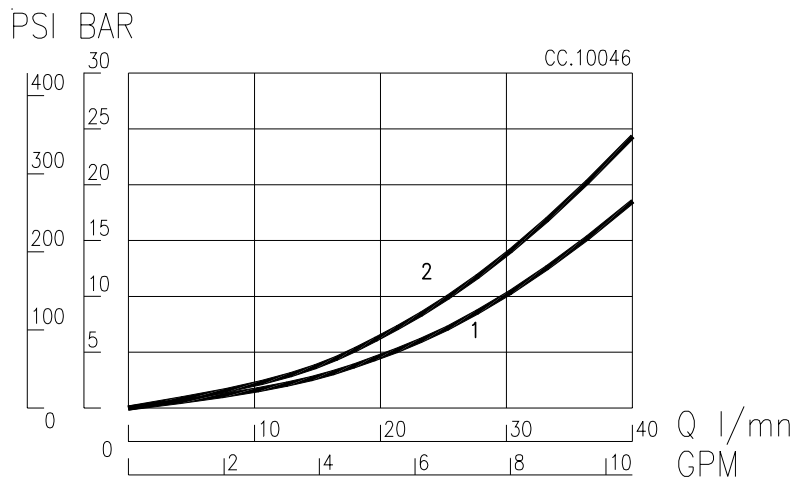
SHUTTLE VALVE

SIZE 10 - 7/8" 14 UNF

Maximum pressure 300 bar

PRESSURE DROP

Type	① ⇨ ②	③ ⇨ ②
CHD 10 B36 P 10 O N	1	2



INTERNAL LEAKAGE at a pressure of 200 bar

0 to 0,25 cm³/mm

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties. Viscosity between 8 and 450 cSt at working temperature.

Working temperature: - 40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
 Temperature of oil at 40°C.
 Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

MOUNTING RECOMMANDATIONS: see **F.T 50 1268** - page 231/00

2 WAYS PILOTED VALVES

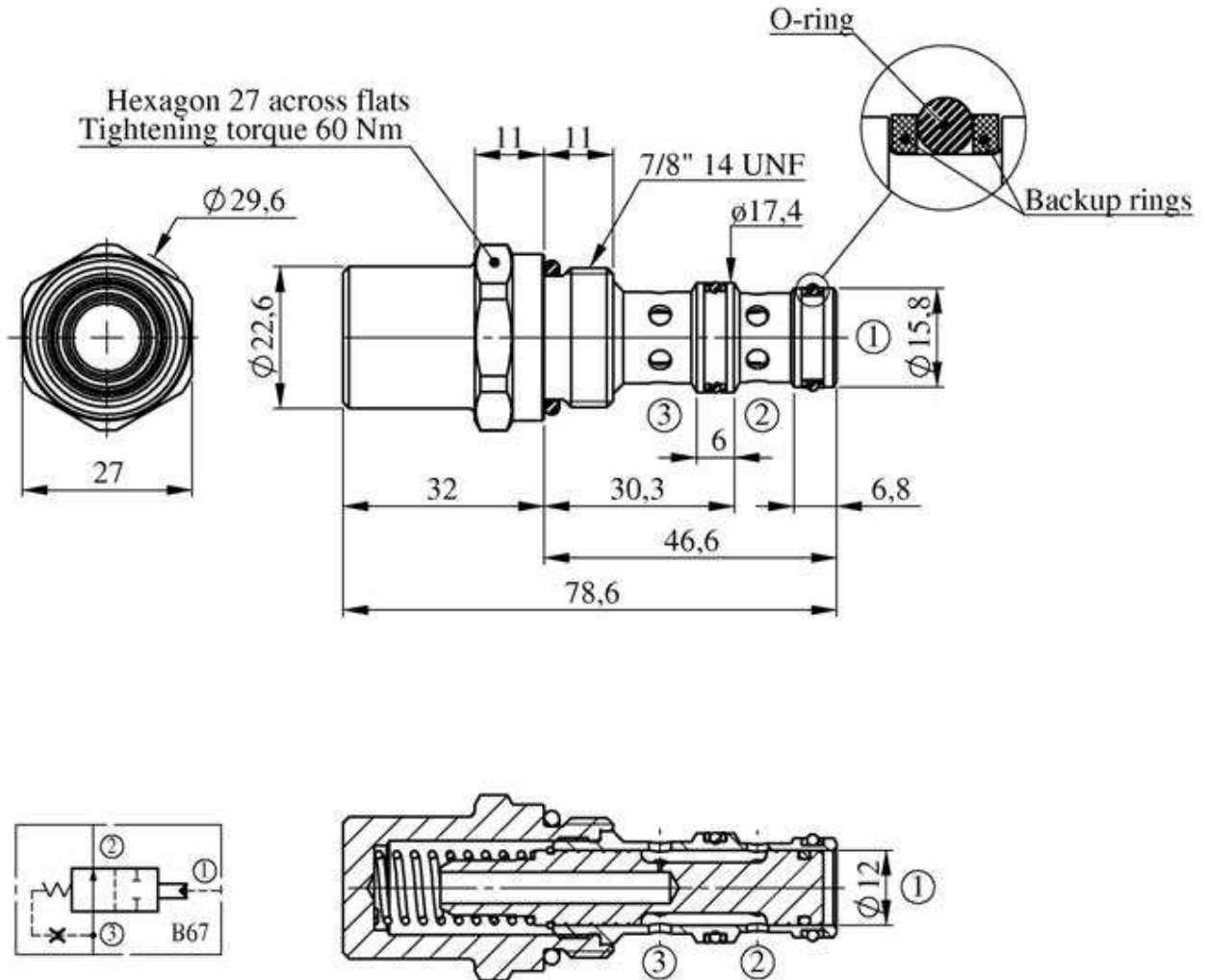
Size 10 - 7/8" 14 UNF

CHD 10 B67 T10BN
CHD 10 B67 T10CN

Ref. T301304 (6 bar pilote pressure)
Ref. T301296 (12 bar pilote pressure)

Maximum pressure: 300 bar

Maximum flow: 60 l/mn



- Pilot pressure:** **6 bar pilote pressure (B)** = Beginning of piloting 6 bar - end of piloting 6,7 bar.
12 bar pilote pressure (C) = Beginning of piloting 12 bar - end of piloting 14,4 bar.
- Description:** Pressure compensator 2 ways. for regulating flow regardless pressure by maintaining a constant differential pressure between 1 and 3 through a calibrated orifice.
- Functioning:** for a pressure at 1 below the pilote pressure, flow is allowed from 3 to 2 when the pressure at 1 reaches the pilote pressure, the section for the flow from 3 to 2 decreases progressively until complete closing at end pressure piloting.

F.T 50 1387 1/2

Codification	C H D 10 B67 T 10 B N
Size code	10 = 7/8" 14 UNF
Funktion code	B = 6 bar C = 12 bar
Standard	
Control mode	10 = fixed
	N - Std NBR seals - 40° + 100°C V - Viton seals - 20° + 150°C

Characteristics: see overleaf
Température: see overleaf
Filtration: recommended 25 microns- Page 230 / 00
Mounting position: without restriction
Cavities: Page 234 / 00
Weight: 0,2 Kg

Mountage on MBS®:
Seal kit: N° 200 561

Fluids : Mineral based or synthetic (seals compatible), with good lubrication properties.
With a viscosity between 8 and 450 cSt at functioning temperature.

2 WAYS PILOTED VALVES

Size 10 - 7/8" 14 UNF

CHD 10 B67 T10BN

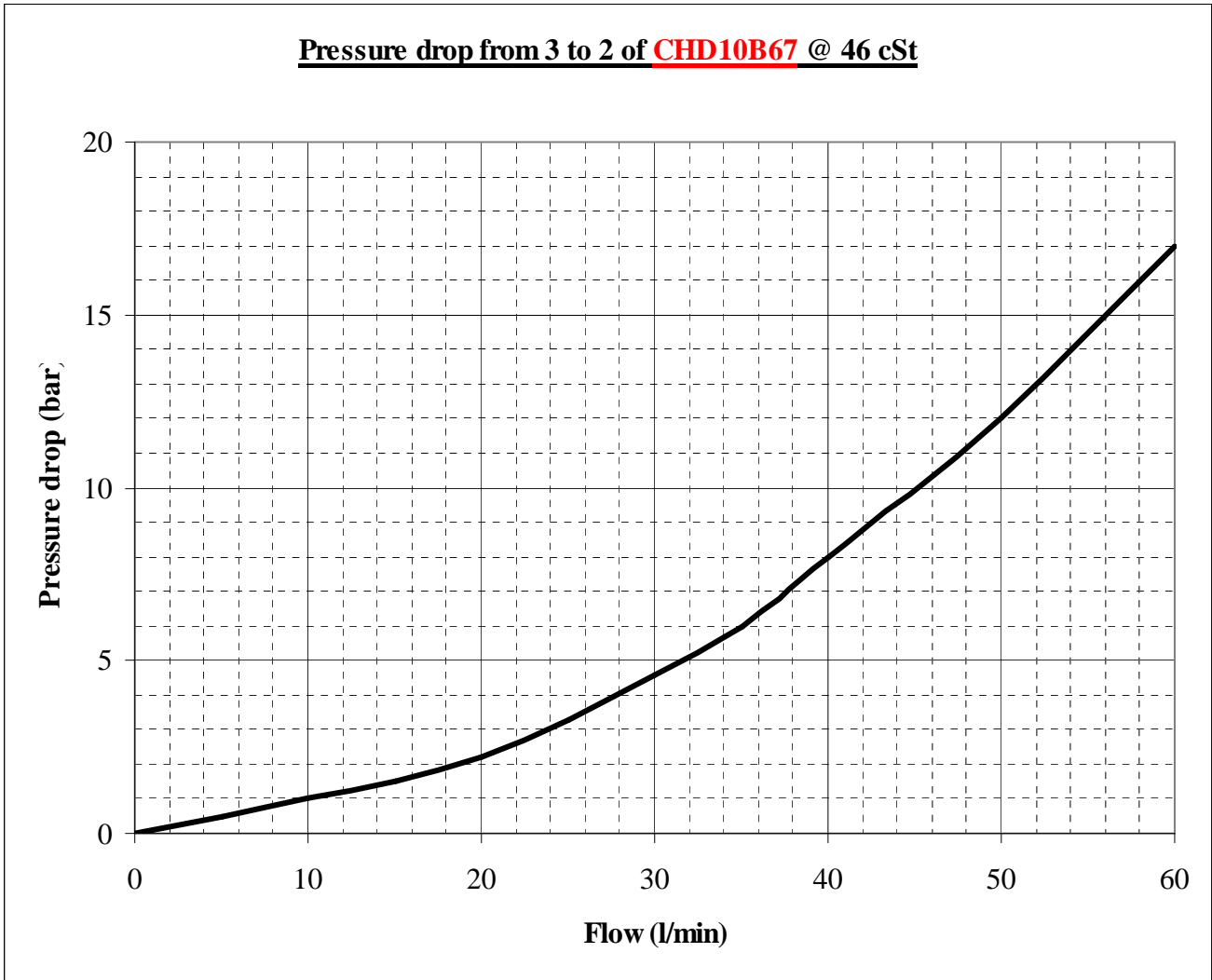
Ref. T301304 (6 bar pilote pressure)

CHD 10 B67 T10CN

Ref. T301296 (12 bar pilote pressure)

Maximum pressure: 300 bar

Maximum flow: 60 l/mn

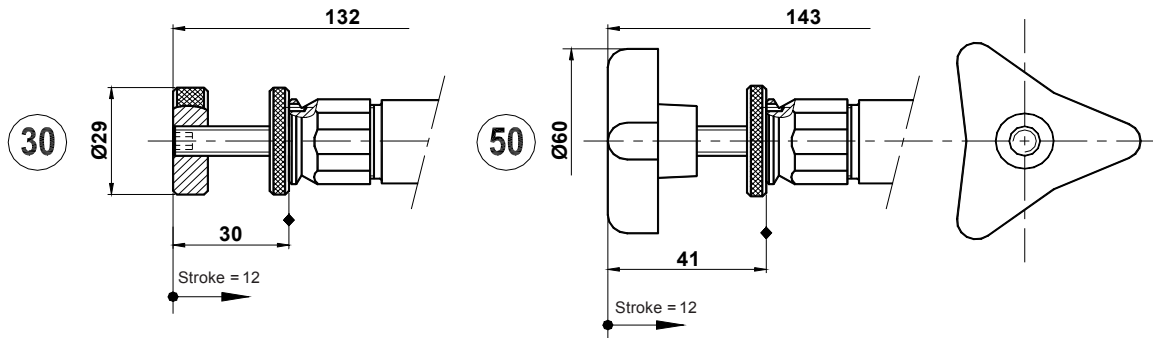
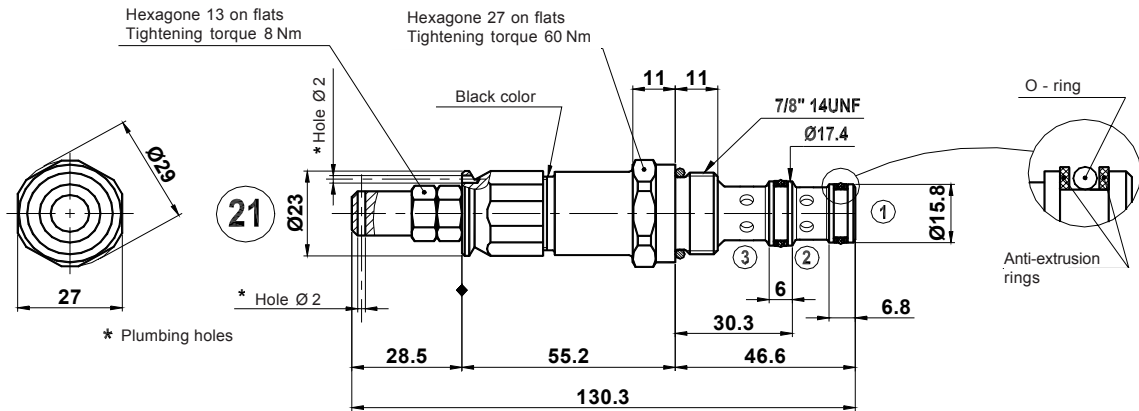


PILOT 3 WAYS VALVES

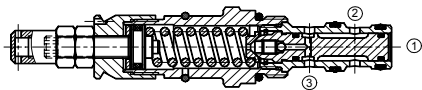
Maximum pressure: 300 bar

SIZE 10 - 7/8" 14UNF

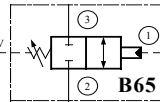
Maximum flow: 60 l/mn



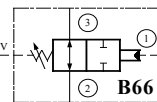
External vent



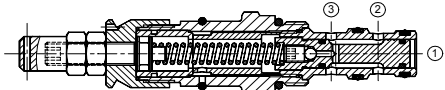
CHD 10 B65 P21 A N - NF



NF

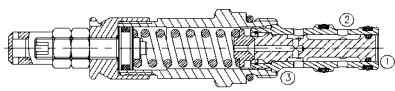


NO

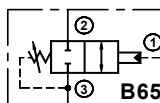


CHD 10 B66 P21 A N - NO

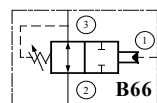
Internal drainage



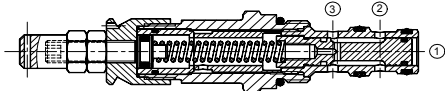
CHD 10 B65 P21 B N - NF



NF



NO



CHD 10 B66 P21 B N - NO

① pilot port
② and ③ distribution ports

Pilot pressure: **Min adjustment** = Pilot start 6 bar - pilot end 15 bar.

Max adjustment = Pilot start 120 bar - pilot end 130 bar.

Description: A cylindrical spool in treated steel called back by spring force slides in a treated steel housing.

Working: **B65** = rest position ② and ③ blocked up - pilot position ② ↔ ③ .

B66 = rest position ② ↔ ③ - pilot position ② and ③ blocked.

Pilot section: 78,5 mm²

Codification	C	H	D	10	B66	P	21	A	N
Size Code	_____								
10 = 7/8" 14 UNF									
Function code	_____								
Standard	_____								
Control mode	_____								
21 = Screw for plumbing									
30 = wheel									
50 = wheel 3 branches									
	Drainage								
	A = External								
	B = Internal								
	N - Nitril seals -40° + 100°C								
	V - Viton seals -20° + 150°C								

Characteristics: see overleaf
Temperature: see overleaf
Filtration: 25microns recommended - Page 231 / 00
Mounting position: without restriction
Cavities: Page 234 / 00
Weight: 0,2 Kg
Mounting on monoblock: Page 140 / 00
Mounting on MBS®: Page 188 / 00
Seal kit: N° 200 016

CHARACTERISTICS (cartridge only)

**PILOT 3 WAYS VALVES
SIZE 10 - 7/8" 14 UNF**

Normally closed

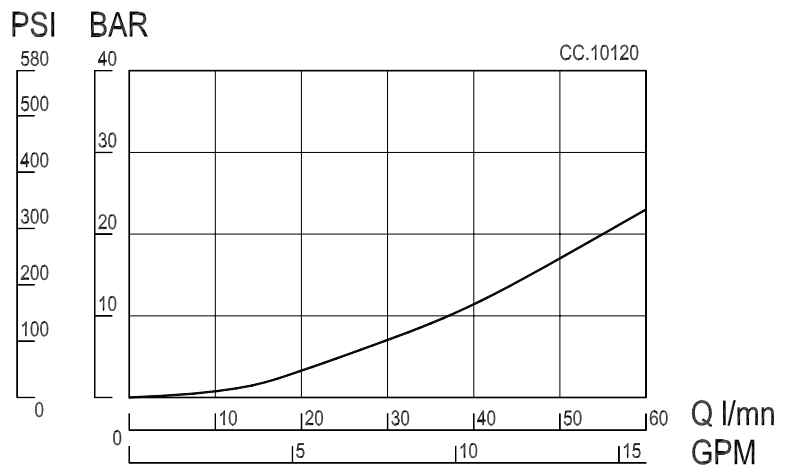
Normally open

CHD 10 **B65** P21 A N
CHD 10 **B65** P21 B N

CHD 10 **B66** P21 A N
CHD 10 **B66** P21 B N

PRESSURE DROP

Type	② ⇒ ③	③ ⇒ ②
B65	1	1
B66	1	1



**PERMISSIBLE INTERNAL LEAKAGE
at a pressure of 200 bar**

Type	② ⇒ ③	③ ⇒ ②
B65	0	80 cm ³ /mn
B66 in pilot position	0	80 cm ³ /mn

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

MOUNTING RECOMMENDATIONS: see **F.T 50 1266** - page 232 / 00

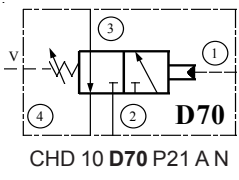
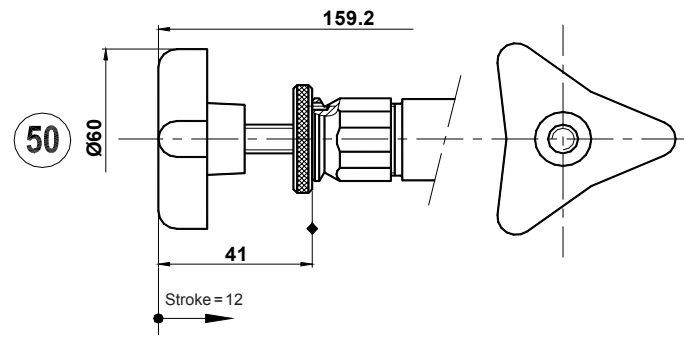
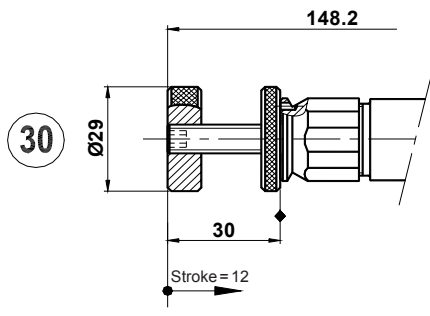
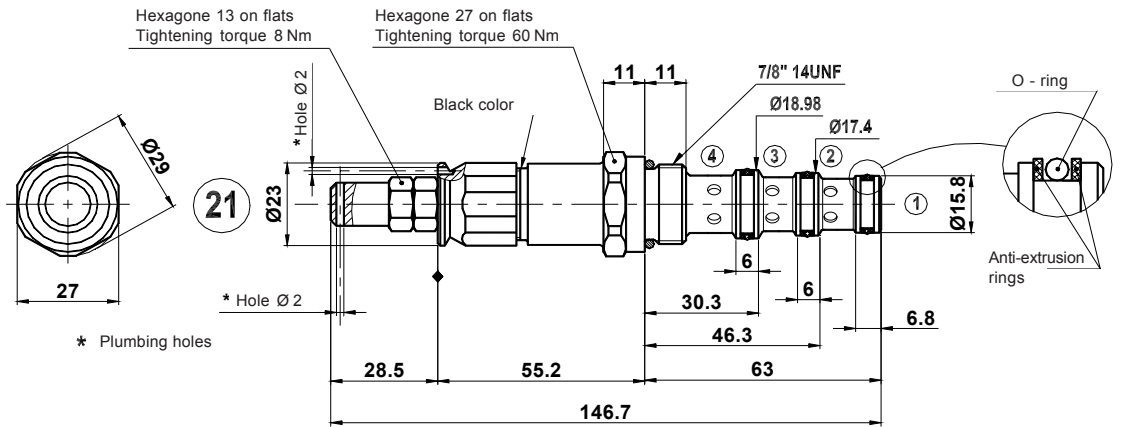
F.T 50 1147 2/2

PILOT 3 WAYS VALVES

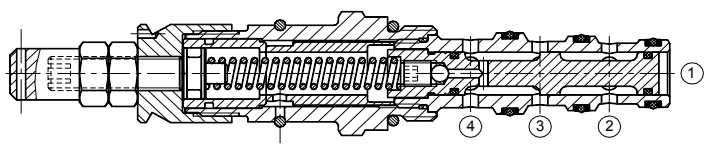
Maximum pressure: 300 bar

SIZE 10 - 7/8" 14UNF

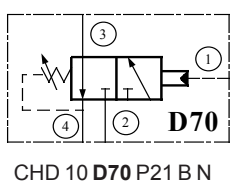
Maximum flow: 60 l/mn



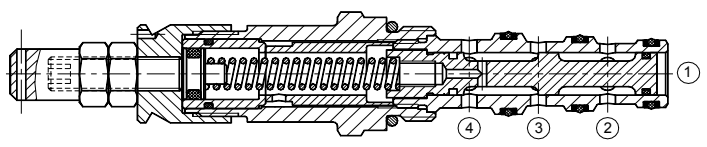
External vent



① Pilot port



Internal drainage



Pilot pressure: **Min adjustment** = Pilot start 4,3 bar - pilot end 8,8 bar.
Max adjustment = Pilot start 17 bar - pilot end 21 bar.

Description: A cylindrical spool in treated steel called back by spring force slides in a treated steel housing.

Working: Rest ③ ↔ ④ ② blocked up Pilot ② ↔ ③ ④ blocked up

Codification	C H D 10 D70 P 21 A N
Size code	_____
10 = 7/8" 14 UNF	
Function code	_____
Standard	_____
Control mode	_____
21 = screw for plumbing	
30 = wheel	
50 = wheel 3 branches	
	Drainage
	A = External
	B = Internal
	N - Nitril seals -40° + 100°C
	V - Viton seals -20° + 150°C

Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 230 / 00
Mounting position: without restriction
Cavities: Page 234 / 00
Weight: 0,3 Kg
Mounting on monoblock: Page 141 / 00
Mounting on MBS®: Page 188 / 00
Seal kit: N° 200 018

F.T 50 1148 1/2

CHARACTERISTICS (cartridge only)

PILOT 3 WAYS VALVES

SIZE 10 - 7/8" 14 UNF

External vent

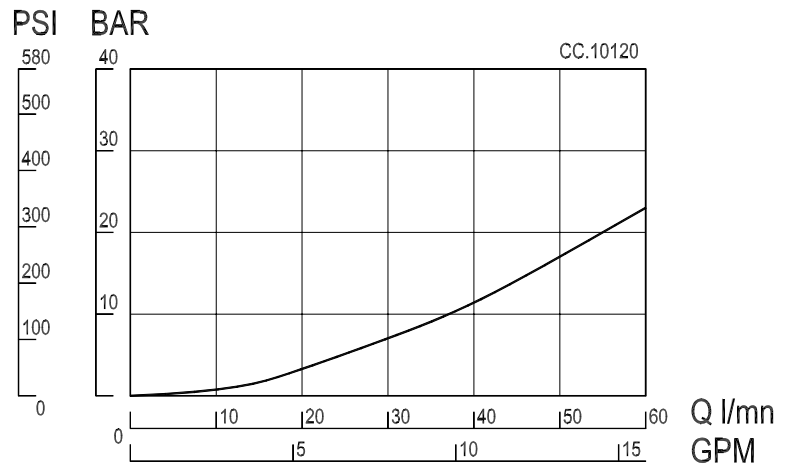
CHD 10 **D70** P21 A N

Internal drainage

CHD 10 **D70** P21 B N

PRESSURE DROP

Type	② ⇒ ③	③ ⇒ ④
D70 P21 AN	1	1
D70 P21 BN	1	1



PERMISSIBLE INTERNAL LEAKAGE at a pressure of 200 bar

Type	① ⇒ ②	② ⇒ ③ ③ ⇒ ④
D70 P21 AN external vent	0	80 cm ³ /mn
D70 P21 BN internal drainage	0	80 cm ³ /mn

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: - 40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

MOUNTING RECOMMENDATIONS: see **F.T 50 1266** - page 232 / 00

3 WAYS PILOTED VALVE

Size 10 - 7/8" 14 UNF

CHD 10 D71 T10BN

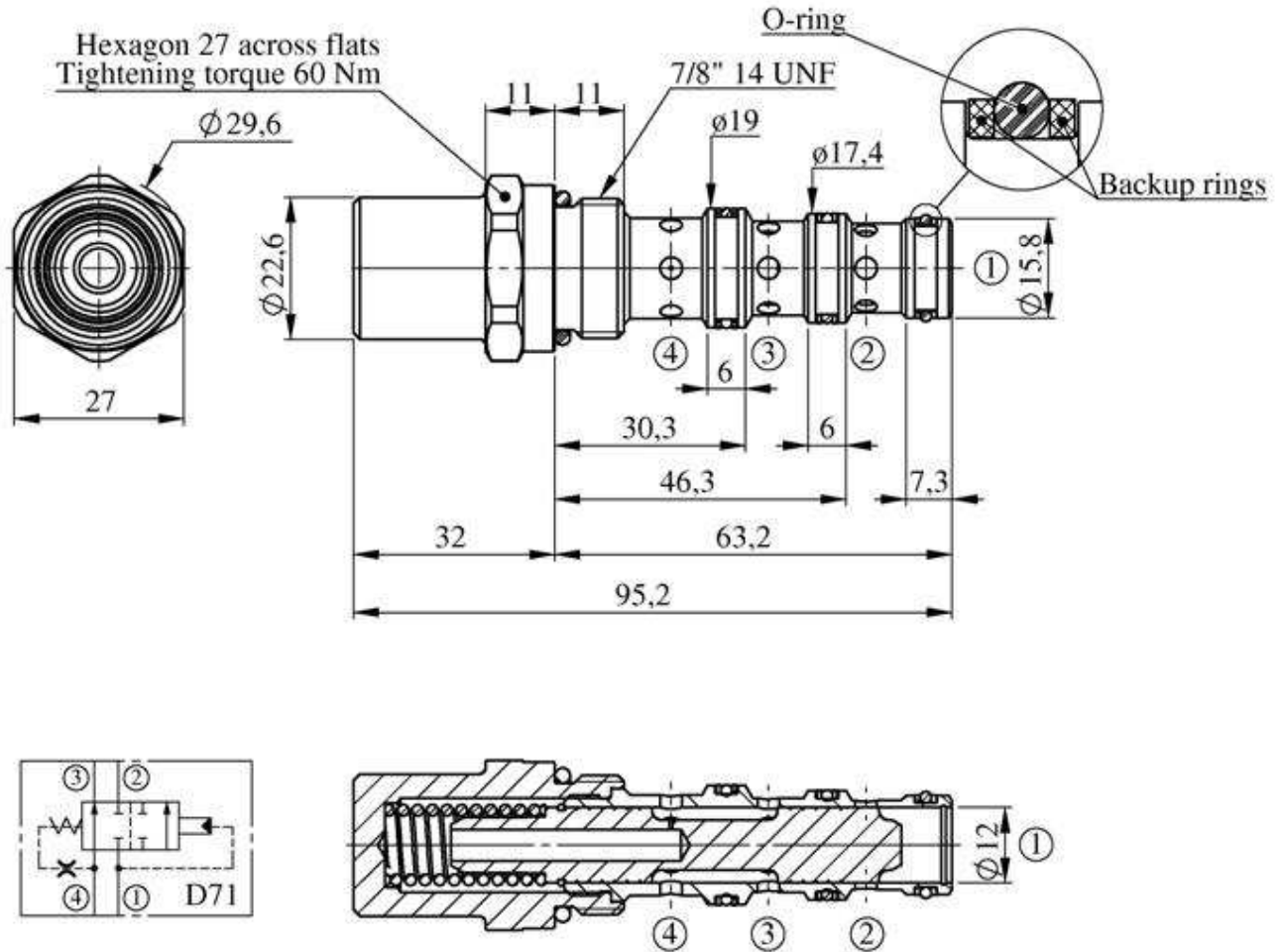
Ref. T301304 (pilote pressure 6 bar)

CHD 10 D71 T10CN

Ref. T301296 (pilote pressure 12 bar)

Maximum pressure: 300 bar

Maximum flow: 60 l/mn



- Pilot pressure:** **6 bar pilot pressure** = Beginning of piloting 6 bar - end of piloting 6,7 bar.
12 bar pilot pressure = Beginning of piloting 12 bar - end of piloting 14,4 bar.
- Description:** Pressure compensator 3 ways. For regulating flow regardless pressure with excess port by maintaining a constant differential pressure between 1 and 4 through a calibrated orifice.
- Functioning:** for a pressure at 1 below the pilote pressure, flow is allowed from 4 to 3 and blocked from 1 to 2 when pressure at 1 reaches the pilote pressure, the section for the flow from 4 to 2 decreases and the section for the flow from 1 to 2 increases.

Codification	C H D 10 D71 T 10 B N
Size code	_____
10 = 7/8" 14 UNF	_____
Funktion code	_____
Standard	_____
Control mode	_____
10 = fixed	_____
	Drainage B = 6 bar C = 12 bar
	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C

Characteristics: see overleaf
Température: -40 °C + 100 °C with std NBR seals
Filtration: recommended 25 microns- Page 230 / 00
Installation recommendation: without restriction
Cavity: Page 234 / 00
Weight: 0,2 Kg
Mounting on MBS®:
Seals kit: N° 200 018

F.T 50 1384 1/2

3 WAYS PILOTED VALVE

Size 10 - 7/8" 14 UNF

CHD 10 **D71 T10BN**

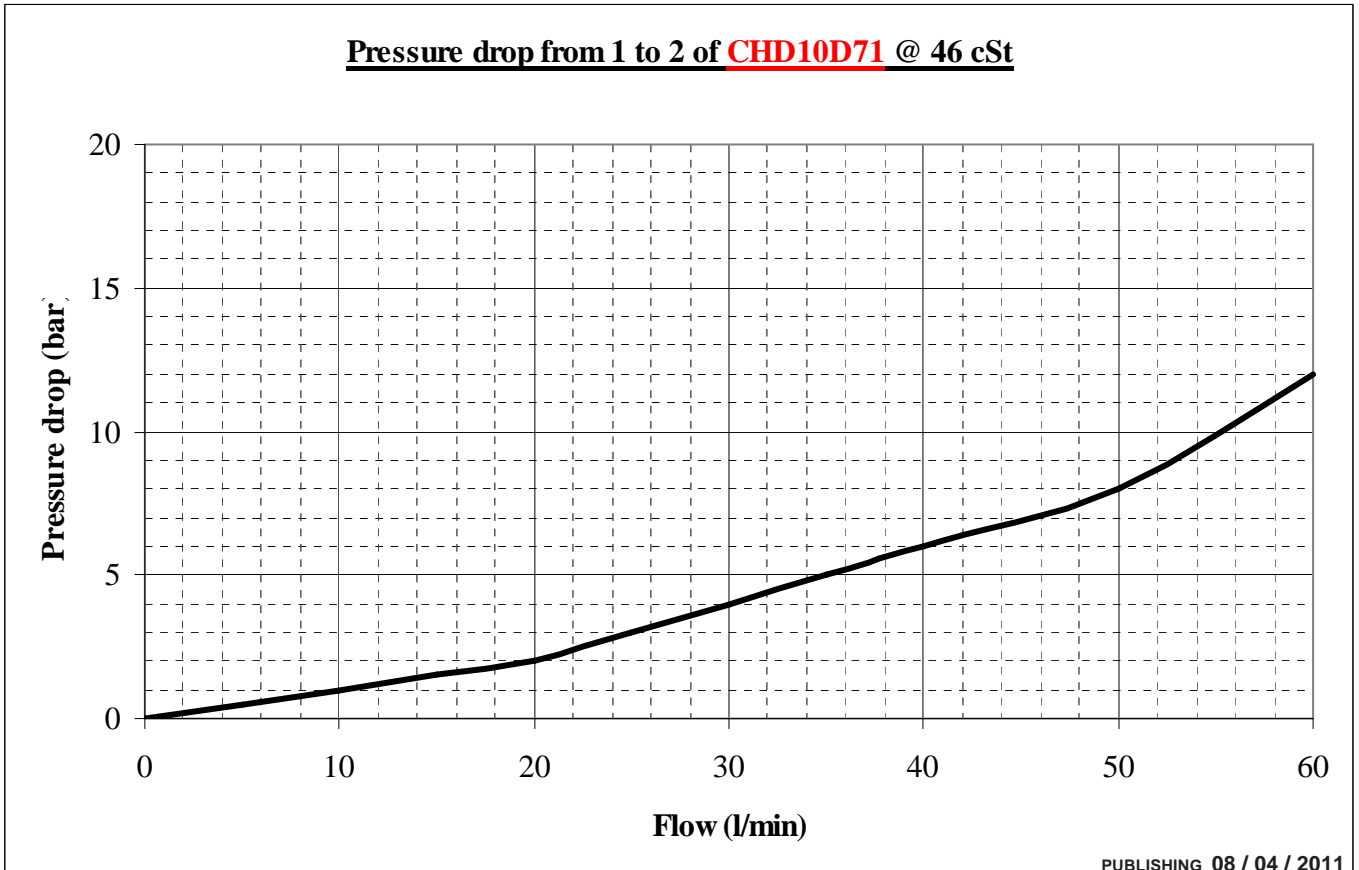
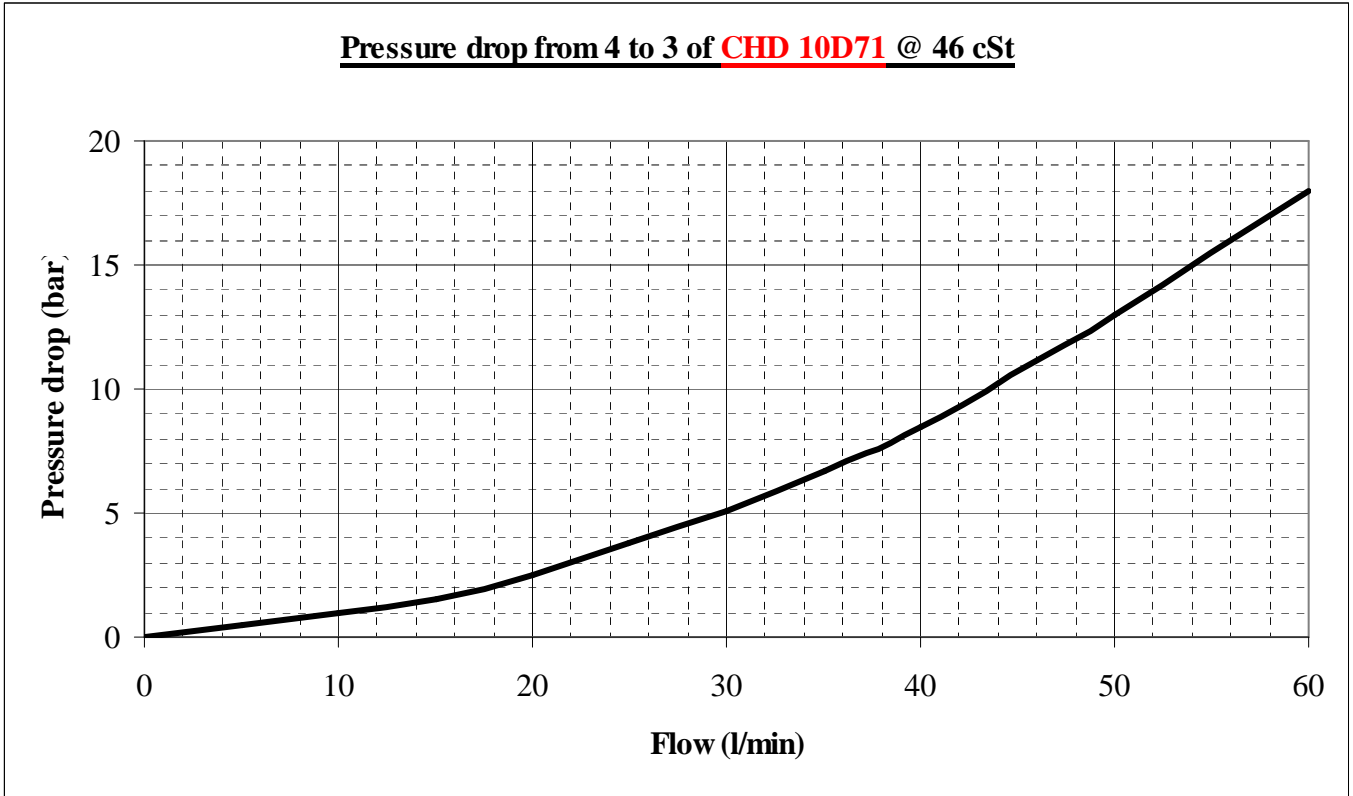
Ref. T301304 (pilote pressure 6 bar)

CHD 10 **D71 T10CN**

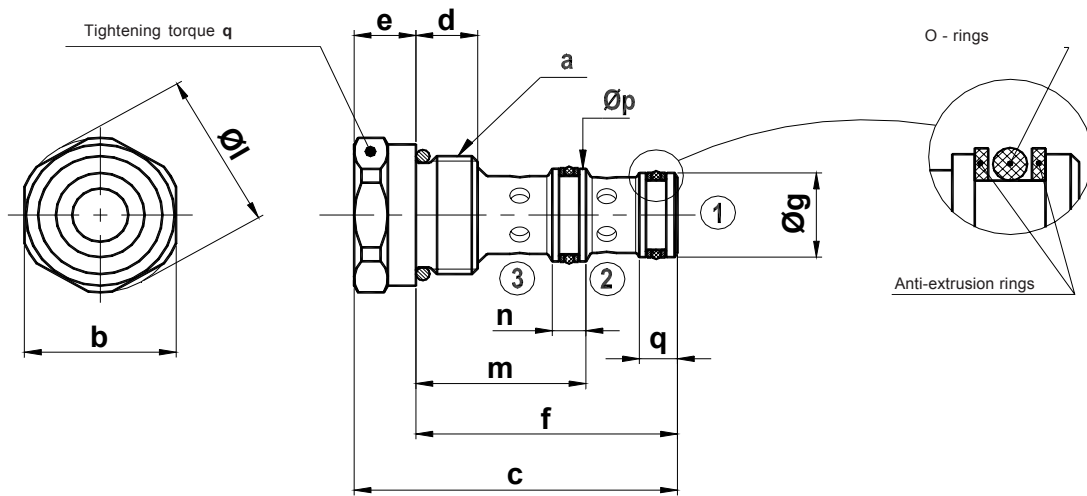
Ref. T301296 (pilote pressure 12 bar)

Maximum pressure: 300 bar

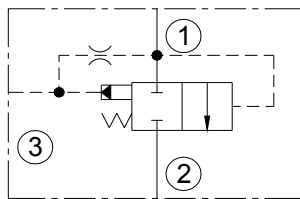
Maximum flow: 60 l/mn



LOGIC ELEMENTS

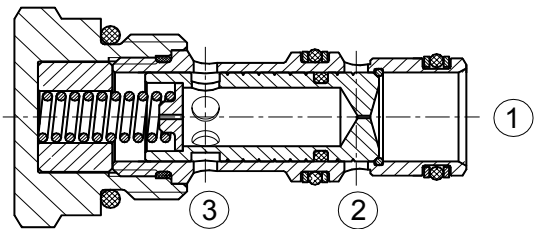


Designation	Size SAE J475	a Implantation	Q Max l/mn	Max. press bar	b	c	d	e	f	g	k tigh.torque	l	m	n	p	q	Weight Kg
CHD 10 B30	10	7/8"-14UNF	60	300	27	57,6	11	11	46,6	15,8	60	29,6	30,3	6	17,4	6,8	0,4
CHD 16 B30	16	1" 5/16-12UN	100	300	38	93	14,5	20	73	26,92	85	44	44	7	28,52	8	0,8



B30

Pressure subtraction pilot



Normally closed - 2 Ways + 1 pilot way

Description: Can be used as pilot by-pass valve, pilot flow control valve, pilot pressure relief valve.

Working: Pressure in ① towards valve or tank in ②
 ① ⇨ ② blocked up when ③ closed
 ① ⇨ ② when ③ ⇨ T

Codification C H D 10 B30 T 10 O N

Size Code

10 = 7/8" 14 UNF

16 = 1" 5/16 12 UN

Function code
Standard

Standard

Adjustment
10 = fixed

N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 150°C

Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231/ 00
Mounting position: without restriction
Recommendations for valves into the cavities: Page 234 / 00

Mounting on monoblock: Page 142 / 00
Mounting on MBS® : Page

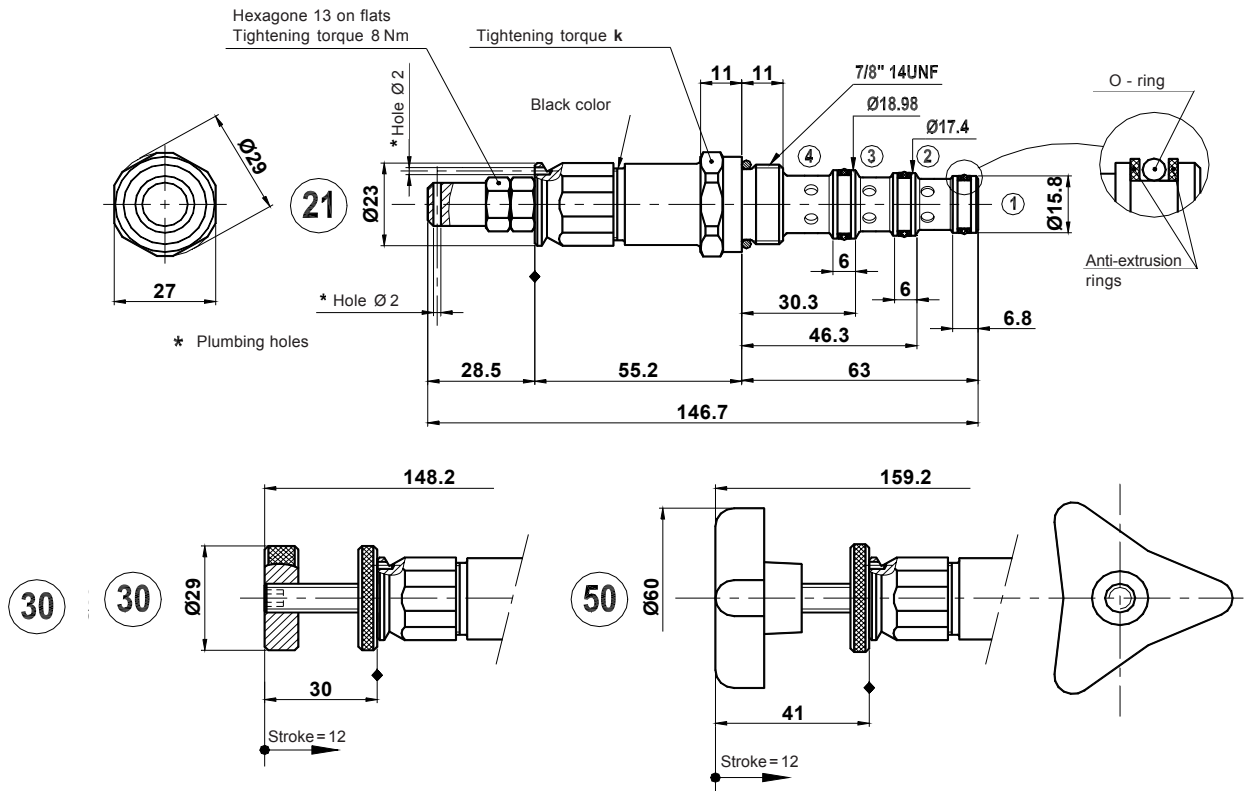
Seal kits: Size 10: N° 200 016 Size 16: N° 200 122

PRESSURE CONTROL

Maximum pressure 300 / 350 bar (depending on the relief valve type)

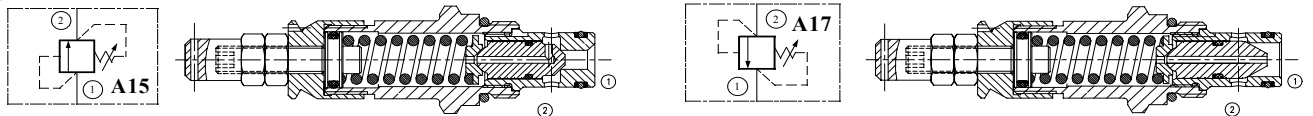
		Max flow in l/mn	N° Page
DIRECT - ACTING RELIEF VALVES	CMD 08 A15 CMP 58 A15	30	087 / 00
	CMD 10 A15	60	087 / 00
INVERTED RELIEF VALVES	CMP 08 A17 CMP 58 A17	30	087 / 00
	CMP 10 A17	60	087 / 00
PILOT RELIEF VALVES	CHP 08 A16 CHP 58 A16	30	089 / 00
	CHP 10 A16	60	089 / 00
	CHP 16 A16	120	091 / 00
PRESSURE REDUCING VALVES	CHP 08 B18	25	093 / 00
	CHP 10 B18	40	093 / 00
	CHP 16 B18	60	093 / 00
PILOT PRESSURE REDUCING VALVE with INVERSE SAFETY FUNCTION	CHP 10 B21	40	094 / 00
PILOT OVERCENTER VALVE	CHP 10 B31	20	095 / 00
PRESSURE RELIEF VALVE with BY-PASS VALVE and INTEGRATED ELECTRIC DRIVE Normally Open - NO and Normally Closed NF 2 ways	CEP 10 A90	60	095 / 01
	CEP 10 A91	60	095 / 03

DIRECT ACTING RELIEF VALVES



Designation	Size SAEJ475	a Port size	Q Max l/mn	Pressure bar min Max	b	c	c1	c2	d	e	f	g	h	j	h tightening torque Nm	i	Weight in Kg
CMP 08 A15	08	3/4"-16UNF	30	10 300	24	113	114,5	122,5	11	13	27	12,65	57,5	23	20	25,8	0,2
CMP 08 A17	08	3/4"-16 UNF	30	10 300	24	113	114,5	122,5	11	13	27	12,65	57,5	23	20	25,8	0,2
CMP 10 A15	10	7/8"-14 UNF	60	10 300	27	115,7	117,2	128,2	11	11	32	15,8	55,2	23	60	29	0,2
CMP 10 A17	10	7/8"-14 UNF	60	10 300	27	115,7	117,2	128,2	11	11	32	15,8	55,2	23	60	29	0,2

Designation	Size METRIC	a Port size	Q Maxi l/mn	Pressure bar min Max	b	c	c1	c2	d	e	f	g	h	j	h tightening torque Nm	i	Weight in Kg
CMP 58 A15	58	M 18 x 1,5	30	10 300	22	113	114,5	125,5	11	13	27	14,95	57,5	23	20	23,8	0,2
CMP 58 A17	58	M 18 x 1,5	30	10 300	22	113	114,5	125,5	11	13	27	14,95	57,5	23	20	23,8	0,2



A15 = Direct acting relief valve (1) ⇒ (2)

A17 = Inverted relief valve (2) ⇒ (1)

Description: A poppet in treated steel with differential section is called back on its seat by a calibration spring.

Working: A15 = Pressure intake in (1) - Return to tank in (2)
 A17 = Pressure intake in (2) - Return to tank in (1)
 The poppet is open when the pressure exceeds the calibration value of the spring.

Codification C M P 10 A17 C 21 O N

Size code 58 = M 14 x 1,5
 08 = 3/4" 16 UNF
 10 = 7/8" 14 UNF

Function code C
Standard 21

Control mode 21 = screw for plumbing
 30 = wheel
 50 = wheel 3 branches

Standard N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 150°C

Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Recommendations for valves mounting into the cavities: Page 232 / 00
Mounting on monoblock: Page 142 / 00
Mounting on MBS® : Page 190 / 00

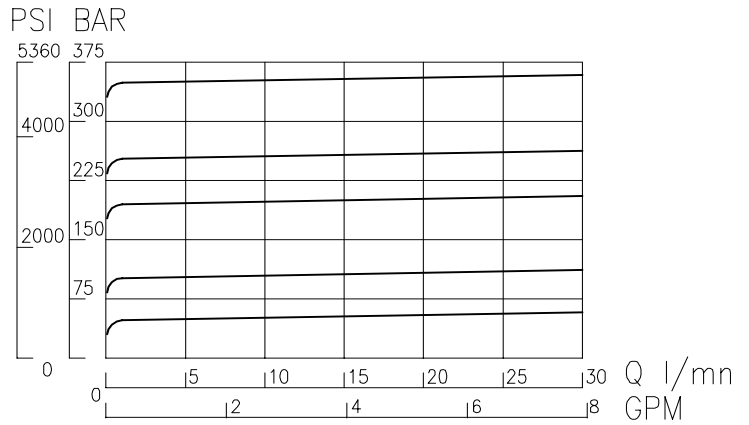
CHARACTERISTICS (cartridge only)

RELIEF VALVES

Maximum pressure 350 bar

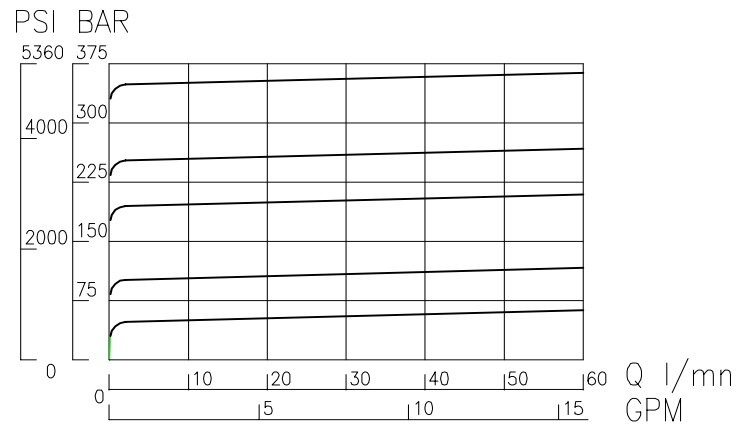
Type		Max flow	Calibration
SAE J475	Metric		
CMP 08 A15	CMP 58 A15	30 l/mn	10 - 300 bar
3/4"-16 UNF	M 18 x 1,5		

Type		Max flow	Calibration
SAE J475	Metric		
CMP 08 A17	CMP 58 A17	30 l/mn	10 - 300 bar
3/4"-16 UNF	M 18 x 1,5		



Type		Max flow	Calibration
SAE J475	Metric		
CMP 10 A15		60 l/mn	10 - 300 bar
7/8"-14 UNF			

Type		Max flow	Calibration
SAE J475	Metric		
CMP 10 A17		60 l/mn	10 - 300 bar
7/8"-14 UNF			



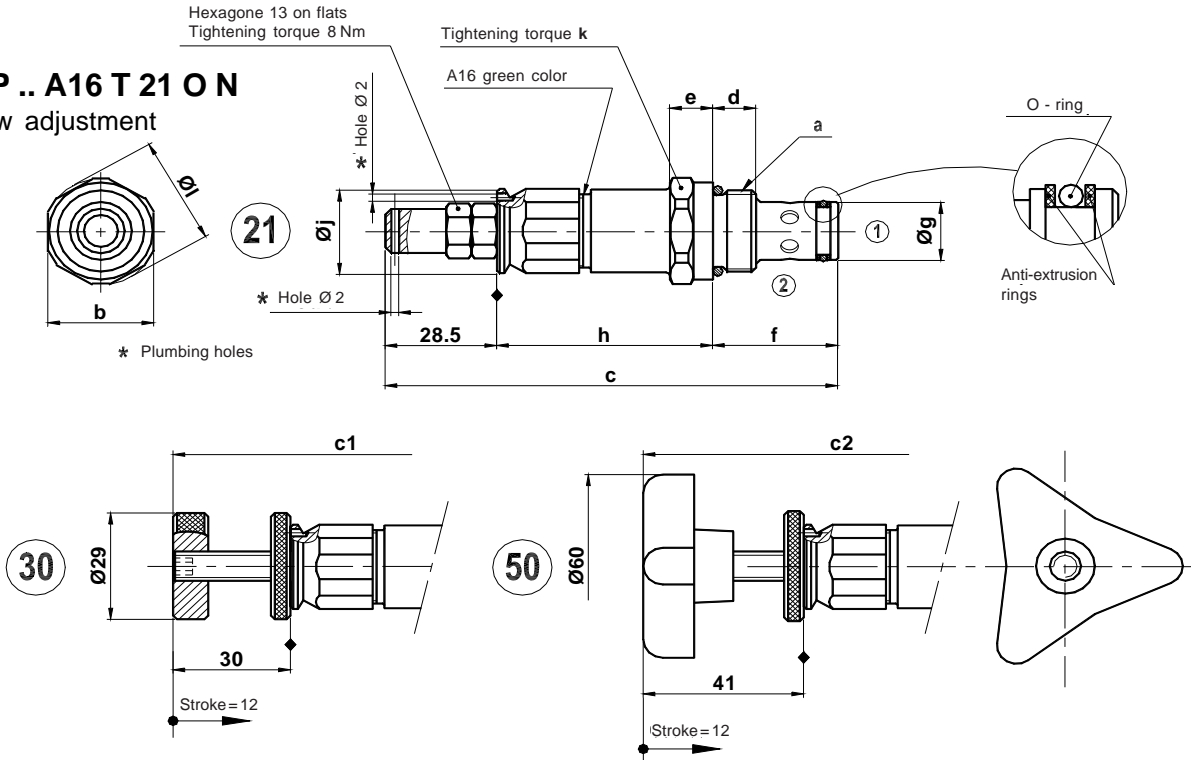
Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: -40°C + 100°C with standard Nitril seals.

Executed measures : Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

PILOT RELIEF VALVES

CHP .. A16 T 21 O N screw adjustment

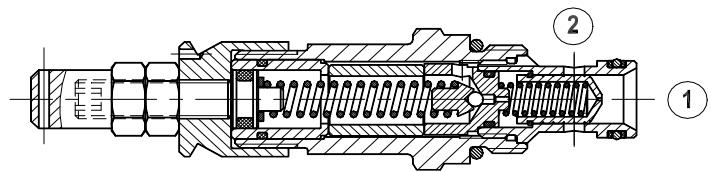
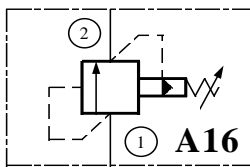


CHP .. A16 T 30 O N wheel adjustment

CHP .. A16 T 50 O N 3 branches wheel

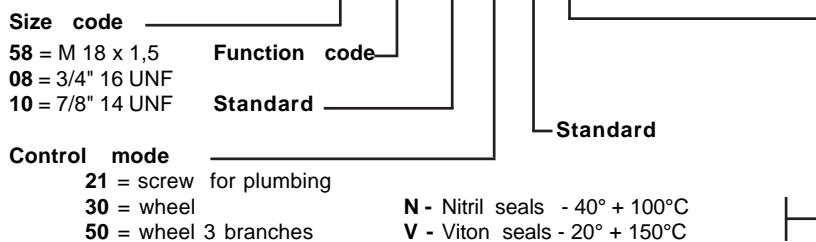
Designation	Size SAEJ475	a Port size	Q Max l/mn	Pressure bar min Max	b	c	c1	c2	d	e	f	g	h	j	h tightening torque Nm	Weight in Kg
CHP08 A16	08	3/4"-16UNF	30	10 300	24	113,5	115	126	11	11	27	12,65	58	23	20	0,2
CHP08 A16	10	7/8"-14 UNF	60	10 300	27	116,4	117,9	128,9	11	11	32	15,8	55,9	23	60	0,2

Designation	Size METRIC	a Port size	Q Max l/mn	Pressure bar min Max	b	c	c1	c2	d	e	f	g	h	j	h tightening torque Nm	Weight in Kg
CHP58 A16	58	M18x1,5	30	10 300	22	113,7	115,2	126,2	11	11	27	14,95	58,2	23	20	0,2



Working: Pressure in ① - Return in ② towards tank ② ⇔ ① blocked

Codification C H P 10 A16 T 21 O N



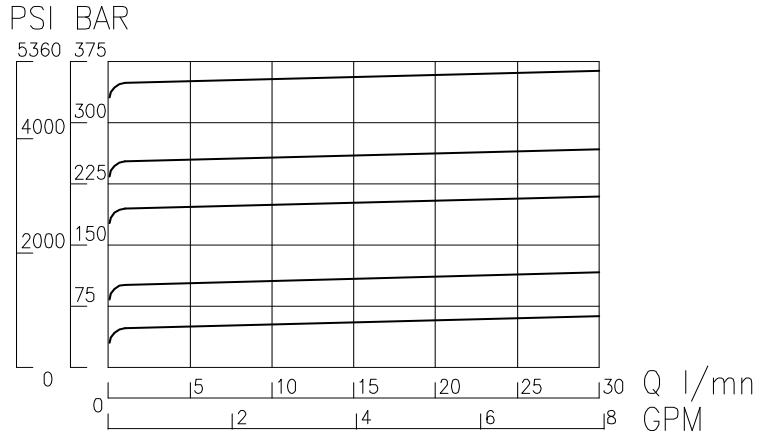
Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Page 233 / 00 (T08/10)-238 / 00 (T.58)
Recommendations for valves mounting into the cavities: Page 232 / 00
Mounting on monoblock: Page 142 / 00
Mounting on MBS® : Page 190 / 00

Seal kits: Size 58: N° 200 110 Size 08: N° 200 104 Size 10: N° 200 014

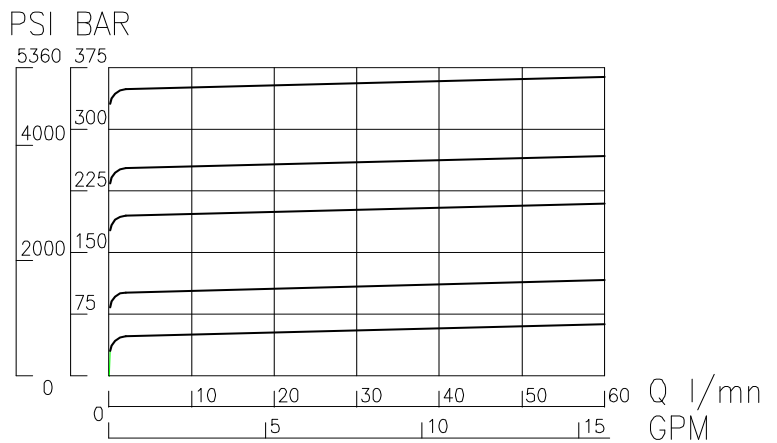
CHARACTERISTICS (cartridge only)

RELIEF VALVES Maximum pressure 300 bar

Type		Max flow	Calibration
SAE J475	Metric		
CHP 08 A16	CHP 58 A16	30 l/mn	10 - 300 bar
3/4"-16 UNF	M 18 x 1,5		



Type		Max flow	Calibration
SAE J475	Metric		
CHP 10 A16		60 l/mn	10 - 300 bar
7/8"-14 UNF			



Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

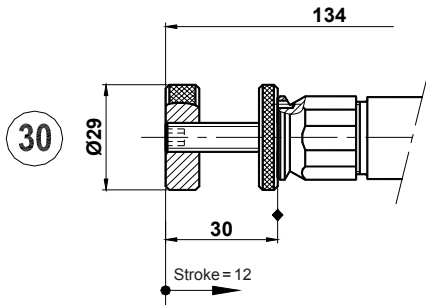
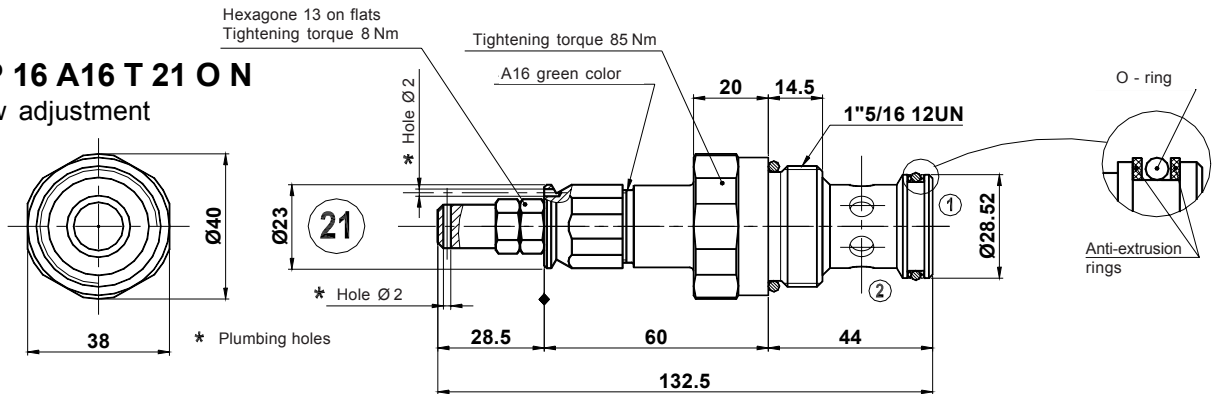
Working temperature: - 40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

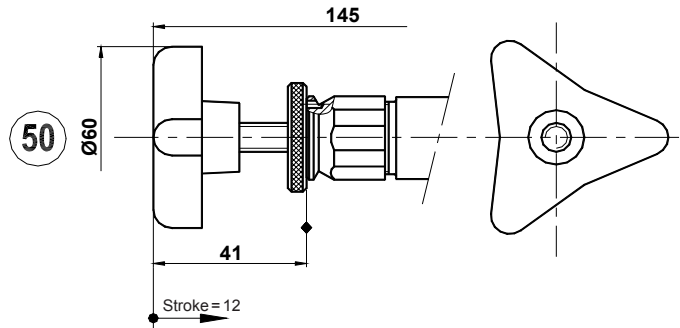
F.T. 50 1152 2/2

PILOT RELIEF VALVES

CHP 16 A16 T 21 O N screw adjustment

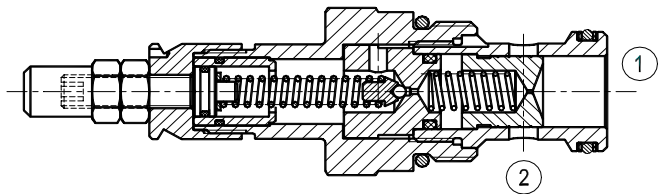
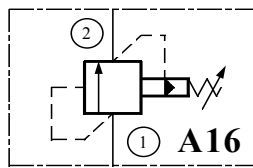


CHP16 A16 T 30 O N wheel adjustment



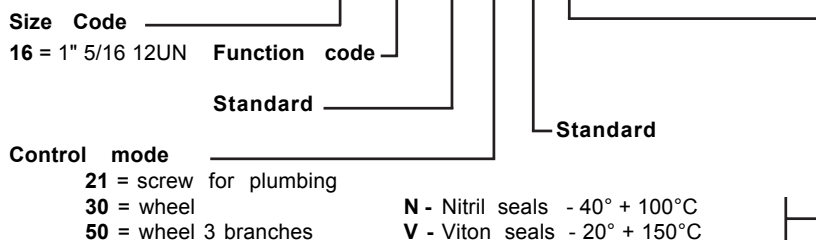
CHP 16 A16 T 50 O N 3 branches wheel adjustment

Designation	Size SAEJ475	a Port size	Q Maxi l/mn	Pressure bar mini Max.	b	c	c1	c2	d	e	f	g	h	j	k Tightening torque Nm	weight in Kg
CHP 16 A16	16	1"5/16-12UN	120	10 300	38	134,5	136	147	14,5	20	44	28,52	62	23	85 Nm	0,4



Working: Pressure in ① - Return in ② towards tank ② ⇔ ① blocked up

Codification C H P 16 A16 T 21 O N



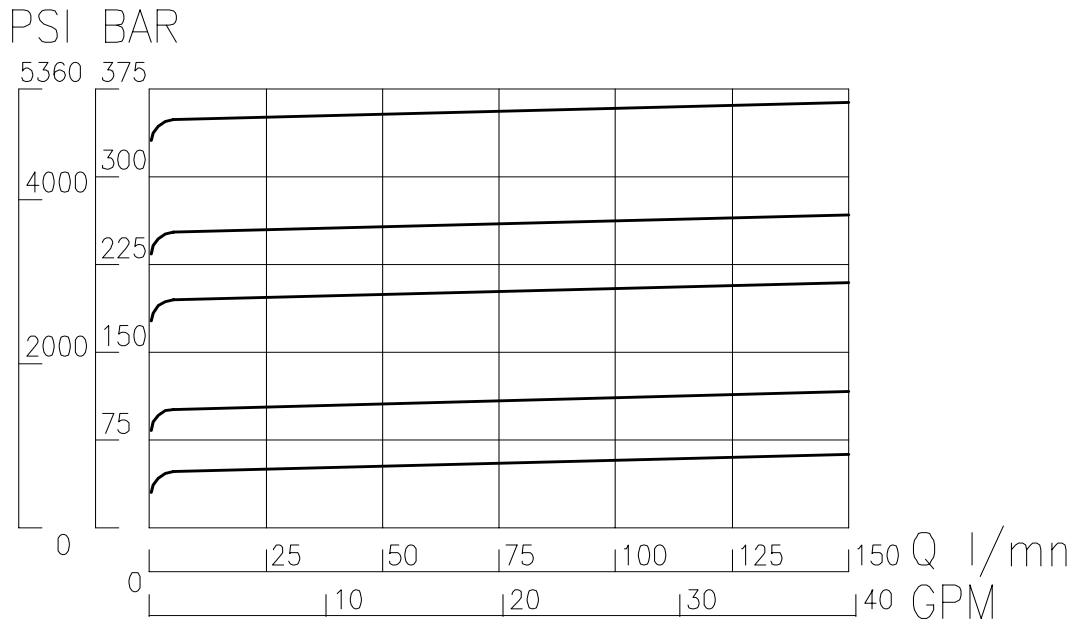
Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Page 233 / 00
Recommendations for valves mounting into the cavities: Page 232 / 00
Mounting on monoblock: Page 142 / 00
Mounting on MBS@: Page 190 / 00
Seal kit: N° 200 120

F.T. 50 1153 1/2

CHARACTERISTICS (cartridge only)

RELIEF VALVES

Maximum pressure 300 bar



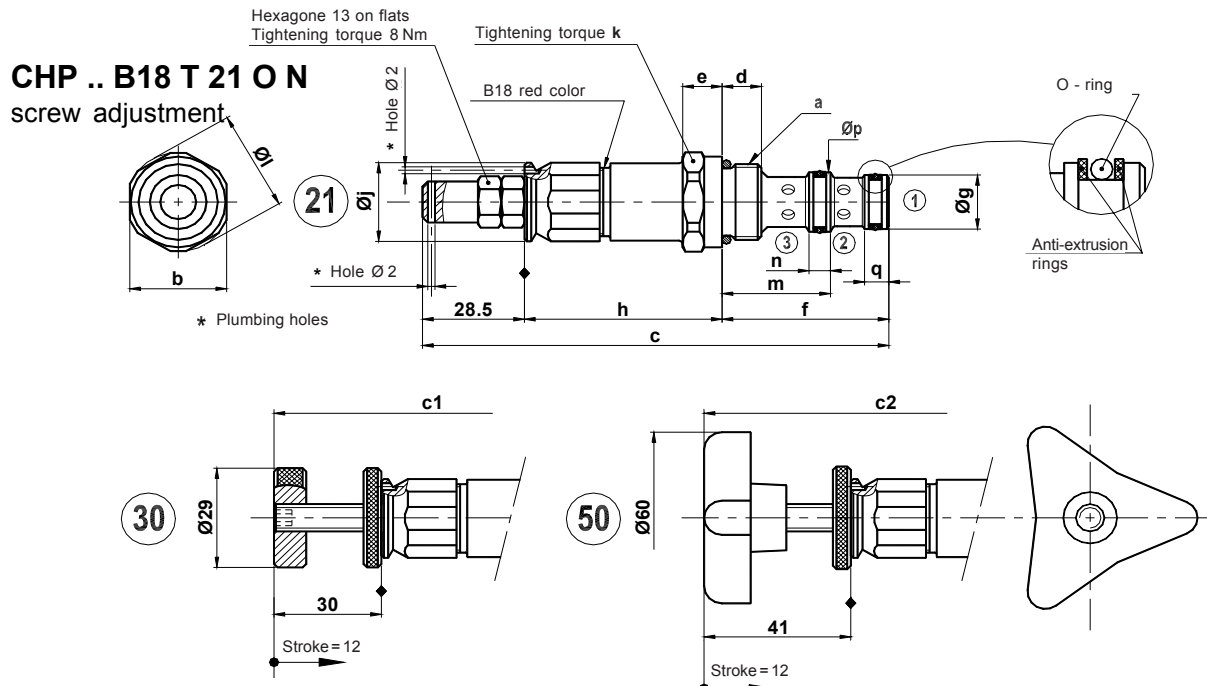
Type	Max flow	Calibration
CHP 16 A16 1" 5/16"-12 UNF	120 l/mn	10 - 300 bar

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

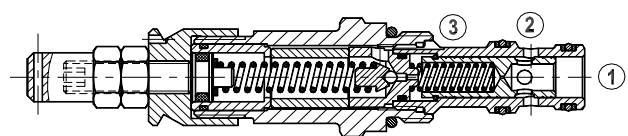
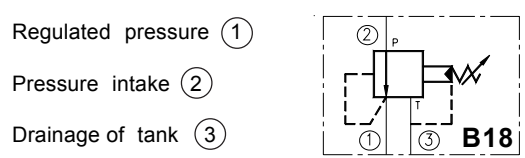
PILOT PRESSURE REDUCING VALVE



CHP .. B18 T 21 O N
screw adjustment

CHP .. B18 T 50 O N
3 branches wheel

Designation	Size SAE,J475	a Implantation	Q Maxi l/min	Pressure bar		Dimensions										Weight in Kg
				mini	Max.	b	c	c1	c2	d	e	f	g	h		
CHP 08 B18	08	3/4 - 16 UNF	25	5	300	24	126	127,5	126,5	11	11	40	14,2	57,5	0,2	
						j	k - Tightening torque Nm				m	n	p	q		
						23					26,7	6	15,8	6,5		
CHP 10 B18	10	7/8" - 14 UNF	40	5	300	27	131	132,5	131,5	11	11	46,6	15,8	55,9	0,2	
						j	k - Tightening torque Nm				m	n	p	q		
						23					30,3	6	17,4	6,8		
CHP 16 B18	16	1"5/16-12 UN	60	5	300	38	163,5	165	164	14,5	20	73	26,92	62	0,5	
						j	k - Tightening torque Nm				m	n	p	q		
						23					44	7	28,52	8		



Description: A spool in treated steel called back by a spring with a calibrated port triggered by a calibrated pilot poppet slides in a steel housing.

Working: When the pressure intake in (2) is higher than the regulated pressure in (1) as defined by the calibration of the poppet, the spool moves and closes up partially the port (2).

Codification C H P 10 B18 T 21 O N

Size code
 08 = 3/4" 16 UNF
 10 = 7/8" 14 UNF
 16 = 1"5/16 12 UN

Function code
 21 = screw for plumbing
 30 = wheel
 50 = wheel 3 branches

Standard
 N - Nitril seals -40° + 100°C
 V - Viton seals -20° + 150°C

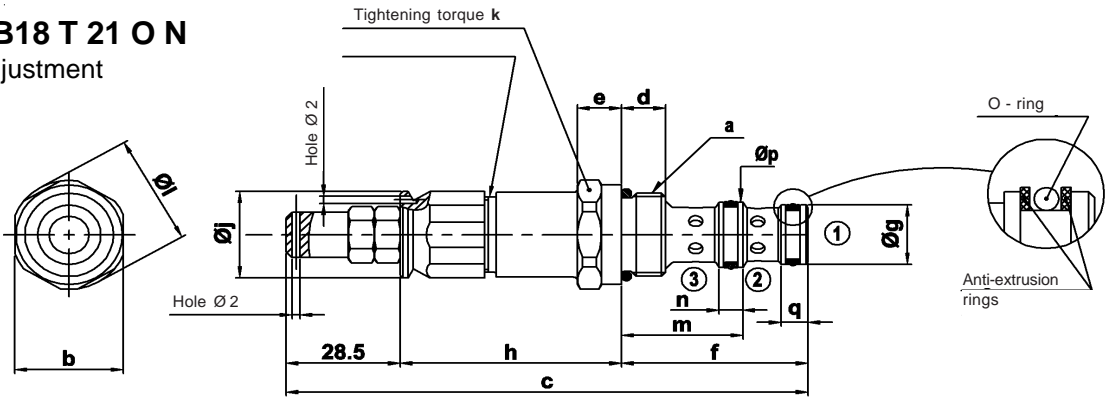
Tightening torques: Page 232 / 00
Temperature: voir au verso
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: sans restriction
Cavities: Page 234 / 00
Mountage on monoblock: Page 142 / 00
Mounting on MBS®: Page 191 / 00

Seal jits: Size 58: N° 200 106 Size 08: N° 200 016 Size 10: N° 200 122

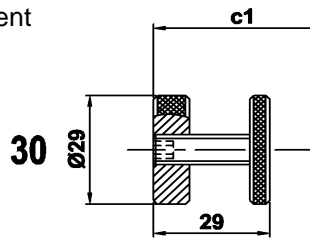
F.T. 50 1154

PILOT PRESSURE REDUCING VALVE with INVERSE SAFETY FUNCTION

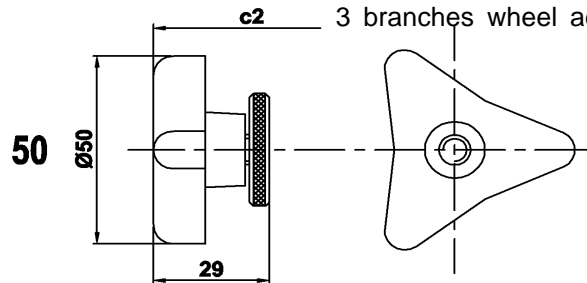
CHP .. B18 T 21 O N
screw adjustment



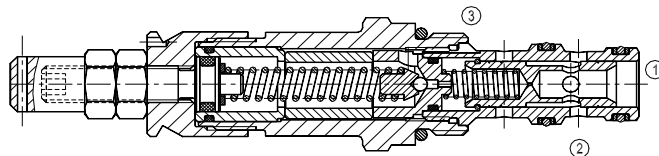
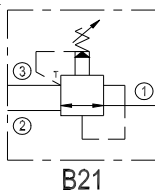
CHP .. B18 T 30 O N
wheel adjustment



CHP .. B18 T 50 O N
3 branches wheel adjustment



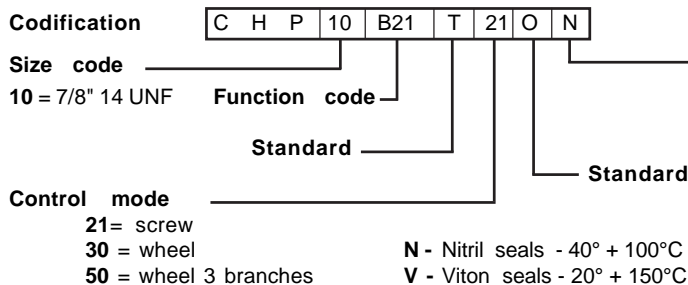
Designation	Size SAE J475	a Implantation	Q Maxi l/mn	Pressure bar	Dimensions								Weight in Kg	
					b	c	c1	c2	d	e	f	g		h
CHP 10 B21	10	7/8 - 14 UNF	40	300	27	130,3	130,8	130,8	11	11	46,6	15,8	55,2	0,2
					j	k - Tightening torque Nm		m	n	p	q			
					23	60		30,3	6	17,4	6,8			



Description: A spool in treated steel called back by spring with a calibrated port triggered by a calibrated pilot poppet slides in a steel housing.

Working: **As pressure reducing valve**= when pressure intake in ② exceeds the regulated pressure in ① as established by the calibration of the pilot poppet, the spool moves and closes up partially port ②.

As pressure relief valve= when pressure in ① exceeds the pressure displayed in pressure reduction, the spool moves, closes up port ② and brings into communication ports ① ⇔ ③



Tightening torques: Page 232 / 00
Temperature: voir au verso
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Page 234 / 00

Seal kit: N° 200 016

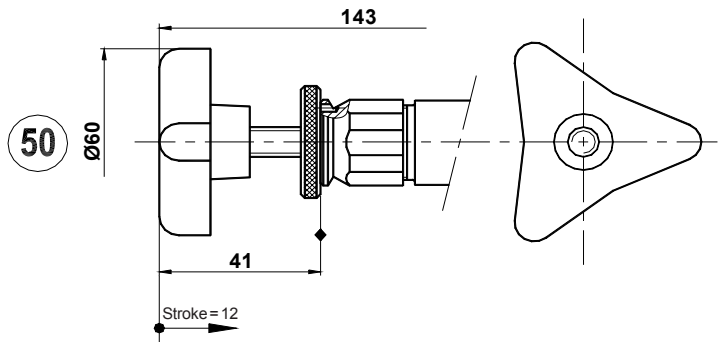
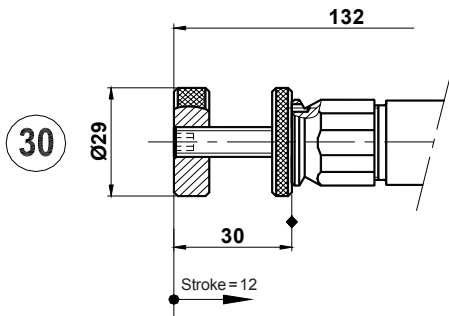
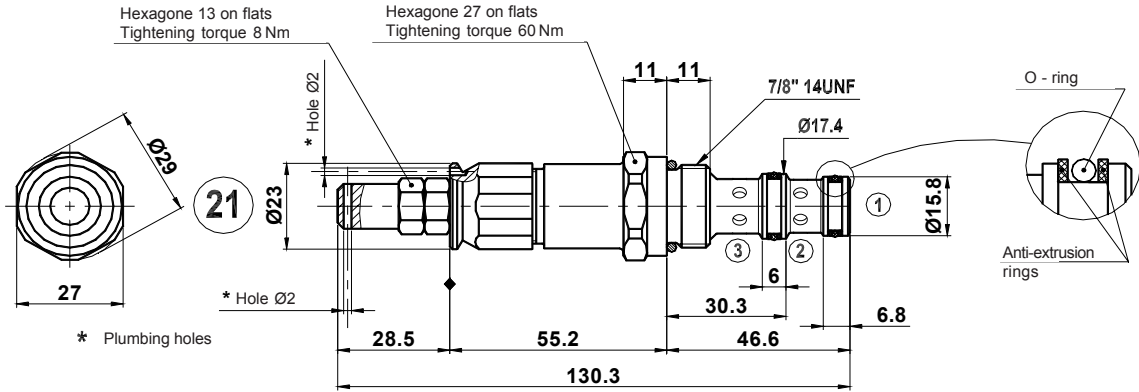
F.T. 50 1155

OVERCENTER VALVE

SIZE 10 - 7/8" 14UNF

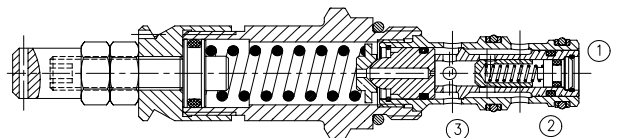
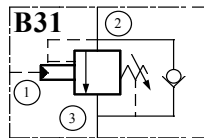
Maximum pressure: 300 bar

Maximum flow: 60 l/mn



Functions:

- a) Relief valve ② ⇨ ③
- b) Flow regulator pilot in 1 ② ⇨ ③
- c) Free flow ③ ⇨ ②



Pressure of piloting = $P1 = \frac{PT + 9P3 - P2}{8}$

Pressure of taring: 35 to 300 bar

PT = Pressure of taring

P3 = Pressure Pump

P2 = Pressure jack (cylinder)

P1 = Pressure of piloting

Working: As pressure relief valve = ② ⇨ ③
 As overcenter valve = ② ⇨ ③ - pilot in ①
 Free flow = ③ ⇨ ②

Codification	C H P 10 B31 T 21 O N
Size code	10 = 7/8" 14 UNF
Function code	B31 T
Standard	O N
Control code	21 = Screw for plumbing 30 = wheel 50 = wheel 3 branches
	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C

Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: sans restriction
Cavities: Page 234 / 00
Weight: 0,2 Kg
Seal kit: N° 200 561

F.T. 50 1156

PILOTED PRESSURE RELIEF VALVE with ELECTRICAL BY-PASS - Normaly Open

2 WAYS

Size 10 - 7/8" 14 UNF

CEP 10 A90 ... ON

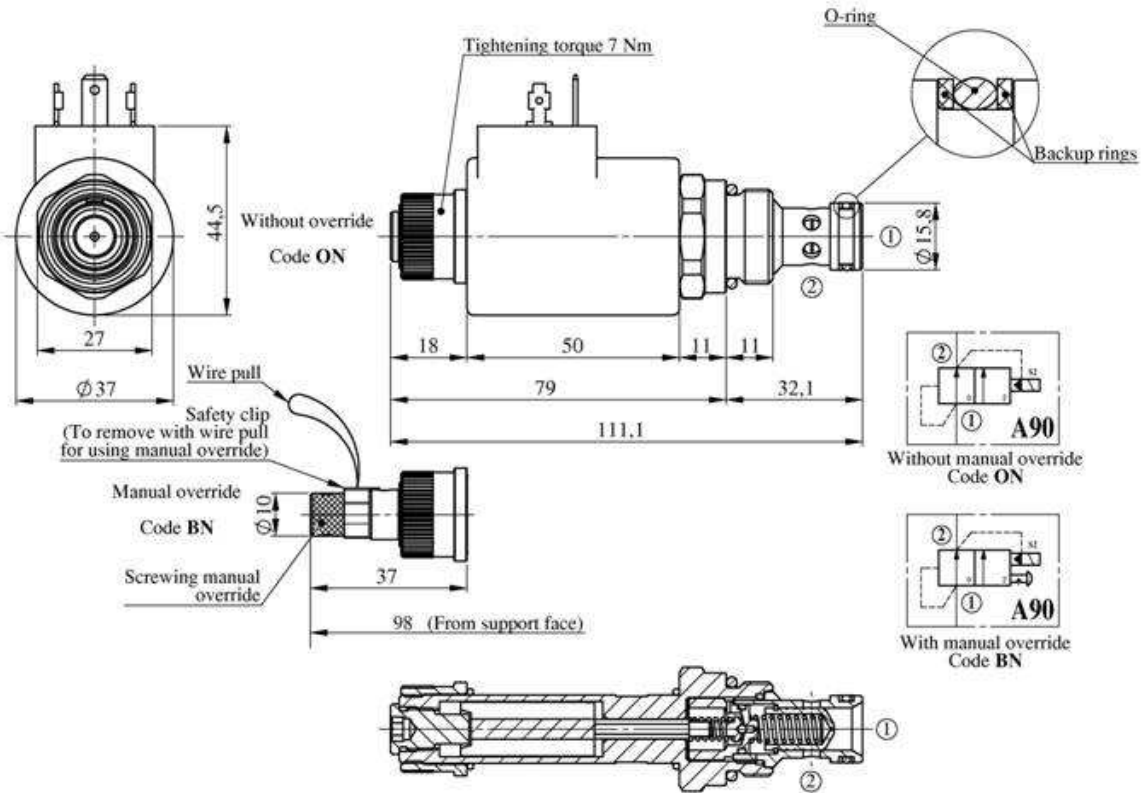
Ref. T301287-P...¹ - without manual override

CEP 10 A90 ... BN

Ref. T301288 -P...¹ - with manual override
pressure preset in factory only

Note (1): max pressure (cracking pressure) to specify for a factory setting
(ie. T301287-P210 = A90 with factory setting at 210 bar cracking pressure)

Note(2): the manual override forces manually an increase of pressure until preset pressure.



Description:

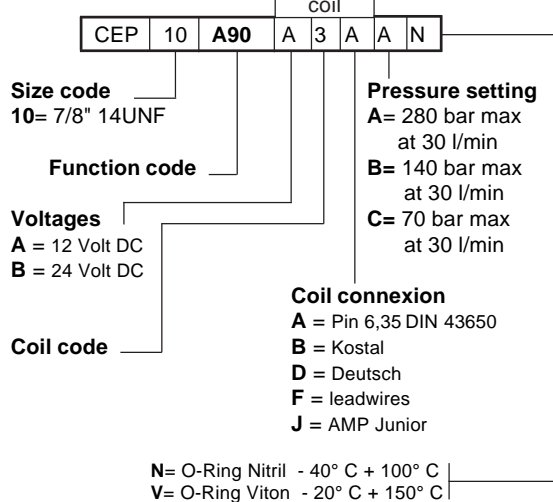
De-energized: By-pass from 1 to 2 at the pressure drop of the valve (see curves).

Energized: functioning as piloted pressure relief valve from 1 to 2 at the factory preset pressure.

Technical Characteristics

Max. flow	60 l/mn
Max. pressure	300 bar
Coil code 3 & connections	see codification table
Coil Voltage	12 VDC (A3*) or 24 VDC (B3*)
Coil power	26 watt
Resistance	5,5 Ω = 12 V 22,2 Ω = 24 V
Characteristic	See curves at verso
Max leakage, closed position	20 to 200 cm ³ /min at 200 bar
Temperature	- 40 °C + 100 °C with std NBR seals
Filtration	ISO classe 16/13 - Page 231/00
Recommended installation	whitout restriction
Cavity	Size 10 - 7/8" 14 UNF
Seal kit	N° T200014

Codification



F.T 50 1390 1/2

Fluids : Mineral based or synthetic (seals compatible), with good lubrication properties.
With a viscosity between 8 and 450 cSt at functioning temperature.

PILOTED PRESSURE RELIEF VALVE with ELECTRICAL BY-PASS - Normally Open - NO

2 WAYS

Size 10 - 7/8" 14 UNF

CEP 10 A90 ... ON

Ref. T301287-P...¹ - without manual override

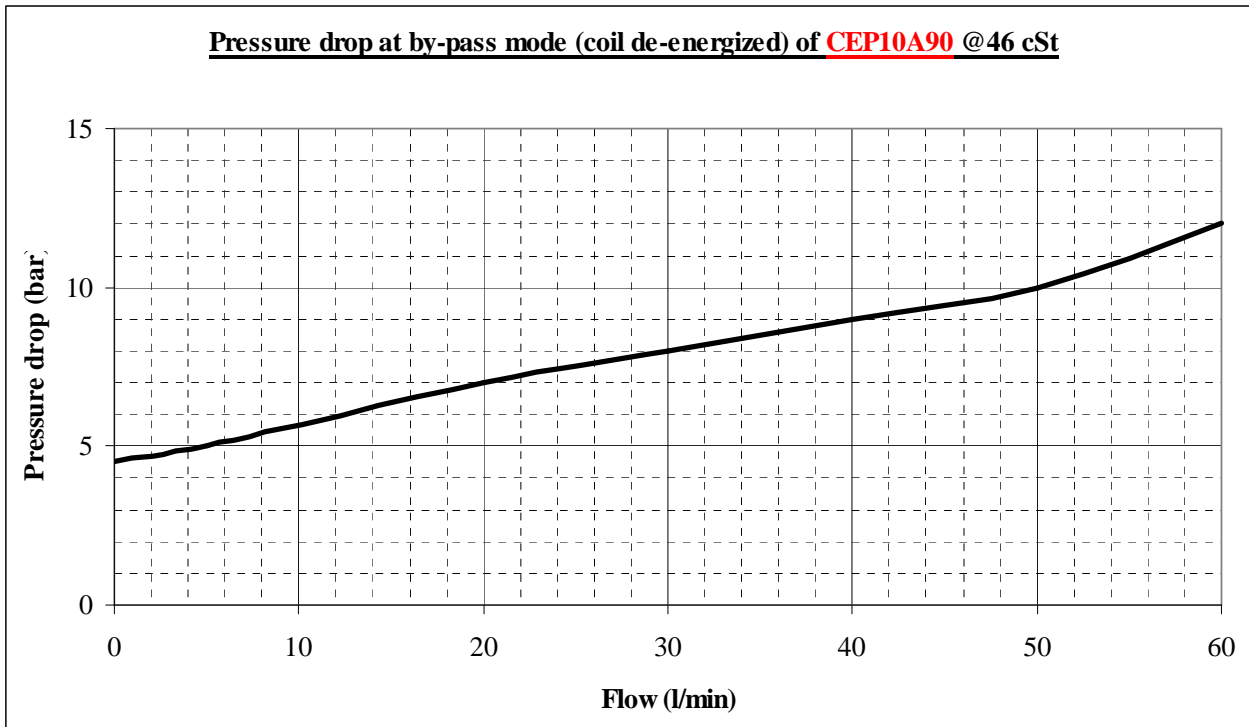
CEP 10 A90 ... BN

Ref. T301288 -P...¹ - with manual override
pressure preset in factory only

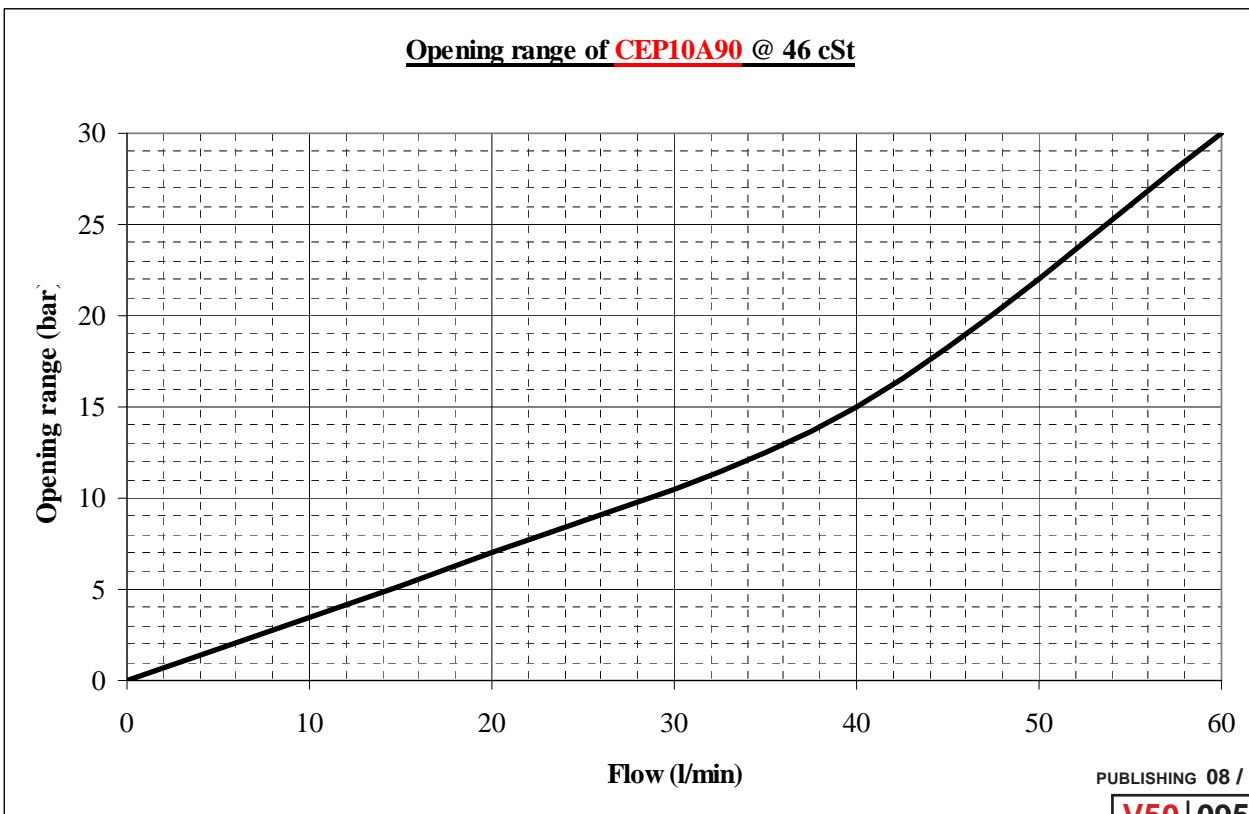
Note (1): max pressure (cracking pressure) to specify for a factory setting
(ie. T301287-P210 = A90 with factory setting at 210 bar cracking pressure)

Note(2): the manual override forces manually an increase of pressure until preset pressure.

