

# MOELLER

PRECISION TOOL



## TRUE-SET RETAINERS



*The World's Only True One-Piece Construction Ball Lock Retainer*

**STANDARD - TRUE-SET BALL LOCK AND SHOULDER RETAINERS**  
**SPECIAL - BUILT-TO-SPECIFICATION MULTI-HOLE RETAINERS**



# STANDARD RETAINERS

TRUE-SET



Moeller Precision Tool's True-Set™ ball-lock punch retainer was developed through intensive market research. True-Set™ retainers are manufactured from a single piece of premium tool steel, and are through-hardened for maximum strength and durability. The unique and exclusive one-piece design minimizes tolerance stack-up, allowing for pin-point punch positioning and eliminates the aggravation associated with lost backing plugs, weld separation, etc. True-Set™ retainers are 100% interchangeable with all competing brands and furthermore meet or exceed all global OEM automotive standards. Moeller's True-Set™ Advanced retainer includes a booster spring for maximum punch holding power, and a symmetrical 4th dowel for maximum flexibility to die designers. Stringent quality practices are maintained throughout the manufacturing and inspection processes using the latest technologies and best lean manufacturing practices available. True-Set™ retainers are yet one more reason why Moeller Precision Tool is THE global leader for strength, accuracy, and affordability, with 100% customer satisfaction guaranteed.

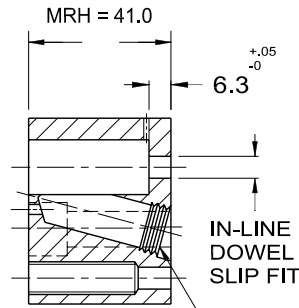
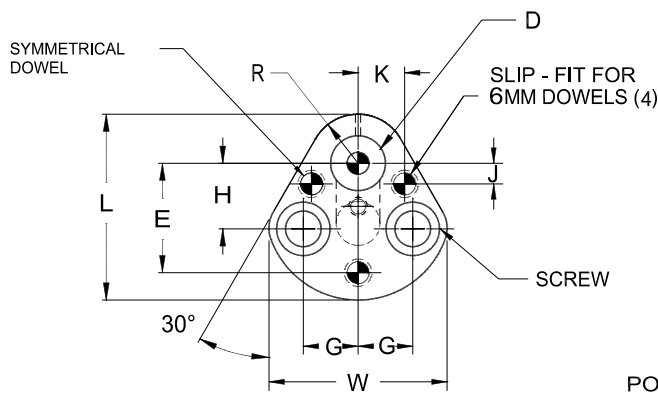


## GENERAL

- Interchangeable with all in line dowel brands.
- Available in both light and heavy duty, inch and metric sizes.
- Fully stocked for off-the-shelf, same day delivery.
- Customer satisfaction is 100% guaranteed.

# BALL LOCK RETAINERS

TRUE-SET - ADVANCED • METRIC ONLY



POSITIVE RETENTION  
SET SCREW  
AND BOOSTER SPRING



FOR ACCESSORIES AND SHIM PLATES,  
SEE PAGES 18-19.



- Advanced Design for the most demanding stamping applications, such as AHSS and Aluminum.
- The Industry's only True One-Piece construction produced from through-hardened, shock resistant, Tool steel.
- Booster spring & positive Ball-Lock retention system is resistant to shock, eliminating punch retention failure.
- Symmetrical 4th dowel provides increased versatility.
- Compatible with all predominant Global OEM Die Standards.

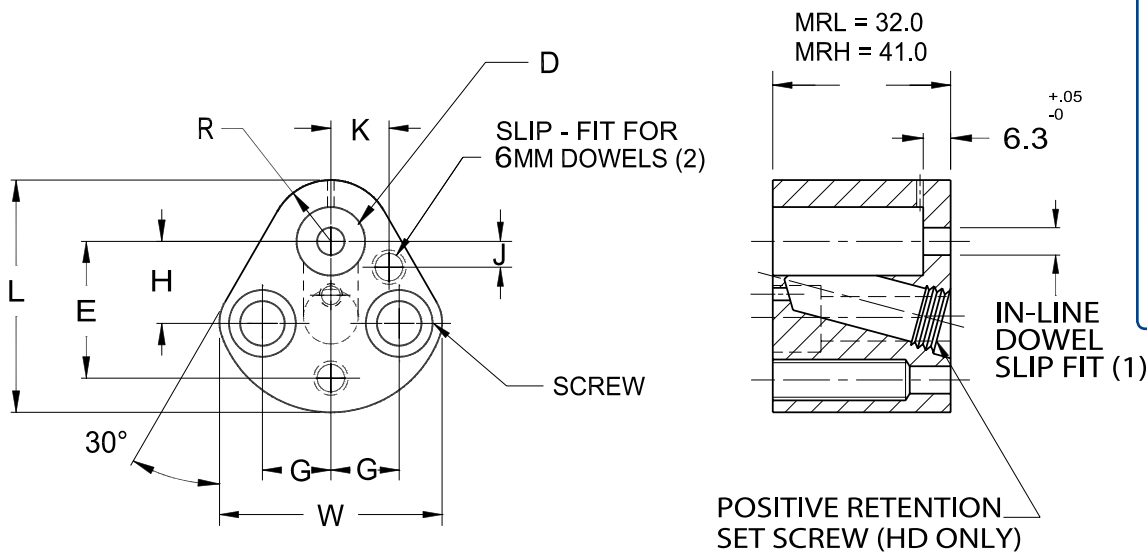
## HEAVY DUTY

Complete design & CAD files visit [WWW.MOELLERMCD.COM](http://WWW.MOELLERMCD.COM)

CATALOG NUMBER	D DIA.	±.01 E	G	L	W	R	H	±.01 J	±.01 K	IN-LINE DOWEL	SCREW SIZE
MRH 10A	10	26.924	11.12	44.5	39.9	9.5	19.05	7.50	9.00	6	M8
MRH 13A	13	29.972	14.27	50.8	48.3	12.7	19.05	6.50	12.00	6	M8
MRH 16A	16	31.750	15.87	54.0	51.6	14.3	19.05	6.00	13.50	6	M8
MRH 20A	20	33.528	17.47	60.3	58.2	17.5	19.05	5.00	16.50	6	M10
MRH 25A	25	40.640	19.84	69.9	66.5	22.2	23.82	7.00	22.00	6	M12
MRH 32A	32	40.640	19.84	69.9	66.5	22.2	23.82	7.00	22.00	6	M12
MRH 40A	40	43.993	24.00	77.4	77.8	26.0	27.00	10.00	26.00	6	M12

# BALL LOCK RETAINERS

TRUE-SET • METRIC



FOR ACCESSORIES AND SHIM PLATES SEE PAGES 18-19.

## HEAVY DUTY

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	D DIA	$\pm.01$ E	G	L	W	R	H	$\pm.01$ J	$\pm.01$ K	IN-LINE DOWEL	SCREW SIZE
MRH 10	10	26.924	11.12	44.5	39.9	9.5	19.05	7.50	9.00	6	M8
MRH 13	13	29.972	14.27	50.8	48.3	12.7	19.05	6.50	12.00	6	M8
MRH 16	16	31.750	15.87	54.0	51.6	14.3	19.05	6.00	13.50	6	M8
MRH 20	20	33.528	17.47	60.3	58.2	17.5	19.05	5.00	16.50	6	M10
MRH 25	25	40.640	19.84	69.9	66.5	22.2	23.82	7.00	22.00	6	M12
MRH 32	32	40.640	19.84	69.9	66.5	22.2	23.82	7.00	22.00	6	M12
MRH 40	40	43.993	24.00	77.4	77.8	26.0	27.00	10.00	26.00	6	M12