Pressure drop at by-pass mode (coil de-energized) of CEP10A90 @46 cSt



Opening range of CEP10A90 @ 46 cSt



PRESSURE RELIEF VALVE with BY-PASS VALVE and INTEGRATED ELECTRIC DRIVE

**Normally open NO
2 WAY**

Size 10 - 7/8" 14 UNF

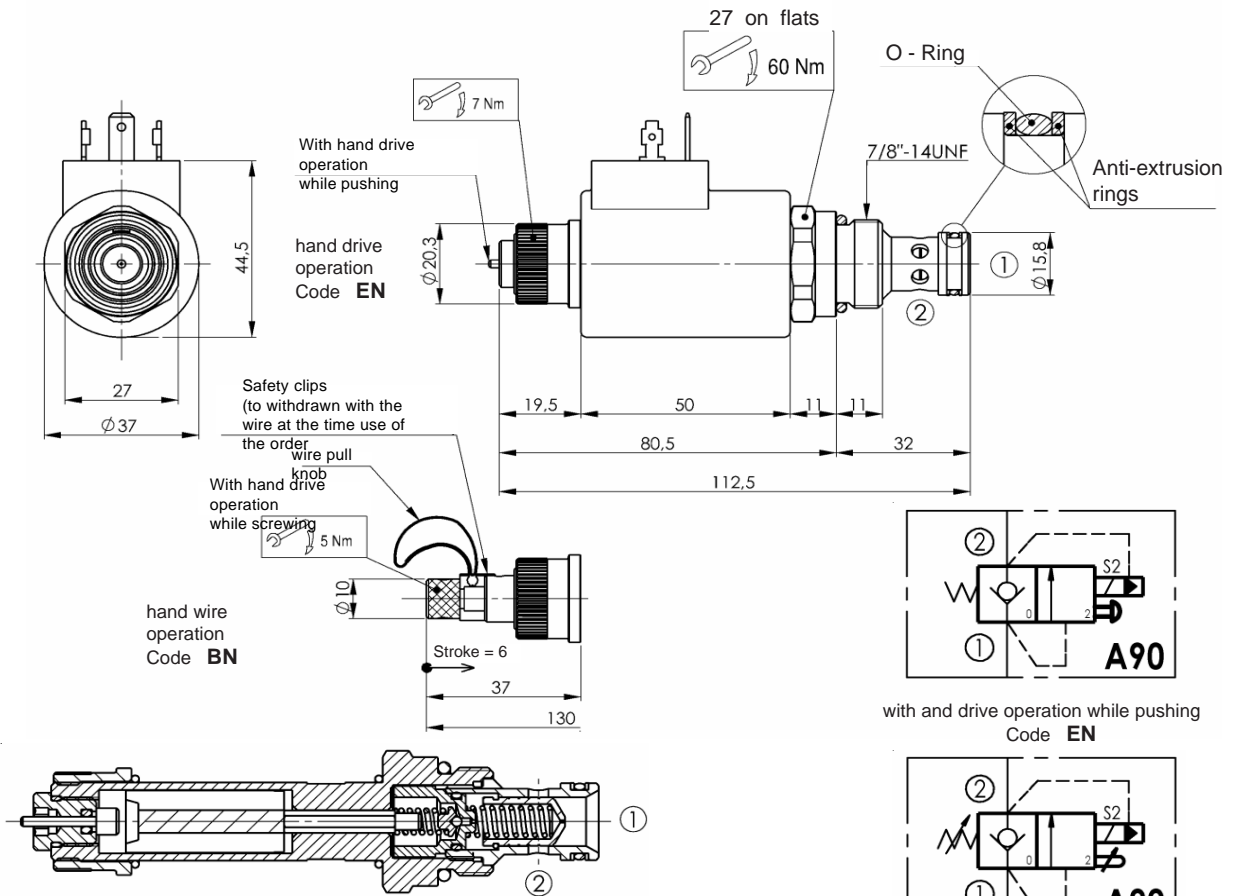
CEP 10 A90 A3A EN
CEP 10 A90 B3A EN

CEP 10 A90 A3A BN
CEP 10 A90 B3A BN

Voltage 12 VDC
Voltage 24 VDC

With hand drive operation
while pushing **BN**

With hand drive operation
while screwing **BN**



Max. pressure: 300 bar - Max flow: 60 l/mn

Working: In non excited position: The valve is in open position NO of 2 \leftarrow 1 \bigcirc
In excited position: The valve is in position of taring of the pressure.

Codification	C E P 10 A90 A 3 A B N
Size = 10 - 7/8" 14 UNF	
Function code	A 3 A B
Voltage	A = 12 Volt DC B = 24 Volt DC
Coil code	
Manual override	E = pushing version B = screwing version
Coil connection	A = Elec. con. 6,35 - DIN 43650 B = Kostal F = Leadwires J = AMP Junior
	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C

Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16 / 13 Page 231 / 00
Mounting Position: without restriction
Cavities: Page 233 / 00
Recommendations for assembly of valves into cavities: Page 232 / 00
seal kits: N° 200 014

F.T 50 1284 1/2

PRESSURE RELIEF VALVE with BY-PASS VALVE and INTEGRATED ELECTRIC DRIVE

**Normally open NO
2 WAY**

Size 10 - 7/8" 14 UNF

CEP 10 A90 A3A EN
CEP 10 A90 B3A EN

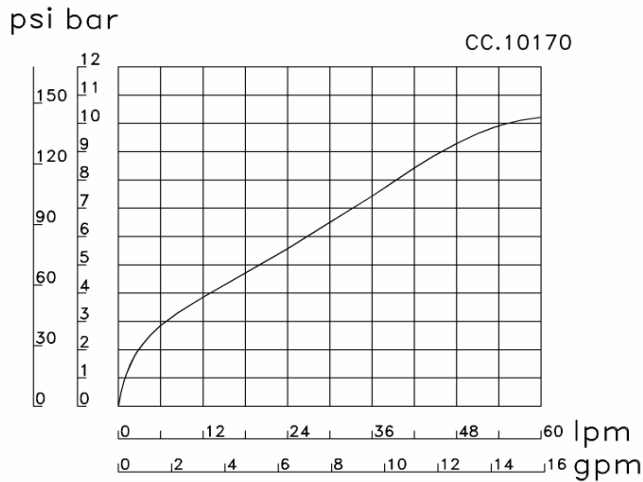
CEP 10 A90 A3A BN
CEP 10 A90 B3A BN

Voltage 12 VDC
Voltage 24 VDC

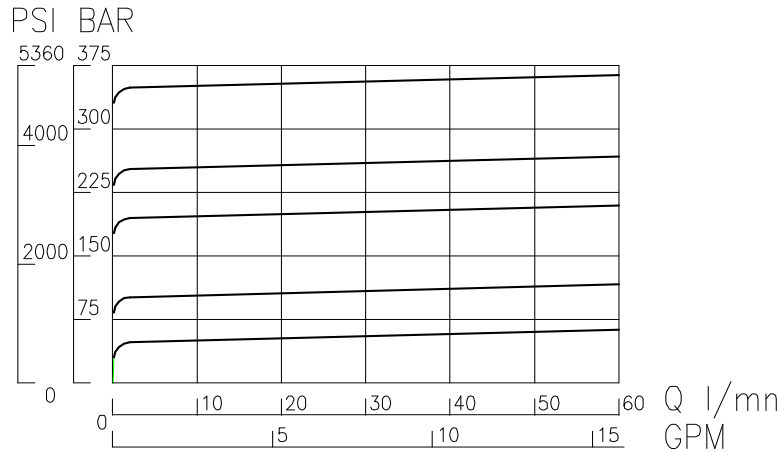
With hand drive operation
while pushing **BN**

With hand drive operation
while screwing **BN**

PRESSURE DROP - Position excited valve



PRESSURE USE ACCORDING TO THE FLOW



PERMISSIBLE INTERNAL LEAKAGE at a pressure 200 BAR

Type	minimum	maximum
A90	20	200 cm ³ / mn

Fluids : Mineral based fluid or synthetic oil (compatible with the seals fittings),
with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: - 40 °C + 100 °C with standard Nitril seals.

Executed measures: At room temperature 22 °C +/- 2 °C

Oil temperature at 40 °C

Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

PILOTED PRESSURE RELIEF VALVE with ELECTRICAL BY-PASS - Normally Closed - NC

2 WAYS

Size 10 - 7/8" 14 UNF

CEP 10 A91 ... AN Ref. T301294-P...¹ (280 bar maxi ²)

CEP 10 A91 ... BN Ref. T301305-P...¹ (140 bar maxi ²)

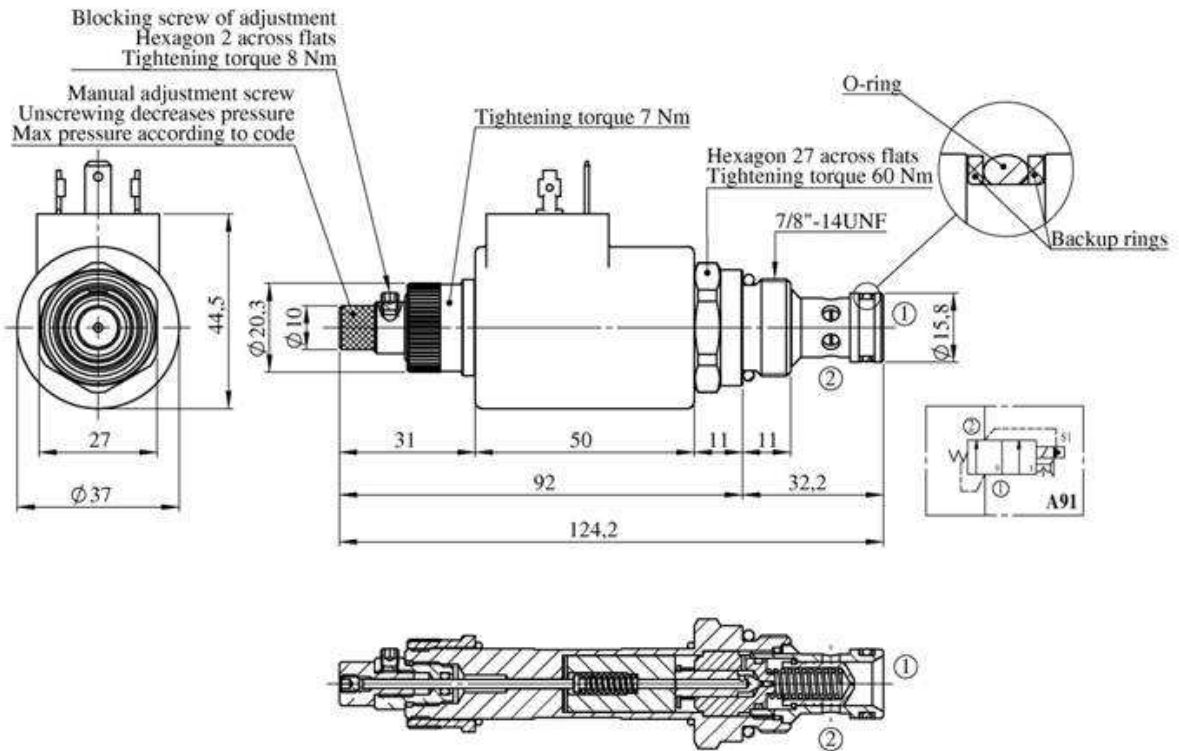
CEP 10 A91 ... CN Ref. T301306-P...¹ (70 bar maxi ²)

with manual setting of max pressure

Note (1): max. pressure (cracking pressure) to specify for a factory setting.

(ie. T301294-P210 = A91 with 280bar maxi available pressure and factory setting at 210 bar cracking pressure)

Note(2): the max available pressure is a value at full opening at 30 l/min and with the manual setting screw at end stroke position.



Description: **De-energized:** functioning from 1 to 2 as piloted pressure relief valve with a manually preset pressure. **Energized:** electrical by-pass from 1 to 2 only through the pressure drop of the valve (see curve).

Technical characteristics

Codification

CEP	10	A94	coil	A	3	A	A	N
-----	----	-----	------	---	---	---	---	---

Size code
10= 7/8" 14UNF

Funktion code

Voltages
A = 12 Volt DC
B = 24 Volt DC

Coil code

Pressure setting
A= 280 bar max at 30 l/min
B= 140 bar max at 30 l/min
C= 70 bar max at 30 l/min

Coil connexion
A = pin 6,35DIN 43650
B = Kostal
D = Deutsch
F = leadwires
J = AMP Junior

N= O-Ring Nitril - 40° C + 100° C
V= O-Ring Viton - 20° C + 150° C

Max flow	60 l/min
Max pressure	300 bar
Coil code 3 & connections	see codification table
Voltage	12 VDC (A3*) or 24 VDC (B3*)
Coil power	26 watt
Resistance	5,5 Ω = 12 V 22,2 Ω = 24 V
Characteristics	see curves at verso
Max leakage, closed pos.	20 to 200 cm ³ /min at 200 bar
Temperature	-40°C +100°C with std NBR seals
Filtration	ISO classe 16/13 - Page 231/00
Installation recommended	without restriction
Cavity	Size 10 - 7/8" 14 UNF
Collection de joints	N° T200014

F.T 50 1389 1/2

PILOTED PRESSURE RELIEF VALVE with ELECTRICAL BY-PASS - Normally Closed - NC

2 WAYS

Size 10 - 7/8" 14 UNF

CEP 10 A91 ... AN Ref. T301294-P...¹ (280 bar maxi ²)

CEP 10 A91 ... BN Ref. T301305-P...¹ (140 bar maxi ²)

CEP 10 A91 ... CN Ref. T301306-P...¹ (70 bar maxi ²)

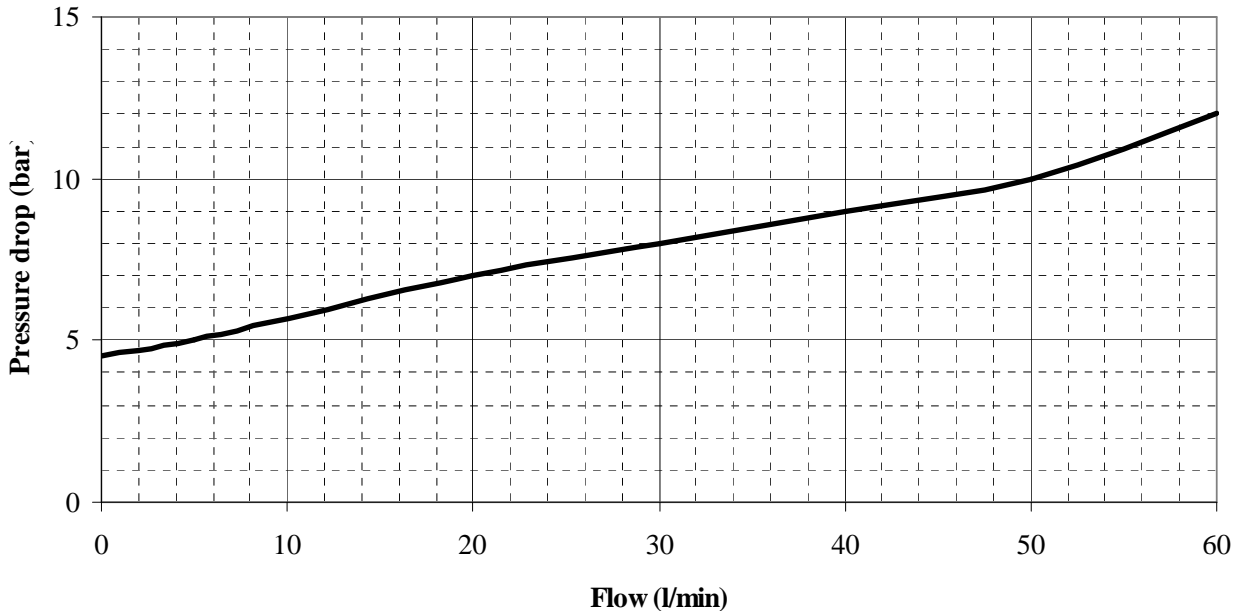
with manual setting of max pressure

Note (1): max. pressure (cracking pressure) to specify for a factory setting.

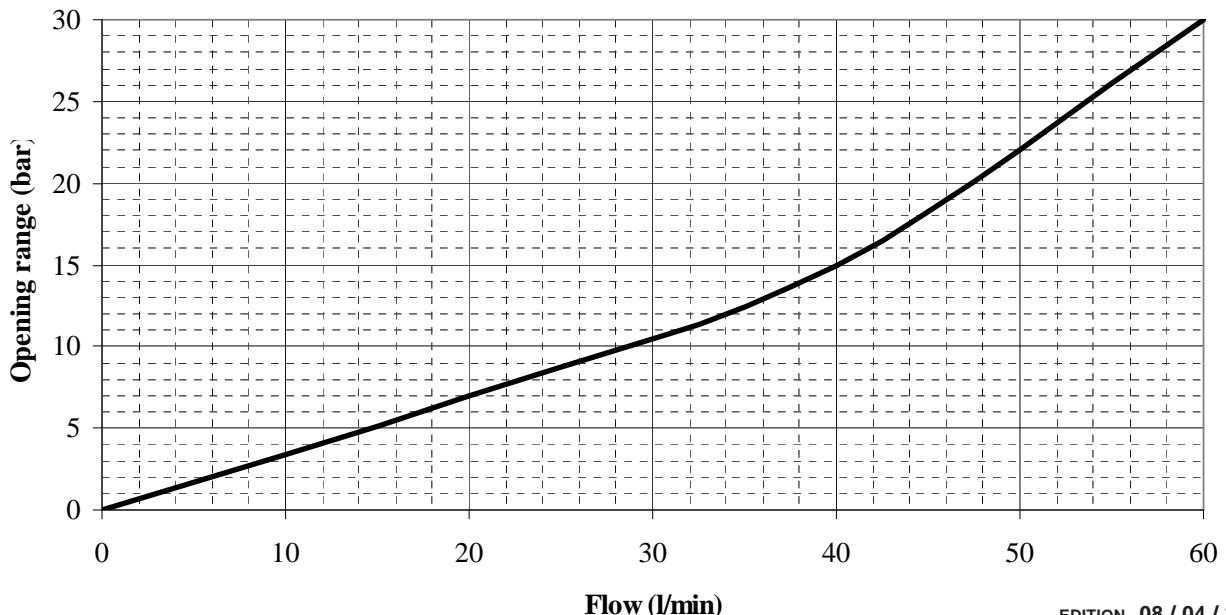
(ie. T301294-P210 = A91 with 280bar maxi available pressure and factory setting at 210 bar cracking pressure)

Note(2): the max available pressure is a value at full opening at 30 l/min and with the manual setting screw at end stroke position.

Pressure drop at max command current of **CEP10A91** @ 46 cSt



Opening range of **CEP10A91** @ 46 cSt

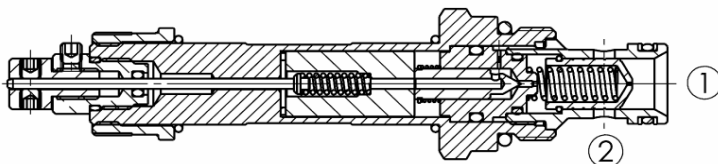
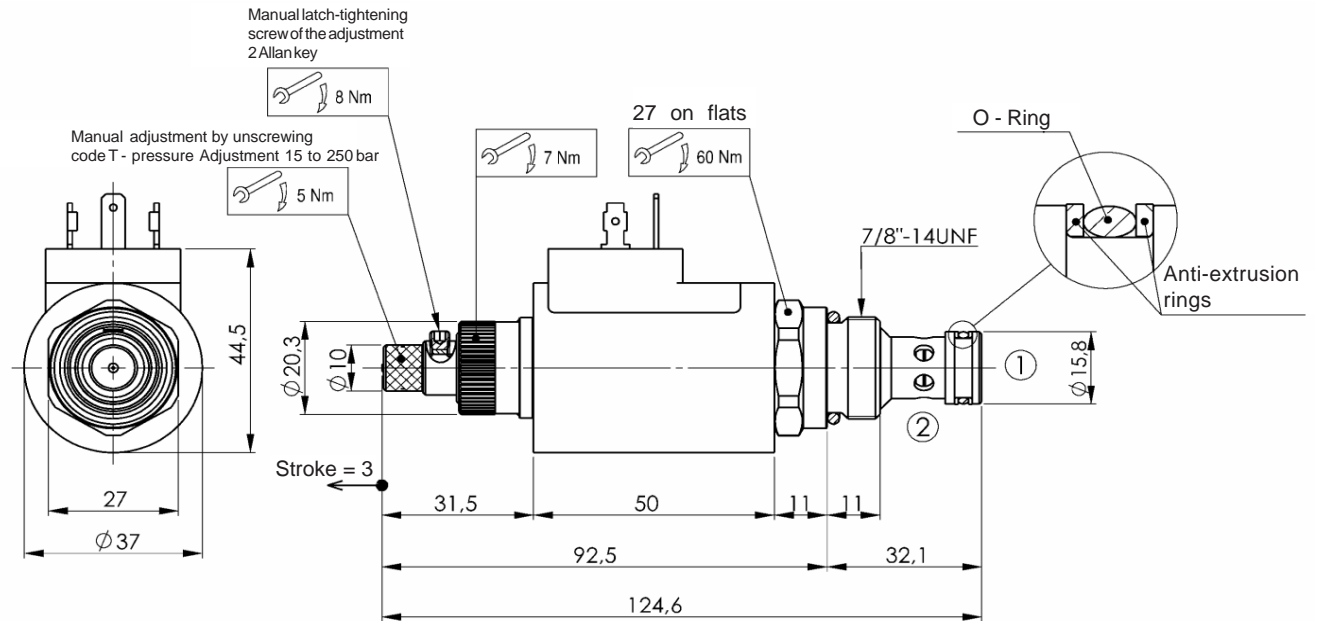


F.T 50 1389 2/2

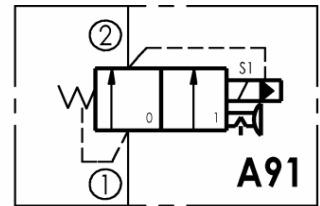
PRESSURE RELIEF VALVE with BY-PASS VALVE and INTEGRATED ELECTRIC DRIVE

**Normally closed NC
2 WAY**

Size 10 - 7/8" 14 UNF CEP 10 A91 A3A TN Voltage 12 VDC
CEP 10 A91 B3A TN Voltage 24 VDC
 with manual adjustable control - Code TN



Max. pressure: 300 bar - Max flow: 60 l/mn



Working: In non excited position: The valve functions at the pressure of adjustment.

In excited position: The valve is in By-pass position.

Codification	C E P 10 A91 A 3 A T N
Size = 10 - 7/8" 14 UNF	_____
Function code	_____
Voltage	_____
A = 12 Volt DC	
B = 24 Volt DC	
Coil code	_____
Manual adjustment control	_____
Coil connection	_____
A = Elec. con. 6,35 - DIN 43650	
F = Leadwires	
J = AMP Junior	
N - Nitril seals - 40° + 100°C	
V - Viton seals - 20° + 150°C	

Characteristics: see overleaf

Temperature: see overleaf

Filtration: ISO code 16 / 13 Page 231/ 00

Mounting Position: without restriction

Cavities: Page 233 / 00

Recommendations for assembly of valves into cavities: Page 232 / 00

seal kits: N° 200 014

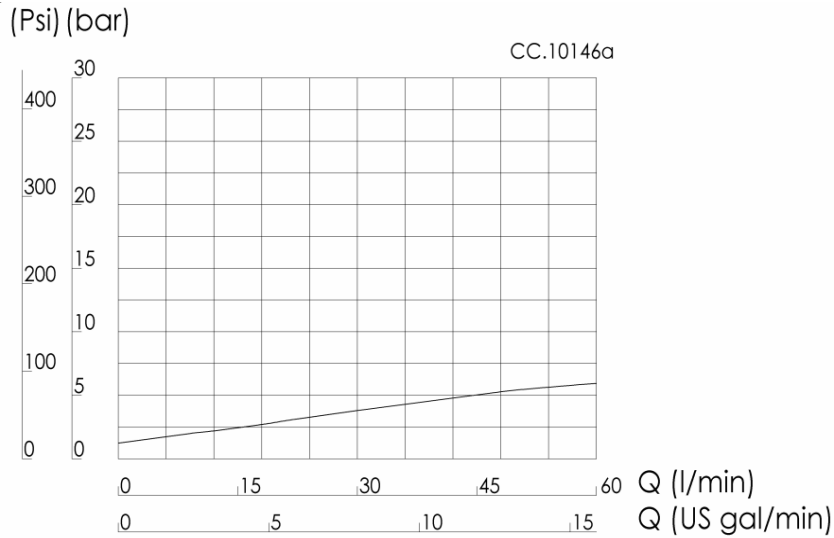
F.T. 50 1285 1/2

PRESSURE RELIEF VALVE with BY-PASS VALVE and INTEGRATED ELECTRIC DRIVE

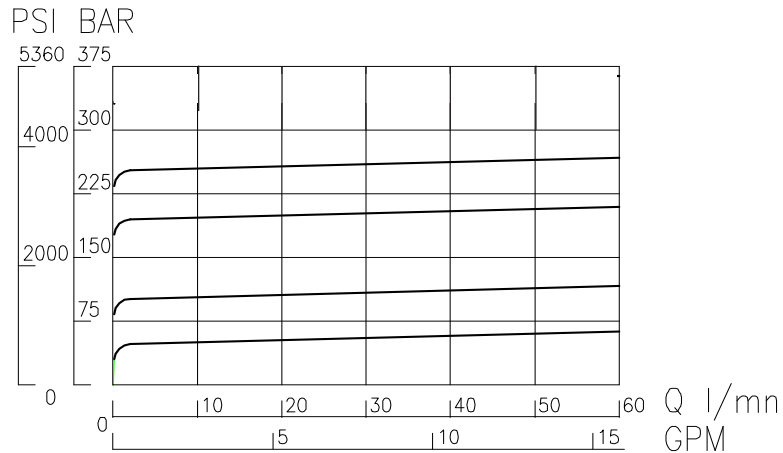
**Normally closed NC
2 WAY**

Size 10 - 7/8" 14 UNF CEP 10 A91 ___ TN
with manual adjustable control - Code **TN**

PRESSURE DROP - Position excited valve



PRESSURE USE ACCORDING TO THE FLOW



PERMISSIBLE INTERNAL LEAKAGE at a pressure 200 BAR

Type	minimum	maximum
A91	20	200 cm ³ / mn

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: - 40 °C + 100 °C with standard Nitril seals.

Executed measures: At room temperature 22 °C +/- 2 °C
Oil temperature at 40 °C
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40 °C.

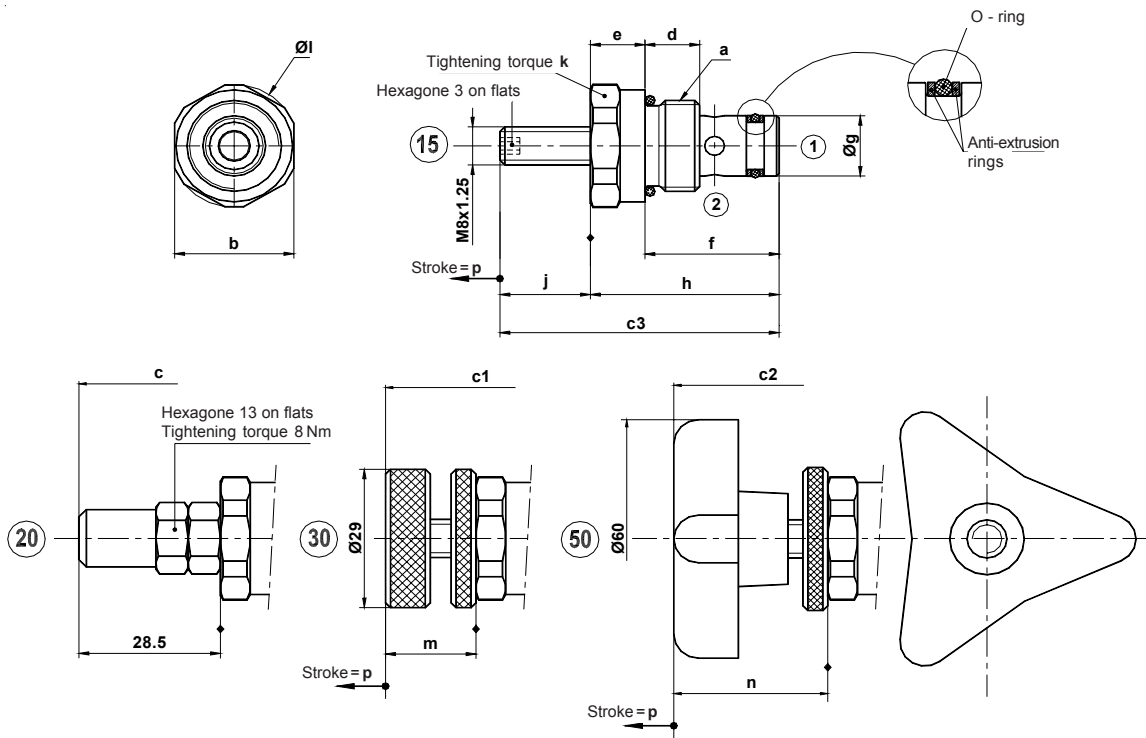
FLOW CONTROL

Maximum pressure 300 / 350 bar (depending on the flow control valve type)

		Débit maxi en l/mn	N° Page		
NEEDLE VALVE	CMF 08 A19	CMF 58 A19	30	097 / 00	
	CMF 10 A19		60	097 / 00	
COMPENSATED FLOW CONTROL VALVES (fixed or adjustable)	Fixed "	CMF 08 A20 T	CMF 58 A20 T	10	098 / 00
		CMF 10 A20 T		30	098 / 00
	Adjustable "	CMF 08 A20 T	CMF 58 A20 T	10	100 / 00
		CMF 10 A20 T		30	100 / 00
	Adjustable	CMF 10 A20 X		40	102 / 00
INVERTED FIXED COMPENSATED FLOW CONTROL VALVE		CMF 10 A22	10	104 / 00	
FLOW DIVIDER with priority flow (fixed or adjustable)	Fixed " "	CMF 08 B34 T		25	105 / 00
		CMF 10 B34 T		60	105 / 00
		CMF 16 B34 T		100	105 / 00
	Adjustable " "	CMF 08 B34 T		25	106 / 00
		CMF 10 B34 T		60	106 / 00
		CMF 16 B34 T		100	107 / 00
	Adjustable	CMF 10 B34 X		60	108 / 00
	FLOW DIVIDER 50/50		CHF 10 E38	40/50	110 / 00

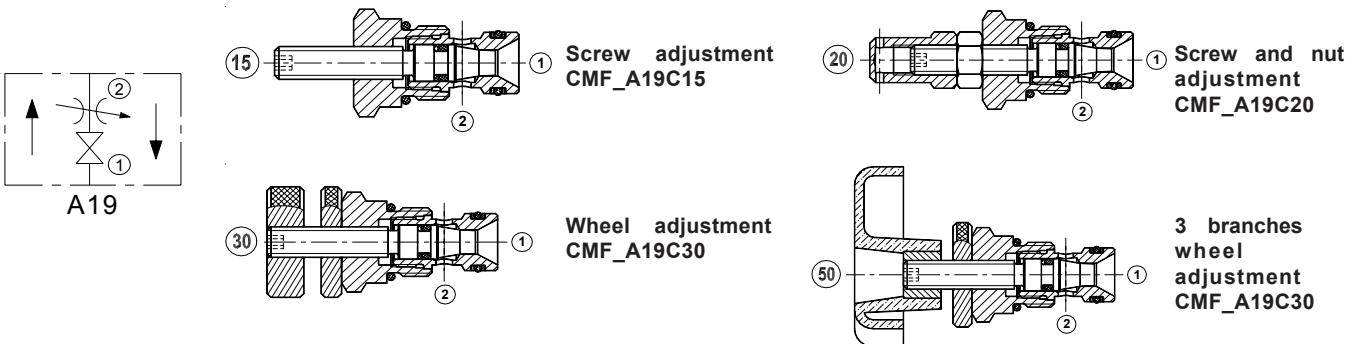
F.T 50 1157

NEEDLE VALVE



Designation	Size SAEJ475	a Port size	Q Maxi l/mn	Max pressure bar	b	c	c1	c2	c3	d	e	f	g	h	j	k Tightening torque	l	m	n	p stroke	Weight in Kg
CMF 08 A19	08	3/4"-16UNF	30	300	24	66,5	56,2	69,2	56,2	11	11	27	12,7	38	18,2	20 Nm	25,8	18,2	31,2	4,8	0,1
CMF 10 A19	10	7/8"-14 UNF	60	300	27	71,5	59	72	57,3	11	11	32	15,8	43	14,3	60 Nm	29,6	16	29	9	0,2

Designation	Size METRIC	a Port size	Q Maxi l/mn	Max pressure bar	b	c	c1	c2	c3	d	e	f	g	h	j	k Tightening torque	l	m	n	p stroke	Weight in Kg
CMF 58 A19	58	M 18 x 1,5	30	300	22	66,5	56,2	69,2	56,2	11	11	27	15	38	18,2	20 Nm	23,8	18,2	31,2	4,8	0,1



Codification C M F 10 A19 C 21 O N

Size code
 58 = M 18 x 1,5
 08 = 3/4" 16 UNF
 10 = 7/8" 14 UNF

Function code
 Standard

Control mode
 15 = by screw alone
 21 = screw for plumbing
 30 = wheel
 50 = wheel 3 branches

Standard
 N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 150°C

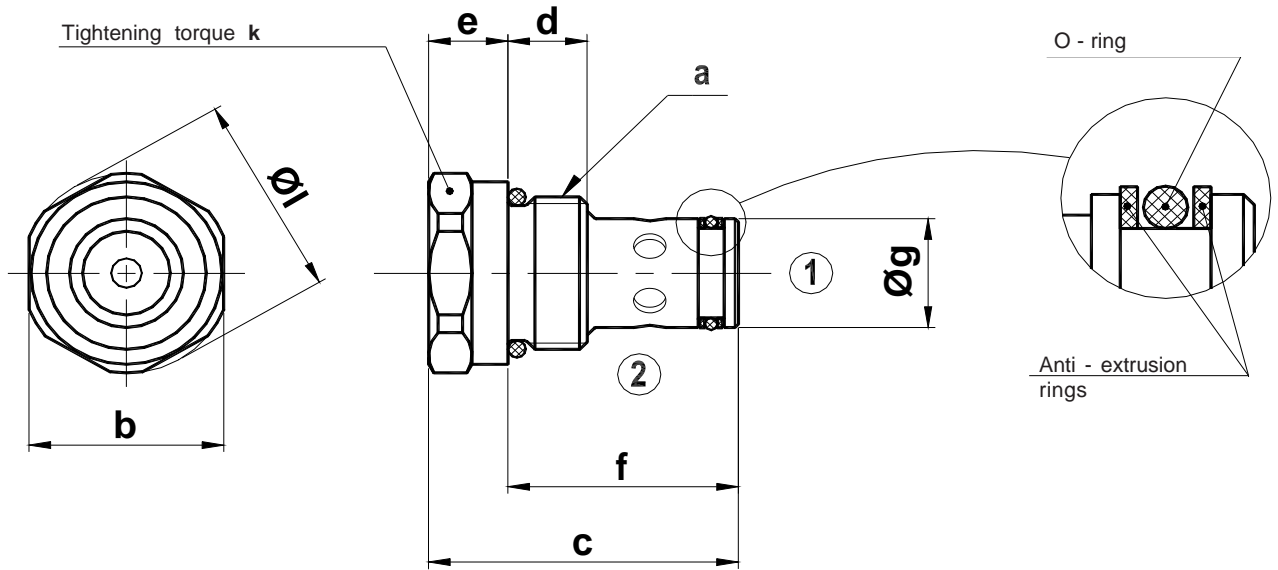
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Pages 233 / 00 (T.08/10) 238 / 00 (T.58)

Montage on monoblock: Page 145 / 00
Mounting on MBS®: Page 192 / 00

Seal kits: Size 58: N° 200 110 Size 08: N° 200 104 Size 10: N° 200 014

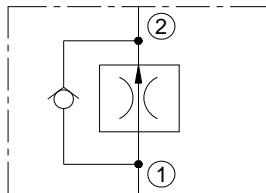
F.T. 50 1158

FIXED COMPENSATED FLOW CONTROL VALVE

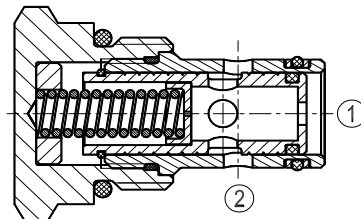


Designation	Size SAE J475	a Port size	Q Maxi l/mn	Pressure Max bar	b	c	d	e	f	g	k Tightening torque	l	Weight in Kg
CMF 08 A20 T10	08	3/4" - 16 UNF	10	300	24	38	11	11	27	12,65	20 Nm	25,8	0,2
CMF 10 A20 T10	10	7/8" - 14 UNF	30	300	27	43	11	11	32	15,8	60 Nm	29,6	0,2

Designation	Size METRIC	a Port size	Q Maxi l/mn	Pressure Max bar	b	c	d	e	f	g	k Tightening torque	l	Weight in Kg
CMF 58 A20 T10	58	M18x1,5	10	300	22	38	11	11	27	14,95	20 Nm	23,8	0,2



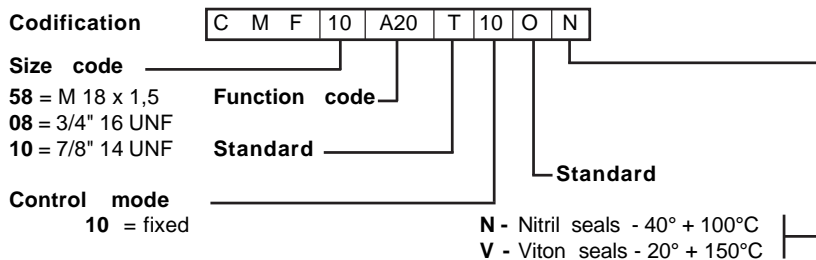
A20 T10



Description: A cylindrical spool called back by spring slides in a treated steel housing.

Working: Flow intake in ① - Regulated flow in ②
When the inlet flow raises, the pressure in the calibrated port raises and moves the spool to the closing position.

See overleaf.



Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Pages 233 / 00 (T.08/10) 238 / 00(T.58)
Mounting on monobloc: Page 145 / 00
Mounting on MBS@: Page 192 / 00

Seal kits: Size 58: N° 200 110 Size 08: N° 200 104 Size 10: N° 200 014

CHARACTERISTICS

FIXED COMPENSATED FLOW CONTROL VALVE

Size 58 - M 18 x 1,5	CMF 58 A20 T10 O N
Size 08 - 3/4" 16 UNF	CMF 08 A20 T10 O N
Size 10 - 7/8" 14 UNF	CMF 10 A20 T10 O N

REGULATED FLOW on PORT ① ⇔ ② - Allowance ± 5%

Measures executed at the pressure of 100 bar

Size 08 - 3/4" 16 UNF Size 58 - M 18 x 1,5		Size 10 - 7/8" 14 UNF	
Ø ports	Regulated flow l/mn at 100 bar	Ø ports	Regulated flow l/mn at 100 bar
1	1,9	1	2,2
1,3	3,5	1,3	3,5
1,5	4,9	1,5	4,6
1,7	6,1	1,7	7
2	7,9	2	11,6
2,2	8,9	2,2	18
2,5	12,5	2,5	25

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.

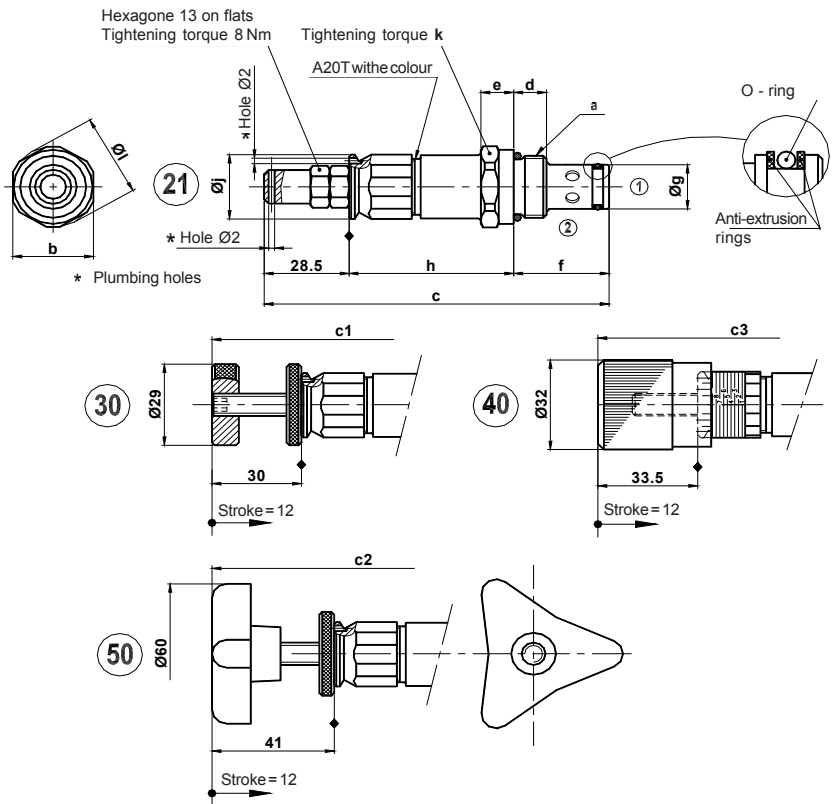
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: -40°C + 100°C with standard Nitril seals.

Executed measures : Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

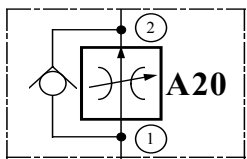
MOUNTING RECOMMENDATIONS: See F.T 50 1266 Page 232/00

ADJUSTABLE COMPENSATED FLOW CONTROL VALVES

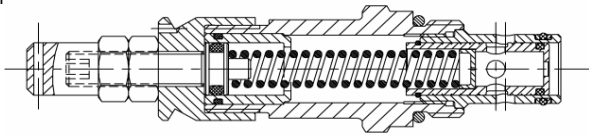


Designation	Size SAEJ475	a Port size	Pressure Max bar	b	c	c1	c2	c3	d	e	f	g	h	j	k Tightening torque	Weight in Kg
CMF 08 A20 T	08	3/4" 16 UNF	300	24	113	114,5	125,5	118	20	11	27	12,65	57,5	23	20 Nm	0,2
CMF 10 A20 T	10	7/8" 14 UNF	300	27	115,7	117,2	128,2	120,7	11	11	32	15,8	55,2	23	60 Nm	0,2
CMF 16 A20 T	16	1" 5/16-12 UN	300	38	134,5	134	145	138	14,5	20	44	28,52	60	23	85 Nm	0,5

Designation	Size METRIC	a Port size	Pressure Max bar	b	c	c1	c2	c3	d	e	f	g	h	j	k Tightening torque	Weight in Kg
CMF 58 A20 T	58	M 18x1,5	300	22	113	114,5	125,5	118	11	11	27	14,95	57,5	23	20 Nm	0,2



Max regulated flow (l/mn): see table overleaf
Flow increase by screwing on
Max flow adjustment = 2 times min flow adjustment



Description: A cylindrical spool called back by spring slides in a treated steel housing.

Working: Flow intake in ① - Regulated flow in ② - Free pass ② ⇒ ① (excepted in closed position).
 When flow raises, pressure in the adjustable calibrated port raises to.
 The spool, unbalanced, moves and compresses the return spring and closes up partially the holes of the valve housing.

Codification C M F 10 A20 T 21 O N

Size code
 58 = M 18 x 1,5
 08 = 3/4" 16 UNF
 10 = 7/8" 14 UNF
 16 = 1" 5/16 12 UN

Function code
 Standard

Control mode
 21 = screw for plumbing
 30 = wheel
 40 = sliding gauge
 50 = wheel 3 branches

Standard
 N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 100°C

Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: sans restriction
Cavities: Page 233 / 00 (T.08/10/16)
 Page 238 / 00 (T.58)
Mounting on monoblock: Page 145 / 00
Mounting on MBS®: Page 192 / 00

F.T. 50 1160 1/2

Seal kits: Size 58: N° 200 110 Size 08: N° 200 104 Size 10: N° 200 014

CHARACTERISTICS

ADJUSTABLE COMPENSATED FLOW CONTROL VALVE

	<u>Screw control</u>	<u>Wheel control</u>
Size 58 - M 18 x 1,5	CMF 58 A20 T21 O N	CMF 58 A20 T30 O N
Size 08 - 3/4" 16 UNF	CMF 08 A20 T21 O N	CMF 08 A20 T30 O N
Size 10 - 7/8" 14 UNF	CMF 10 A20 T21 O N	CMF 10 A20 T30 O N
Size 16 - 1" 5/16 12 UN	CMF 16 A20 T21 O N	CMF 16 A20 T30 O N

	<u>Sliding gauge control</u>	<u>3 branches wheel control</u>
Size 58 - M 18 x 1,5	CMF 58 A20 T40 O N	CMF 58 A20 T50 O N
Size 08 - 3/4" 16 UNF	CMF 08 A20 T40 O N	CMF 08 A20 T50 O N
Size 10 - 7/8" 14 UNF	CMF 10 A20 T40 O N	CMF 10 A20 T50 O N
Size 16 - 1" 5/16 12 UN	CMF 16 A20 T40 O N	CMF 16 A20 T50 O N

REGULATED FLOW ON PORT ① ⇔ ② - Allowance ± 5%

Measures executed at a pressure of 100 bar

Size 08 - 3/4" 16 UNF Size 58 - M 18 x 1,5			Size 10 - 7/8" 14 UNF			Size 16 - 1" 5/16" 12 UNF		
Ø ports	Regulated flow l/mn at 100 bar		Ø ports	Regulated flow l/mn at 100 bar		Ø ports	Regulated flow l/mn at 100 bar	
	mini	Maxi		mini	Maxi		mini	Maxi
1	0,4	2	1	0,7	3	1		
1,3			1,3	1,45	5,3	1,3		
1,5	2	4,5	1,5	2	7	1,5		
2	2	7	2	2,8	10	2		
2,5	2	11	2,5	4	17	2,5		
3			3	5,6	27	3		
3,5			3,5	7	39	3,5		

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: - 40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

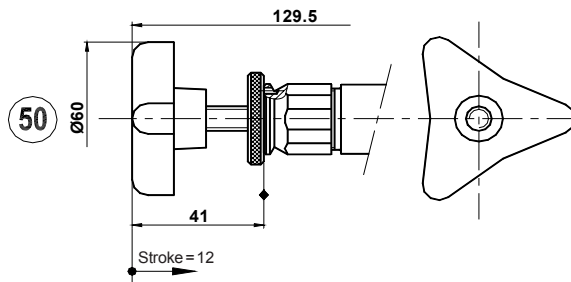
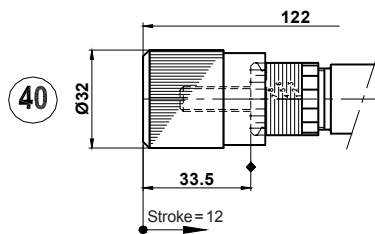
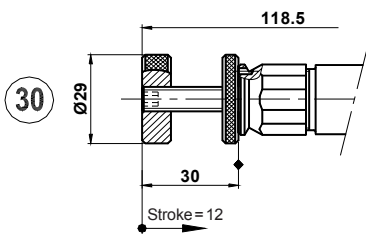
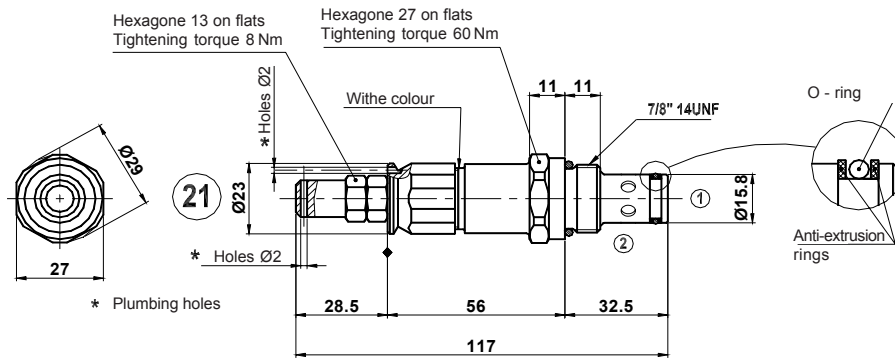
MOUNTING RECOMMENDATIONS: See F.T 50 1266 Page 232/00

ADJUSTABLE COMPENSATED FLOW CONTROL VALVES

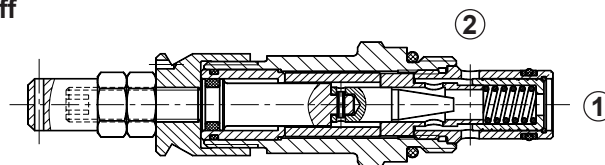
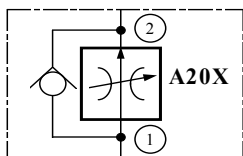
SIZE 10 - 7/8" 14UNF

Maximum pressure: 300 bar

Controlled flow from 05 to 40 l/mn



*** Flow increase from 0,5 to 40 l/mn by screwing off**



Description: A cylindrical spool called back by spring slides in a treated steel housing.

Working: Flow intake in ① - Regulated flow in ② - Free pass ② ⇒ ① (excepted in closed position).
When flow raises, pressure in the adjustable calibrated port raises to.
The spool, unbalanced, moves and compresses the return spring and closes up partially the holes of the valve housing.

F.T 50 1161 1/2

Codification	C M F 10 A20 X 21 O N
Size code	10 = 7/8" 14 UNF
Function code	A20 X 21 O N
Standard	
Adjustment range	O = 0,5 to 40 l/mn
Control mode	21 = screw for plumbing 30 = wheel 40 = sliding gauge 50 = wheel 3 branches
	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C

Characteristics: see overleaf
Tightening torques: Page 232 / 00
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Page 233 / 00
Weight: 0,2 Kg

Mounting on monoblock: Page 145 / 00
Mounting on MBS®: Page 192 / 00

Seal kit: N° 200 567

PUBLISHING 08 / 01 / 2008

V50 | 102 | 00

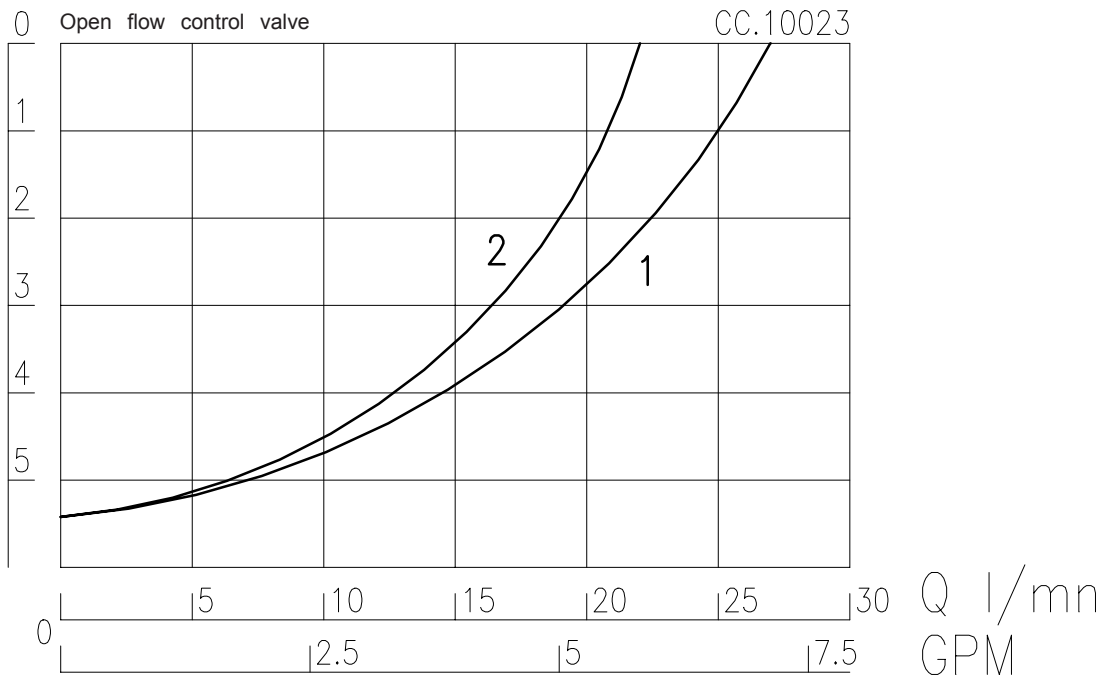
CHARACTERISTICS (cartridge only)

ADJUSTABLE COMPENSATED FLOW CONTROL VALVES

Size 10 - 7/8" 14 UNF	<u>Screw control</u>	<u>Wheel control</u>
	CMF 10 A20 X21 O N	CMF 10 A20 X30 O N
	<u>Sliding gauge control</u>	<u>3 branches wheel control</u>
	CMF 10 A20 X40 O N	CMF 10 A20 X50 O N

PRESSURE DROP

Number of adjustment turns



Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

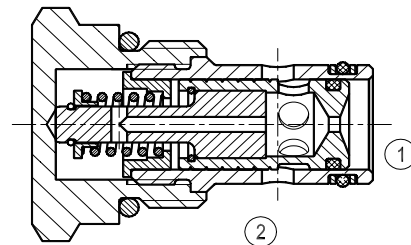
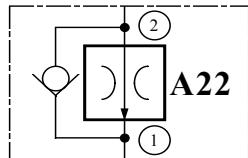
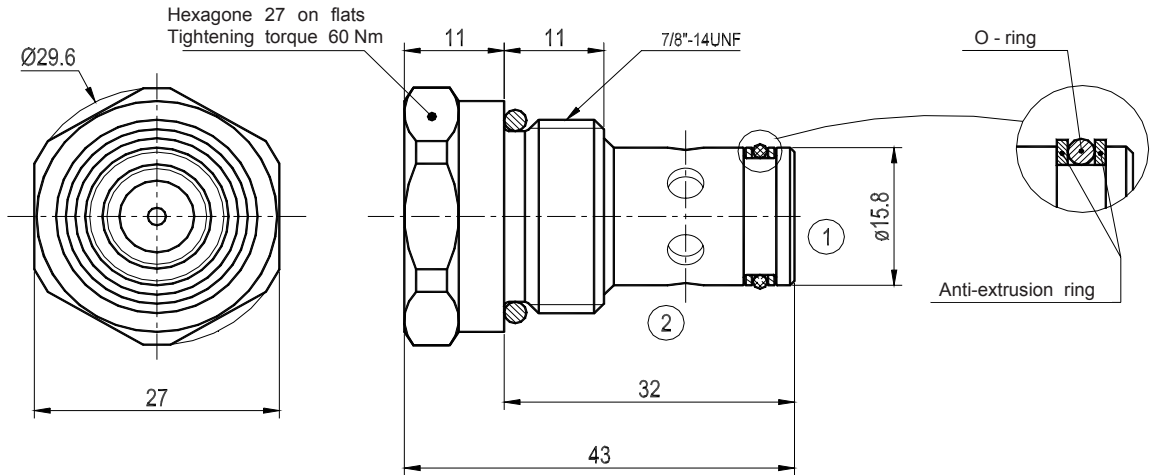
MOUNTING RECOMMENDATIONS: See F.T 50 1266 Page 232/00

INVERTED FIXED COMPENSATED FLOW CONTROL VALVE

Size 10 - 7/8" 14UNF

Maximum pressure: 250 bar

Maximum regulated flow: 10 l/mn



Description: A cylindrical spool called back by spring slides in a treated steel housing.

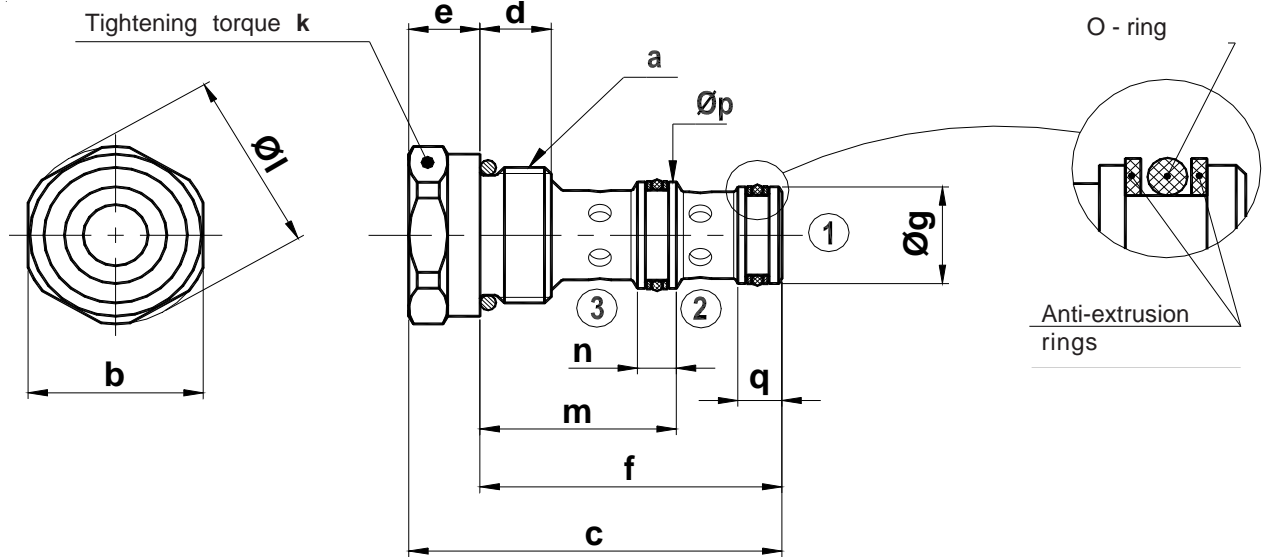
Working: Flow intake in ② - Regulated flow in ①

Codification	C M F 10 A22 T 10 O N
Size code	10 = 7/8" 14 UNF
Function code	A22
Standard	T 10 O N
Control mode	10 = fixed
	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 150°C

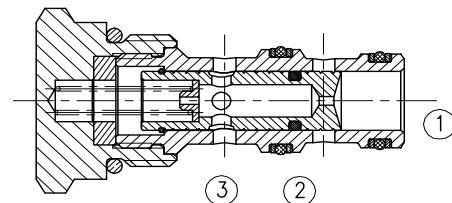
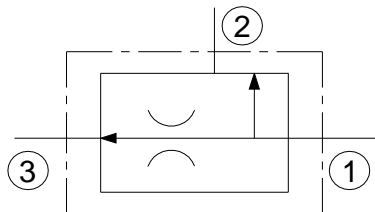
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Pages 233 / 00
Weight: 0,2 Kg
Mounting on monoblock: Page 145 / 00
Mounting on MBS@: Page 192 / 00
Seal kit: N° 200 567

F.T 50 1162

FIXED FLOW DIVIDERS with PRIORITY FLOW



Designation	Size SAEJ475	a Port size	Q Maxi inlet	l/mn regul.	Pressure Max bar	b	c	d	e	f	g	k Tightening torque	l	m	n	p	q	Weight in Kg
CMF 08 B34 T10	08	3/4" - 16 UNF	25	12	300	24	51	11	11	40	14,2	20 Nm	25,8	24,7	6	15,8	6,5	0,2
CMF 10 B34 T10	10	7/8" - 14 UNF	60	35	300	27	57,6	11	11	46,6	15,8	60 Nm	29,6	30,3	6	17,4	11,95	0,4



Description: A cylindrical spool with a calibrated port and called back by spring slides in a treated steel housing.

Working: Intake flow in ① - Regulated flow in ③ - Excess flow in ②
Pressure in ② can be superior to pressure in ③.

Size 08: available for regulated flow from 0,5 to 12 l/mn **Size 10:** available for regulated flow from 1 to 35 l/mn

Codification C M F 10 B34 T 10 O N

Size code 08 = 3/4" 16 UNF
10 = 7/8" 14 UNF

Function code Standard

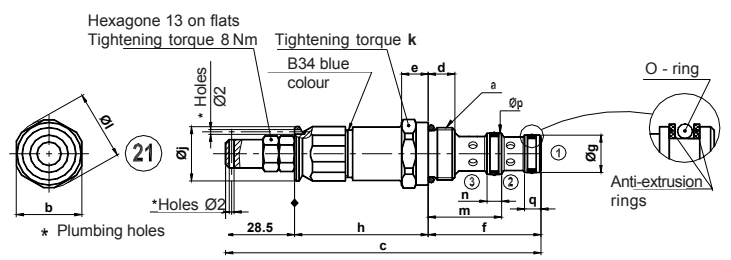
Control mode 10 = fixed

Standard N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 150°C

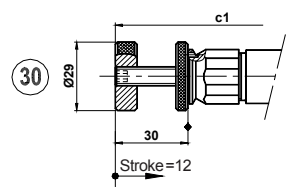
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Pages 234/ 00
Mounting on monoblock: Page 147 / 00
Mounting on MBS®: Page 193 / 00

F.T 50 1163

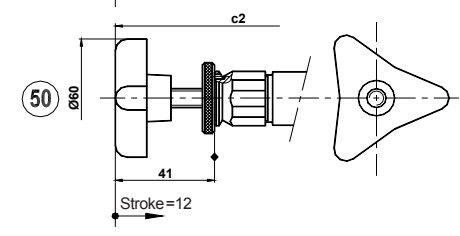
ADJUSTABLE FLOW CONTROL VALVES with PRIORITY FLOW



CMF .. B34 T 21 O N
screw adjustment



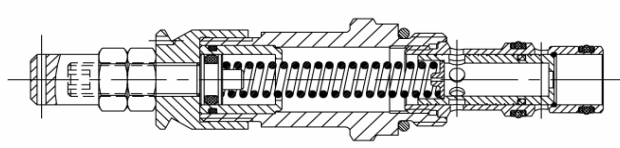
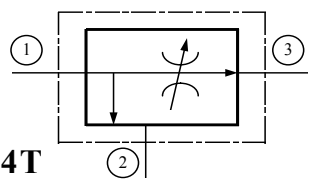
CMF .. B34 T 30 O N
wheel adjustment



CMF .. B34 T 50 O N
3 branches wheel adjustment

Designation	Size SAEJ475	a Port size	Q Maxi l/mn regul.	Pressure max bar	Dimensions									Weight in Kg	
					b	c	c1	c2	d	e	f	g	h		
CMF 08 B34 T	08	3/4 - 16 UNF	25	0,5 to 12	300	24	126	127,5	126,5	11	11	40	14,2	57,5	0,1
						j	k - Tightening torque Nm			m	n	p	q		
						23	20			24,7	6	15,8	6,5		
CMF 10 B34 T	10	7/8" - 14 UNF	60	1 to 35	300	27	130,3	131,8	130,8	11	11	46,6	15,8	55,2	0,2
						j	k - Tightening torque Nm			m	n	p	q		
						23	60			30,3	6	17,4	6,8		
CMF 16 B34 T	16	1" 5/16 - 12 UNF	100	5 to 80	300	38	163,5	165	164	14,5	20	73	26,92	62	0,6
						j	k - Tightening torque Nm			m	n	p	q		
						23	85			44	67	28,52	8		

Min regulated flow = 1/2 max regulated flow Tolerance ± 5%



Description: A cylindrical spool called back by spring slides in a treated steel housing.
Working: Flow intake in ① - Regulated priority flow in ③ - Excess flow in ②
 Pressure in ② can be superior to pressure in ③.
 Increase of regulated flow in ③ by screwing on.
 Max adjustment = twice the min adjustment.

Codification C M F 10 B34 T 21 O N

Size code
 08 = 3/4" 16 UNF
 10 = 7/8" 14 UNF
 16 = 1" 5/16 12 UNF

Function code
 B34
Standard
 T

Control Mode
 21 = screw
 30 = wheel
 50 = wheel 3 branches

Standard
 N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 100°C

Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Page 234 / 00
Mounting on monoblock: Page 147 / 00
Mounting on MBS®: Page 193 / 00-194 / 00

F.T 50 1164

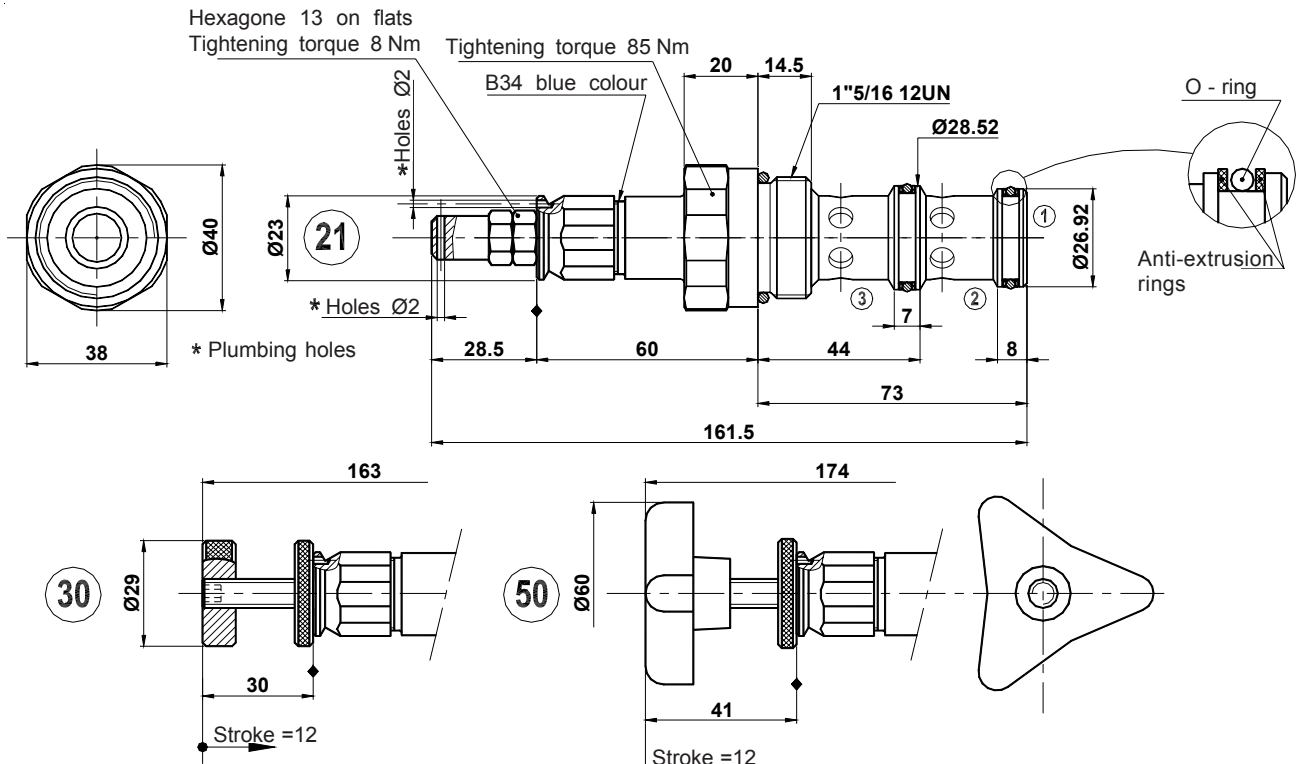
Seal kits: **Size 08:** N° 200 106 **Size 10:** N° 200 561

ADJUSTABLE FLOW CONTROL VALVES with PRIORITY FLOW

SIZE 16 - 1" 5/16 12 UN

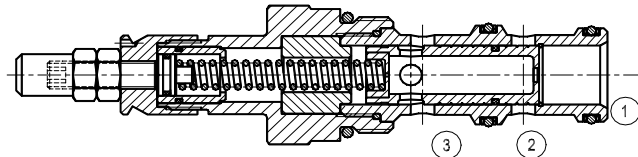
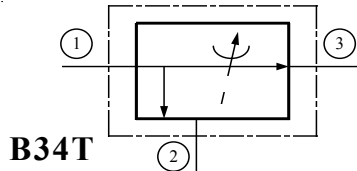
SCREW adjustment	CMF 16 B34 T 21 O N	N° 300 372
WHEEL adjustment	CMF 16 B34 T 30 O N	N° 300 373
3 BRANCHES WHEEL adjustment	CMF 16 B34 T 50 O N	N° 301 107

Maximum pressure 300 bar



Max intake flow = 100 l/mn

Max adjustment capacity = 80 l/mn
Possible adjustment range:
Min regulated flow = 1/2 max regulated flow



Working: Flow intake in ① - Regulated priority flow in ③ - Excess flow in ②
 Pressure in ② can be superior to pressure in ③.
 Increase of regulated flow in ③ by screwing on.
 Max adjustment = twice the min adjustment.

Codification	C M F 16 B34 T 21 O N
Size code	16 = 1" 5/16 12 UN
Function code	B34 T 21 O N
Standard	Standard
Control mode	21 = screw 30 = wheel 50 = wheel 3 branches
	N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 100°C

Filtration: ISO code 16/13 - Page 231 / 00

Mounting position: without restriction

Cavities: Page 234 / 00

Mounting on monoblock: Page 147 / 00

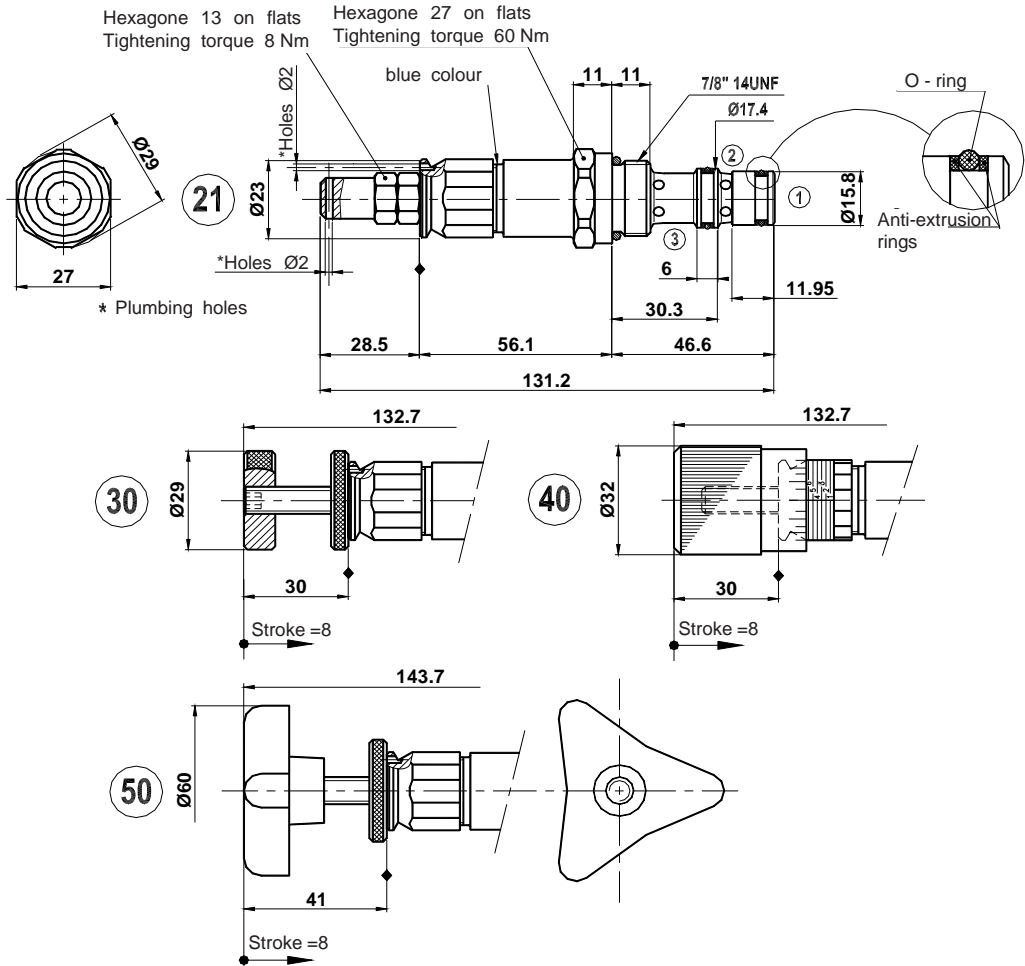
Mounting on MBS®: Page 193 / 00-194 / 00

Seal kit: N° 200 122

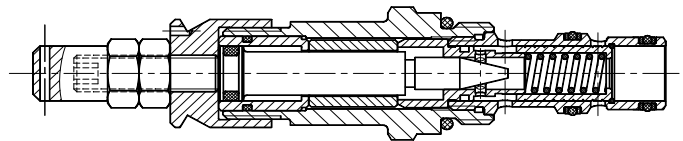
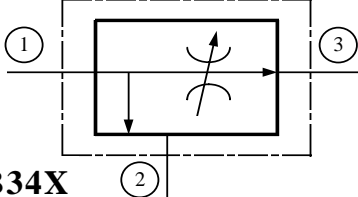
ADJUSTABLE FLOW CONTROL VALVES with PRIORITY FLOW

SIZE 10 - 7/8" 14 UNF

Maximum pressure 300 bar Max intake flow 60 l/mn Max regulated flow 40 l/mn



Régulation from 0,5 to 40 l/mn



Working: Intake flow in ① - Priority regulated flow in ③ - Excess flow in ②
 Pressure in ② can be superior to pressure in ③. Increase of the regulated flow in ③ by screwing off.

Codification	C M F 10 B34 X 21 O N
Size code	10 = 7/8" 14 UNF
Function code	B34 X
Standard	O N
Control code	21 = screw for plumbing 30 = wheel 40 = sliding gauge 50 = wheel 3 branches
	N - Nitril seals -40° + 100°C V - Viton seals -20° + 100°C

Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: sans restriction
Cavities: Page 234 / 00
Weight: 0,2 Kg
Mounting on block: Page 148 / 00
Mounting on MBS®: Page 195 / 00
Seal kit: N° 200 561

F.T 50 1166 1/2

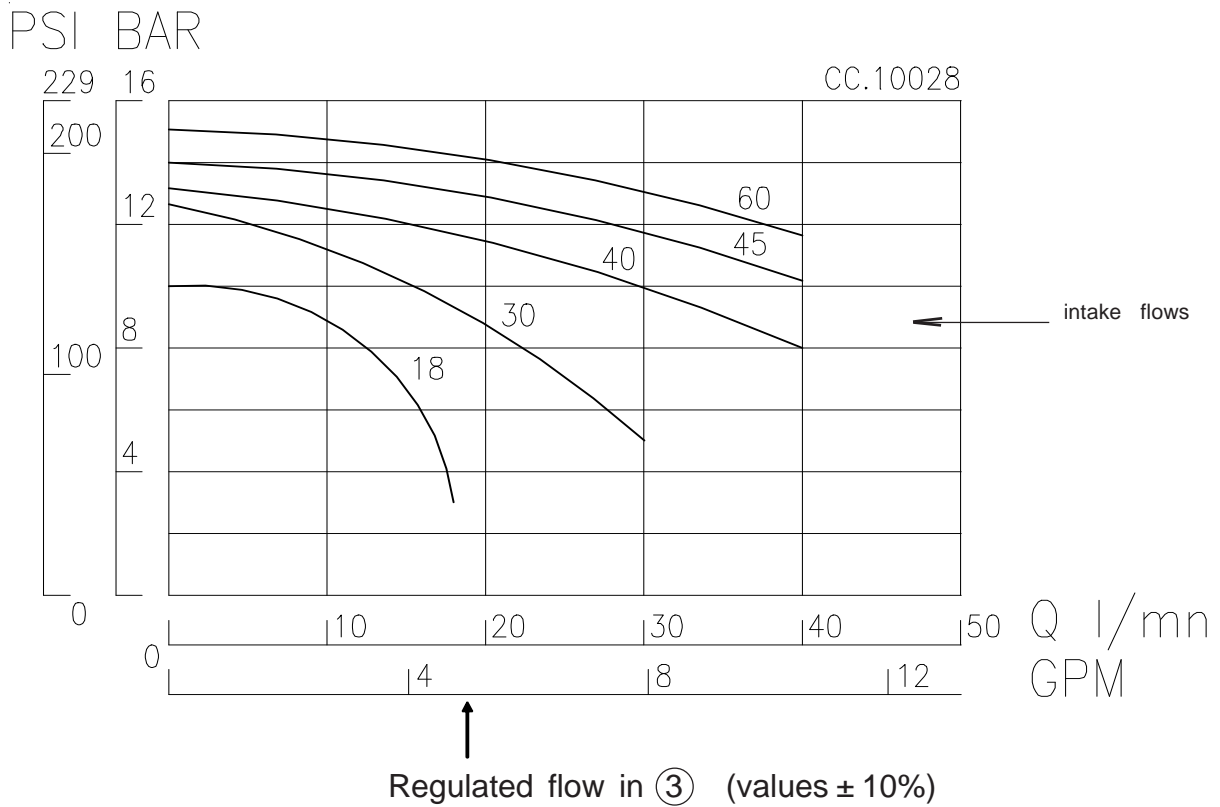
CHARACTERISTICS

ADJUSTABLE FLOW DIVIDERS with PRIORITY FLOW

SIZE 10 - 7/8" 14 UNF

CMF 10 B34 X21 O N	Screw adjustment
CMF 10 B34 X30 O N	Wheel adjustment
CMF 10 B34 X40 O N	Sliding gauge adjustment
CMF 10 B34 X50 O N	3 branches wheel

PRESSURE DROP 1 ⇔ 3 ○



Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

Working temperature: -40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
Temperature of oil at 40°C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

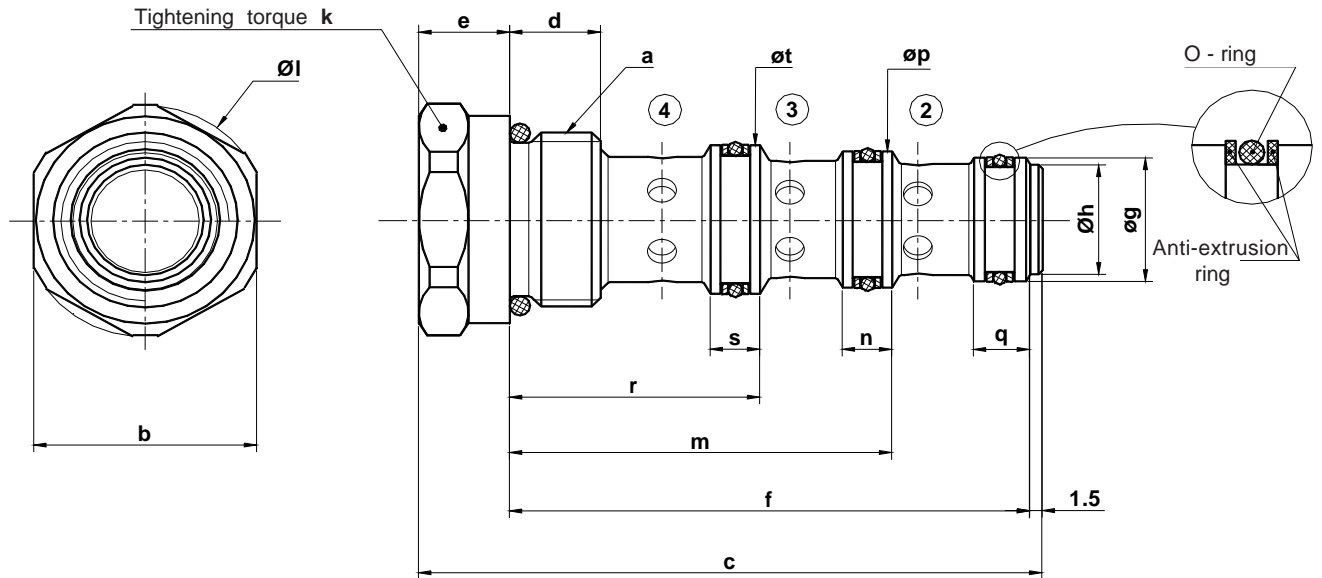
MOUNTING RECOMMENDATIONS: See F.T 501266 Page 232/00

FLOW DIVIDERS 50 / 50

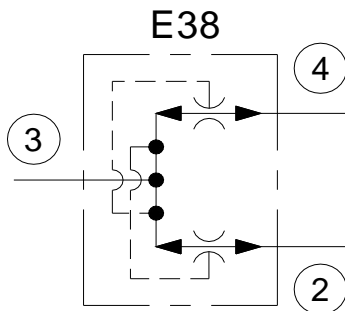
SIZE 10 - 7/8" 14 UNF

Maximum pressure 250 bar

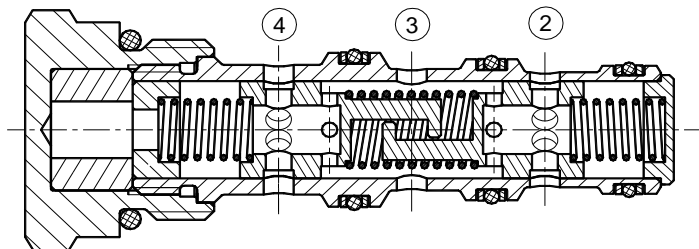
ON= Max intake flow 40 l/mn
AN= Max intake flow 50 l/mn



Designation	Size SAEJ475	a Port size	Inlet Q Maxi l/mn	Pressure Max bar	Dimensions								Weight in Kg
					b	c	d	e	f	g	h	k - Tightening torque Nm	
CHF 10 E38 T 10 ON	10	7/8" - 14 UNF	40	250	27	75,5	11	11	63	15,8	14	30	0,4
CHF 10 E38 T 10 AN			50		29	46,3	6	17,4	6,8	30,3	6	18,98	
					l	m	n	p	q	r	s	t	



ON REQUEST



F.T 50 1167 1/2

Characteristics: see overleaf
Temperature: see overleaf
Filtration: ISO code 16/13 - Page 231 / 00
Mounting position: without restriction
Cavities: Page 235/ 00

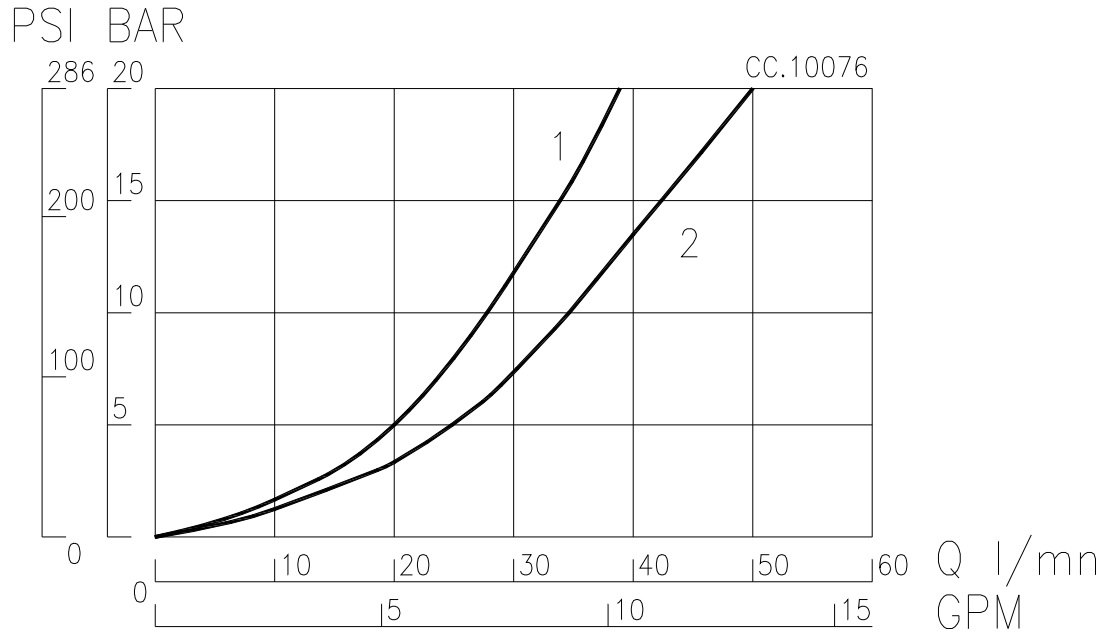
Mounting on block: Page
Mounting on MBS®: Page 196 / 00

Seal kit: N° 200 569

CHARACTERISTICS

FLOW DIVIDERS 50 / 50
Maximum pressure 250 bar

PRESSURE DROP



Curve 1 = CHF 10 E38 T10 O N ③ ⇔ ②
 Max intake flow: 40 l/mn ③ ⇔ ④

Curve 2 = CHF 10 E38 T10 A N ③ ⇔ ②
 Max intake flow: 50 l/mn ③ ⇔ ④

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
 Viscosity between 8 and 450 cSt at working temperature.

Working temperature: - 40°C + 100°C with standard Nitril seals.

Executed measures: Ambient temperature 22°C +/- 2°C.
 Temperature of oil at 40°C.
 Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

CARTRIDGES with PROPORTIONAL CONTROL

SOMMARY

	N° Page
Foreword	113 / 00
Booklet 01 / 01 F (extract)	
POPPET SOLENOID VALVE TIGHT with ORDER PROPORTIONALA103 Normally Closed - NF and Normally Open - NO 2 ways	113 / 01
PILOT RELIEF VALVE with PROPORTIONAL CONTROLA116 Normally open - NO 2 ways	114 / 00
RELIEF VALVE with PROPORTIONAL CONTROLA216 2 ways	115 / 01
PRESSURE REDUCING VALVE with PROPORTIONAL CONTROLB118 Normally Open - NO 3 voies	116 / 00
DOUBLES POPPET SOLENOID VALVE with PROPORTIONAL CONTROLB121 Pressure reducing valve and Relief valve 3 ways	116 / 02
COMPENSATED PROPORTIONAL FLOW CONTROL VALVEA121 -A120 Normally closed - NF and Normally open - NO 2 ways	117 / 00

.../....

CARTRIDGES with PROPORTIONAL CONTROL

SOMMARY

	N° Page
COMPENSATED PROPORTIONAL FLOW DIVIDER with PRIORITY FLOW.....B135 - B134 Normally closed - NF and Normally open - NO 3 ways	119 / 00
ELECTRONIC DRIVER	121 / 00
PROGRAMMERS - CONNECTOR.....	125 / 00

CARTRIDGE with PROPORTIONAL CONTROL

FOREWORD

JTEKT-HPI develops and industrializes a programme of solenoid-valves in cartridges with proportional control.

The range in size 10 - 7/8" 14 UNF - according to a standard project ISO 131 TC includes :

- | | | |
|---|---|--|
| ⇒ | Pilot relief valve | Flow 5 to 60 l/mn
Pressure 10 to 275 bar |
| ⇒ | Pilot pressure reducing valve | Flow 5 to 50 l/mn
Pressure 5 to 150 bar |
| ⇒ | Compensated flow control valve
Normally open - NO - not energized
Normally closed - NF - not energized | Max flow 30 l/mn
Max pressure 275 bar |
| ⇒ | Compensated flow divider with priority flow
Normally open - NO - not energized
Normally closed - NF - nt energized | Max flow intake 50 l/mn
Max regulated priority flow 30 l/mn
Max pressure 275 bar |

The solenoid valves with proportional control are available in:

- Cartridges
- Cartridges mounted on blocks for linear mounting - BAF
- Cartridges mounted on modules MBS® for assembling on modules blocks.

They have the same port sizes and can be mounted in place of valves and solenoid-valves of the general programme.