## Light Duty

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

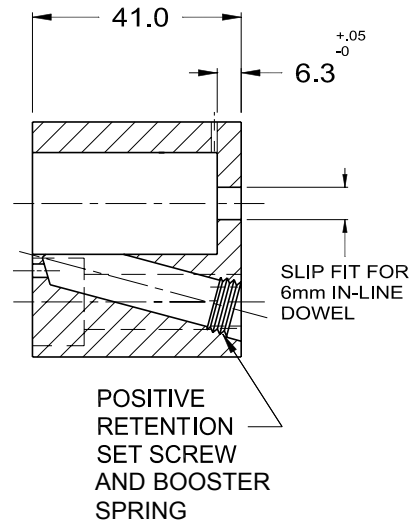
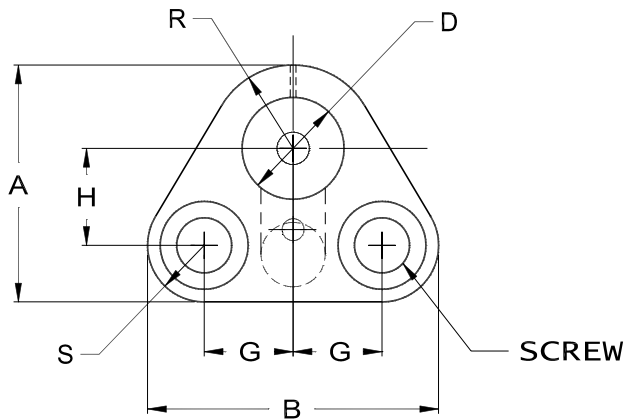
CATALOG NUMBER	D DIA	$\pm.01$ E	G	L	W	R	H	$\pm.01$ J	$\pm.01$ K	IN-LINE DOWEL	SCREW SIZE
MRL 06	06	23.000	11.10	41.3	37.8	8.0	19.00	9.00	8.00	3*	M6
MRL 10	10	26.924	11.12	44.5	39.9	9.5	19.05	7.50	9.00	6	M8
MRL 13	13	29.972	14.27	50.8	48.3	12.7	19.05	6.50	12.00	6	M8
MRL 16	16	31.750	15.87	54.0	51.6	14.3	19.05	6.00	13.50	6	M8
MRL 20	20	33.528	17.47	60.3	58.2	17.5	19.05	5.00	16.50	6	M10
MRL 25	25	40.640	19.84	69.9	66.5	22.2	23.82	7.00	22.00	6	M12
MRL 32	32	40.640	19.84	69.9	66.5	22.2	23.82	7.00	22.00	6	M12
MRL 38	38	43.993	24.00	77.4	77.8	26.0	27.00	10.00	26.00	6	M12

# BALL LOCK RETAINERS

MINI TRUE-SET • METRIC ONLY



FOR ACCESSORIES  
SEE PAGES 18-19.



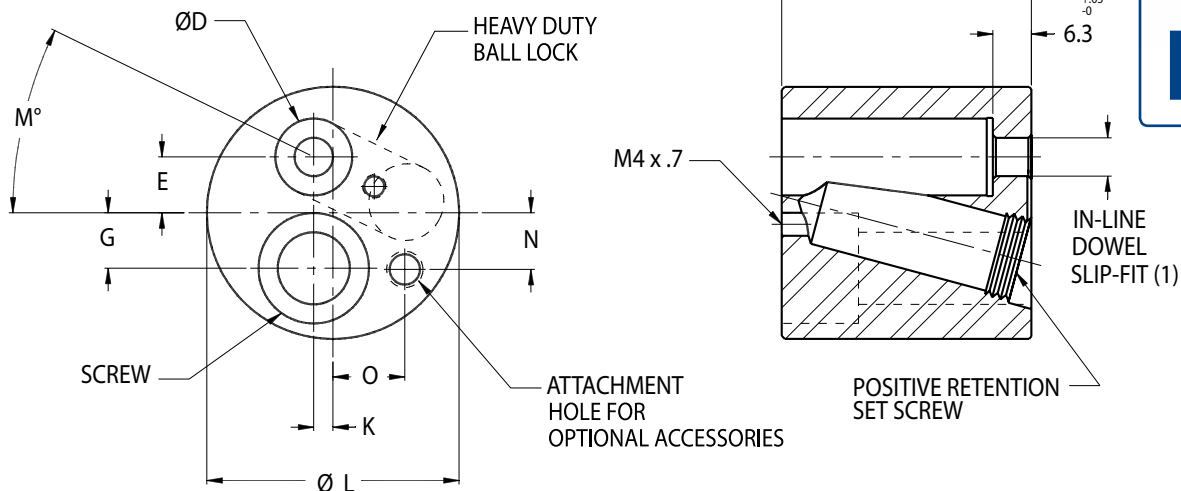
## HEAVY DUTY

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	DIA	A	B	G	H	R	S	SCREW SIZE
MRM 10	10	37.8	40.6	11.1	19.0	9.5	9.2	M8
MRM 13	13	40.3	47.6	14.3	19.0	11.7	9.5	M8
MRM 16	16	42.1	50.8	15.9	19.0	13.5	9.5	M8
MRM 20	20	46.5	57.1	17.5	19.0	16.4	11.1	M10
MRM 25	25	56.5	65.1	19.8	23.8	20.0	12.7	M12
MRM 32	32	58.2	64.0	19.8	23.8	22.2	12.2	M12
MRM 40	40	67.3	76.2	24.0	27.0	26.0	14.3	M12

# BALL LOCK RETAINERS

ECONOMY ROUND TRUE-SET • METRIC



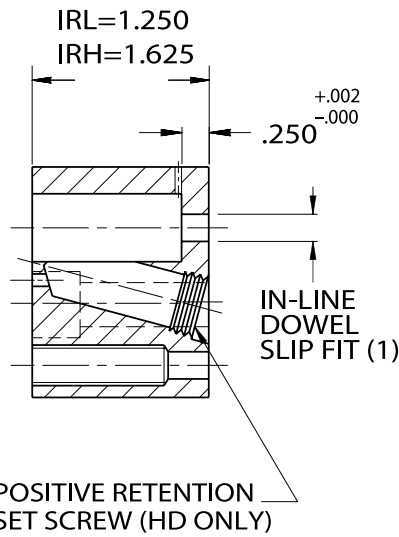
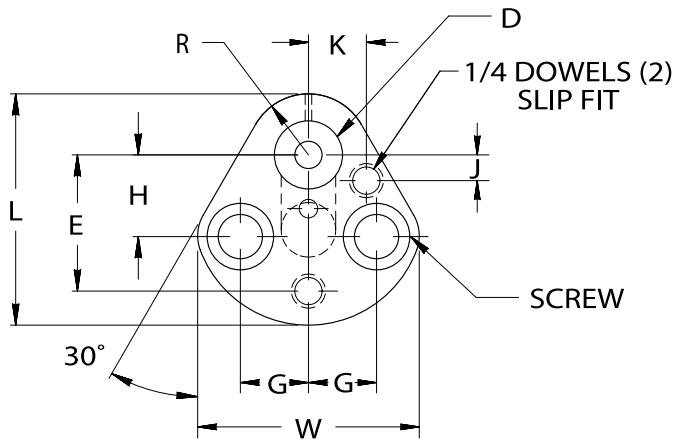
FOR ACCESSORIES  
AND SHIM PLATES  
SEE PAGES 18-19.

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	$\text{ØD}$	$\text{ØL}$	E	G	K	M	N	O	SCREW SIZE	IN-LINE DOWEL	ATTACHMENT HOLE
MRR 10	10.00	38.1	9.86	7.10	2.65	20.5°	4.47	12.72	M12	6	M6 x 1.0
MRR 13	13.00	41.3	9.25	9.17	3.18	26°	9.35	11.88	M12	6	M6 x 1.0
MRR 16	16.00	44.5	9.10	11.07	1.93	33.5°	10.21	13.16	M12	6	M6 x 1.0
MRR 20	20.00	57.2	12.20	14.30	0	30°	9.35	19.40	M16	6	M8 x 1.25
MRR 25	25.00	63.5	12.51	17.50	0	30°	14.27	20.17	M16	6	M8 x 1.25
MRR 32	32.00	76.2	15.67	20.83	0	30°	15.46	26.12	M20	6	M8 x 1.25
MRR 40	40.00	82.6	15.39	23.55	0	30°	15.46	26.12	M20	6	M8 x 1.25

# BALL LOCK RETAINERS

TRUE-SET • INCH



FOR ACCESSORIES  
AND SHIM PLATES  
SEE PAGES 18-19.