With a simple and robust conception, these solenoid valves in cartridges are specially designed for applications of hydraulic circuits intended for:

- stationary and mobile handling
- agricultural machinery
- public works machines
- road maintenance equipments

PILOTED POPPET TIGHT VALVES with PROPORTIONAL CONTROL Normally Closed

2 Ways

Size 08 - 3/4" 16 UNF

CPF 08 A103 ... ON

CPF 08 A103 ... AN

without manual override

with manual override

Ref. without coil:

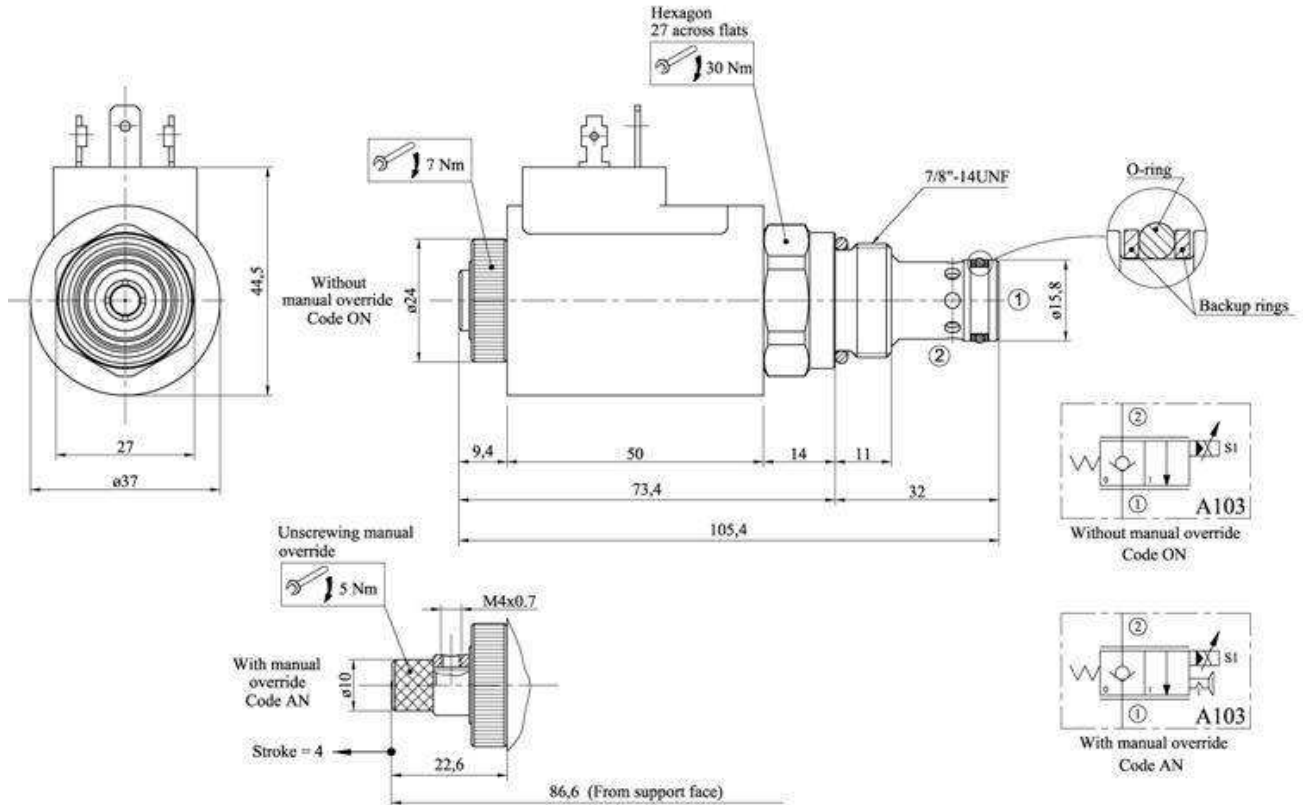
N° T301298 (2 grooves)

N° T301297 (2 grooves)

N° T301239 (4 grooves)

N° T301238 (4 grooves)

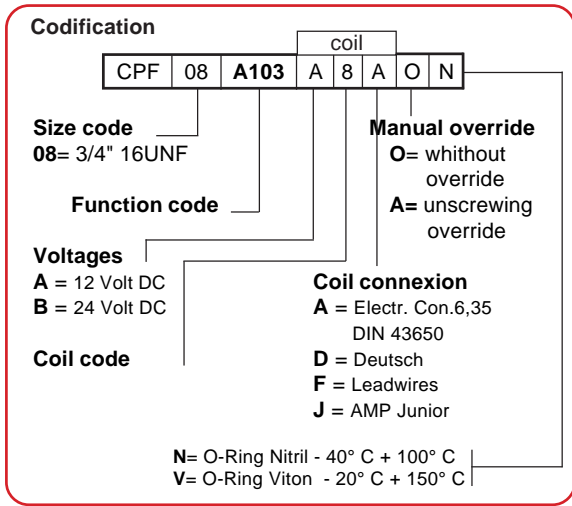
Ref. with coil: ref. here above followed by the coil code _ see here below codification table



Description: **De-energized:** flow is blocked from 2 to 1, load holding at port 2. Note: flow is allowed from 1 to 2 with de-energized coil.
Energized: flow from 2 to 1 with progressive opening of the section proportionally to current: see curves.
 Fonctionality with **coil code 8** power 30W.

Technical Characteristics

Max. flow	30 l/mn
Max. pressure	300 bar
Coil code 8 & connections	see codification table
Voltage	12 VDC (A8.) or 24 VDC (B8.)
Coil power	30 watt
Resistance	5,2 Ω = 12 V 19,9 Ω = 24 V
Duty cycle	ED 100%
Frequency	50 to 420 Hz (200 Hz recommended)
Current	see curves
Hysteresis	< 5 %
Max leakage, closed position	0 to 0,3 cm ³ /min to 200 bar
Temperature	-20 °C + 70 °C with std NBR seals
Filtration	ISO classe 18/16/13 - Page 231/00
Recommended installation	without restriction
Cavity	Size 08 - 3/4" 16 UNF - specific
Seal kit	N° T200104



F.T 50 1382 1/3

Fluids : Mineral based or synthetic (seals compatible), with good lubrication properties. With a viscosity between 8 and 450 cSt at functioning temperature.

PILOTED POPPET TIGHT VALVES with PROPORTIONAL CONTROL Normally Closed - NC

2 Ways

Size 08 - 3/4" 16 UNF

CPF 08 A103 ... ON

CPF 08 A103 ... AN

without manual override

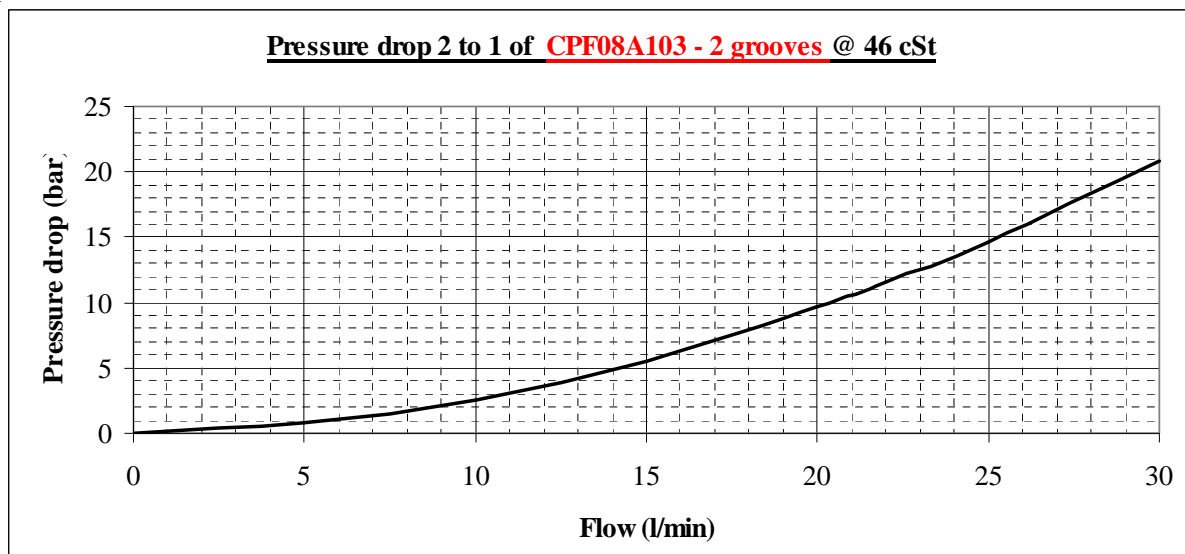
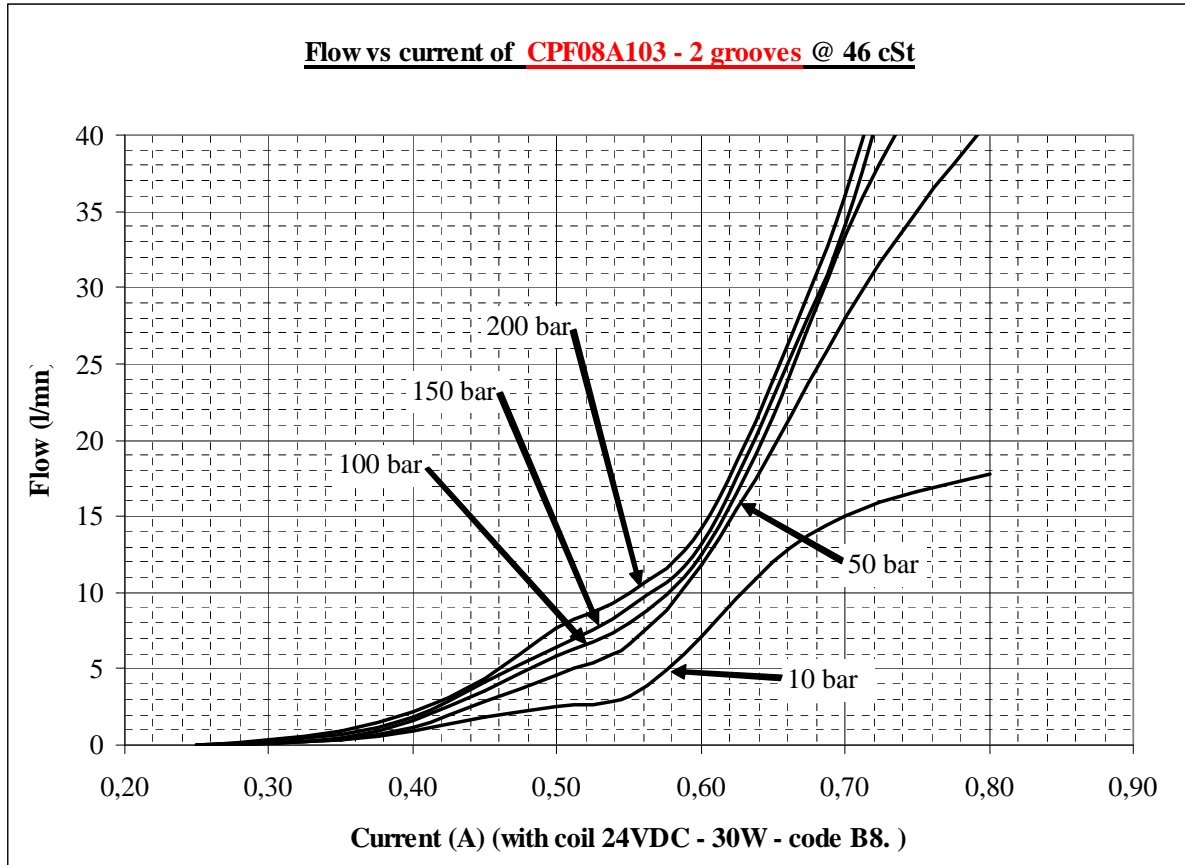
with manual override

Ref. without coil:

N° T301298 (2 grooves)

N° T301297 (2 grooves)

Ref. with coil: ref. here above followed by the coil code _ see here bellow codification table



PILOTED POPPET TIGHT VALVES with PROPORTIONAL CONTROL Normally Closed - NC

2 Ways

Size 08 - 3/4" 16 UNF

CPF 08 A103 ... ON

CPF 08 A103 ... AN

without manual override

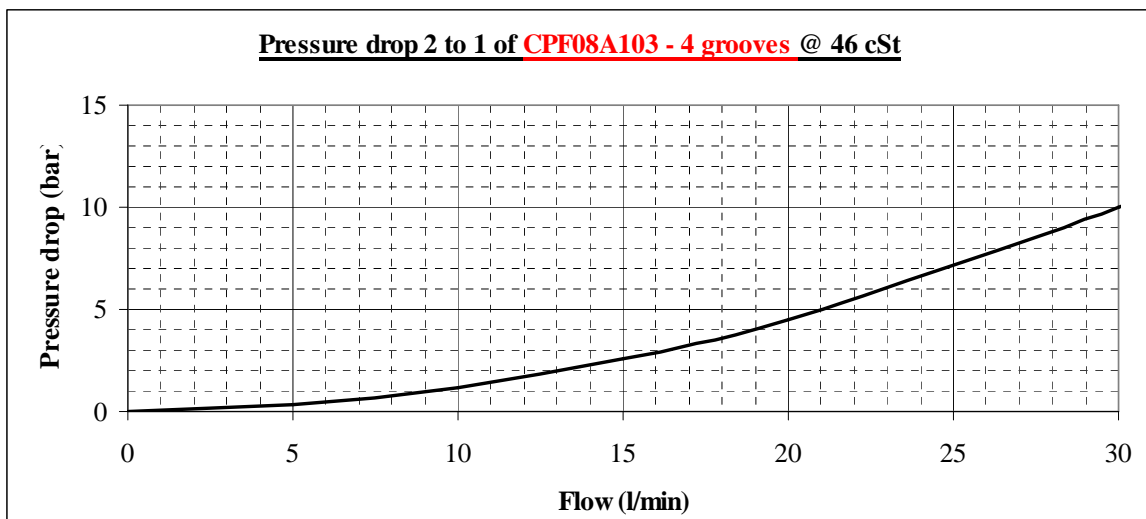
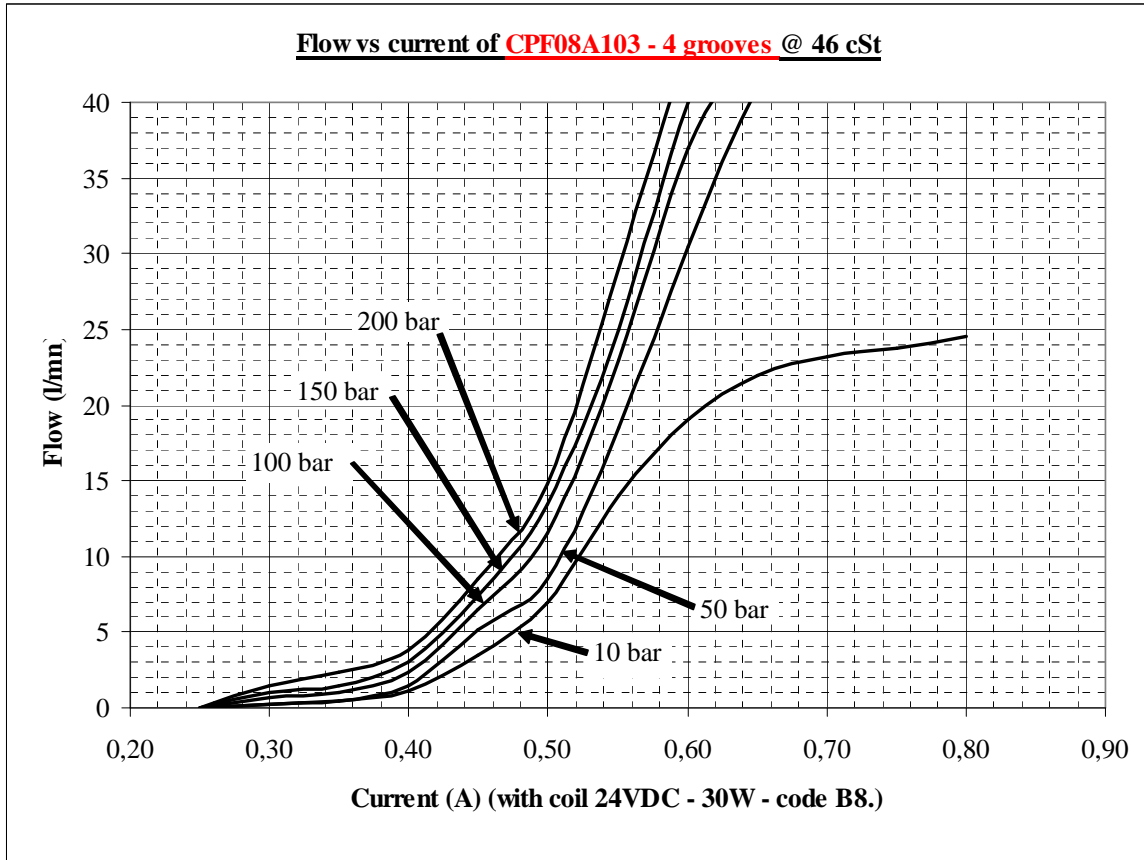
with manual override

Ref. without coil:

N° T301239 (4 grooves)

N° T301238 (4 grooves)

Ref. with coil: ref. here above followed by the coil code _ see here below codification table



F.T 50 1382 3/3

POPPET SOLENOID VALVE TIGHT with ORDER PROPORTIONAL

**Normally closed NC
2 WAY**

Size 08 - 3/4" 16 UNF

CPF 08 A103 ___ ON
without hand drive

CPF 08 A103 ___ AN
with hand drive

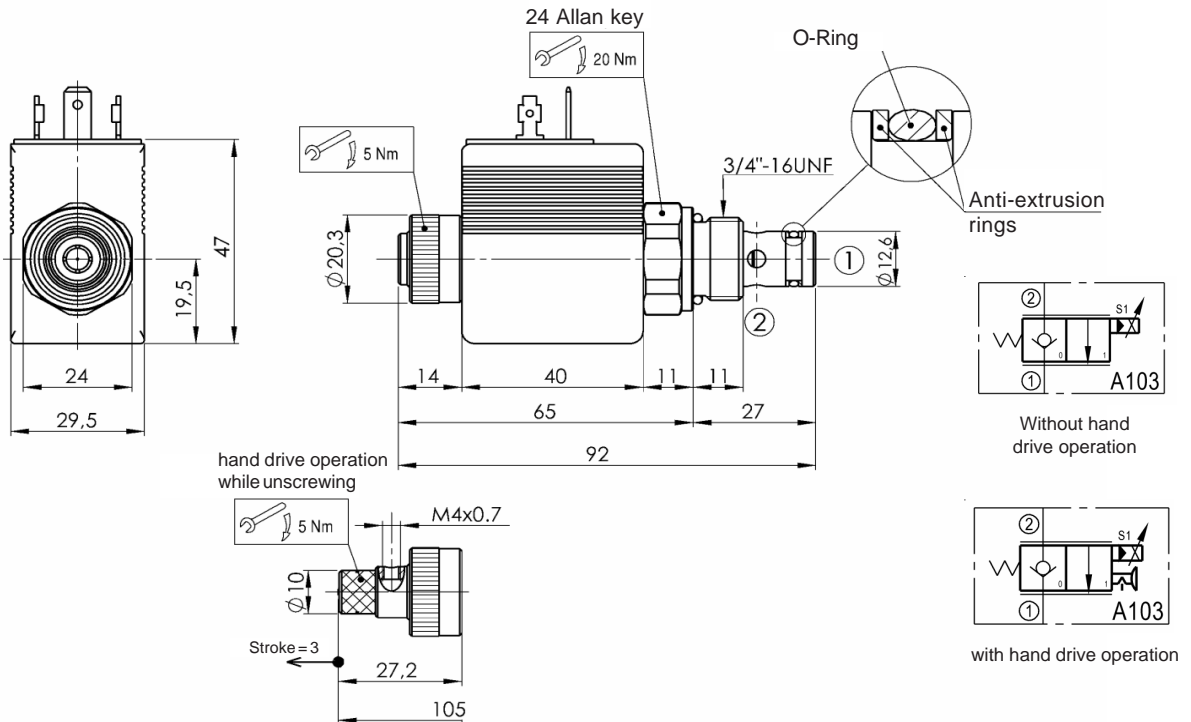
Ref. without coil :

N° T301239

N° T301238

Ref. with coil :

N° of poppet solenoid valve above followed by the designation of the reel - see coding below



Description: In position rest: sealing of ② ⇒ ①
 In version check valve: ① ⇒ ② in position solenoid not energized.
 Flow proportional to intensity from I_o to I_{maxi}
 Version not compensated in pressure ② ⇒ ①

Technical Characteristics

Codification

CPF	10	A103	A	3	A	O	N
-----	----	------	---	---	---	---	---

Size code
10 = 7/8" 14 UNF

Function code

Voltages
A = 12 Volt DC
B = 24 Volt DC

Coil code

Manual override
O = without hand drive
A = Screwing off

Coil connexion
A = Electr. Con. 6,35 DIN 43650
D = Deutsch
F = Leadwires
J = AMP Junior

N = O-Ring Nitril - 40° C + 100° C
V = O-Ring Viton - 20° C + 150° C

Flow regulated	0 to 30 l/mn
Max. Pressure	250 bar
Coil code 8 & connections	see table coding reels opposite
Voltage	12 VDC (A8*) or 24 VDC (B8*)
Coil power	30 watt
Resistance	5,2 Ω = 12 VDC 19,9 Ω = 24 VDC
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommended)
Intensity	see curves overleaf
Hysteresis	< 5%
Max. leakage, closed position	0 to 0,3 cm³/mn with 200 bar
Working temperatur	- 20 °C + 70 °C with standard O-Ring Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting position	without restriction
Cavities	Size 08 - 3/4" 16 UNF - Page 233/00
Seal kits	N° T200104

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
 Viscosity between 8 and 450 cSt at working temperature.

F.T. 50 1276 1/2

POPPET SOLENOID VALVE TIGHT with ORDER PROPORTIONAL

**Normally closed NC
2 WAY**

Size 08 - 3/4" 16 UNF

CPF 08 A103 ___ ON
without hand drive

CPF 08 A103 ___ AN
with hand drive

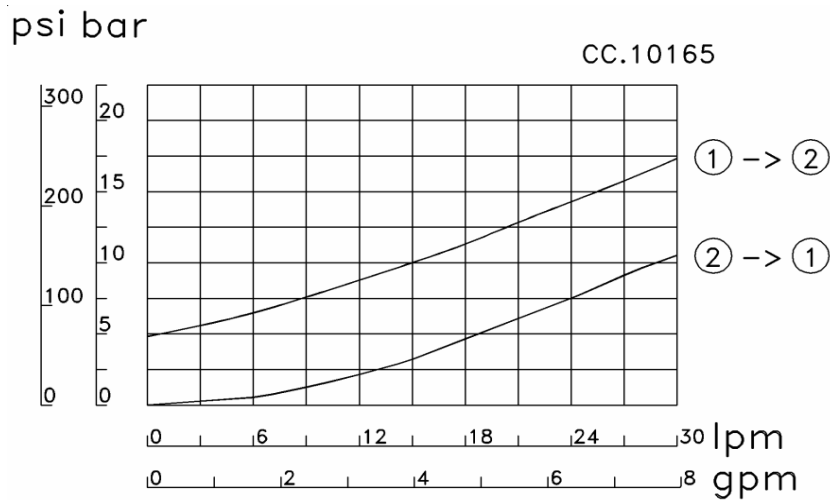
Ref. without coil :

N° T301239

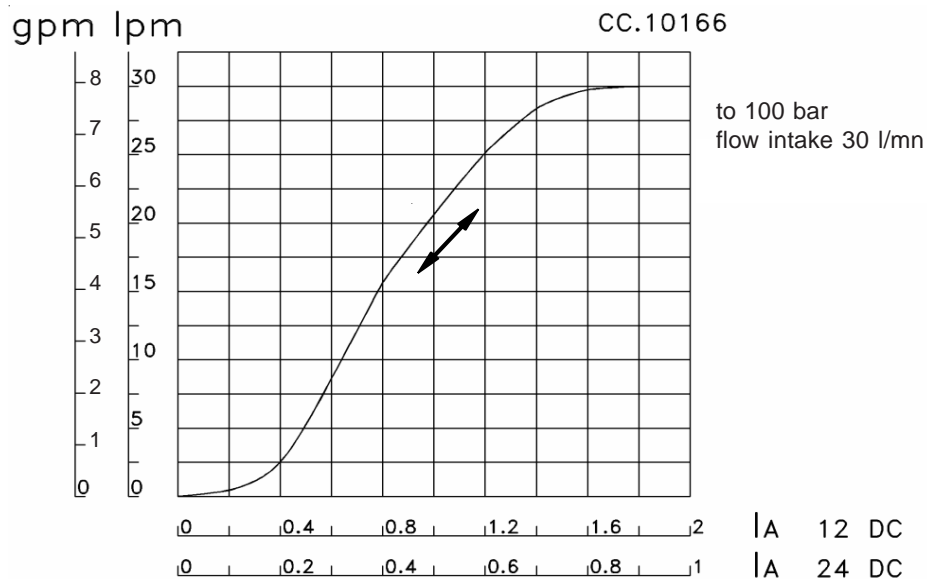
N° T301238

Ref. with coil : N° of poppet solenoid valve above followed by the designation of the reel - see codification overleaf

PRESSURE DROP



FLOW CONTROL / INTENSITY for a pressure of 100 bar



Executed measures : with electronic driver JTEKT-HPI N° 102 179 - Frequency 200 Hz.
Input voltage 24V DC - Power 30 Watt - Resistance 16 Ω -
Ambient temperature 22 °C ± 2 °C.
Oil temperature at 40 °C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40 °C.

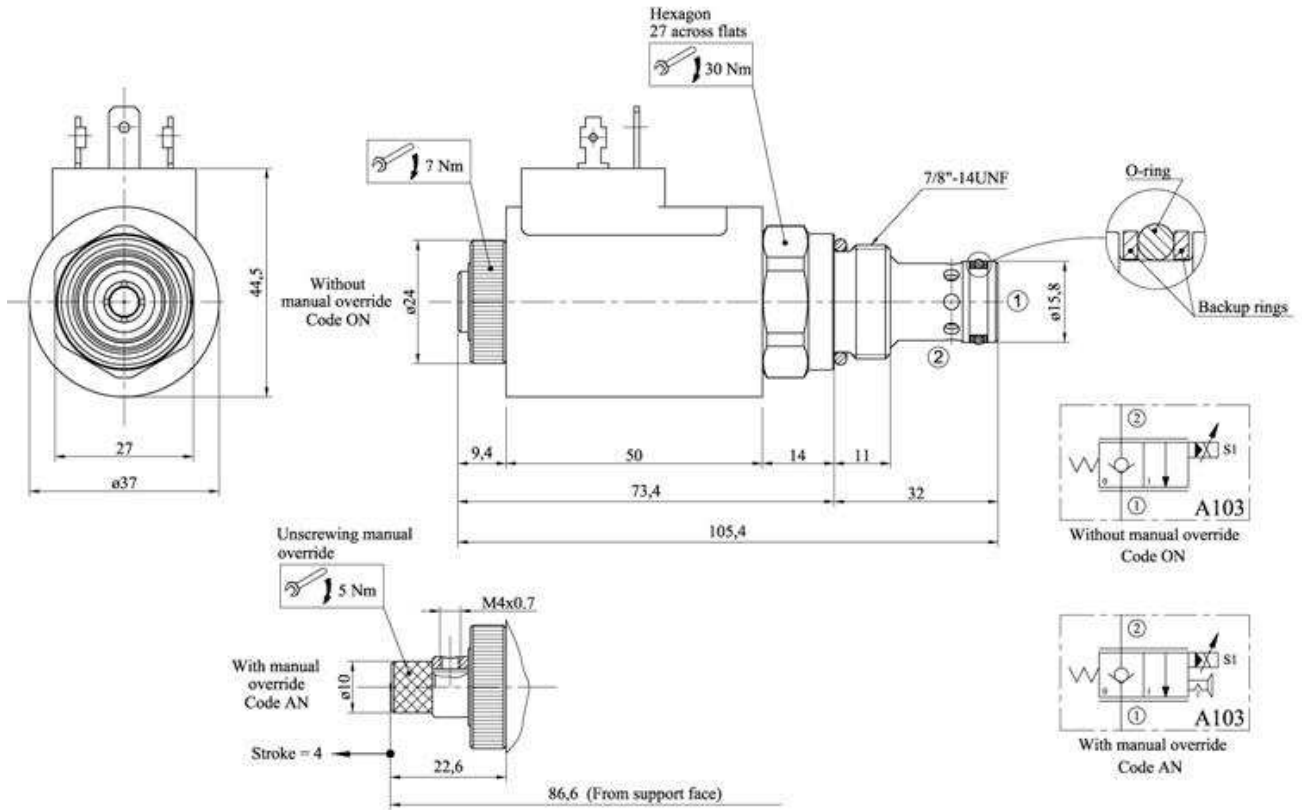
This poppet solenoid valve proportional perhaps used directly with potentiometric current 12V - 2,5 A (10Ω).

In this case, hysteresis of operation is important. To obtain a regulation specifies with a minimum; hysteresis, to use black box UED-M15601 - N° 102 179 (F.T 50 1174 - Page 121 / 00)

PILOTED POPPET TIGHT VALVE with PROPORTIONAL CONTROL Normally Closed - NC

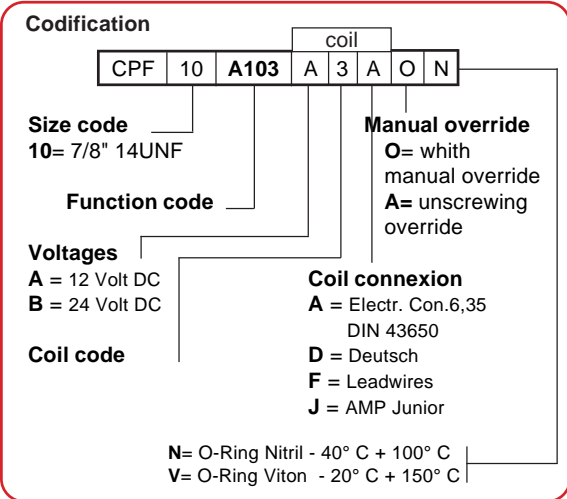
2 WAYS

Size 10 - 7/8" 14 UNF **CPF 10 A103 ... ON** 4 grooves Ref. T301260 - without manual override
 CPF 10 A103 ... AN 4 grooves Ref. T301250 - with manual override



Description: **De-energized:** flow is blocked from 2 to 1, load holding at port 2.
 Note: flow is allowed from 1 to 2 with energized coil.
Energized: flow is allowed from 2 to 1 with progressive opening of the section proportionally to current: see curves.
 Functionality with **coil code 3** power 26W.

Technical Characteristics



Max. flow	60 l/mn
Max. pressure	300 bar
Coil code 3 & connections	see codification table
Coil Voltage	12 VDC (A3*) or 24 VDC (B3*)
Coil power	26 watt
Resistance	5,5 Ω = 12 V 22,2 Ω = 24 V
Duty cycle	ED 100%
Frequency	50 to 420 Hz (200 Hz recommended)
Current	See curves
Hysteresis	< 5 %
Max leakage, closed position	0 to 0,3 cm³/min to 200 bar
Temperature	-20 °C + 70 °C with standard Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Recommended installation	whitout restriction
Cavity	Size 10 - 7/8" 14 UNF - specific
Seal kit	N° T200014

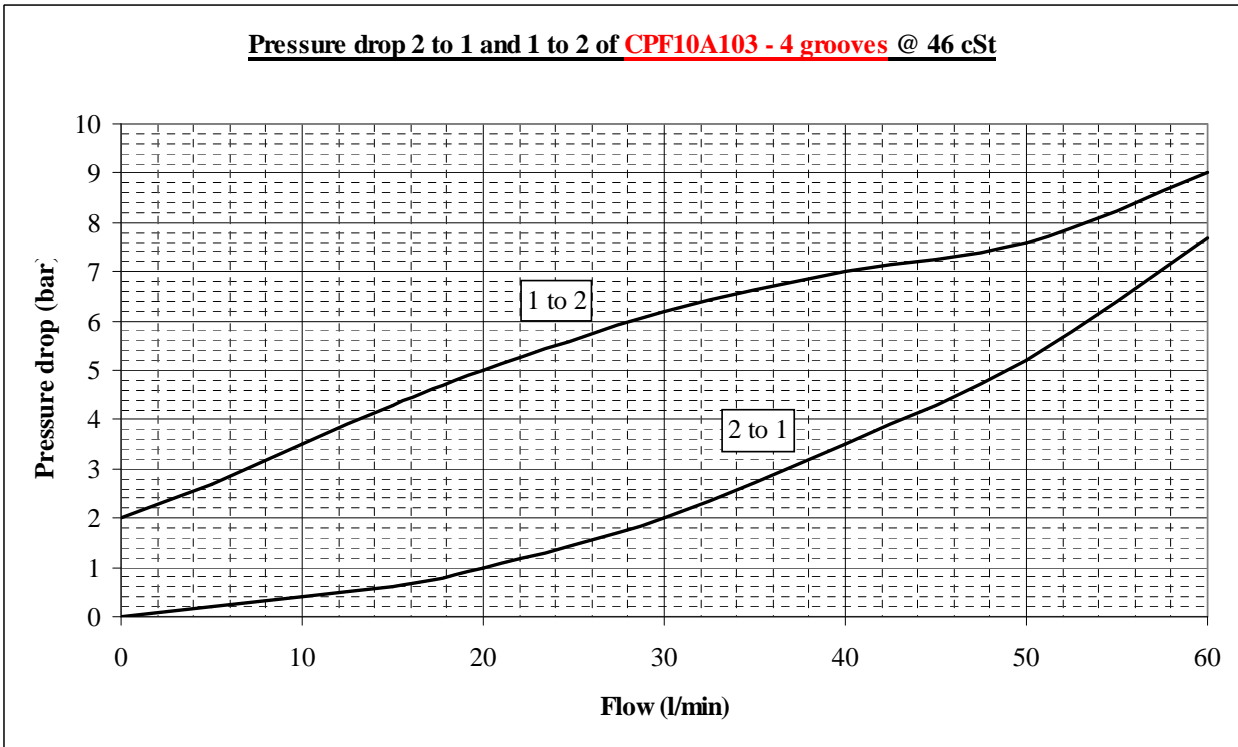
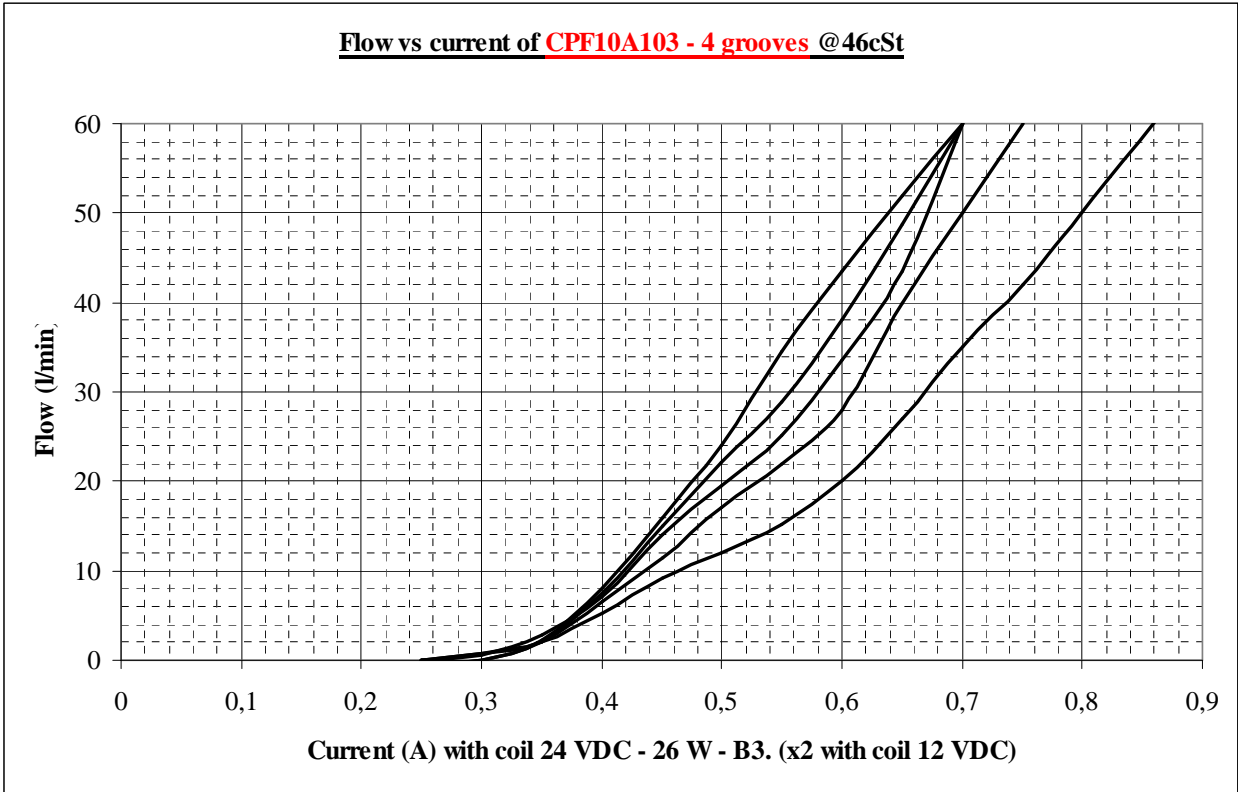
F.T 50 1381 1/2

Fluids : Mineral based or synthetic (seals compatible), with good lubrication properties.
 With a viscosity between 8 and 450 cSt at functioning temperature.

**PILOTED POPPET TIGHT VALVE
with PROPORTIONAL CONTROL
Normally Closed - NC**

2 WAYS

Size 10 - 7/8" 14 UNF **CPF 10 A103 ... ON** 4 grooves Ref. T301260 - without manual override
 CPF 10 A103 ... AN 4 grooves Ref. T301250 - with manual override



F.T 50 1381 2/2

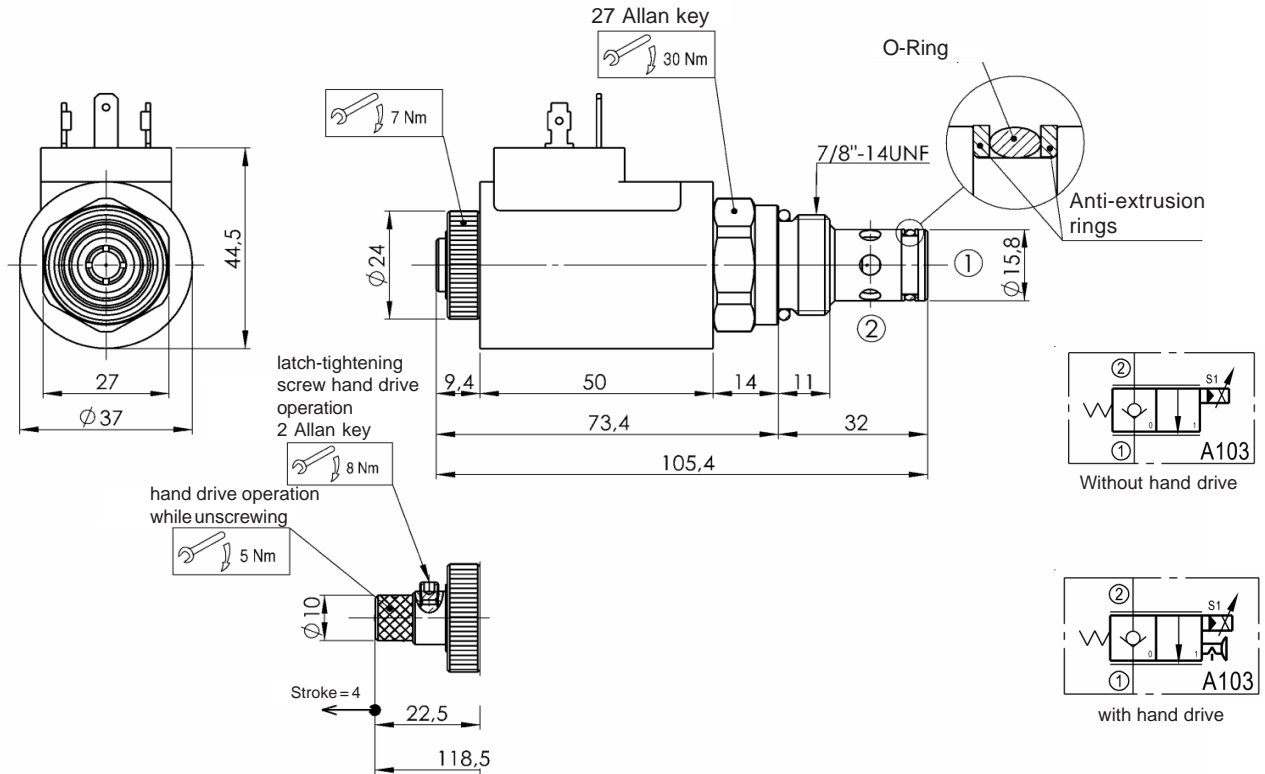
POPJET SOLENOID VALVE TIGHT with ORDER PROPORTIONAL

**Normally closed NC
2 WAY**

Size 10 - 7/8" 14 UNF

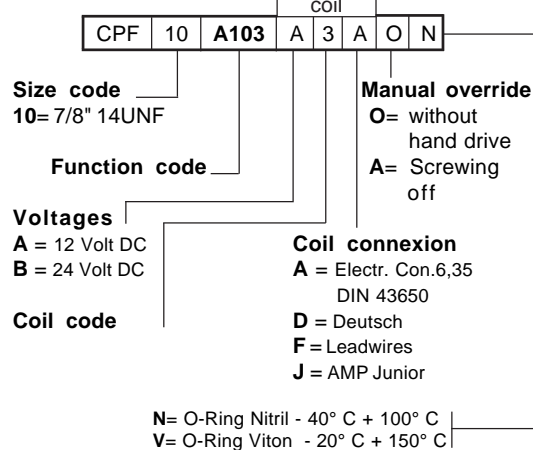
CPF 10 A103 A3A ON
CPF 10 A103 B3A ON
without hand drive

CPF 10 A103 A3A AN Tension 12VDC
CPF 10 A103 B3A AN Tension 24VDC
with hand drive



Description: In position rest: sealing of ② \Rightarrow ①
 In version check valve: ① \Rightarrow ② in position solenoid not energized.
 Flow proportional to intensity from I_o to I_{maxi} - See curves CC.10176 overleaf
 Version not compensated in pressure ② \Rightarrow ①

Codification



Technical Characteristics

Flow regulated	0 to 30 l/mn
Max. Pressure	250 bar
Coil code 8 & connections	see table coding reels opposite
Voltage	12 VDC (A3*) or 24 VDC (B3*)
Coil power	26 watt
Resistance	5,5 Ω = 12 VDC 22,2 Ω = 24 VDC
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommended)
Intensity	see curves overleaf
Hysteresis	< 5%
Max. leakage, closed position	< 200 cm ³ /mn with 200 bar
Working temperatur	- 20 °C + 70 °C with standard O-Ring Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting position	without restriction
Cavities	Size 10 - 7/8" 14 UNF - Page 233/00
seal kits	N° T200014

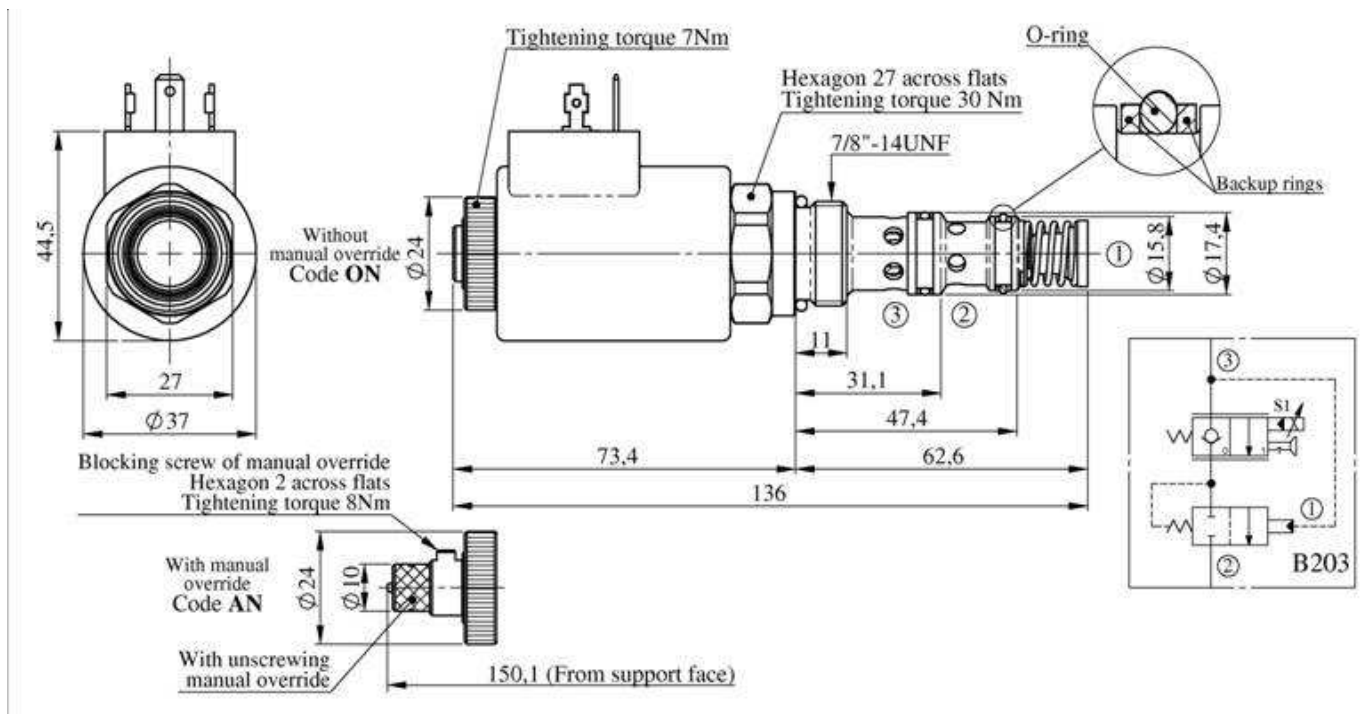
Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
 Viscosity between 8 and 450 cSt at working temperature.

F.T 50 1277 1/2

PILOTED POPPET TIGHT VALVE COMPENSATED FLOW REGULATOR PROPORTIONAL COMMAND Normally Closed - NC

Stacker Lowering Valve

- | | | |
|------------------------------|---------------------------------------|--|
| Size 10 - 7/8" 14 UNF | CPF 10 B203 ...ON-1 (17 l/min) | ref.: T301312 without manual override |
| | CPF 10 B203 ...ON-2 (35 l/min) | ref.: T301313 without manual override |
| 2 ways | CPF 10 B203 ...AN-1 (17 l/min) | ref.: T301314 with manual override |
| 3 ways cavity | CPF 10 B203 ...AN-2 (35 l/min) | ref.: T301315 with manual override |



Description: **De-energized:** flow is blocked from 3 to 2, load holding at port 3.
Energized: flow is allowed from 3 to 2 with a progressive opening of the section proportionally to current (see curves). The flow from 3 to 2 is metered with a pressure compensation proportionally to command current (regardless load at port 3).

Functionality with coil code 3 power 26W.

Technical Characteristics

Max. flow	35 l/min
Max. pressure	300 bar
Coil code 3 & connections	see codification table
Coil voltage	12 VDC (A3*) or 24 VDC (B3*)
Coil power	26 watt
Resistance	5,2 Ω = 12 V 22,2 Ω = 24 V
Duty cycle	ED 100%
Frequence	50 at 420Hz (200 Hz recommended)
Current	See curves
Hysteresis	< 5 %
Max leakage, closed position	0 to 0,3 cm ³ /min to 200 bar
Temperature	-20°C +70°C with std NBR seals
Filtration	ISO classe 18/16/13 - Page 231/00
Recommended installation	without restriction
Cavity	Size 10 - 7/8" 14 UNF - specific
Seal kit	N° T200561

Codification

CPF
10
B203
A
3
A
O
N

coil

Size code
10= 7/8" 14UNF

Function code
A = 12 Volt DC
B = 24 Volt DC

Coil code
D = Deutsch
F = Leadwires
J = AMP Junior

Manual override
0= without override
A= unscrewing override

Coil connexion
A = Electr. Con.6,35
DIN 43650

N= O-Ring Nitril - 40° C + 100° C
V= O-Ring Viton - 20° C + 150° C

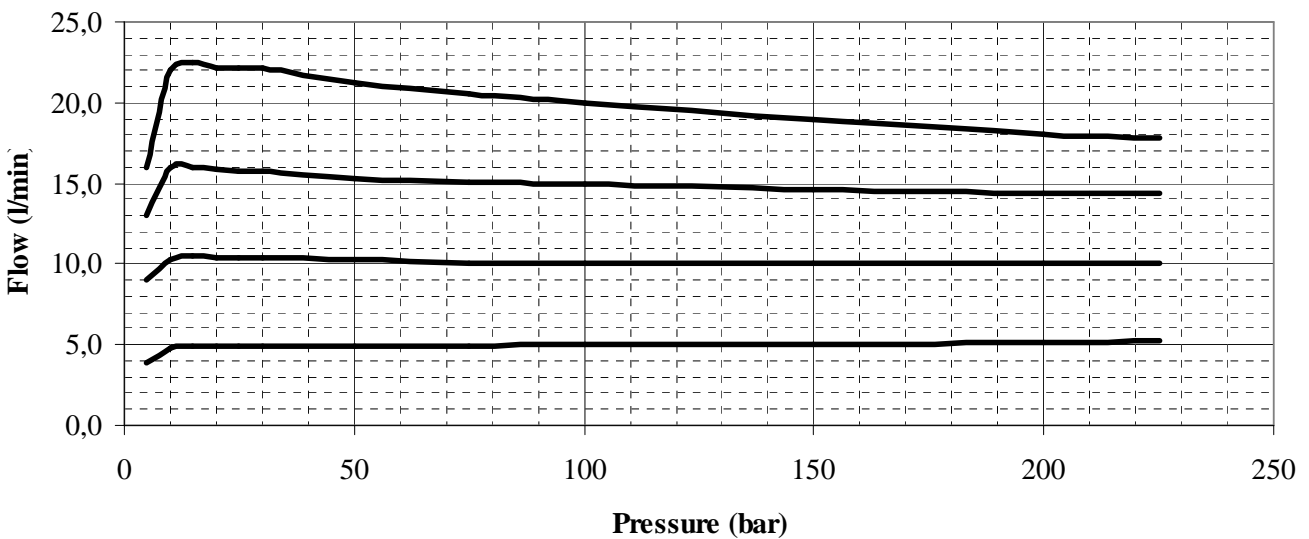
Fluids : Mineral based or synthetic (seals compatible), with good lubrication properties.
 With a viscosity between 8 and 450 cSt at functioning temperature.

**PILOTED POPPET TIGHT VALVE
COMPENSATED FLOW REGULATOR
PROPORTIONAL COMMAND Normally Closed - NC**

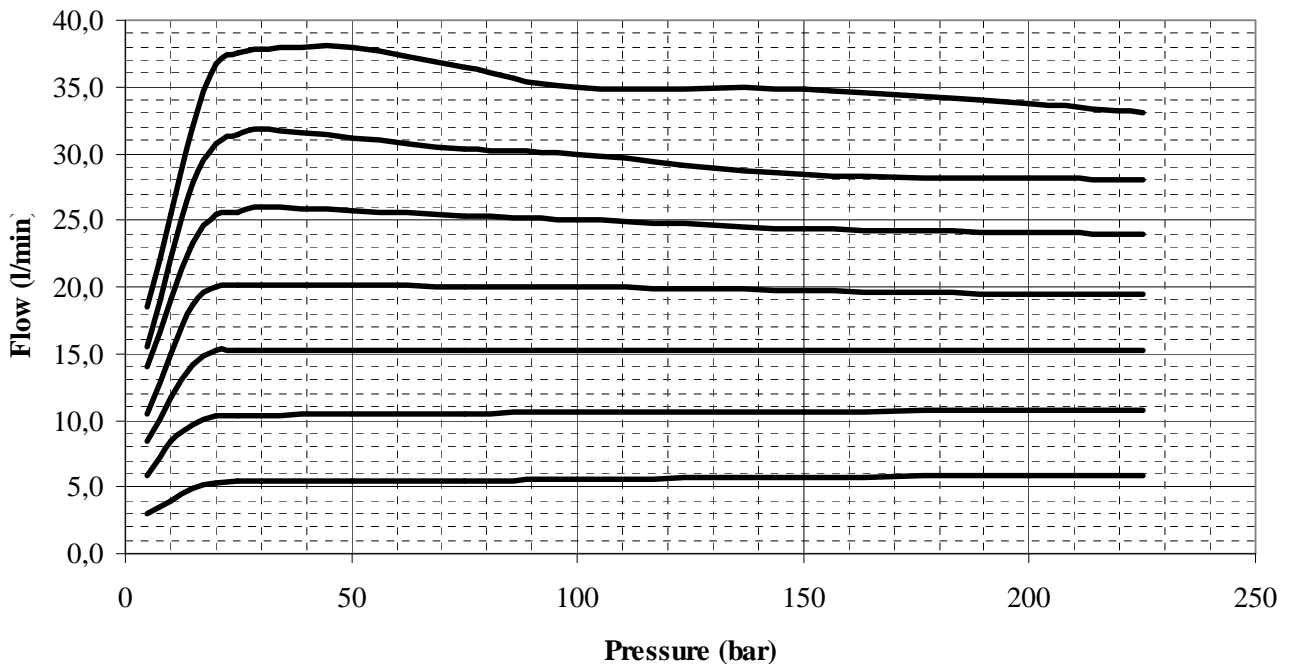
Stacker Lowering Valve

Size 10 - 7/8" 14 UNF	CPF 10 B203 ...ON-1 (17 l/min)	ref.: T301312 without manual override
	CPF 10 B203 ...ON-2 (35 l/min)	ref.: T301313 without manual override
2 ways	CPF 10 B203 ...AN-1 (17 l/min)	ref.: T301314 with manual override
3 ways cavity	CPF 10 B203 ...AN-2 (35 l/min)	ref.: T301315 with manual override

Flow vs pressure of CPF10B203 17 l/min @ 46 cSt and constant current



Flow vs pressure of CPF10B203 35 l/min @ 46 cSt and constant current



F.T 50 1385 2/2

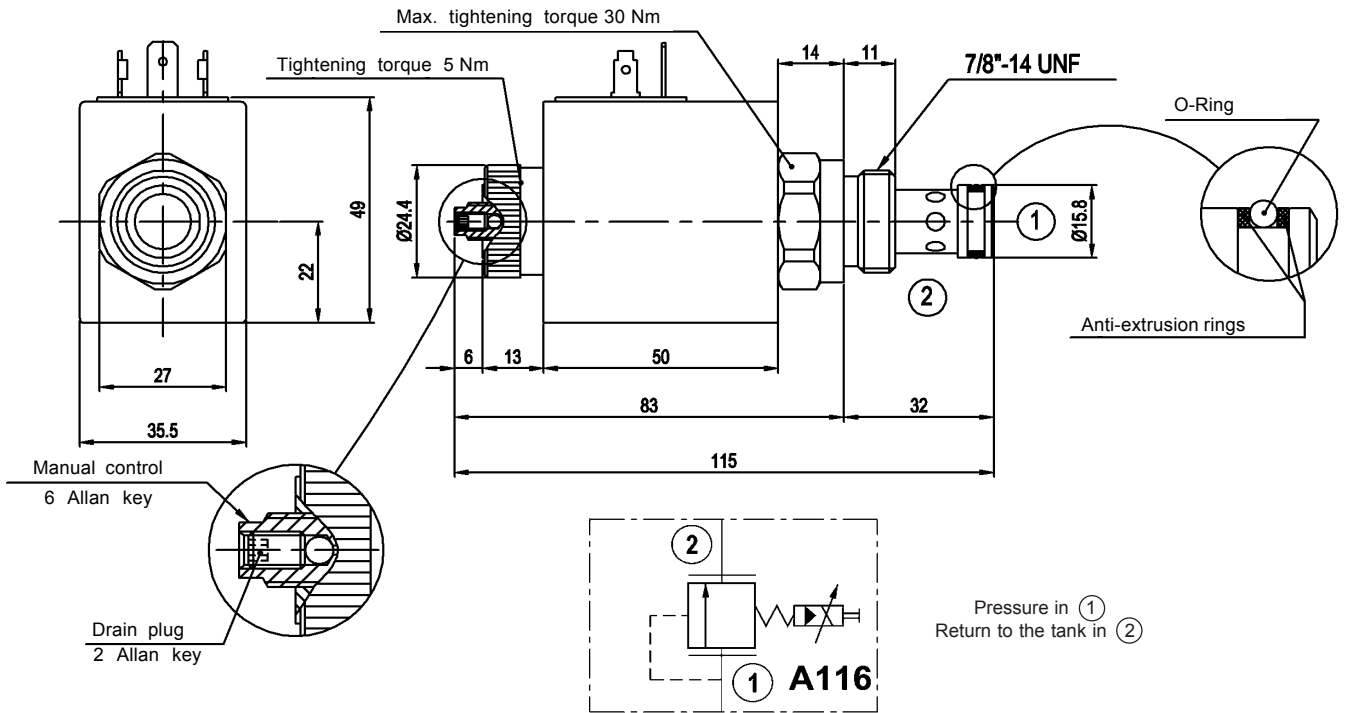
PILOT RELEF VALVE with PROPORTIONAL CONTROL

**Normally open NO
2 WAY**

Size 10 - 7/8" 14 UNF **CPP 10 A116 ___ BN** with hand drive

Ref. without coil: **N° T301089**

Ref. with coil: N° T301089 above followed by the designation of the reel - see coding below



Description: Not energized ① ⇒ ②
 The limiting device of pressure to order proportional compensated is in open position NO.
 The pressure increases proportionally with intensity.

Codification

CPP	10	A116	coil	A	5	A	B	N
-----	----	------	------	---	---	---	---	---

Size code 10= 7/8" 14UNF

Function code

Voltages
A = 12 Volt DC
B = 24 Volt DC

Coil code

Manual override
A= without hand drive
B= while screwing

Coil connexion
A = Electr. Con.6,35 DIN 43650
D = Deutsch
F = Leadwires
J = AMP Junior

N= O-Ring Nitril - 40° C + 100° C
V= O-Ring Viton - 20° C + 150° C

Technical Characteristics

Max. flow intake	60 l/mn
Mini flow intake	5 l/mn
Variable pressure	10 to 275 bar
Bobine code 5 & connexions	see table coding reels opposite
Voltage	12 VDC (A5*) or 24 VDC (B5*)
Coil power	30 watt
Resistance	4 Ω = 12 V 16 Ω = 24 V
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommanded)
Intensity	see curves overleaf
Hysteresis	< 4 %
Max leakage, closed position	< 100 cm³/mn to 200 bar
Working temperature	- 20 °C + 70 °C with standard Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting position	whitout restriction
Cavities	Size 10 - 7/8" 14 UNF - Page 233/00
Seal kits	N° T200014

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
 Viscosity between 8 and 450 cSt at working temperature.

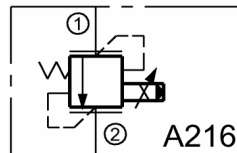
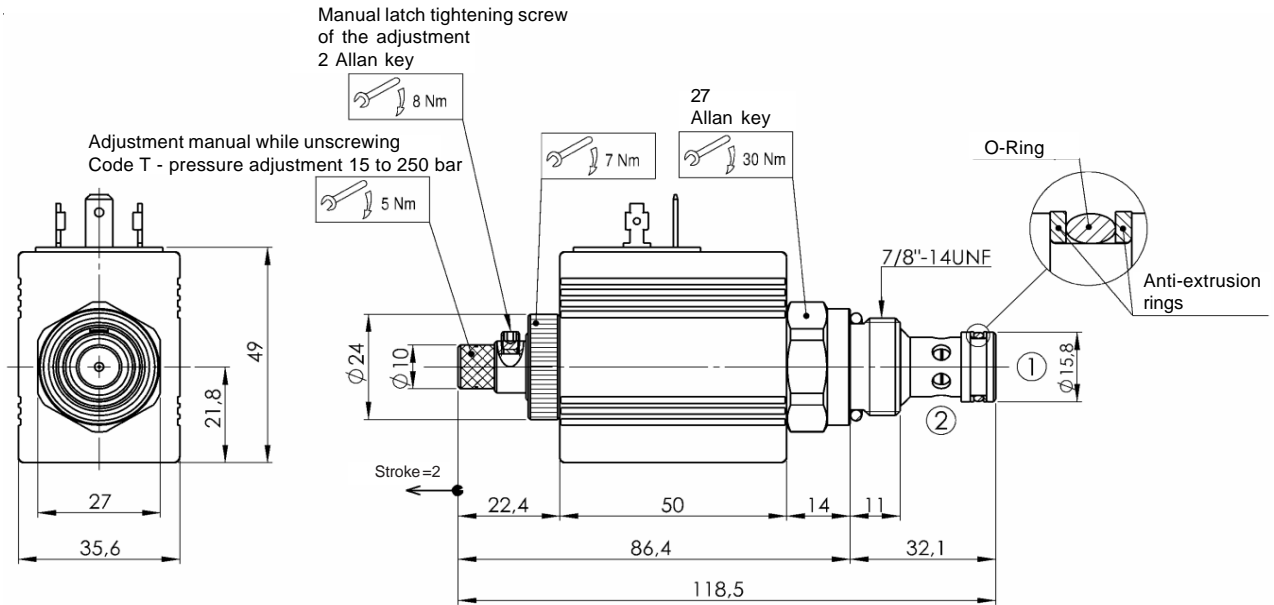
RELEF VALVE with PROPORTIONAL CONTROL

Normally closed - NC
2 WAY

Size 10 - 7/8" 14 UNF

CPP 10 **A216** A5A TN
CPP 10 **A216** B5A TN
With adjustment manual

Voltage 12 VDC
Voltage 24 VDC

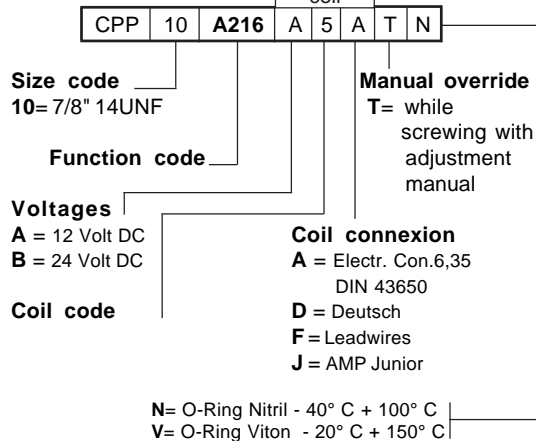


Description: Not energized ① ⇒ ②

This relief valve to order proportional compensated in position is closed NC.

The pressure decreases proportionally with intensity.

Codification



Technical Characteristics

Flow regulated	30 l/mn
Max. pressure	275 to 15 bar
Bobine code 5 & connexions	see table coding reels opposite
Voltage	12 VDC (A5*) or 24 VDC (B5*)
Coil power	35 watt
Resistance	4 Ω = 12 V 16 Ω = 24 V
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommended)
Intensity	see curves overleaf
Hysteresis	< 5 %
Max leakage, closed position	< 200 cm³/mn to 200 bar
Working temperature	- 20 °C + 70 °C with standard Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting position	whitout restriction
Cavities	Size 10 - 7/8" 14 UNF - Page 233/00
Seal kits	N° T200014

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

RELEF VALVE with PROPORTIONAL CONTROL

**Normally closed - NC
2 WAY**

Size 10 - 7/8" 14 UNF

CPP 10 A216 A5A TN

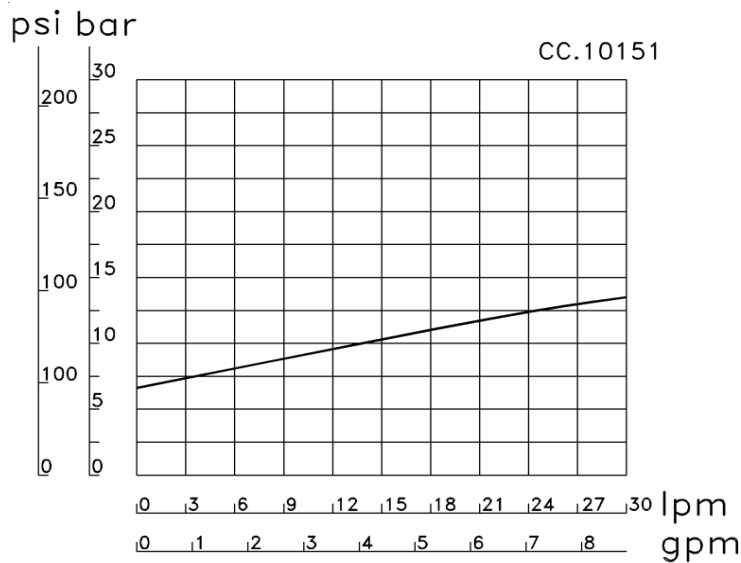
Voltage 12 VDC

CPP 10 A216 B5A TN

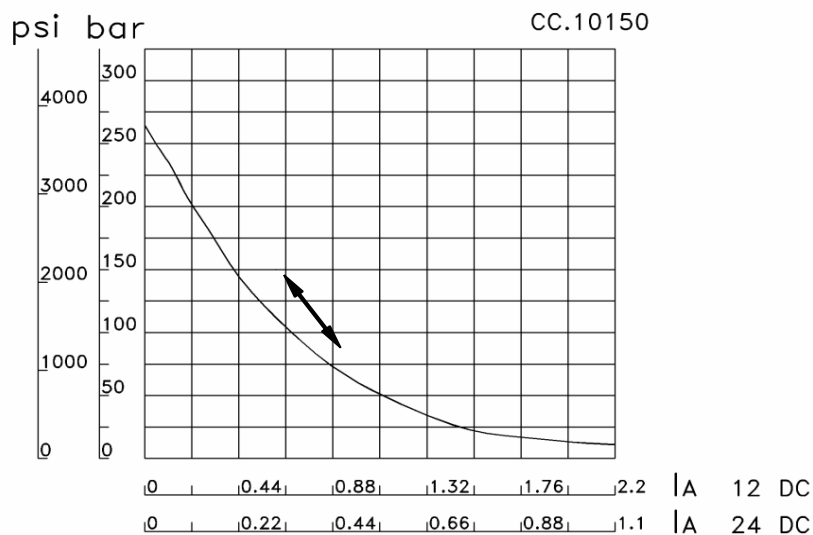
Voltage 24 VDC

With adjustment manual

PRESSURE DROP



PRESSURE / INTENSITY



Executed measures:

with electronic driver JTEKT-HPI N° 102 179 - Frequency 200 Hz.
 Input voltage 24V DC - Power 30 Watt - Resistance 16 Ω -
 Ambient temperature 22°C ± 2°C.
 Oil temperature at 40°C.
 Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40°C.

This relief valve proportional perhaps used directly with potentiometric current 12V - 2,5 A (10Ω).
 In this case, the hysteresis of operation is important. To obtain a regulation specifies with a minimum; hysteresis, to use
 black box UED-M15601 - N° 102 179 (F.T 50 1174 - Page 121 / 00)

F.T 50 1281 2/2

PILOTED PRESSURE RELIEF VALVE with PROPORTIONAL COMMAND NORMALLY CLOSED - NC

Size 10 - 7/8" 14 UNF

CPP 10 A216 ... AN Ref. T301281-P...¹ (280 bar maxi ²)

CPP 10 A216 ... BN Ref. T301301-P...¹ (140 bar maxi ²)

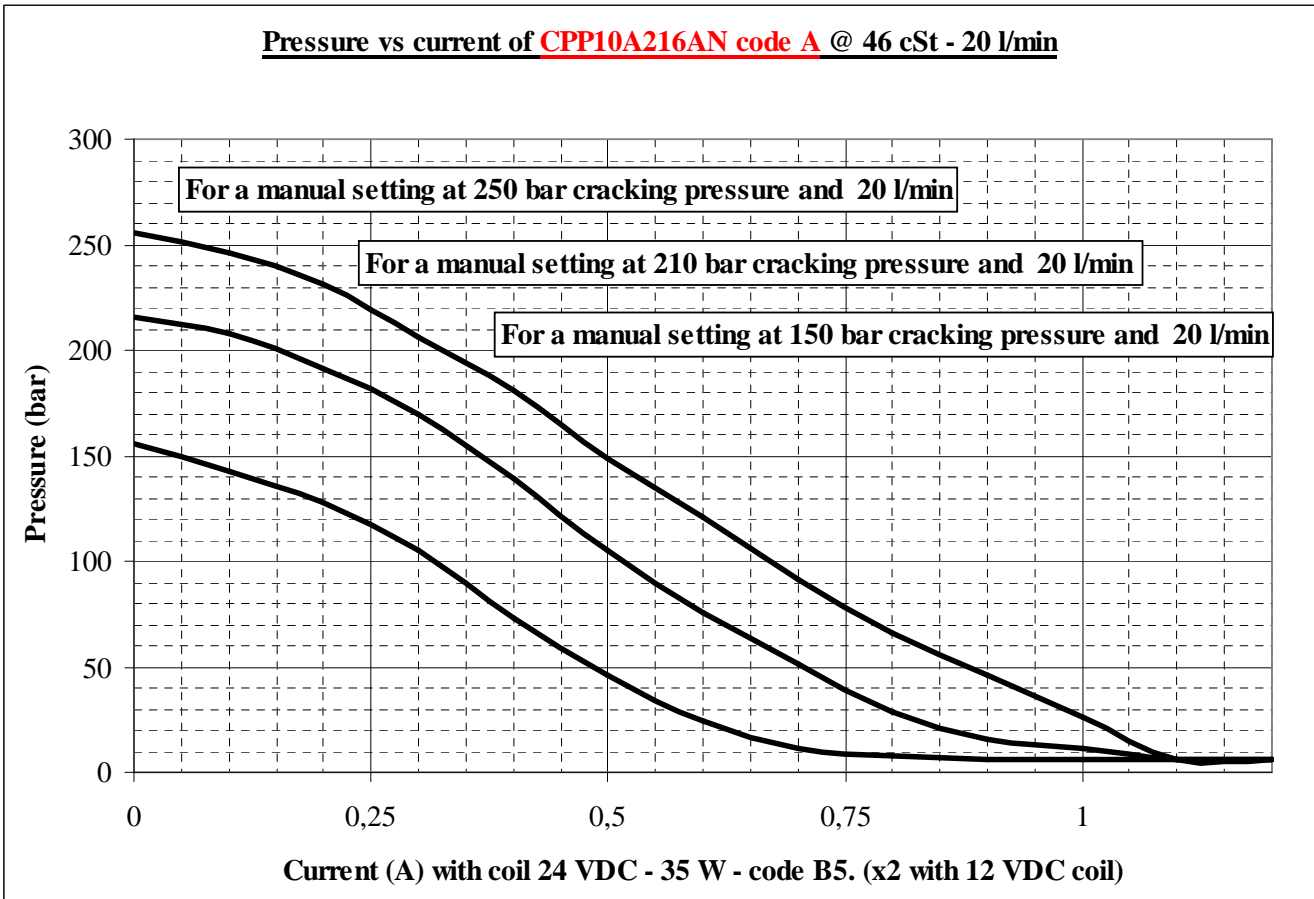
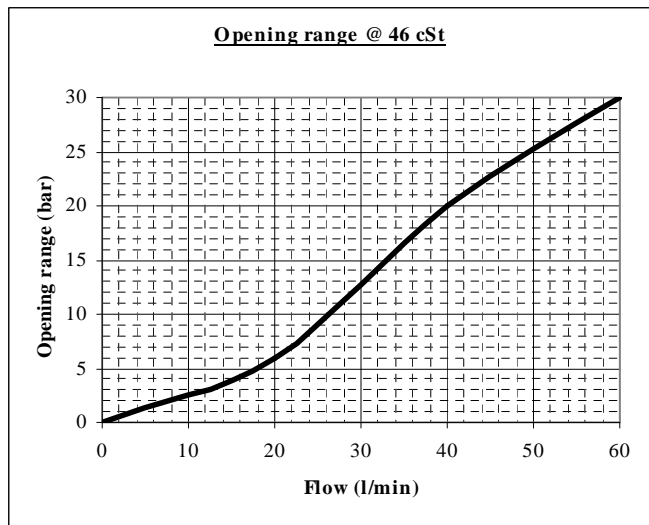
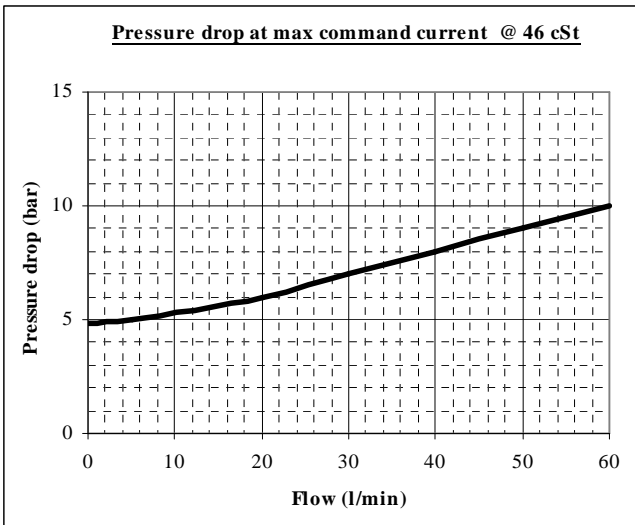
CPP 10 A216 ... CN Ref. T301302-P...¹ (70 bar maxi ²)

with manual setting of max pressure

Note (1): max pressure (cracking pressure) to specify for a factory setting.

(ie. T301294-P210 = A216 with 280 bar maxi available pressure and factory setting at 210 bar cracking pressure).

Note(2): the max available pressure is a value at full opening at 30 l/min and with the manual setting screw at end stroke position.



F.T 50 1388 2/2

RELEF VALVE with PROPORTIONAL CONTROL

**Normally closed - NC
2 WAY**

Size 10 - 7/8" 14 UNF

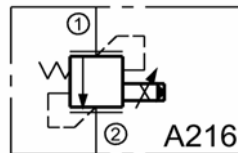
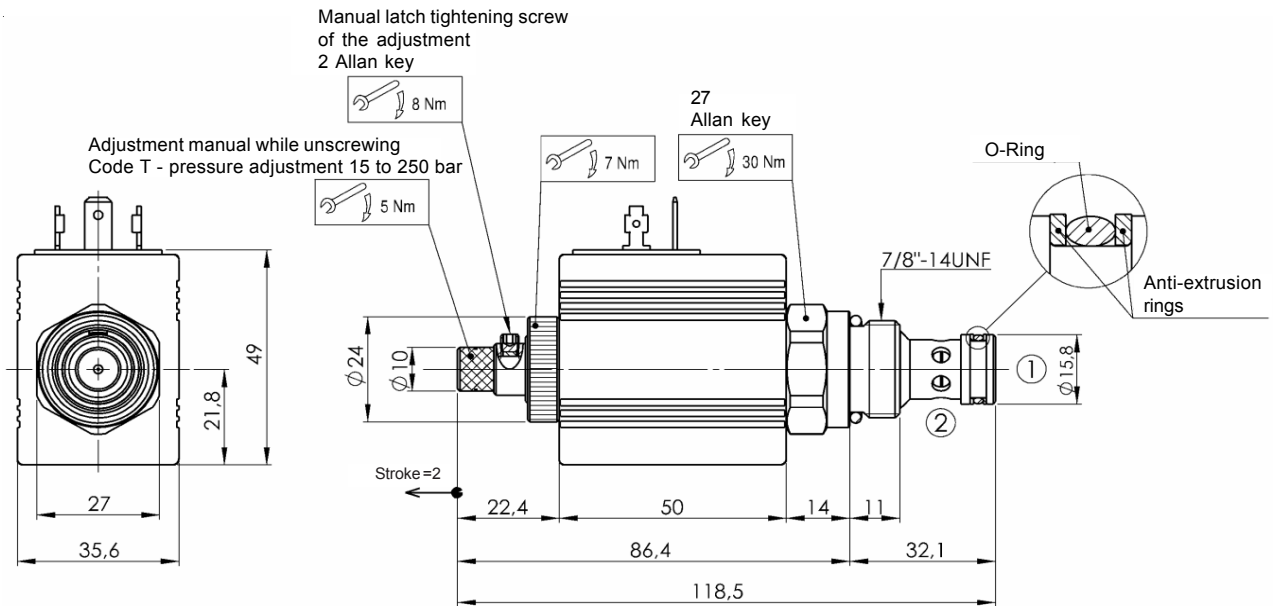
CPP 10 A216 A5A TN

Voltage 12 VDC

CPP 10 A216 B5A TN

Voltage 24 VDC

With adjustment manual

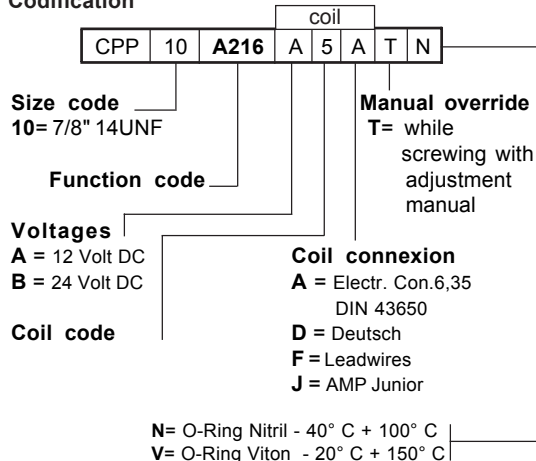


Description: Not energized ① ⇒ ②

This relief valve to order proportional compensated in position is closed NC.

The pressure decreases proportionally with intensity.

Codification



Technical Characteristics

Flow regulated	30 l/mn
Max. pressure	275 to 15 bar
Bobine code 5 & connexions	see table coding reels opposite
Voltage	12 VDC (A5*) or 24 VDC (B5*)
Coil power	35 watt
Resistance	4 Ω = 12 V 16 Ω = 24 V
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommended)
Intensity	see curves overleaf
Hysteresis	< 5 %
Max leakage, closed position	< 200 cm³/mn to 200 bar
Working temperature	- 20 °C + 70 °C with standard Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting position	whitout restriction
Cavities	Size 10 - 7/8" 14 UNF - Page 233/00
Seal kits	N° T200014

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

RELEF VALVE with PROPORTIONAL CONTROL

**Normally closed - NC
2 WAY**

Size 10 - 7/8" 14 UNF

CPP 10 A216 A5A TN

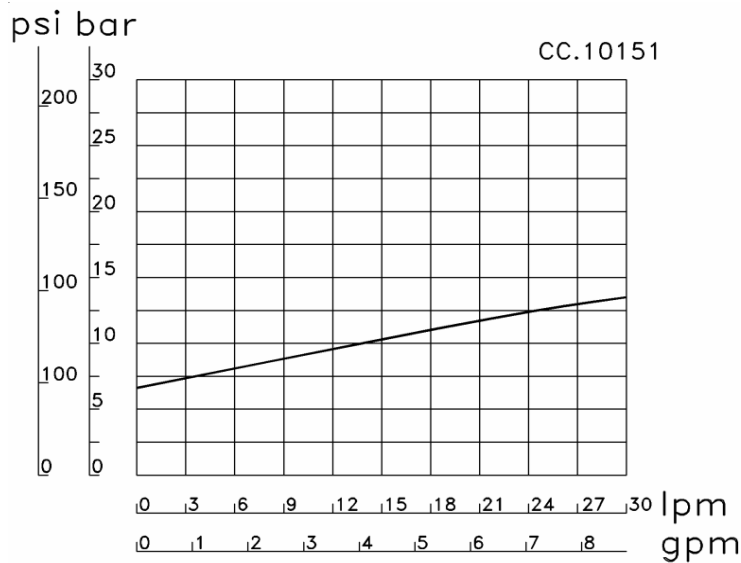
Voltage 12 VDC

CPP 10 A216 B5A TN

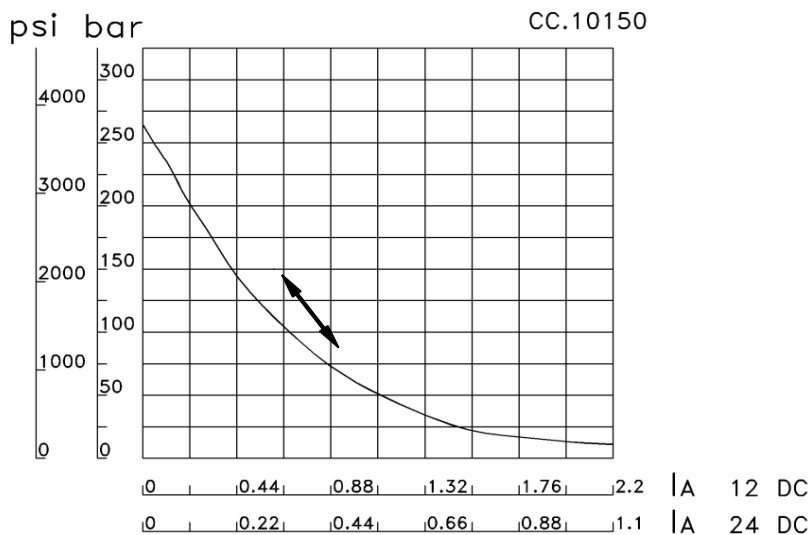
Voltage 24 VDC

With adjustment manual

PRESSURE DROP



PRESSURE / INTENSITY



Executed measures:

with electronic driver JTEKT-HPI N° 102 179 - Frequency 200 Hz.
 Input voltage 24V DC - Power 30 Watt - Resistance 16 Ω -
 Ambient temperature 22 °C ± 2 °C.
 Oil temperature at 40 °C.
 Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40 °C.

This relief valve proportional perhaps used directly with potentiometric current 12V - 2,5 A (10Ω).
 In this case, hysteresis of operation is important. To obtain a regulation specifies with a minimum; hysteresis, to use
 black box UED-M15601 - N° 102 179 (F.T 50 1174 - Page 121/00)

F.T 50 1281 2/2

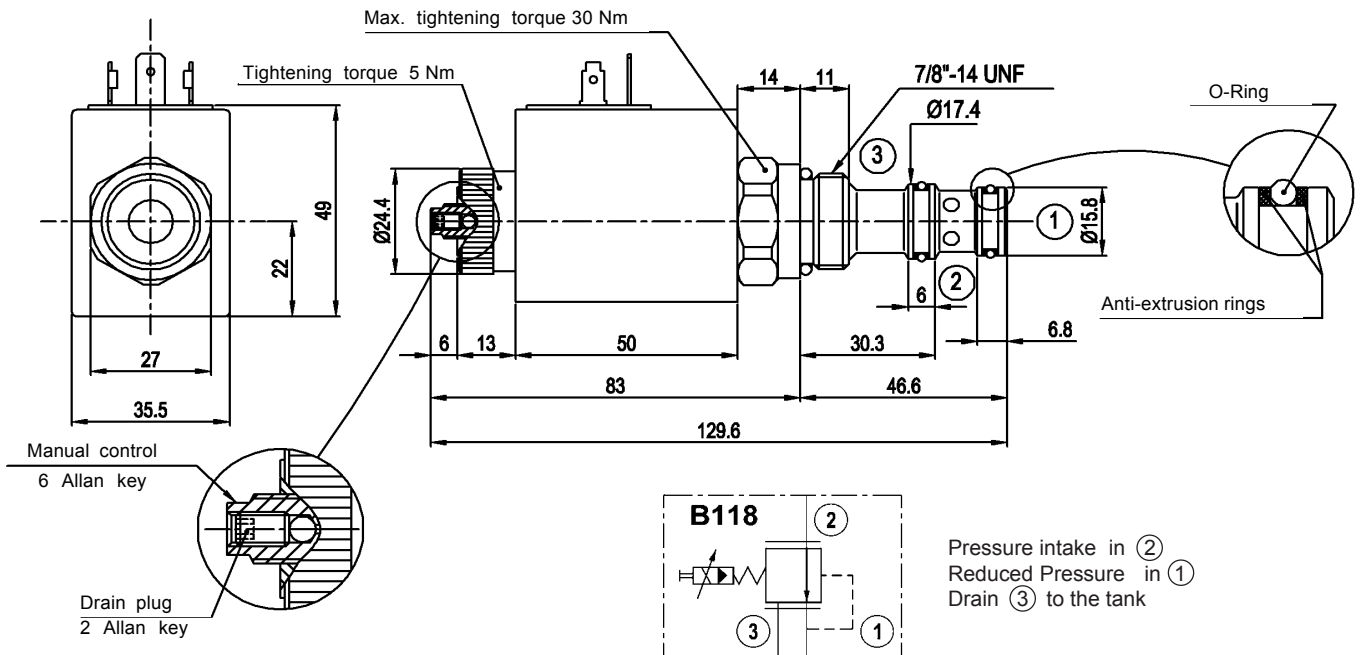
PRESSURE REDUCING VALVE with PROPORTIONAL CONTROL

**Normally open - NO
3 WAY**

Size 10 - 7/8" 14 UNF **CPP 10 A118** ___ **BN** with hand drive

Ref. without coil: **N° T301088**

Ref. with coil: N° T301089 above followed by the designation of the reel - see coding below



Description: When the pressure entry in (2) is higher than the pressure controlled in (1) defined by the pressure proportional to intensity of the reel, the drawer moves and comes to seal, partly or completely, opening (2).

Codification

CPP	10	B118	A	5	A	B	N
-----	----	------	---	---	---	---	---

Size code
10= 7/8" 14UNF

Function code

Voltages
A = 12 Volt DC
B = 24 Volt DC

Coil code

Manual override
B= white screwing

Coil connexion
A = Electr. Con.6,35
DIN 43650
D = Deutsch
F = Leadwires
J = AMP Junior

N= O-Ring Nitril - 40° C + 100° C
V= O-Ring Viton - 20° C + 150° C

Technical Characteristics

Max. flow intake	50 l/mn
Max. pressure intake	300 bar
Reduced pressure	5 to 150 bar
Coil code 5 & connexions	see table coding reels opposite
Voltage	12 VDC (A5*) or 24 VDC (B5*)
Coil power	30 watt
Resistance	4 Ω = 12 V 16 Ω = 24 V
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommended)
Intensity	see curves overleaf
Hysteresis	< 4 %
Max leakage, closed position	< 100 cm³/mn to 200 bar
Working temperature	- 20 °C + 70 °C with standard Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting position	whitout restriction
Cavities	Size 10 - 7/8" 14 UNF - Page 233/00
Seal kits	N° T200016

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

**PRESSURE REDUCING VALVE
with PROPORTIONAL CONTROL**

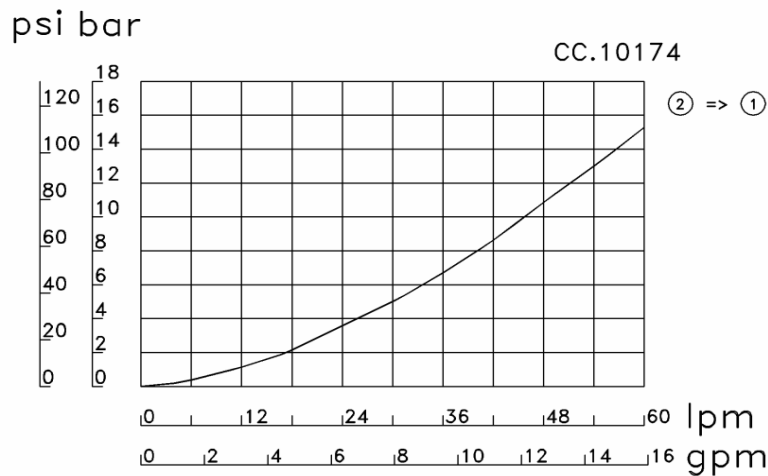
**Normally open - NO
3 WAY**

Size 10 - 7/8" 14 UNF CPP 10 A118 ___ BN with hand drive

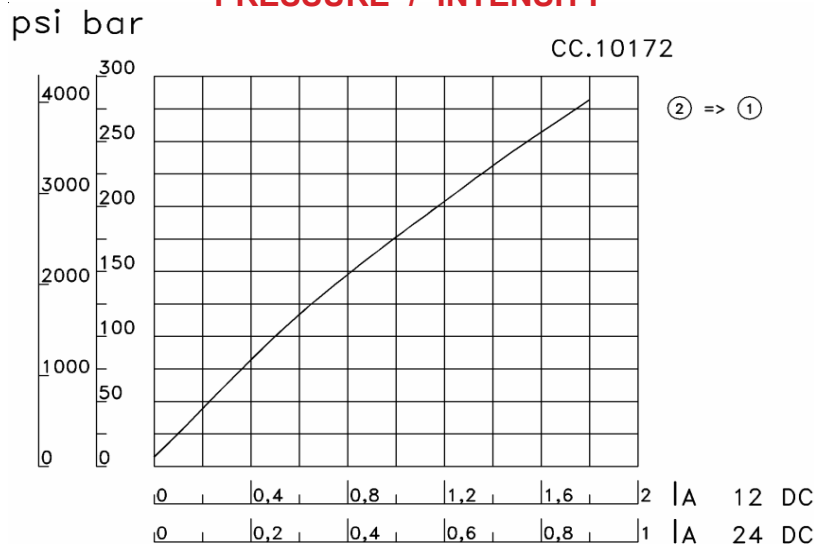
Ref. without coil: N° T301088

Ref. with coil: N° T301089 above followed by the designation of the reel -
see coding overleaf

PRESSURE DROP



PRESSURE / INTENSITY



Executed measures: with electronic driver JTEKT-HPI N° 102 179 - Frequency 200 Hz.
Input voltage 24V DC - Power 30 Watt - Resistance 16 Ω -
Ambient temperature 22 °C ± 2 °C.
Oil temperature at 40 °C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40 °C.