## HEAVY DUTY

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	D DIA	L	W	R	H	±.0004 J	±.0004 K	G	±.0004 E	IN-LINE DOWEL	SCREW SIZE
IRH 37	.375	1.75	1.57	.38	.750	.2953	.3543	.438	1.060	.1875	5/16-18
IRH 50	.500	2.00	1.90	.50	.750	.2559	.4724	.562	1.180	.2500	3/8-16
IRH 62	.625	2.12	2.03	.56	.750	.2362	.5315	.625	1.250	.2500	3/8-16
IRH 75	.750	2.37	2.29	.69	.750	.1969	.6496	.688	1.320	.2500	3/8-16
IRH 87	.875	2.50	2.42	.75	.750	.1969	.7283	.688	1.400	.2500	3/8-16
IRH 100	1.000	2.75	2.62	.88	.938	.2756	.8661	.781	1.600	.2500	1/2-13
IRH 125	1.250	2.75	2.62	.88	.938	.2756	.8661	.781	1.600	.2500	1/2-13

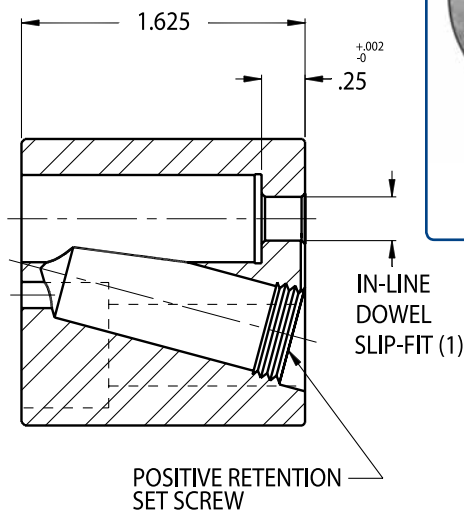
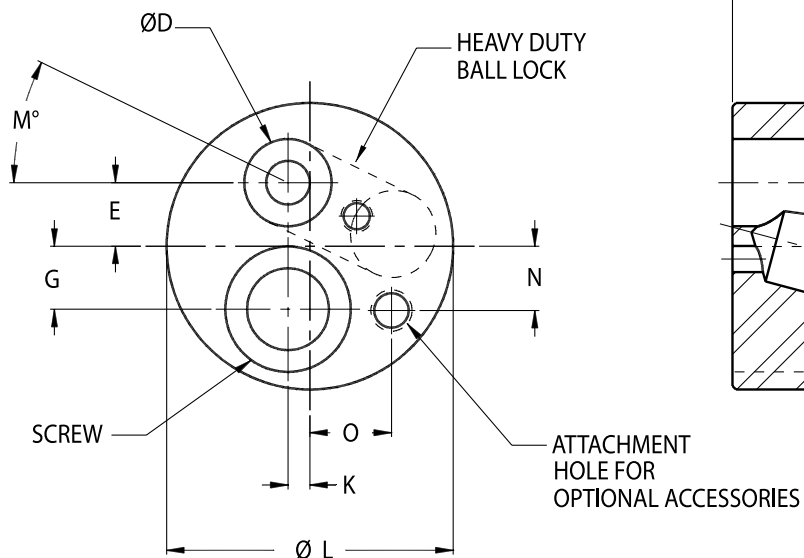
## Light Duty

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	D DIA	L	W	R	H	±.0004 J	±.0004 K	G	±.0004 E	IN-LINE DOWEL	SCREW SIZE
IRL 25	.250	1.75	1.57	.38	.750	.2953	.3543	.438	1.060	.1250	5/16-18
IRL 37	.375	1.75	1.57	.38	.750	.2953	.3543	.438	1.060	.1875	5/16-18
IRL 50	.500	2.00	1.90	.50	.750	.2559	.4724	.562	1.180	.2500	3/8-16
IRL 62	.625	2.12	2.03	.56	.750	.2362	.5315	.625	1.250	.2500	3/8-16
IRL 75	.750	2.37	2.29	.69	.750	.1969	.6496	.688	1.320	.2500	3/8-16
IRL 87	.875	2.50	2.42	.75	.750	.1969	.7283	.688	1.400	.2500	3/8-16
IRL 100	1.000	2.75	2.62	.88	.938	.2756	.8661	.781	1.600	.2500	1/2-13
IRL 125	1.250	2.75	2.62	.88	.938	.2756	.8661	.781	1.600	.2500	1/2-13

# BALL LOCK RETAINERS

ECONOMY ROUND TRUE-SET • INCH



FOR ACCESSORIES AND SHIM PLATES SEE PAGES 18-19.

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	ØD	ØL	E	G	$\pm .25$ M	K	SCREW SIZE	IN-LINE DOWEL
IRR 37	.375	1.50	.389	.280	20.5°	.104	7/16-14	.1875
IRR 50	.500	1.63	.364	.361	26°	.125	7/16-14	.2500
IRR 62	.625	1.75	.358	.436	33.5°	.076	7/16-14	.2500
IRR 75	.750	2.25	.480	.563	30°	0	5/8-11	.2500
IRR 87	.875	2.38	.484	.626	30°	0	5/8-11	.2500
IRR 100	1.000	2.50	.492	.689	30°	0	5/8-11	.2500
IRR 125	1.250	3.00	.617	.820	30°	0	3/4-10	.2500



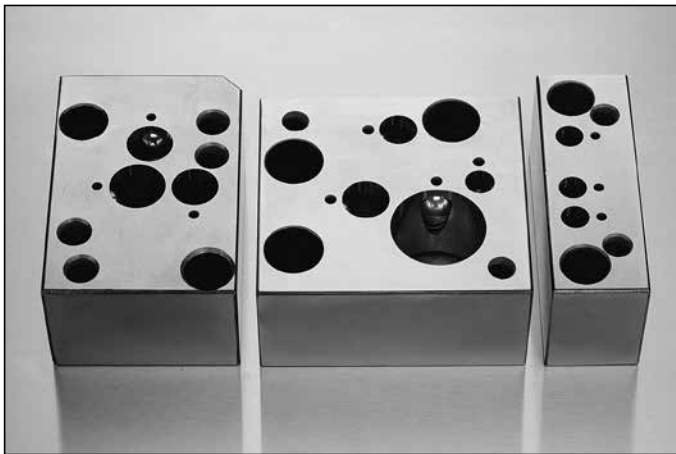
# MULTI-HOLE RETAINERS

TRUE-SET

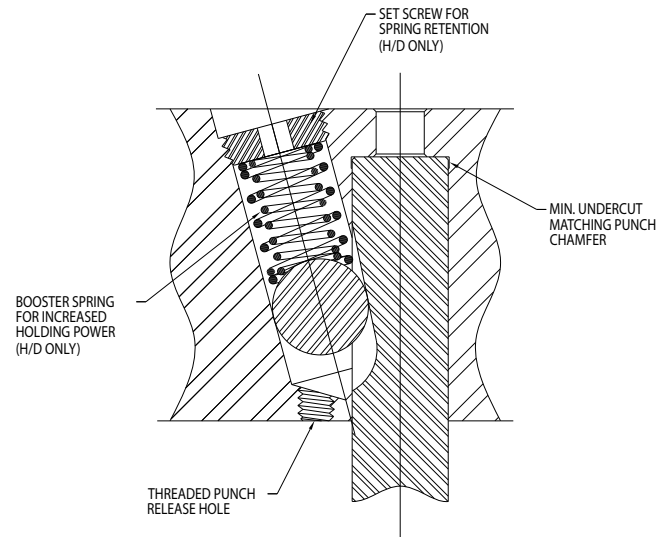


Moeller Precision Tool's patented True-Set multi hole retainer provides an innovative, low cost solution in building dies. They reduce die assembly time and allow for closer spacing of punches. The retainers are manufactured from a single piece of high alloy tool steel which is through hardened and ground for accuracy and long life. The simplified design eliminates troublesome backing plates, backing plugs and offers improved delivery and price.

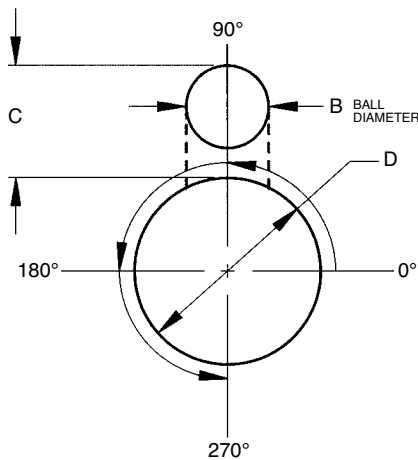
## TYPICAL MULTI HOLE RETAINERS



## DETAIL VIEW OF PUNCH HOLE



- Unique design provides a 15-30% savings over backing plate styles, and reduces lead time.
- Available in both light and heavy duty, inch and metric sizes.
- Interchangeable with all competing brands.
- 100% customer satisfaction guaranteed.