This pressure reducing valve proportional perhaps used directly with potentiometric current 12V - 2,5 A (10Ω).
In this case, hysteresis of operation is important. To obtain a regulation specifies with a minimum; hysteresis, to use
black box UED-M15601 - N° 102 179 (F.T 50 1174 - Page 121 / 00)

F.T 50 1282 2/2

DOUBLES POPPET SOLENOID VALVE with PROPORTIONAL CONTROL Pressure reducing valve and Relief valve

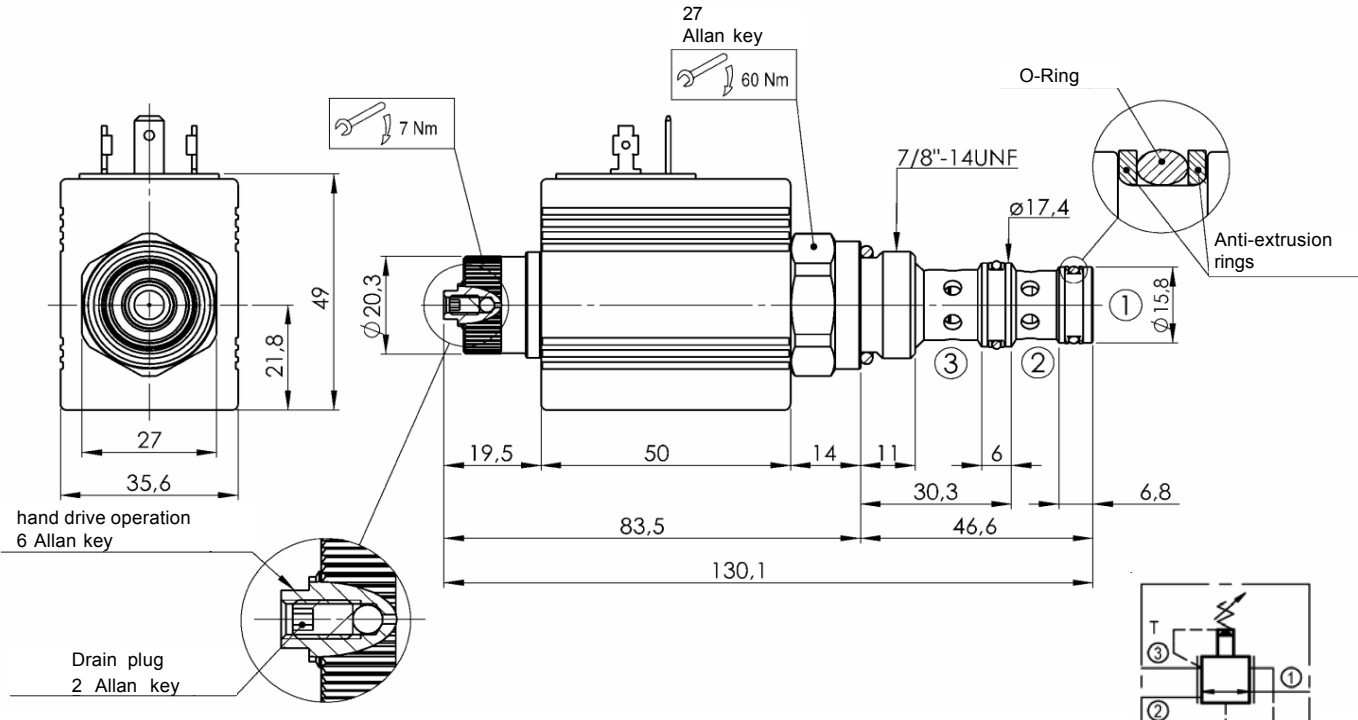
3 WAY

Size 10 - 7/8" 14 UNF

CPP 10 B121 A5A BN Voltage 12 VDC

CPP 10 B121 B5A BN Voltage 24 VDC

with hand drive



Description: This poppet solenoid valve with order proportional controlled functions
 ⇒ out of pressure regulator of ② ⇒ ①
 ⇒ and out of limiting device of pressure ① ⇒ ③.
 L'increase in pressure is function of intensity applied to the reel.

Technical Characteristics

Max. flow intake	30 l/mn
Max. pressure intake	250 bar
Coil code 5 & connections	see table coding reels opposite
Voltage	12 VDC (A5*) or 24 VDC (B5*)
Coil power	35 watt
Resistance	4 Ω = 12 V 16 Ω = 24 V
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommanded)
Intensity	Voir courbes au verso
Hysteresis	< 4 %
Max leakage, closed position	< 200 cm³/mn to 200 bar
Working temperature	- 20 °C + 70 °C with standard Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting position	whitout restriction
Cavities	Size 10 - 7/8" 14 UNF - Page 233/00
Seal kits	N° T200016

Codification

CPP	10	B121	A	5	A	B	N
-----	----	------	---	---	---	---	---

coil

Size code
10= 7/8" 14UNF

Function code

Voltages
A = 12 Volt DC
B = 24 Volt DC

Coil code

Manual override
B= while screwing

Coil connexion
A = Electr. Con.6,35 DIN 43650
D = Deutsch
F = Leadwires
J = AMP Junior

N= O-Ring Nitril - 40° C + 100° C
V= O-Ring Viton - 20° C + 150° C

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
 Viscosity between 8 and 450 cSt at working temperature.

F.T 50 1283 1/2

DOUBLES POPPET SOLENOID VALVE with PROPORTIONAL CONTROL Pressure reducing valve and Relief valve

3 WAY

Size 10 - 7/8" 14 UNF

CPP 10 B121 A5A BN

Voltage 12 VDC

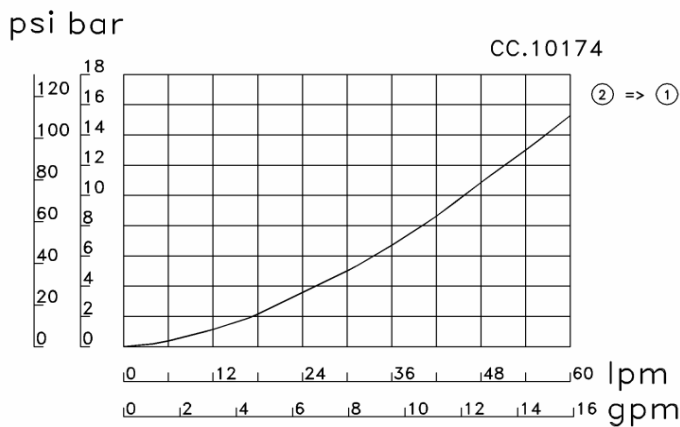
CPP 10 B121 B5A BN

Voltage 24 VDC

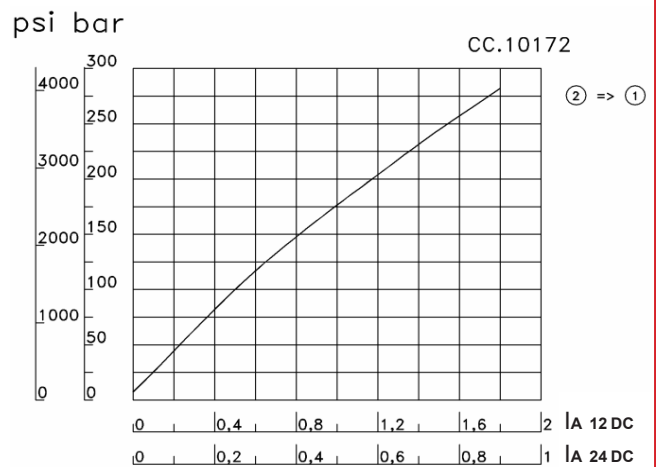
with hand drive

REDUCED OF PRESSURE

PRESSURE DROP

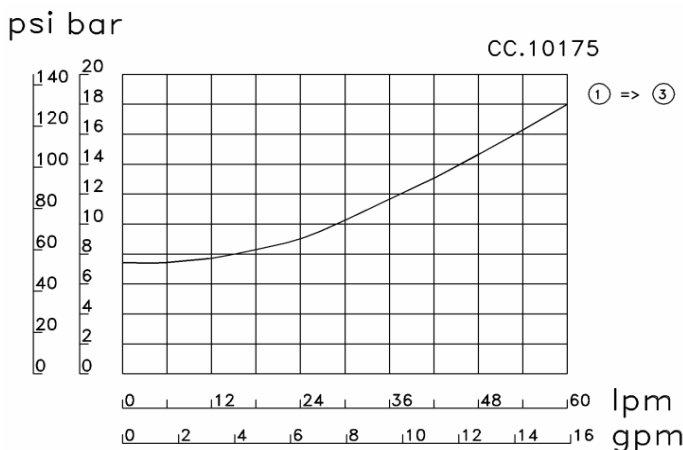


FLOW REGULATED / INTENSITY

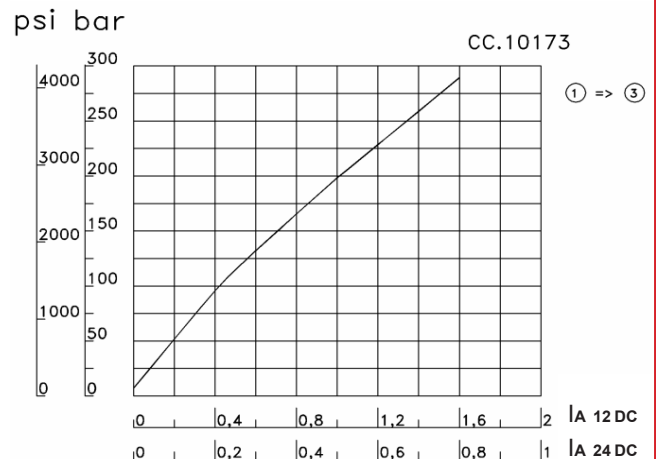


RELIEF VALVE

PRESSURE DROP



FLOW REGULATED / INTENSITY



Executed measures: with electronic driver JTEKT-HPI N° 102 179 - Frequency 200 Hz.
 Input voltage 24V DC - Power 30 Watt - Resistance 16 Ω -
 Ambient temperature 22 °C ± 2 °C.
 Oil temperature at 40 °C.
 Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40 °C.

This relief valve proportional perhaps used directly with potentiometric current 12V - 2,5 A (10Ω).
 In this case, l'hysteresis of operation is important. To obtain a regulation specifies with a minimum; hysteresis, to use
 black box UED-M15601 - N° 102 179 (F.T 50 1174 - Page 121 / 00)

F.T 50 1283 2/2

PROPORTIONAL COMPENSATED FLOW CONTROL VALVE

2 WAY

Size 10 - 7/8" 14 UNF

CPF 10 A120 ___ BN (NO)

CPF 10 A121 ___ BN (NC)

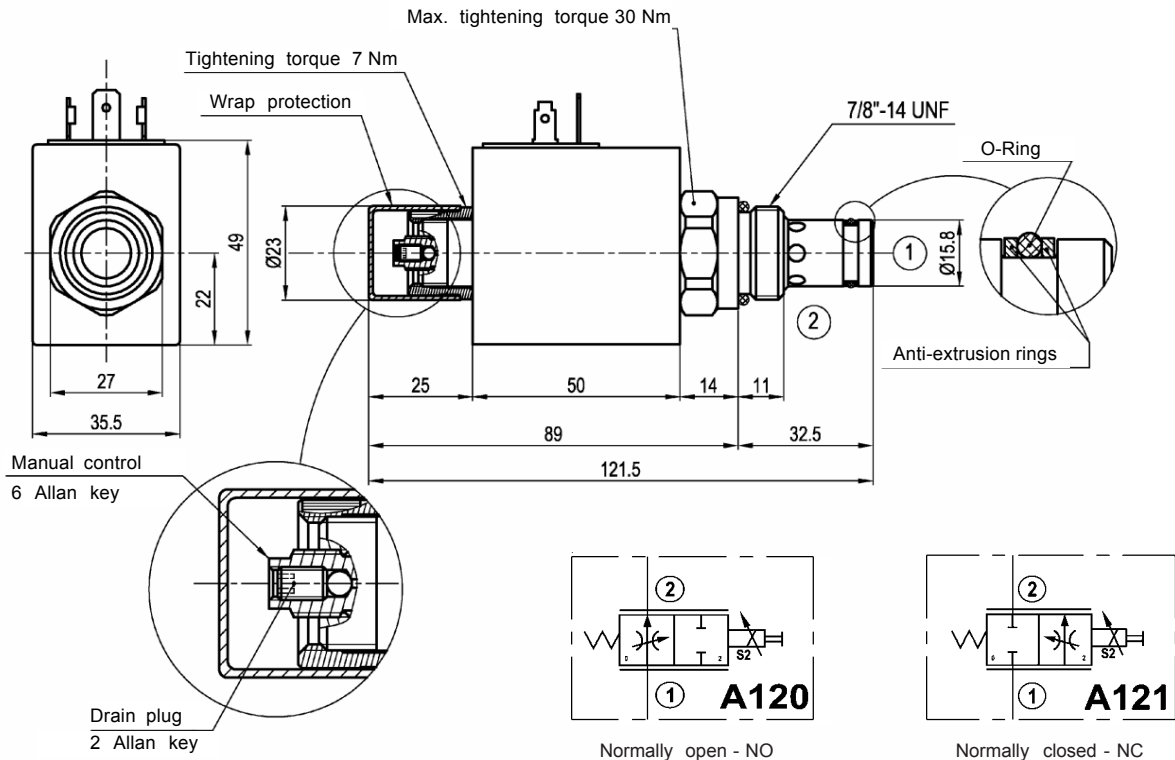
Ref. without coil:

N° T301061

N° T301063

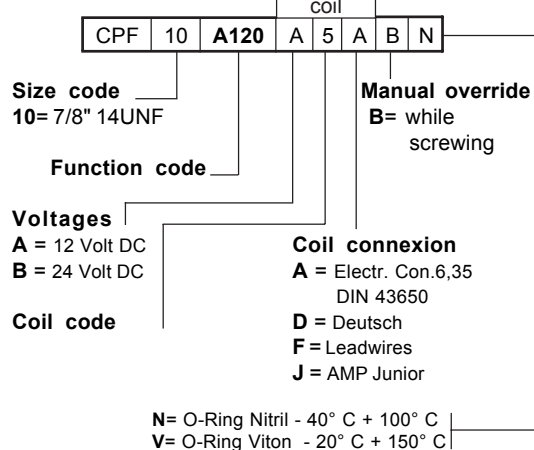
Ref. with coil:

N° of poppet solenoid valve above followed by the designation of the reel - see coding below



Description: These flow controls valve to order proportional are compensated, which confers a perfect stability of operation to them.

Codification



Technical Characteristics

Flow regulated	30 l/mn
Max. Pressure	275 bar
Coil code 8 & connections	see table coding reels opposite
Voltage	12 VDC (A5*) or 24 VDC (B5*)
Coil power	30 watt
Resistance	4 Ω = 12 V 16 Ω = 24 V
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommended)
Intensity	see curves overleaf
Hysteresis	< 7%
Max. leakage, closed position	< 100 cm ³ /mn with 200 bar
Working temperatur	- 20 °C + 70 °C with standard O-Ring Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting position	without restriction
Cavities	Size 10 - 7/8" 14 UNF - Page 233/00
seal kits	N° T200567

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
Viscosity between 8 and 450 cSt at working temperature.

PROPORTIONAL COMPENSATED FLOW CONTROL VALVE

2 WAY

Size 10 - 7/8" 14 UNF

CPF 10 A120 ___ BN (NO)

CPF 10 A121 ___ BN (NC)

Ref. without coil:

N° T301061

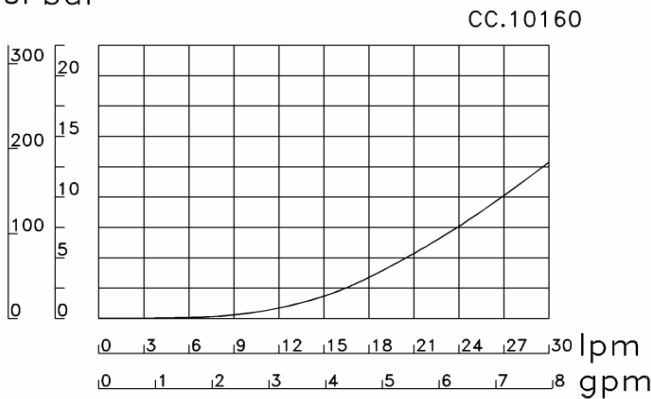
N° T301063

Ref. with coil:

N° of poppet solenoid valve above followed by the designation of the reel - see coding overleaf

PRESSURE DROP

psi bar

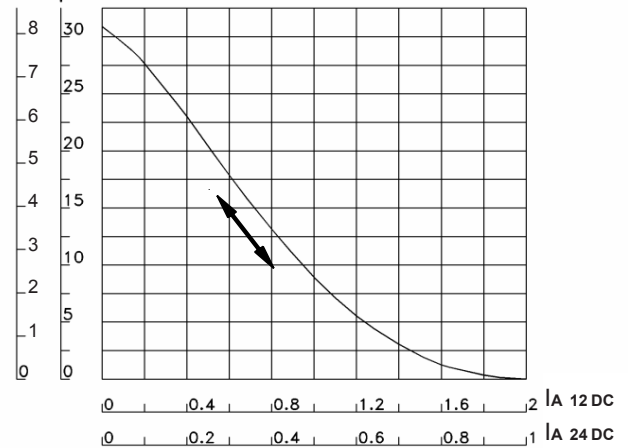


A120

FLOW REGULATED / INTENSITY

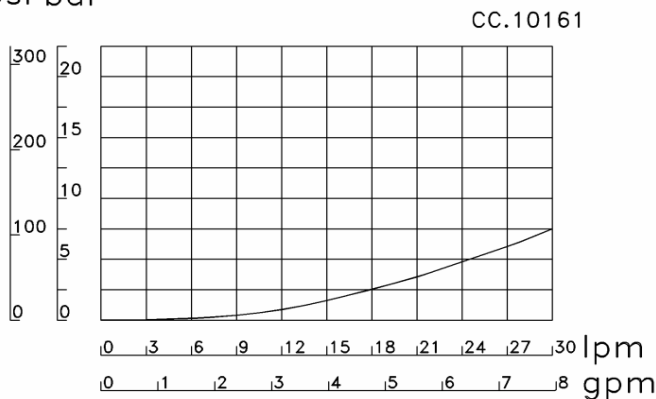
gpm lpm

CC.10162



PRESSURE DROP

psi bar

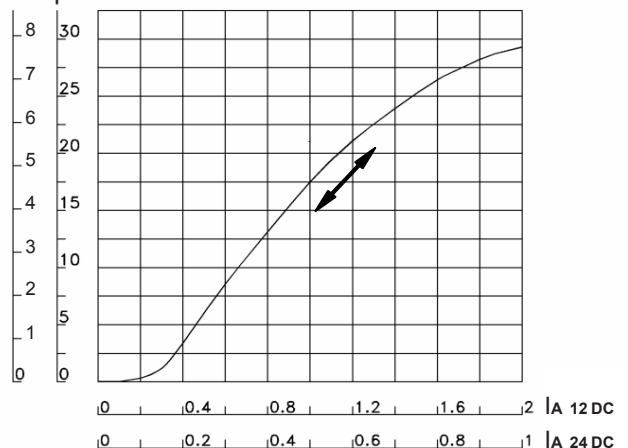


A121

FLOW REGULATED / INTENSITY

gpm lpm

CC.10163



Executed measures:

with electronic driver JTEKT-HPI N° 102 179 - Frequency 200 Hz.
Input voltage 24V DC - Power 30 Watt - Resistance 16 Ω -
Ambient temperature 22 °C ± 2 °C.
Oil temperature at 40 °C.
Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40 °C.

This flow control valve compensated perhaps used directly with potentiometric current 12V - 2,5 A (10Ω).
In this case, the hysteresis of operation is important. To obtain a regulation specifies with a minimum; hysteresis, to use black box UED-M15601 - N° 102 179 (F.T 50 1174 - Page 121 / 00)

FLOW DIVIDER PROPORTIONAL COMPENSATED with PRIORITY FLOW

3 WAY

Size 10 - 7/8" 14 UNF

CPF 10 B134 ___ BN (NO)

CPF 10 B135 ___ BN (NC)

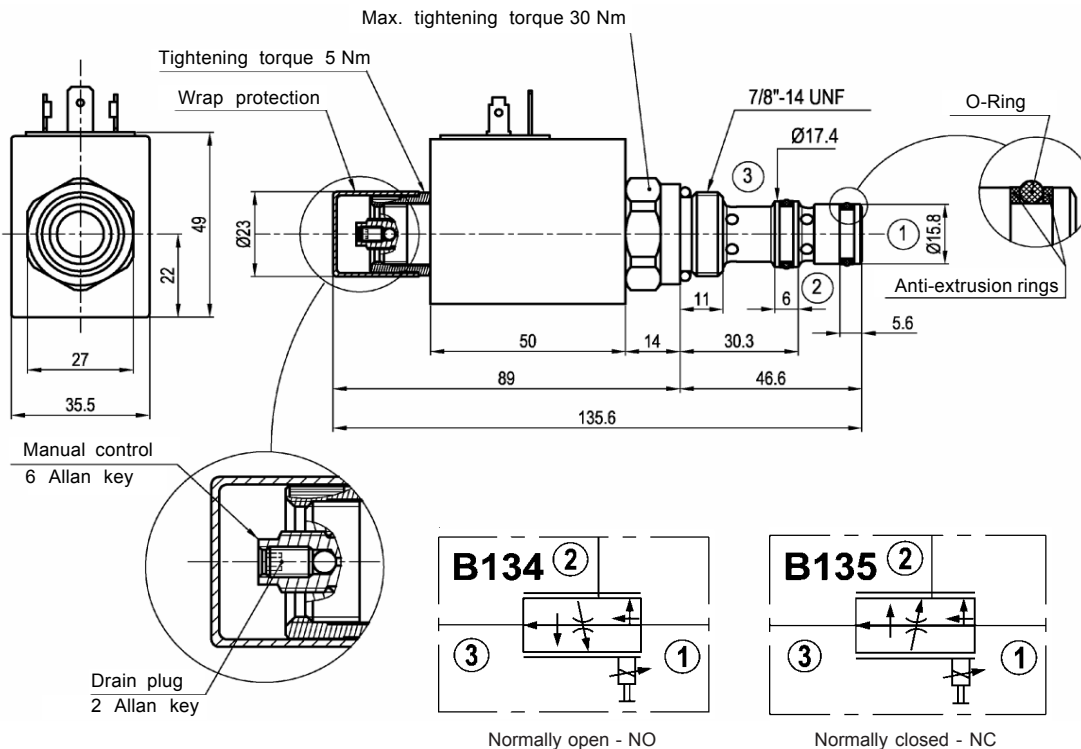
Ref. without coil:

N° T301065

N° T301067

Ref. with coil:

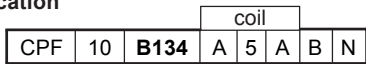
N° of poppet solenoid valve above followed by the designation of the reel - see coding below



⇒ Flow intake in ①
 ⇒ Flow regulated in ③
 ⇒ Surplus of flow in ②
 ⇒ The pressure in ② can be higher than the pressure in ①

Description: These dividers of flow proportional compensated with priority flow, allow to obtain a flow controlled of ① ⇒ ③ according to intensity food of the reel. Surplus flows in ② can be used for auxiliary functions.

Codification



Size code
 10= 7/8" 14UNF

Function code

Voltages
 A = 12 Volt DC
 B = 24 Volt DC

Coil code

Manual override
 B= while screwing

Coil connexion
 A = Electr. Con.6,35
 DIN 43650

D = Deutsch
 F = Leadwires
 J = AMP Junior

N= O-Ring Nitril - 40° C + 100° C
 V= O-Ring Viton - 20° C + 150° C

Technical Characteristics

Max. flow intake	50 l/mn
Max. flow regulated in 3	30 l/mn
Max. pressure enter 1	275 bar
Coil code 5 & connections	see table coding solenoid opposite
Voltage	12 VDC (A5*) or 24 VDC (B5*)
Coil power	30 watt
Resistance	4 Ω = 12 V 16 Ω = 24 V
Duty	ED 100%
Frequency	50 to 420 Hz (200 Hz recommanded)
Intensity	see curves overleaf
Hysteresis	< 4 %
Max leakage, closed position	< 100 cm³/mn with 200 bar
Working temperatur	- 20 °C + 70 °C with standard O-Ring Nitrile
Filtration	ISO classe 18/16/13 - Page 231/00
Mounting Position	without restriction
Cavities	Size 10 - 7/8" 14 UNF - Page 233/00
seal kits	N° T200561

Fluids: Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricating properties.
 Viscosity between 8 and 450 cSt at working temperature.

FLOW DIVIDER PROPORTIONAL COMPENSATED with PRIORITY FLOW

3 WAY

Size 10 - 7/8" 14 UNF

CPF 10 B134 ____ BN (NO)

CPF 10 B135 ____ BN (NC)

Ref. without coil:

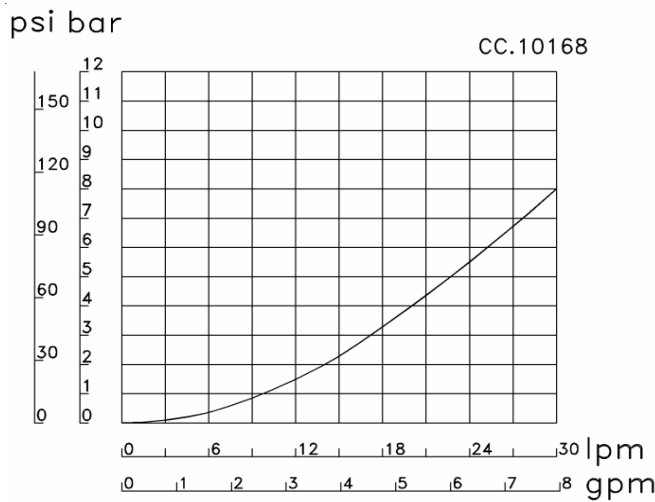
N° T301065

N° T301067

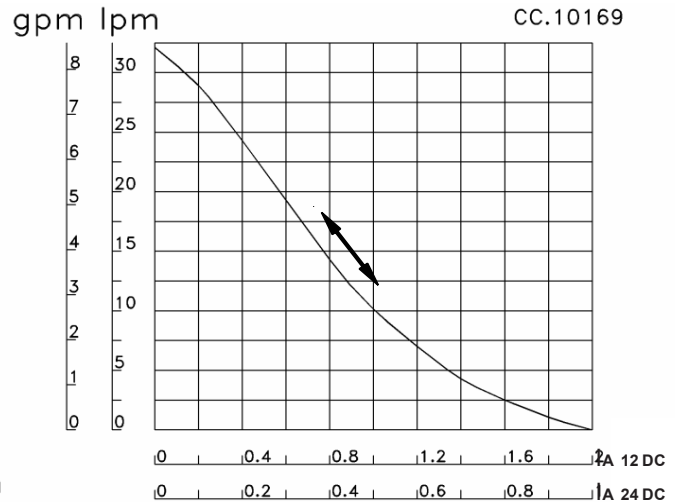
Ref. with coil:

N° of poppet solenoid valve above followed by the designation of the reel - see coding overleaf

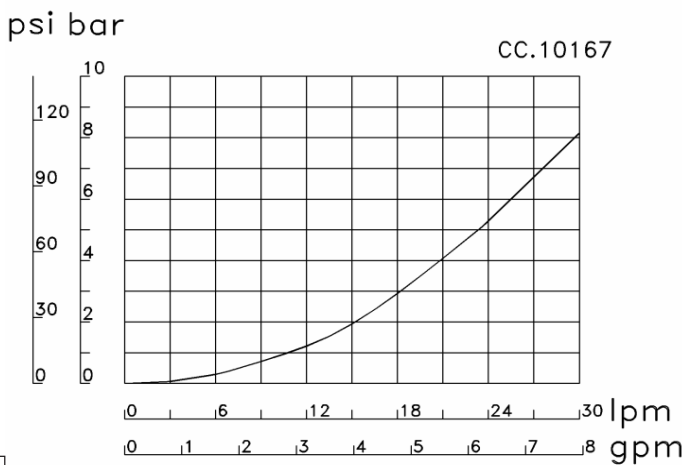
PRESSURE DROP



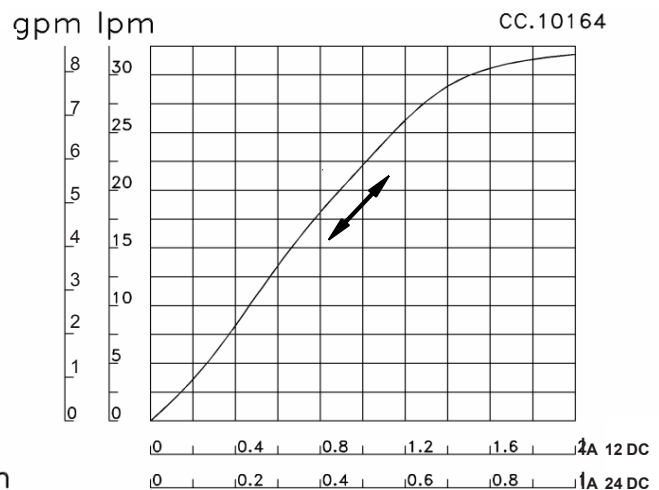
B134 FLOW REGULATED / INTENSITY



PRESSURE DROP



B135 FLOW REGULATED / INTENSITY



Executed measures :

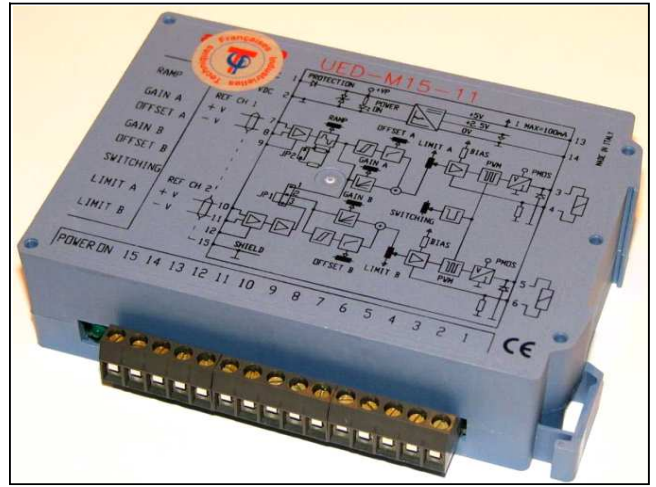
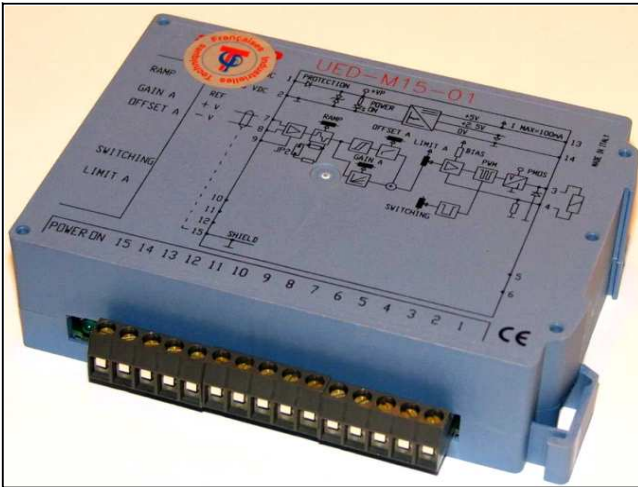
- with electronic driver JTEKT-HPI N° 102 179 - Frequency 200 Hz.
- Input voltage 24V DC - Power 30 Watt - Resistance 16 Ω -
- Ambient temperature 22 °C ± 2 °C.
- Oil temperature at 40 °C.
- Oil SHELL Tellus T.46 - Viscosity 46 cSt at 40 °C.

This flow divider proportional perhaps used directly with potentiometric current 12V - 2,5 A (10Ω).

In this case, hysteresis of operation is important. To obtain a regulation specifies with a minimum; hysteresis, to use black box UED-M15601 - N° 102 179 (F.T 50 1174 - Page 121/00)

F.T 50 1279 2/2

ELECTRONIC DRIVERS for PROPORTIONAL SOLENOID VALVES



2 CHARACTERISTICS of STANDARD UED-M15-*

Voltage supply: 10 à 28V DC

Max. ripple: ± 10% supply

Currents: Limite "A": 2,5 A
 Limite "B": 2,5 A
 Bias: 50 mA

Offset "A": 0 to 50% of limit "A"

Offset "B": 0 to 50% of limit "B"

Switching: dither frequency 110 Hz

Auxiliary V: VR = 5V ± (Max 100 mA)

Ref. signals:
UED-M15-01 et 11: 0 → +10 V
 (or 2,5V → +5V)

UED-M15-05: -10V ← et 0 → +10V
 (or 2,5V → 0 to 0 → + 5V)

Ramp time: 0,02 to 5 secondes

Gain "A": scale from 0,25 A/V to «0» A/V
 (or from 1A/V to «O» A/V)

Gain "B": scale from 0,25 A/V to «0» A/V
 (or from 1A/V to «O» A/V)

Temperature: 25 to 75 °C

EMC protection: CE: «Heavy Industrial»

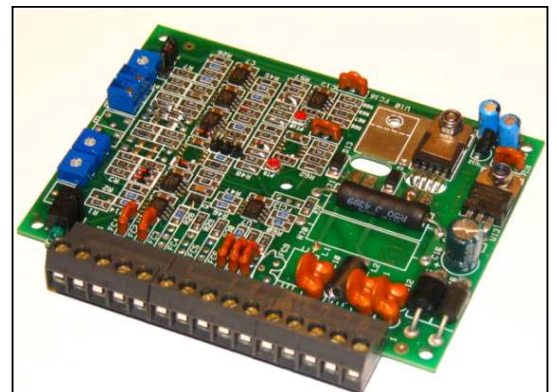
Container: IP 30 Protection

Technology: SMD on one card

① HOW to READ the MODEL CODE for UED-M15-*

UED - M15 - (05) (R)- * - * / 10
 ① ② ③ ④ ⑤ ⑥ ⑦

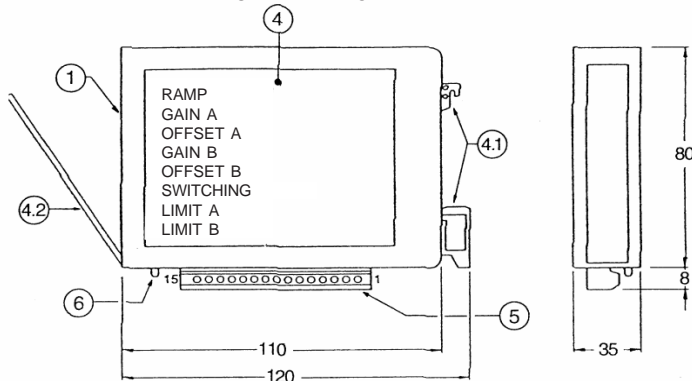
- ① **UED:** Universal electronic driver (see 2).
- ② **M15:** Wiring by a 15 (screw) terminals strip.
- ③ **(05):** Channels
 01: 1 chanel «A»
 05: 2 channels «A» and «B» for bisolenoid valves
 11: 2 independent chanel «A» and «B»
- ④ **(R):** Ramp
 -: standard ramp with adjustable time from 0,02 to 5 sec.
 R: reduced time ramp, adjustable from 0,01 to 1 sec.
- ⑤ ***:** Current limit «A»
 -: standard at 2,5 A
 20: limited at 2 A
 10: limited at 1 A
 08: limited at 0,08 A
- ⑥ ***:** Current limit B: see ⑤
- ⑦ **10:** Design number (progressive) of the universal electronic driver



ELECTRONIC DRIVERS for PROPORTIONAL SOLENOID VALVES

INSTALLATION OF « DRIVER » TYPE UED-M15-**

- ① Types: UED-M15-01 for 1 monosolenoid valve.
UED-M15-05 for 1 bisolenoid valve.
UED-M15-05 for 2 monosolenoid valves.
- ④ Housing: box (approx. 110X80X35 mm) with profiles for installation on DIN EN 50.022 guide (4.1) with door (4.2) access to calibration trimmers.
- ⑤ Connections: by a 15 (screw) terminals strip.
- ⑥ Power supply: 10 to 28 VDC. Power on is signaled by a GREEN LED Ⓞ.



All dimensions are mm

1) Mechanical installation of UED-M15-** - Universal electronic drivers - can be made on guide EN 50.022 or otherwise.

The container box is made of polyamide 6.6, can stand temperatures of 80°C, with flammability grade UL 94V-0 and gives a protection IP30.

Keep the box far from any heat source.

2) Wiring :

Wiring of the UED-M15-** to the valve, power source, etc... Is made by the 15 terminals strip by use of wires of appropriate sections.

2.1) Power supply :

Connections are made from terminal 1(+) and terminal 2 ("0") to a suitable source of power at 0 → 10V/28V (ripple included).

This permits the use of UED-M15 with a wide choice of sources like 12-14V, 24-27V batteries, DC generators and rectified filtered alternate current. When power is on, a green LED is activated.

2.2) Solenoid valves :

Channel «A» is wired from terminal 3 (+) and terminal 4(-) to the connector of the solenoid valve. Channel « B » (on UED-M15-05 and -11) is wired from terminal 5 (+) and terminal 6 (-) to the connector of the second solenoid valve.

2.3) External reference signal :

External reference signal is coming from a voltage generator, PLC, etc... :

- on UED-M15-01 :

0 → +10V wired at terminal 7 (+) and 8 (-)

- on UED-M15-05 :

-10V ← 0 → +10V wired at terminal 7 (+) and 8 (-)

0 → +10V activate channel "A"

-10V ← 0 activate channel "B"

- on UED-M15-11 :

0 → +10V wired at terminal 7 (+) and 8 (-)

activate channel "A"

0 → +10V wired at terminal 10 (+) and 11 (-)

activate channel "B"

In case of «single ended» reference (same ground for reference system and driver), terminals 8 (channel "A") and 11 (channel "B") must be connected to 14 (OVA).

2.4) Reference signal from potentiometer(s)

This is alternative to the external reference signal and it can be obtained from the 0 + 5V (VR) available at terminal 13 (+) and 14 ("0") by use of potentiometer(s) of suggested 10 KΩ resistance. The potentiometer(s) extremes are wired to terminal 13 (+) and terminal 14 ("0"), and the sliders are to be wired :

- on UED-M15-01 :

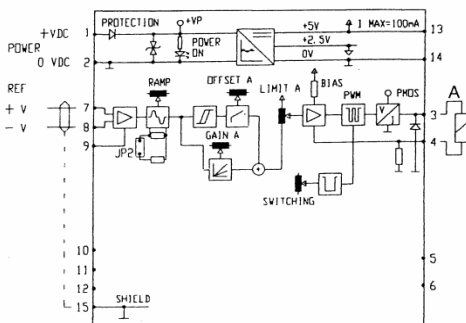
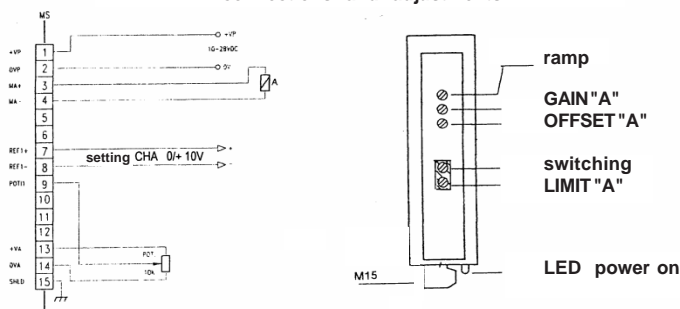
at terminal 9 with a «significant» signal of 2,5V → 5V for channel "A"

- on UED-M15-05 :

at terminal 9 with a «significant» signal of 2,5V → 5V for channel "A" and 0 ← 2,5V for channel "B".

UED-M15-01 Réf. T.Fi 102179

For MONSOLENOID PROPORTIONAL VALVES connections and adjustments



ELECTRONIC DRIVERS for PROPORTIONAL SOLENOID VALVES

- on UED-M15-11 :

at terminal 9 with «significant» signal of 2,5 → V for chanel «A»

at terminal 12 with «significant» signal of 2,5 → 5V for chanel «B»

2.5) Ground :

Terminal 15 must be connected or wired to ground.

2.6) Wiring of external reference source or potentiometer must be made by shielded cables.

MEASURE of ELECTRIC PARAMETERS

A simple voltmeter is enough to make the elementary tests normally required:

Voltage of the power source (1-2); level of the external reference signal (7-8 and if necessary 10-11); level of the auxilliary voltage source (13-14), level of the potentiometer reference signal (9-14 and if necessary 12-14), level of current to the solenoids, according to the relation $1V=2A$, can be measured with a voltmeter:

- for channel "A" between 2 ("0") and 4 (MA-)
- for channel "B" between 2 ("0") and 6 (MB-)

CALIBRATIONS PROCEDURES for STANDARD DRIVERS TYPE UED-M15-**

A) UED-M15-01 : channel "A"

B) UED-M15-05 : channel "A" and channel "B" for 2 solenoid valves

C) UED-M15-11 : channel "A»" and channel «"B" indépendaent

1) UED-M15-** universal electronic drivers are "factory set" at the following values :

1.1) Limit "A" (et Limite "B") :
max current on channel "A" is limited at 2,5A
(max current on channel "B" is limited at 2,5A).

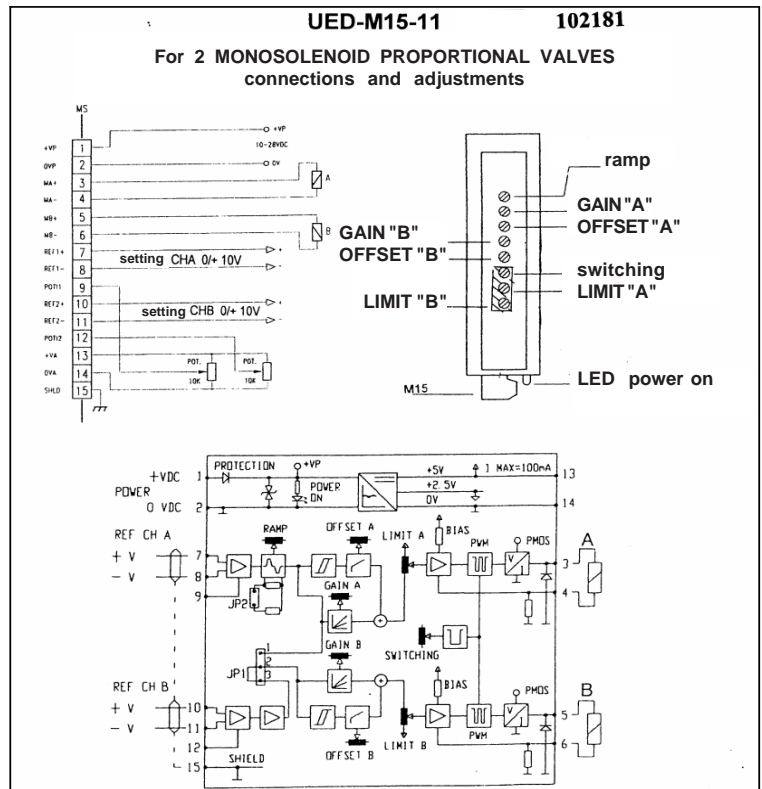
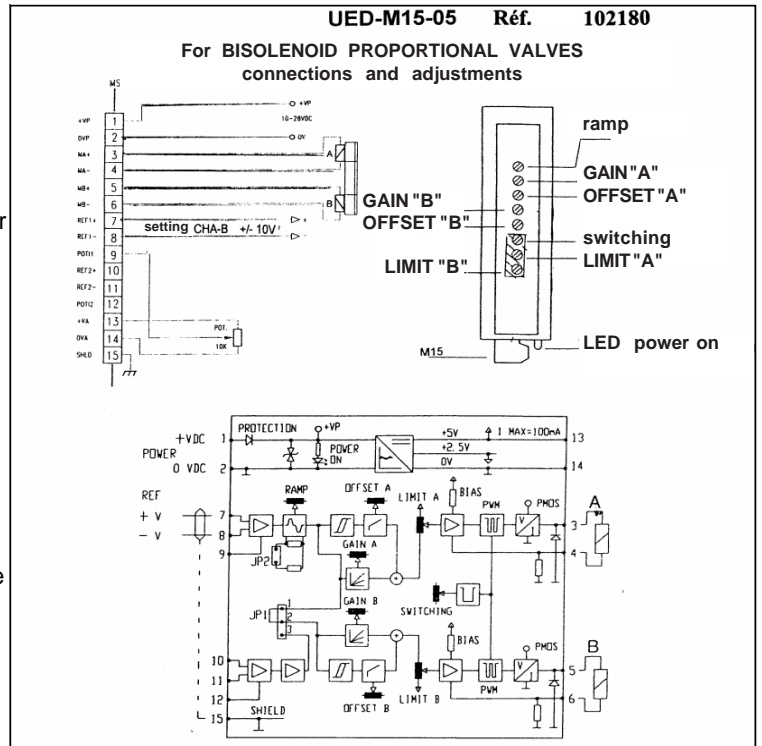
1.2) Gain "A" (and Gain "B")
adjusted to give on channel "A" is limited at 2,5A
(max current max on channel "B" is limited at 2,5A).

Note : 100% reference for channel "A" is $0 \rightarrow +10V$ on terminal 7/8 (Gain of 0,25 A/V) or $2,5 \rightarrow 5V$ on terminal 9/14 if given by a 10 KΩ potentiometer (Gain of 1A/V).

1.4) Bias current "A" (and bias current "B") :
not adjustable, fixed at 50 mA (to keep the solenoid magnetic field).

1.5) Offset "A" (and "B") : set a "zéro".

1.6) Ramp: set a minimum value (0,02 sec)
These conditions are shown in diagram ①



F.T 50 1174 3/4

ELECTRONIC DRIVERS for PROPORTIONAL SOLENOID VALVES

2) Calibration:

2.1) Following parameters normally should not be adjusted:

2.1.1) Limit "A" (and limit "B") can be changed by operating the one turn, sealed potentiometer.

By clockwise rotation current is increased (from 0,5A to 4A) giving a new limit value.

2.1.2) Switching: can be changed by operating the one turn, sealed potentiometer.

By clockwise rotation frequency is increased (from 50 to 420 Hz).

2.2.) Following parameters normally must be adjusted:

2.2.1) Offset "A" (and offset "B")

This is the current needed to have the required "prompt" reaction of the valve when the reference signal changes around its 0% value, thus reducing effects of spool overlapping, spring resistance, etc...

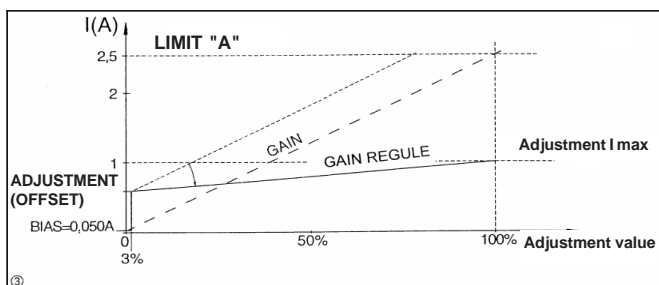
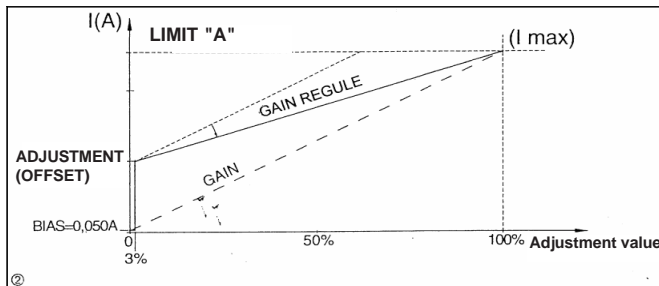
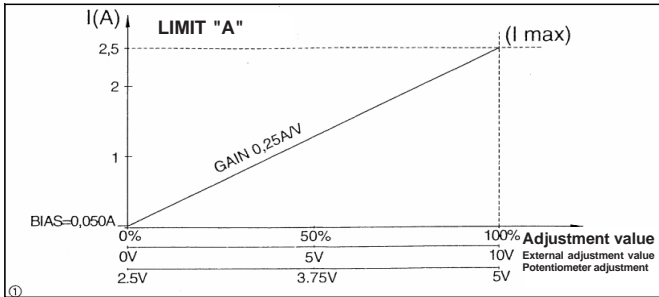
This current is adjusted by multiturn potentiometer, by clockwise rotation the offset current is increased (from 0% to 50% of limit current).

Offset current is always in addition to the 50 mA bias current and it is "triggered" when the reference signal overcomes 3% of the full reference signal (300 mV with reference 0 to 10V or 150 mV with reference 2,5 V → V from potentiometer). When reference signal is at 0%, the offset current does not flow and the valve is stabilized at its rest position.

2.2.2) Gain "A" (and gain "B") : this gives the scale of the channel, that is how much the current increases (or decreases) for a given variation of the reference signal: factory setting at 0,25 A/V with reference 0 to 10V (or 1A/V with reference 2,5V to 5V from potentiometer).

The gain is adjusted by multiturn potentiometer, by clockwise rotation the gain is increased.

The effects of these adjustments are shown in diagram (2).



This calibration of the electronic driver gives the best conditions for scale sensitivity, promptness etc when the current I max required by the valve is coincident with or close to the limit "A" (2,5 A). In case that the valve requires a max current value which is lower than the limit "A" (example: I max= 1A) and it is important to save a good sensitivity of scale, the suggested procedure is shown on diagram 3, where first is made the offset calibration and then the gain adjustment, to have the required I max (adjusted) when 100% of the reference signal is applied.

2.2.3) Ramp: gives a slope current response to a step change of the reference signal. Ramp is active (up and down) on channel "A" of UED-M15-01 and -11; on both channels "A" and "B" of UED-M15-05.

The ramp is adjusted by one turn potentiometer; by clockwise rotation the ramp time is increased from 0,02 sec. to 5 sec. for a 100% step change of the reference signal (or from 0,01 sec. to 1 for version "R").

PROGRAMMERS - CONNECTORS for PROPORTIONAL VALVES

These programmers - Reference T.FI 102185 - offer a regulated control for proportional valves and are fitted into a connector in conformity with the DIN.4360 norm.

Start current (offset) as full load current (FLC) can be individually preset.

The current in the valve is really independent of changes in the valve resistance and current variations.

Dither, due to the use of the switch, helps to compensate the oscillations effects in the valve.

Oscillator controls are fitted to give up to 10 seconds for the current, in the valve to reach its full load value or to return to the off set point.

APPLICATIONS :

On / Off operation using a switch and an oscillator as an acceleration / deceleration control

Connect PIN 3 and PIN E to the switch (normally open).

When the switch is closed, a full voltage scale is sent to the input signal.

With the blocking of the generator control of oscillations, the valve will be activated to its maximum position.

By turning the ramp up (i.e. by inserting a delaying period) the valve could reach its maximum travel over a set period of time and then progressively return to its minimum position.

A resistance of 1 Kohm should be fitted between PIN 3 and PIN 2 if the connector is used with a on / off switch.

The resistance is not required for the use of a connector with an SPDT switch.

Use of the controller with an independent analog current

Connect the signal voltage control to PIN 3 and the ground (0 V) to PIN 2. The range of voltage control is from 0 to 10V.

Other input ranges of voltage are possible, either by changing the FLC potentiometer or by reprogramming the input circuit controller (see Fig.1).

Potentiometer control

Connect one end of the potentiometer to PIN E and the other end to PIN 2.

Connect the potentiometer slider to the PIN 3. Set the potentiometer to maximum and adjust current intensity (FLC) on the one required by the valve. The potentiometer will now control the valve all over its travel (see Fig.2).

Control of two axis of current with undulator / commutator

This possible to use a commutator - undulator (or converter) and two connectors.

The commutator is connected to the converter and so the power is supplied.

Then the converter is connected to the two plugs. The converter then controls the plugs directly.

Current plugs and ramping adjustments are really independent of each other.

By doubling the above set-up, a four axis operation is also possible.

Mounting instructions:

Open loop system - visual control (see Fig.3)

After wiring up the system, check the operation by changing the external potentiometer (A).

If there is no cylinder movement (C), check that the polarity to the plug (B) is correct.

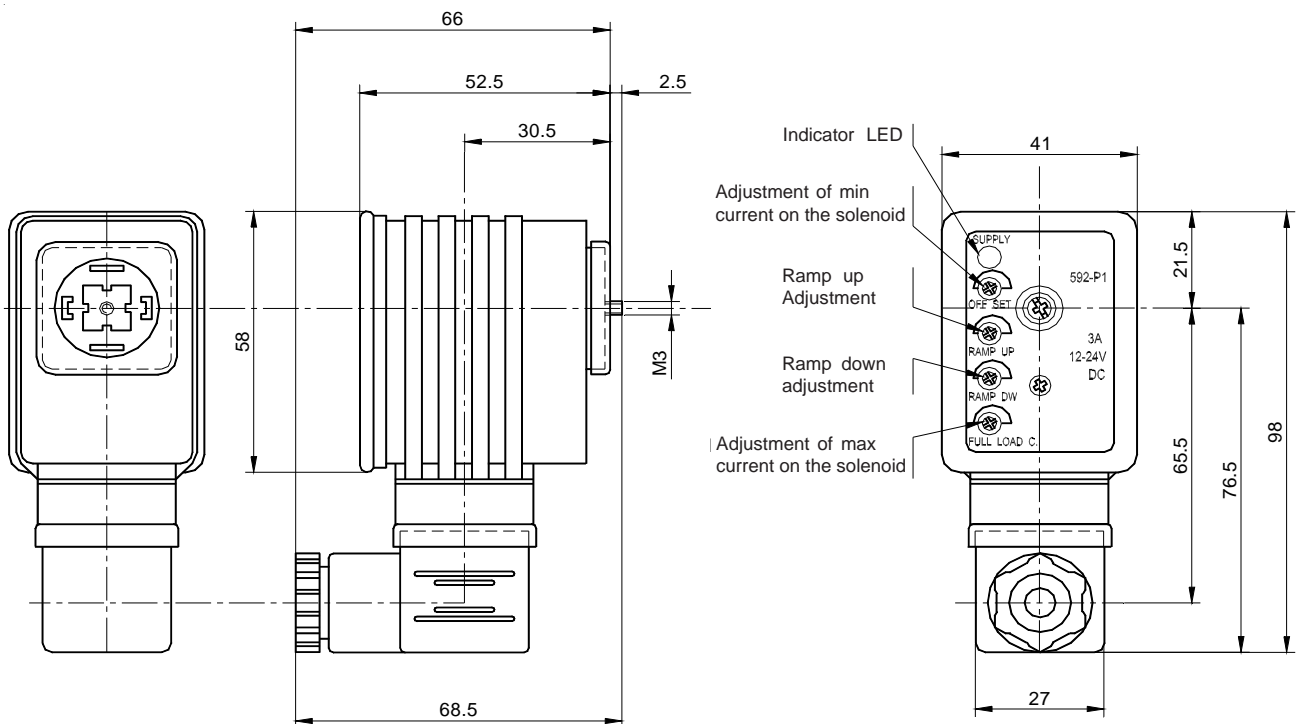
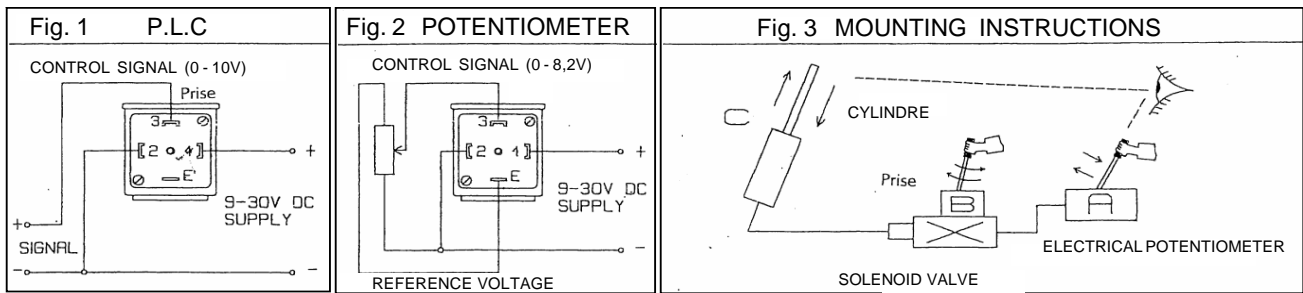
- ① Check that the ramp potentiometer in the plug (B) is fully screwed anti-clockwise, i.e. to zero.
- ② While the external potentiometer (input) (A) is set at its zero position, turn the offset current potentiometer (B) clockwise until the cylinder starts to move.
This means that as soon as the external potentiometer (A) is in movement, the cylinder (B) is seen to move.
- ③ Turn the external potentiometer (A) to maximum and the full load current (FLC) potentiometer (B) to minimum.
Then slowly turn up the FLC potentiometer (B) until the cylinder reaches its maximum travel.
Next, turn the FLC potentiometer a little further, then turn it back slowly until the cylinder starts to retract.
This then means that when the external potentiometer (A) is at its maximum position, the cylinder is at its maximum position.
- ④ Set the ramps as required and repeat steps 2 and 3 until the system is satisfactorily set up.

Note: As the ramp up potentiometer at (B) is turned up, this may slightly alter other set

.../...

PROGRAMMERS - CONNECTORS for PROPORTIONAL VALVES

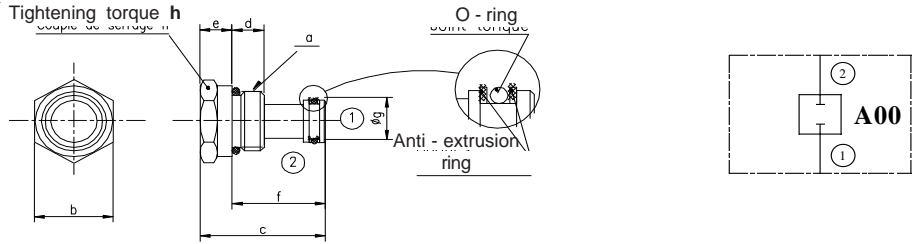
Technical details	Reference JTEKT-HPI 102 185
Connexion	electrical connexion 6,35 -DIN43 650
Switching frequency	100 - 500 Hz adjustable
Ramps up / down	0 - 10 sec. 2 regulations
Operating temperature	- 5 °C / + 80 °C
Storage temperature	- 45 °C / + 100 °C
Supply voltage	9 to 30 VDC
Full load current	12 - 24V - Max. 3000 mA
Offset range	12 V = 0 - 900 mA 24 V = 0 - 600 mA
Nut	Pg 09 (câble 6 to 8 mm)
LED indicator	YES



F.T 50 1175 2/2

STANDARD CAVITY PLUGS

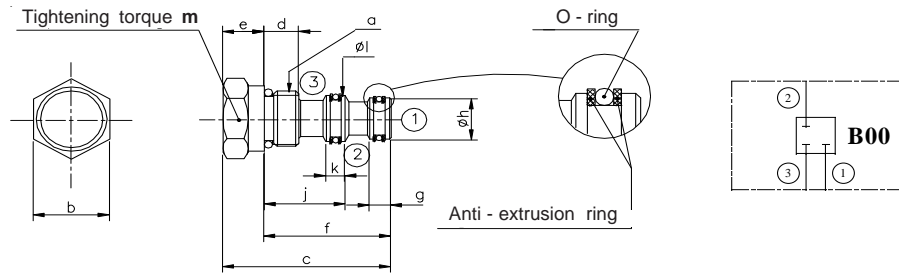
2 WAYS



Designation	Size SAEJ475	a Ports size	b	c	d	e	f	g	h Tightening torque	Weight in Kg
CMD 08 A00 M00 ou M01	08	3/4" 16 UNF	24	40	11	11	27	12,65	20 m.daN	0,2
CMD 10 A00 M00 ou M01	10	7/8" 14 UNF	27	43	11	11	32	15,8	30 m.daN	0,2
CMD 16 A00 M00 ou M01	16	1"5/16-12 UNF	38	64	14,5	20	44	28,52	60 m.daN	0,4

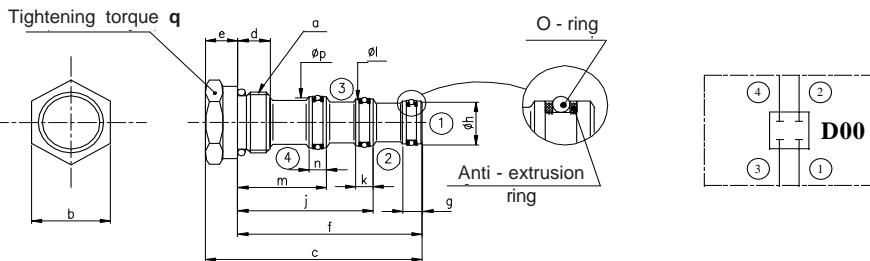
Designation	Size METRIC	a Ports size	b	c	d	e	f	g	h Tightening torque	Weight in Kg
CMD 58 A00 M00 ou M01	58	M 18 x 1,5	22	40	11	11	27	14,95	20 m.daN	0,2
CMD 62 A00 M00 ou M01	62	M 22 x 1,5	27	41,5	11	11	30,5	18,9	30 m.daN	0,2
CMD 73 A00 M00 ou M01	73	M 33 x 2	38	58	14,5	20	38	27,9	60 m.daN	0,4

3 WAYS



Designation	Size SAEJ475	a Ports size	b	c	d	e	f	g	h Tightening torque	Weight in Kg
CMD 08 A00 M00 ou M01	08	3/4" 16 UNF	24	40	11	11	27	12,65	20 m.daN	0,2
CMD 10 A00 M00 ou M01	10	7/8" 14 UNF	27	43	11	11	32	15,8	30 m.daN	0,2
CMD 16 A00 M00 ou M01	16	1"5/16-12 UNF	38	64	14,5	20	44	28,52	60 m.daN	0,4

4 WAYS



Designation	Size SAEJ475	a Ports size	Dimensions							Weight in Kg	
			b	c	d	e	f	g	h		j
CMD 08 D00 M00 à M11	08	3/4 - 16 UNF	24	67,5	11	11	54,5	6,8	12,65	40	0,2
			k	l	m	n	p	q - Tightening torque Nm			
			6	14,2	25,5	6	15,8	20			
CMD 10 D00 M00 à M11	10	7/8" - 14 UNF	27	74	11	11	63	6,8	15,8	46,3	0,2
			k	l	m	n	p	q - Tightening torque Nm			
			6	17,4	30,3	6	18,9	30			
CMD 16 D00 M00 à M11	16	1"5/16-12 UNF	38	121	14,5	20	101	8	25,35	72	0,5
			k	l	m	n	p	q - Tightening torque Nm			
			7	26,92	44	7	28,52	60			

F.T. 50 1176 1/2

STANDARD CAVITY PLUGS - VARIANTS

DESIGNATIONS	SYMBOLS	SETS N°			2 WAYS		3 WAYS			4 WAYS			
		T .8	T.10	T .16	1	2	1	2	3	1	2	3	4
CMD A00 M 00		T 8: 300 662 T58: 300 870	300 662		F	F							
CMD A00 M01		T 8: 300 873 T58: 300 789	300 870		O	O							
CMD B00 M 00		300 663	300 664				F	F	F				
CMD B00 M01		300 874	300 887				O	O	F				
CMD B00 M 02		300 875	300 888				O	F	O				
CMD B00 M03		300 876	300 889				F	O	O				
CMD D00 M 00		300 665	300 666							C	C	C	C
CMD D00 M01		300 877	300 890							O	O	O	C
CMD D00 M 02		300 878	300 891							O	O	C	O
CMD D00 M03		300 879	300 892							O	C	O	O
CMD D00 M 04		300 880	300 893							C	O	O	O
CMD D00 M05		300 881	300 894							O	O	C	C
CMD D00 M 06		300 882	300 895							O	C	O	C
CMD D00 M07		300 883	300 896							C	O	O	C
CMD D00 M 08		300 884	300 897							O	C	C	O
CMD D00 M09		300 885	300 898							C	O	C	O
CMD D00 M 10		300 886	300 899							C	C	O	O
CMD D00 M11		300 773	300 777							O	O	O	O

open 1 towards 2 open 3 towards 4

Legend: C= Closed O= Open

F.T 50 1176 2/2

2 CARTRIDGES MOUNTED on BAF "M"

SUMMARY

	N° Page
BLOCKS "M" CODIFICATION	
-BAF «M» standard fixation in line	131 / 000
 MOUNTING on BAF " M "	
Pilot popet solenoid valves	
2 Ways - 2 Positions	A03 to A08 132 / 000
Spool solenoid valves	
2 Ways - 2 Positions	A01 - A02 133 / 000
3 Ways - 2 Positions	B25 to B41 134 / 000
3 Ways - 3 Positions	C45 to C47 135 / 000
4 Ways - 2 Positions	D50 to D59 136 / 000
4 Ways - 3 Positions	E75 to E83 137 / 000
Directional valves	
Non-return valve	A12- A13 138 / 000
Lock valve	A14 138 / 000
Pilot non-return valve	B32 139 / 000
Shuttle valve	B36 139 / 000
3 Ways valve with pilot spool	B65 - B66 140 / 000
4 Ways valve with pilot spool	D70 141 / 000
Pressure control	
Direct-acting and inverted relief valve	A15 - A17 142 / 000
Pilot relief valve	A16 142 / 000
Pressure rducing valve	B18 143 / 000
Overcenter valve	B31 144 / 000
Flow control	
Compensated flow control valve	A20 145 / 000
Needle valve	A19 146 / 000
Flow divider with priority flow	B34 T 147 / 000
Flow divider with priority flow	B34 X 148 / 000
Flow divider	E38 149 / 000
Solenoid valves with proportional control	
Pilot relief valve with proportional control	A116 150 / 000
Flow control valve with proportional control	A120 - A121 151 / 000
GENERAL SUMMARY	002 / 000

F.T 50 1177 1/2

2 CARTRIDGES MOUNTED on BAF "V"

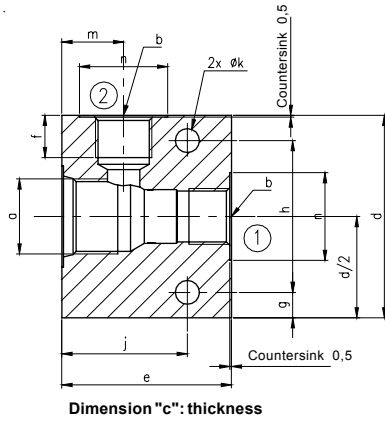
SUMMARY

	N° Page
BLOCKS "V" CODIFICATION	
-BAF «V» fixation by hollow screw	152 / 000
 MOUNTING on BAF " V "	
 Pilot poppet solenoid valve	
2 Ways - 2 Positions	
- Mounted on block with simple hollow screw	153 / 000
- Mounted on block with hollow screw fitted out with a compensated flow control valve	154 / 000
 2 Ways flow restrictor valve with check valve	
- Mounted on block with simple hollow screw (A24).....	156 / 000
 Double pilot non-return valves	
- Mounted on block with hollow screw simple or fitted out with a flow control valve..... (A12)	157 / 000
 Compensated flow control valves	
- Hollow screw with compensated flow control valve, fixed or adjustable, mounted on block	158 / 000
 Double compensated flow control valves	
- Hollow screw with compensated flow control valve and compensated flow control valve (A20), fixed or adjustable, mounted on block.....	159 / 000
 GENERAL SUMMARY	002 / 000

BAF "M" - Associative Function Blocks for in - line mounting

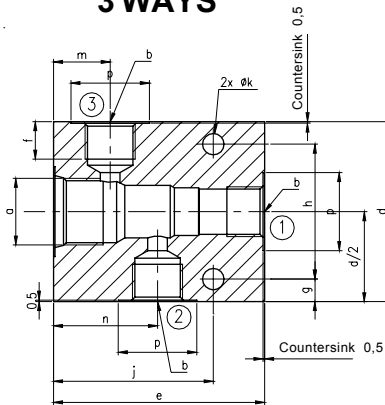
SIZES 10 - SAE: 08 - 10 - 16
Metric: 58 - 62

2 WAYS



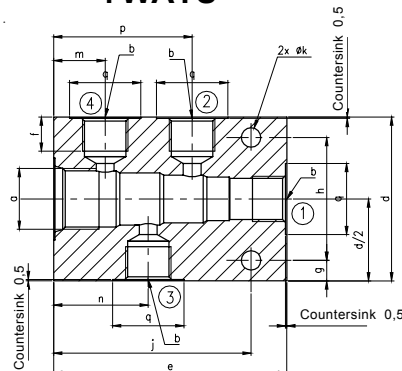
Dimension "c": thickness

3 WAYS



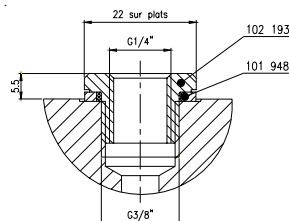
Dimension "c": thickness

4 WAYS



Dimension "c": thickness

* Version G1: same as G2 + reduction on port
 Only on ports 3/8" G



Reference RMFG2G1 - N° 200 595

PORT SIZES

SAE															
Sizes	Port size a	Ports b		Ref.	c	d	e	f	g	h	j	k	m	n	Weight Kg
08	3/4" 16UNF	G1*	1/4" G	200 602	30	60	50	12	7,5	45	32	7,1	13,5	*	0,2
		G2	3/8" G	101 763	30	60	50	12	7,5	45	32	7,1	13,5	26	0,2
10	7/8" 14UNF	G2	3/8" G	100 301	30	60	50	12	7,5	45	37	7,1	18,2	26	0,2
		G3	1/2" G	101 052	30	60	50	16	7,5	45	37	7,1	18,2	30	0,2
16	1"5/16-12UN	G4	3/4" G	100 302	30	90	75	19	15	60	50	8,6	24	36	0,8

Metric															
Sizes	Port size a	Ports b		Ref.	c	d	e	f	g	h	j	k	m	n	Weight Kg
58	M 18 x 1,5	G1*	1/4" G	200 601	30	60	50	12	7,5	45	32	7,1	13,5	*	0,2
		G2	3/8" G	101 299	30	60	50	12	7,5	45	32	7,1	13,5	26	0,2
62	M 22 x 1,5	G2	3/8" G	100 310	30	60	50	12	7,5	45	37	7,1	15,5	26	0,2

PORT SIZES

SAE																
Sizes	Port size a	Ports b		Ref.	c	d	e	f	g	h	j	k	m	n	p	Weight Kg
08	3/4" 16UNF	G1*	1/4" G	200 603	30	60	60	12	7,5	45	48	7,1	14,8	29,1	*	0,2
		G2	3/8" G	101 384	30	60	60	12	7,5	45	48	7,1	14,8	29,1	26	0,2
10	7/8" 14UNF	G2	3/8" G	100 304	30	60	70	12	7,5	45	53	7,1	18,8	34,5	26	0,3
		G3	1/2" G	101 375	30	60	70	16	7,5	45	53	7,1	18,8	34,5	30	0,3
16	1"5/16-12UN	G4	3/4" G	100 305	50	90	100	19	15	60	82,5	8,6	25	53,5	36	1

PORT SIZES

SAE																
Sizes	Port size a	Ports b		Ref.	c	d	e	f	g	h	j	k	m	n	p	Weight Kg
08	3/4" 16UNF	G1*	1/4" G	200 604	30	60	80	12	7,5	45	65	7,1	14,8	29,1	43,5	0,3
		G2	3/8" G	102 002	30	60	80	12	7,5	45	65	7,1	14,8	29,1	43,5	0,3
10	7/8" 14UNF	G2	3/8" G	100 307	30	60	85	12	7,5	45	72	7,1	18,8	34,5	50,5	0,3
16	1"5/16-12UN	G4	3/4" G	10 308	50	90	127	19	15	60	110	8,6	25	53,5	82	1,3

Cavities for valves in cartridges: see F.T 50 1267 at F.T 50 1270
 Pages 233 /00 at 236 / 00

Codification **BAF 58 M 2 0 G2**

Sizes-ports sizes
 08 = 3/4"16UNF
 10 = 7/8"14UNF
 16 = 1"5/16 12UN

Nb of ways of the cartridge
 2 = 2 ways
 3 = 3 ways
 4 = 4 ways

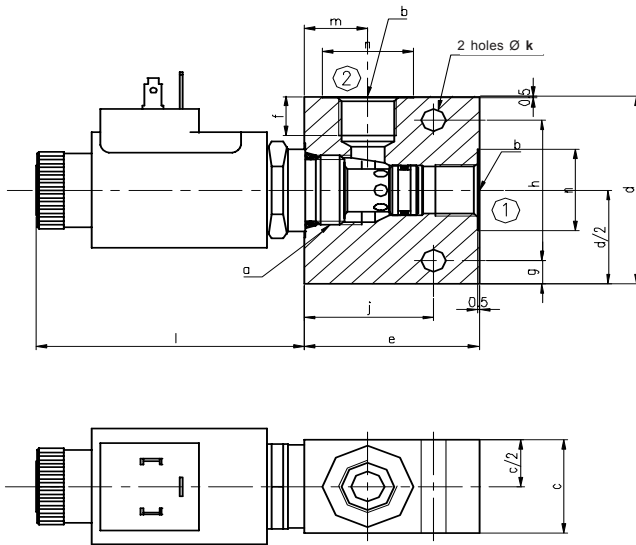
M= in line mounting

Standard fixation

Blocks ports
 G1* = 1/4" G
 G2 = 3/8" G
 G3 = 1/2" G
 G4 = 3/4" G

F.T 50 1178

PILOT POPPET SOLENOID VALVES 2 WAYS - 2 POSITIONS

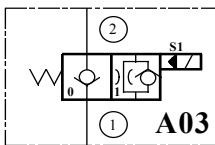


BAF block only		
Designation	Ports	N°
58M20-G1	1/4" G	100 309
58M20-G2	3/8" G	101 299
08M20-G1	1/4" G	100 300
08M20-G2	3/8" G	101 763
10M20-G2	3/8" G	100 301
10M20-G3	1/2" G	101 052
16M20-G4	3/4" G	100 302

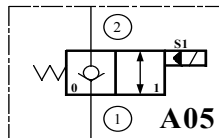
Size SAE J475	a Port size	Max pressure bar	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
58	M 18x1,5	300	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	64,5	13,5	23		0,2
			G2 3/8" G											26		
08	3/4" 16 UNF	300	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	64,5	13,5	23		0,2
			G2 3/8" G											26		
10	7/8" 14 UNF	300	G2 3/8" G	30	60	50	12	7,5	45	37	7,1	76,5	18,2	26		0,2
			G3 1/2" G											30		
16	1" 5/16 12 UN	300	G4 3/4" G	50	90	75	19	15	60	50	8,6	95	24	36		0,8

* Size 08: only for functions A05 and A06

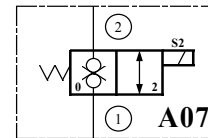
NORMALLY CLOSED



Max flow
58 = 30 l/mn
10 = 60 l/mn
16 = 140 l/mn

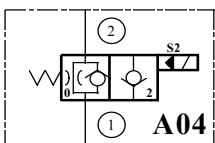


Max flow
58 = 30 l/mn
08 = 30 l/mn
10 = 60 l/mn
16 = 140 l/mn

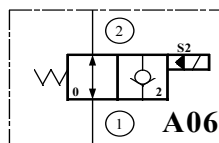


Max flow
58 1Std= 20 l/mn
58 2HP = 30 l/mn
10 1Std= 40 l/mn
10 2HP = 60 l/mn

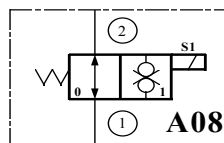
NORMALLY OPEN



Max flow
58 = 30 l/mn
10 = 60 l/mn
16 = 140 l/mn



Max flow
58 = 30 l/mn
08 = 30 l/mn
10 = 60 l/mn
16 = 140 l/mn



Max flow
58 = 25 l/mn

Cartridge characteristics :

A03 - A04 - A05 - A06

Size 58 & 08:
F.T 50 1101
Page 008 / 00
Size 10:
F.T 50 1102
Page 010 / 00
Size 16:
F.T 50 1103
Page 012 / 00

A07
Size 58:
Versions 1 & 2
F.T 50 1104
Page 014 / 00
Size 10:
Versions 1 & 2
F.T 50 1105
Page 016 / 00

A08
Size 58:
F.T 50 1106
Page 018 / 00

Codification CED 10 A03 B 3 A 0 N G2

Voltages
A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt RAC*
F = 48 Volt RAC*
G = 110 Volt RAC*
H = 220 Volt RAC*

Size code
58 = M 18 x 1,5
08 = 3/4" 16UNF - T.05 & 06 only
10 = 7/8" 14UNF
16 = 1"5/16 12UN

Function code

Coil code
T.58
Code 8 = all functions except A07 version 2
Code 5 = A07 version 2
T10
Code 3 = all functions except A07
Code 5 = A07 version 1
Code 4 = A07 version 2
T.16 = Code 4

Coil Connection
A = electr. con. 6,35 - DIN 43650
B = Kostal
F = leadwires
J = AMP Junior

Connectors
see pages 072/00 & 073/00

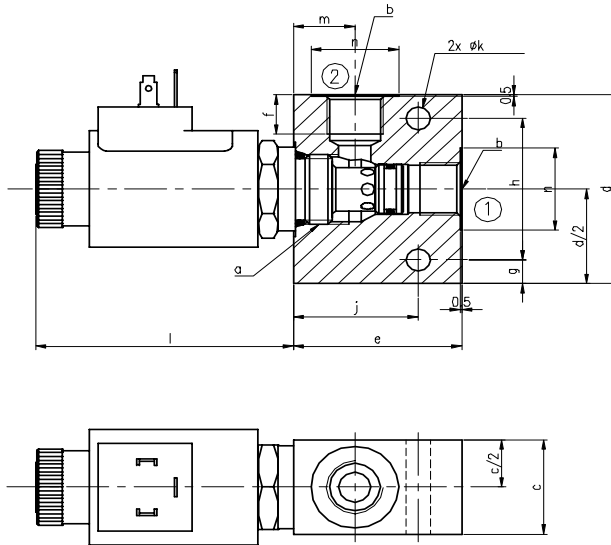
Ports
G1 = 1/4" G
G2 = 3/8" G
G3 = 1/2" G
G4 = 3/4" G

Cde manuelle sécurité
0 = without
A03 - A05 - A08
A = screwing off
C = pulling
A04 - A06 - A07
B = screwing
E = pushing

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

*VAC: Coils with integrated bridge rectifier
*RAC: use obligatory a connector with bridge rectifier

SPOOL SOLENOID VALVES 2 WAYS - 2 POSITIONS

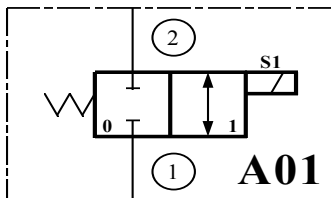


BAF block only		
Designation	Ports	N°
58M20-G1	1/4" G	100 309
58M20-G2	3/8" G	101 299
10M20-G2	3/8" G	100 301
10M20-G3	1/2" G	101 052
16M20-G4	3/4" G	100 302

Size SAEJ475	a Port size	Max Pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
58	3/4" 16 UNF	300	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	64,5	13,5	23		0,2
			G2 3/8" G											26		
10	7/8" 14 UNF	300	G2 3/8" G	30	60	50	12	7,5	45	37	7,1	76,5	18,2	26		0,2
			G3 1/2" G				16							30		
16	1" 5/16 12 UN	300	G4 3/4" G	50	90	75	19	15	60	50	8,6	95	24	36		0,8

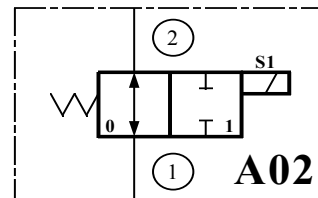
*Weight wiyhou solenoid valve

NORMALLY CLOSED
not energized



Max flow :
58 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn

NORMALLY OPEN
not energized



Max flow :
58 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn

Cartridge characteristics:

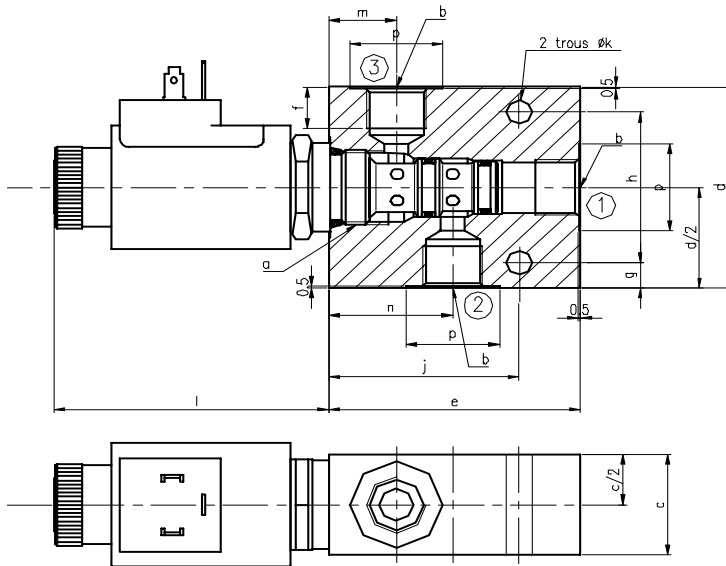
Size 58: F.T 50 1108 Page 021 / 00
Size 10: F.T 50 1110 Page 024 / 00
Size 16: F.T 50 1112 Page 027 / 00

Codification

C	E	D	10	A02	B	3	A	0	N	G2
Size code				Function code			Ports			
58-10 or 16							G1 = 1/4" G G2 = 3/8" G G3 = 1/2" G G4 = 3/4" G			
Voltages				Coil code			Manual override			
A = 12 Volt DC B = 24 Volt DC E = 24 Volt RAC F = 48 Volt RAC G = 110 Volt RAC H = 220 Volt RAC				8 = Size 58 5 = Size 10 4 = Size 16			0 = without A = screwing off B = pushing C = pulling			
Connectors				without			with			
				without A = Electr. con. 6,35 - DIN 43650 B = Kostal F = leadwires			L = electr. con. 6,35 DIN 43650 K = Kostal			
							N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 100°C			

F.T 50 1180

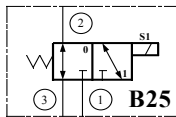
SPOOL SOLENOID VALVES 3 WAYS - 2 POSITIONS



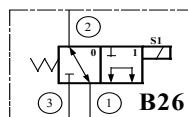
BAF block only		
Designation	Ports	N°
08M30-G1	1/4" G	100 303
08M30-G2	3/8" G	101 384
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375
16M30-G4	3/4" G	100 305

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
08	3/4" 16 UNF	300	G1 1/4" G	30	60	60	12	7,5	45	48	7,1	64,5	14,8	29,1	23	0,2
			G2 3/8" G												26	
10	7/8" 14 UNF	300	G2 3/8" G	30	60	70	12	7,5	45	53	7,1	76,5	18,8	34,5	26	0,3
			G3 1/2" G												30	
16	1" 5/16 12 UN	300	G4 3/4" G	50	90	100	19	15	60	82,5	8,6	95	25	53,5	36	1

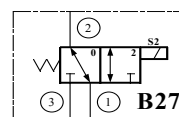
*Weight without solenoid valve



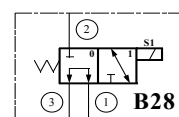
Max flow :
08 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn



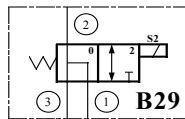
Max flow :
08 = 10 l/mn
10 = 25 l/mn
16 = 45 l/mn



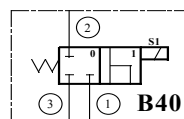
Max flow :
08 = 10 l/mn
10 = 35 l/mn
16 = 60 l/mn



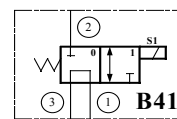
Max flow :
08 = 10 l/mn
10 = 35 l/mn
16 = 45 l/mn



Max flow :
08 = 10 l/mn
10 = 25 l/mn
16 = 45 l/mn



Max flow :
08 = 10 l/mn
10 = 25 l/mn
16 = 45 l/mn



Max flow :
08 = 10 l/mn
10 = 25 l/mn
16 = 45 l/mn

Cartridges characteristic:

Size 08: F.T 50 1114 Page 031 / 00
Size 10: F.T 50 1115 Page 033 / 00
Size 16: F.T 50 1116 Page 035 / 00

Codification

C E D 08 B25 B 2 A 0 N G1

Size code: 08-10 or 16
Code fonction: B25 B 2

Voltage

A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt RAC
F = 48 Volt RAC
G = 110 Volt RAC
H = 220 Volt RAC

Coil code
8 = Taille 58
5 = Taille 10
4 = Taille 16

Connectors
A = electr. con. 6,35 - DIN 43650
B = Kostal
F = leadwires
J = AMP Junior

Connectors see pages 072/00 et 073/00

Ports

G1 = 1/4" G
G2 = 3/8" G
G3 = 1/2" G
G4 = 3/4" G

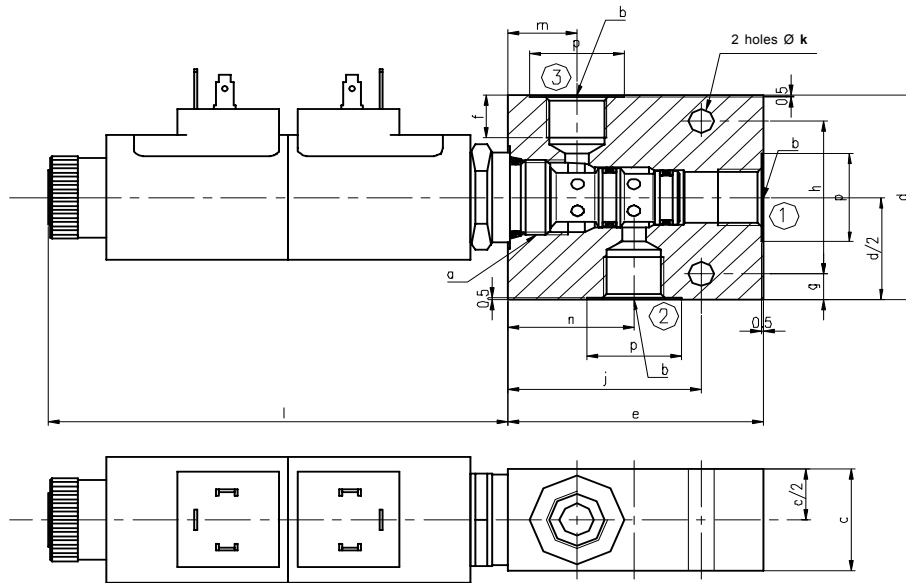
Manual override

0 = without
A = screwing off
B = pushing

N - Nitril seals -40° + 100°C
V - Viton seals -20° + 100°C

F.T 50 1181

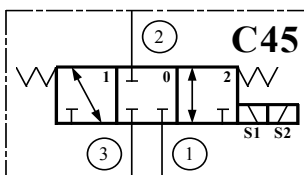
SPOOL SOLENOID VALVES 3 WAYS - 3 POSITIONS



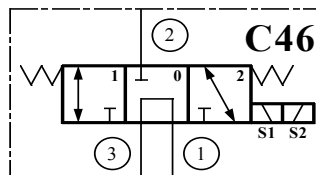
BAF block only		
Designation	Ports	N°
08M30-G1	1/4" G	100 303
08M30-G2	3/8" G	101 384
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375
16M30-G4	3/4" G	100 305

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
08	3/4" 16 UNF	300	G1 1/4" G	30	60	60	12	7,5	45	48	7,1	103	14,8	29,1	23	0,2
			G2 3/8" G												26	
10	7/8" 14 UNF	300	G2 3/8" G	30	60	70	12	7,5	45	53	7,1	126,5	18,8	34,5	26	0,3
			G3 1/2" G												30	
16	1" 5/16 12 UN	300	G4 3/4" G	50	90	100	19	15	60	82,5	8,6	151	25	53,5	36	1

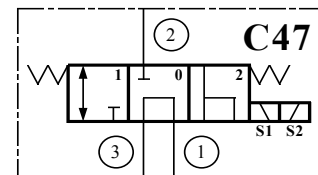
*Weight without solenoid valve



Max flow :
08 = 10 l/mn
10 = 35 l/mn
16 = 60 l/mn



Max flow :
08 = 8 l/mn
10 = 25 l/mn
16 = 45 l/mn



Max flow :
08 = 8 l/mn
10 = 25 l/mn
16 = 45 l/mn

Cartridge characteristics:

Size 08: F.T 50 1118 Page 038 / 00
 Size 10: F.T 50 1119 Page 040 / 00
 Size 16: F.T 50 1120 Page 042 / 00

Codification

C E D 08 C45 B 2 A 0 N G1

Size code
 08-10 or 16

Function code

Voltage

A = 12 Volt DC
 B = 24 Volt DC
 E = 24 Volt RAC
 F = 48 Volt RAC
 G = 110 Volt RAC
 H = 220 Volt RAC

Coil code
 8 = Size 58
 5 = Size 10
 4 = Size 16

Connectors

without A = electr. con. 6,35 - DIN 43650
 B = Kostal
 F = leadwires
 with L = electr.con. 6,35 DIN 43650
 K = p/Kostal

Ports

G1 = 1/4" G
 G2 = 3/8" G
 G3 = 1/2" G
 G4 = 3/4" G

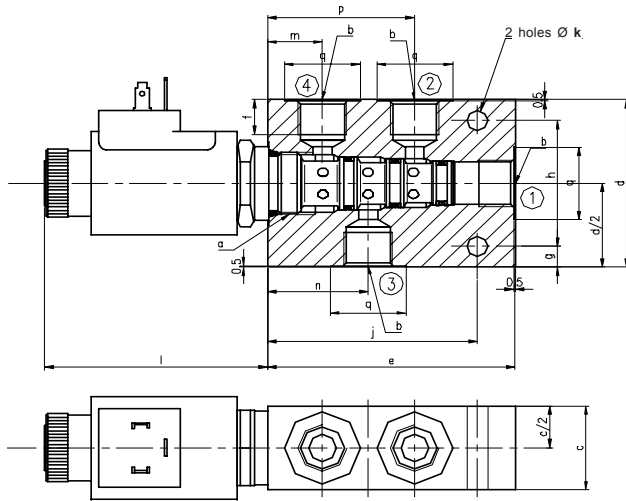
Manual override

O = without
 D = Dual control
 screwing off S1 /
 screwing S2 hold position
 E = pushing version

N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 100°C

F.T 50 1182

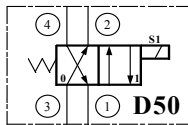
SPOOL SOLENOID VALVES 4 WAYS - 2 POSITIONS



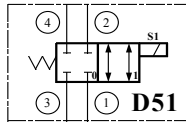
Bloc BAF seul		
Designation	Ports	N°
08M40-G1	1/4" G	100 306
08M40-G2	3/8" G	102 202
10M40-G2	3/8" G	100 307
16M40-G4	3/4" G	100 308

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	q	Weight in Kg*	
08	3/4" 16 UNF	300	G1	1/4" G	30	60	80	12	7,5	45	65	7,1	64,5	14,8	29,1	43,5	23	0,3
			G2	3/8" G													26	
10	7/8" 14 UNF	300	G2	3/8" G	30	60	85	12	7,5	45	72	7,1	76,5	18,8	34,5	50,5	26	0,3
								16										
16	1"5/16 12 UN	300	G4	26	50	90	127	12	15	60	110	8,6	151	25	53,5	82	36	1,3
																	16	

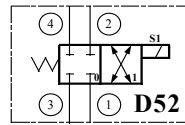
*Weight without solenoid valve



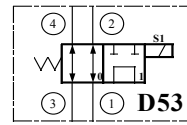
Max flow :
08 = 15 l/mn
10 = 35 l/mn-code 1
16 = ... l/mn-code 2
16 = 60 l/mn



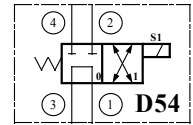
Max flow :
08 = 24 l/mn
10 = 35 l/mn
16 = 60 l/mn



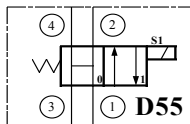
Max flow :
08 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn



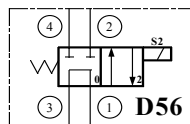
Max flow :
08 = 08 l/mn
10 = 25 l/mn
16 = 50 l/mn



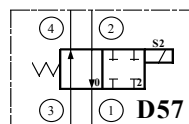
Max flow :
08 = 08 l/mn
10 = 25 l/mn
16 = 50 l/mn



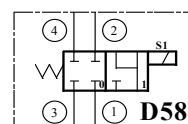
Max flow :
08 = 08 l/mn
10 = 25 l/mn
16 = 50 l/mn



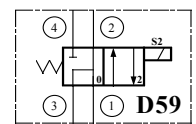
Max flow :
08 = 08 l/mn
10 = 25 l/mn
16 = 50 l/mn



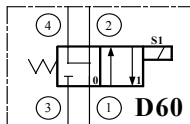
Max flow :
08 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn



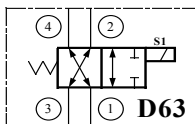
Max flow :
08 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn



Max flow :
08 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn



Max flow :
08 = 15 l/mn
10 = 35 l/mn-code 1
16 = ... l/mn-code 2
16 = 60 l/mn



Max flow :
10 = ... l/mn-code 1
10 = ... l/mn-code 2

Codification

C	E	D	08	B50	B	8	A	0	N	G1
Size Code			Function code			Ports		Manual override		
08-10 or 16						G1 = 1/4" G G2 = 3/8" G G3 = 1/2" G G4 = 3/4" G		0 = without A = screwing off B = pushing		
Voltages			Coil Code			Connectors		N - Nitril seals - 40° + 100°C V - Viton seals - 20° + 100°C		
A = 12 Volt DC B = 24 Volt DC E = 24 Volt RAC F = 48 Volt RAC G = 110 Volt RAC H = 220 Volt RAC			8 = Size 58 5 = Size 10 4 = Size 16			A = electr. con. 6,35 - DIN 43650 B = Kostal F = leadwires J = AMP Junior				
Connectors see pages 072/00 et 073/00										

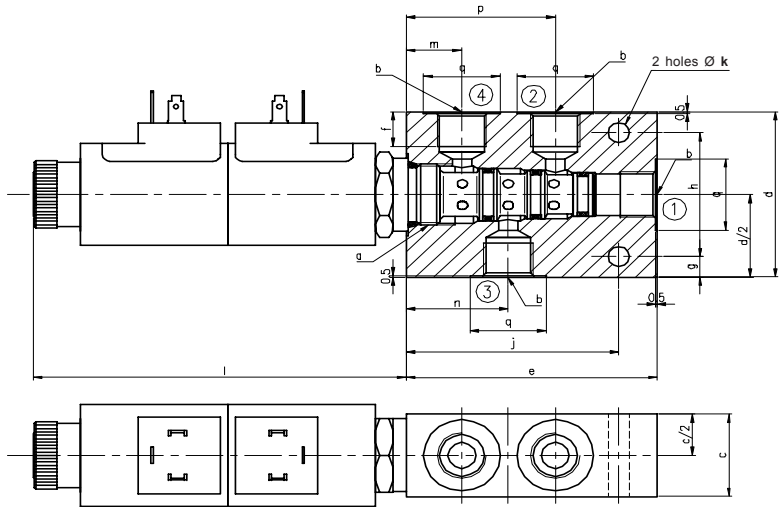
Cartridges characteristics:

Size 08: F.T 50 1122 Page 046 / 00
Size 10- Code 1: F.T 50 1123 Page 048 / 00
Size 10- Code 2: F.T 50 1123 Page 048 / 00
Size 16: F.T 50 1124 Page 050 / 00

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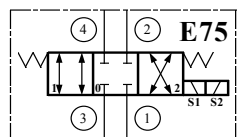
SPOOL SOLENOID VALVES 4 WAYS - 2 POSITIONS



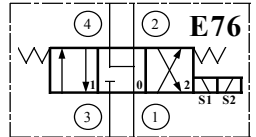
BAF block only		
Designation	Port	N°
08M40-G1	1/4" G	100 306
08M40-G2	3/8" G	102 202
10M40-G2	3/8" G	100 307
16M40-G4	3/4" G	100 308

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	q	Weight in Kg*
08	3/4" 16 UNF	300	G1 1/4" G	30	60	80	12	7,5	45	65	7,1	103	14,8	29,1	43,5	23	0,3
			G2 3/8" G														
10	7/8" 14 UNF	300	G2 3/8" G	30	60	85	12	7,5	45	72	7,1	126,5	18,8	34,5	50,5	26	0,3
			G4 3/4" G														
16	1" 5/16 12 UN	300	G4 3/4" G	50	90	127	19	15	60	110	8,6	151	25	53,5	82	36	1,3

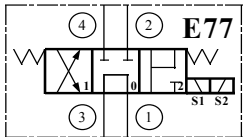
*Weight without solenoid valve



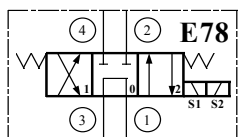
Max flow :
08 = 15 l/mn
10 = 35 l/mn-code 1
16 = l/mn-code 2
16 = 60 l/mn



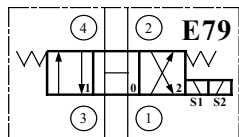
Max flow :
08 = 24 l/mn
10 = 35 l/mn
16 = 60 l/mn



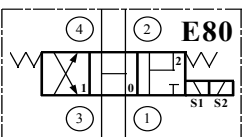
Max flow :
08 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn



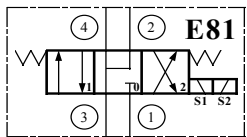
Max flow :
08 = 08 l/mn
10 = 25 l/mn
16 = 50 l/mn



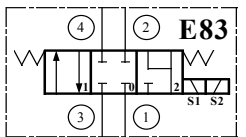
Max flow :
08 = 08 l/mn
10 = 25 l/mn
16 = 50 l/mn



Max flow :
08 = 08 l/mn
10 = 25 l/mn
16 = 50 l/mn



Max flow :
08 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn



Max flow :
08 = 15 l/mn
10 = 35 l/mn
16 = 60 l/mn

Cartridges characteristics:

Size 08:
 F.T 50 1126 Page 054 / 00

Size 10- Code 1:
 F.T 50 1127 Page 056 / 00

Size 10- Code 2:
 F.T 50 1128 Page 058 / 00

Size 16:
 F.T 50 1129 Page 060 / 00

Codification **C E D 08 E75 B 2 A 0 N G1**

Size code
 08-10 or 16

Function code

Voltages
A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt RAC
F = 48 Volt RAC
G = 110 Volt RAC
H = 220 Volt RAC

Coil code
8 = Size 08
5 = Size 10
4 = Size 16

Connectors
without **A** = electr. con. 6,35 - DIN 43650
B = Kostal
F = leadwires
with **L** = electr. con.6,35 DIN 43650
K = Kostal

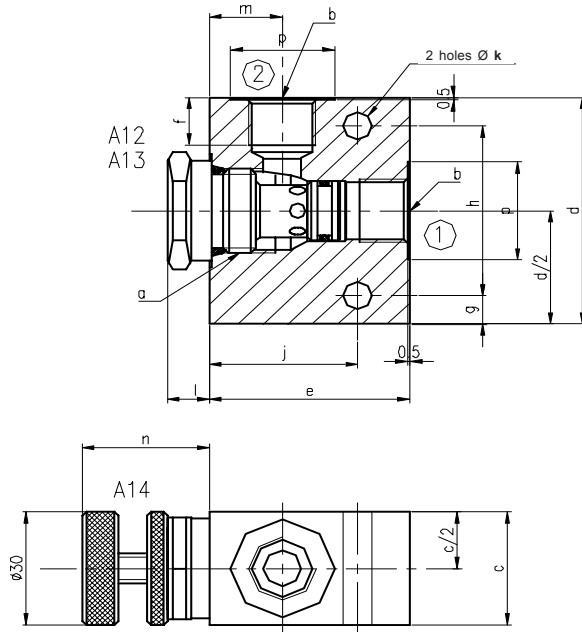
Ports
G1 = 1/4" G
G2 = 3/8" G
G3 = 1/2" G
G4 = 3/4" G

Manual override
O = without
D = kept in position by screwing off S1 - and screwing S2

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T 50 1184

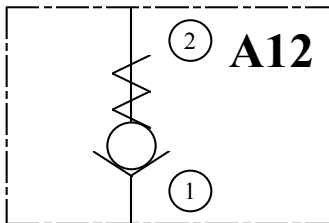
DIRECTIONAL VALVES



BAF block only		
Designation	Ports	N°
58M20-G1	1/4" G	100 309
58M20-G2	3/8" G	101 299
08M20-G1	1/4" G	100 300
08M20-G2	3/8" G	101 763
10M20-G2	3/8" G	100 301
10M20-G3	1/2" G	101 052
16M20-G4	3/4" G	100 302

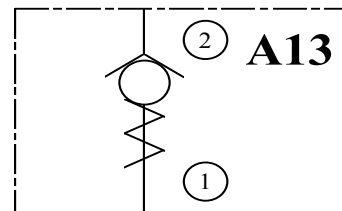
Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
58	M18x1,5	350	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	12,5	13,5	32	23	0,2
			G2 3/8" G													26
08	3/4" 16 UNF	350	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	12,5	13,5	32	23	0,2
			G2 3/8" G													26
10	7/8" 14 UNF	350	G2 3/8" G	30	60	50	12	7,5	45	37	7,1	10,5	18,2	32	26	0,2
			G3 1/2" G													30
			G4 3/4" G													16
16	1" 5/16 12 UN	350	G4 3/4" G	50	90	75	19	15	60	50	8,6	19,5	24	38	36	0,8

* Weight without solenoid valve



Poppet check valve

Max flow :
58 = 30 l/mn
10 = 60 l/mn
16 = 150 l/mn



Inverted poppet check valve

Max flow :
58 = 30 l/mn
10 = 60 l/mn
16 = 150 l/mn

Cartridges characteristics:

- Size 58
- Size 08:
- Size 10:
- Size 16:

F.T 50 1144 Page 076 / 00

Codification

C E D 10 A12 M 10 O N G2

Size code

- 08 = 3/4" 16 UNF
- 10 = 7/8" 14 UNF
- 16 = 1" 5/16 12 UN
- 58 = M 18 x 1,5
- 62 = M 62 x 1,5
- 73 = M 73 x 2

Function code
Standard

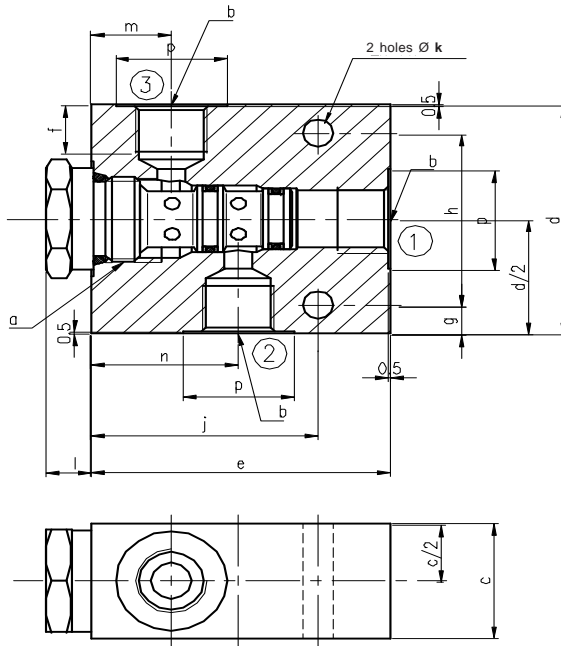
Adjustment
 10 = Fixe

- Ports**
- G1 = 1/4" G
 - G2 = 3/8" G
 - G3 = 1/2" G
 - G4 = 3/4" G

Standard

- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

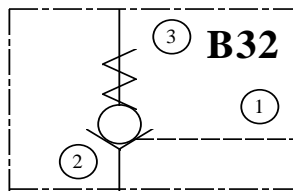
DIRECTIONAL VALVES



BAF block only		
Designation	Ports	N°
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375

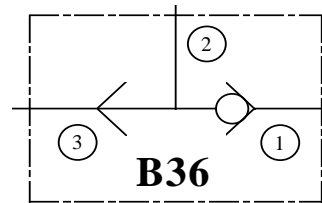
Size SAE J475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
10	7/8" 14 UNF	300	G2 3/8" G	30	60	70	12	7,5	45	53	7,1	10,5	18,8	34,5	26	0,3
			G3 1/2" G				16									30

*Weight without valve



Max flow : 40 l/mn

Pilot poppet check valve



Max flow: 40 l/mn

Shuttle valve

Cartridges characteristics:

B32
Size 10: F.T 50 1145 Page 078 / 00

B36
Size 10: F.T 50 1146 Page 079 / 00

Codification

C H D 10 B32 P 10 O N G2

Size Code
10 = 7/8" 14 UNF

Function code

Standard

Standard

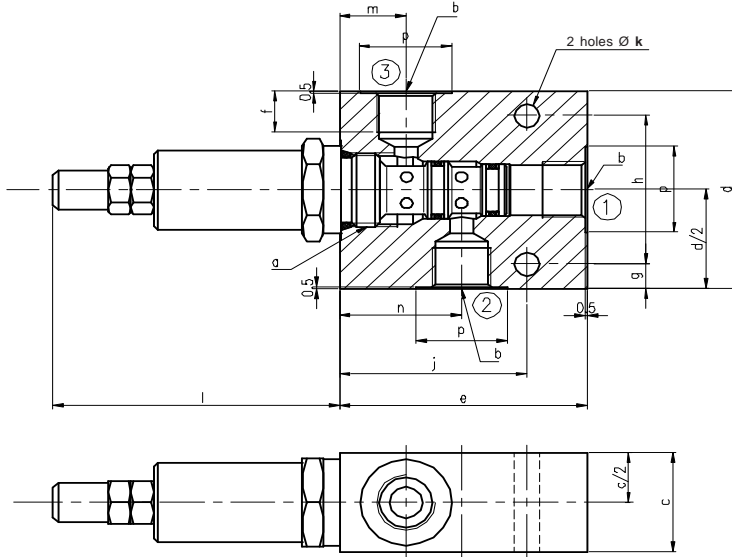
Ports

G2 = 3/8" G
G3 = 1/2" G

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T 50 1186

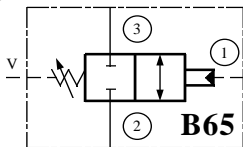
PILOT 3 WAYS DIRECTIONAL VALVES



BAF block only		
Designation	Port	N°
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375

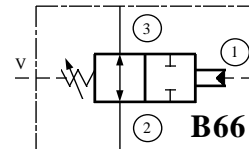
Size SAE J475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
10	7/8" 14 UNF	300	G2 3/8" G	30	60	70	12	7,5	45	53	7,1	81	18,8	34,5	26	0,3
			G3 1/2" G												30	

*Weight without valve

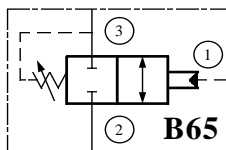


B65
external vent

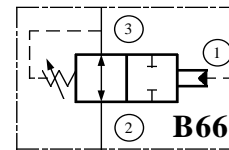
Max flow: 40 l/mn



B66
external vent



B65
internal draining
Pilot spool valve
Normally closed



B66
internal draining
Pilot spool valve
Normally open

Cartridges characteristics:

B65 - B66

Size 10: F.T 50 1147 Page 081 / 00

Codification C H D 10 B66 P 2 A O N G2

Size code 10 = 7/8" 14 UNF

Function code B66

Standard P 2

Control mode 2 = adjustment by screw

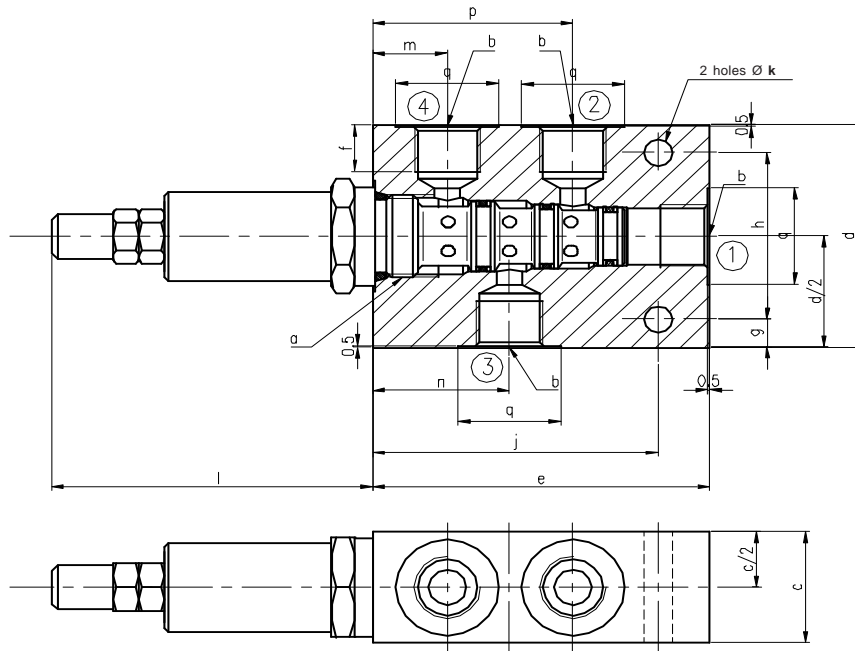
Vent/draining A = External, B = Internal

Ports G2 = 3/8" G, G3 = 1/2" G

Standard N - Nitril seals - 40° + 100°C, V - Viton seals - 20° + 100°C

F.T 50 1187

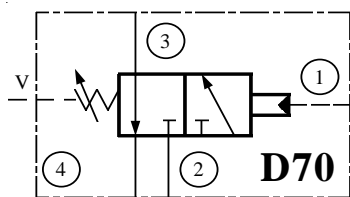
PILOT SPOOL 4 WAYS VALVES



BAF block only		
Designation	Port	N°
10M40-G2	3/8" G	100 307
10M40-G3	1/2" G	

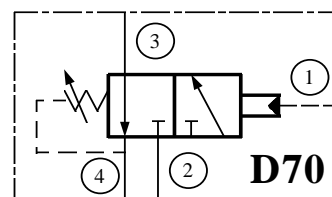
Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	q	Weight in Kg*
10	7/8" 14 UNF	300	G2 3/8" G	30	60	85	12	7,5	45	72	7,1	81	18,8	34,5	50,5	26	0,3
			G3 1/2" G														

*Weight without valve



Max flow:75 l/mn

External vent



Max flow:75 l/mn

Internal draining

Cartridges characteristics:

B65 - B66

Size 10: F.T 50 1148 Page 083 / 00

Codification

C H D 10 D70 P 2 A O N G2

Size code

10 = 7/8" 14 UNF

Function code

Standard

Control code

1 = Fixed setting

2 = Adjustment by screw

Vent/Draining

A = External

B = Internal

Standard

N - Nitril seals - 40° + 100°C

V - Viton seals - 20° + 100°C

Ports

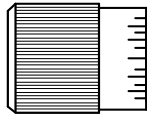
G2 = 3/8" G

G3 = 1/2" G

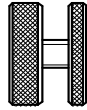
F.T 50 1188

RELIEF VALVES

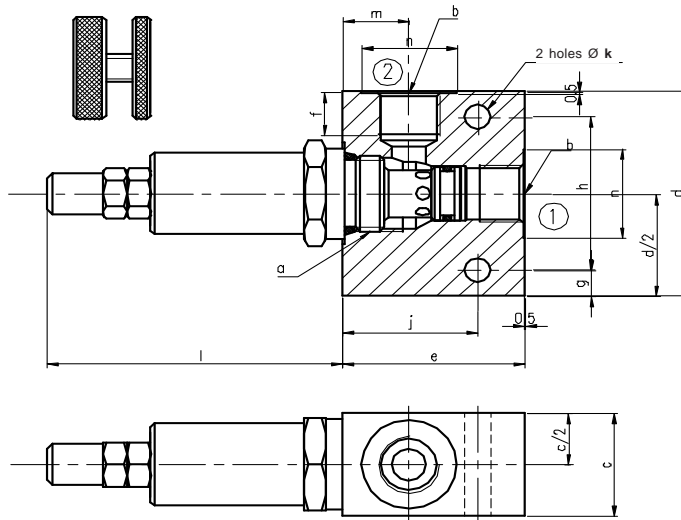
40 Sliding gauge control



30 Wheel control



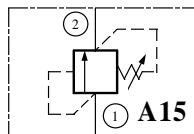
20 Screw control



BAF block only		
Designation	Port	N°
58M20-G1	1/4" G	100 309
58M20-G2	3/8" G	101 299
08M20-G1	1/4" G	100 300
08M20-G2	3/8" G	101 763
10M20-G2	3/8" G	100 301
10M20-G3	1/2" G	101 052
16M20-G4	3/4" G	100 302

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
58	M 18 x 150	depend. on spring	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	81	13,5	23		0,2
			G2 3/8" G											26		
08	3/4" 16 UNF	depend. on spring	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	81	13,5	23		0,2
			G2 3/8" G											26		
10	7/8" 14 UNF	depend. on spring	G2 3/8" G	30	60	50	16	15	45	37	7,1	81	18,2	26		0,2
			G3 1/2" G				19							30		

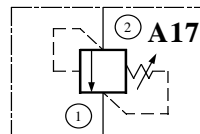
*Weight without valve



Max flow:
58= 25 l/mn
08= 25 l/mn
10= 25 l/mn

Direct-acting relief valve ① → ②

CMP A15



Max flow:
58= 25 l/mn
08= 25 l/mn
10= 60 l/mn

Inverted relief valve ② → ①

CMP A17

Cartridges characteristics:

CMP A15 - CMP A17

Size 58

Size 08

Size 10

F.T 50 1151 Page 087 / 00

Codification

C M P 10 A15 C 20 0 A N G2

Size code

58 = M 18 x 1,5

08 = 3/4" 16 UNF

10 = 7/8" 14 UNF

16 = 1"5/16 12 UN

Function code

Code

C = A15-A17

Ports

G1 = 1/4" G

G3 = 3/8" G

G3 = 1/2" G

G4 = 3/4" G

Control Mode

20 = screw control

21 = screw control with plumbing

30 = wheel control

40 = sliding gauge control (A16 only)

Calibration spring

A = spring 10 - 150 bar

B = spring 25 - 250 bar

C = spring 50 - 350 bar

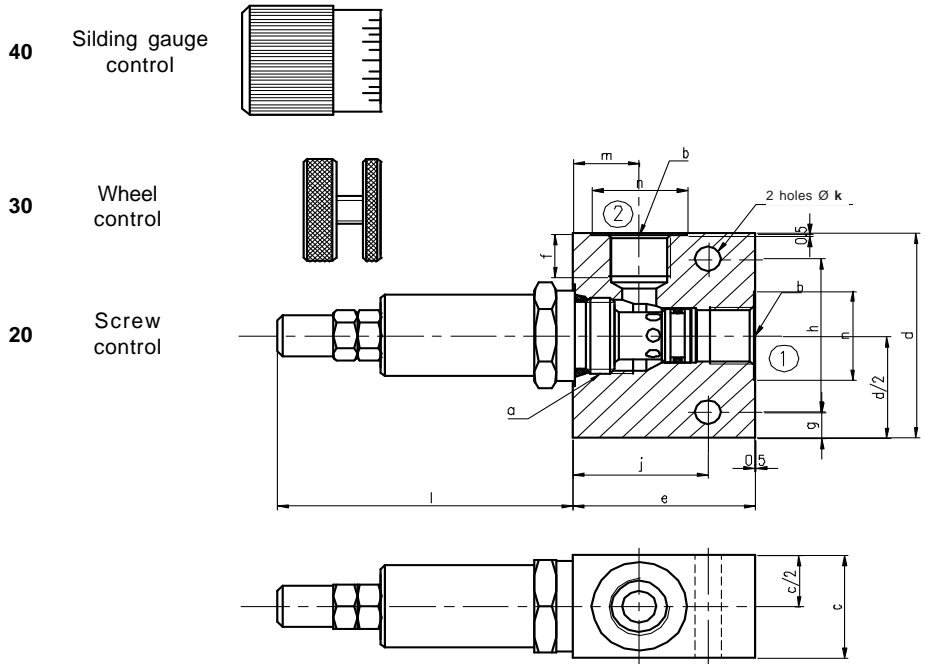
Standard

N - Nitril seals - 40° + 100°C

V - Viton seals - 20° + 100°C

F.T 50 1189 1/2

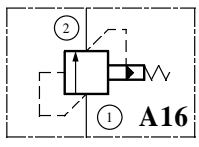
RELIEF VALVES



BAF block only		
Designation	Port	N°
58M20-G1	1/4" G	100 309
58M20-G2	3/8" G	101 299
08M20-G1	1/4" G	100 300
08M20-G2	3/8" G	101 763
10M20-G2	3/8" G	100 301
10M20-G3	1/2" G	101 052
16M20-G4	3/4" G	100 302

Size SAE J475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*	
58	M 18 x 150	depend. on spring	G1	1/4" G	30	60	50	12	7,5	45	32	7,1	81	13,5	23	26	0,2
			G2	3/8" G													
08	3/4" 16 UNF	depend. on spring	G1	1/4" G	30	60	50	12	7,5	45	32	7,1	81	13,5	23	26	0,2
			G2	3/8" G													
10	7/8" 14 UNF	depend. on spring	G2	3/8" G	30	60	50	16	15	45	37	7,1	81	18,2	26	30	0,2
			G3	1/2" G													
16	1" 5/16 12 UN	depend. on spring	G4	3/4" G	50	90	75	19	15	60	50	8,6	81	24	36	0,8	

*Weight without valve



Max flow:
 58= 30 l/mn
 08= 30 l/mn
 10= 75 l/mn
 16= 150 l/mn

Pilot relief valve ① → ②
CMP A16

Cartridges characteristics:
CMP A16
 Size 58
 Size 08 **F.T 50 1152** Page 089 / 00
 Size 10
 Size 16

Codification C M P 10 A16 C 20 A N G2

Size code
 58 = M 18 x 1,5
 08 = 3/4" 16 UNF
 10 = 7/8" 14 UNF
 16 = 1" 5/16 12 UN

Function code
 Code T= A16

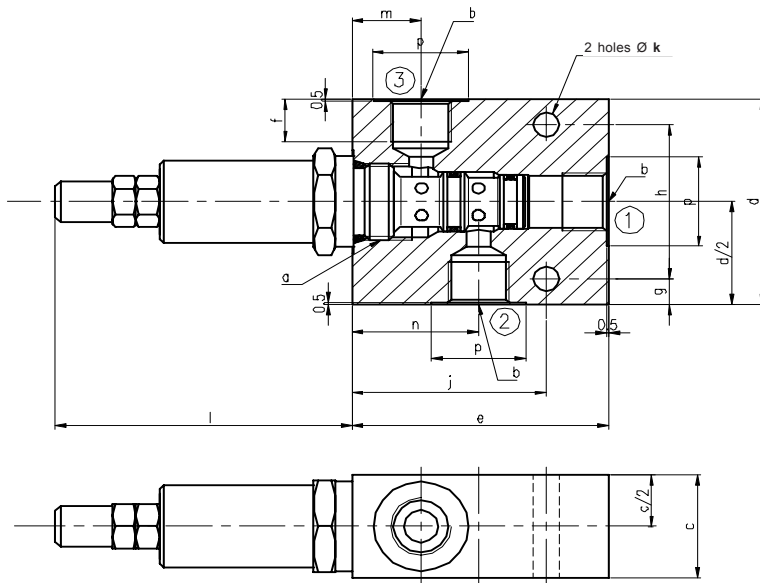
Ports
 G1 = 1/4" G
 G3 = 3/8" G
 G3 = 1/2" G
 G4 = 3/4" G

Control Mode
 20 = screw control
 21 = screw control with plumbing
 30 = wheel control
 40 = sliding gauge control (A16 only)

Standard
 N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 100°C

F.T 50 1189 2/2

PILOT PRESSURE REDUCING VALVE



BAF block only		
Designation	Port	N°
08M30-G1	1/4" G	100 303
08M30-G2	3/8" G	101 384
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375
16M30-G4	3/4" G	100 305

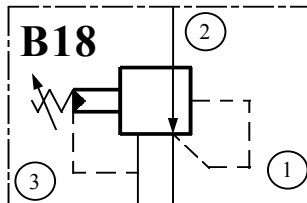
Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
08	3/4" 16 UNF	350	G1 1/4" G	30	60	60	12	7,5	45	48	7,1	81	14,8	29,1	23	0,2
			G2 3/8" G												26	
10	7/8" 14 UNF	350	G2 3/8" G	30	60	70	12	7,5	45	53	7,1	81	18,8	34,5	26	0,3
			G3 1/2" G												30	
16	1" 5/16 12 UN	350	G4 3/4" G	50	90	100	19	15	60	82,5	8,6	81	25	53,5	36	1

*Weight without valve

Adjustment pressure:

Spring **A** = 5 to 140 bar - Spring **B** = 50 to 250 bar

- Regulated pressure ①
- Pressure intake ②
- Draining to tank ③



Max flow:

- 08= 25 l/mn
- 10= 40 l/mn
- 16= 60 l/mn

Valves characteristics:

- Size 08
- Size 10
- Size 16

F.T 50 1154 Page 093 / 00

Codification C H P 10 B18 T 20 A N G2

Size code
 08 = 3/4" 16 UNF
 10 = 7/8" 14 UNF
 16 = 1" 5/16 12 UN

Function code

Version
 T = Spool

Control code
 20 = screw control
 21 = screw control with plumbing
 30 = wheel control
 40 = sliding gauge control

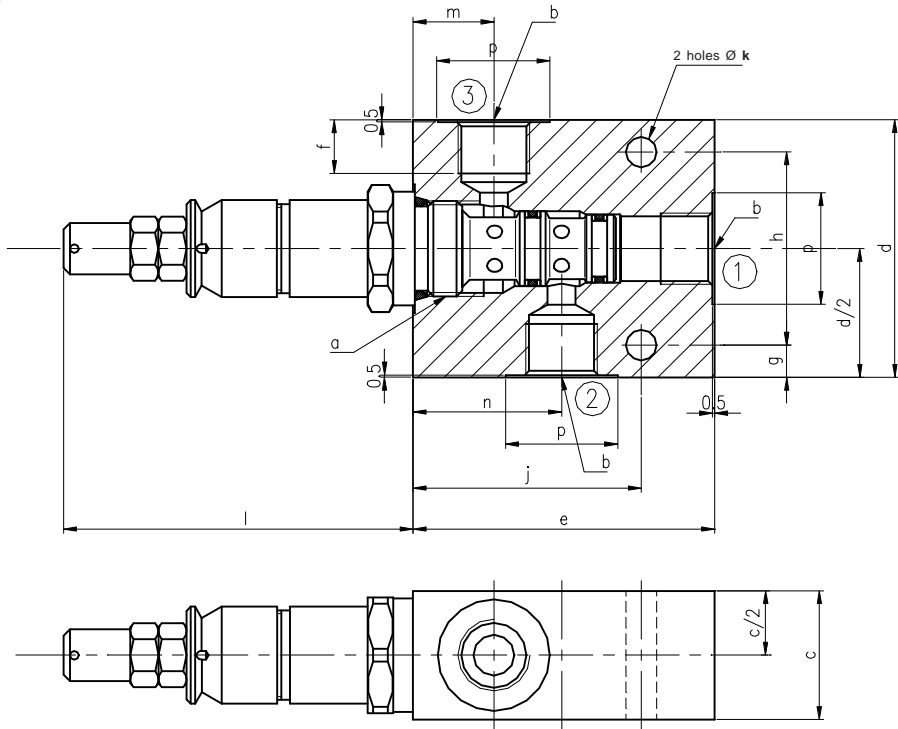
Ports
 G1 = 1/4" G
 G3 = 3/8" G
 G3 = 1/2" G
 G4 = 3/4" G

Particularities
 A = spring 5 - 140 bar
 B = spring 50 - 250 bar

N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 100°C

F.T 50 1190

OVERCENTER VALVE



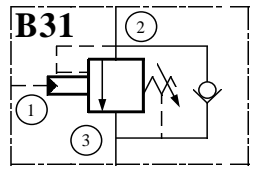
BAF block only		
Designation	Port	N°
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
10	7/8" 14 UNF	300	G2 3/8" G	30	60	60	12	7,5	45	53	7,1	81	18,8	34,5	26	0,3
			G3 1/2" G				19								30	

* Weight without valve

Functions:

- a) Relief valve ② → ③
- b) Flow regulator by piloting in ① ② → ③
- c) Free flow ③ → ②



PT= Calibration pressure
 P3= Pump pressure
 P2= Cylinder pressure
 P1= Piloting pressure

Piloting pressure $P1 = \frac{PT + 9P3 - P2}{8}$

Calibration pressure: from 35 to 300 bar

Valves Characteristics:

Size 10 F.T 50 1156 Page 094 / 00

Codification C H P 10 B31 T 20 O N G2

Size code 10 = 7/8" 14 UNF **Function code** B31

Standard _____ **Standard** _____

Control mode _____

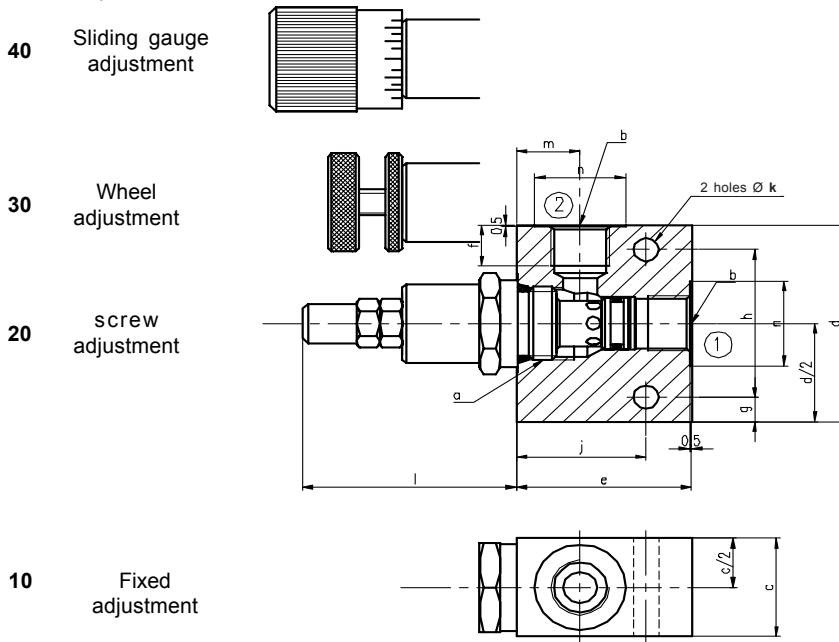
- 20 = screw control
- 21 = screw control with plumbing
- 30 = wheel control
- 40 = sliding gauge control

Ports
 G2 = 3/8" G
 G3 = 1/2" G

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T 50 1191

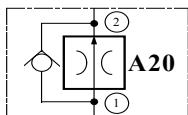
COMPENSATED FLOW CONTROL VALVES



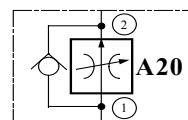
BAF block only		
Designation	Port	N°
58M20-G1	1/4" G	100 309
58M20-G2	3/8" G	101 299
10M20-G2	3/8" G	100 301
10M20-G3	1/2" G	101 052
16M20-G4	3/4" G	100 302

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
58	M 18 x 150	300	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	61	13,5	23		0,2
			G2 3/8" G											26		
10	3/4" 16 UNF	300	G2 3/8" G	30	60	50	12	7,5	45	37	7,1	61	18,2	26		0,2
			G3 1/2" G											30		
16	1" 5/16" 12 UNF	300	G4 3/4" G	50	90	75	19	15	60	50	8,6	61	24	36		0,8

* Weight without valve



Max flow:
 58= 10 l/mn
 10 - code 1 = 30 l/mn
 10 - code 2 = ... l/mn
 16= 100 l/mn



Max flow:
 58= 10 l/mn
 10 - A20T code 1 = 30 l/mn
 10 - A20T code 2 = ...
 10 - A20X = ... l/mn
 16= 100 l/mn

Fixed compensated flow control valves
CMF A20 T10

Adjustable compensated flow control valves

A20T - every size **A20X - Size 10 only:**
 by screw CMF A20 T20 by screw CMF 10 A20 X10
 by wheel CMF A20 T30 by wheel CMF 10 A20 X30
 by sliding gauge CMF A20 T40 by sliding gauge CMF 10 A20 X40

Valves characteristics:

A20T **Sizes 58 - 10 - 16**
 Fixed F.T 50 1159 Page 098 / 00
 Adjustable F.T 50 1160 Page 100 / 00

A20X **Size 10**
 Adjustable F.T 50 1161 Page 102 / 00

Codification

C M F 10 A20 T 20 O N 2 G2

Size code
 58 = M 18 x 1,5
 10 = 7/8" 14 UNF
 16 = 1"5/16 12 UNF

Function code

Code
 T= A20 - regul. by ranges
 X= A20 - T10 only

Control mode
 10 = fixed
 20 = screw and nut
 30 = wheel
 40 = sliding gauge

Ports
 G1 = 1/4" G
 G3 = 3/8" G
 G3 = 1/2" G
 G4 = 3/4" G

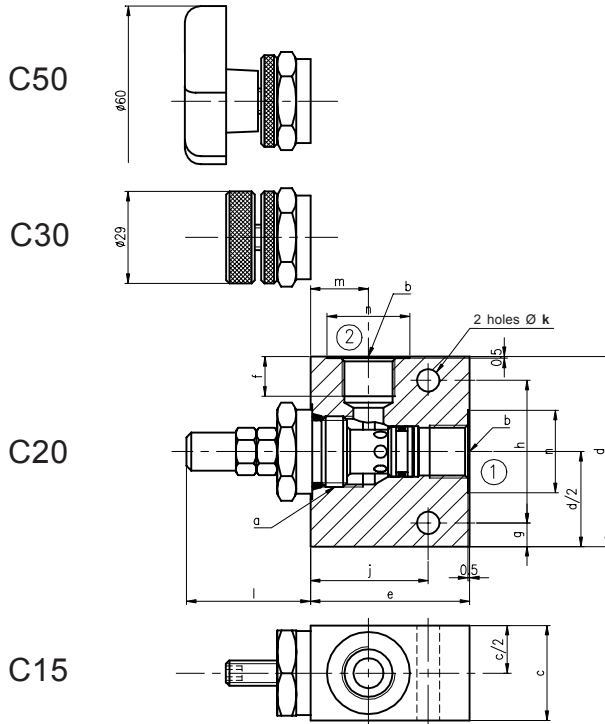
T10 only
 1= Standard
 2= High performance

Standard

N - Joints Nitrile - 40° + 100°C
 V - Joints Viton - 20° + 100°C

F.T 50 1192

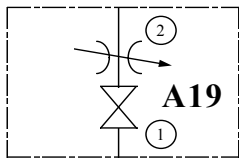
NEEDLE VALVE



BAF block only		
Designation	Port	N°
08M30-G1	1/4" G	100 303
08M30-G2	3/8" G	101 384
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375
16M30-G4	3/4" G	100 305

Size SAEJ475	a Portsize	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
58	M 18 x 1,5	300	G1 1/4" G	30	60	50	12	7,5	45	32	7,1	41	13,5	23		0,2
			G2 3/8" G											26		
10	7/8" 14 UNF	300	G2 3/8" G	30	60	50	12	7,5	45	37	7,1	39	18,2	26		0,2
			G3 1/2" G											30		
16	1" 5/16 12 UN	300	G4 3/4" G	50	90	75	19	15	60	50	8,6	48,5	24	36		0,8

*Weight without valve



Needle valve

Max flow:
 58 = 30 l/mn
 08 = 30 l/mn
 10 = 60 l/mn

Valves characteristics:

A19 Sizes 58 - 08 - 10
 F.T 50 1158 Page 097 / 00

Codification C M F 10 A19 C 20 O N G2

Size code
 58 = M 18 x 1,5
 10 = 7/8" 14 UNF
 16 = 1" 5/16" 12 UN

Function code

Standard

Control mode
 15 = screw only
 20 = screw and nut
 30 = wheel
 50 = star wheel

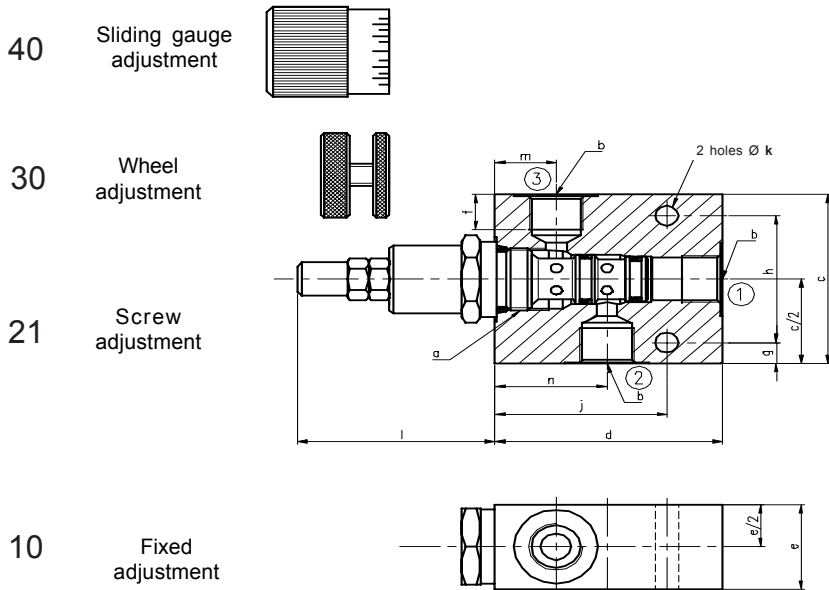
Ports
 G1 = 1/4" G
 G3 = 3/8" G
 G3 = 1/2" G
 G4 = 3/4" G

Standard

N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 100°C

F.T 50 1193

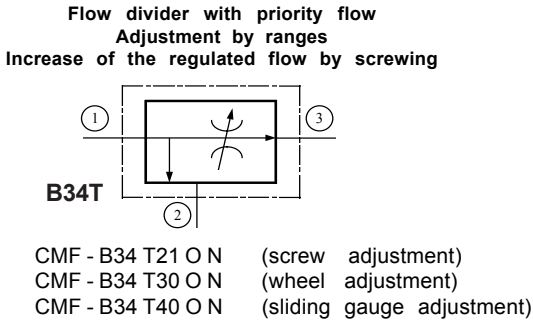
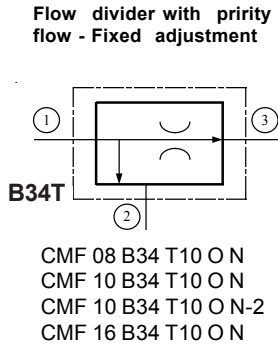
FLOW DIVIDERS with PRIORITY FLOW mounted on BAF



Bloc BAF seul		
Désignation	Orif.	N°
08M30-G1	1/4" G	100 303
08M30-G2	3/8" G	101 384
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375
16M30-G4	3/4" G	100 305

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
08	3/4" 16 UNF	300	G1 1/4" G	60	60	30	12	7,5	45	48	7,1	41	13,5	23		0,2
			G2 3/8" G											26		
10	7/8" 14 UNF	300	G2 3/8" G	60	70	30	12	7,5	45	53	7,1	39	18,2	26		0,2
			G3 1/2" G											30		
16	1" 5/16 12 UN	300	G4 3/4" G	90	100	50	19	15	60	82,5	8,6	48,5	24	36		0,8

*Weight without valve



Max flow intake:
 Size 08= 25 l/mn
 Size 10 - code 1= 40 l/mn
 Size 10 - code 2= 60 l/mn
 Size 16= 100 l/mn

Max regulated flow:
 Size 08= 12 l/mn
 Size 10 - code 1= 20 l/mn
 Size 10 - code 2= 35 l/mn
 Size 16= 60 l/mn

Cartridge characteristics:
 Sizes 08 - 10 - 16
 Fixed F.T 50 1163 Page 105 / 00
 Adjustable F.T 50 1164 Page 106 / 00

Codification C M F 10 B34 T 10 O N 2 G2

Size code
 08 = 3/4"16 UNF
 10 = 7/8"14 UNF
 16 = 1"5/16"12 UN

Function code

Standard

Control mode
 10 = fixed
 21 = screw
 30 = wheel
 40 = sliding gauge

Standard

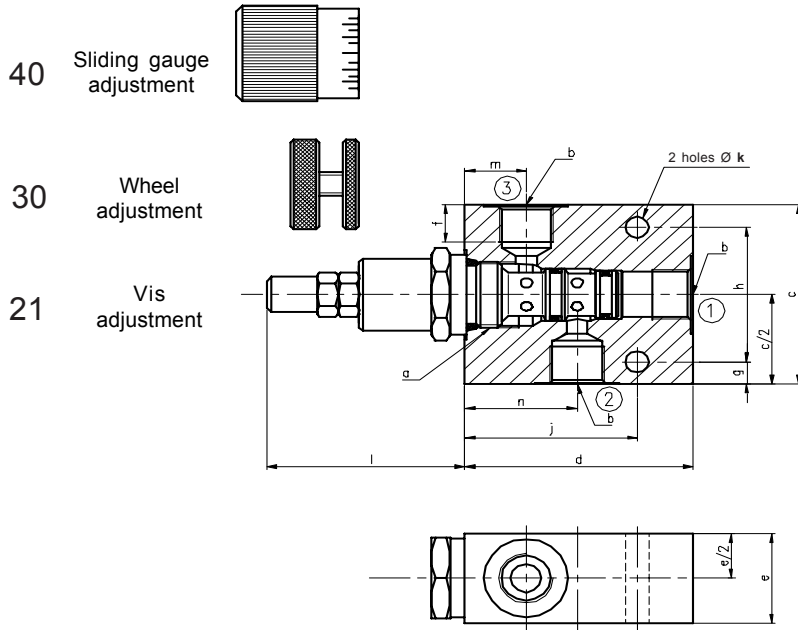
Ports
 G1 = 1/4" G
 G3 = 3/8" G
 G3 = 1/2" G
 G4 = 3/4" G

Size 10 only
 1= Standard
 2= High performance

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T 50 1194

FLOW DIVIDERS with PRIORITY FLOW mounted on BAF

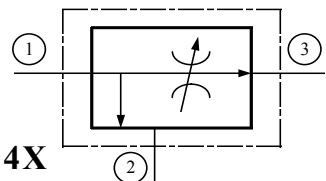


BAF block only		
Designation	Port	N°
08M30-G1	1/4" G	100 303
08M30-G2	3/8" G	101 384
10M30-G2	3/8" G	100 304
10M30-G3	1/2" G	101 375
16M30-G4	3/4" G	100 305

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
10	7/8" 14 UNF	300	G2 3/8" G	60	70	30	12	7,5	45	53	7,1	61	18,8	34,5	26	0,3
			G3 1/2" G					16								

* Weight without valve

Flow divider with adjustable priority flow
Regulation from 0,5 to 40 l/mn
Increase of the regulated flow by screwing off



- B34X**
- CMF - B34 X21 O N (screw adjustment)
 - CMF - B34 X30 O N (wheel adjustment)
 - CMF - B34 X40 O N (sliding gauge adjustment)
- Max intake flow: 60 l/mn
 Max regulated flow: 40 l/mn

Valves characteristics:
 Size 10 F.T 50 1166 Page 108 / 00

Codification C M F 10 B34 X 21 O N G2

Size code 10 = 7/8" 14 UNF **Function code** B34 X 21

Standard _____ **Standard** _____

Control mode

- 21 = screw control
- 30 = wheel control
- 40 = sliding gauge control

Ports

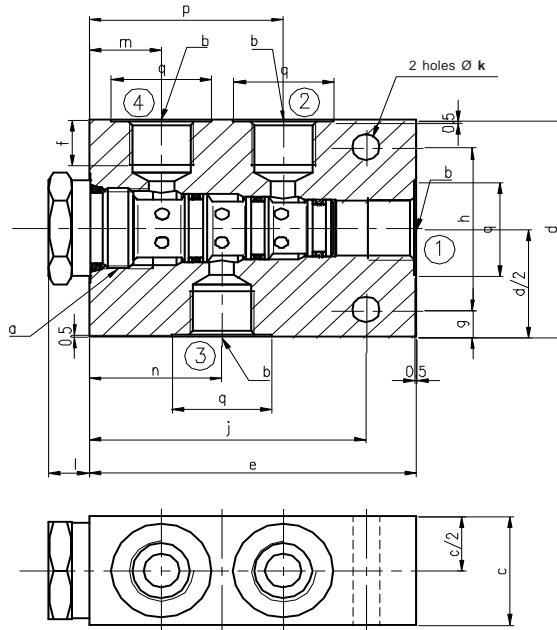
- G2 = 3/8" G
- G3 = 1/2" G

Standard _____

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T 50 1195

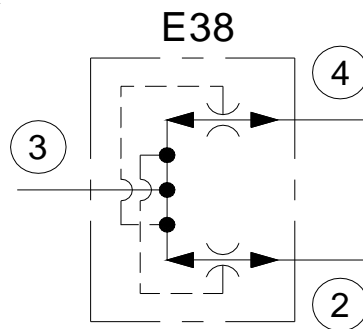
FLOW DIVIDERS



BAF block only		
Designation	Port	N°
10M40-G2	3/8" G	100 307

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	q	Weight in Kg*
10	7/8" 14 UNF	300	G2 3/8" G	30	60	85	12	7,5	45	72	7,1	10,5	18,8	34,5	50,5	26	0,3

*Weight without flow divider



Max flow:
10 = 20 l/mn

Cartridge characteristics:

Size 10 F.T 50 1167 Page 110 / 00

Codification C H F 10 E38 T 10 O N G2

Size code 10 = 7/8" 14 UNF

Function code E38

Standard T

Standard 10

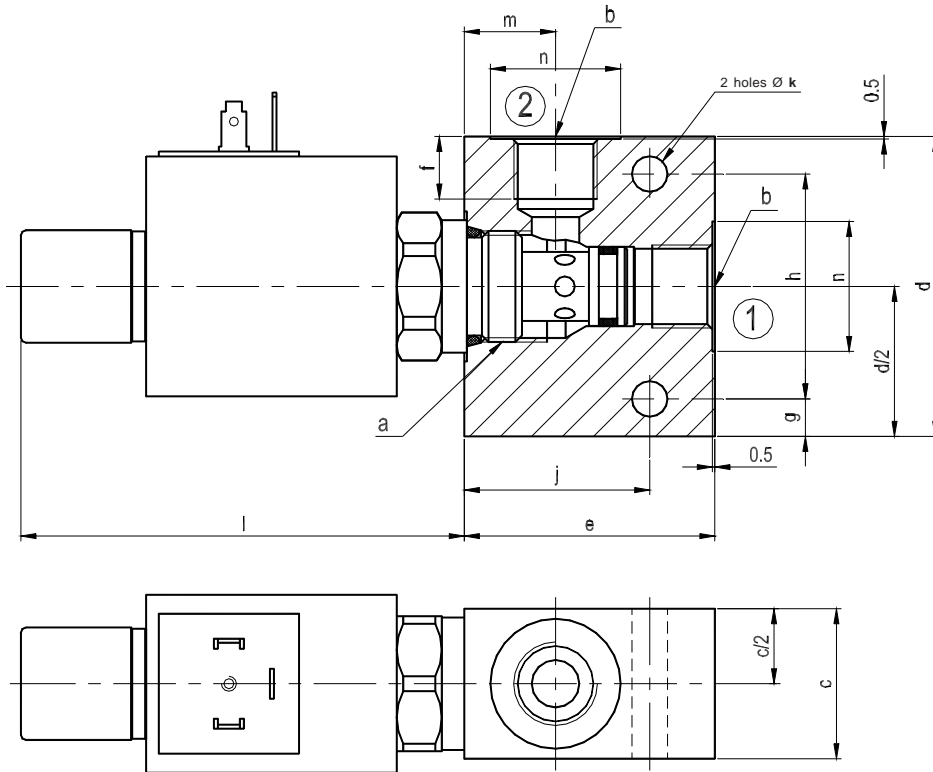
Ports
G2 = 3/8" G
G4 = 3/4" G

Max flow intake
O = 40 l/mn
A = 50 l/mn

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T 50 1196

PILOT RELIEF VALVE with PROPORTIONAL CONTROL



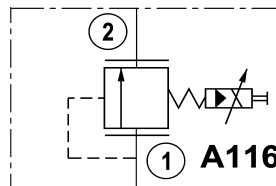
BAF block only		
Designation	Port	N°
10M20-G2	3/8" G	100 301
10M20-G3	1/2" G	101 052

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
10	7/8" 14 UNF	10 à 275 bar	G2 3/8" G	30	60	50	12	7,5	45	37	7,1	88,5	18,2	26		0,2
			G3 1/2" G													

* Weight without valve

Normally open - NO

CPP 10 **A116** A5A B N (12V DC)
or
CPP 10 **A116** B5A B N (24V DC)



Pressure in ①

Return to tank in ②

Cartridge characteristics:

F.T 50 1170 Page 114 / 00

Codification C P P 10 A116 B 5 A B N G2

Size code 10 = 7/8" 14 UNF **Function code** A116

Voltage A= 12 Volt DC B= 24 Volt DC

Coil code B

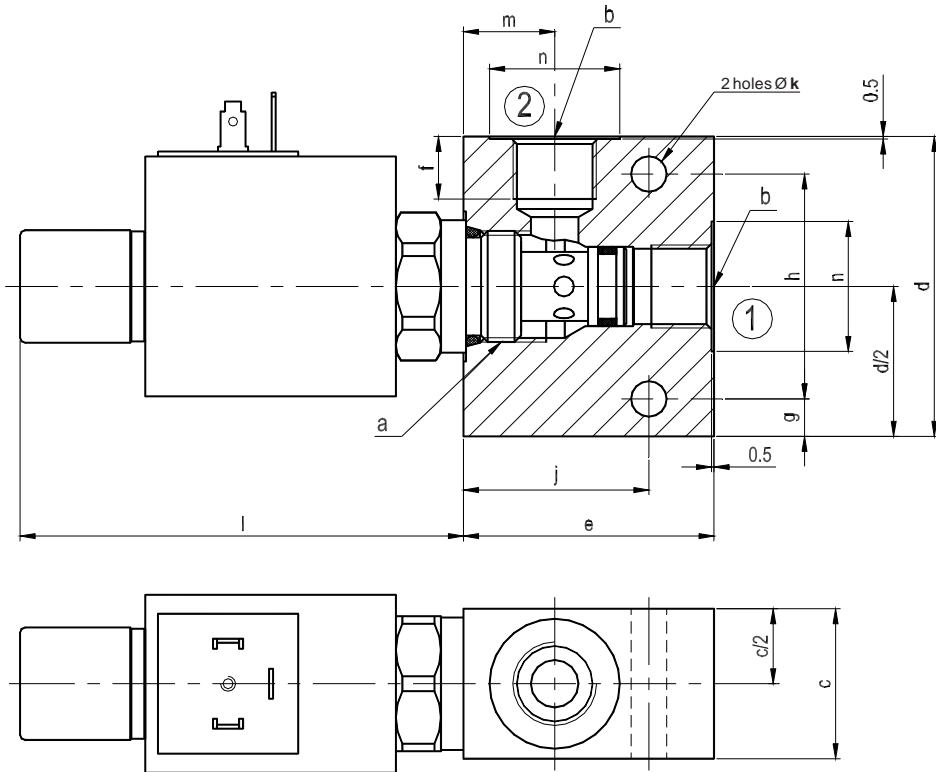
Coil connexion A = electr. con. 6,35 - DIN 43650

Ports G2 = 3/8" G
G3 = 1/2" G

Manual override B= screwing

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

FLOW CONTROL VALVE with PROPORTIONAL CONTROL



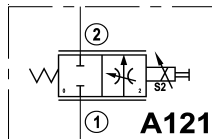
BAF block only		
Designation	Port	N°
10M20-G2	3/8" G	100 301
10M20-G3	1/2" G	101 052

Size SAEJ475	a Port size	Max pressure	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
10	7/8" 14 UNF	275 bar	G2 3/8" G	30	60	50	12	7,5	45	37	7,1	88,5	18,2	26		0,2
			G3 1/2" G													

* Weight without valve

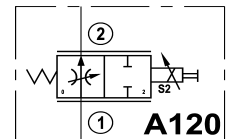
Normally closed - NC

CPF 10 **A121** A5A B N (12V DC)
CPF 10 **A121** B5A B N (24V DC)



Normally open - NO

CPF 10 **A120** A5A B N (12V DC)
CPF 10 **A120** B5A B N (24V DC)



Cartridge characteristics:

F.T 50 1172 Page 117 / 00

Codification C P F 10 A120 B 5 A B N G2

Size code 10 = 7/8" 14 UNF **Function code** A B N G2

Voltage A= 12 Volt DC B= 24 Volt DC

Coil code A B N G2

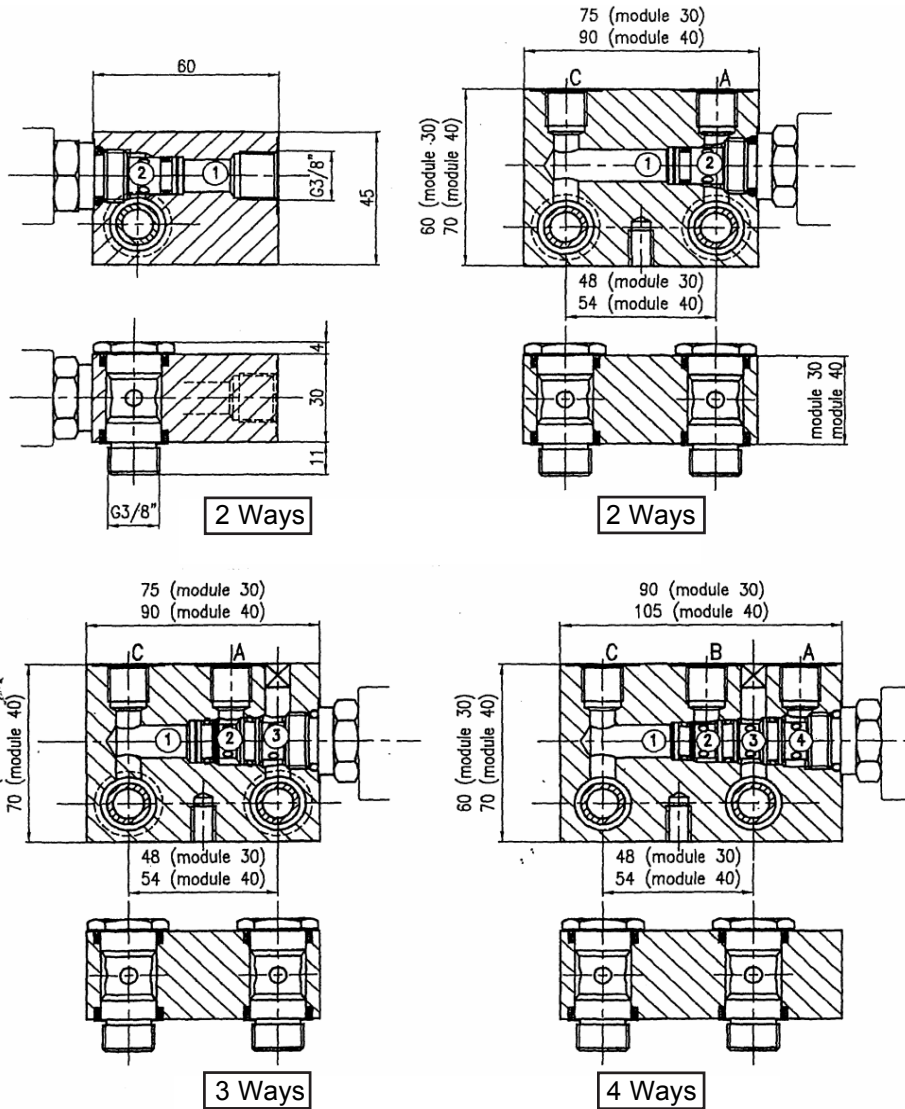
Coil connexion A = electr. con. 6,35 - DIN 43650

Manual override B= screwing

Ports G2 = 3/8" G
G3 = 1/2" G

Seals N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

BAF "V" - Associative Function Block Mounting by HOLLOW SCREW

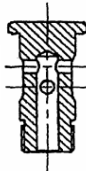


Max flow:

② ⇒ ① : 25 l/mn

① ⇒ ② : 25 l/mn

Single hollow screw



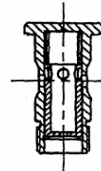
Hollow screw with compensated flow control valve

Max flow:

② ⇒ ① : 25 l/mn

① ⇒ ② : max 15 l/mn

regulated flow

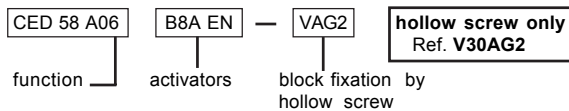


To codify:

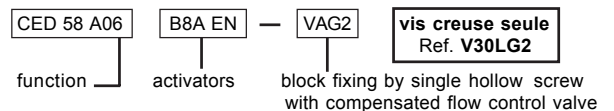
Chosue the function pages 004 / 00 and 005 / 00.

Then put the activator's code followed by the reference of the hollow screw and of the port. Codification example:

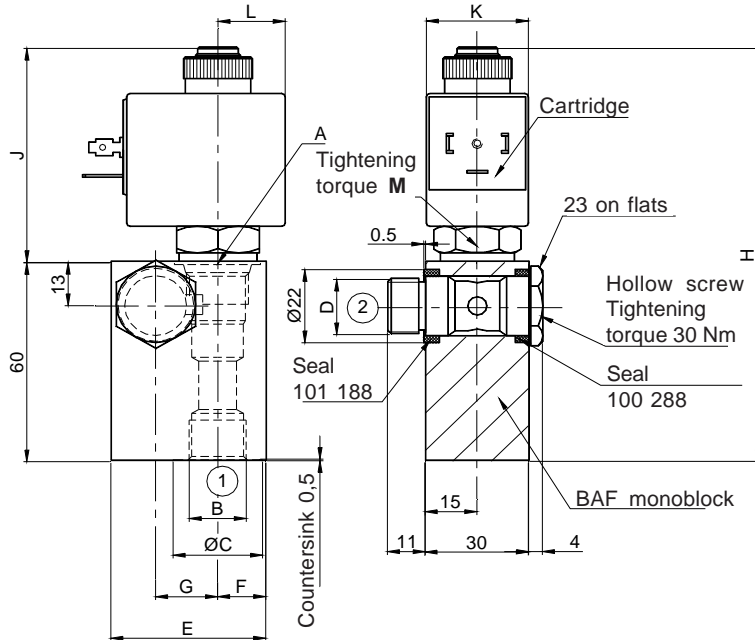
BAF "V" codification with single hollow screw



BAF "V" codification with hollow screw equipped with a compensated flow control valve



PILOT POPPET SOLENOID VALVE 2 WAYS - 2 POSITIONS mounted on BLOCK with HOLLOW SCREW

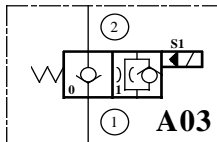


HOLLOW SCREW			
Designation	D	Tight. torque	N°
V30AG2	3/8" G	30 Nm	101 345
V30AM1	M14 x 1,5	30 Nm	200 668

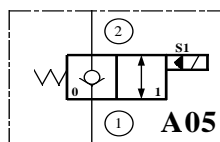
BAF block only		
Designation	Port	N°
58V20-G2	3/8" G	101 470
10V20-G2	3/8" G	102 294

Size SAEJ475	A Port size	B Port	C Countersink	D	E	F	G	H	J	K	L	M Tight. torque
58	M18x1,5	G2 3/8" G	Ø26	45	30	14	18	124,5	64,5	29,5	19,5	20 Nm
10	7/8" 14 UNF	G2 3/8" G	Ø26	50	30	18	18	138,5	78,5	35,6	21,8	20 Nm

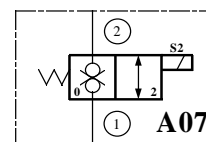
NORMALLY CLOSED



Max flow:
30 l/mn

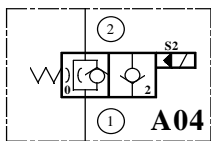


Max flow:
30 l/mn

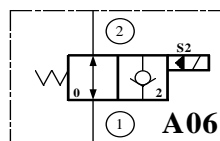


Max flow:
A07 code 1 = 20 l/mn
A07 code 2 = 30 l/mn

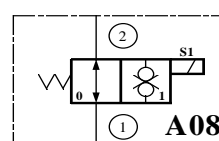
NORMALLY OPEN



Max flow:
30 l/mn



Max flow:
30 l/mn



Max flow:
25 l/mn

Cartridges characteristics:

A03 - A04 - A05 - A06
Size 58 F.T 50 1101 Page 008 / 00

A07 code 1 - A07 code 2
Size 58 F.T 50 1104 Page 014 / 00

A08
Size 58 F.T 50 1106 Page 018 / 00

Manual overrides:
F.T 50 1142 Page 074 / 00

Executed measures :
Oil temperature at 40°C
Oil SHELL Tellus T46
Viscosity 46 cSt à 40°C

Codification C E D 58 A03 B 8 A O N VA G2

Valve+BAF+hollow screw

Size code

58 = M 17 x 1,5

10 = 7/8" 14 UNF

Voltages

A= 12 Volt DC

B= 24 Volt DC

E= 24 Volt VAC* ou RAC*

F= 48 Volt VAC* ou RAC*

G=110 Volt VAC* ou RAC*

H= 220 Volt VAC* ou RAC*

*VAC: coils with integrated bridge rectifier

*RAC: necessarily use

a connector with bridge connector

Function code

Coil Code

8=A03-A04-A05-A06-A08

A07 version 1 Standard

5=A07 version 2 High Perf.

Coil connexion

A= electr.con. 6,35-DIN 43650

B= Kostal

F= leadwires

J= AMP Junior

Connectors

see page 072 / 00 073 / 00

BAF orifice G2= 3/8" G

Fixation par vis creuse simple

Vis creuse V30AG2 ou V30AM1

Manual overrides

O= Without

A03 - A05 - A08

A= screwing off

C= pulling

A04 - A06 - A07

B= screwing

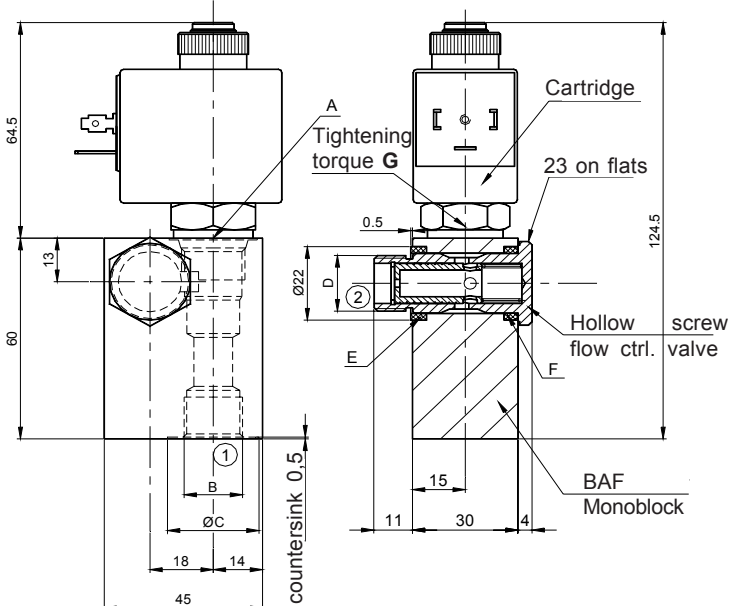
E= pushing

N= Nitril seals -40 °C + 100 °C

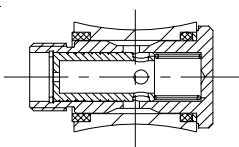
V= Viton seals -20 °C + 150 °C

F.T 50 1200

PILOT POPPET SOLENOID VALVE 2 WAYS - 2 POSITIONS mounted on BLOCK with HOLLOW SCREW



VIS CREUSES		
Désignation	D	N°
V30LG2	3/8" G	300 801 or 301 113

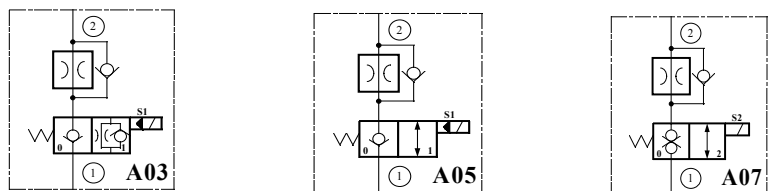


Regulated flow ② ⇌ ① : 20 l/mn max
Free flow ① ⇌ ② : 25 l/mn max

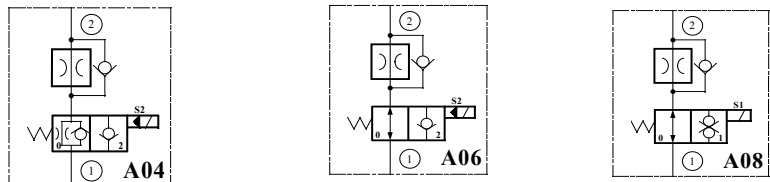
BAF block only		
Designation	Port	N°
58V20-G2	3/8" G	101 470

Size	A Port size	Reference BAF	B Port	C	E Seal Ref.	F Seal Ref.	G Tight. torque	Weight Kg
58	M 18 x 1,5	BAF 58V20 G2	G2 3/8" G	26	101 188	100 288	20 Nm	0,2

NORMALLY CLOSED



NORMALLY OPEN



Cartridge characteristics:

A03 - A04 - A05 - A06
Size 58 F.T 50 1101 Page 008 / 00

A07 code 1 - A07 code 2
Size 58 F.T 50 1104 Page 014 / 00

A08
Size 58 F.T 50 1106 Page 018 / 00

Manual overrides:
F.T 50 1142 Page 074 / 00

Executed Measures:
Oil temperature at 40°C
Oil SHELL Tellus T46
Viscosity 46 cSt at 40°C

Codification C E D 58 A03 B 8 A O N VL G2

Size code
58 = M 17 x 1,5

Function code

Voltages
A= 12 Volt DC
B= 24 Volt DC
E= 24 Volt RAC
F= 48 Volt RAC
G= 110 Volt RAC
H= 220 Volt RAC

Coil code
8=A03-A04-A05-A06-A08
A07 version 1 Standard
5=A07 version 2 Hight Perf.

Connectors
without A= electr. con. 6,35 - DIN 43 650
with L= electr. con. 6,35 - DIN 43 650

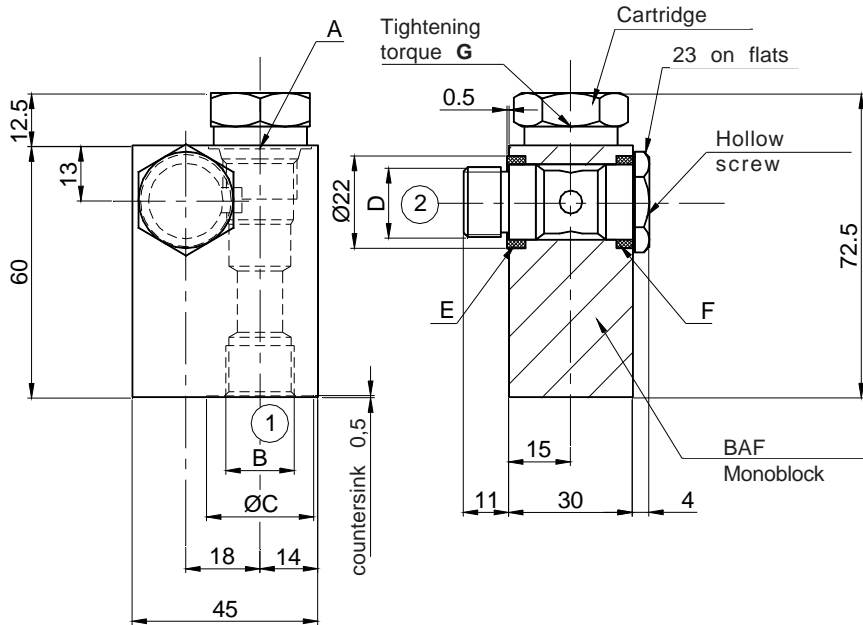
BAF port G2= 3/8" G
Fixation by hollow screw with
fixed compensated flow control valve

Manual overrides
O= without
A03 - A05 - A08
A= screwing off
C= pulling
A04 - A06 - A07
B= screwing
E= pushing

N= Nitril seals -40 °C + 100 °C
V= Viton seals -20 °C + 150 °C

F.T 50 1201

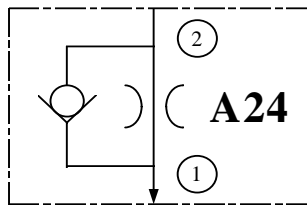
2 WAYS FLOW RESTRICTOR VALVE with CHECK VALVE mounted on BLOCK with HOLLOW SCREW



HOLLOW SCREW			
Designation	D	Tightening torque	N°
V30AG2	3/8" G	20 Nm	101 345

BAF block only		
Designation	Port	N°
58V20-G2	3/8" G	101 470

Size	A Port size	Reference BAF	B Port	C	E Seal ref.	F Seal ref.	G Tightening torque	Weight Kg
58	M 18 x 1,5	BAF 58 V20 G2	G2 3/8" G	26	101 188	100 288	20 Nm	0,2



Max flow : 30 l/mn

Ports diameter	Flow in l/mn for calibrated ports	
	at 100 bar	at 200 bar
0,6	2	3,2
0,8	3,8	4,5
1	7	9
1,2	8	10
1,3	9	11
1,4	10	15
1,5	12	18

Allowances ± 10%
Parameters functions: viscosity, temperature

Executed measures:

F.T Page
Oil Temperature at 40°C
Oil SHELL Tellus T46
Viscosity 46 cSt at 40°C

Codification C M F 58 A24 T 10 O N VA G2
valve + BAF + vis creuse

Code taille 58 = M 18 x 1,5

Code fonction

Standard

Adjustment
10 = Fixed

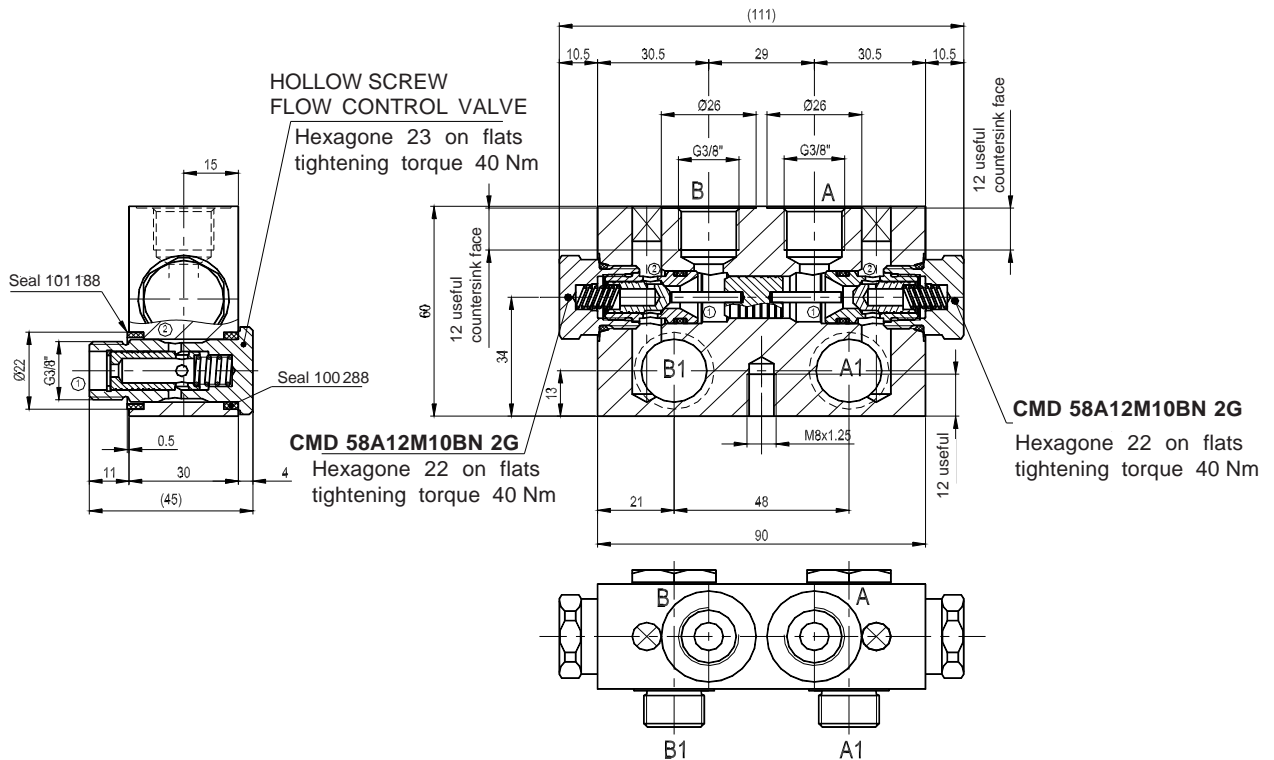
BAF port G2= 3/8" G
Fixation by simple hollow screw

Standard

N = Nitril seals -40 °C + 100 °C
V = Viton seals -20 °C + 150 °C

DOUBLE PILOT POPPET NON-RETURN VALVE mounted on BAF BLOCK with HOLLOW SCREW

**FIXATION BY HOLLOW SCREW SIMPLE or
with COMPENSATED FLOW CONTROL VALVES
SIZE 58**

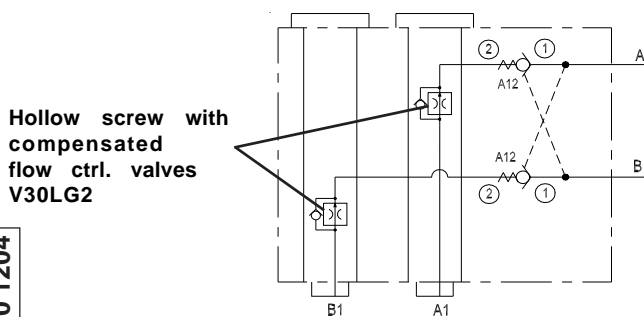


Max pressure: **300 bar**
 Max flow without flow regulation: **30 l/mn**
 Max flow with flow regulation: **20 l/mn**
 Pilot ratio: **1/3,51**

Qa | regulated flow l/mn (1) ⇒ (2)
Qb |

Reference with regulation: 550 426 Qa Qb
Reference without régulation: 550 426 Qa0 Qb0

Example of diagram:



Characteristics :

Non-return valves : see F.T 50 1144 - Pages 076 / 00 & 077 / 00
Fluid : Mineral based fluid or synthetic oil (compatible with the seals fittings), with good lubricant properties.

Viscosity between 8 and 450 CSt at working temperature.
Operating temperature: -40°C + 100°C with standard Nitril O-ring.

Executed measures: ambient rated temperature 22°C ± 2°C. -
 Oil temperature at 40°C. - Oil SHELL Tellus T46
 Viscosity 46 cSt at 40°C.

Filtration : ISO code 16/13 - Page 231 / 000

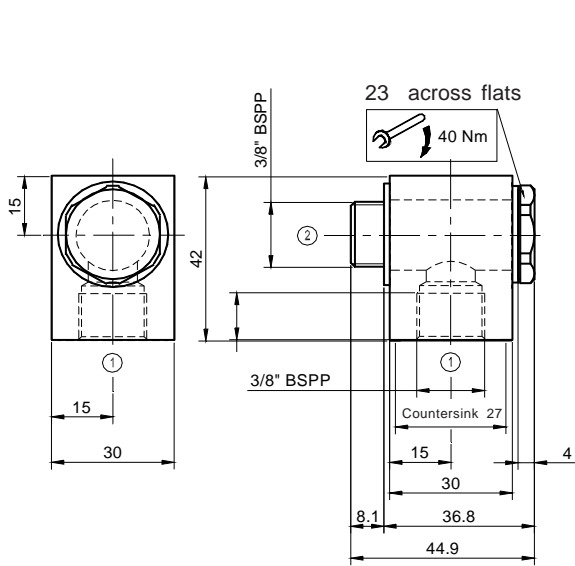
Mounting position: without restriction

Weight: 0,7 Kg.

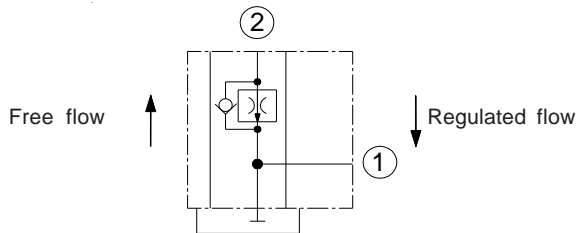
Please let us know when placing an order:

- a) - fixation by simple hollow screw (V30AG2) or fitted out with compensated flow control valves (V30LG2)
- b) - IRegulated flows in A and B

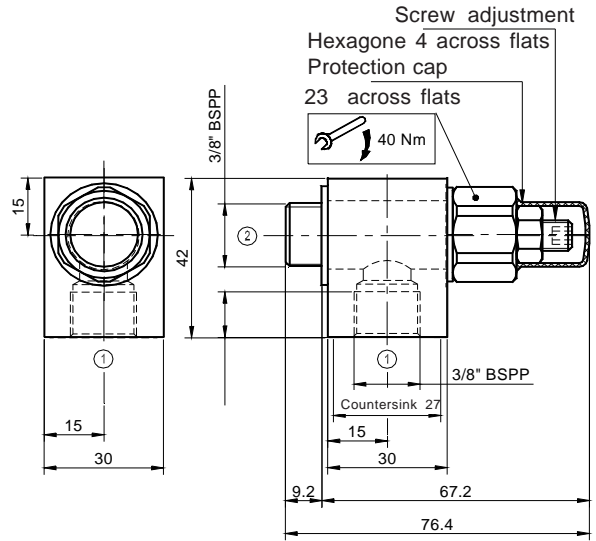
COMPENSATED FLOW CONTROL VALVES CYLINDER MOUNTING



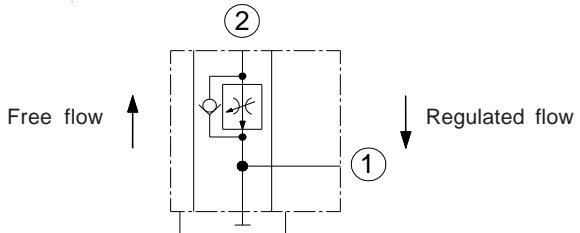
FIXED REGULATED FLOW



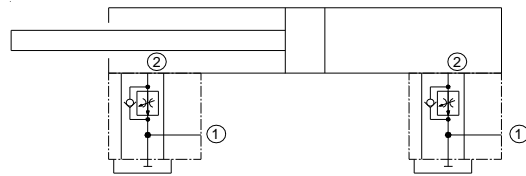
Max pressure: **300 bar**
 Min fixed regulated flow: **0,5 l/mn**
 Max fixed regulated flow: **16 l/mn**
 Adjustments according to the client's request



ADJUSTABLE FLOW



Max pressure: **300 bar**
 Adjustmentq: **from 0,5 to 10 l/mn**
(by adjustment range) Max regulated flow= twice the min flow



Codification :
N° 450 487 max regulated flow = 7,5 l/mn
 (with hollow screw 301113)
N° 450 492 max regulated flow = 16 l/mn
 (with hollow screw 300801)
 Reference block only : **102929**

Codification :
N° 450 493
 (with hollow screw 350070)
 Reference block only : **102929**

Description:

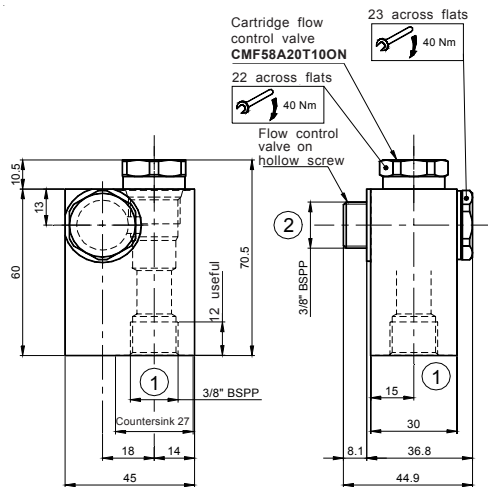
These compensated flow control valves allow a constant outlet from each cylinder barrel, independant of pressure They prevent cavitation in case of driving load.

Characteristics:

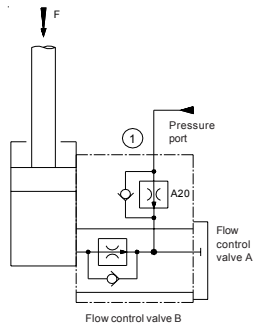
- Flow control valve:** Fixed = see page 098 / 000 - RéglableAdjustable = see page 100 / 000
- Fluide :** Oil on mineral or synthetic basis (compatible with the seal fittings), with good lubricating properties. Viscosity between 8 and 450 cSt at working temperature.
- Working temperature:** mini -40°C - max +120°C
- Executed measures:** Ambient température 22°C ± 2°C. Oil temperature at 40°C. - Oil SHELL Tellus T46 - Viscosity 46 cSt at 40°C.
- Filtration :** ISO code 16/13 - Page 9.101.0
- Mounting position:** without restriction
- Weight:** 0,16 Kg with fixed flow control valve 0,20 Kg with adjustable flow control valve

F.T 50 1205

DOUBLE COMPENSATED FLOW CONTROL VALVES CYLINDER MOUNTING



FIXED REGULATED FLOW



Adjustments:

- A :** Fixed flow control valve CMF58A20T100N adjustable 0,5 to 12 l/mn
- B :** Hollow screw 301113 - max regulated flow 7,5 l/mn or " " 300801 - max regulated flow 16 l/mn
Max regulated flow = twice the min flow

Codification :

- N° 450 494** - max regulated flow 7,5 l/mn
- N° 450 495** - max regulated flow 16 l/mn
- Port ① in 3/8" BSPP
- Reference block only: **102938**

Description :

The BAF 0block is mounted directly on the cylinder supply port.

Flow control valve A regulates the flow independent of the pressure towards the cylinder barrel.

Flow control valve B regulates the flow independent of the pressure at the cylinder barrel outlet.

The advantage of this system is the safety it brings by cutting out pipping between the cylinder and the regulation block.

In case of pipping breaking downstream the BAF block, the cylinder movement (example:downstroke) cannot exceed the speed defined by flow control valve B.

Characteristics:

Flow control valve: Fixed = see page 098 / 000 - RéglableAdjustable = see page 100 / 000

Fluide : Oil on mineral or synthetic basis (compatible with the seal fittings), with good lubricating properties. Viscosity between 8 and 450 cSt at working temperature.

Working temperature: mini -40°C - max +120°C

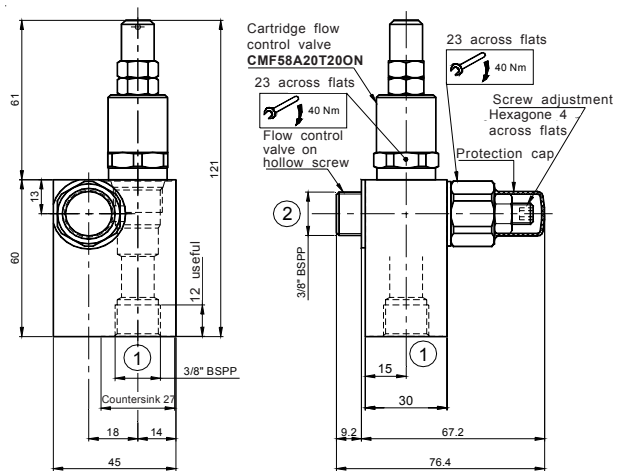
Executed measures: Ambient température 22°C ± 2°C.

Oil temperature at 40°C. - Oil SHELL Tellus T46 - Viscosity 46 cSt at 40°C.

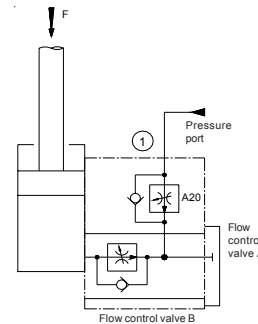
Filtration : ISO code 16/13 - Page 9.101.0

Mounting position: without restriction

Weight: 0,4 Kg with fixed flow control valve 0,5 Kg with adjustable flow control valve



ADJUSTABLE FLOW



Adjustments:

- A :** Adjustable control valve C MF58A20T200N 0,5 to 12 l/mn (by adjustment ranges)
- B :** Hollow screw 350070 0,5 à 10 l/mn (by adjustment ranges)
Max regulated flow = twice the min flow

Codification :

- N° 550 434** Port ① in 3/8" BSPP
- Reference block only: **102938**

3 hydraulic Modular Block System " MBS®" Programme

INTRODUCTION	161 /00
- Presentation by photographs	162 /00
- Construction concept	163 /00
- Description	165 /00 & 167 /00

COMBINAISONS EXAMPLES of FLUID DISTRIBUTION	
- Side by side modules	168 /00

ASSEMBLING COMPOSITION	
- of side by side blocks	169 /00

EMBOUTS de DISTRIBUTION	
- of side by side modules	170 /00

ACCESSORIES	
- Shutters lines 1 and 2	171 /00
- Threaded adapters	171 /00
- Calibrated plugs	171 /00
- Protection covers	171 /00
- Seals kit	171 /00
- Modules 40 on modules 30 assembling	172 /00
- Base plate for mounting on cap of hydraulic plant	173 /00
- Base plate for mounting on JTEKT-HPI mini power-pack	174 /00

**MBS® mounted with CARTRIDGES
Side by side Modules 30 - 40 - 50**

PILOT POPPET SOLENOID VALVES	
- 2 WAYS - 2 POSITIONS	175 /00

SPOOL SOLENOID VALVES	
- 2 WAYS - 2 POSITIONS	177 /00 & 178 /00
- 3 WAYS - 2 POSITIONS	179 /00 & 180 /00
- 3 WAYS - 3 POSITIONS	181 /00
- 4 WAYS - 2 POSITIONS	182 /00 & 183 /00
- 4 WAYS - 3 POSITIONS	184 /00 & 185 /00

DIRECTIONAL VALVES	
- Non-return valve (check valve)	186 /00
- Inverted non-return valve (check valve)	186 /00
- Pilot non-return valve (check valve)	187 /00
- Shuttle valve	187 /00
- Pilot spool valve	188 /00
- Pilot spool 4 ways valve	189 /00

PRESSURE CONTROL	
- Direct-acting relief valve	190 /00
- Pilot relief valve	190 /00
- Pressure-reducing valve	191 /00

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FLOW CONTROL

- Needle valve 192 / 00
- Pressure-compensated flow control valve 192 / 00
- Restrictor valve with inverted check valve 192 / 00
- Flow divider with priority flow 193 / 00 à 195 / 00
- Flow divider 196 / 00

FILTER CARTRIDGE

197 / 00

MOUNTING ON BASE PLATE

- Module 201 with fixing hollow screw 198 / 00
- Module 301 with fixing hollow screw 199 / 00
- Module 401 with fixing hollow screw 200 / 00
- Double function mounting 2 + 2 ways 201 / 00
- 4 ways module for mounting on base plate on double acting cylinder 202 / 00

TWIN-BLOC MODULES

TWIN-BLOC 420

- Solenoid valve 4 ways - 2 or 3 positions with pilot poppet check valves 203 / 00

TWIN-BLOC 421

- Solenoid valve 4 ways - 2 or 3 positions with 2 pilot poppet check valves 204 / 00

TWIN-BLOC 422

- Solenoid valve 4 ways - 2 or 3 positions with relief valve - return to tank 205 / 00

TWIN-BLOC 423

- Solenoid valve 4 ways - 2 or 3 positions with relief valve - cross-over return 206 / 00

ANNEXES MODULES

- Overpressure block Module 30 207 / 00
- Overpressure block Module 40 208 / 00

INSTALLATION & FIXING of MBS® BLOCKS

- Installation recommendations 209 / 00
- Fixing on MBS® blocks on supports 210 / 00

hydraulic Modular Block System " MBS®"

INTRODUCTION

JTEKT-HPI has designed, developed and industrialized the **MBS®** for mass production with a view to simple usage, offering to:

- MANUFACTURERS
- ASSEMBLERS
- and USERS

an extremely flexible modular tool permitting the construction of integrated hydraulic circuits with standard elements.