Specify radial location in degrees counter-clockwise from 0°.

Punch Shape	Ball Hole Class	Radial Tolerance
Round	R	±5°
Shape	F	±0°5'

Class R provided unless otherwise specified.

SPACE REQUIREMENTS - INCH				SPACE REQUIREMENTS - METRIC			
CATALOG NUMBER	D	B	C	CATALOG NUMBER	D	B	C
IRL	.250"	.250"	.440"	MRL	6mm	6mm	11.4mm
	.375"	.250"	.440"		10mm	8mm	12.9mm
	.500"	.312"	.500"		13mm	8mm	12.9mm
	.625"	.312"	.500"		16mm	8mm	12.9mm
	.750"	.375"	.570"		20mm	8mm	12.9mm
	.875"	.375"	.570"		25mm	8mm	12.9mm
	1.000"	.375"	.570"		32mm	8mm	12.9mm
	1.250"	.375"	.570"		38mm	8mm	12.9mm
IRH	.375"	.375"	.625"	MRH	10mm	10mm	15.7mm
	.500"	.500"	.750"		13mm	12mm	18.4mm
	.625"	.500"	.750"		16mm	12mm	18.4mm
	.750"	.500"	.750"		20mm	12mm	18.4mm
	.875"	.500"	.750"		25mm	12mm	18.4mm
	1.000"	.500"	.750"		32mm	12mm	18.4mm
	1.250"	.500"	.750"		40mm	12mm	18.4mm

STANDARD TOLERANCES	INCH	METRIC
OUTSIDE EDGES	±.020	±.50mm
DOWEL HOLE LOCATIONS	±.0005	±.01mm
SCREW HOLE LOCATIONS	±.005	±.10mm
COMPONENT HOLE LOCATIONS	±.0005	±.01mm

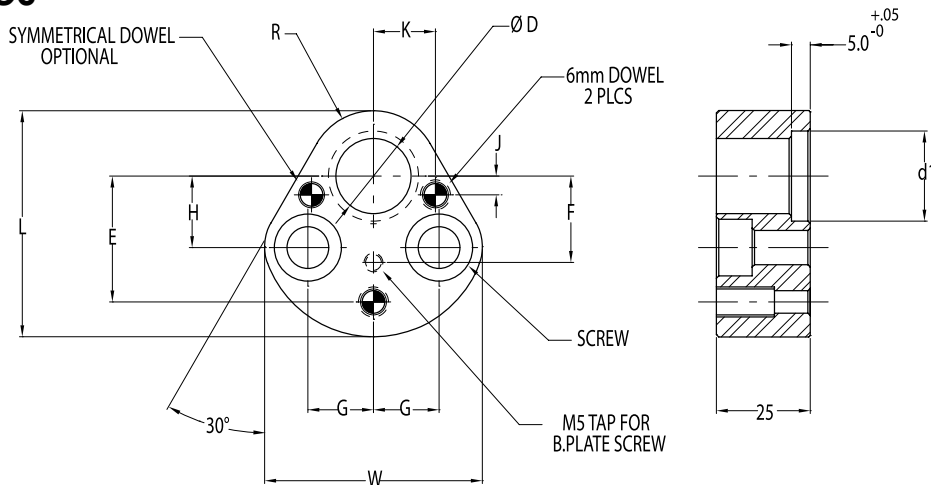
# SHOULDER PUNCH RETAINERS

TRUE-SET • METRIC



## MRN STYLE

For Round Punches



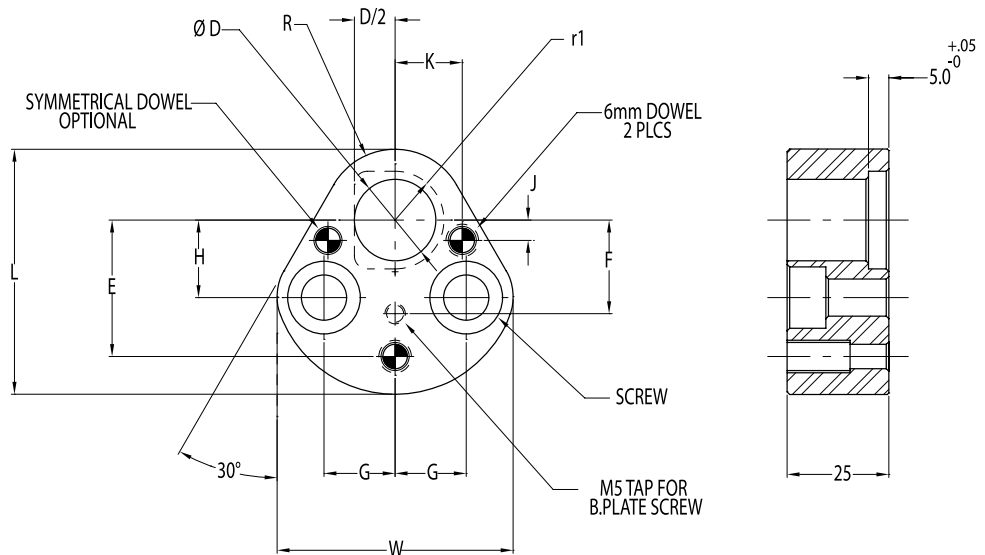
FOR ACCESSORIES  
AND BACKING PLATES  
SEE PAGE 18-19.

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	D	d1	L	W	R	H	±.01 J	±.01 K	G	±.01 E	F	SCREW SIZE
MRN 10	10	14.0	44.5	39.9	9.5	19.05	7.50	9.00	11.12	26.924	16.00	M8
MRN 13	13	17.0	50.8	48.3	12.7	19.05	6.50	12.00	14.27	29.972	16.00	M8
MRN 16	16	20.0	54.0	51.6	14.3	19.05	6.00	13.50	15.87	31.750	16.00	M8
MRN 20	20	24.0	60.3	58.2	17.5	19.05	5.00	16.50	17.47	33.528	23.00	M10
MRN 25	25	29.0	69.9	66.5	22.2	23.82	7.00	22.00	19.84	40.640	30.00	M12
MRN 32	32	36.0	69.9	66.5	22.2	23.82	7.00	22.00	19.84	40.640	30.00	M12

## MRO STYLE

For Shaped Punches



Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	D	r1	L	W	R	H	±.01 J	±.01 K	G	±.01 E	F	SCREW SIZE
MRO 10	10	7.0	44.5	39.9	9.5	19.05	7.50	9.00	11.12	26.924	16.00	M8
MRO 13	13	8.5	50.8	48.3	12.7	19.05	6.50	12.00	14.27	29.972	16.00	M8
MRO 16	16	10.0	54.0	51.6	14.3	19.05	6.00	13.50	15.87	31.750	16.00	M8
MRO 20	20	12.0	60.3	58.2	17.5	19.05	5.00	16.50	17.47	33.528	23.00	M10
MRO 25	25	14.5	69.9	66.5	22.2	23.82	7.00	22.00	19.84	40.640	30.00	M12
MRO 32	32	18.0	69.9	66.5	22.2	23.82	7.00	22.00	19.84	40.640	30.00	M12

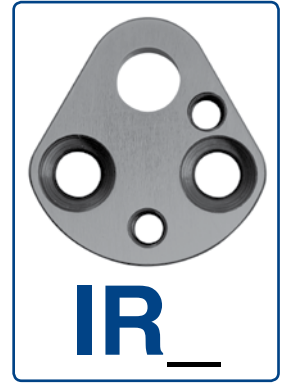
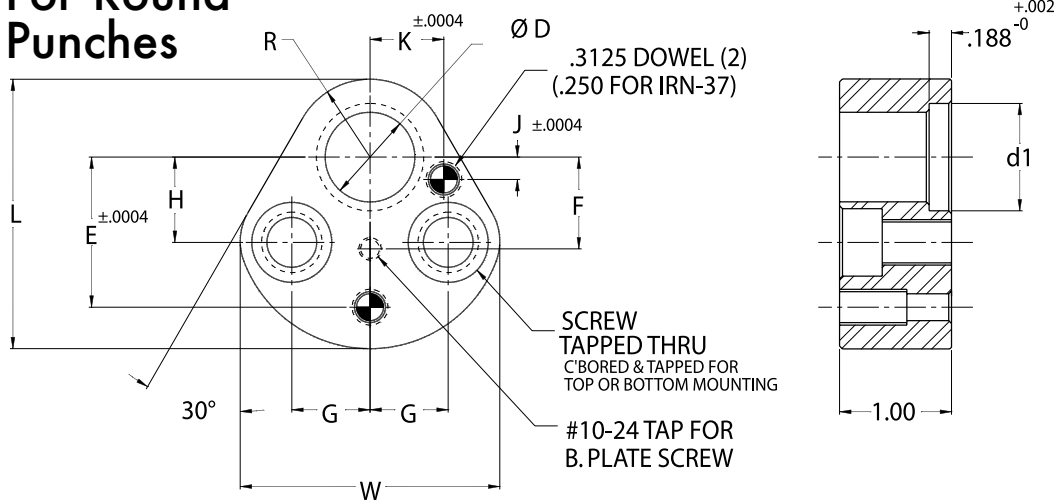
# SHOULDER PUNCH RETAINERS

TRUE-SET • INCH



## IRN STYLE

For Round Punches



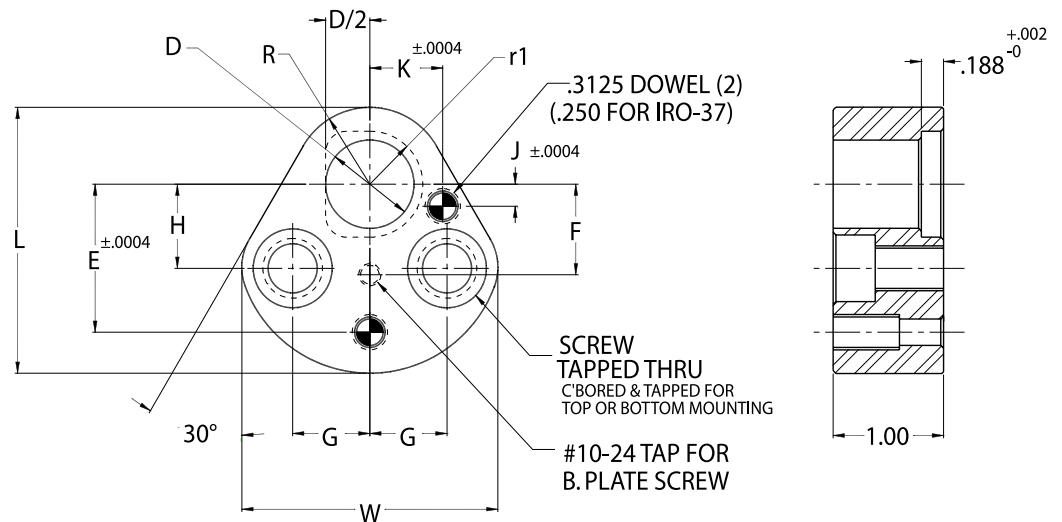
FOR ACCESSORIES  
AND BACKING PLATES  
SEE PAGE 18-19.

Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG NUMBER	D	d1	L	W	R	H	$\pm .0004$ J	$\pm .0004$ K	G	$\pm .0004$ E	F	SCREW SIZE	TAP
IRN 37	.375	.53	1.75	1.57	.38	.75	.2953	.3543	.438	1.060	.63	5/16-18	3/8-16
IRN 50	.500	.66	2.00	1.90	.50	.75	.2559	.4724	.562	1.180	.63	5/16-18	3/8-16
IRN 62	.625	.78	2.12	2.03	.56	.75	.2362	.5315	.625	1.250	.63	5/16-18	3/8-16
IRN 75	.750	.91	2.37	2.29	.69	.75	.1968	.6496	.688	1.320	.91	5/16-18	3/8-16
IRN 100	1.000	1.18	2.75	2.62	.88	.94	.2756	.8661	.781	1.600	1.18	1/2-13	5/8-11
IRN 125	1.250	1.41	2.75	2.62	.88	.94	.2756	.8661	.781	1.600	1.18	1/2-13	5/8-11

## IRO STYLE

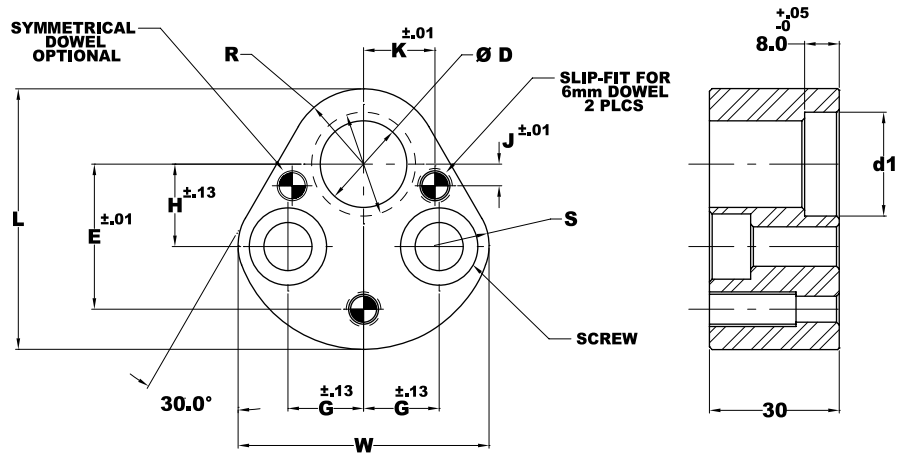
For Shaped Punches



Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

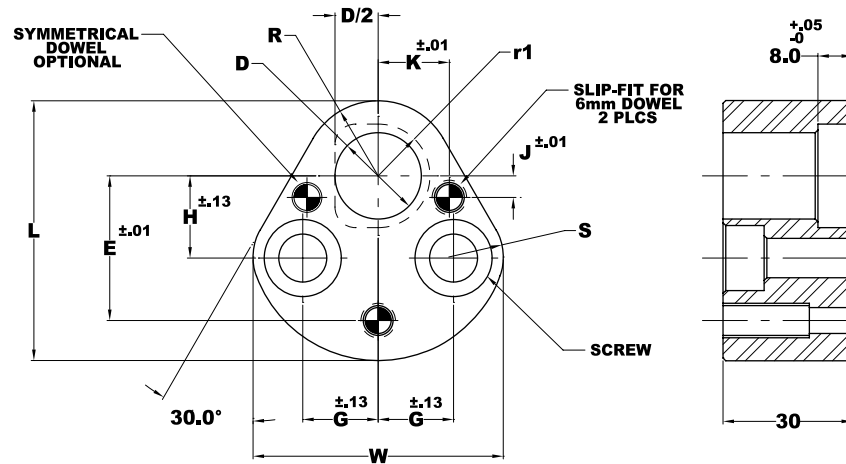
CATALOG NUMBER	D	r1	L	W	R	H	$\pm .0004$ J	$\pm .0004$ K	G	$\pm .0004$ E	F	SCREW SIZE	TAP
IRO 37	.375	.53	1.75	1.57	.38	.75	.2953	.3543	.438	1.060	.63	5/16-18	3/8-16
IRO 50	.500	.66	2.00	1.90	.50	.75	.2559	.4724	.562	1.180	.63	5/16-18	3/8-16
IRO 62	.625	.78	2.12	2.03	.56	.75	.2362	.5315	.625	1.250	.63	5/16-18	3/8-16
IRO 75	.750	.91	2.37	2.29	.69	.75	.1968	.6496	.688	1.320	.91	5/16-18	3/8-16
IRO 100	1.000	1.18	2.75	2.62	.88	.94	.2756	.8661	.781	1.600	1.18	1/2-13	5/8-11
IRO 125	1.250	1.41	2.75	2.62	.88	.94	.2756	.8661	.781	1.600	1.18	1/2-13	5/8-11