MAIN ADVANTAGES :

- COMPACT ASSEMBLY
- RAPID CIRCUIT CONCEPTION
- RAPID CONSTRUCTION
- IMMEDIATE COST ASSESSMENT
- REDUCTION OF INSTALLATION COSTS
- EASY AND LOW COST EXTENSION
With in the same architecture, manual, electrical and proportional controls are interchangeable.
- MINIMUM OF PIPING
- EASE OF MAINTENANCE
- NO ASSEMBLY CRAMP

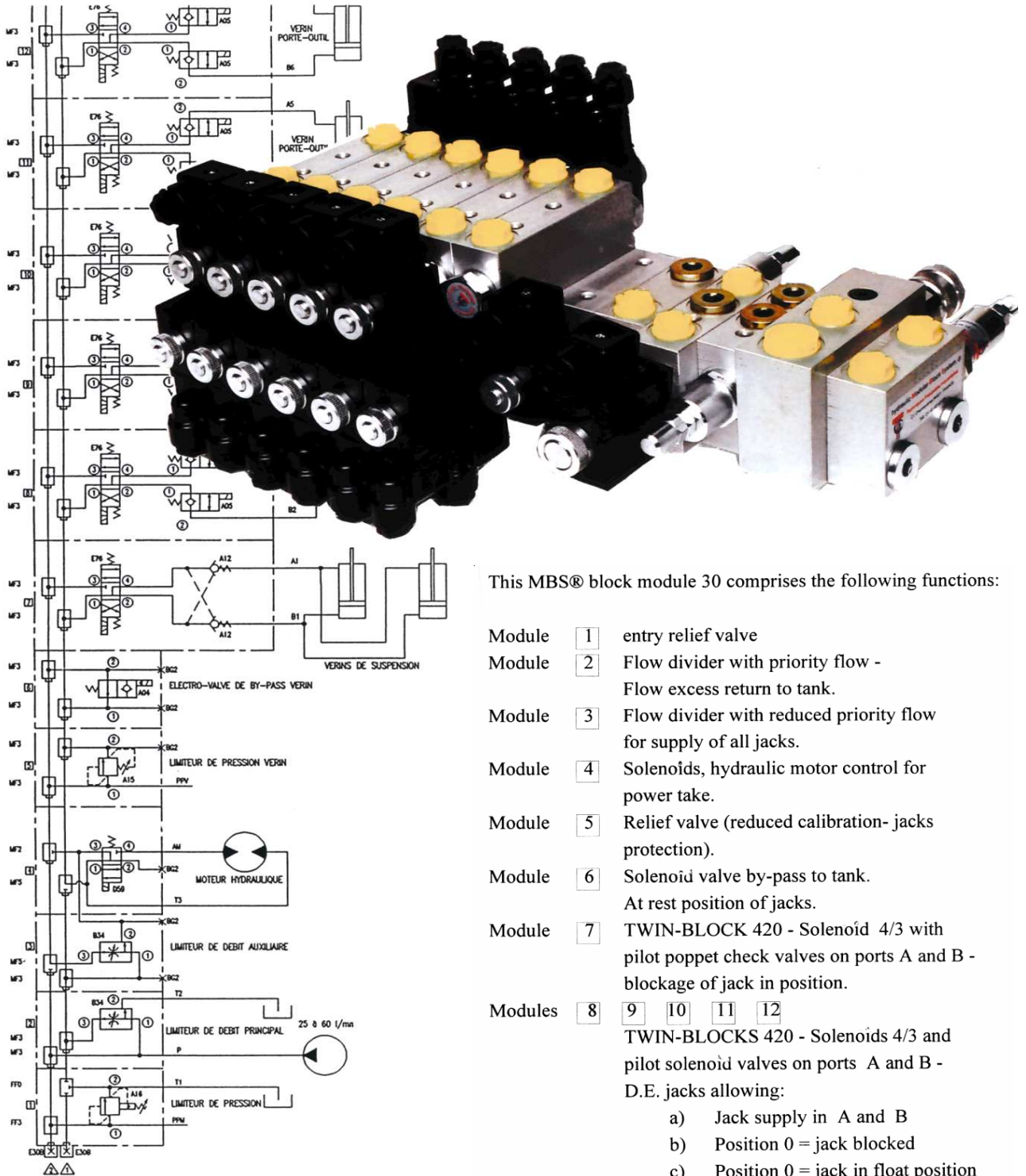
APPLICATIONS :

MOBILE AND FIXED EQUIPMENT, with innumerable combination possibilities.

WORKING PRESSURE UP TO 300 BAR.

hydraulic Modular Block System " MBS® "

EXAMPLE OF APPLICATION STRADDLE TRACTOR - TOOL HOLDER



This MBS® block module 30 comprises the following functions:

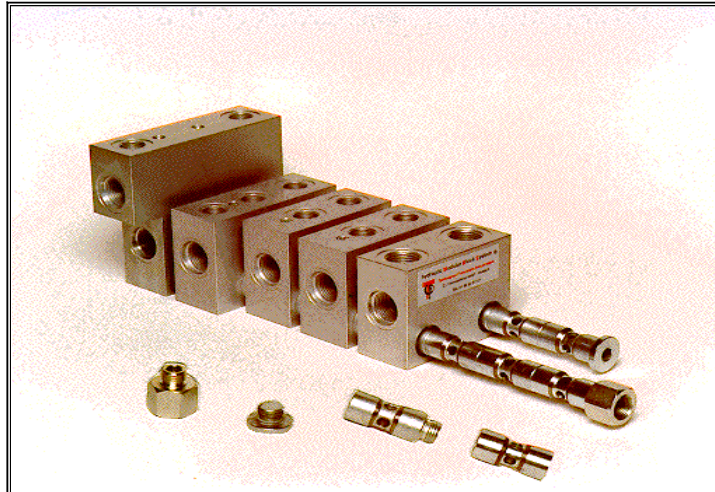
- Module 1 entry relief valve
- Module 2 Flow divider with priority flow - Flow excess return to tank.
- Module 3 Flow divider with reduced priority flow for supply of all jacks.
- Module 4 Solenoids, hydraulic motor control for power take.
- Module 5 Relief valve (reduced calibration- jacks protection).
- Module 6 Solenoid valve by-pass to tank. At rest position of jacks.
- Module 7 TWIN-BLOCK 420 - Solenoid 4/3 with pilot poppet check valves on ports A and B - blockage of jack in position.
- Modules 8 9 10 11 12 TWIN-BLOCKS 420 - Solenoids 4/3 and pilot solenoid valves on ports A and B - D.E. jacks allowing:
 - a) Jack supply in A and B
 - b) Position 0 = jack blocked
 - c) Position 0 = jack in float position

F.T 50 1207

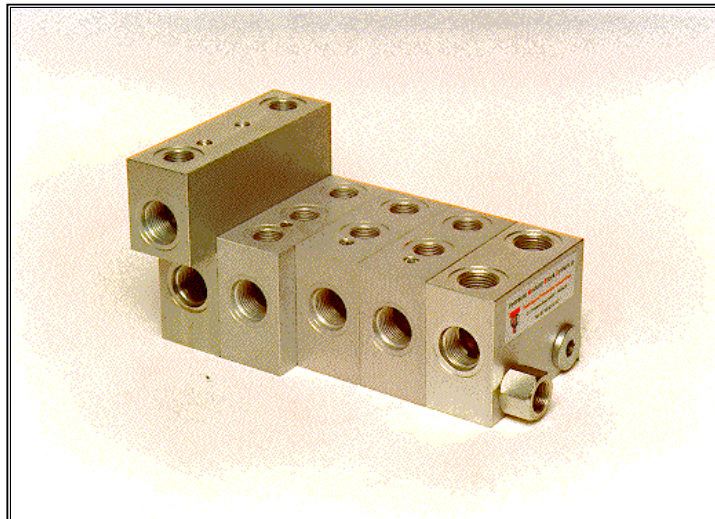
hydraulic Modular Block System " MBS® "

MODULAR CONSTRUCTION CONCEPT

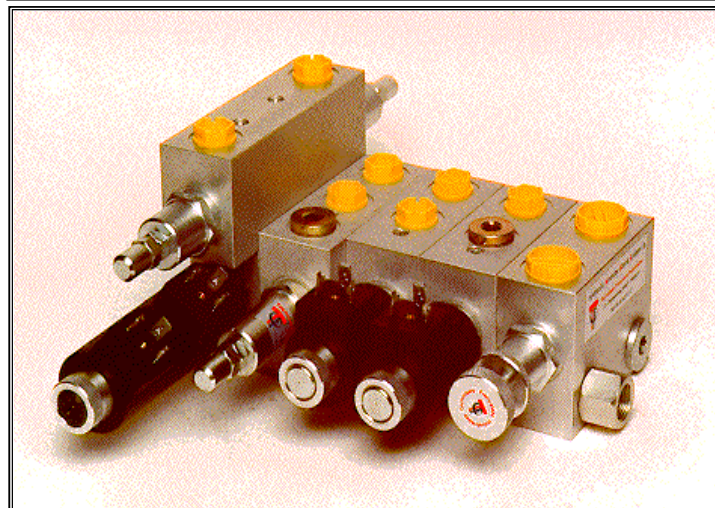
PHASE I
Preparation



PHASE II
Assembling of
modules and
distribution
junction parts

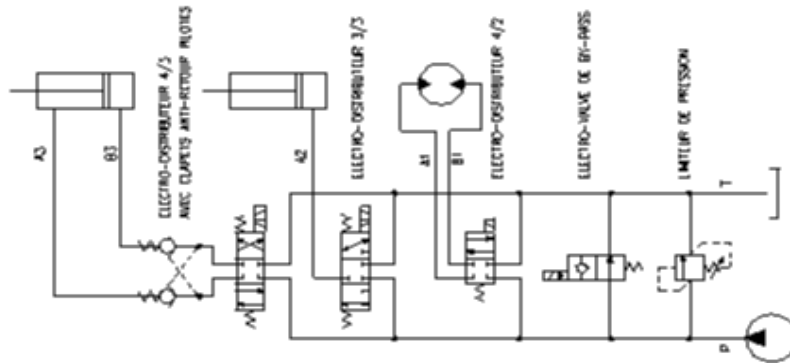


PHASE III
Cartridges
assembling

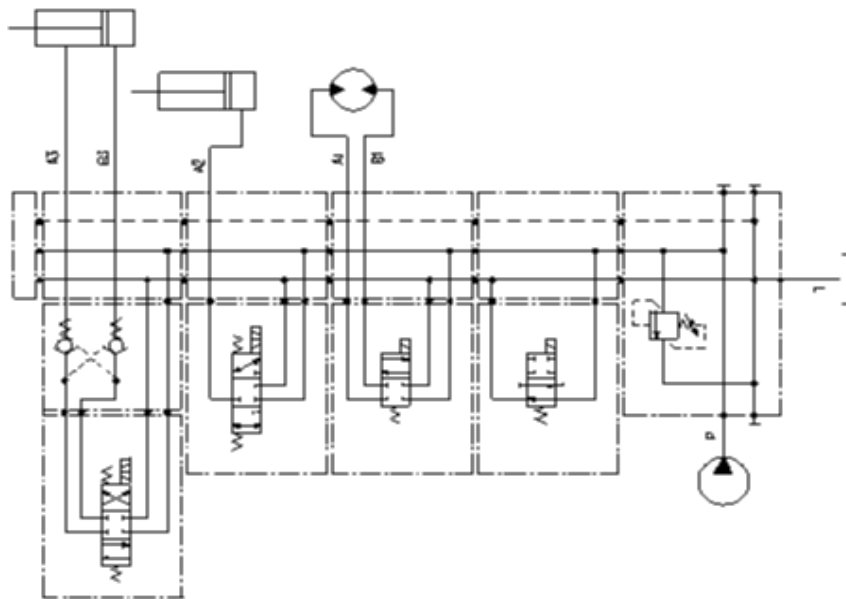


CORRESPONDENCE of DIAGRAMS for the CONSTITUTION of a MODULAR MULTI-FUNCTION BLOCK

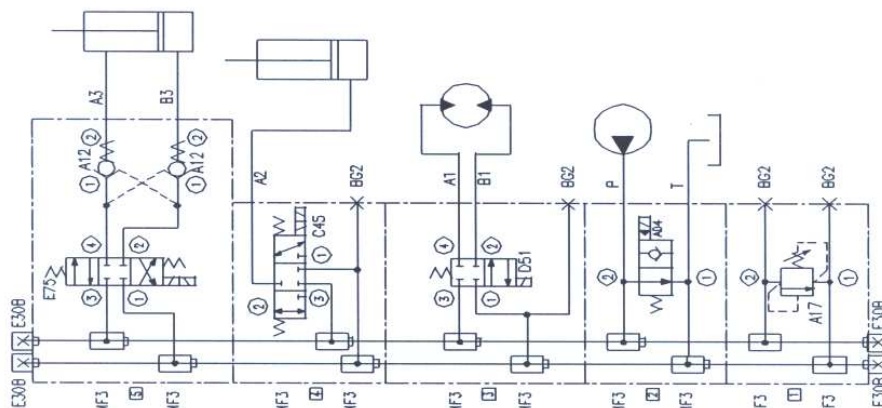
SCHEMA N°1: CONVENTIONAL DRAWING



SCHEMA N°2: DIAGRAM ACCORDING to "CETOP" MOUNTING



SCHEMA N°3: DIAGRAM ACCORDING to "MBS®" MOUNTING
hydraulic Modular Block System



hydraulic Modular Block System " MBS®"

CONCEPT

A really clever construction system for the realization of your hydraulic and electrohydraulic circuits in the form of assembled elementary modules, each one receiving one or two DISTRIBUTION, FLOW REGULATION, PRESSURE REGULATION functions.

The system's originality lies in the realization of standard elements associated to hollow or solid distribution junction parts, which judiciously assembled, allow an INFINITY of COMBINATIONS for the construction of integrated function units.

NO ASSEMBLY CRAMP IS NEEDED TO JOIN THE ELEMENTS.

DESCRIPTION

THE MBS® IS MADE UP OF 3 COMPONENTS:

- ① **CARTRIDGES** - see programme Page 006 / 00.
- ② **MODULES - and TWIN-BLOCS -** Page 160 / 00
Page 203 / 00
- ③ **DISTRIBUTION JUNCTION PARTS -** Page 170 / 00

The fluid distribution between the modules receiving the cartridges is made through distribution junction parts according to the desired hydraulic diagram.

The threaded ports are layed out on the upper side : A B C

- Pressure intake
- Return to tank
- Supply towards a simple or double acting receiver (cylinder or hydraulic motors) or towards an annex circuit.

FLUID DISTRIBUTION BETWEEN THE MODULES

1 Threaded distribution junction parts, male-female and female-female ensure the communication and the connection between the modules - Page 170 / 00

- ◆ Solid - without passage
- ◆ 2 ways of in-line passage
- ◆ 3 ways of angle passage
- ◆ 3 ways of in-line and angle passage
- ◆ 2 ways of in-line passage way with poppet check valve
- ◆ 3 ways of in-line and angle pasage with poppet check valve

hydraulic Modular Block System " MBS®"

DESCRIPTION - Continuation 1

- 2. **A set of shutters and threaded adapters** - Page 171 / 00
- 3. **These distribution junction parts, shutters and adapters allow :**
 - ◆ The fluid distribution through the modules in order to connect the functions between them as required by the hydraulic diagram and this through the pipes 1 and 2 and the threaded ports.
 - ◆ The mounting of side by side modules

The distribution junction parts are screwed one on top of the other to form a fluid distribution column in each pipe.

Each constituted column receives at each end:
 - either a shutter plug
 - or an adapter to link another circuit.

GENERAL CHARACTERISTICS

* Maximum flow passage	Module 30	30 l/mn
	Module 40	60 l/mn
	Module 50	100 l/mn

For a 46 Cst oil at 40°C.

The maximum flow can be reduced or increased according to the cartridges integrated in the modules (see the corresponding technical documents).

* Maximum pressures	Maximum working pressure	300 bar
	Maximum peak pressure	350 bar
	Maximal trial pressure	550 bar

* **Resistance to temperature**
 The Hydraulic MBSx system is designed to be used ... between -40°C and + 140°C
 However, make sure that the cartridges are compatible with these temperatures.

* **Corrosion stability**
 The aluminium modules are *anodized*.
 The distribution junction parts and shutters are made of *galvanized steel*.

The component protection is threaded for a resistance to 96 hours saline spray.

* **Resistance to vibrations and pressure chocs**
 To avoid any loosening of the junction parts and disconnection of the modules,
The tightening torques of the junction parts must be respected
 (see mounting recommendations - Page 232 / 00)

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hydraulic Modular Block System " MBS®"

DELIVERY

2 formules are available

- ✱ **Supply of multiple function blocks**
 Made up of modules and assembled cartridges, tested and ready for use, according to the diagram and the customer's technical specifications.
- ✱ **Supply of separate parts**

 - ◆ Modules
 - ◆ Distribution junction parts
 - ◆ Shutters
 - ◆ Adapters
 - ◆ Cartridges

These components are delivered depolluted, conditioned in small protection bags according to class classe 16/13 - ISO 4406.

DIAGRAMS CONCEPTION MODE

Graphs and pre-established symbolisation, in:

- ◆ printed or
- ◆ computerized form

allow the rapid realization of the required hydraulic diagram.

The composition grids (reference DN.1181) easily allow the classification of the function's components.

Lines in which the prices can be noted in, allow to initiate an analysis of the technical and financial value during the conception and make the best choice of circuit to be adapted.

INSTALLATION & FIXING RECOMMENDATIONS

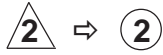
see F.T 50 1249 - Page 209 /00

hydraulic Modular Block System "MBS®"

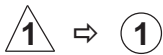
COMBINATION of SIDE BY SIDE MODULES FLUID DISTRIBUTION

LEFT POSITION

2 WAYS



3 WAYS



4 WAYS



RIGHT POSITION

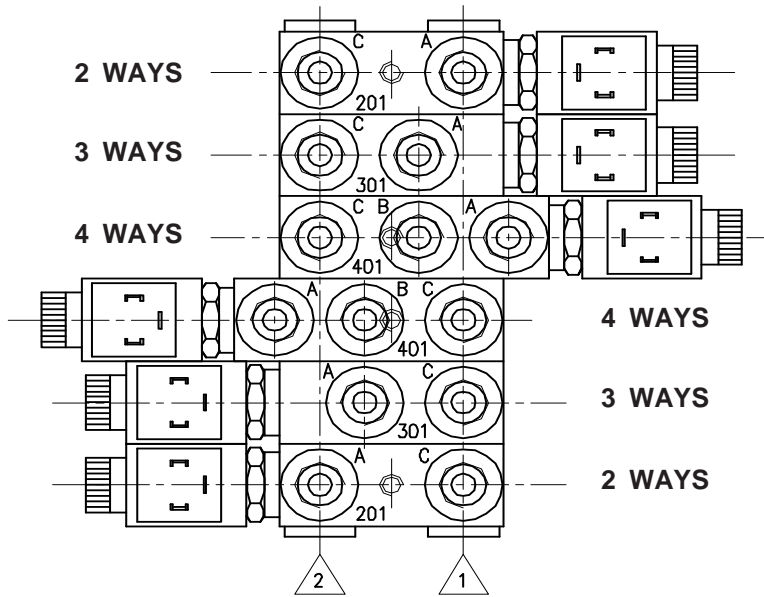
2 WAYS



3 WAYS

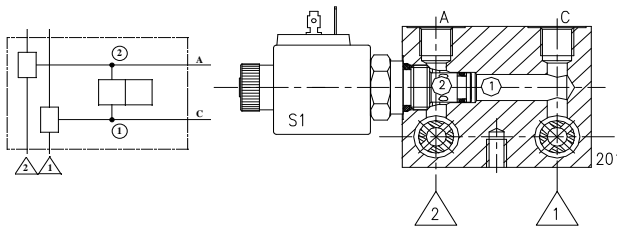


4 WAYS

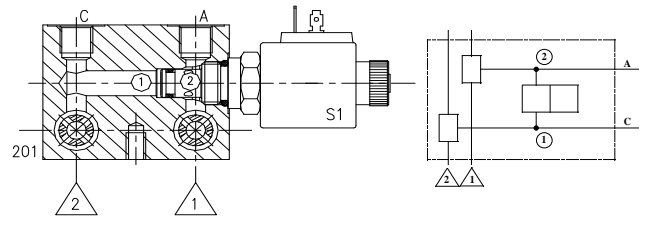


Lines ① and ② can be used alternately as pressure line or return to tank line.

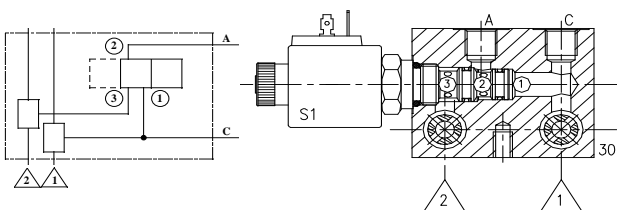
2 WAYS - LEFT POSITION



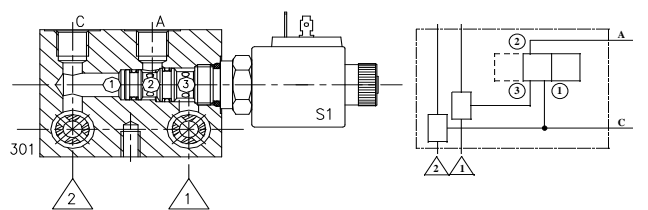
2 WAYS - RIGHT POSITION



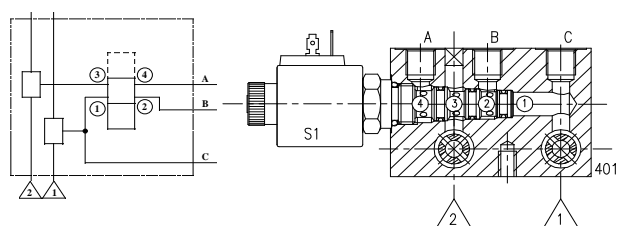
3 WAYS - LEFT POSITION



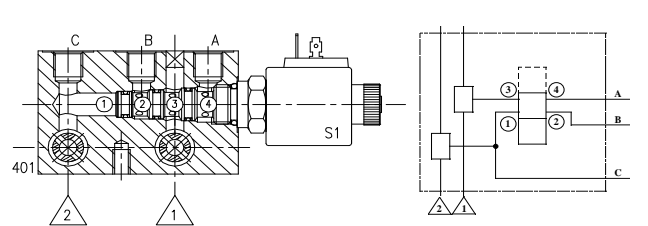
3 WAYS - RIGHT POSITION



4 WAYS - LEFT POSITION



4 WAYS - RIGHT POSITION



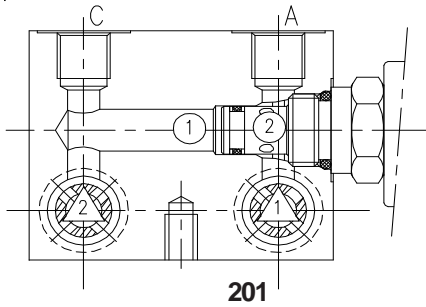
hydraulic Modular Block System " MBS® "

ASSEMBLING COMPOSITION of SIDE BY SIDE BLOCKS

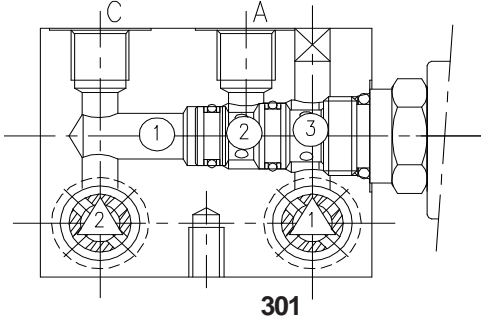
BLOCKS	2 WAYS				4 WAYS				
	Module	I	L	height	weight*	I	L	height	weight*
30	30	75	60	0,4 Kg	30	90	60	0,5 Kg	
40	40	90	70	0,7 Kg	40	105	70	0,8 Kg	
50	50	130	100	1,8 Kg	50	159	100	2,1 Kg	

* Poids sans les embouts

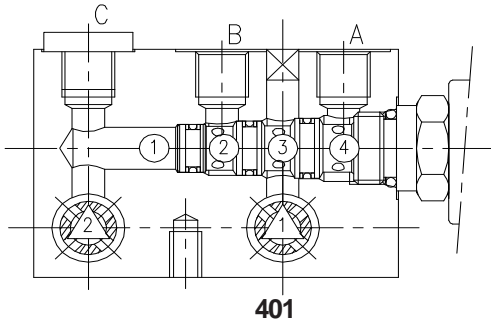
2 WAYS



3 WAYS



4 WAYS



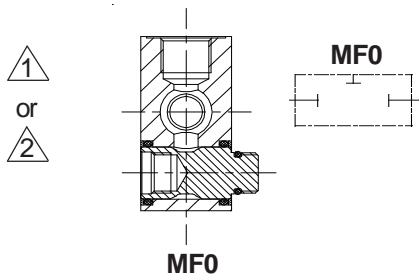
Symbols	Functions	References
	Module 2 WAYS + 2 ports	201 58 M30 201 10 M30 201 10 M41 201 16 M50 201
	Module 2 WAYS + 2 VOIES + 2 ports	202 58 M30 202 10 M30 202 10 M41 202 16 M50 202
	Module 2 WAYS + 2 VOIES + 1 port	203 58 M30 203 10 M41 203
	Module 2 WAYS + 2 VOIES + 2 ports	204 58 M30 204
	Module 3 WAYS + 2 ports	301 58 M30 301 10 M30 301 10 M41 301 16 M50 301
	Module 3 WAYS + 2 VOIES + 2 ports	302 58 M30 302 10 M30 302 10 M41 302 16 M50 302
	Module 3 WAYS + 1 port	303 58 M30 303 10 M30 303 10 M41 303
	Module 4 WAYS + 3 ports	401 58 M30 401 10 M30 401 10 M41 401 16 M50 401
	Module 4 WAYS + 2 VOIES + 3 ports	402 58 M30 401 10 M30 401 10 M41 401 16 M50 401
	Module 4 WAYS + 2 ports	403 58 M30 401 10 M30 401

F.T. 50 1212

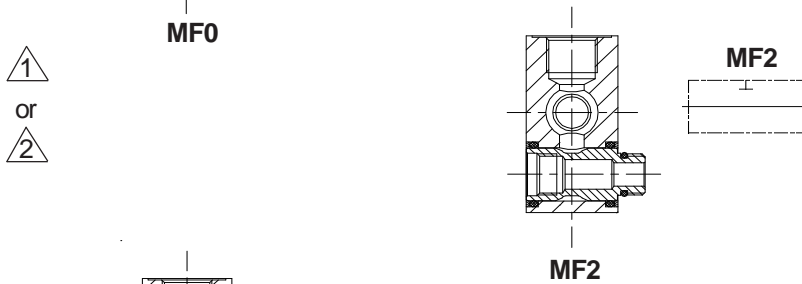
- Carriages setting | according to cartridges used
- Ports | see pages 175 / 00 à 196 / 00
- General quotation
- Trial pressure, assembled blocks: 550 bar
- Working pressure | according to cartridges used
- Rate of flow | See Booklet 197F - Pages 2 and 3

hydraulic Modular Block System " MBS® "

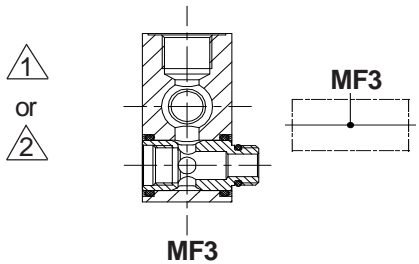
DISTRIBUTION JUNCTION PARTS FOR SIDE BY SIDE MODULES ASSEMBLING and FLUID DISTRIBUTION MODE



MBS® Module	Junction P. male/female	Weight in Kg
30	E30MF0	0,04
40	E41MF0	0,06
50	E50MF0	0,09



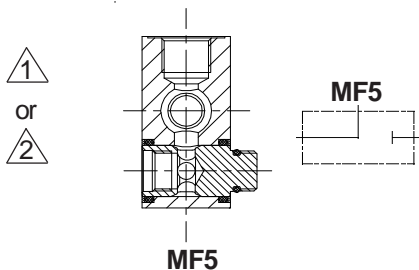
30	E30MF0	0,04
40	E41MF0	0,06
50	E50MF0	0,09



30	E30MF0	0,04
40	E41MF0	0,06
50	E50MF0	0,09

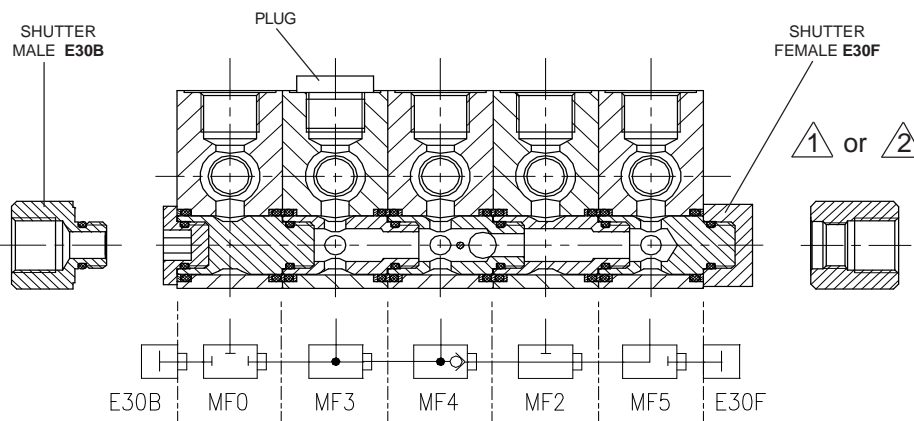


30	E30MF0	0,04
40	E41MF0	0,06
50	E50MF0	0,09



30	E30MF0	0,04
40	E41MF0	0,06
50	E50MF0	0,09

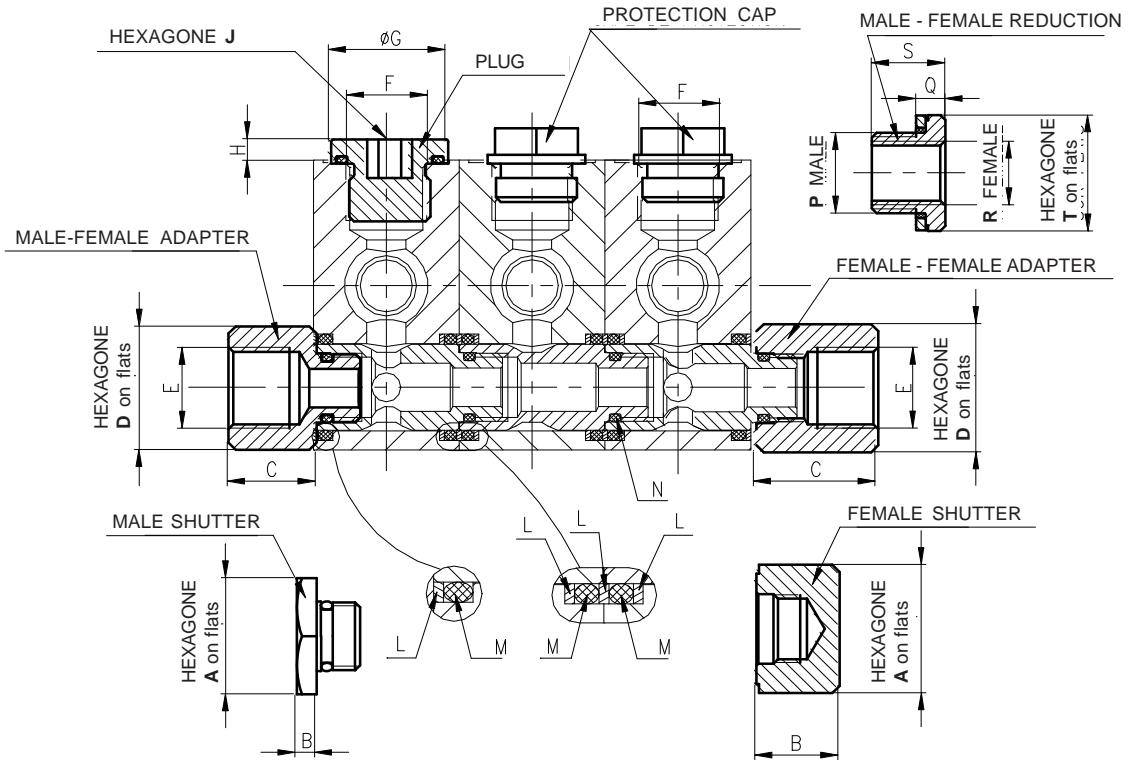
Example of assembling and fluid distribution



Module	Shutter	Size	Tightening torque
30	E30B	58	35 Nm
30	E30F	58	35 Nm
40	E40B	10	35 Nm
40	E40F	10	35 Nm
50	E50B	16	50 Nm
50	E50F	16	50 Nm

hydraulic Modular Block System " MBS® "

ACCESSORIES



MODULES

Module	Size	L (ring)	M (seal)	N (seal)
30	08 - 58	102 189	102 198	100 855
40	10	102 190	102 199	101 348
50	16	101 044	101 567	100 282

SHUTTERS

Module	Fixing	Codification	A	B	N (seal)
30	Male	E30B	23	4	100 855
	Female	E30F	23	17	
40	Male	E41B	27	5	101 348
	Female	E41F	27	18	
50	Male	E50B	32	5	100 282
	Female	E50F	32	22	

ADAPTERS Female/Female (FF)

Module	Port - E	Codification	C	D	N (seal)
30	3/8" Gaz	A30FFG2	25	23	
	1/2" Gaz	A30FFG3	30	26	
40	3/8" Gaz	A41FFG2	26	27	
	1/2" Gaz	A41FFG3	31	27	
50	3/4" Gaz	A50FFG4	37	32	

ADAPTERS Male/Female (MF)

Module	Port - E	Codification	C	D	N (seal)
30	3/8" Gaz	A30MFG2	18	23	100 855
	1/2" Gaz	A30MFG3	23	26	100 855
40	3/8" Gaz	A41MFG2	18	27	101 348
	1/2" Gaz	A41MFG3	23	27	101 348
50	3/4" Gaz	A50MFG4	26	32	100 282

PLUGS

Module	Port - F	Codification	G	H	J
30	1/4" Gaz	BG1	19	4,5	6
	3/8" Gaz	BG2	22	4,5	8
40	3/8" Gaz	BG2	22	4,5	8
	1/2" Gaz	BG3	27	4,5	10
50	3/4" Gaz	BG4	32	4,5	12

PROTECTION CAPS

Module	Port - F	Codification	References
30	1/4" Gaz	CG1	100 527
	3/8" Gaz	CG2	100 528
40	3/8" Gaz	CG2	100 528
	1/2" Gaz	CG3	100 615
50	3/4" Gaz	CG4	100 529

REDUCTIONS

Module	Codification	P	R	Q	S	T
30	RMFG2G1	3/8"G	3/4"G	23	18	23

SEALS KIT for Module

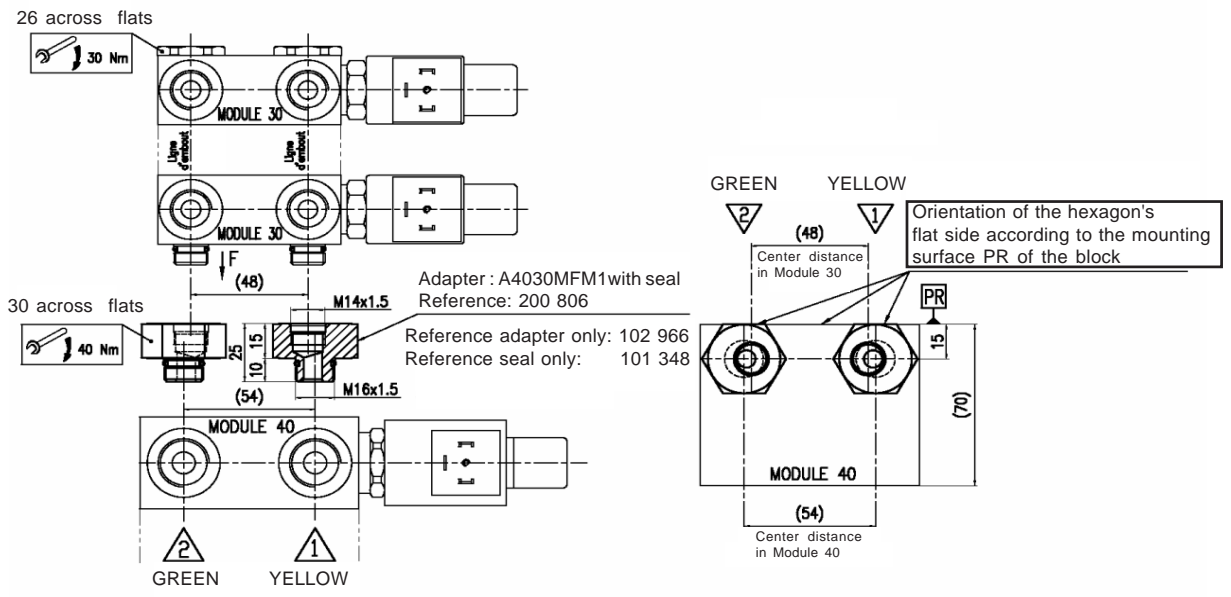
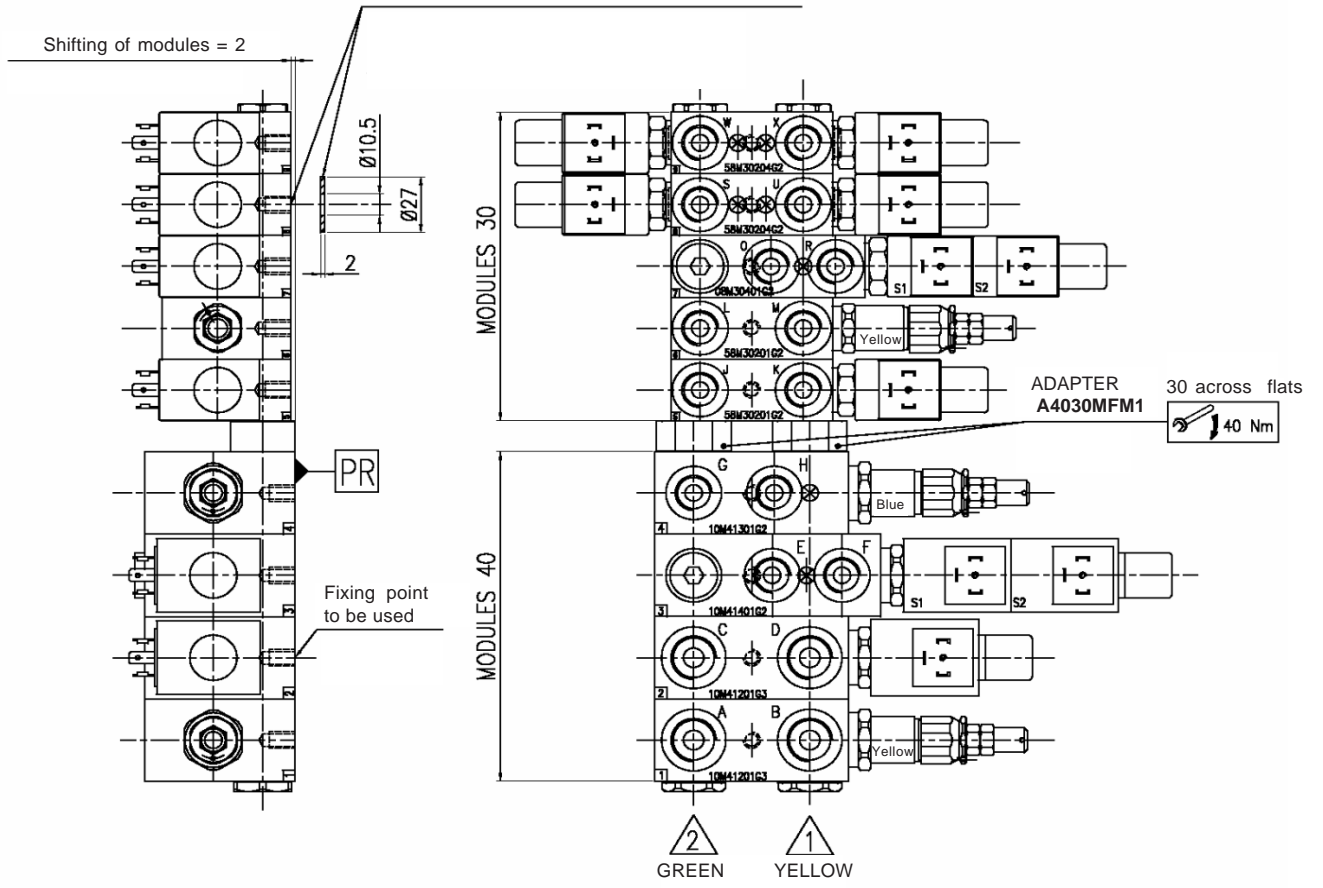
Module	References
30 & 40	200 589
31	200 590
50	200 591

F.T 50 1214

hydraulic Modular Block System " MBS® "

MODULES 40 on MODULES 30 ASSEMBLING

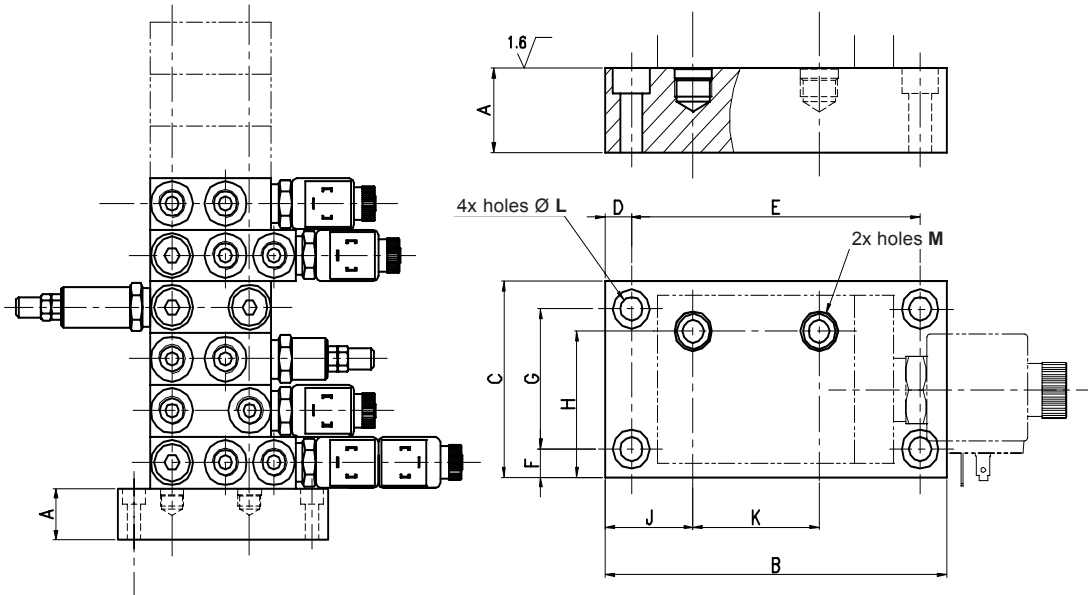
The block mounting requires a washer
 Ø 27 x Ø 10,5 thickness 2 (ref./ 102 472)
 under the fixing holes M8 x 125



F.T. 50 1215

hydraulic Modular Block System " MBS® "

**BASE PLATE
for HYDRAULIC PLANT**



Module	Reference	A	B	C	D	E	F	G	H	J	K	L	M
30	PB30.00	40	130	70	10	110	10	50	52	33,5	48	8,5	M14x1,5
40	PB40.00	40	145	70	10	125	8	52	55	38	54	8,5	M14x1,5
50	PB50.00	50	199	100	10	179	10	80	77	45	80	8,5	M20x2

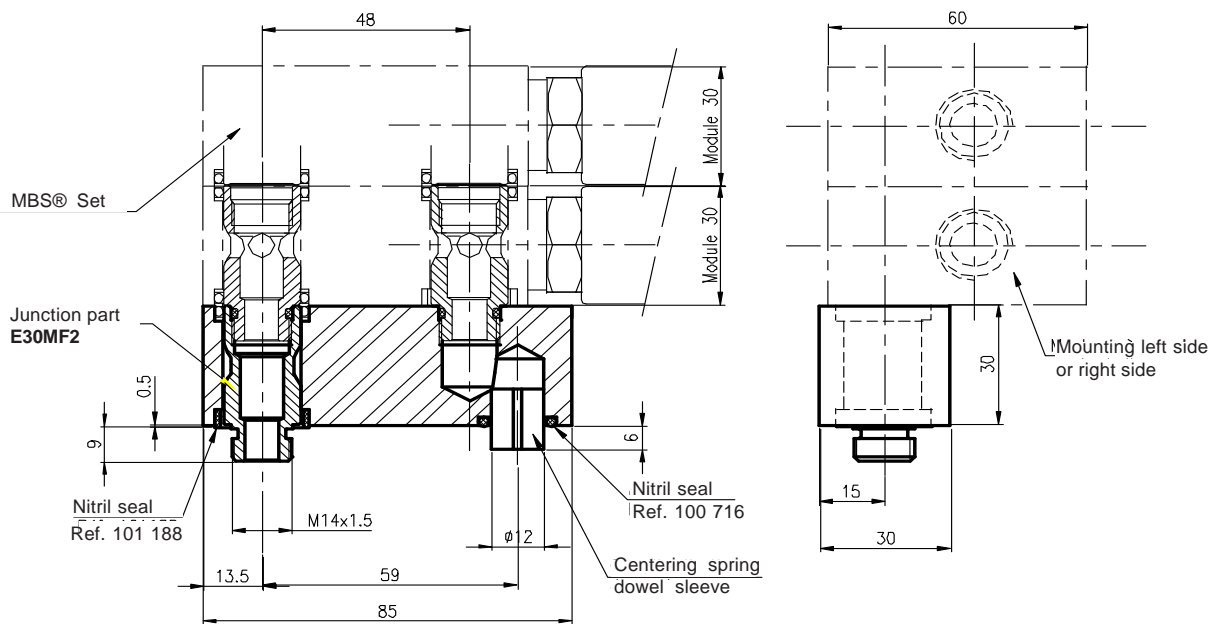
Descriptive: Anodized aluminium base plate allowing to receive a complete MBS® bloc with fixation on covering cap of hydraulic plant.

Possible option: Drilling on laying plan for partition assembling.

hydraulic Modular Block System " MBS® "

MBS® MODULE 30

**BASE PLATE for MOUNTING
on JTEKT-HPI power pack**



Description:

Base plate for JTEKT-HPI mini power pack made up of:

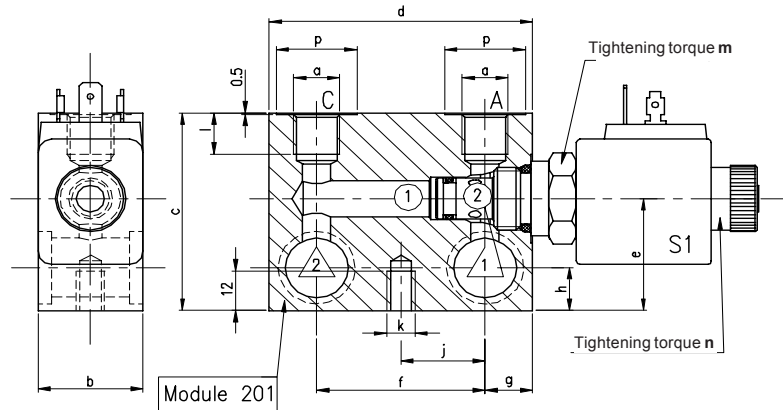
- one module MBS® Module 30
- one junction part E30MF2
- one spring dowel sleeve
- one anti-extrusion ring
- four Nitril seals

Set Reference: N° 200 693

hydraulic Modular Block System "MBS®"

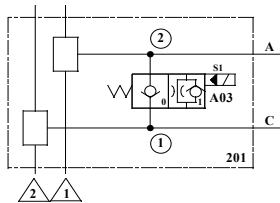
FUNCTIONS COMPOSITION

PILOT POPPET VALVE 2 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 201 SIZES 58 - 10 - 16

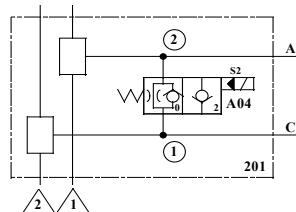


Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. Nm	n Tight. Nm	p	Weight in Kg*
30	58	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	5Nm	26	0,7
40	10	1/2" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	16	30Nm	5Nm	30	1
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	5Nm	36	2,4

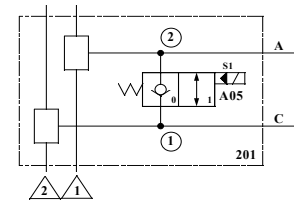
*Weight with solenoid valve, without distribution junction part



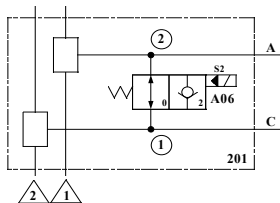
A03



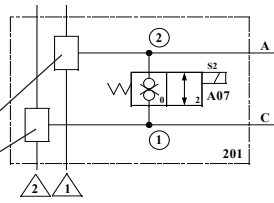
A04



A05

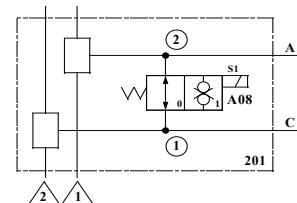


A06



A07

T58 & T10 only



A08

T58 only

Distribution junction parts see F.T 50 1212 Page 170/00

Cartridges characteristics:

A03 - A04 - A05 - A06

- Size 58 F.T 50 1101 Page 008 / 00
- Size 10 F.T 50 1102 Page 010 / 00
- Size 16 F.T 50 1103 Page 012 / 00

A07 code 1 - A07 code 2

- Size 58 - versions 1 and 2 F.T 50 1104 Page 014 / 00
- Size 10 - versions 1 and 2 F.T 50 1105 Page 016 / 00

A08

- Size 58 F.T 50 1106 Page 018 / 00

Codification

C E D 10 A04 B 3 A 0 N 201 — Module MBS®

Size code

- 58= Module 30
- 10= Module 40
- 16= Module 50

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt RAC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Coil Code

- T.58
- Code 8= every function except A07 version 2
- Code 5= A07 version 2
- T10
- Code 3= every functions except A07
- Code 5= A07 version 1
- Code 4= A07 version 2
- T.16 = code 4

Cde manuelle sécurité

- 0 = sans
- A03 - A05 - A08
- A = en dévissant
- C = en tirant
- A04 - A06 - A07
- B = en vissant
- E = en poussant

Connectors

- without** A = electr.con. 6,35 - DIN 43650
- B = Kostal
- F = leadwires
- L = electr.con. 6,35 - DIN 43650
- K = Kostal

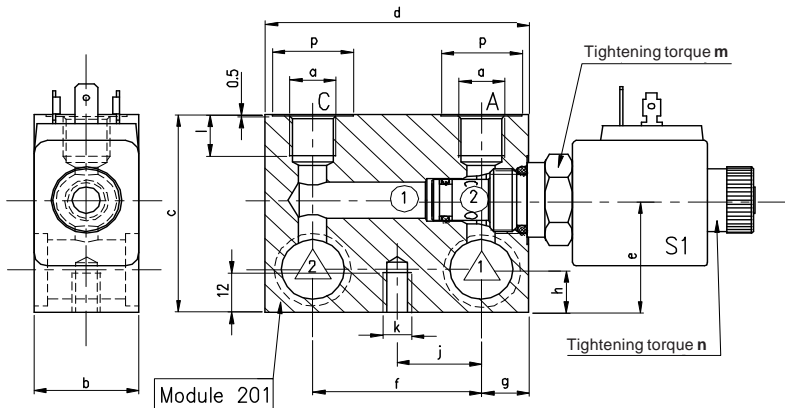
- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1218

hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION

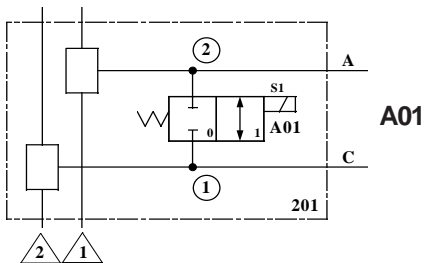
SPOOL SOLENOID VALVES 2 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 201 SIZES 58 - 10 - 16



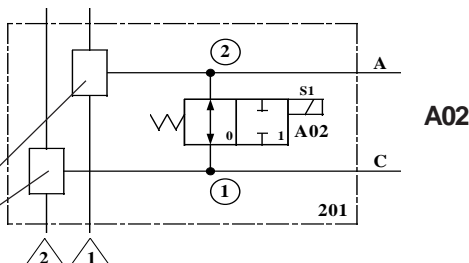
Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	Weight in Kg*
30	58	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	5Nm	26	0,6
40	10	1/2" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	16	30Nm	5Nm	30	0,9
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	5Nm	36	2,1

*Weight with solenoid valve, without distribution junction part

NORMALLY CLOSED



NORMALLY OPEN



Distribution junction parts
see F.T 50 1213
Page 170/00

Cartridges characteristics:

Size 58 F.T 50 1108 Page 021 / 00

Size 10 F.T 50 1110 Page 024 / 00

Size 16 F.T 50 1112 Page 027 / 00

Codification

C E D 10 A01 B 3 A 0 N 201 — Module MBS®

Size code

58= Module 30
10= Module 40
16= Module 50

Voltages

A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt RAC
F = 48 Volt RAC
G = 110 Volt RAC
H = 220 Volt RAC

Coil code

T.58
Code 8= every functions
except A07 version 2
Code 5= A07 version 2
T10
Code 3=every functions
except A07
Code 5= A07 version 1
Code 4= A07 version 2
T.16 = code 4

Function Code

Manual overrides

0 = without
A = screwing off version
B = pushing version
C = pulling version

Connectors

without A = electr.con. 6,35 - DIN 43650
B = Kostal
F = gauge lead
with L = electr.con. 6,35 - DIN 43650

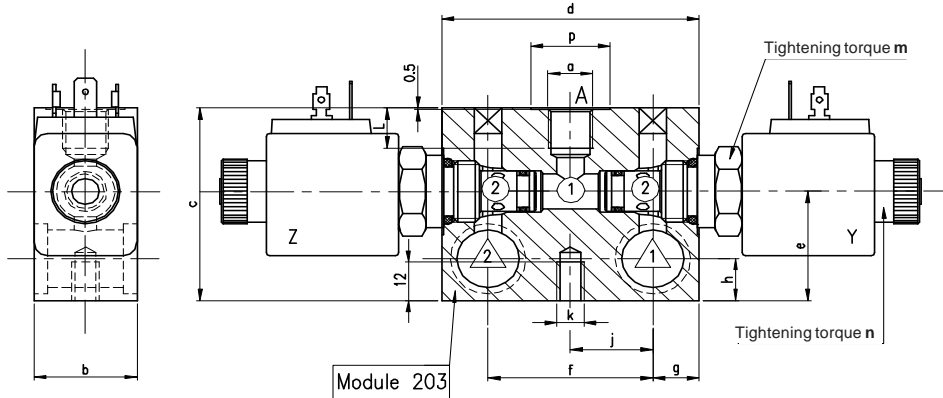
N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T 50 1219

hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION

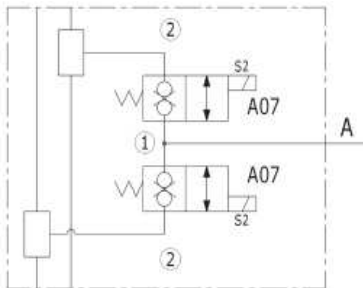
SPOOL SOLENOID VALVES 2 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 203 SIZES 58 - 10 - 16



Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	Weight in Kg*
30	58	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20 Nm	5 Nm	26	1
40	10	1/2" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	16	30 Nm	5 Nm	30	1,3
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60 Nm	5 Nm	36	2,7

*Weight with solenoid valve, without distribution junction part

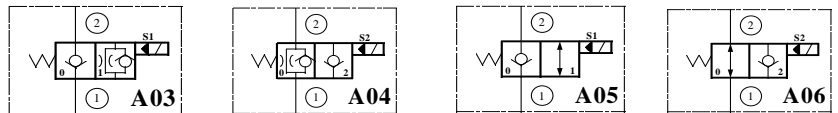
Example of typical diagram composed of 2 poppet solenoid valves bi-directional - bi-tight A07



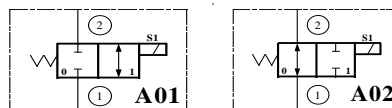
** Size T50 doesn't exist for the A07

Solenoid valves which can be used with Module 203 on settings Y and Z

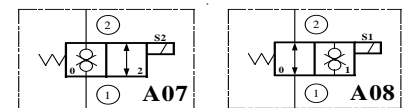
Poppet solenoid valves



Spool solenoid valves



Poppet solenoid valves bi-directional - bi-tight



T58 and T10 only

T58 only

Cartridges characteristics:

A01 - A02

- Sizes 08 et 58 F.T 50 1108 Page 021 / 00
- Size 10 F.T 50 1110 Page 024 / 00
- Size 16 F.T 50 1103 Page 012 / 00

A03 - A04 - A05 - A06

- Size 58 F.T 50 1101 Page 008 / 00
- Size 10 F.T 50 1102 Page 010 / 00
- Size 16 F.T 50 1103 Page 012 / 00

A07

- Size 58 - versions 1 & 2 F.T 50 1104 Page 018 / 00
- Size 10 - versions 1 & 2 F.T 50 1105 Page 016 / 00

A08

- Size 58 F.T 50 1106 Page 018 / 00

Codification

C E D 10 A07 A07 B 3 A 0 N 203 — Module MBS®

Size code

- 58= Module 30
- 10= Module 40
- 16= Module 50

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt RAC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Coil code

- T.58
- Code 8= every function except A07 version 2
- Code 5= A07 version 2
- T10
- Code 3=every functions except A07
- Code 5= A07 version 1
- Code 4= A07 version 2
- T.16 = code 4

Manual overrides

- 0 = without
- A03 - A05 - A08
- A = by screwing off
- B = by pulling
- A04 - A06 - A07
- B=by screwing / E=by pushing

Connectors

- without** A = electr.con. 6,35 - DIN 43650
- B = Kostal
- F = leadwires
- with** L = electr.con. 6,35 - DIN 43650
- K = Kostal

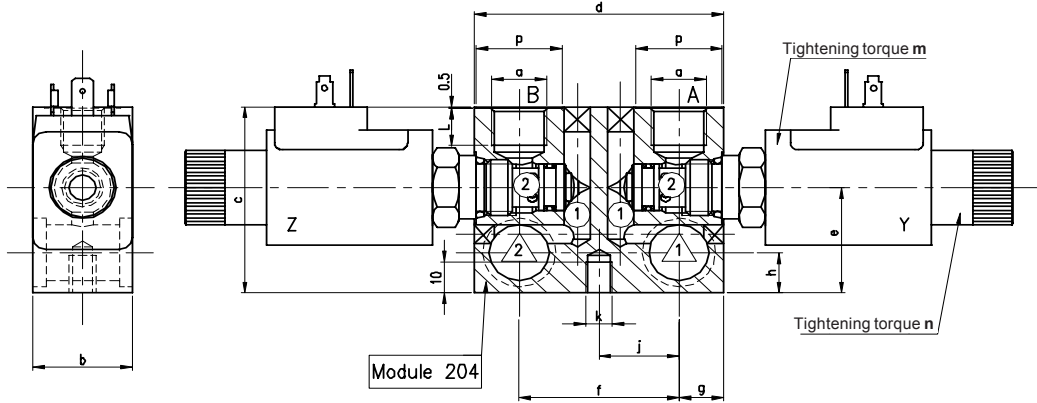
- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1220

hydraulic Modular Block System "MBS®"

FUNCTIONS COMPOSITION

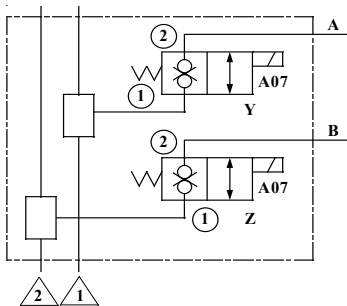
SOLENOID VALVES 2 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 204 SIZE 58



Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	Weight in Kg*
30	58	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	5Nm	26	1

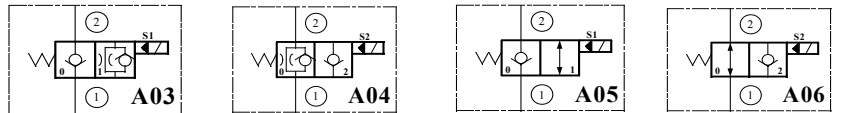
*Weight with solenoid valve, without distribution junction part

Example of typical diagram composed
of 2 poppet solenoid valves
bi-directional - bi-tight A07

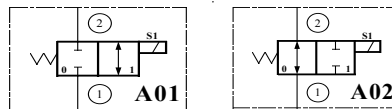


Solenoid valves which can be used with Module 204
on settings Y and Z

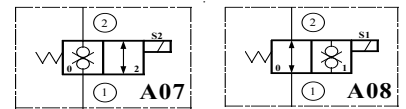
Poppet solenoid valves



Spool solenoid valve



Poppet solenoid valve
bi-directional - bi-tight



Cartridges characteristics:

- A01 - A02**
Sizes 08 & 58 F.T 50 1108 Page 021 / 00
- A03 - A04 - A05 - A06**
Size 58 F.T 50 1101 Page 008 / 00
- A07**
Size 58 - versions 1 & 2
F.T 50 1104 Page 014 / 00
- A08**
Size 58 F.T 50 1106 Page 018 / 00

Codification C E D 58 A07 A07 B 8 A 0 N 204 — Module MBS®

Size code
58= Module 30

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt RAC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Coil code

- Code 8= every function
except A07 version 2
- Code 5= A07 version 2

Connectors

- without** A = electr.con. 6,35 - DIN 43650
- B = Kostal
- F = leadwires
- with** L = electr.con. 6,35 - DIN 43650
- K = p/Kostal

Manual override

- 0 = without
- A03 - A05 - A08
- A = by screwing
- C = by pulling
- A04 - A06 - A07
- B = by screwing
- E = by pushing

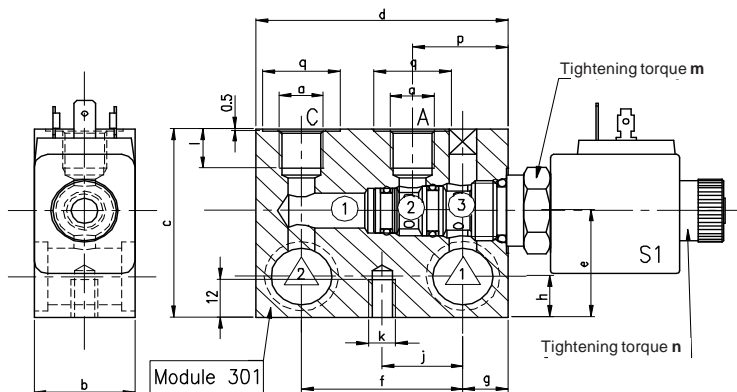
- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1221

hydraulic Modular Block System " MBS® "

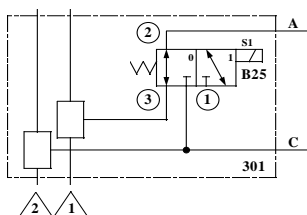
FUNCTIONS COMPOSITION

SOLENOID VALVES 2 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 301 SIZES 08 - 10 - 16

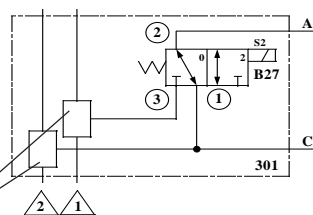


Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	q	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	5Nm	28,5	26	0,6
40	10	3/8" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm	5Nm	34,5	26	0,9
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	5Nm	53,5	26	2,3

*Weight with solenoid valve, without distribution junction part

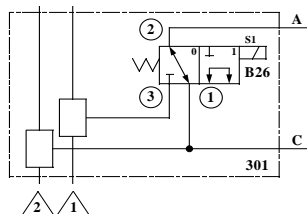


B25

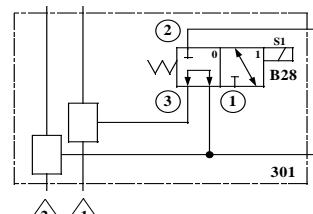


B27

Distribution junction parts see F.T 50 1212 Page 170 / 00



B26



B28

Cartridges characteristics:

- Size 58 F.T 50 1114 Page 031 / 00
- Size 10 F.T 50 1115 Page 033 / 00
- Size 16 F.T 50 1116 Page 035 / 00

Codification

C E D 10 B25 B 3 A 0 N 301 — Module MBS®

Size code

- 58= Module 30
- 10= Module 40
- 16= Module 50

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt RAC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Function code

Coil code

- Size 08= 8HP
- Size 10= 3 et 5HP
- Size 16= 4

Manual override

- 0 = without
- A = screwing off version
- B = pushing version
- C = pulling version

Connectors

- without**
 - A = electr.con. 6,35 - DIN 43650
 - B = Kostal
 - F = leadwires
- with**
 - L = electr.con. 6,35 - DIN 43650
 - K = Kostal

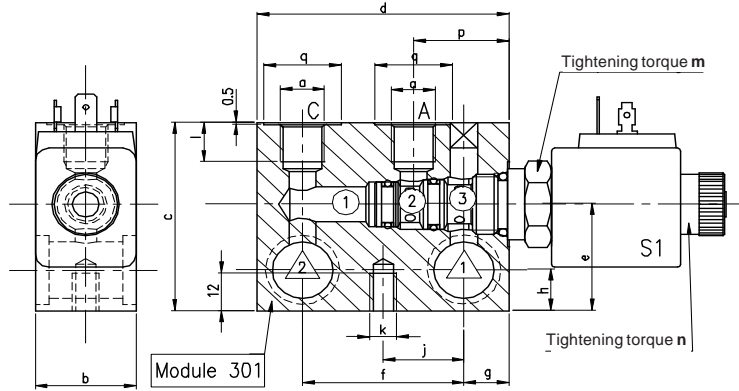
- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1222 1/2

hydraulic Modular Block System " MBS® "

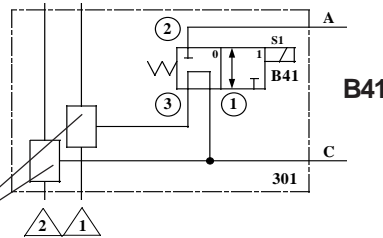
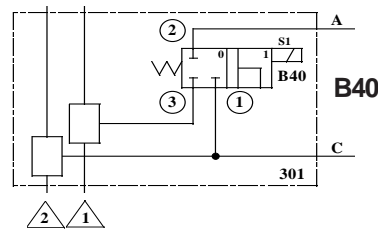
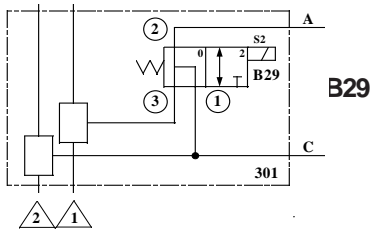
FUNCTIONS COMPOSITION

SPOOL SOLENOID VALVES 3 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 301 SIZES 08 - 10 - 16



Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	q	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	5Nm	28,5	26	0,6
40	10	3/8" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm	5Nm	34,5	26	0,9
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	5Nm	53,5	26	2,3

*Weight with solenoid valves, without distribution junction part



Distribution junction parts see F.T 50 1212 Page 170/00

Caractéristiques cartouches:

- Taille 58 F.T 50 1114 Page 031 / 00
- Taille 10 F.T 50 1115 Page 033 / 00
- Taille 16 F.T 50 1116 Page 035 / 00

Codification C E D 10 B29 B 3 A 0 N 301 — Module MBS®

Size code

- 58= Module 30
- 10= Module 40
- 16= Module 50

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt RAC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Coil code

- Size 08= 8HP
- Size 10= 3 & 5HP
- Size 16= 4

Code fonction

Manual override

- 0 = without
- A = screwing version
- B = pushing version
- C = pulling version

Connectors

- without** A = electr. con. 6,35 - DIN 43650
- B = Kostal
- F = sortie filaire
- with** L = electr. con. 6,35 - DIN 43650
- K = Kostal

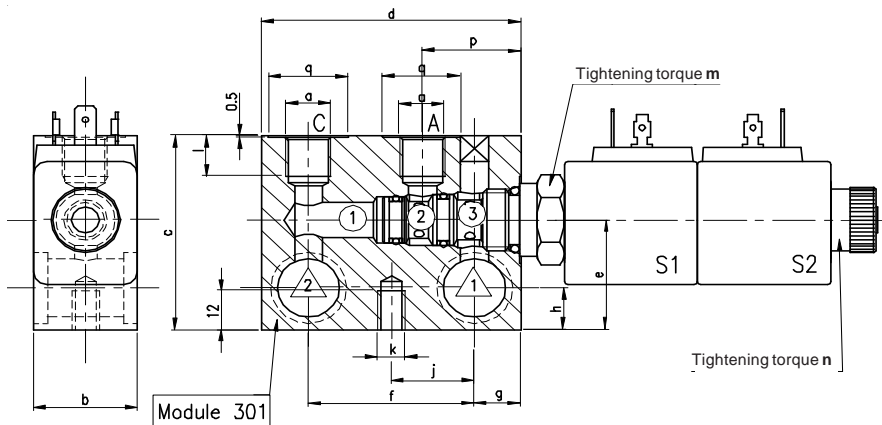
- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1222 2/2

hydraulic Modular Block System " MBS® "

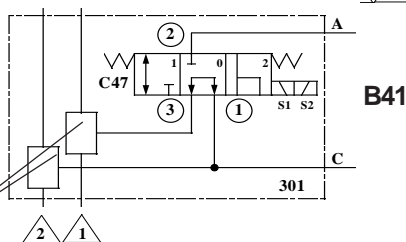
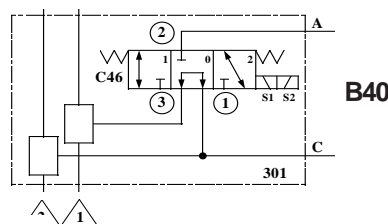
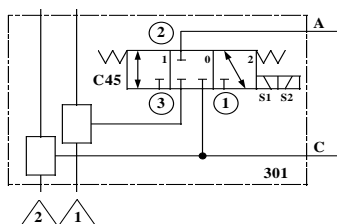
FUNCTIONS COMPOSITION

SPOOL SOLENOID VALVES 3 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 301 SIZES 08 - 10 - 16



Module	Size	a Ports	Maxflow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tigh. torque	n Tigh. torque	p	q	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	5Nm	28,5	26	0,6
40	10	3/8" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm	5Nm	34,5	26	0,9
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	5Nm	53,5	26	2,3

*Weight with solenoid valves, without distribution junction part



Distribution junction parts
see F.T.50 1212 Page 170/00

Cartridges characteristics:

Size 58 F.T 50 1118 Page 038 / 00

Size 10 F.T 50 1119 Page 040 / 00

Size 16 F.T 50 1120 Page 042 / 00

Codification

C E D 10 C45 B 3 A 0 N 301 — Module MBS®

Size code

58= Module 30
10= Module 40
16= Module 50

Voltages

A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt RAC
F = 48 Volt RAC
G = 110 Volt RAC
H = 220 Volt RAC

Coil code

Size 08= 8HP
Size 10= 3 et 5HP
Size 16= 4

Function code

Manual override

0 = without
A = screwing off version
B = pushing version
C = pulling version

Connectors

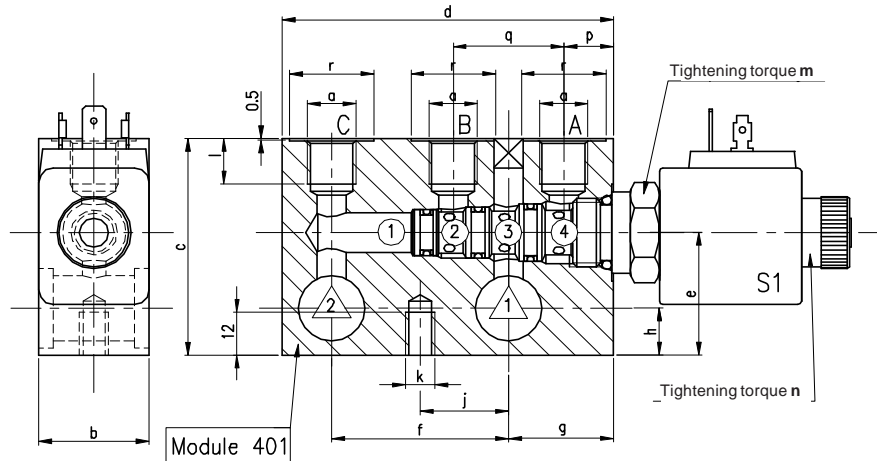
without A = electr.con. 6,35 - DIN 43650
B = Kostal
F = leadwires
with L = electr.con. 6,35 - DIN 43650
K = Kostal

N - Nitril seals - 40° + 100°C
V - Viton seal - 20° + 100°C

hydraulic Modular Block System " MBS® "

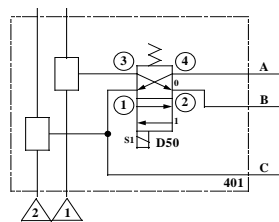
FUNCTIONS COMPOSITION

SPOOL SOLENOID VALVES 4 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 401 SIZES 08 - 10 - 16

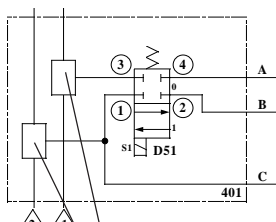


Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	q	r	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	90	34	48	28,5	13	24	M 8	12	20Nm	5Nm	13,5	30	26	0,6
40	10	3/8" G	10 - 40	300	40	70	105	38	54	33	15	27	M 8	12	30Nm	5Nm	18	32,5	26	0,9
50	16	3/4" G	20 - 100	300	50	100	159	53	80	54	18	40	M 8	19	60Nm	5Nm	25	57	26	2,3

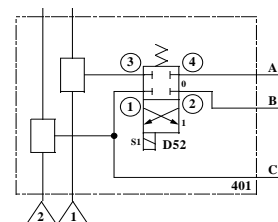
* Weight with solenoid valves, without distribution junction parts



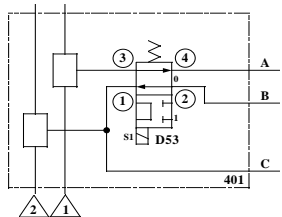
D50



D51

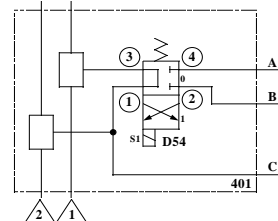


D52



D53

Distribution junction parts
see F.T 50 1212 Page 170/00



D54

Caractéristiques cartouches:

- Size 58 F.T 50 1122 Page 046 / 00
- Size 10 F.T 50 1123 Page 048 / 00
- Size 16 F.T 50 1124 Page 050 / 00

Codification

C E D 10 D50 B 3 A 0 N 401 — Module MBS®

Size code

- 58= Module 30
- 10= Module 40
- 16= Module 50

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt RAC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Coil code

- Size 08= 8HP
- Size 10= 3 et 5HP
- Size 16= 4

Manual override

- 0 = without
- A = screwing off version
- B = pushing version
- C = pulling version

Connectors

- without** A = electr. con. 6,35 - DIN 43650
- B = Kostal
- F = leadwires
- with** L = electr. con. 6,35 - DIN 43650
- K = Kostal

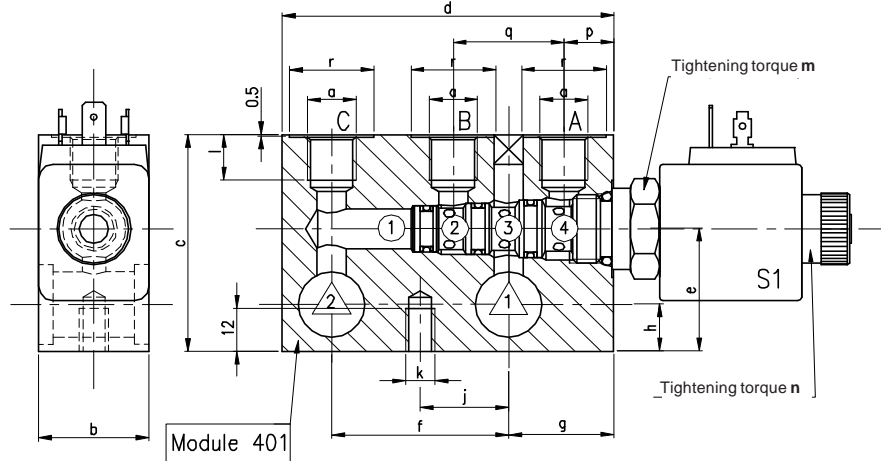
- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1224 1/2

hydraulic Modular Block System " MBS® "

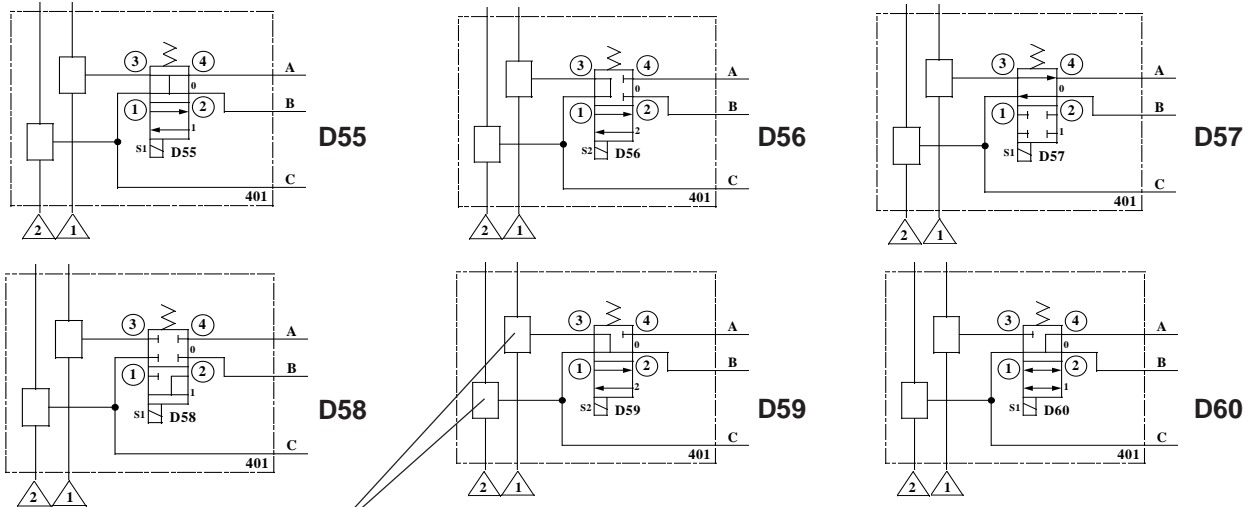
FUNCTIONS COMPOSITION

SPOOL SOLENOID VALVES 4 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 401 SIZES 08 - 10 - 16



Module	Size	a Ports	Maxflow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	q	r	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	90	34	48	28,5	13	24	M 8	12	20Nm	5 Nm	13,5	30	26	0,6
40	10	3/8" G	10 - 40	300	40	70	105	38	54	33	15	27	M 8	12	30Nm	5 Nm	18	32,5	26	1
50	16	3/4" G	20 - 100	300	50	100	159	53	80	54	18	40	M 8	19	60Nm	5 Nm	25	57	26	2,6

*Weight with solenoid valves, without distribution junction parts



Distribution junction parts see F.T 50 1212 Page 170/00

Cartridges characteristics:

- Size 08 F.T 50 1122 Page 046 / 00
- Size 10 F.T 50 1123 Page 048 / 00
- Size 16 F.T 50 1124 Page 050 / 00

Codification

C E D 10 D55 B 3 A 0 N 401 — Module MBS®

Size code

- 58= Module 30
- 10= Module 40
- 16= Module 50

Voltages

- A = 12 Volt DC
- E = 24 Volt DC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Coil code

- Size 08= 8HP
- Size 10= 3 et 5HP
- Size 16= 4

Manual override

- 0 = without
- A = screwing off version
- B = pushing version
- C = pulling version

Connectors

- whitout**
 - A = electr. con. 6,35 - DIN 43650
 - B = Kostal
 - F = leadwires
- with**
 - L = electr. con. 6,35 - DIN 43650
 - K = Kostal

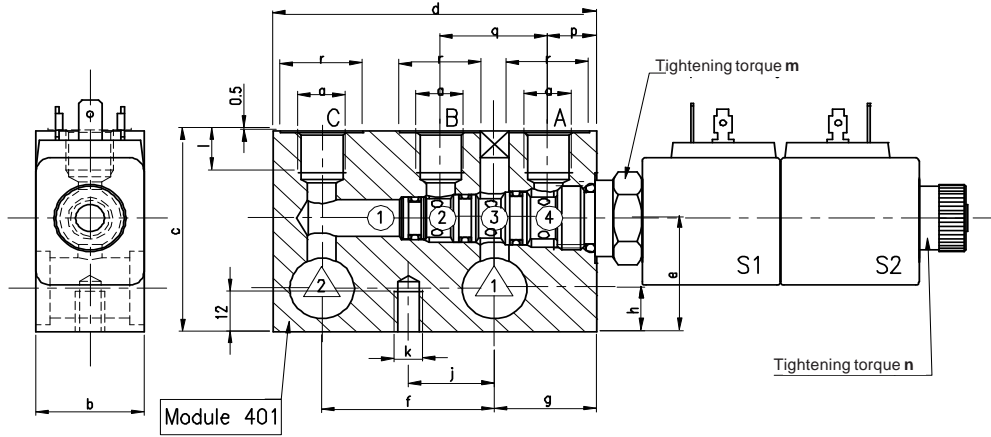
- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1224 2/2

hydraulic Modular Block System " MBS® "

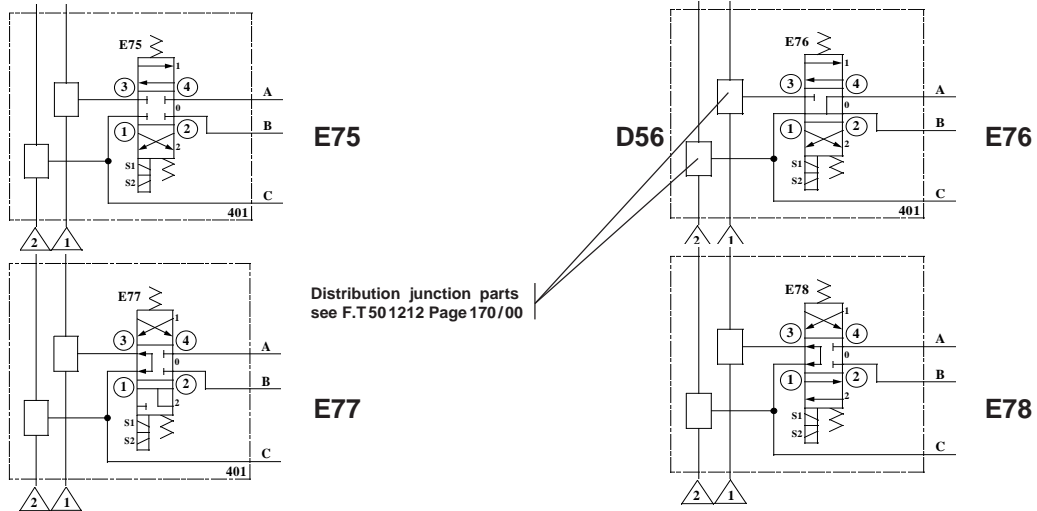
FUNCTIONS COMPOSITION

SPOOL SOLENOID VALVES 4 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 401 SIZES 08 - 10 - 16



Module	Size	a Ports	Max. flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	q	r	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	90	34	48	28,5	13	24	M 8	12	20Nm	5Nm	13,5	30	26	0,9
40	10	3/8" G	10 - 40	300	40	70	105	38	54	33	15	27	M 8	12	30Nm	5Nm	18	32,5	26	1,3
50	16	3/4" G	20 - 100	300	50	100	159	53	80	54	18	40	M 8	19	60Nm	5Nm	25	57	26	2,6

*Weight with solenoid valves, without distribution junction parts



Cartridges characteristics:

- Size 58 F.T 50 1126 Page 054 / 00
- Size 10 F.T 50 1127 Page 056 / 00
- Size 16 F.T 50 1129 Page 060 / 00

Codification

C E D 10 E75 B 3 A 0 N 401 — Module MBS®

Size code

- 58= Module 30
- 10= Module 40
- 16= Module 50

Function code

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt RAC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Coil code

- Size 08= 8HP
- Size 10= 3 et 5HP
- Size 16= 4

Manual override

- 0 = without
- A = screwing off version
- B = pushing version
- C = pulling version

Connectors

- without**
 - A = electr. con. 6,35 - DIN 43650
 - B = Kostal
 - F = leadwires
- with**
 - L = electr. con. 6,35 - DIN 43650
 - K = Kostal

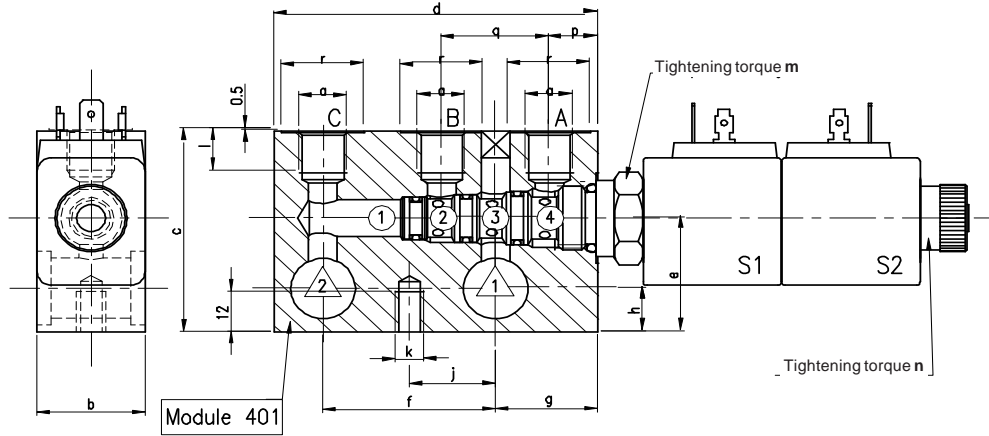
- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1225 1/2

hydraulic Modular Block System " MBS® "

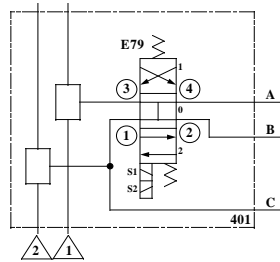
FUNCTIONS COMPOSITION

SPOOL SOLENOID VALVES 4 WAYS - 2 POSITIONS with SIDE BY SIDE MODULE 401 SIZES 08 - 10 - 16

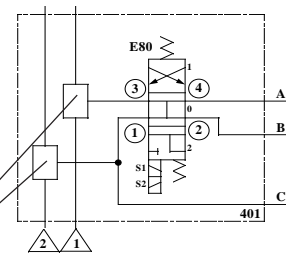


Module	Size	a Ports	Maxflow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n Tight. torque	p	q	r	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	90	34	48	28,5	13	24	M 8	12	20Nm	5 Nm	13,5	30	26	0,9
40	10	3/8" G	10 - 40	300	40	70	105	38	54	33	15	27	M 8	12	30Nm	5 Nm	18	32,5	26	1,3
50	16	3/4" G	20 - 100	300	50	100	159	53	80	54	18	40	M 8	19	60Nm	5 Nm	25	57	26	2,6

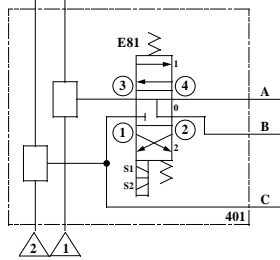
*Weight with solenoid valves, without distribution junction parts



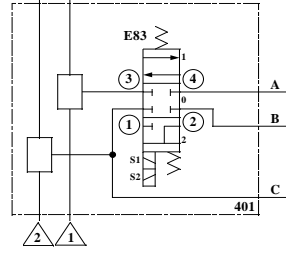
E79



E80



E81



E82

Distribution junction parts
see F.T 50 1212 Page 170 / 00

Cartridges characteristics:

- Size 58 F.T 50 1126 Page 054 / 00
- Size 10 F.T 50 1127 Page 056 / 00
- Size 16 F.T 50 1129 Page 060 / 00

Codification

C E D 10 E79 B 3 A 0 N 401 — Module MBS®

Size code

- 58= Module 30
- 10= Module 40
- 16= Module 50

Function side

Voltages

- A = 12 Volt DC
- B = 24 Volt DC
- E = 24 Volt RAC
- F = 48 Volt RAC
- G = 110 Volt RAC
- H = 220 Volt RAC

Coil code

- Size 08= 8HP
- Size 10= 3 & 5HP
- Size 16= 4

Manual override

- 0 = without
- A = screwing off version
- B = pushing version
- C = pulling version

Connectors

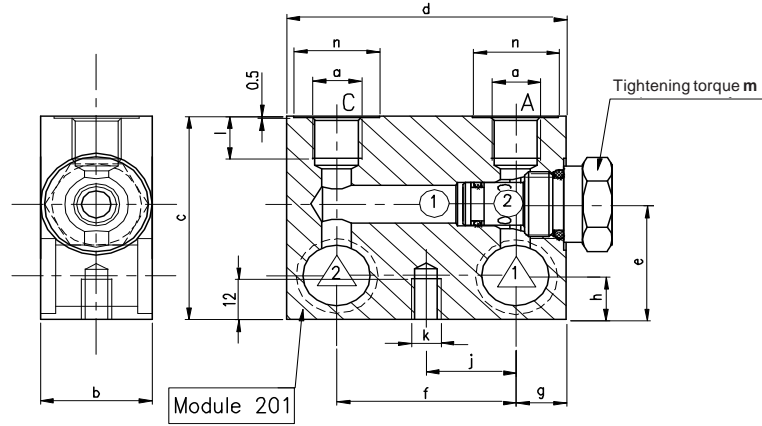
- without** A = electr. con. 6,35 - DIN 43650
- B = Kostal
- F = leadwires
- with** L = electr. con. 6,35 - DIN 43650
- K = Kostal