## XMRN STYLE For Round Punches



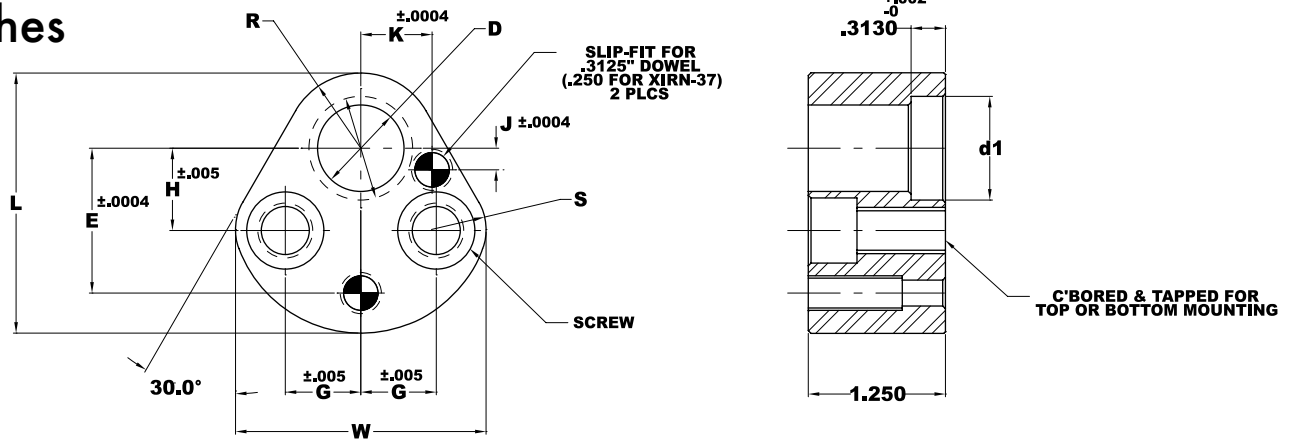
CATALOG NUMBER	D	d1	L	W	R	H	J	K	S	G	E	SCREW SIZE
XMRN-10	10.00	15.5	44.5	43.7	9.5	19.0	7.5	9.0	12.0	11.1	26.925	M8
XMRN-13	13.00	18.5	50.8	50.0	12.7	19.0	6.5	12.0	15.2	14.3	29.970	M8
XMRN-16	16.00	21.5	54.0	53.2	14.3	19.0	6.0	13.5	16.8	15.9	31.750	M8
XMRN-20	20.00	25.5	60.3	59.5	17.5	19.0	5.0	16.5	20.0	17.5	33.530	M10
XMRN-25	25.00	30.5	69.9	69.1	22.2	23.8	7.0	22.0	24.7	19.8	40.640	M12

## XMRO STYLE For Shaped Punches



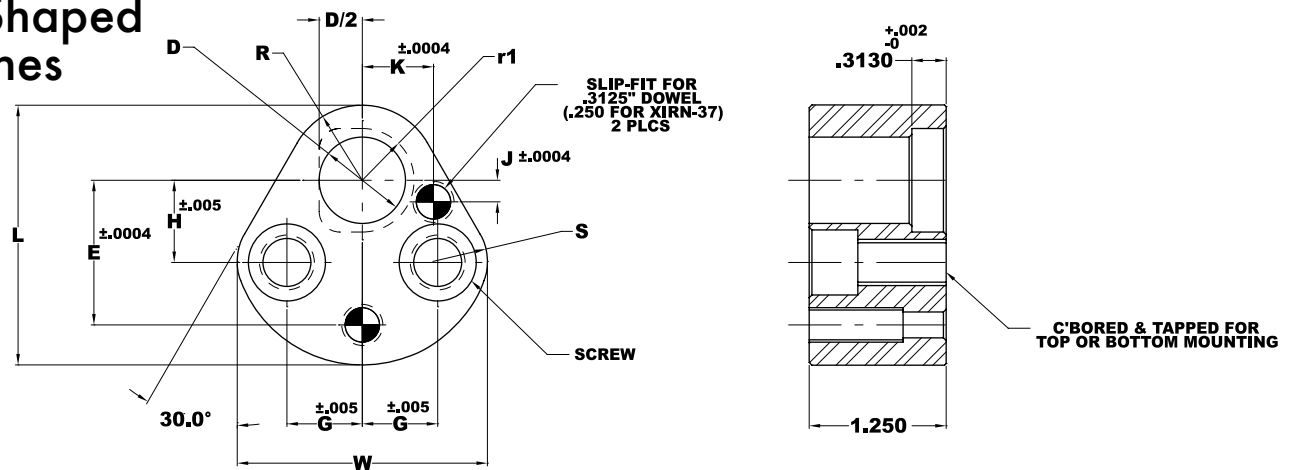
CATALOG NUMBER	D	r1	L	W	R	H	J	K	S	G	E	SCREW SIZE
XMRO-10	10.00	7.75	44.5	43.7	9.5	19.0	7.5	9.0	12.0	11.1	26.925	M8
XMRO-13	13.00	9.25	50.8	50.0	12.7	19.0	6.5	12.0	15.2	14.3	29.970	M8
XMRO-16	16.00	10.75	54.0	53.2	14.3	19.0	6.0	13.5	16.8	15.9	31.750	M8
XMRO-20	20.00	12.75	60.3	59.5	17.5	19.0	5.0	16.5	20.0	17.5	33.530	M10
XMRO-25	25.00	15.25	69.9	69.1	22.2	23.8	7.0	22.0	24.7	19.8	40.640	M12

## XIRN STYLE For Round Punches



CATALOG NUMBER	D	d1	L	W	R	H	J	K	S	G	E	SCREW SIZE	TAPPED HOLE
XIRN-37	.375	.59	1.75	1.72	.38	.75	.2953	.3543	.47	.438	1.060	5/16-18	3/8-16
XIRN-50	.500	.72	2.00	1.97	.50	.75	.2559	.4724	.60	.563	1.180	5/16-18	3/8-16
XIRN-62	.625	.84	2.12	2.09	.56	.75	.2362	.5315	.66	.625	1.25	5/16-18	3/8-16
XIRN-75	.750	.97	2.37	2.34	.69	.75	.1968	.6496	.79	.688	1.320	5/16-18	3/8-16
XIRN-87	.875	1.09	2.50	2.47	.75	.75	.1970	.7284	.85	.688	1.400	5/16-18	3/8-16
XIRN-100	1.00	1.22	2.75	2.72	.88	.938	.2756	.8661	.97	.781	1.600	1/2-13	5/8-11

## XIRO STYLE For Shaped Punches



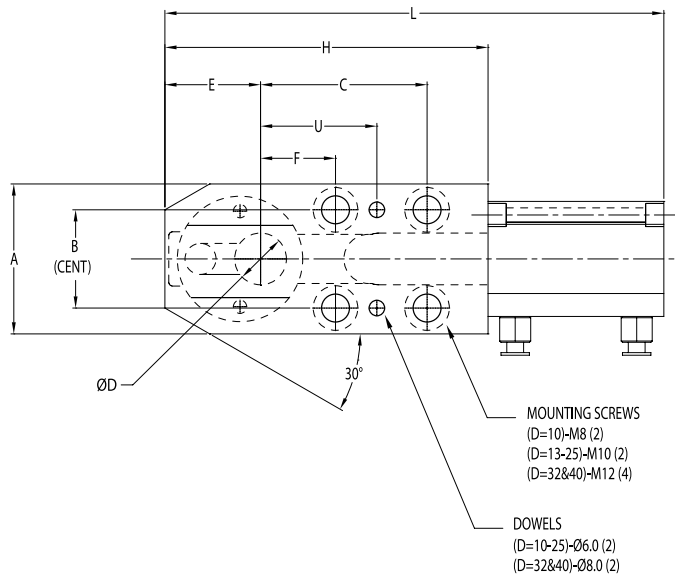
CATALOG NUMBER	D	r1	L	W	R	H	J	K	S	G	E	SCREW SIZE	TAPPED HOLE
XIRO-37	.375	.296	1.75	1.72	.38	.75	.2953	.3543	.47	.438	1.060	5/16-18	3/8-16
XIRO-50	.500	.359	2.00	1.97	.50	.75	.2559	.4724	.60	.563	1.180	5/16-18	3/8-16
XIRO-62	.625	.422	2.12	2.09	.56	.75	.2362	.5315	.66	.625	1.25	5/16-18	3/8-16
XIRO-75	.750	.484	2.37	2.34	.69	.75	.1968	.6496	.79	.688	1.320	5/16-18	3/8-16
XIRO-87	.875	.546	2.50	2.47	.75	.75	.1970	.7284	.85	.688	1.400	5/16-18	3/8-16
XIRO-100	1.00	.609	2.75	2.72	.88	.938	.2756	.8661	.97	.781	1.600	1/2-13	5/8-11