- N - Nitril seals - 40° + 100°C
- V - Viton seals - 20° + 100°C

F.T 50 1225 2/2

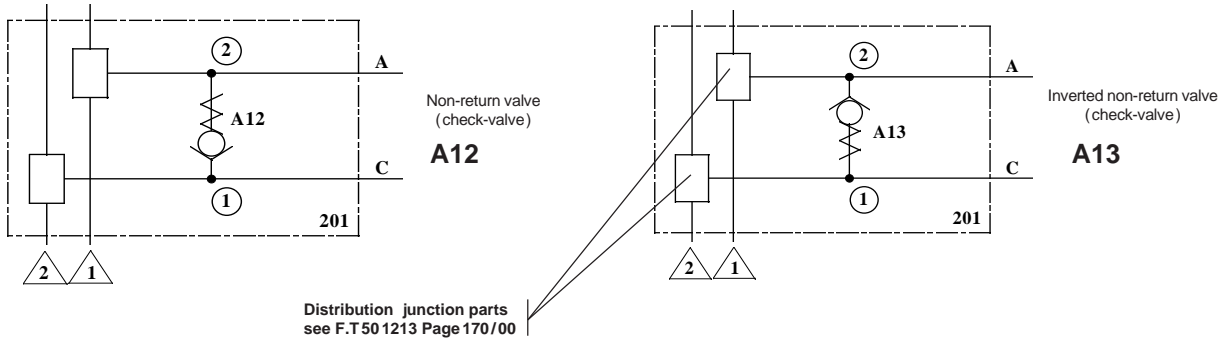
hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION DIRECTIONAL VALVES with SIDE BY SIDE MODULE 201 SIZES 58 - 10 - 16



Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	Weight in Kg*
30	58	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	26	0,4
40	10	3/8" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm	30	0,6
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	36	1,6

*Weight with valve, without distribution junction part



Cartridges characteristics:

A12 - A13

Sizes 58 - 10 - 16

F.T 50 1144 Page 076 / 00

Codification C M D 10 A12 M 1 0 0 N 201 — Module MBS®

Size code

58= Module 30

10= Module 40

16= Module 50

Function code

Standard

Standard

Control mode

M= Mechanical

Disposition

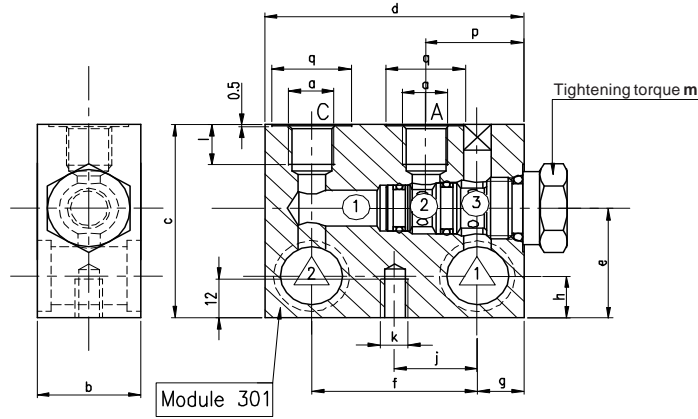
1= fixed setting

N - Nitril seals - 40° + 100°C

V - Viton seals - 20° + 100°C

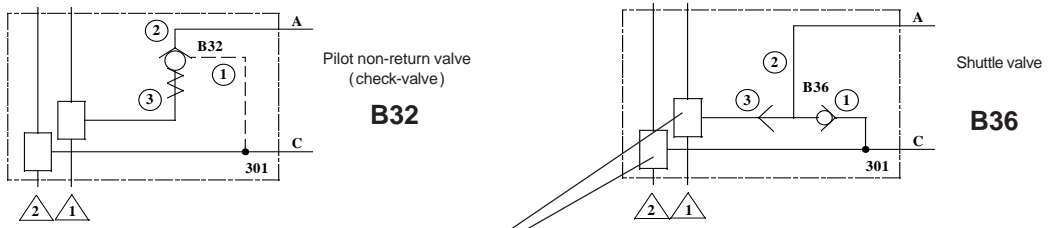
hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION DIRECTIONAL VALVES with SIDE BY SIDE MODULE 301 SIZES 08 - 10 - 16



Module	Size	a Ports	Maxflow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	p	q	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm		28,5	26	0,5
40	10	3/8" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm		34,5	26	0,9
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm		53,5	36	2,2

*Weight with valve, without distribution junction part



Distribution junction parts
see F.T 50 1213 Page 170/00

Cartridges characteristics:

B32

Sizes 08 - 10 - 16

F.T 50 1145 Page 078 / 00

B36

Sizes 08 - 10 - 16

F.T 50 1146 Page 079 / 000

Codification

C H D 10 B32 P 1 A 0 N 301 — Module MBS®

Size code

58= Module 30
10= Module 40
16= Module 50

Function code

Standard

Standard

Control code

P= Hydraulic
M= Mecanical

Disposition

1= fixed setting

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

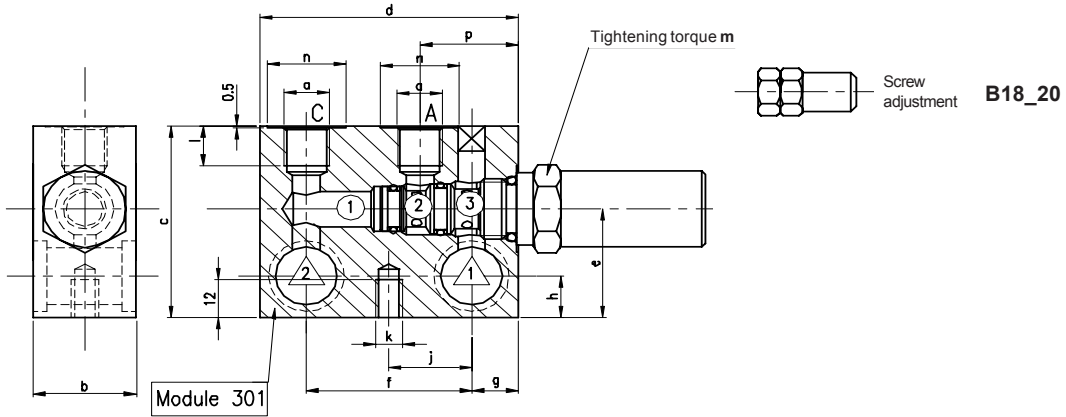
F.T 50 1227

Fluid distribution: see F.T 50 1211 Page 168 / 00

Choice of junction part according to installation diagram. See example: F.T 50 1213 Page 170 / 00

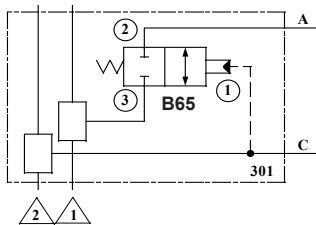
hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION DIRECTIONAL VALVES with SIDE BY SIDE MODULE 301 SIZES 10 - 16



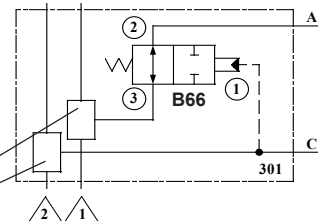
Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	p	q	Weight in Kg*
40	10	3/8" G	10-40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm		34,5	26	0,9

*Weight with valve, without distribution junction part



Pilot spool valve
Normally closed

B65



Pilot spool valve
Normally open

B66

Distribution junction parts
voir F.T 50 1213 Page 170/00

Cartridges characteristics:

B65 - B66

Size 10 F.T 50 1147 Page 080 / 00

Codification

C H D 10 B65 P 2 A 0 N 301 — Module MBS®

Code taille
10= Module 40

Function code

Standard

Control mode
P= Hydraulic

Disposition
2= screw control

Draining
A= External
B= Internal

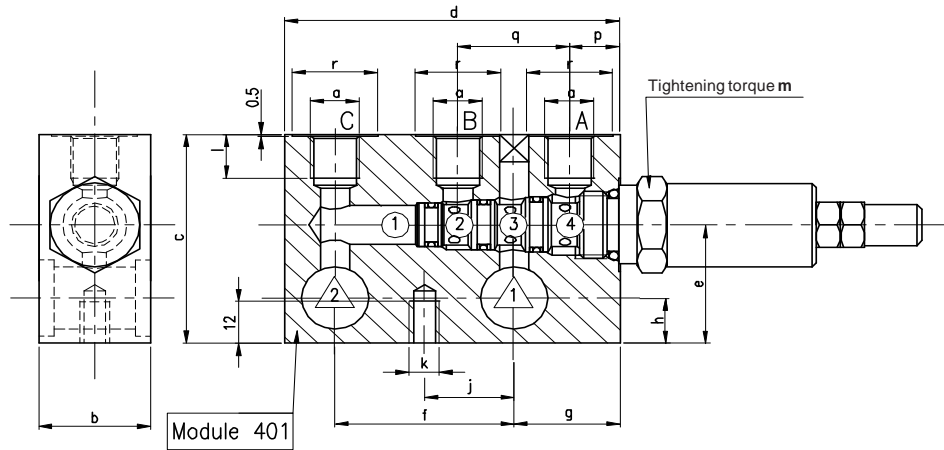
N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T 50 1228

Fluid distribution: see F.T 50 1211 Page 168 / 00
Choice of junction part according to installation diagram. See example: F.T 50 1213 Page 170 / 00

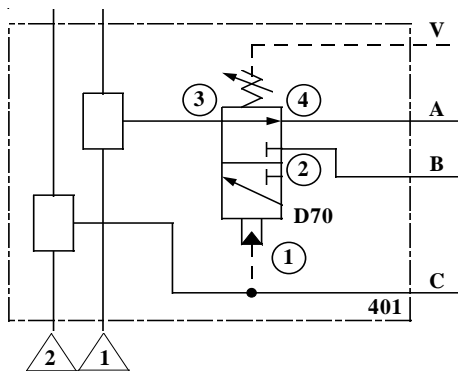
hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION PILOT SPOOL VALVE 3 WAYS with SIDE BY SIDE MODULES 401 SIZE 10



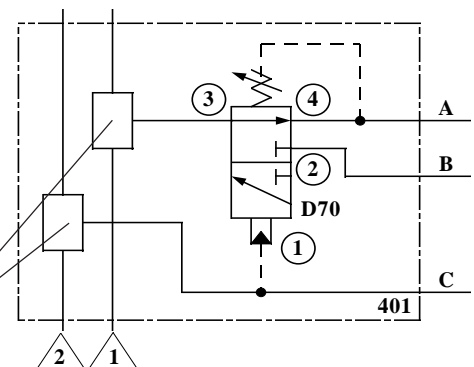
Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	p	q	r	Weight in Kg*
40	10	3/8" G	75	300	40	70	105	38	54	33	15	27	M 8	12	30Nm		18	32.5	26	1

*Weight with valve, without distribution junction part



EXTERNAL DRAINING

Distribution junction parts
see F.T 50 1213 Page 170 / 00



INTERNAL DRAINING

Cartridges characteristics:

Size 10 F.T 50 1148 Page 083 / 00

Codification C H D 10 D70 P 2 A 0 N 401 — Module MBS®

Size code
10= Module 40

Function code

Standard

Version
P= Hydraulic

Disposition
1= fixed setting
2= screw control

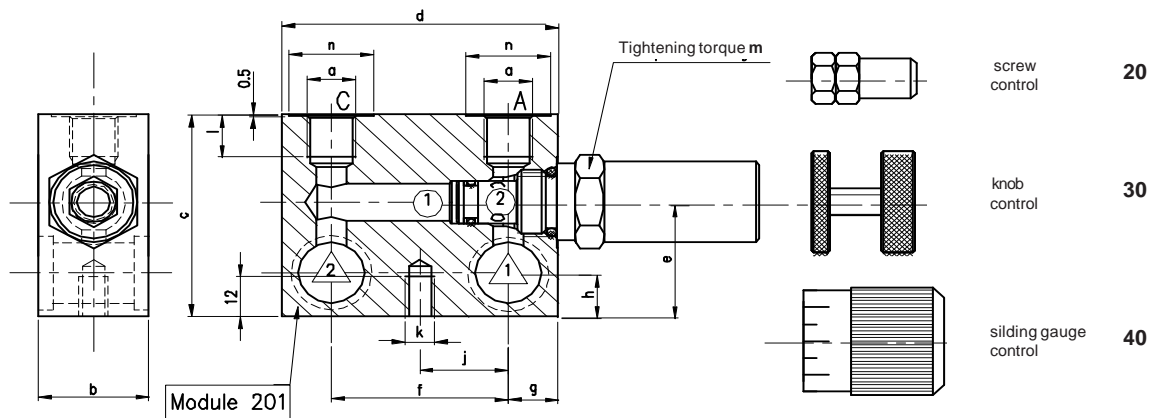
Draining
A= External
B= Internal

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

hydraulic Modular Block System " MBS® "

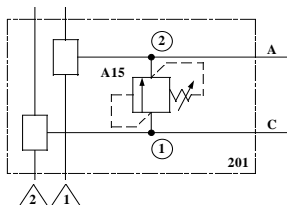
FUNCTIONS COMPOSITION

RELIEF VALVES 2 WAYS with SIDE BY SIDE MODULE 201 SIZES 58 - 10 - 16



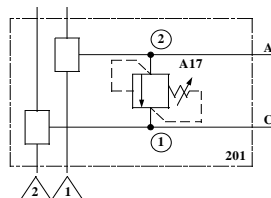
Module	Taille	a Orifices	débit Maxi l/mn	Pression Maxi bar	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	Weight in Kg*
30	58	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	26	0,5
40	10	1/2" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm	30	0,7
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	36	1,8

*Weight with relief valve, without distribution junction part



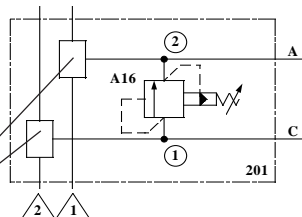
Direct-acting poppet relief valve

A15



Inverted differential direct-acting relief valve

A17



Pilot spool relief valve

A16

Distribution junction parts see F.T 50 1213 Page 170/00

Cartridges characteristics:

A15-A17
Sizes 58 - 10
F.T 50 1151 Page 087 / 00

A16
Sizes 58 - 10 - 16
Fixed: F.T
Adjustable: F.T 50 1152 Page 089 / 00

Codification C M P 10 A15 C 2 A 0 N 201 — Module MBS®

Size code

58= Module 30
10= Module 40
16= Module 50

Function code

Standard

Control mode

2= screw control: A15-A16-A17
3= knob control: A16
4= sliding gauge control: A16

Standard

Particularities

A= spring 5-150 bar max
B= spring 50-300 bar max
C= spring 150 (or less) to 350 bar maxi

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

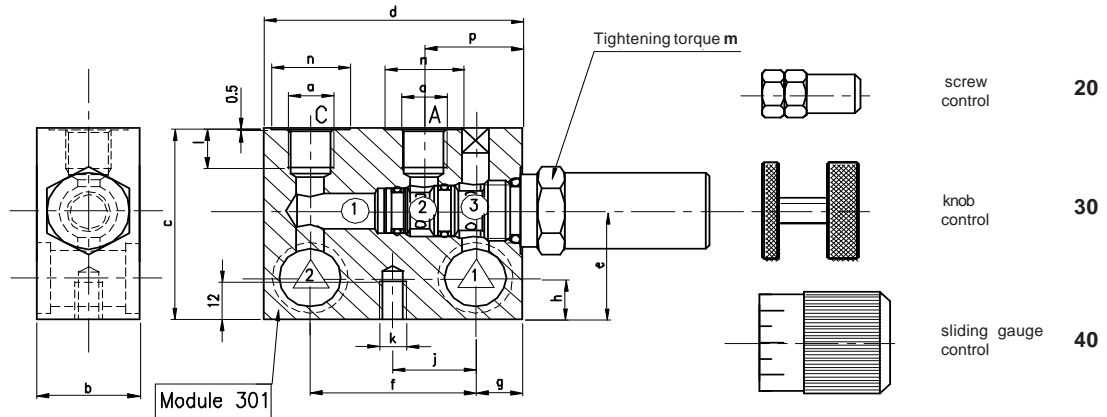
F.T 50 1230

Fluid distribution: see F.T 50 1211 Page 168 / 00
Choice of junction part according to installation diagram. See example: F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

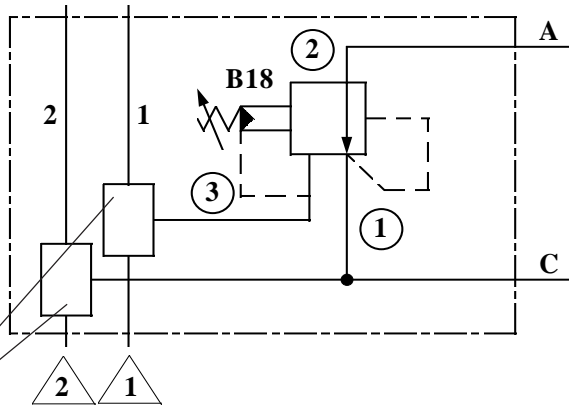
FUNCTIONS COMPOSITION

PRESSURE REDUCING VALVE 2 WAYS with SIDE BY SIDE MODULE 301 SIZES 08 - 10 - 16



Module	Size	a Ports	Maxflow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	p	Weight in Kg*
30	08	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	26	28,5	0,5
40	10	3/8" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm	26	34,5	0,7
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	36	53,5	1,9

*Weight with relief valve, without distribution junction part



Distribution junction parts
see F.T 50 1213 Page 170/00

Cartridges characteristics:

Sizes 08 - 10 - 16
F.T 50 1154 Page 093 / 00

Codification

C H P 10 B18 T 20 A N 301 — Module MBS®

Size code

08= Module 30
10= Module 40
16= Module 50

Function code

B18= pressure reducing valve

T= spool

Control mode

20= screw
21= screw with plumbing
30= wheel
40= sliding gauge

Particularities

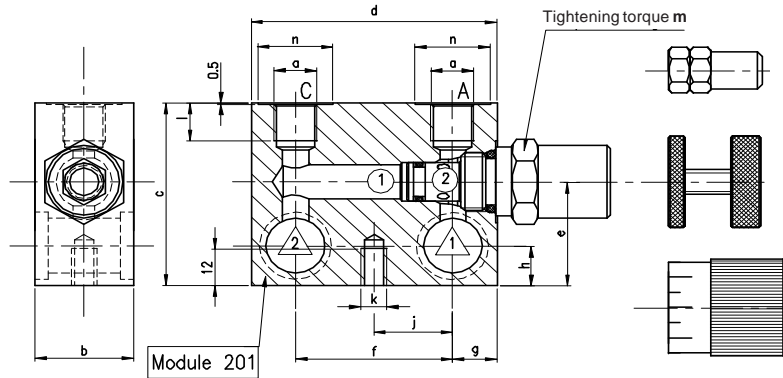
A= spring 10 -150 bar
B= spring 25 - 250 bar

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION

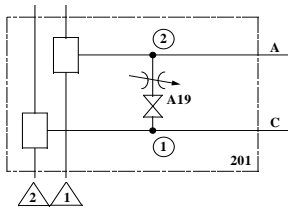
FLOW CONTROL VALVES 2 WAYS with SIDE BY SIDE MODULE 201 SIZES 58 - 10 - 16



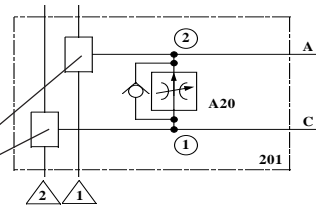
- Fixed adjustment **10**
- screw control **20**
- knob control **30**
- sliding gauge control **40**

Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	Weight in Kg*
30	58	3/8" G	5 - 20	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	26	0,5
40	10	1/2" G	10 - 40	300	40	70	90	38	54	18	15	27	M 8	12	30Nm	30	0,7
50	16	3/4" G	20 - 100	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	36	1,8

*Weight with relief valve, without distribution junction part

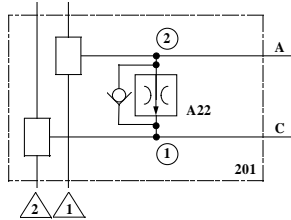


needle valve
A19



Compensated fixed or adjustable flow control valve
A20T (all sizes)
or
A20X (T10 only)

Distribution junction parts see F.T.501213 Page 170/00



Fixed inverted compensated flow control valve
A22

Cartridges characteristics:

A19 Sizes 58 - 10 - 16
F.T 50 1158 Page 097 / 00

A20T Sizes 58 - 10 - 16
Fixed: F.T 50 1159 Page 098 / 00
Adjustable: F.T 50 1160 Page 100 / 00

A20X Size 10
Adjustable: F.T 50 1161 Page 102 / 00

A22 Sizes 58 - 10 - 16
F.T 50 1162 Page 104 / 00

Codification

C M F 10 A19 T 20 0 N 201 — Module MBS®

Size code

58= Module 30
10= Module 40
16= Module 50

Function code

Standard

Code

C= poppet flow control valve
T= A20 - by ranges
X= A20-T10 only

Control code

10= fixed
15= screw (A19 only)
20= screw and nut
30= wheel
40= sliding gauge (except A19)
50= star wheel (A19 only)

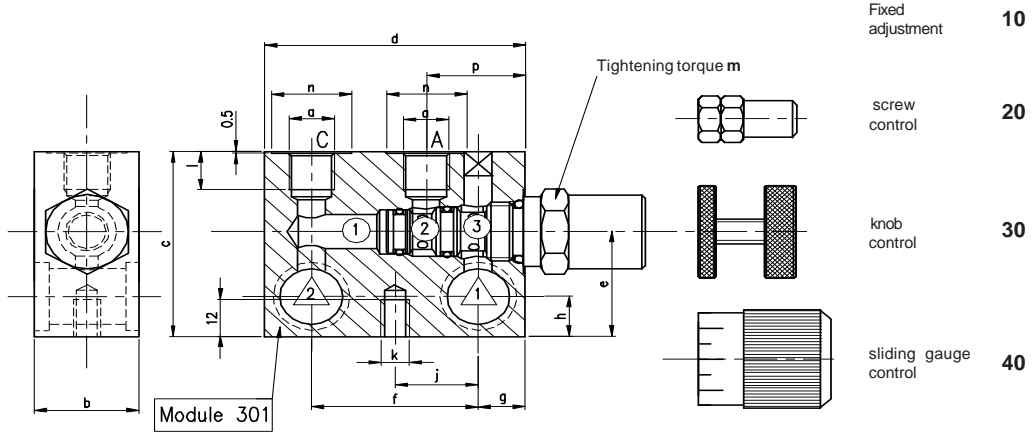
N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

F.T. 50 1232

hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION

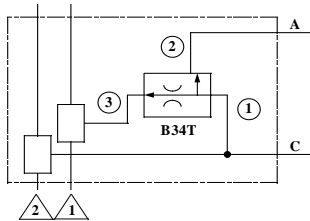
FLOW DIVIDER 3 WAYS with PRIORITY FLOW and SIDE BY SIDE MODULE 301 SIZES 08 - 10 - 16



Module	Size	a Ports	Max flow l/mn Intake	Max flow l/mn regulated	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	p	Weight in Kg*
30	08	3/8" G	25	12	300	30	60	75	34	48	13,5	13	24	M 8	12	20Nm	26	28,5	0,5
30	16	1/2" G	*		300	40	70	105	39	48	30,5	13	24	M 8	16	60Nm	30	53,5	1,4
40	10	3/8" G	60	35	300	40	70	90	38	54	18	15	27	M 8	12	30Nm	26	34,5	0,9
50	16	3/4" G	100	60	300	50	100	130	53	80	25	18	40	M 8	19	60Nm	36	53,5	2,2

* Max flow: 80 l/mn on port C
30 l/mn on line 2

* Weight with valve, without distribution junction part



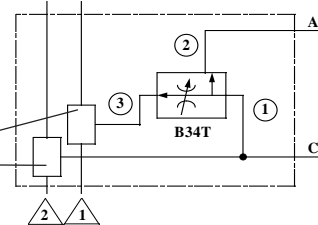
Flow divider with priority flow
Fixed adjustment

B34 T

Distribution junction parts
see F.T 50 1213 Page 170 / 00

CMF 08 B34 T10 O N
CMF 10 B34 T10 O N
CMF 16 B34 T10 O N

- ① Flow intake
- ② Excess flow
- ③ Regulated priority flow



Flow divider with priority flow
Adjustment by ranges
Regulated flow increase by screwing

B34 T

CMF_ B34 T20 O N (screw control)
CMF_ B34 T30 O N (wheel control)
CMF_ B34 T40 O N (sliding gauge control)

Max intake flow:

Size 08=25 l/mn
Size 10 - code 1 = 40 l/mn
Size 10 - code 2 = 60 l/mn
Size 16=100 l/mn

Max regulated flow:

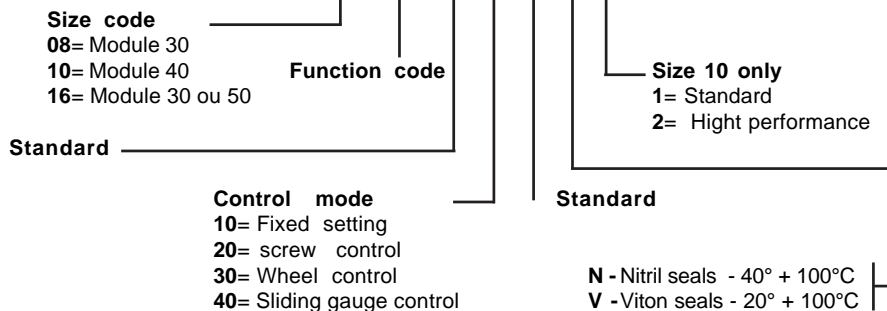
Size 08=12 l/mn
Size 10 - code 1 = 20 l/mn
Size 10 - code 2 = 35 l/mn
Size 16=60 l/mn

Cartridges characteristics:

Sizes 08 - 10 - 16

Fixes: F.T 50 1163 Page 105 / 00
Adjustable: F.T 50 1164 Page 106 / 00

Codification C M F 10 B34 T 20 0 N 1 301 — Module MBS®



F.T 50 1233

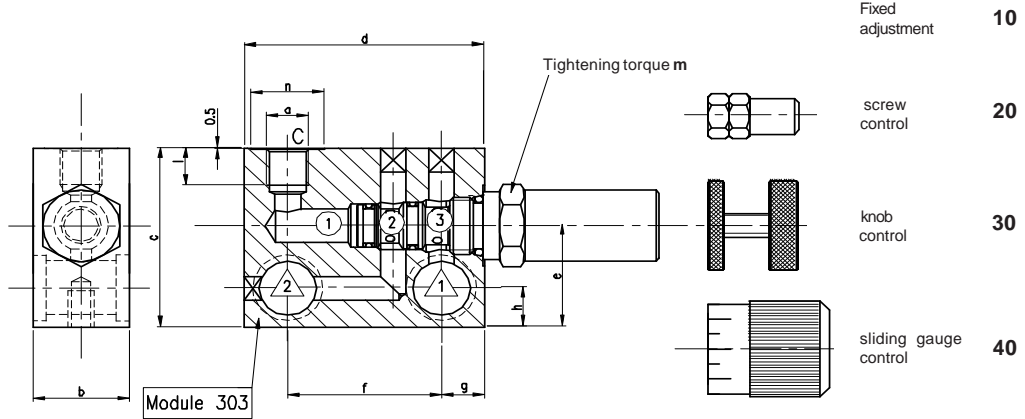
Fluid distribution: see F.T 50 1211 Page 168 / 00

Choice of junction part according to installation diagram. See example: F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

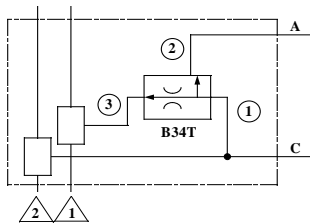
FUNCTIONS COMPOSITION

FLOW DIVIDER 3 WAYS with PRIORITY FLOW and SIDE BY SIDE MODULE 303 SIZES 08 - 10 - 16



Module	Size	a Ports	Max flow intake l/mn	Max flow regulated l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	p	Weight in Kg*
30	08	3/8" G	25	12	300	30	60	75	34	48	13,5	13			12	20Nm	26		0,5
30	10	3/8" G	60	35	300	30	60	75	34	48	13,5	13			12	30Nm	30		0,7
30	16	1/2" G	100	60	300	40	70	105	39	48	30,5	13			16	60 Nm	30		1,4
40	10	1/2" G	60	35	300	40	70	90	38	54	18	15			16	30Nm	30		0,9
40	16	1/2" G	100	60	300	40	70	90	41	54	18	15			16	60Nm	36		1,2
50	16	3/4" G	100	60	300	50	100	130	53	80	25	18			19	60 Nm	36		2,2

*Weight with valve, without distribution junction part



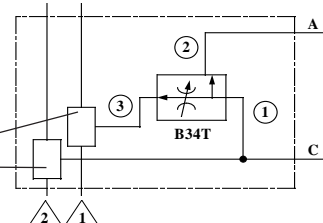
Flow divider with priority flow
Fixed adjustment

B34 T

Distribution junction parts
see F.T 50 1213 Page 170/00

CMF 08 B34 T10 O N
CMF 10 B34 T10 O N
CMF 16 B34 T10 O N

- ① Flow intake
- ② Excess flow
- ③ Regulated priority flow



Flow divider with priority flow
Adjustment by ranges
Regulated flow increase
by screwing

B34 T

CMF_ B34 T20 O N (screw control)
CMF_ B34 T30 O N (wheel control)
CMF_ B34 T40 O N (sliding gauge control)

Max intake flow:

Size 08= 25 l/mn
Size 10 - code 1 = 40 l/mn
Size 10 - code 2 = 60 l/mn
Size 16= 100 l/mn

Max regulated flow:

Size 08= 12 l/mn
Size 10 - code 1 = 20 l/mn
Size 10 - code 2 = 35 l/mn
Size 16= 60 l/mn

Cartridges characteristics:

Sizes 08 - 10 - 16

Fixed: F.T 50 1163 Page 105 / 00
Adjustable: F.T 50 1164 Page 106 / 00

Codification

C M F 10 B34 T 20 0 N 1 303 — Module MBS®

Size code

08= Module 30
10= Module 30 or 40
16= Module 30-40 or 50

Function code

Standard

Control mode

10= fixed setting
20= screw control
30= wheel control
40= sliding gauge control

Standard

Size 10 only

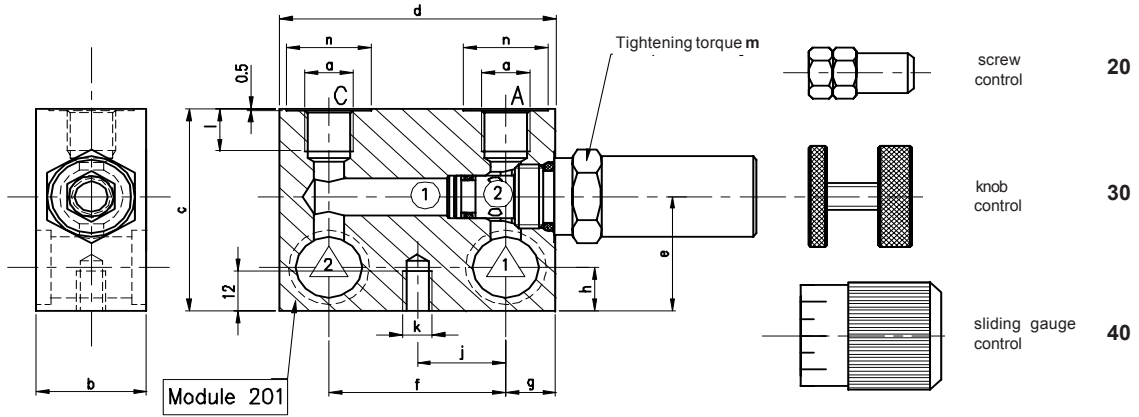
1= Standard
2= High performance

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION

FLOW DIVIDER 3 WAYS with PRIORITY FLOW and SIDE BY SIDE MODULE 303 SIZE 10

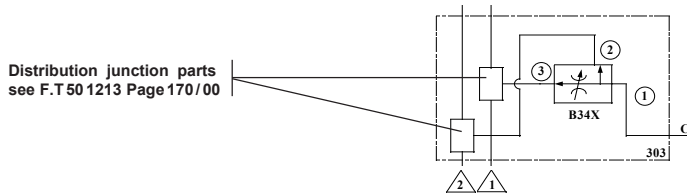


Module	Size	a Ports	Max flow l/mn Intake	Max flow l/mn regulated	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	p	Weight in Kg*
30	10	3/8" G	60	35	300	30	60	75	34	48	13,5	13			12	30Nm	30		0,7
40	10	1/2" G	60	35	300	40	70	90	38	54	18	15			16	30Nm	30		0,9

*Weight with valve, without distribution junction part

Flow divider with adjustable priority flow
Regulation 0,5 to 40 l/mn
Regulated flow increase by screwing off

B34 X



- ① Flow intake
- ② Excess flow
- ③ Regulated priority flow

- CMF 10 B34 X20 O N (screw control)
- CMF 10 B34 X30 O N (wheel control)
- CMF 10 B34 X40 O N (sliding gauge control)

Max intake flow: 60 l/mn

Max regulated flow: 40 l/mn

Cartridges characteristics:

Size 10
Adjustable: F.T 50 1166 Page 108 / 00

Codification C M F 10 B34 X 20 O N 303 — Module MBS®

Size code
10= 7/8" 14 UNF 2B

Function code

Standard

Control mode
20= screw control
30= wheel control
40= sliding gauge control

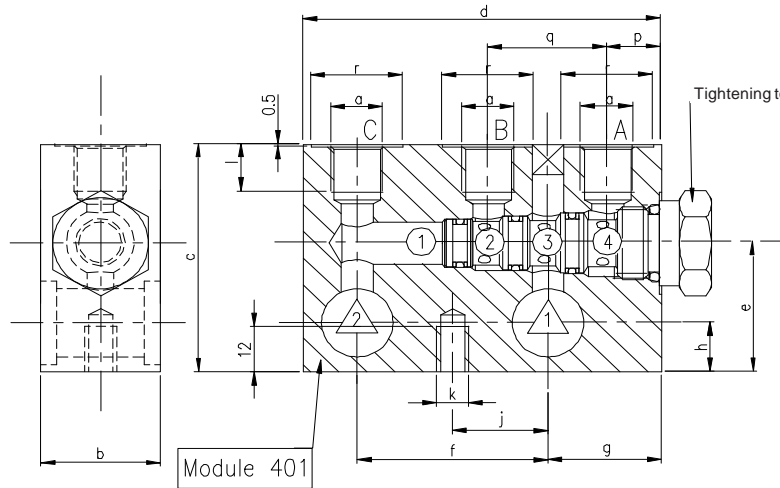
Regulation range

O= 0,5 - 40 l/mn
A= 0,5 - 15 l/mn
B= 0,5 - 20 l/mn
C= 0,5 - 25 l/mn

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

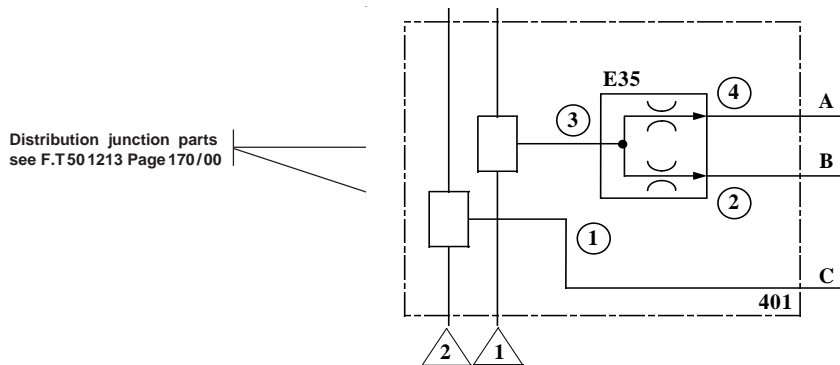
hydraulic Modular Block System " MBS® "

FUNCTIONS COMPOSITION FLOW DIVIDER 4 WAYS with SIDE BY SYDE MODULE 401 SIZES 10 - 16



Module	Size	a Ports	Max flow l/mn	Max pressure	b	c	d	e	f	g	h	j	k	l	m Tight. torque	n	p	q	r	Weight in Kg*
40	10	3/8" G	10 - 40	300	40	70	105	38	54	33	15	27	M8	12	30Nm		18	32,5	26	1
50	16	3/4" G	20 - 100	300	50	100	159	53	80	54	18	40	M8	19	60Nm		25	57	36	2,5

* Weight with flow divider, without distribution junction part



Cartridges characteristics:

Sizes 10 - 16
F.T 50 1167 Page 110 / 00

Codification C H F 10 E35 A 20 O N 401 — Module MBS®

Size code
10= Module 40
16= Module 50

Function code

Standard

Version
A= equal divisions

Standard

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 100°C

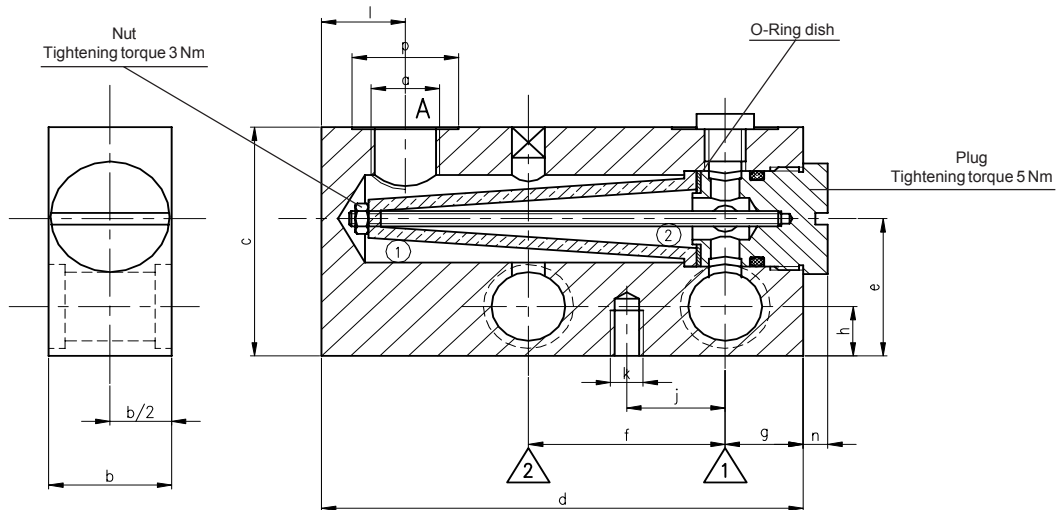
F.T 50 1235

Fluid distribution: see F.T 50 1211 Page 168 / 00
Choice of junction part according to installation diagram. See example: F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

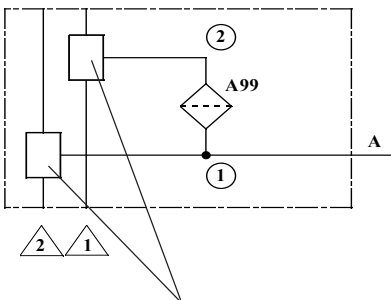
FUNCTIONS COMPOSITION

FILTER CARTRIDGE with SIDE BY SIDE MODULE 221 Maximum pressure 300 bar



Module	a Ports	b	c	d	e	f	g	h	j	k	l	m	n	p	Weight in Kg*
30	3/8" G	30	60	118	36	48	20	13	24	M8	20		5	26	0,5

Outflow direction



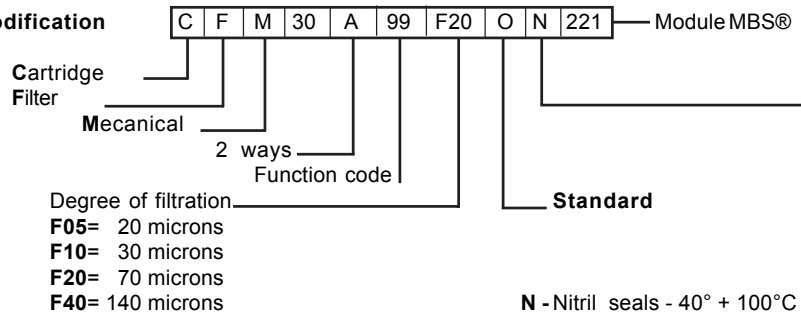
Distribution junction parts
see F.T 50 1213 Page 170/00

Ref. Filter cartridge only	300 782	300 783	300 784	300 785
POWER FILTRATION				
Designation	A99 F05	A99 F10	A99 F20	A99 F40
Class	05	10	20	40
Particles filtration threshold	%	efficiency	%	efficiency
		μ		μ
	99,9	22	99,9	39
	98	17	98	30
	55	10	85	20
		12	30	10
		30	10	60
Max flow l/mn	5	10	25	35

Executed measures:

- Ambient temperature: 22 °C ± 2 °C
- Oil temperature: à 40 °C
- Oil: SHELL Tellus T46
- Viscosity 46 cSt at 50 °C

Codification



Characteristics: see overleaf

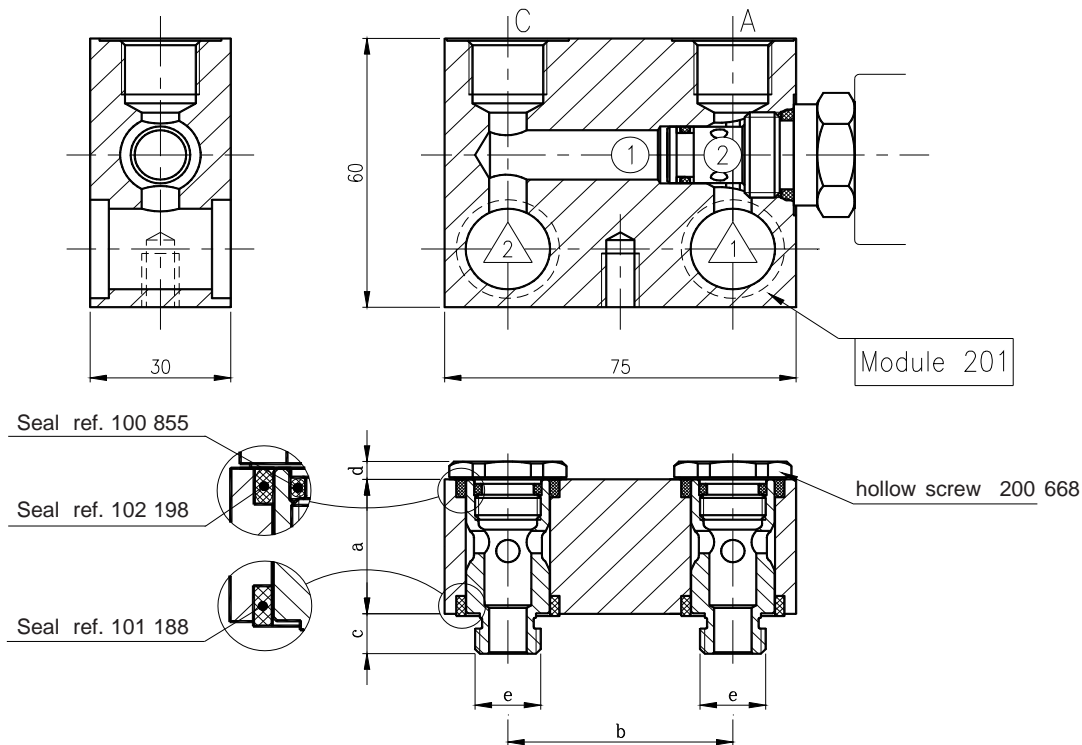
Fluid distribution: see F.T 50 1211 Page 168 / 00

Choice of junction part according to installation diagram. See example: F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

MOUNTING on BASE PLATE

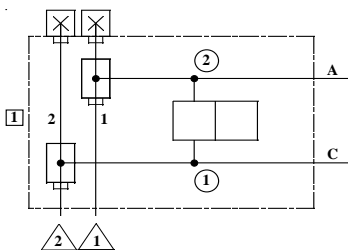
201 MODULE with FIXING HOLLOW SCREW for 2 WAYS FUNCTION



Module	Ports A and C	Hollow screw designation	Hollow screw reference	a	b	c	d	e
30	3/8" G	V30AM1	200 668 (including seals)	30	48	8,9	4	M 14 x 1,5

Diagram example:

2 ways - 2 positions



To order:

1 MBS® 201 module according to below reference:

- ⇒ Size 58 - M 18 x 1,50 - 58M30201 - N° 100 766
- ⇒ Size 08 - 3/4" 16 UNF - 08M30201 - N° 100 688
- ⇒ Size 10 - 7/8" 14 UNF - 10M30201 - N° 101 021

2 hollow screws N° 200 668

1 cartridge function 2/2 (see programme JTEKT-HPI booklet MBS® 399F)

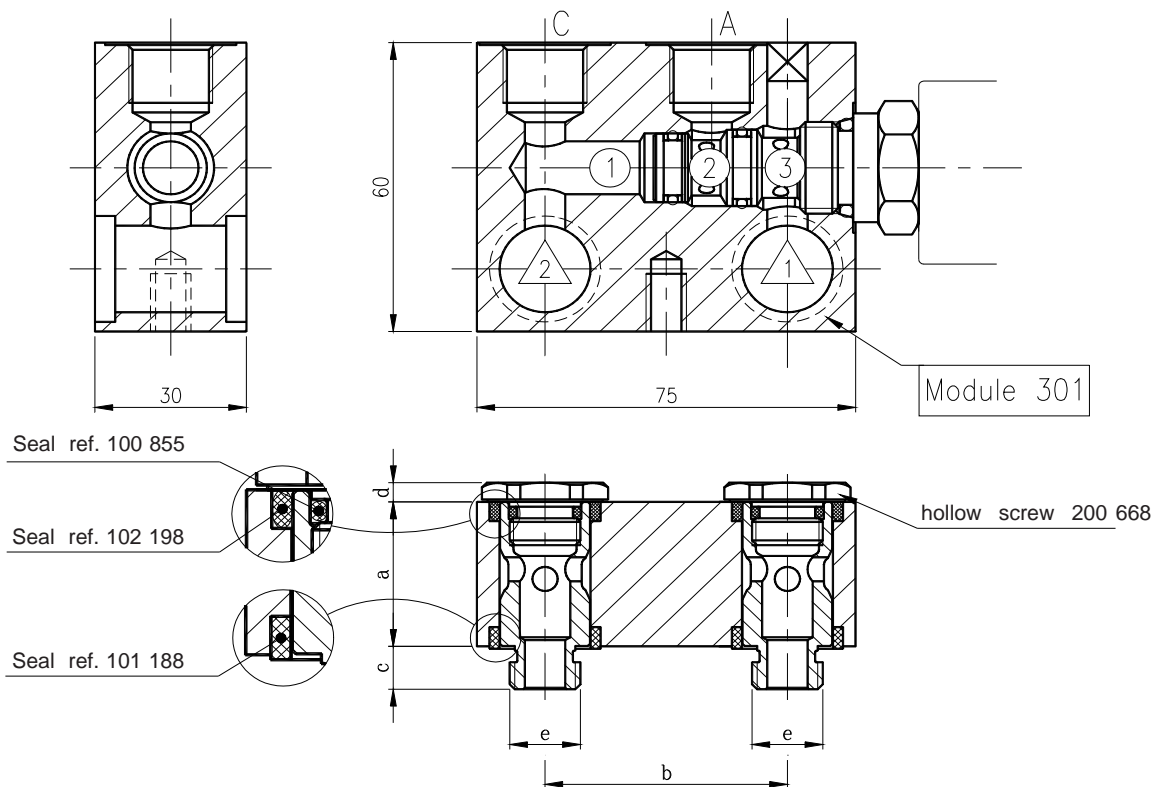
Fluid distribution: see F.T 50 1211 Page 168 / 00

Assembling: see F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

MOUNTING on BASE PLATE

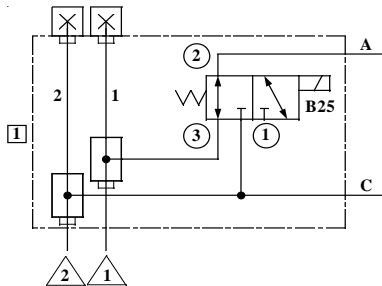
301 MODULE with FIXING HOLLOW SCREW for 3 WAYS FUNCTION



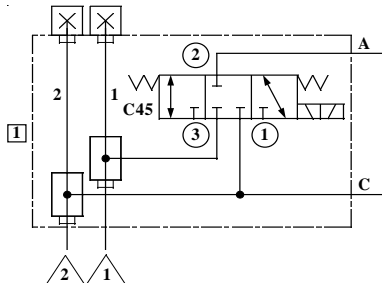
Module	Ports A and C	Hollow screw designation	Hollow screw reference	a	b	c	d	e
30	3/8" G	V30AM1	200 668 (including seals)	30	48	8,9	4	M 14 x 1,5

Diagram example:

3 ways - 2 positions



3 ways - 3 positions



To order:

1 MBS® 301 module according to bellow reference:

- ⇒ Size 08 - 3/4" 16 UNF - 08M30301 - N° 100 789
- ⇒ Size 10 - 7/8" 14 UNF - 10M30301 - N° 101 022

2 hollow screws N° 200 668

1 cartridge function 3/2 ou 3/3 (see programme JTEKT-HPI booklet MBS® 399F)

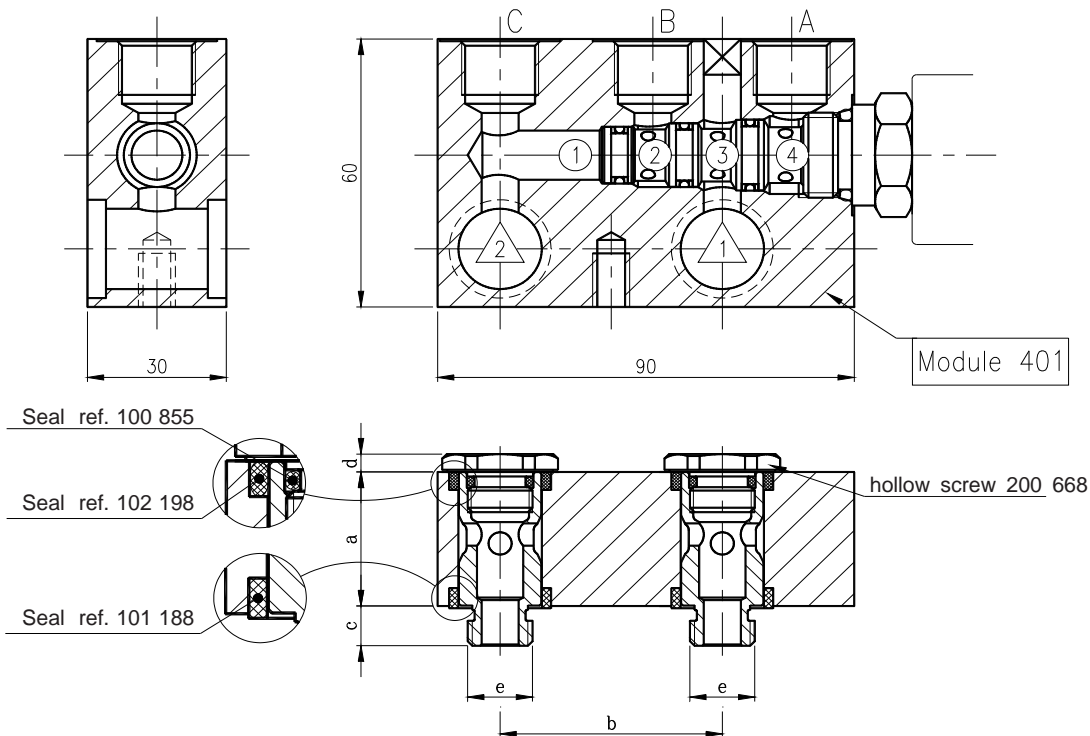
Fluid distribution: see F.T 50 1211 Page 168 / 00

Assembling: see F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

MOUNTING on BASE PLATE

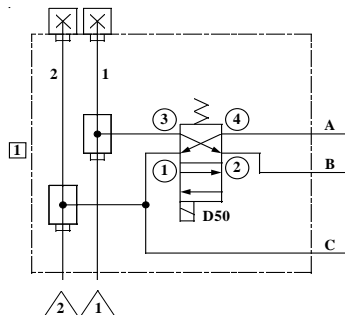
401 MODULE with FIXING HOLLOW SCREW for 4 WAYS FUNCTION



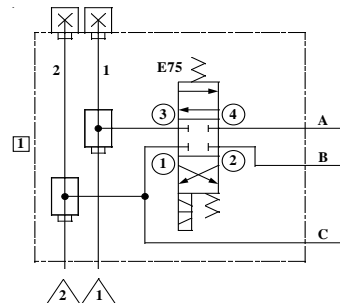
Module	Ports A and C	Hollow screw designation	Hollow screw reference	a	b	c	d	e
30	3/8" G	V30AM1	200 668 (including seals)	30	48	8,9	4	M 14 x 1,5

Diagram examples:

3 ways - 2 positions



3 ways - 3 positions



To order:

1 MBS® 401 module according to the bellow reference:

- ⇒ Size 08 - 3/4" 16 UNF - 08M30401 - N° 100 690
- ⇒ Size 10 - 7/8" 14 UNF - 10M30401 - N° 101 023

2 hollow screw N° 200 668

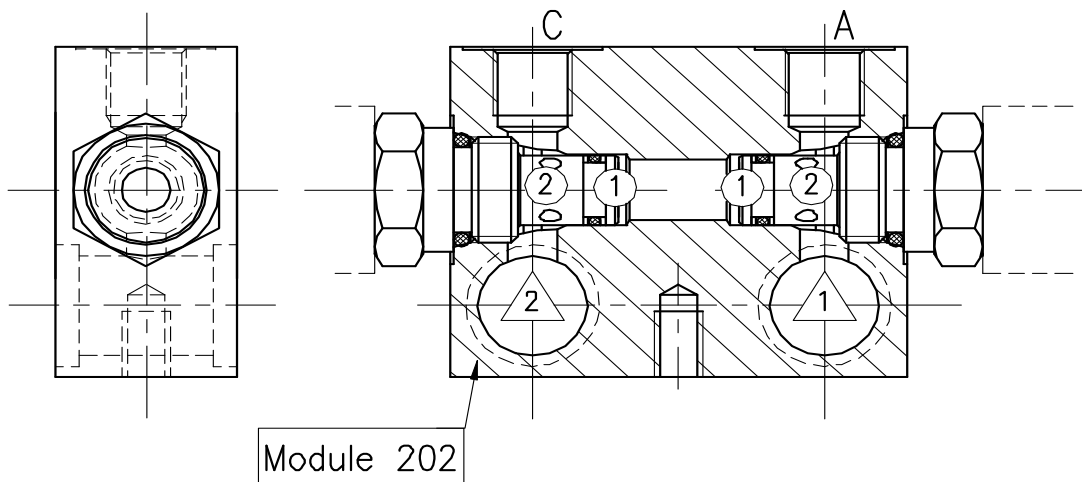
1 cartridgee function 4/2 ou 4/3 (see programme JTEKT-HPI booklet MBS® 399F)

Fluid distribution: see F.T 50 1211 Page 168 / 00

Assembling: see F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

MODULE DOUBLE FUNCTION 2 + 2 WAYS 2 PORTS SUPPLY



In addition to module 201 - Pages 175-176-186-190- and 192

The module 202 can receive indifferently on both sides 2 ways function:

- | | |
|---|-----------------------|
| - Pilot poppet solenoid valve | A03 - A04 - A05 - A06 |
| - Spool solenoid valve | A01 - A03 |
| - Solenoid valves bi-directional bi-tight | A07 - A08 |
| - Poppet check valves | A12 - A13 |
| - Lock valve | A14 |
| - relief valves | A15 - A16 - A17 |
| - Flow control valves | A19 - A20 - A22 - A44 |

See Production Selection Guide - Pages 04 / 000 and 05 / 000

Codification: Function code + function code + 202

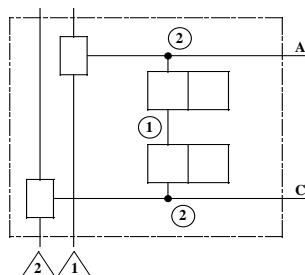
Composition example with 2 poppet solenoid valves bi directional, bi-tight size 10:

CED 10 A07 B2A O N - CED 10 A07 B2A O N - 202

Diagram example:

2 ways - 2 positions

2 ways - 2 positions

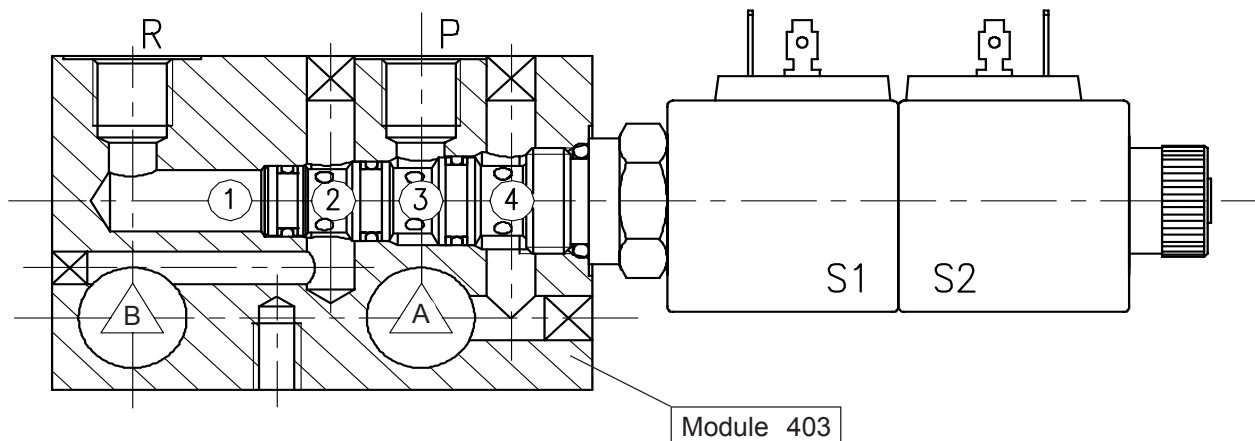


Fluid distribution: see F.T 50 1211 Page 168 / 00

Assembling: see F.T 50 1213 Page 170 / 00

hydraulic Modular Block System "MBS®"

MODULE 4 WAYS for MOUNTING in BASE PLATE on DOUBLE ACTING CYLINDER



The module 403 can be flanged on double acting cylinder - ports A and B .

The ports P (pressure) and R (return) and threaded on the block.

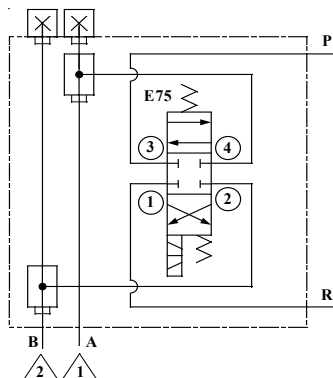
This module receives indifferently on both sides following functions:

- Solenoid valves 4 ways - 2 positions D50 - D51 - D52 - D53 - D54 -
D55 - D56 - D57 - D58 - D59 -
- Solenoid valves 4 ways - 3 positions E75 - E76 - E77 - E78 - E79 -
E80 - E81 - E83

See Production Selection Guide - Pages 004 / 00 and 005 / 00

Diagram example:

4 ways - 3 positions



Fluid distribution: see F.T 50 1211 Page 168 / 00

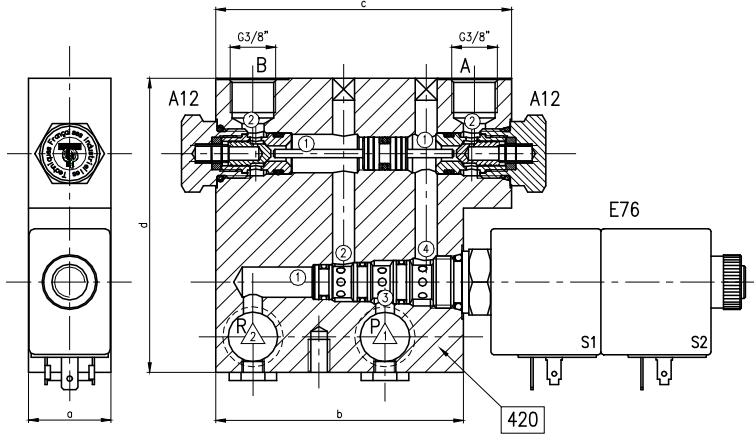
Assembling: see F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

" TWIN-BLOC " ASSEMBLING - SIDE BY SIDE VERSION

TWIN-BLOC 420

Function: Double acting solenoid module 4 ways - 3 positions with pilot poppet check valves on ports A and B.

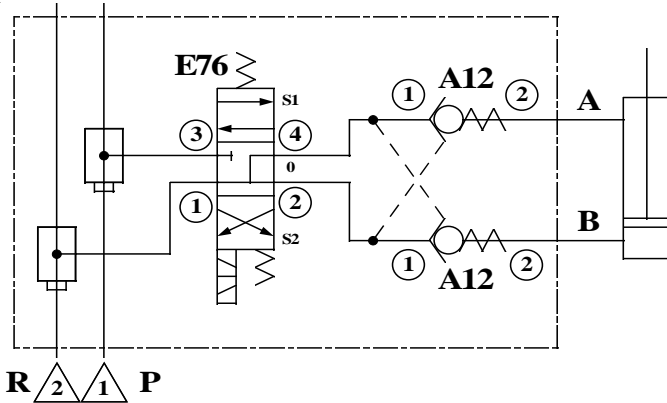


Module	a	b	c	d	Weight in Kg
30	30	90	107,5	100	1,5
40	40	105	126,5	112	2,2

PILOT RATIO:

Module 30: 1/3,51
Module 40: 1/2,25

Pressure intake P in et
Return to tank R in et



Working:

At rest

- Solenoid not energized
- Ports (A) and (B) blocked on pilot poppet check valves.
- P blocked.
- Ports (2) and (4) of the solenoid valve in communication with (1) tank.

Phase 1

- S1 energized P → A
B → R (pilot poppet open)

Phase 2

- S2 energized P → B
A → R (pilot poppet open)

Module 30 Sizes 58 / 08 - Max flow: 20 l/mn
Max pressure: 300 bar

Module 40 Size 10 - Max flow: 40 l/mn
Max pressure: 300 bar

Codification C E D 08 E76 B 8 A O N A12 A12 420 — Twin-bloc

Size code

08 & 58 = module 30
10 = module 40
16 = module 50

Function code

Functions codes

Voltages

A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt RAC
F = 48 Volt RAC
G = 110 Volt RAC
H = 220 Volt RAC

Coil code

Size 08= 7 ou 8 HP
Size 10= 3 ou 5 HP
Size 16= 4 HP

Manual override

O= without
A= screwing off version
B= pushing version
C= pulling version

Connectors

without A = electr. con.6,35 - DIN 43650
B = Kostal
F = leadwires
with L = electr. con.6,35 - DIN 43650
K = Kostal

N - Nitril seals - 40° + 100°C
V - Viton seals - 20° + 150°C

Characteristics:

Spool solenoid valves
Pages 054 / 056

Poppet check valves
Page 076

Assembling junction parts
Page 170

Fluid distribution
Page 168

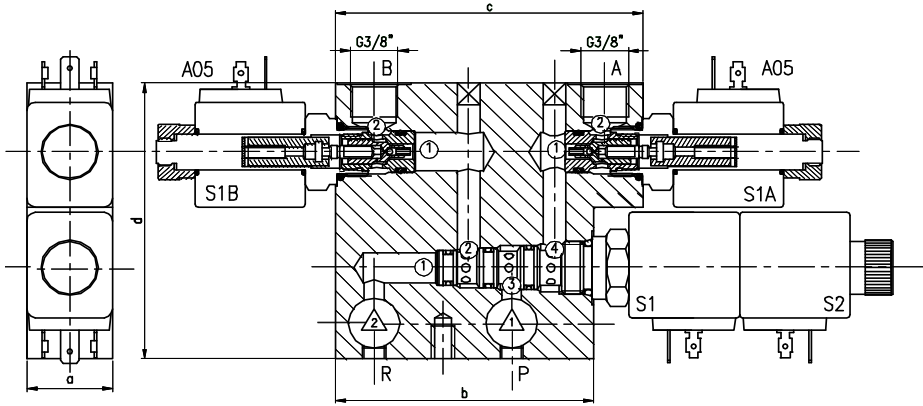
F.T 50 1243

hydraulic Modular Block System " MBS® "

" TWIN-BLOC " ASSEMBLING - SIDE BY SIDE VERSION

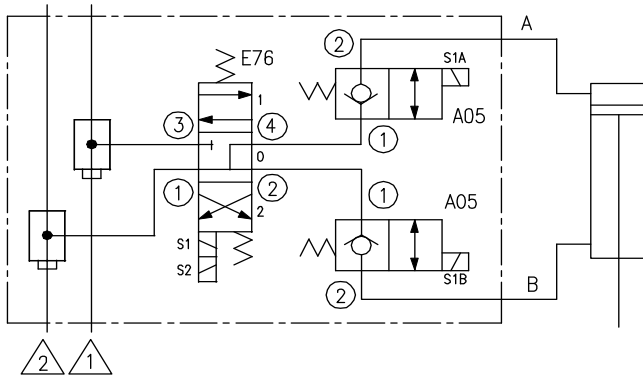
TWIN-BLOC 421

Function: Double acting solenoid module 4 ways - 3 positions with 2 pilot poppet solenoid valves on ports A and B .



Module	a	b	c	d	Weight in Kg
30	30	90	107,5	100	2,2
40	40	105	126,5	112	5

Pressure intake P in and
 Return to tank R in and



Working:

Phase 0 Solenoids not energized
Ports A and B blocked

Phase 1

- S1 energized - S1B energized P → A B → R

Phase 2

- S2 energized - S1A energized P → B A → R

Phase 3

- S1A and S1B energized - S1 and S2 not energized
(float position) A ↔ B ↔ R

Module 30 Sizes 58 / 08 - Max flow: 20 l/mn
Max pressure: 300 bar

Module 40 Size 10 - Max flow: 40 l/mn
Max pressure: 300 bar

Codification C E D 08 E76 B 8 A O N A05 A05 421 —Twin-bloc

Size code

08 & 58 = module 30
10 = module 40
16 = module 50

Function code

Functions codes

Voltages

A = 12 Volt DC
B = 24 Volt DC
E = 24 Volt RAC
F = 48 Volt RAC
G = 110 Volt RAC
H = 220 Volt RAC

Coil code

Size 08= 7 ou 8 HP
Size 10= 3 ou 5 HP
Size 16= 4 HP

Connectors

without A = electr. con.6,35 - DIN 43650
B = Kostal
F = leadwires
with L = electr. con.6,35 - DIN 43650
K = Kostal

Manual override

O= without
A= screwing off version
B= pushing version
C= pulling version

Characteristics:

Spool solenoid valves
Pages 054 / 00 at 056 / 00

Poppet check valves
Page 076 / 00

Assembling junction parts
Page 170 / 00

Fluid distribution
Page 168 / 00

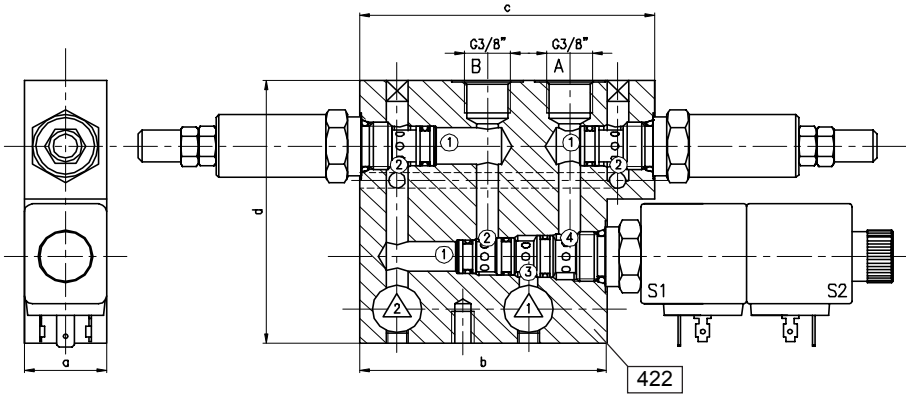
F.T 50 1244

hydraulic Modular Block System "MBS®"

"TWIN-BLOC" ASSEMBLING - SIDE BY SIDE VERSION

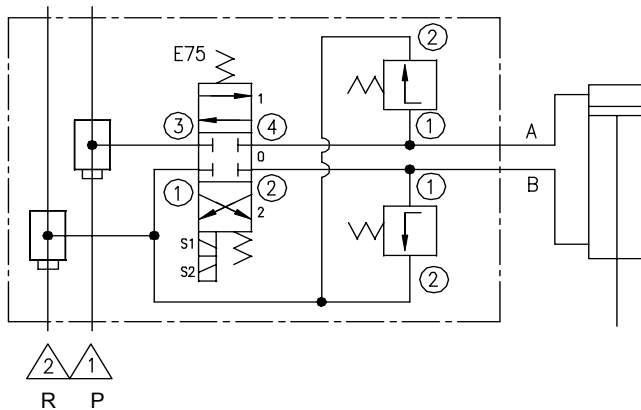
TWIN-BLOC 422

Function: Double acting solenoid module 4 ways - 2 or 3 positions with relief valves on ports A and B. return of relief valves is directed towards the tank.



Module	a	b	c	d	Weight in Kg
30	30	90	107,5	100	1,8
40	40	105	126,5	112	2,6

Pressure intake P in and
 Return to tank R in and



Working:

The solenoid valve 4 ways - 2 positions can receive the functions D50 to D59.

The solenoid valve 4 ways - 3 positions can receive the functions E75 to E83.

(see Production Selection Guide - Page 006 / 00)

The hereafter daigram example is represented with the function E75

At rest

- S1 and S2 not energized A and B blocked
 P blocked

Phase 1

- S1 energized P → A B → R

Phase 2

- S2 energized P → B A → R

Module 30 Sizes 58 / 08 - Max flow: 20 l/mn
 Max pressure: 300 bar

Module 40 Size 10 - Max flow: 40 l/mn
 Max pressure: 300 bar

Codification C E D 08 E76 B 8 A O N A12 A12 422 — Twin-bloc

Size code

08 & 58 = module 30
 10 = module 40
 16 = module 50

Function code

Functions code

Voltages

A = 12 Volt DC
 B = 24 Volt DC
 E = 24 Volt RAC
 F = 48 Volt RAC
 G = 110 Volt RAC
 H = 220 Volt RAC

Coil code

Size 08= 7 ou 8 HP
 Size 10= 3 ou 5 HP
 Size 16= 4 HP

Connectors

without

A = electr. con.6,35 - DIN 43650
 B = Kostal
 F = leadwires
 L = electr. con.6,35 - DIN 43650
 K = Kostal

with

Manual override

O= without
 A= screwing off version
 B= pushing version
 C= pulling version

N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 150°C

Characteristics:

Solenoid valves

Pages 046 / 00 - 048 / 00 -
 054 / 00 - 056 / 00

Relief valves

Page 087 / 00

Assembling junction parts

Page 171 / 00

Fluid distribution

Page 168 / 00

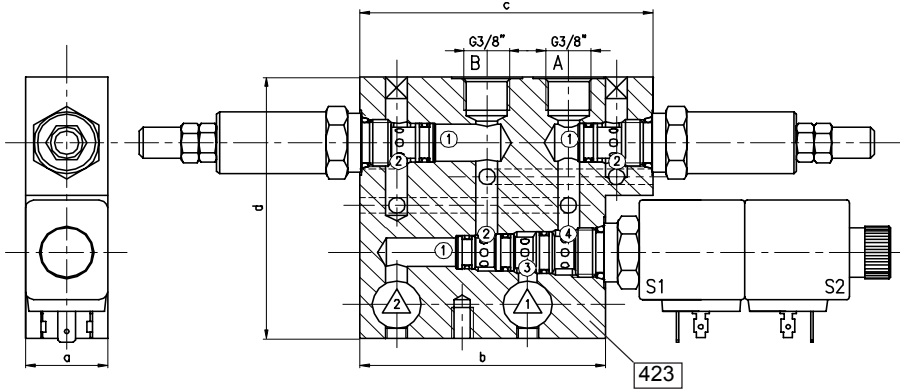
F.T 50 1245

hydraulic Modular Block System "MBS®"

"TWIN-BLOC" ASSEMBLING - SIDE BY SIDE VERSION

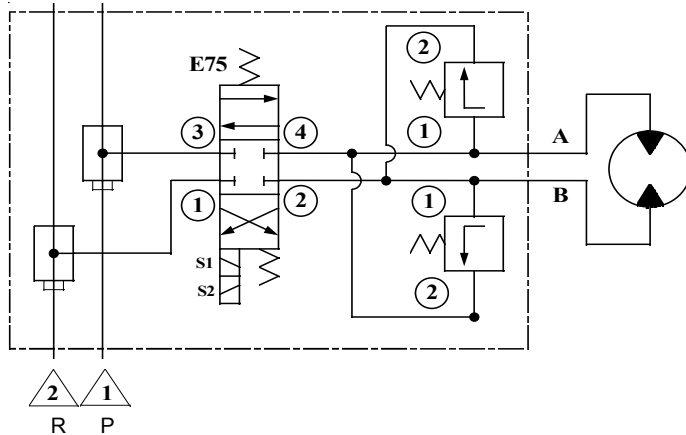
TWIN-BLOC 423

Function: Double acting solenoid module 4 ways - 2 or 3 positions with relief valves on ports A and B. return of each relief valve is executed on cross-over.



Module	a	b	c	d	Weight in Kg
30	30	90	107,5	100	1,8
40	40	105	126,5	112	2,6

Pressure intake P in $\triangle 1$ and $\odot 3$
 Return to tank R in $\odot 1$ and $\triangle 2$



Working:

The solenoid valve 4 ways - 2 positions can receive the functions D50 to D59.

The solenoid valve 4 ways - 3 positions can receive the functions E75 to E80.

(see Production Selection Guide - Page 006 / 00)

The hereafter daigram example is represented with the function E75

At rest

- S1 and S2 not energized A and B blocked
 P blocked

Phase 1

- S1 energized P → A B → R

Phase 2

- S2 energized P → B A → R

Module 30 Sizes 58 / 08 - Max flow: 20 l/mn
 Max pressure: 300 bar

Module 40 Size 10 - Max flow: 40 l/mn
 Max pressure: 300 bar

Codification C E D 08 E75 B 8 A O N A15 A15 423 — Twin-bloc

Size code

08 & 58 = module 30
 10 = module 40
 16 = module 50

Function code

Functions code

Manual override

O= without
 A= screwing off version
 B= pushing version
 C= pulling version

Voltages

A = 12 Volt DC
 B = 24 Volt DC
 E = 24 Volt RAC
 F = 48 Volt RAC
 G = 110 Volt RAC
 H = 220 Volt RAC

Coil code

Size 08= 7 ou 8 HP
 Size 10= 3 ou 5 HP
 Size 16= 4 HP

Connectors

without A = electr. con.6,35 - DIN 43650
 B = Kostal
 F=leadwires
with L = electr. con.6,35 - DIN 43650
 K = Kostal

N - Nitril seals - 40° + 100°C
 V - Viton seals - 20° + 150°C

Characteristics:

Solenoid valves

Pages 046 / 00 - 048 / 00 -
 054 / 00 - 056 / 00

Relief valves

Page 087 / 00

Assembling junction parts

Page 171 / 00

Fluid distribution

Page 168 / 00

F.T 50 1246

hydraulic Modular Block System " MBS® "

OVERPRESSURE BLOCK Module 30

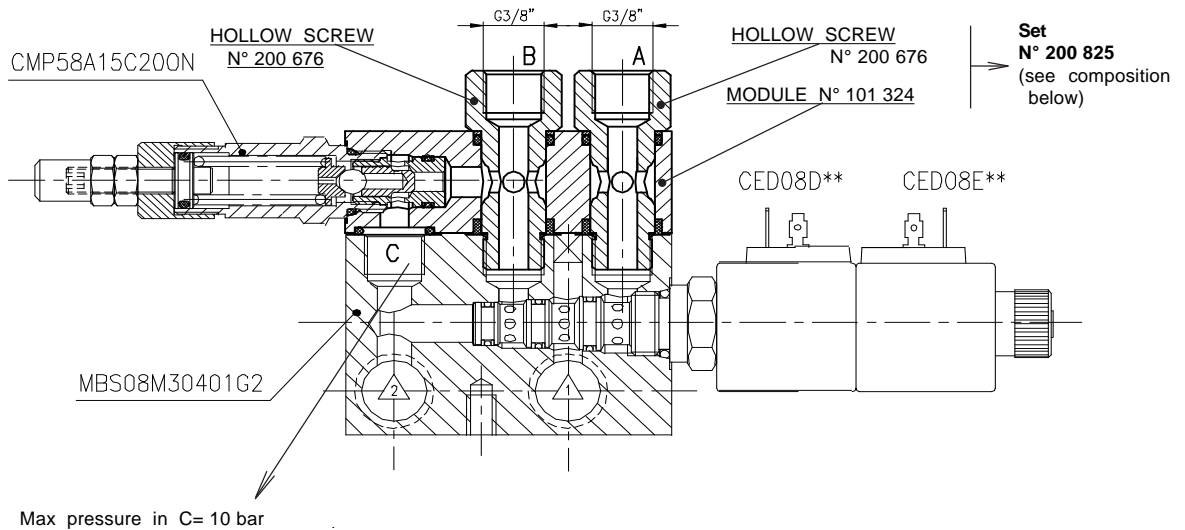
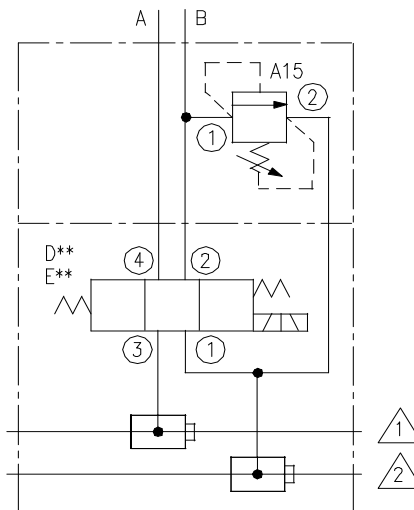


Diagram:



Composition of a set N° 400 242

- a) 1 stacking module N° 101 324
- b) 2 hollow screw N° 200 676 equipped with corresponding seals

(Hollow screw only, without seal: N° 101 323)

Cartridges characteristics:

Relief valves	CMP 58 A15 C21 O N	F.T 50 1151 - Page 087 / 00
Solenoid valves 4/2	CED 08 D50 to D60 O N	F.T 50 1122 - Page 046 / 00
solenoid valves 4/3	CED 08 E75 to E83 O N	F.T 50 1126 - Page 054 / 00

Module characteristics MBS® 08 M30 401

Stacking module which can receive following functions:

Ressupply poppet	A13	F.T 50 1144 - Page 076 / 00
Lock valve	A14	F.T 50 1143 - Page 075 / 00
Hydraulic flow control valve	A16	F.T 50 1152 - Page 089 / 00
Not compensated flow control valve	A19	F.T 50 1158 - Page 097 / 00
Compensated flow control	A20	F.T 50 1159 & F.T 50 1160 - Pages 098 / 00 & 100 / 00
Spool solenoid valve 2/2	A01-A02	F.T 50 1101 - Page 008 / 00
Spool solenoid valve 2/2	A07-A08	F.T 50 1104 - Page 014 / 00

Fluid distribution: see F.T 50 1211 Page 168 / 00

Choice of junction part according to installation diagram. See example: F.T 50 1213 Page 170 / 00

hydraulic Modular Block System " MBS® "

OVERPRESSURE BLOCK Module 40

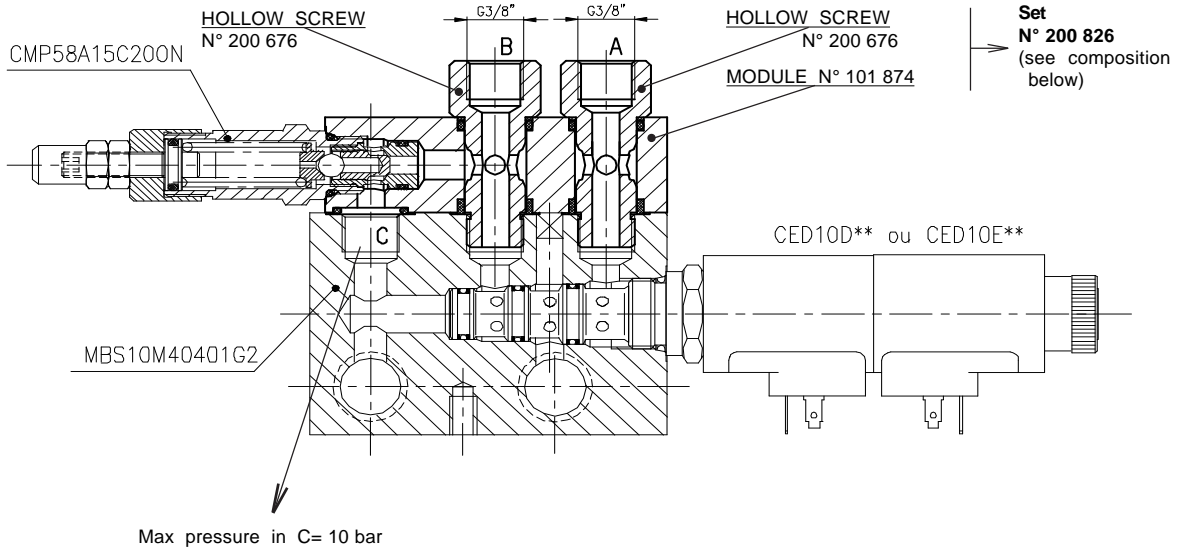
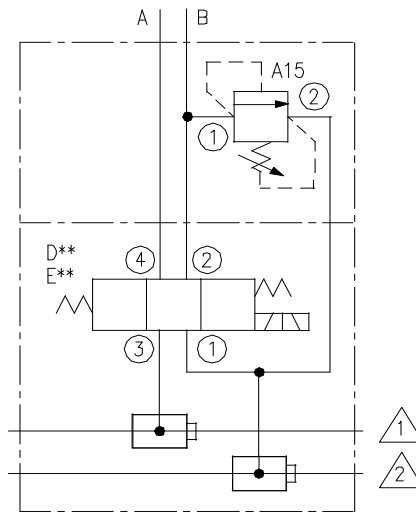


Diagram:



Composition of a set N° 400 243

- a) 1 stacking module N° 101 874
 - b) 2 hollow screw N° 200 676 equipped with corresponding seals
- (Hollow screw only, without seal: N° 101 323)

Cartridges characteristics:

Relief valve	CMP 58 A15 C20 O N	F.T 50 1151 - Page 087 / 00
Solenoid valves 4/2	CED 08 D50 to D60 O N	F.T 50 1122 - Page 046 / 00
Solenoid valves 4/3	CED 08 E75 to E83 O N	F.T 50 1126 - Page 054 / 00

Module characteristics MBS® 10 M40 401

Stacking module which can receive following functions:

Ressuply poppet	A13	F.T 50 1144 - Page 076 / 00
Lock valve	A14	F.T 50 1143 - Page 075 / 00
Hydraulic flow control valve	A16	F.T 50 1152 - Page 089 / 00
Not compensated flow control valve	A19	F.T 50 1158 - Page 097 / 00
Compensated flow control valve	A20	F.T 50 1159 & F.T 50 1160 - Pages 098 / 00 & 100 / 00
Spool solenoid valves 2/2	A01-A02	F.T 50 1101 - Page 008 / 00
Poppet solenoid valves 2/2	A07-A08	F.T 50 1104 - Page 014 / 00

Fluid distribution: see F.T 50 1211 Page 168 / 00
Choice of junction part according to installation diagram. See example: F.T 50 1213 - Page 170 / 00

INSTALLATION of " MBS®" BLOCKS

All blocks are ready to operated.

Next to the identification plate are mentioned:

- ⇒ The block reference
- ⇒ The manufacturing date and its serial number.
- ⇒ Each port is marked according to the drawing.

The manufacturing date is made up of 3 numbers

- The first one indicates the year
- and the following two the manufacturing month

WHILE STOKING, HANDLING AND INSTALLATION KEEP PROTECTION CAPS ON EVERY PORT IMPERATIVELY.

4.1. Preparation of the operation environment

- It is TOTALLY INADVISABLE to remove cartridges or to intervene in the assembling of the different modules.
- Do not change the adjustment of the valves when these are delivered pre-adjusted.
 - 4.1.1. Avoid any contamination source in the environment of the block.
 - 4.1.2. Before any installation refer to the functional drawing of the MBS® block.
 - 4.1.3. When handling the block take all necessary precautions to avoid shocks on the different valves and solenoid valves making up the blocks.
A shock on the coils may result in deforming and malfunctioning of the valve.

4.2. Fixing the block on the machine's plate (see F.T 50 1250 overleaf):

Make a 2 point fixing (threaded holes 8 x 125 - depth 12) on a flat surface.
In case of doubt use a washer 8,5 x 25 x 3 - ref. 102 948 - under each fixing point in order to avoid any mechanical stress.

- If the MBS® block has plugs higher than the mounting surface insert under each fixing point two washers 8,5 x 25 x 3 ref 102 948.
- If the MBS® block is mounted on a vibrating support subject for example to frequencies of a thermic motor or any other vibrating strain, it is necessary to mount silenblocks whose elastomer hardness match the vibrating frequency of the chassis.

4.3. Remove the port's plastic protection caps.

4.4. **The assembly of the connectors into the block's ports** has to be done without any strength, until the final tightening torque is achieved. No shock on the connector's threadings. Through a threading effect, this would lead to a contamination of the internal components. It is recommended to use **connectors with cylindric threadings equipped with seals.**

4.5. Exclude when mounting: seals made of copper, two or teflon.

To avoid leakages between the connectors and the block bounded seals are recommended.

4.6. Mounting of hoses

Carefully check according to the assembling drawings that the connections correspond to the concerned ports.

4.7. For connections made on adapters set on the junction part lines it is ESSENTIAL

to place counter-keys on the adapters to avoid their displacement when tightening the connectors.

4.8. For all connectors respect the tightening torques recommended in the technical documents.

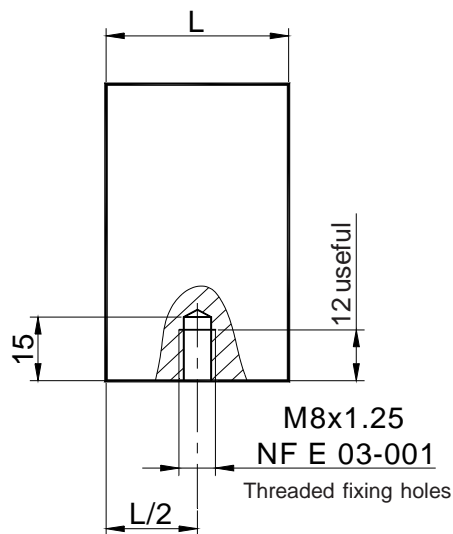
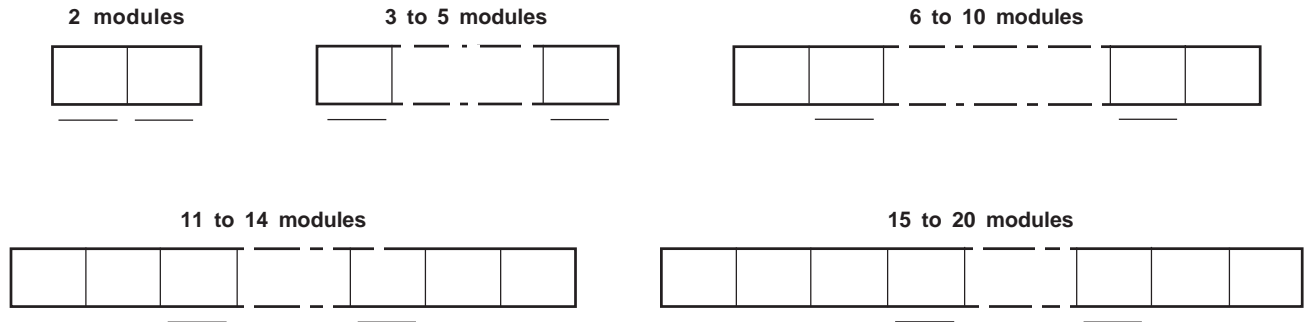
4.9. Electric connections

- 4.9.1 Mounting of connectors on the coil's spindles: avoid any oxydation of the contacts.
- 4.9.2 When linking the connectors to the coil and the hoses avoid water getting into it.
- 4.9.3 After wiring **make sure that voltage at the coil's terminals is correct.**

4.10 **BEFORE BRINGING INTO SERVICE** check all HYDRAULIC and ELECTRIC connections according to the mounting drawings.

INSTALLATION of " MBS®" BLOCKS on MACHINES SUPPORTS

Recommendation concerning positions of fixing points



Fix the blocks on a flat, distortionfree surface.

Washer reference JTEKT-HPI 102 948 - Dimensions 8,5 x 25 - thickness 3mm

1. Put a washer - thickness 3 mm - under each fixing point.
2. Put 2 washers - thickness 6mm - under each fixing point if the block has plugs on the fixing face.

Recommended tightening torque for the fixing screws M8 x 125: 40 Nm.

If mounting on a chassis wich may vibrate, use a thread-stop glue.
Example: Loctite 243.

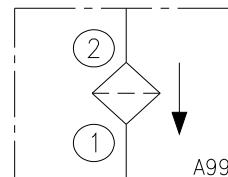
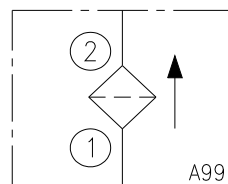
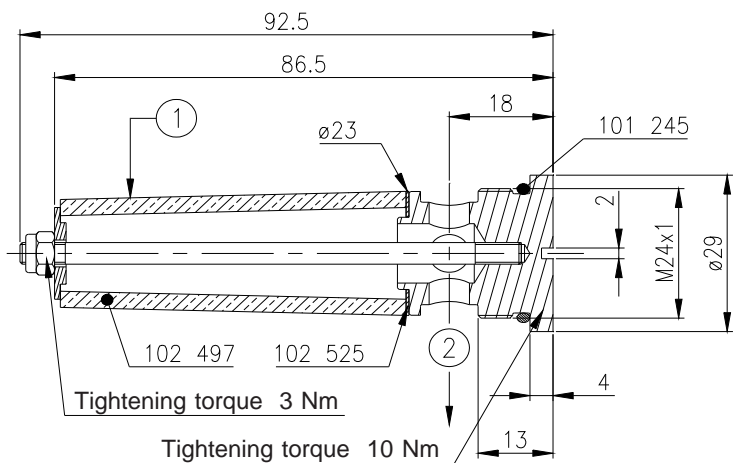
Mounting recommendations: see overleaf.