# BALL LOCK RETRACTABLE

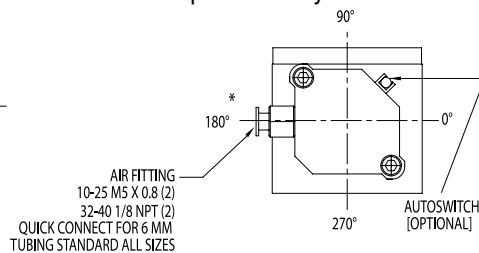
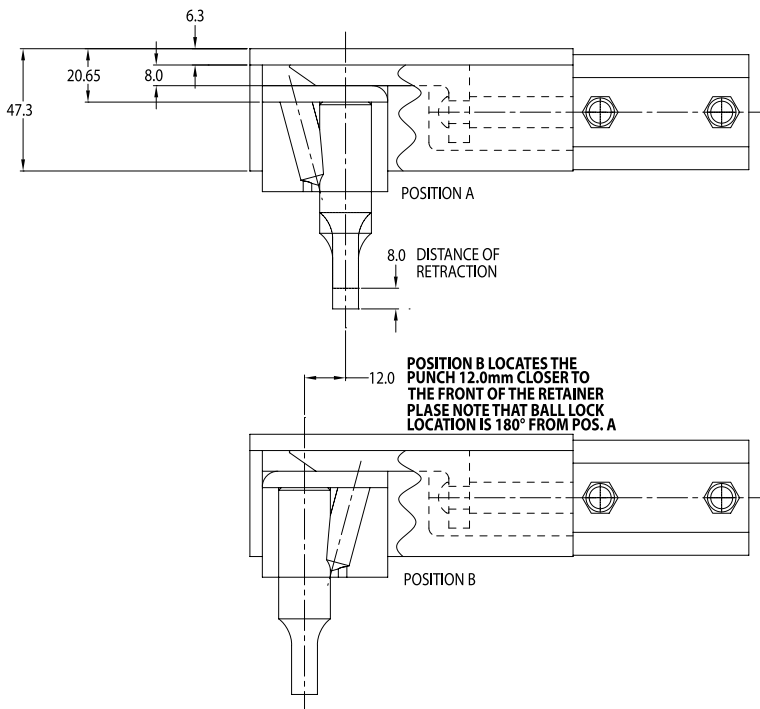
TRUE-SET • DUAL POSITION • METRIC H/D ONLY



## MRA



Moeller dual-position ball lock retractable retainers provide the capability to add, or subtract, holes quickly without affecting demanding production schedules, and without the added cost of additional tooling. Moeller dual-position ball lock retractable retainers are available to conform to NAAMS, and leading automotive standards. Position B facilitates close-space applications by moving the punch 12mm closer to the front end of the retainer. Moeller dual-position ball lock retainers feature a strong and convenient one-piece body, eliminating the need for a separate safety shield.



RECOMMENDED AIR PRESSURE:  
4.60-5.3 kgf/cm<sup>2</sup> (65-75 PSI)

MINIMUM PRESSURE:  
3.2 kgf/cm<sup>2</sup> (45 PSI)

MAXIMUM PRESSURE:  
10.2 kgf/cm<sup>2</sup> (145 PSI)

NOTE:  
CHANGE RETAINER SET INCLUDES ALL NECESSARY SCREWS AND DOWELS, AIR CYLINDER AND FITTINGS. TUBING FOR AIR SUPPLY AND AUTOSWITCH ARE NOT INCLUDED AND MUST BE ORDERED SEPARATELY.  
CONSULT FACTORY FOR ADDITIONAL ACCESSORIES.

CATALOG NUMBER	D	L	A	±.01 B	C		E		F		H	U ±.01		SCREW SIZE
					POS.A	POS.B	POS.A	POS.B	POS.A	POS.B		POS.A	POS.B	
MRA 10	10	161	46	30	-	-	28	16	21	33	93.5	37	49	M8
MRA 13	13	172.5	50	30	-	-	28	16	25	37	100	41	53	M10
MRA 16	16	177	50	30	-	-	31	19	25	37	104.5	41	53	M10
MRA 20	20	191.5	58	38	-	-	32.5	20.5	29	41	113.5	45	57	M10
MRA 25	25	206.5	58	38	-	-	35	23	29	41	123.5	45	57	M10
MRA 32	32	260	80	56	100	112	38	26	38	50	152	60	72	M12
MRA 40	40	264	80	56	100	112	42	30	38	50	156	60	72	M12

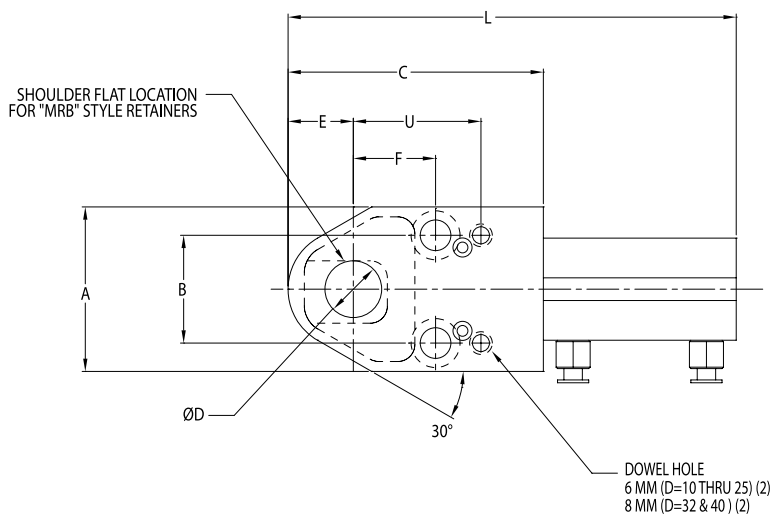
ORDERING EXAMPLE: MRA 13, OR MRA 13 POSITION B

# SHOULDER RETRACTABLE

TRUE-SET • METRIC ONLY



Moeller shoulder retractable retainers provide the capability to add, or subtract, holes quickly without affecting demanding production schedules, and without the added cost of additional tooling. Moeller shoulder retractable retainers feature a strong and convenient one-piece body, eliminating the need for a separate safety shield.

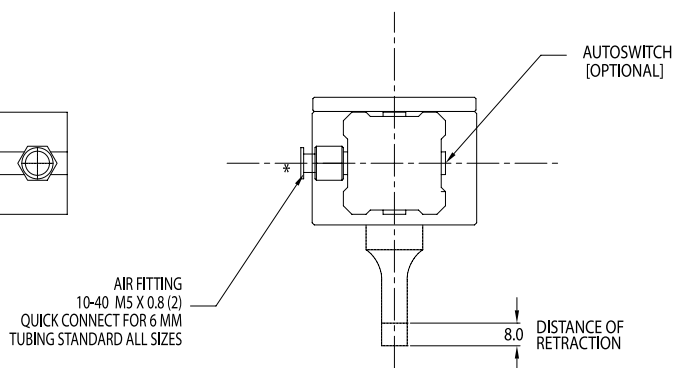
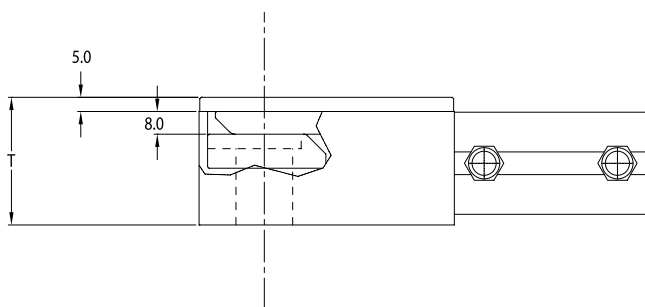


RECOMMENDED AIR PRESSURE  
4.60-5.3 kgf/cm<sup>2</sup> (65-75 PSI)

MINIMUM PRESSURE:  
3.2 kgf/cm<sup>2</sup> (45 PSI)

MAXIMUM PRESSURE:  
10.2 kgf/cm<sup>2</sup> (145 PSI)

NOTE:  
CHANGE RETAINER SET INCLUDES ALL NECESSARY SCREWS AND DOWELS, AIR CYLINDER AND FITTINGS. TUBING FOR AIR SUPPLY AND AUTOSWITCH ARE NOT INCLUDED AND MUST BE ORDERED SEPARATELY. CONSULT FACTORY FOR ADDITIONAL ACCESSORIES.