4 ACCESSORIES

COMPONENTS for in LINE MOUNTING

	N° Page
☞ SCREW IN CARTRIDGE FILTER	212 / 00
☞ IN-LINE FILTER 35 l/mn - 250 bar	213 / 00
☞ IN-LINE FILTER CARTRIDGE with NON-RETURN VALVE (check valve)	214 / 00
☞ FILTER DISK	216 / 00
☞ IN-LINE NON-RETURN VALVES (check valve)	217 / 00
☞ IN-LINE FLOW RESTRICTOR with NON-RETURN VALVE (check valve)	218 / 00
☞ ADJUSTABLE IN-LINE FLOW CONTROL VALVES with NON-RETURN VALVE (check valve)	220 / 00
☞ BI-DIRECTIONAL ADJUSTABLE IN-LINE FLOW CONTROL VALVES	222 / 00
☞ IN-LINE COMPENSATED FLOW CONTROL VALVES	224 / 00
☞ DOUBLE IN-LINE COMPENSATED FLOW CONTROL VALVES	225 / 00
☞ CALIBRATED PLUGS	226 / 00
☞ Flows of passage according to the diameter of the openings	226 / 01
☞ PRESSURE SWITCHES	227 / 00
☞ PRESSURE TAPPINGS for in line mounting	228 / 00
☞ ADAPTERS for in-line mounting	229 / 00
☞ GENERAL SUMMARY	002 / 00

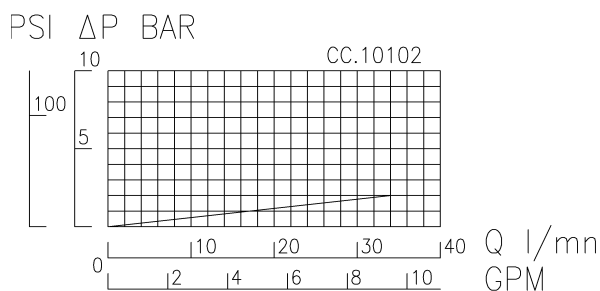
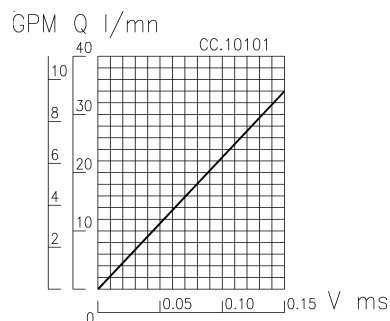
SCREW-IN CARTRIDGE FILTER



CFM 30 A99 F40 O N - 2G - N° 301 104

Technical characteristics

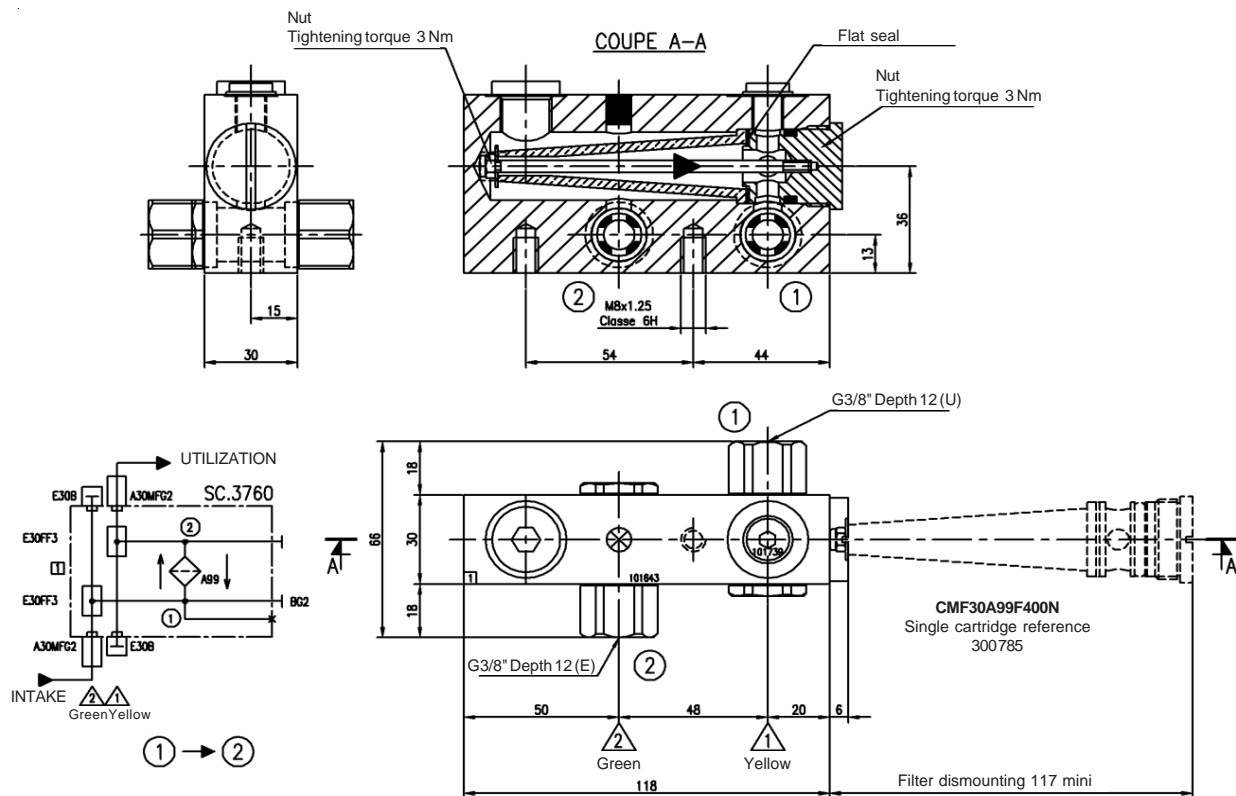
Type: Screw-in cartridge filter	
Removable and cleanable filter	
Filter surface	0,4 dm ²
Filtration mode	in depth
Max flow	35 l/mn
Flow direction	unimportant
Differential pressure	300 bar
Collapse resistance	> 350 bar
Burst resistance	> 350 bar
Nominal filtration efficiency	see curve overleaf
Retention capacity	See curve overleaf
Temperature	130°C
Expansion coefficient	18,4 - 10 ⁶ per degree
Weight	0,11 Kg



Passing through speed (new filter)
(Pressure drop)

Executed measures: Room temperature 22°C ±2 °C
Oil temperature 40 °C
Fluid: Oil SHELL Tellus T46 (ISO.46)

IN-LINE FILTER 35 l/mn - 250 bar

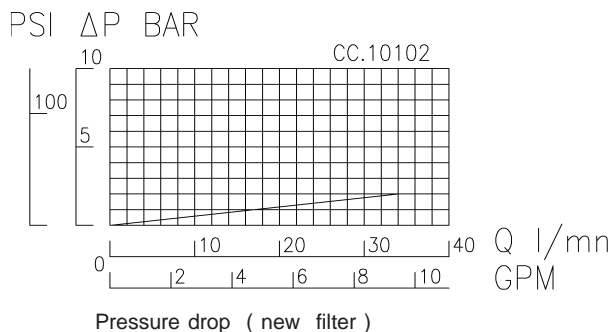
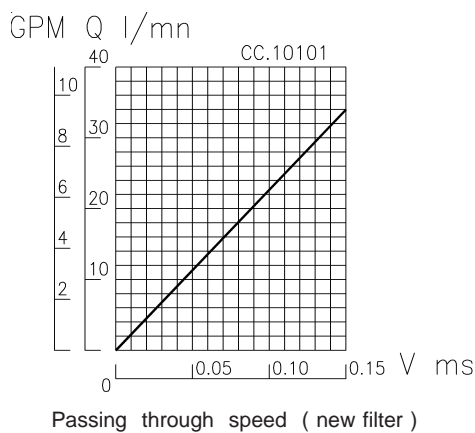


Filter 35.60

Reference: 500 981

Technical characteristics

Type:	Screw in filter cartridge N° 300 785
Made up of	Sintered bronze
Removable and cleanable filter	
Filter surface	0,4 dm ²
Filtration mode	in depth
Max flow	35 l/mn
Flow direction	unimportant
Filtration threshold of the particles	99,9% = 185µ 98% = 140µ 10% = 60µ
Differential pressure	250 bar
Collapse resistance	> 250 bar
Burst resistance	> 250 bar
Temperature	5 to 100 °C
Expansion coefficient	18,4 - 10% per degree
Weight	0,5 Kg

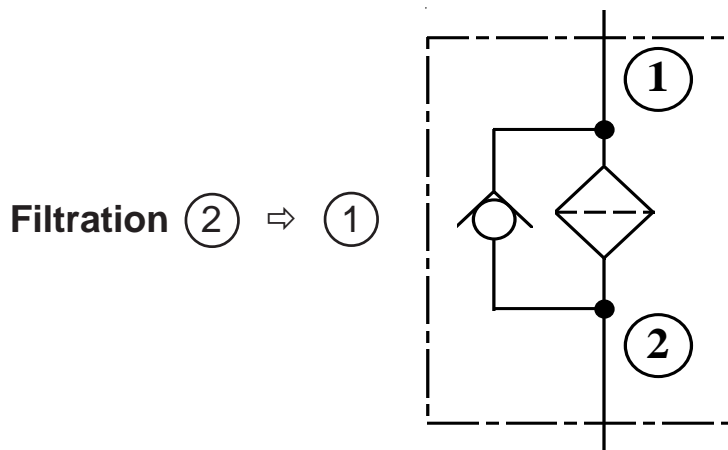
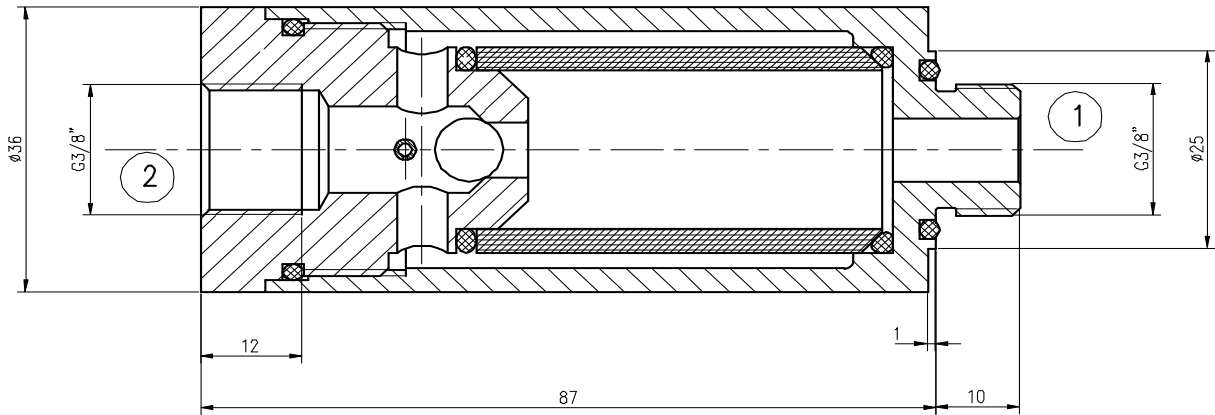


Fluid: Oil on mineral or synthetic basis (compatible with the seal sets) with good lubrication properties.
Viscosity between 8 and 450 cSt at working pressure.

Executed measures: Room temperature 22°C ±2 °C
Oil temperature 40 °C
Fluid: Oil SHELL Tellus T46 (ISO.46)

F.T 50 1252

**IN LINE CARTRIDGE FILTER
with NON-RETURN VALVE (check valve)**



Designation: **LFM G2 A99 F40 O N**
Reference: **300 765**

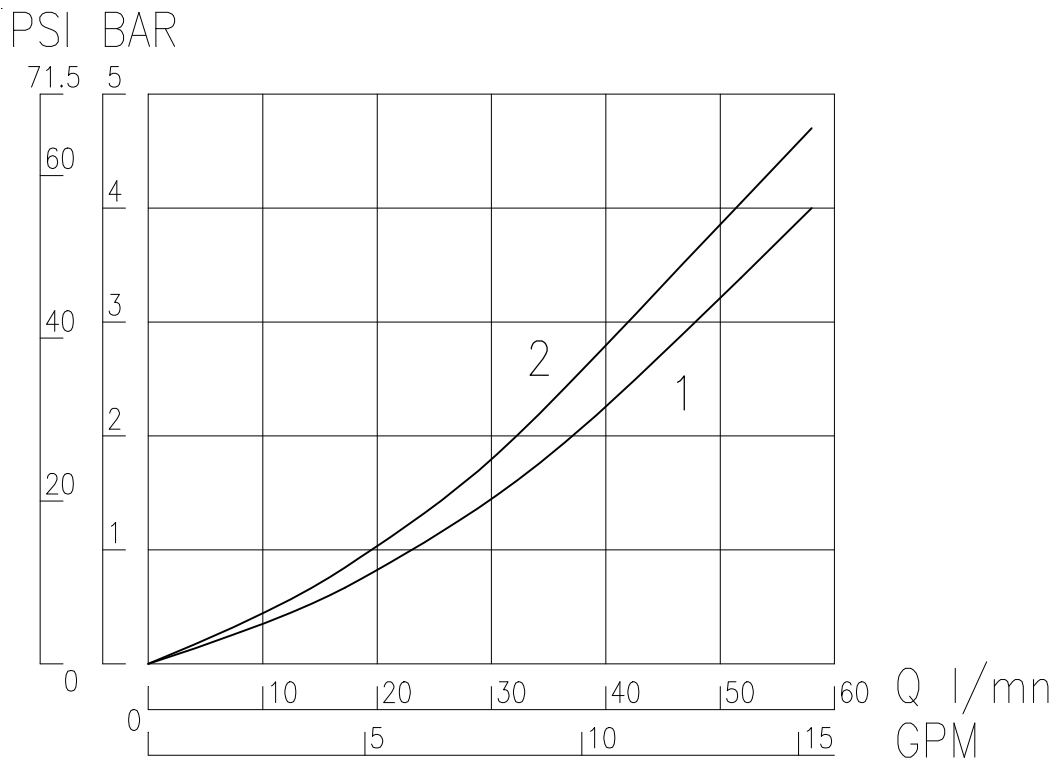
General characteristics :	Max utilization pressure:	300 bar
	Max flow:	55 l/mn
	Test pressure:	1 hour at 550 bar
	Pressure drop curve:	see overleaf
	Ports:	3/8" Gaz
	Filter surface:	98 cm ²
	Filtration threshold:	98% stop of 140 μ particles 99,9% stop of 185 μ particles 10% stop of 60 μ particles
Weight:	0,4 Kg	

CHARACTERISTICS

**IN LINE CARTRIDGE FILTER with
NON-RETURN VALVE (check valve) - N° 300 765**

Max pressure 300 bar

PRESSURE DROP



Free passing

Curve 1 (1) ⇒ (2)

Filter

Curve 2 (2) ⇒ (1)

Executed measures:

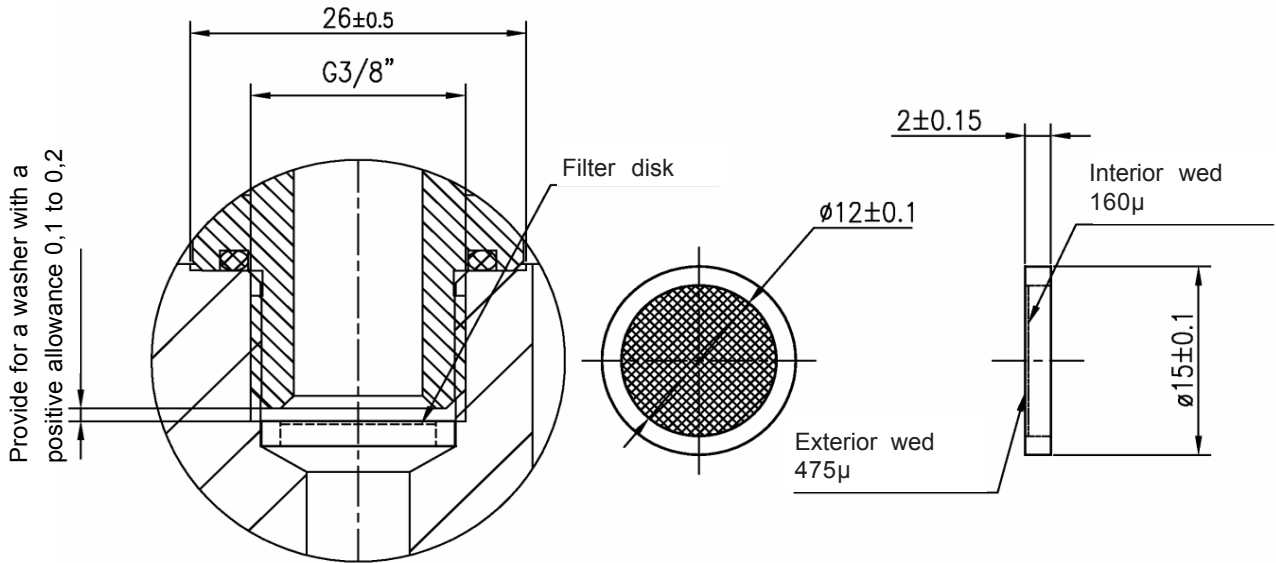
Room temperature 22°C ±2 °C
 Oil temperature 40 °C
 Fluid: Oil SHELL Tellus T46 (ISO.46)
 Viscosity: 46 cSt at 40 °C

FILTER DISK

The retention capacity of this filter disk is equal or superior to 160 microns. Inserted between the different parts of the hydraulic circuit, it protects its sensitive components and completes the general filtration.

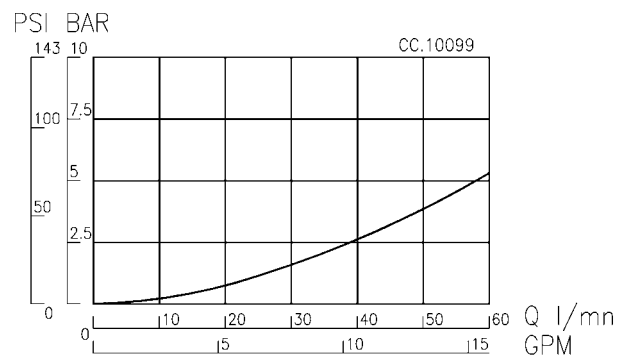
It is especially necessary for circuits with many functions and pipes because of long particles, main cause of solenoid valves spool blocking.

The disk is mounted between the bore bottom of the 3/8" BSPP port and the threaded connector.



Attention! Do not make the web collapse when mounting the connectors.

Reference: 102 550	
Filtration surface	1,13 cm ²
Exterior web - aperture size	475 microns
Interior web - aperture size	160 microns
Utilization	bi-directional
Composition	pressed stainless steel webs
Max differential pressure	150 bar
Deformation pressure of the clogged filter	170 bar
Mounting position	unimportant



Pressure drop curve - New filter uncontaminated
Max circuit pressure: 350 bar

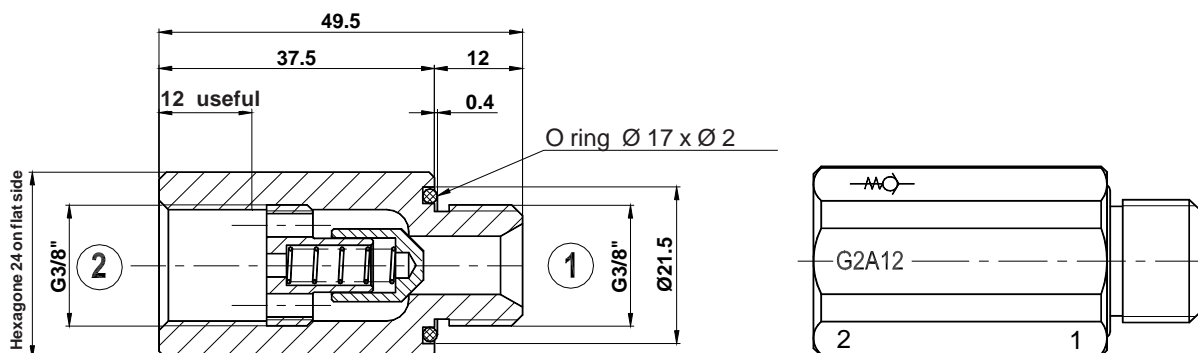
F.T 50 1254

Fluid: Oil on mineral or synthetic basis.

Executed measures: Room temperature 22°C ±2 °C
 Oil temperature 40 °C
 Fluid: Oil SHELL Tellus T46 (ISO.46)
 Viscosity: 46 cSt at 40 °C

IN-LINE NON-RETURN VALVE (CHECK VALVE)

Max pressure 350 bar - Max flow 40 l/mn

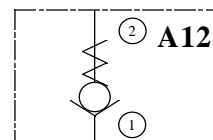


Designation: LMF A12 G2 - O (or A or B or C)

Reference: 301 121

Start of check valv opening:

- O** 0,2 bar
- A** 1,3 bar
- B** 5 bar
- C** 8 bar

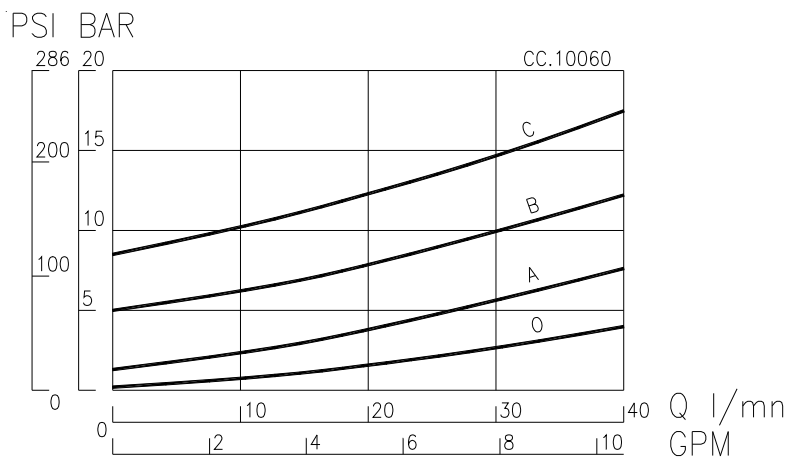


Description: Non return valve and valve housing made of treated steel.
Protection against corrosion by galvanizing.

Weight: 0,12 Kg

ADAPTATORS - See F.T

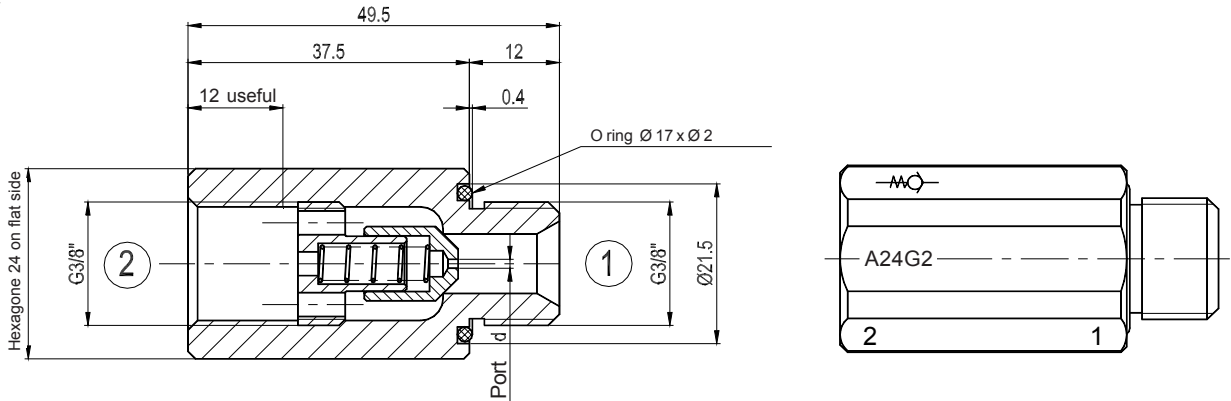
Characteristics curves - ① ⇒ ②



Executed measure: Ambient temperature 22°C ±2 °C
 Oil temperature 40 °C
 Fluid: Oil SHELL Tellus T46 (ISO.46)
 Viscosity: 46 cSt à 40 °C

IN LINE FLOW CONSTRUCTOR with non-return valve (check valve)

Max pressure 350 bar - Max flow 40 l/mn

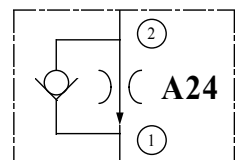


Designation: LMF A24 G2 D*

Reference: 301 146

* Standard ports diameter:
 0,7 - 0,8 - 0,9 - 1
 1,1 - 1,2 - 1,3 - 1,4
 1,5 - 1,6 - 1,7 - 1,8

Free flow max 40 l/mn (1) → (2)
 Regulated flow (2) → (1)



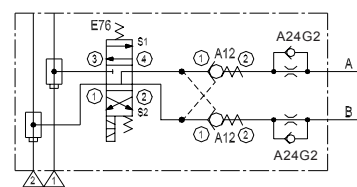
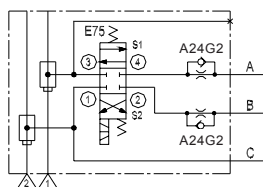
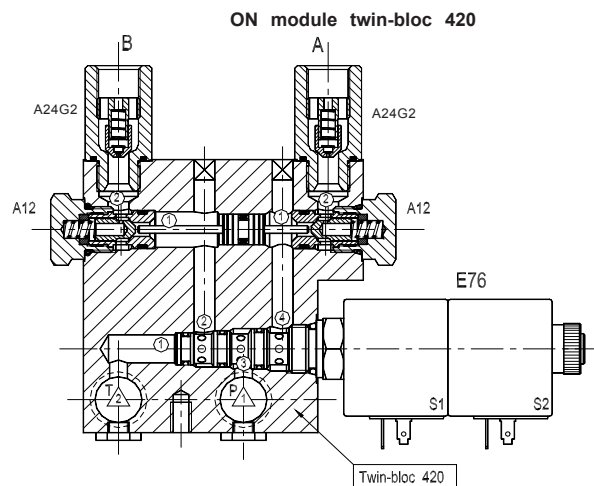
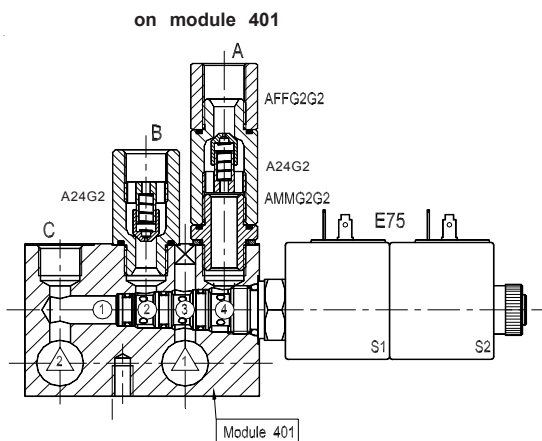
Description: Non return valve and valve housing made of treaded steel.
 Protection against corrosion by galvanizing.

Weight: 0,12 Kg

Characteristics curves: see overleaf

ADAPTATORS - See F.T

EXAMPLES OF MOUNTING ON MBS® BLOCKS

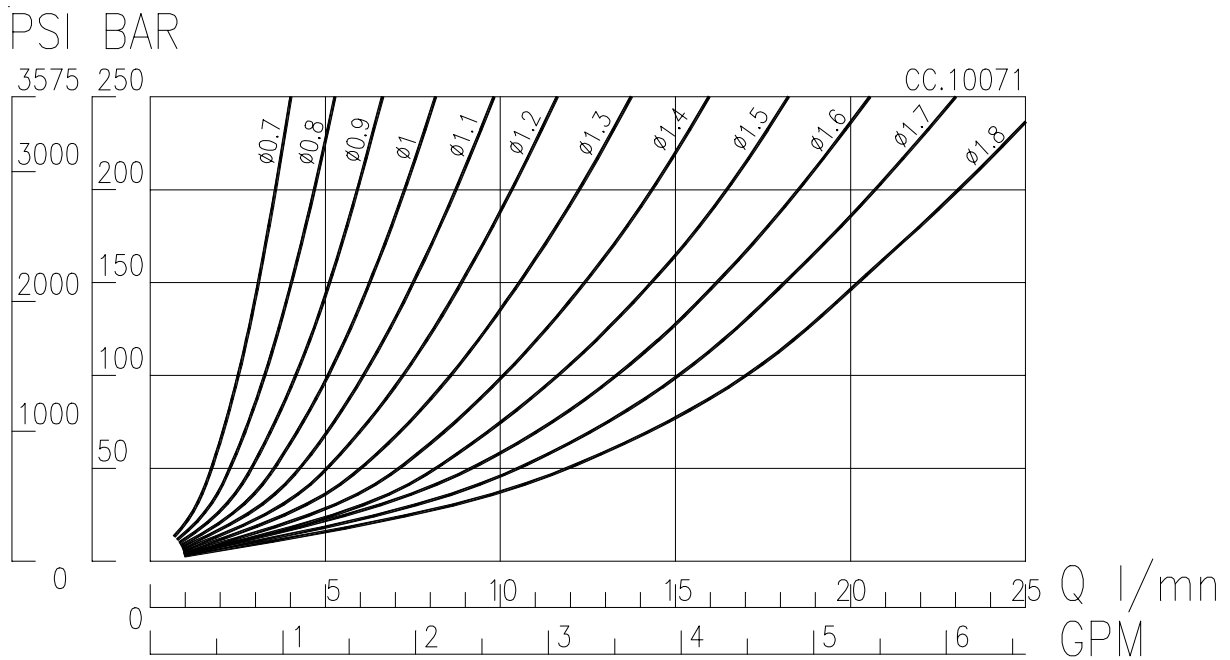


CHARACTERISTICS

IN-LINE FLOW RESTRICTOR
with non-return valve (check valve)

LMF A24 G2 - N° 301 146

Pressures / flows curve

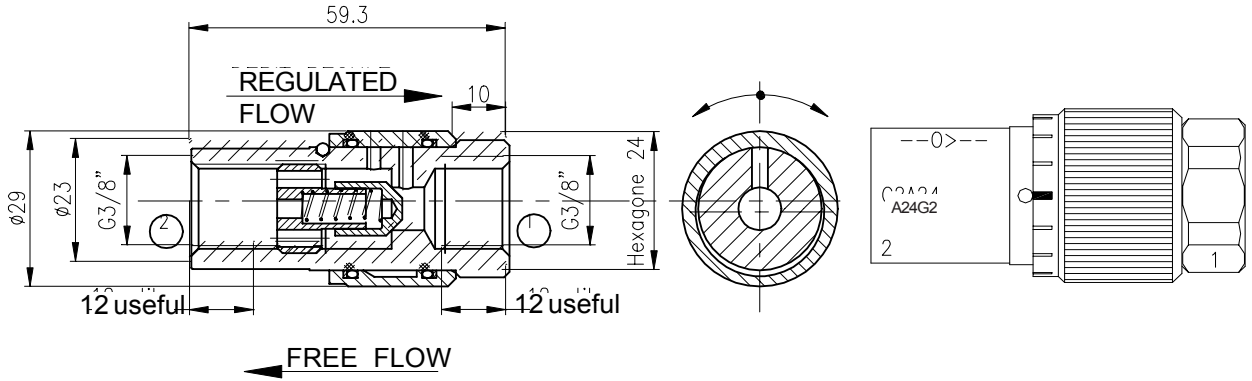


Executed measures: Ambient temperature 22°C ±2 °C
Oil temperature 40 °C
Fluid: Oil SHELL Tellus T46 (ISO.46)
Viscosity: 46 cSt à 40 °C

F.T 50 1256 2/2

ADJUSTABLE IN-LINE FLOW CONTROL VALVES with non-return valve (check valve)

Max pressure 350 bar



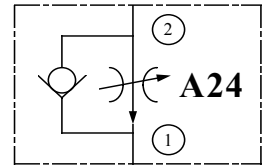
Designation: LMF A24 G2 - O (or A or B or C)

Max free flow 40 l/mn ① ⇒ ②
Regulated flow 0,5 to 30 l/mn ② ⇒ ①

Reference: 301 047

Start of check valve opening:

O	0,2 bar
A	1,3 bar
B	5 bar
C	8 bar



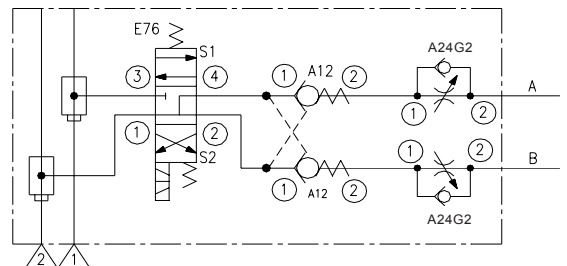
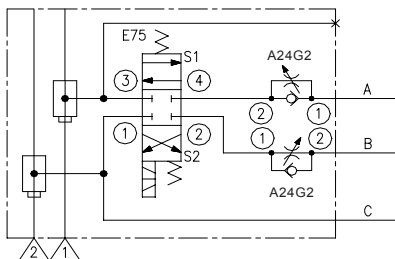
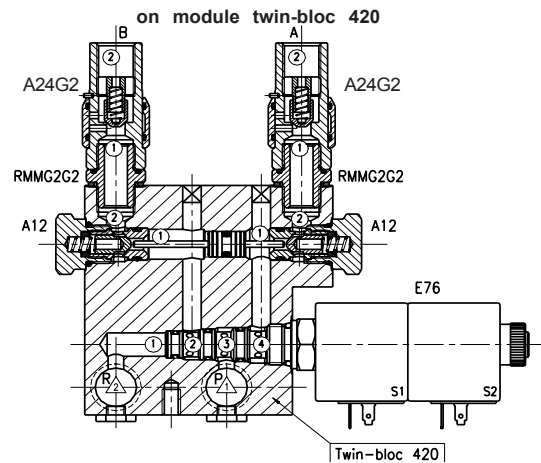
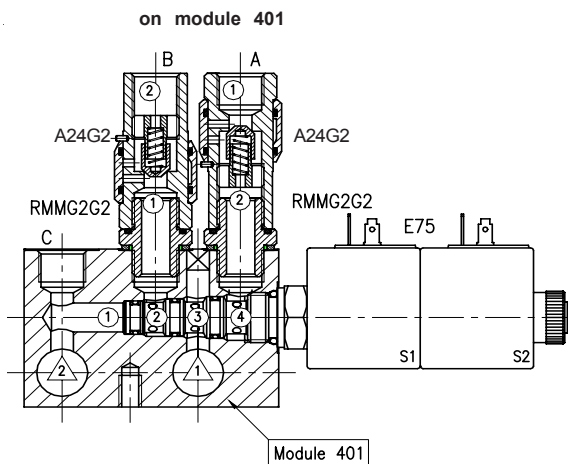
Description: Non return valve and valve housing made of treated steel.
Protection against corrosion by galvanizing.

Weight: 0,16 Kg

Curves characteristics: see overleaf

ADAPTATORS - See F.T

EXAMPLES OF MOUNTING ON MBS® BLOCKS

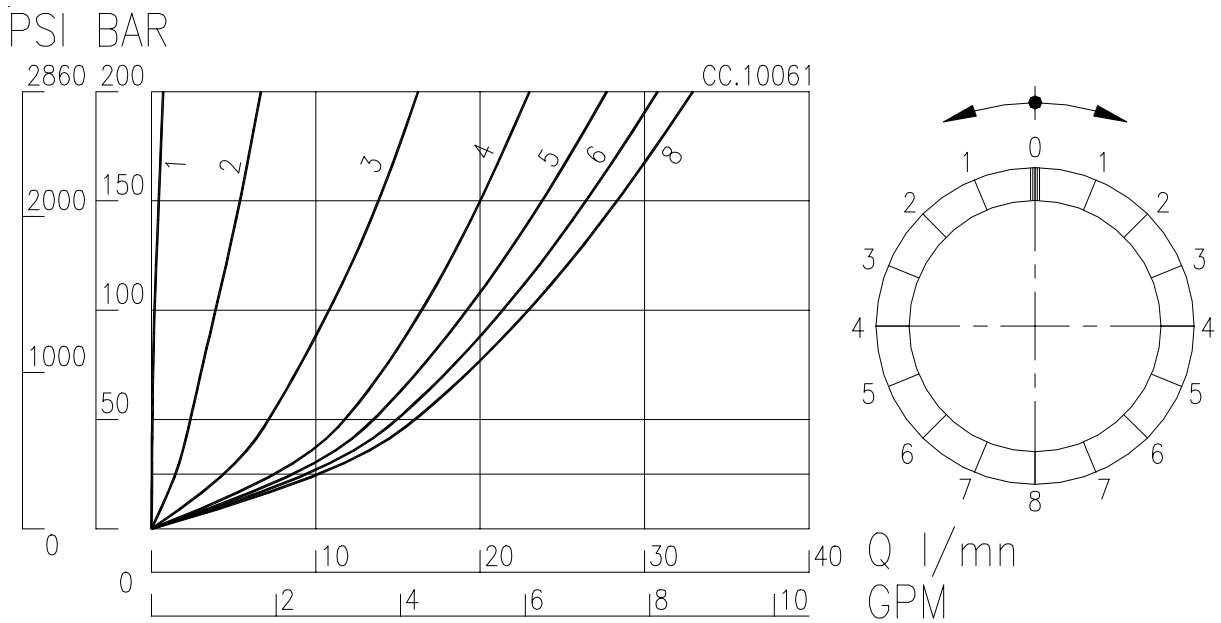


CHARACTERISTICS

ADJUSTABLE IN-LINE FLOW CONTROL VALVE
with non-return valve (check valve)

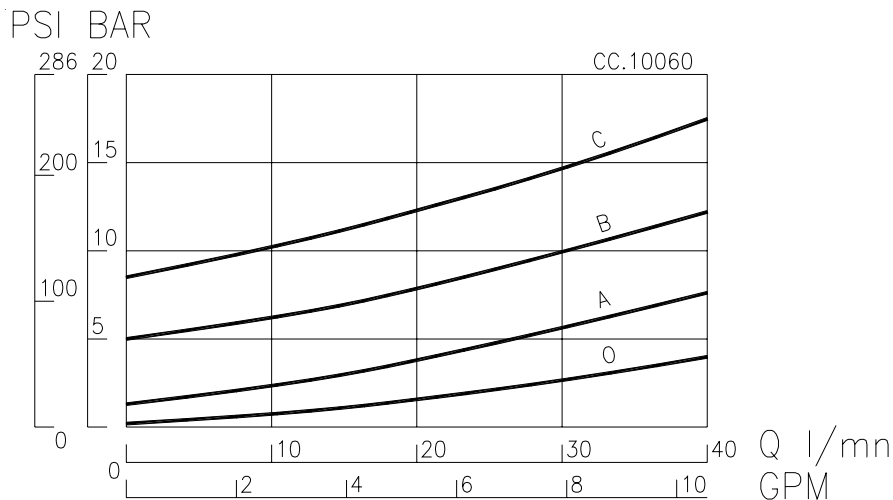
LMF A24 G2 - N° 301 047

Flow / pressure curves according to the adjustment ② ⇒ ①



Leakage in closed position 10 to 200 cm³/mn

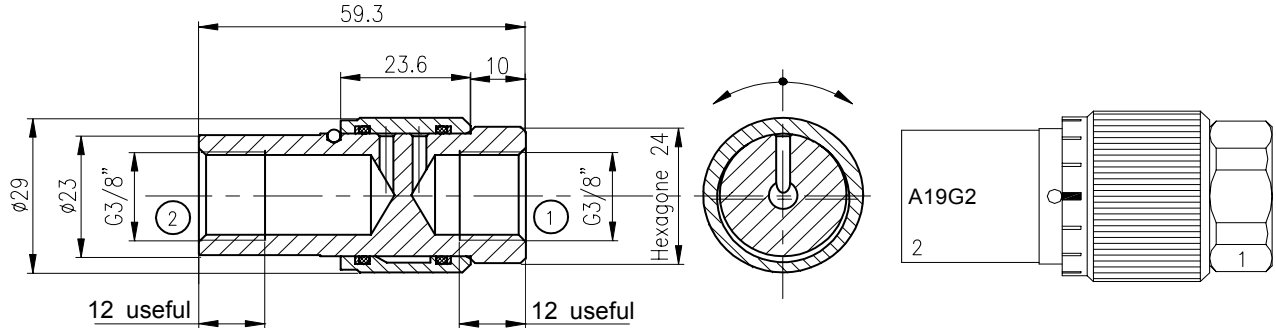
Pressure drop curves ① ⇒ ②



Executed measures: Ambient temperature 22°C ±2 °C
Oil temperature 40 °C
Fluid: Oil SHELL Tellus T46 (ISO.46)
Viscosity: 46 cSt at 40 °C

BI-DIRECTIONAL ADJUSTABLE IN-LINE FLOW CONTROL VALVE

Max pressure 350 bar



Regulated flow 0,5 to 30 l/mn
 $\textcircled{1} \Rightarrow \textcircled{2}$ - $\textcircled{2} \Rightarrow \textcircled{1}$

Designation: LMF A19 G2

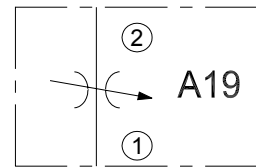
Reference: 301 059

Description: Non return valve and valve housing made treated steel. Protection against corrosion by galvanizing.

Weight: 0,16 Kg

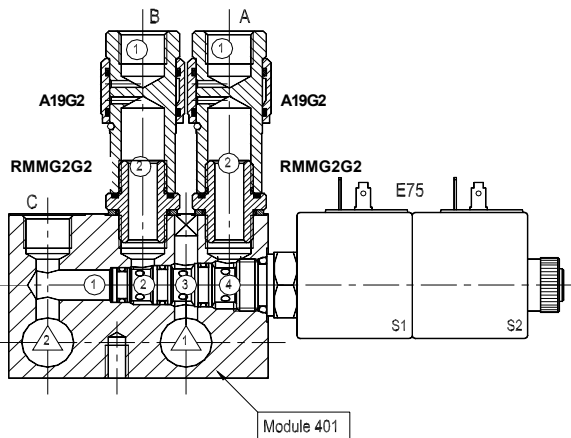
Curves characteristics: see overleaf

ADAPTATORS - See F.T

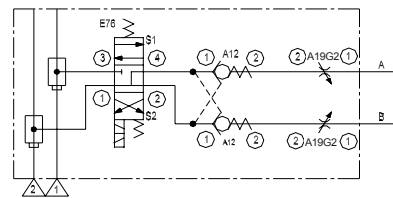
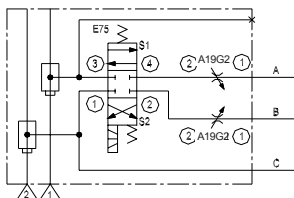
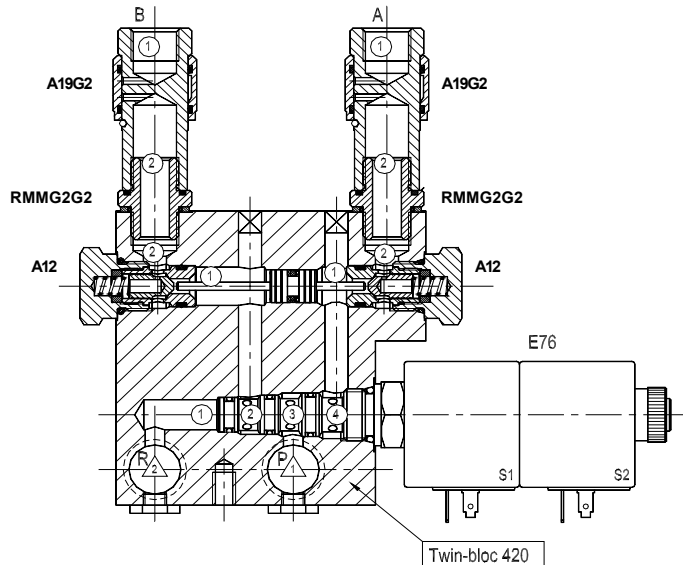


EXAMPLES OF MOUNTING OF MBS® BLOCKS

on module 401



on module twin-bloc 420



F.T 50 1258 1/2

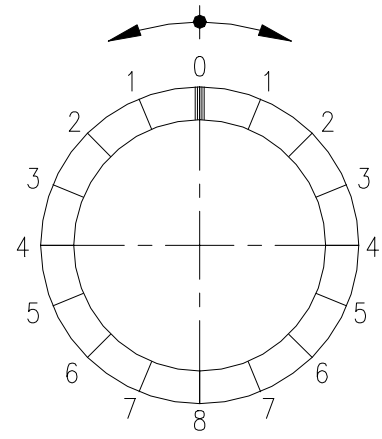
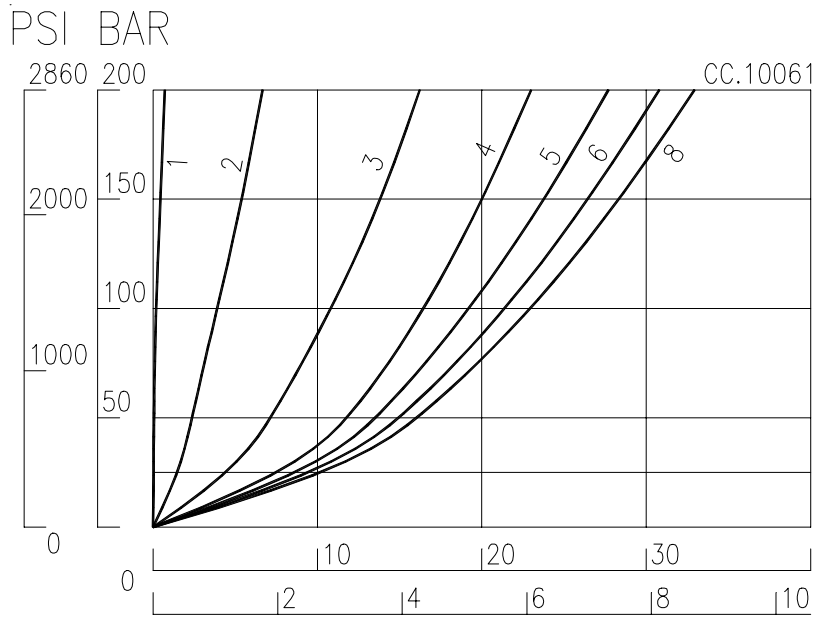
CHARACTERISTICS

**BI-DIRECTIONAL ADJUSTABLE IN-LINE
FLOW CONTROL VALVE**

LMF A19 G2 - N° 301 059

Flow / Pressure curves according to the adjustment

① ⇨ ② or ② ⇨ ①



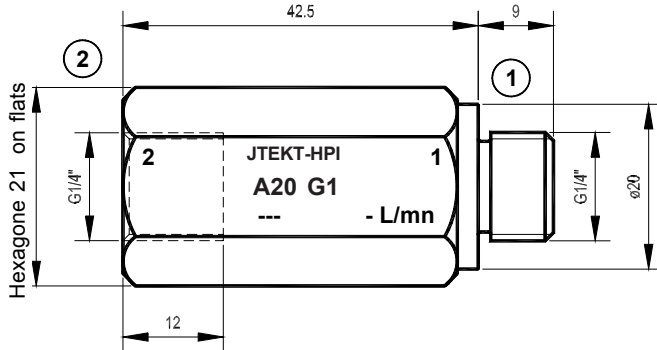
Leackage in closed position 10 to 200 cm3/mn

F.T 50 1258 2/2

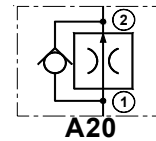
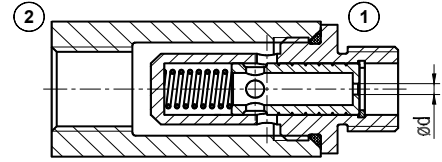
Executed measures: Ambient temperature 22°C ±2 °C
 Oil temperature 40 °C
 Fluid: Oil SHELL Tellus T46 (ISO.46)
 Viscosity: 46 cSt to 40 °C

IN-LINE COMPENSATED FLOW CONTROL VALVES

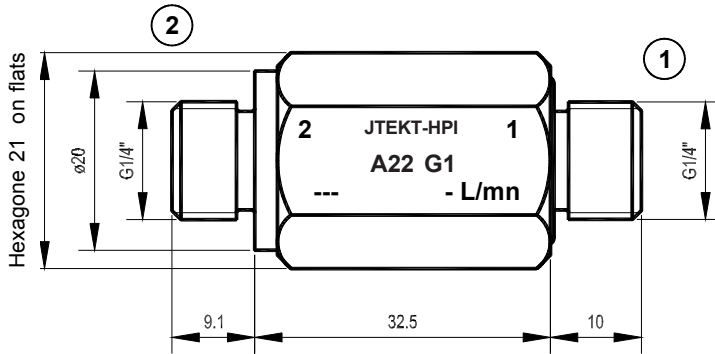
Max pressure 300 bar



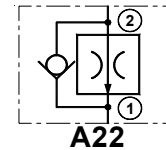
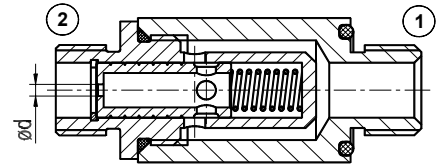
Designation: LMF A20 G1



Reference: 301 057



Designation: LMF A22 G1

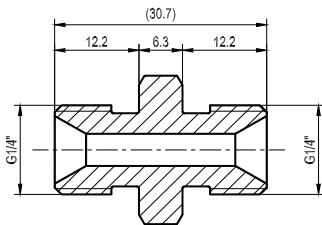


Reference: 301 118

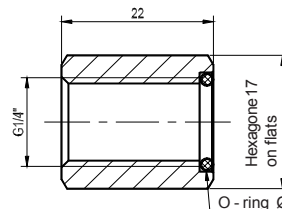
Description: A cylindrical spool called back by spring force slides in a treated steel housing. When intake flow increases, pressure in the calibrated port "d" increases and moves the spool towards the closed position to obtain a constant flow.
Galvanized housing to avoid corrosion.

Weight: 0,096 Kg

ADAPTATORS for male / female mounting



**Male / Male
N° 101 682**



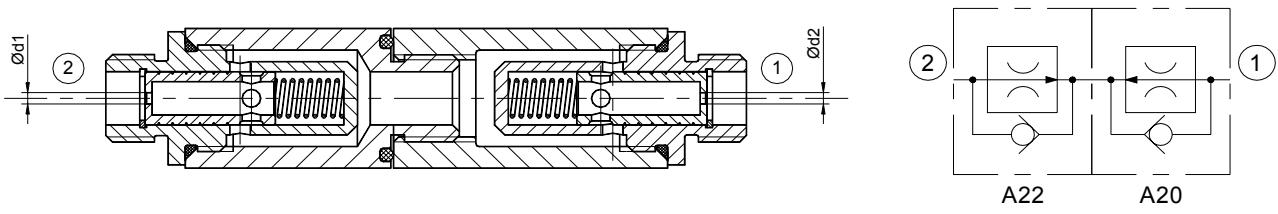
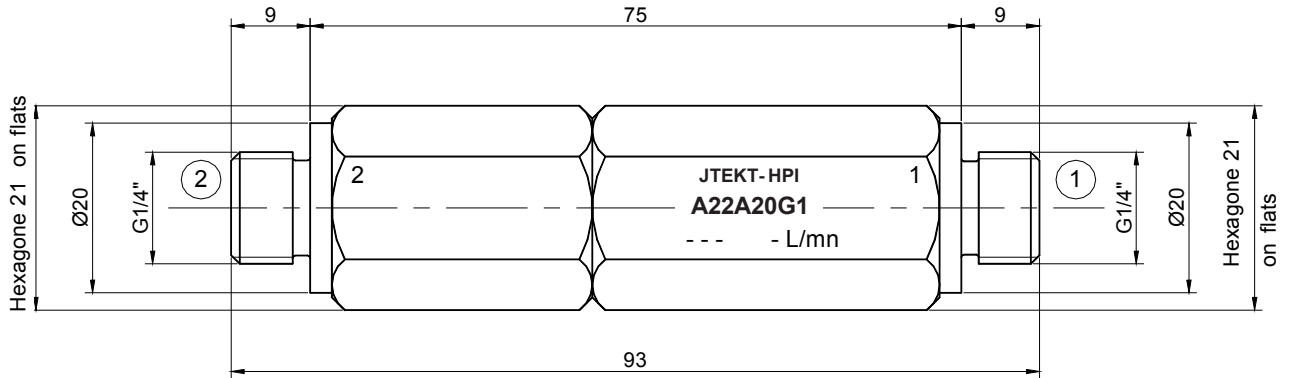
**Femal / Femal
N° 200 788**
(set made up of:
- a treated union N° 101 855
- and a seal N° 100 855)

- Characteristics:**
- Possible regulated fixed flow 0,5 l/mn to 8 l/mn
 - When placing an order please advise the regulated flow according to the working pressure**
 - Regulated flow variation ± 5% from 25 to 250 bar
 - Working temperature - 40 / + 100 °C with standard nitril seals
 - Mounting position: unimportant
- Executed measures:**
- Ambient temperature 22°C ± 2 °C
 - Oil temperature 40 °C
 - Fluid: Oil SHELL Tellus T46 (ISO.46)
 - Viscosity: 46 cSt at 40 °C

F.T 50 1259

DOUBLE IN-LINE COMPENSATED FLOW CONTROL VALVE

Max pressure 300 bar



Designation: **LMF A22-A20 G1**

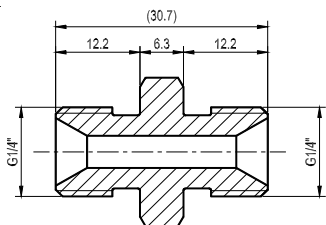
Reference: **301 141**

Description: A cylindrical spool called back by spring force slides in a treated steel housing. When intake flow increases, pressure in the calibrated port "d" increases and moves the spool towards the closed position to obtain a constant flow.

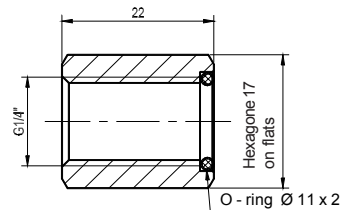
Galvanized housing to avoid corrosion.

Weight: 0,2 Kg

ADAPTATORS for male / female mounting



Male / Male
N° 101 682



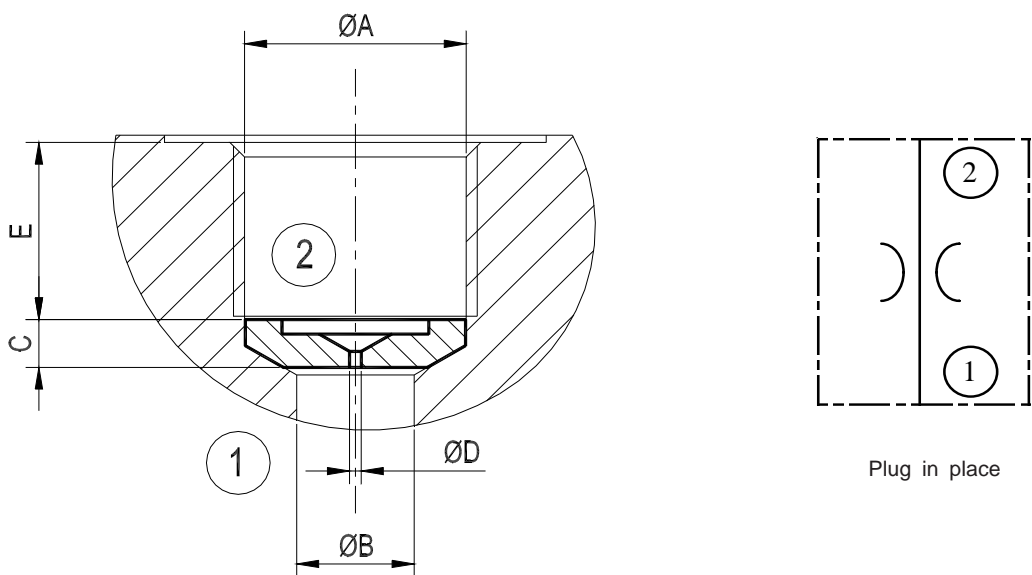
Femal / Femal
N° 200 788
(set made up of:
- a threaded union N° 101 855
- and a seal N° 100 855)

Characteristics: Possible regulated fixed flow 0,5 l/mn to 8 l/mn
When placing an order please advise the intake and the regulated flow for every valve body.

Regulated flow variation ± 5% from 25 to 250 bar
Working temperature - 40 / + 100 °C with standard nitril seals
Mounting position: unimportant

Executed measures: Ambient temperature 22°C ± 2 °C
Oil temperature 40 °C
Fluid: Oil SHELL Tellus T46 (ISO.46)
Viscosity: 46 cSt at 40 °C

CALIBRATED PLUG



Ports	Ø A	Ø B	C	Ø D	E
G2 3/8" Gaz	15	7 or 8	3,3	0 - 0,4 to 2	12,2 ±0,2

Full plug: Reference 102 886

Perforated plug: calibrated ports 0,4 to 2 mm (every 0,1 mm)

See table below:

Designation	Port Ø - mm
PG2D0	full
PG2D0,4	perforated Ø 0,4
PG2D0,5	" Ø 0,5
PG2D0,6	" Ø 0,6
PG2D0,7	" Ø 0,7
PG2D0,8	" Ø 0,8
PG2D0,9	" Ø 0,9
PG2D1	" Ø 1
PG2D1,1	" Ø 1,1
PG2D1,2	" Ø 1,2
PG2D1,3	" Ø 1,3
PG2D1,4	" Ø 1,4
PG2D1,5	" Ø 1,5
PG2D1,6	" Ø 1,6
PG2D1,7	" Ø 1,7
PG2D1,8	" Ø 1,8
PG2D1,9	" Ø 1,9
PG2D2	" Ø 2

Flows of passage:
see F.T 50 1261 2/2
see overleaf

F.T 50 1261

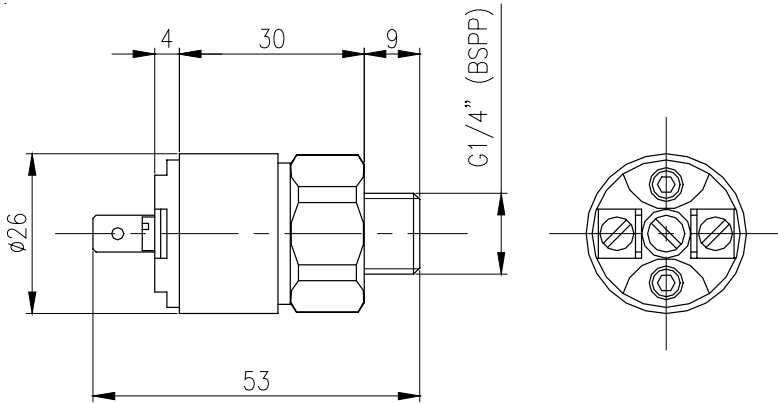
FLOWS of PASSAGE ACCORDING to the DIAMETER of the OPENINGS

Rep.	Flow intake	Diameter	Surface in mm ²	Flows of passage in l/mn for				
				50 bar	100 bar	150 bar	200 bar	250 bar
				Feel flow (2) ⇨ (1)				
1	9	0,2	0,0314	0,13	0,19	0,24	0,28	0,31
2	9	0,25	0,049	0,20	0,30	0,36	0,42	0,47
3	9	0,3	0,0706	0,28	0,41	0,49	0,57	0,64
4	9	0,35	0,0961	0,42	0,58	0,72	0,82	0,93
5	9	0,4	0,1256	0,61	0,86	1,05	1,21	1,36
6	9	0,45	,01589	0,74	1,04	1,27	1,46	1,64
7	9	0,5	0,1962	0,87	1,22	1,50	1,74	1,96
8	9	0,55	0,2374	1,11	1,55	1,90	2,19	2,47
9	9	0,6	0,2826	1,30	1,82	2,25	2,61	2,92
10	9	0,7	0,3846	1,79	2,51	3,09	3,58	4,01
11	9	0,8	0,5024	2,28	3,22	3,95	4,56	5,10
12	12	0,9	0,6358	3,18	4,48	5,52	6,37	7,10
13	12	1	0,785	3,63	5,12	6,25	7,27	8,08
14	18	1,1	0,9498	4,48	6,32	7,72	8,90	9,90
15	18	1,2	1,1304	5,22	7,37	9,01	10,30	11,50
16	21	1,3	1,3266	6,20	8,75	10,67	12,22	13,72
17	27	1,4	1,5386	7,09	9,95	12,15	13,96	15,50
18	27	1,5	1,7662	8,17	11,50	14,05	16,10	17,90
19	30	1,6	2,009	9,65	13,60	16,40	18,90	20,94
20	40	1,7	2,2686	11,31	16,09	19,65	22,60	25,20
21	40	1,8	2,5434	12,28	17,28	20,80	24,10	27,05
22	46	1,9	2,8338	13,07	18,38	22,35	25,70	28,70
23	58	2		15,35	21,55	26,40	30,35	33,55

F.T. 50 1261 2/2

Executed measures: Ambient temperature 22°C ± 2°C
Oil temperature at 42°C ± 2°C

PRESSURE SWITCHES



Description:

Micro-switches are conceived to open or close an electrical circuit when a pre-adjusted pressure is reached. A screw placed at the centre of the instrument allows to determine the value of commutation by a clockwise rotation which increases the pressure. Although miniaturized, this micro-switch is entirely dismountable in all its components including the silver plated contacts, available in normally open (NO) or normally closed (NC) position (in pressureless condition). These devices can be used with several types of fluids and gaz, depending on the type of the diaphragm mounted. Mechanical stops protect the spring and the electrical contacts against overpressure.



NC - Normally closed



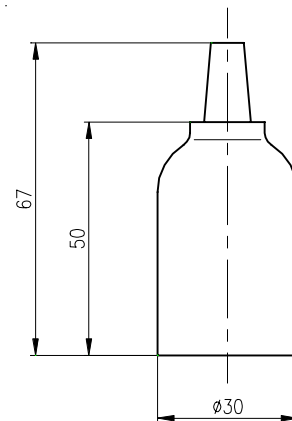
NO - Normally open

Reference	Position	Adjustment range	Working temperature	Max pressure bar	Model	Weight Kg
102 216	NF	5 - 50 bar	- 20 °C to + 80 °C	200	piston	0,055
101 148	NF	10 - 100 bar	- 20 °C to + 80 °C	300	piston	0,055
100 973	NF	20 - 200 bar	- 20 °C to + 80 °C	300	piston	0,055
102 215	NO	5 - 50 bar	- 20 °C to + 80 °C	200	piston	0,055
101 774	NO	10 - 100 bar	- 20 °C to + 80 °C	300	piston	0,055
101775	NO	20 - 200 bar	- 20 °C to + 80 °C	300	piston	0,055

Technical characteristics:

- Adjustable micro-switches
- Tropicalized steel housing
- Contact: NC - Normally Closed, or NO - Normally Open
- Frequency of commutation: 200 cycles/minute
- Accuracy of commutation: +/- 5 % of the adjusted pressure
- Hysteresis of the fixed value:
 - about 6% of the adjusted value for diaphragm model
 - about 8% of the adjusted value for piston model
- Electrical connection: terminals or screw
- Electrical protection: DIN 40050 - IP55 with rubber protection cap
- Maximum contact load: AC up to 48 V (1A)
DC up to 48 V (0,5A)

Mounting position: unimportant

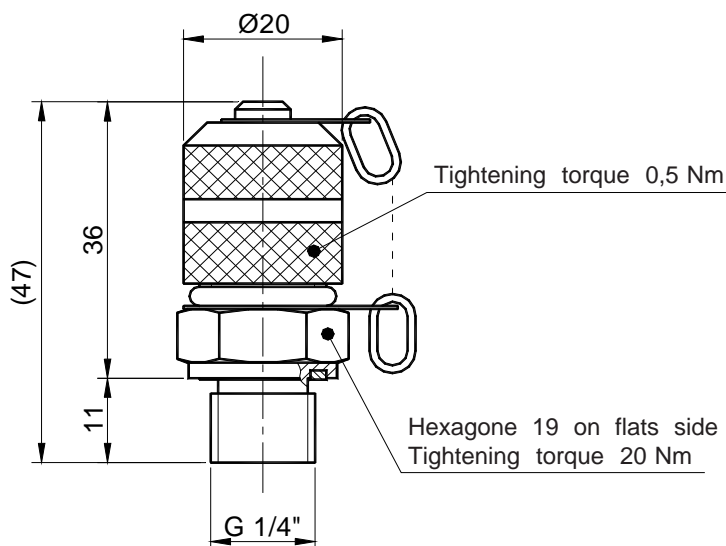


PROTECTION CAP: Reference 101 777

Material: Nitril

F.T 50 1262

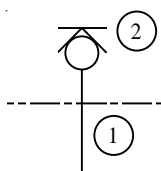
**PRESSURE TAPPING
for in-line components**



PRESSURE TAPPING G1/4"

Designation : **PPG1**

Reference : **101 900**



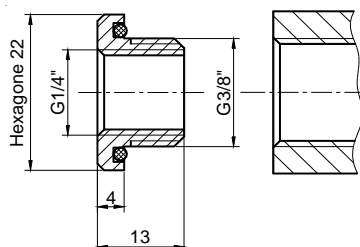
ADAPTERS for in-line mounting

Adapter male / femal 3/8"-1/4" BSP

Designation: RMFG2G1

Reference adapter only: **102 193**

Reference with seal: **200 595**

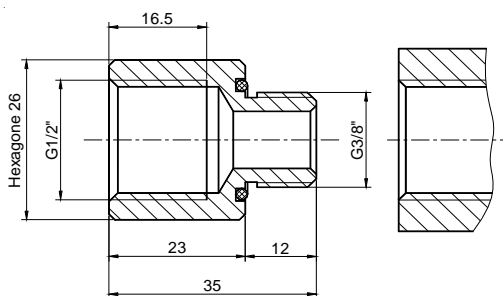


Adapter male / femal 3/8"-1/2" BSP

Designation: RMFG2G3

Reference adapter only: **102 327**

Reference with seal: **200 608**

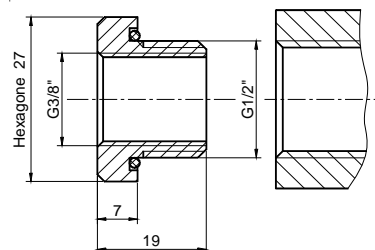


Adapter male / femal 1/2"-3/8" BSP

Designation: RMFG3G2

Reference adapter only: **102 476**

Reference with seal: **200 699**

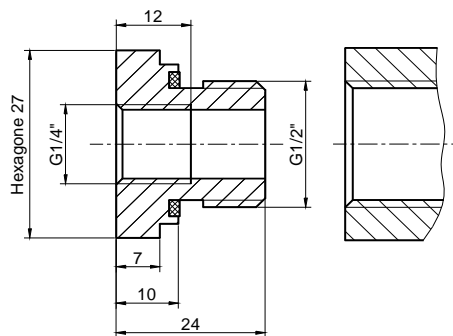


Adapter male / femal 1/2"-1/4" BSP

Designation: RMFG3G1

Reference adapter: **102 408**

(seal included)

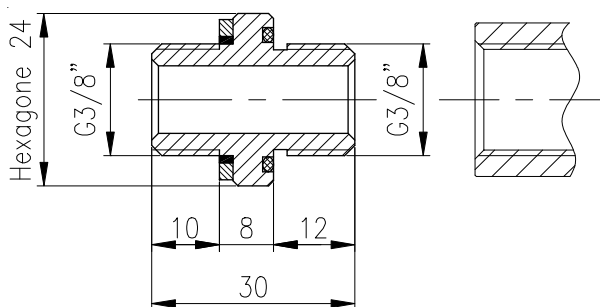


Adapter male / male 3/8"-3/8" BSP

Designation: RMMG2G2

Reference adapter only: **102 326**

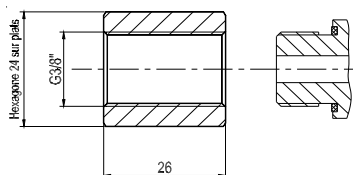
Reference with seal: **200 609**



Adapter femal / femal 3/8"-3/8" BSP

Designation: RFFG2G2

Reference adapter: **102 872**



F.T 50 1264

5 TECHNICAL DOCUMENTS

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☞ FILTRATION RECOMMENDATIONS	231 / 00
☞ MOUNTING RECOMMANDATIONS	232 / 00
☞ CAVITIES FOR PORT SIZES:	
☞ SAE J475 2 Ways	233 / 00
☞ SAE J475 3 Ways	234 / 00
☞ SAE J475 4 Ways	235 / 00
☞ METRIC 2 Ways	236 / 00
☞ GENERAL SUMMARY	002 / 00

VALVES and SOLENOID VALVES in CARTRIDGES

FILTRATION RECOMMENDATIONS

GENERAL RECOMMANDATIONS

JTEKT-HPI VALVES and SOLENOID VALVES have been designed to meet the requirements of a RELIABLE and LOG WORKING LIFE FUNCTIONING.

All these components are crossed by fluids under pressure. Therefore, in order to avoid premature wears, blockings or working anomalies it is essential TO FILTER THE CONVEYED FLUID.

The following table shows:

NECESSARY FILTRATION DEGREES ACCORDING TO WORKING PRESSURES

APPLICATIONS	PRESSURE	NECESSARY FILTRATION	ABSOLUTE FILTRATION	POLLUTION CLASS ISO.4406
<p>LOW PRESSURE CIRCUIT</p> <p>LOW FREQUENCY WORKING</p>	< 100 BAR	25 MICRONS NOMINAL	20 MICRONS	19 / 15
<p>CIRCUIT FOR INDUSTRIAL EQUIPMENT</p> <p>MEDIUM WORK CYCLE</p>	< 200 BAR	10 MICRONS NOMINAL	10 MICRONS	18 / 14
<p>HIGH PRESSURE CIRCUIT</p> <p>INTENSIVE WORK CYCLE</p> <p>HIGH PRESSURE PILOT PROPORTIONAL CONTROL</p>	200 to 350 BAR	5 MICRONS NOMINAL	5 MICRONS	16 / 13

VALVES and SOLENOID VALVES in CARTRIDGES

RECOMMANDATIONS for MOUNTING VALVES & SOLENOID VALVES in CAVITIES

1. MAKE SURE THAT:

1a. THE CHOSEN VALVE FULLY CORRESPONDS TO THE PORT SIZE OF THE CAVITY OF WHICH IT IS MEANT FOR:

- Thread reference
- Number of ways
- Diameter of tightness bearings.

1b. THE CAVITY IS PERFECTLY CLEAN (See Recommendations for cavities execution/
F.T 50 1267 Page 233 / 00 at F.T 50 1270 Page 236 / 00).

1c. THE IMPLANTED PART OF THE VALVE IS PERFECTLY CLEAN
(See F.T 50 1265 Page 231 / 00 - Filtration recommendations and pollution classes)

1d. O-RINGS AND ANTI-EXTRUSION RINGS ARE IN THEIR PROPER PLACE.

2. MOUNTING:

2a. FOR SOLENOID VALVES, THE COIL MUST BE REMOVED BEFORE MOUNTING THE VALVE IN THE CAVITY.

2b. PLUNGE THE PART OF THE VALVE WHICH MUST BE IMPLANTED INTO THE CLEAN OIL OF THE CIRCUIT.

2c. MANUALLY LODGE AND SCREW THE BODY OF THE VALVE IN THE CAVITY.

THERE SHOULD BE NO RESISTANCE. Otherwise, find the cause. RESISTANCE can cause VALVE JAMMING AND/OR SEALS TEARING.

3. TIGHTENING TORQUES:

At the the end of the stroke, TIGHTEN with a TORQUE WRENCH.

An insufficient tightening torque can cause the loosening of the working valve and the extrusion of O-rings.

An excessive tightening torque can cause a locking or a dysfunctioning of the valve.

RESPECT THE TORQUES SHOWN ON DATA SHEETS, usually :

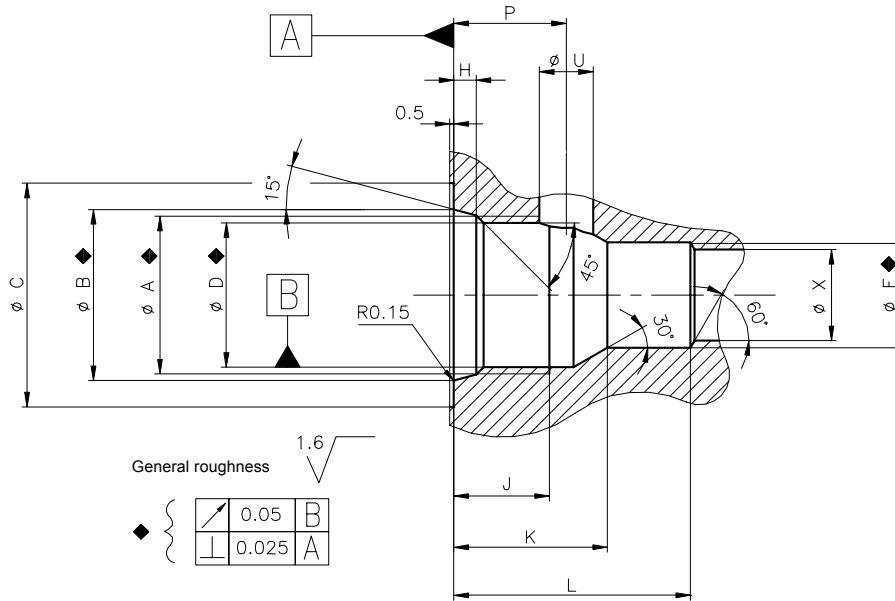
- | | | | |
|--------------------|---|---------------------------------|----------------------------|
| ➤ 20 Nm max | for cavities on solenoid valves | SIZE 08 : 3/4" - 16 UNF | SIZE 58 : M18 x 1,5 |
| ➤ 30 Nm max | for cavities on solenoid valves 3 & 4 ways | SIZE 10 : 7/8" - 14 UNF | SIZE 62 : M22 x 1,5 |
| ➤ 60 Nm max | for cavities on valves 2 & 3 ways
and solenoid valves 10A02 - 10A03 - 10A05 &- 10A04 - 10A06 | SIZE 10 : 7/8" - 14 UNF | SIZE 62 : M22 x 1,5 |
| ➤ 85 Nm max | for cavities on solenoid valves 2 - 3 & 4 ways | SIZE 16 : 1"5/16 - 12 UN | |

FOR SOLENOID VALVES:

Mount the coil again and screw the nut according to the tightening torque on data sheets, usually 5 Nm.

VALVES and SOLENOID VALVES in CARTRIDGES

METRIC CAVITIES CODIFICATION 2 WAYS FUNCTIONS



You have chosen to equip your hydraulic or elctro-hydraulic circuits, to use components in CARTRIDGES. This is an elegant, convenient, compact, modular and evolving solution with a competitive price.

However, a certain number of recommendations must be respected for the execution of cavities in order to avoid:

- ⇒ mechanical constraints which can cause jamming of spools or poppets
- ⇒ aleatory dysfunctionings
- ⇒ faulty geometrical and surface conditions wich can cause external and internal leakages.
- ⇒ inaccurate clearances wich can cause seal kit extrusion.

CODES SIZES	58	62	73
A	M 18 x 150	M 22 x 150	M 33 x 2
B 0 / + 0,1	19,80	23,80	35,40
C ± 0,5	25	28	39
D ± 0,05	16,50	20,50	31
E	15	19	28
F	-	-	-
G	-	-	-
H ± 0,1	2,40	2,40	3,10
J + 1,5/+0	12	13	17
K ± 0,1	18	21	30
L ± 0,1	28	32	42
M	-	-	-
N	-	-	-
P ± 0,1	13	15	21
R	-	-	-
S	-	-	-
T	-	-	-
U Maxi	8	9,50	13
V Maxi	-	-	-
W Maxi	-	-	-
X Maxi	14	18	27
Z	-	-	-

RECOMMANDATIONS for CAVITIES EXECUTION

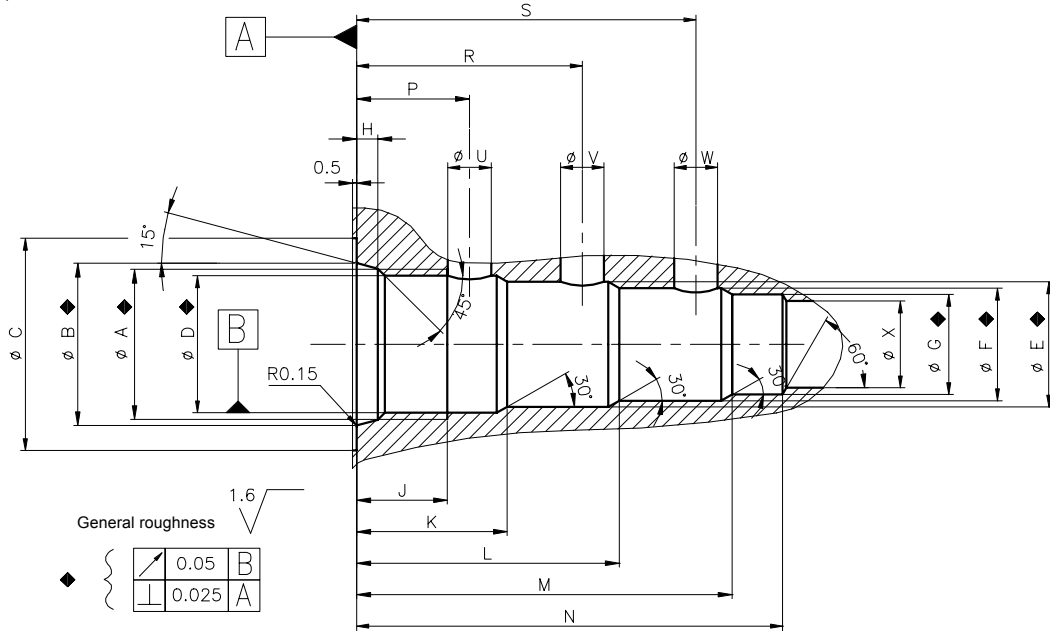
1. Cavities execution must be carefully executed and clearances must be respected.
2. The different bores used for bearing or tightness must be perfectly:
 - 2.1. Concentric with a clearance of $\leq \begin{matrix} \text{---} \\ \text{---} \end{matrix} 0,025$
 - 2.2. Cylindric with a clearance of $\leq \begin{matrix} \text{---} \\ \text{---} \end{matrix} 0,025$
 - 2.3. Perpendicular to the base of the valve $\perp 0,025$
 - 2.4. Smooth - Roughness $0,8$ or even $1,6$
3. The chamfers, or connecting roundings, must be perfectly smooth and free of fins or cuttings edges.
4. Make sure that all ports of communication are made in the zones marked out by the present technical document and under no circumstance these must interfere with the chamfer chamber passage or the O-ring bearings which ensure tightness between the different pressure chambers.
5. Cavities must be carefully burred, no bur must remain, not even non detachable ones. A thermal deburring is recommended, for steel parts as for aluminium parts.
6. Pollution - Before mounting, the blocks which receive the cavities must be entirely depolluted of external body, chips, filings, dust.....

It is recommended to respect the pollution class 18/14 (ISO 4406)

F.T 50 1270

VALVES and SOLENOID VALVES in CARTRIDGES

SAE J475 CAVITIES CODIFICATION 4 WAYS FUNCTIONS



You have chosen to equip your hydraulic or electro-hydraulic circuits, to use components in CARTRIDGES. This is an elegant, convenient, compact, modular and evolving solution with a competitive price.

However, a certain number of recommendations must be respected for the execution of cavities in order to avoid:

- ⇒ mechanical constraints which can cause jamming of spools or poppets
- ⇒ aleatory dysfunctionings
- ⇒ faulty geometrical and surface conditions which can cause external and internal leakages.
- ⇒ inaccurate clearances which can cause seal kit extrusion.

CODES SIZES	08	10	16
A	3/4"-16UNF	7/8"-14UNF	1"5/16-12UNF
B ± 0,05	20,66	24	35,58
C ± 0,5	27	30	45
D ± 0,05	17,42	20,62	31,34
E ± 0,025	15,90	19,08	28,62
F ± 0,025	14,30	17,50	27,02
G ± 0,025	12,72	15,90	25,45
H ± 0,1	2,70	2,80	3,49
J + 1,5/+0	11,50	16	22
K ± 0,1	19,10	23,60	36,50
L ± 0,1	33,30	39,60	64,30
M ± 0,1	47,60	55,40	92
N ± 0,1	56	63,50	104
P ± 0,1	13	17,50	26
R ± 0,1	28	34	54,50
S ± 0,1	43	50	82,50
T	-	-	-
U Maxi	8	8	15
V Maxi	8	8	15
W Maxi	8	8	15
X Maxi	11	14	19
Z	-	-	-

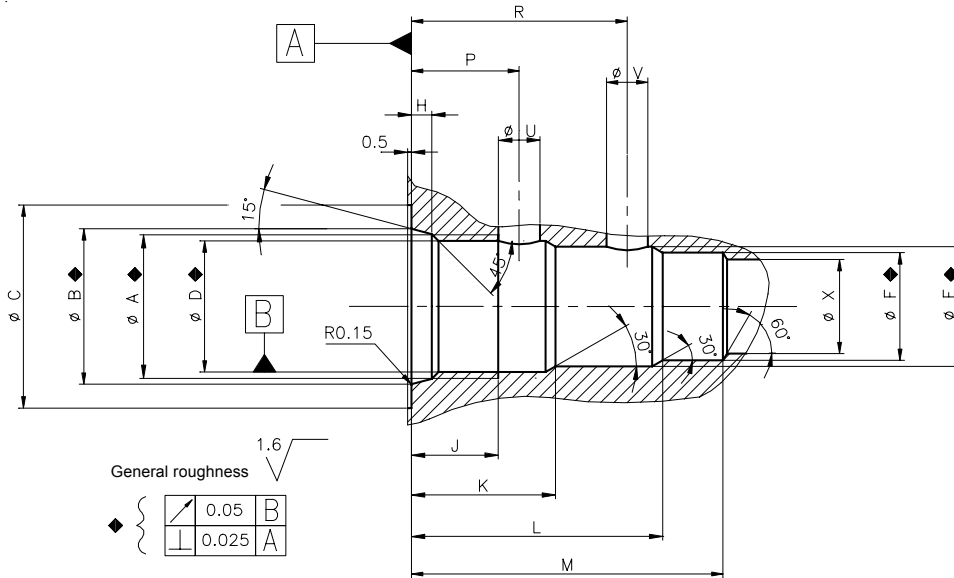
RECOMMANDATIONS for CAVITIES EXECUTION

1. Cavities execution must be carefully executed and clearances must be respected.
 2. The different bores used for bearing or tightness must be perfectly:
 - 2.1. Concentric with a clearance of $\leq \begin{matrix} \text{◎} & 0,025 \\ \text{○} & 0,025 \\ \text{⊥} & 0,025 \end{matrix}$
 - 2.2. Cylindric with a clearance of $\leq \begin{matrix} \text{○} & 0,025 \\ \text{○} & 0,025 \\ \text{⊥} & 0,025 \end{matrix}$
 - 2.3. Perpendicular to the base of the valve
 - 2.4. Smooth - Roughness $0,8 \sqrt{\quad}$ or even $1,6 \sqrt{\quad}$
 3. The chamfers, or connecting roundings, must be perfectly smooth and free of fins or cuttings edges.
 4. Make sure that all ports of communication are made in the zones marked out by the present technical document and under no circumstance these must interfere with the chamfer chamber passage or the O-ring bearings which ensure tightness between the different pressure chambers.
 5. Cavities must be carefully burred, no bur must remain, not even non detachable ones. A thermal deburring is recommended, for steel parts as for aluminium parts.
 6. Pollution - Before mounting, the blocks which receive the cavities must be entirely depolluted of external body, chips, filings, dust.....
- It is recommended to respect the pollution class 18/14 (ISO 4406)

F.T 50 1269

VALVES and SOLENOID VALVES in CARTRIDGES

SAE J475 CAVITIES CODIFICATION 3 WAYS FUNCTIONS



You have chosen to equip your hydraulic or electro-hydraulic circuits, to use components in CARTRIDGES. This is an elegant, convenient, compact, modular and evolving solution with a competitive price.

However, a certain number of recommendations must be respected for the execution of cavities in order to avoid:

- ⇒ mechanical constraints which can cause jamming of spools or poppets
- ⇒ aleatory dysfunctionings
- ⇒ faulty geometrical and surface conditions which can cause external and internal leakages.
- ⇒ inaccurate clearances which can cause seal kit extrusion.

CODES SIZES	08	10	16
A	3/4"-16UNF	7/8"-14UNF	1"5/16-12UNF
B	± 0,05 20,66	24	35,58
C	± 0,5 27	30	45
D	± 0,05 17,42	20,62	31,34
E	± 0,025 15,90	17,50	28,62
F	± 0,025 14,30	15,90	27,02
G	± 0,025 -	-	-
H	± 0,1 2,70	2,80	3,49
J	+ 1,5/+0 11,50	16	22
K	± 0,1 19,10	23,10	36,50
L	± 0,1 33,30	39,60	64,30
M	± 0,1 41,30	47,60	75,30
N	-	-	-
P	± 0,1 13	17,50	26
R	± 0,1 28	34	54,50
S	-	-	-
T	-	-	-
U	Maxi 8	8	15
V	Maxi 8	8	15
W	Maxi -	-	-
X	Maxi 12,50	14	19
Z	-	-	-

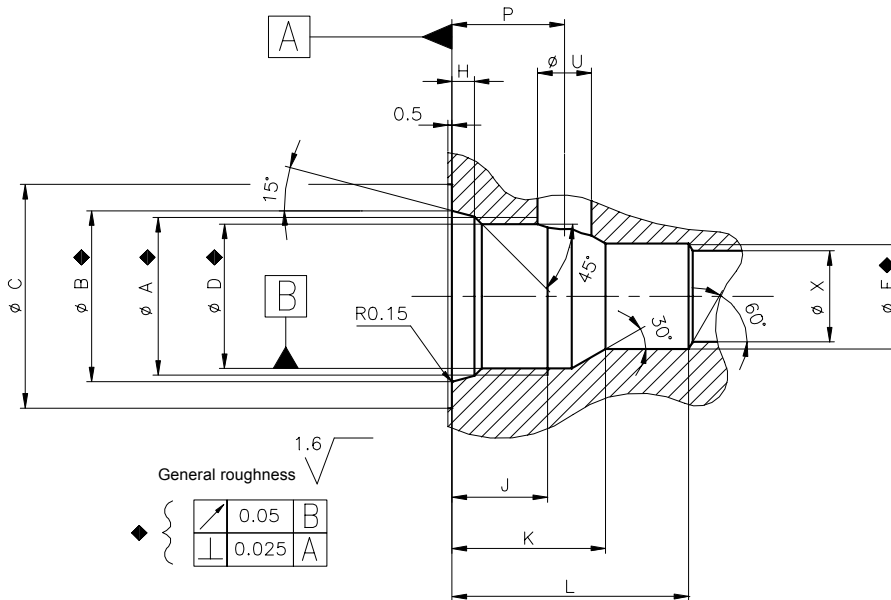
RECOMMENDATIONS for CAVITIES EXECUTION

1. Cavities execution must be carefully executed and clearances must be respected.
 2. The different bores used for bearing or tightness must be perfectly:
 - 2.1. Concentric with a clearance of $\leq \begin{matrix} \text{◎} & 0,025 \\ \text{○} & 0,025 \\ \text{⊥} & 0,025 \end{matrix}$
 - 2.2. Cylindric with a clearance of $\leq \begin{matrix} \text{◎} & 0,025 \\ \text{○} & 0,025 \\ \text{⊥} & 0,025 \end{matrix}$
 - 2.3. Perpendicular to the base of the valve $\perp 0,025$
 - 2.4. Smooth - Roughness $\sqrt{0,8}$ or even $\sqrt{1,6}$
 3. The chamfers, or connecting roundings, must be perfectly smooth and free of fins or cuttings edges.
 4. Make sure that all ports of communication are made in the zones marked out by the present technical document and under no circumstance these must interfere with the chamfer chamber passage or the O-ring bearings which ensure tightness between the different pressure chambers.
 5. Cavities must be carefully burred, no bur must remain, not even non detachable ones. A thermal deburring is recommended, for steel parts as for aluminium parts.
 6. Pollution - Before mounting, the blocks which receive the cavities must be entirely depolluted of external body, chips, filings, dust.....
- It is recommended to respect the pollution class 18/14 (ISO 4406)

F.T 50 1268

VALVES and SOLENOID VALVES in CARTRIDGES

SAE J475 CAVITIES CODIFICATION 2 WAYS FUNCTIONS



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- ⇒ aleatory dysfunctionings
- ⇒ faulty geometrical and surface conditions which can cause external and internal leakages.
- ⇒ inaccurate clearances which can cause seal kit extrusion.

CODES SIZES	08	09	10	16
A	3/4"-16UNF	3/4"-16UNF	7/8"-14UNF	1"5/16-12UNF
B ± 0,05	20,66	20,66	24	35,58
C ± 0,5	27	27	30	45
D ± 0,05	17,42	17,42	20,62	31,34
E ± 0,025	12,72	15,90	15,90	28,62
F ± 0,025	-	-	-	-
G ± 0,025	-	-	-	-
H ± 0,1	2,70	2,70	2,80	3,49
J + 1,5/+0	11,50	11,50	16	22
K ± 0,1	18,50	18,50	23,80	34,10
L ± 0,1	28,50	28,50	33,30	46,80
M	-	-	-	-
N	-	-	-	-
P ± 0,1	13	13	17	24,50
R	-	-	-	-
S	-	-	-	-
T	-	-	-	-
U Maxi	8	8	10	15
V Maxi	-	-	-	-
W Maxi	-	-	-	-
X Maxi	11	14	15	27
Z	-	-	-	-

RECOMMANDATIONS for CAVITIES EXECUTION

1. Cavities execution must be carefully executed and clearances must be respected.
 2. The different bores used for bearing or tightness must be perfectly:
 - 2.1. Concentric with a clearance of $\leq \begin{matrix} \text{◎} & 0,025 \\ \text{○} & 0,025 \\ \text{⊥} & 0,025 \end{matrix}$
 - 2.2. Cylindric with a clearance of $\leq \begin{matrix} \text{○} & 0,025 \\ \text{⊥} & 0,025 \end{matrix}$
 - 2.3. Perpendicular to the base of the valve
 - 2.4. Smooth - Roughness $\sqrt{0,8}$ or even $\sqrt{1,6}$
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 6. Pollution - Before mounting, the blocks which receive the cavities must be entirely depolluted of external body, chips, filings, dust.....
- It is recommended to respect the pollution class 18/14 (ISO 4406)

F.T 50 1267