CATALOG NUMBER	CATALOG NUMBER	D	L	A	±.01 B	C	E	F	T	±.01 U	SCREW SIZE
MRC 10	MRB 10	10	128	46	30	73	18	25	45	41	M8
MRC 13	MRB 13	13	128	49	30	73	18	25	45	41	M10
MRC 16	MRB 16	16	128	49	30	73	18	25	45	41	M10
MRC 20	MRB 20	20	155	58	38	90	23	29	45	45	M10
MRC 25	MRB 25	25	155	58	38	90	23	29	45	45	M10
MRC 32	MRB 32	32	208	80	56	125	33	38	55	60	M12
MRC 40	MRB 40	40	208	80	56	125	33	38	55	60	M12

ORDERING EXAMPLE: MRC 13 (FOR ROUND POINT PUNCH)

ORDERING EXAMPLE: MRB 13 (FOR SHAPED POINT PUNCHES - PLEASE NOTE FLAT LOCATION WHEN ORDERING PUNCHES)

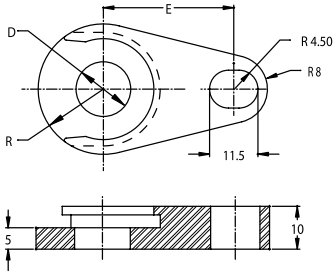
# URETHANE STRIPPERS

## TRUE-SET



### MTR STYLE STRIPPER RETAINER

- Innovative One-Piece construction
- Patented cost savings "Snap in" retention feature
- Interchangeable and complies with NAAMS Standards

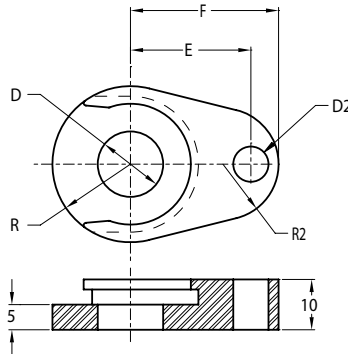


Note: Use with IRH/MRH style retainer.

Catalog No.	D	R	E
MTR-10	10	13	28
MTR-13	13	15.5	31
MTR-16	16	18	32.9
MTR-20	20	20.5	34.8
MTR-25	25	24	39.8
MTR-32	32	31	41.3
MTR-40	40	36	45

### MTP STYLE STRIPPER RETAINER

(To be used with the Round MRR True Set Retainer)

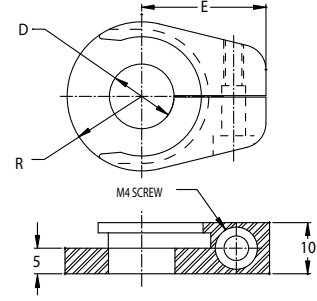


Catalog No.	D	R	E	F	D2	R2
MTP 10	10	13.0	21.0	26.5	7	10.0
MTP 13	13	15.5	23.9	29.4	7	11.0
MTP 16	16	18.0	24.5	30.0	7	12.8
MTP 20	20	20.5	29.0	36.0	9	11.8
MTP 25	25	24.0	33.5	40.5	9	12.9
MTP 32	32	31.0	40.6	49.3	9	8.0
MTP 40	40	36.0	44.0	53.0	9	8.0

U.S. Patent No. 7,707,919B1 International Patents Pending.

### MTM STYLE STRIPPER RETAINER

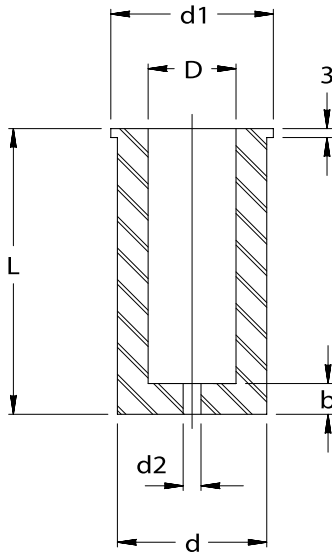
- Precision Machined to assure perpendicularity resulting to prolonged Urethane life
- Adaptable to special multi-hole Retainers



Note: Use with IRR/MRR/MRM & special multi-hole style retainers.

Catalog No.	D	R	E
MTM-10	10	13	22.5
MTM-13	13	15.5	25
MTM-16	16	18	27.5
MTM-20	20	20.5	30
MTM-25	25	24	35.5
MTM-32	32	31	37.5
MTM-40	40	36	42.3

## URETHANE STRIPPERS



### URETHANE HARDNESS 95 SHORE A

Heavy Duty Ball Lock Punch Length	Light Duty Ball Lock Punch Length	Recommended Stripper Length "L"
80	71	44
90	80	54
100	90	64
110	100	74

Stripper Catalog Number	Punch Shank	Press Fit D	d	L	d1	d2	b
MTS10 - 44	10	9.75	18	44	21	1.6	6
MTS10 - 54	10	9.75	18	54	21	1.6	6
MTS10 - 64	10	9.75	18	64	21	1.6	6
MTS10 - 74	10	9.75	18	74	21	1.6	6
MTS13 - 44	13	12.75	23	44	26	3.0	6
MTS13 - 54	13	12.75	23	54	26	3.0	6
MTS13 - 64	13	12.75	23	64	26	3.0	6
MTS13 - 74	13	12.75	23	74	26	3.0	6
MTS16 - 44	16	15.75	28	44	31	3.0	6
MTS16 - 54	16	15.75	28	54	31	3.0	6
MTS16 - 64	16	15.75	28	64	31	3.0	6
MTS16 - 74	16	15.75	28	74	31	3.0	6
MTS20 - 44	20	19.75	33	44	36	3.0	7
MTS20 - 54	20	19.75	33	54	36	3.0	7
MTS20 - 64	20	19.75	33	64	36	3.0	7
MTS20 - 74	20	19.75	33	74	36	3.0	7
MTS25 - 44	25	24.75	40	44	43	3.0	7
MTS25 - 54	25	24.75	40	54	43	3.0	7
MTS25 - 64	25	24.75	40	64	43	3.0	7
MTS25 - 74	25	24.75	40	74	43	3.0	7
MTS32 - 44	32	31.70	50	44	55	3.0	7
MTS32 - 54	32	31.70	50	54	55	3.0	7
MTS32 - 64	32	31.70	50	64	55	3.0	7
MTS32 - 74	32	31.70	50	74	55	3.0	7
MTS40 - 44	40	39.70	60	44	65	3.0	8
MTS40 - 54	40	39.70	60	54	65	3.0	8
MTS40 - 64	40	39.70	60	64	65	3.0	8



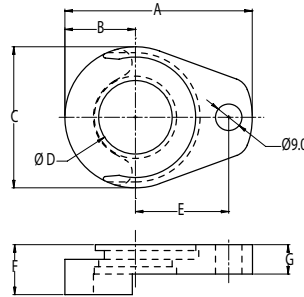
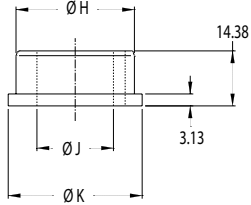
# URETHANE STRIPPERS

TRUE-SET • NOSE LARGE



## NOSE LARGE STRIPPER RETAINER

(To be used with the Standard MRH True Set Retainer)



International Patents Pending.  
\*XX = "L" DIMENSION OF URETHANE

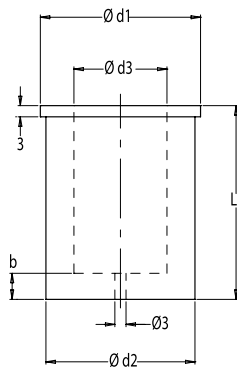


Complete design & CAD files visit [WWW.MOELLERMCAD.COM](http://WWW.MOELLERMCAD.COM)

CATALOG TYPE	SHANK Ø	MAX P/G	A	B	C	D	E	F	G	H	J	K	*USE WITH URETHANE
MTB010016	10.0	15.75	53.18	18.0	36	16	26.93	17	10	15.75	10	19	MTS16-XX
MTB013020	13.0	19.75	58.60	20.5	41	20	29.97	17	10	19.75	13	23	MTS20-XX
MTB016025	16.0	24.75	63.75	24.0	48	25	31.75	17	10	24.75	16	28	MTS25-XX
MTB020032	20.0	31.75	73.86	31.0	62	32	33.53	17	10	31.70	20	34	MTS32-XX
MTB025040	25.0	39.75	83.63	36.0	72	40	40.64	17	10	39.70	25	44	MTS40-XX
MTB032040	32.0	39.75	83.63	36.0	72	40	40.64	18	10	39.70	32	44	MTS40-XX

## URETHANE HARDNESS 95 SHORE A

Heavy Duty Ball Lock Punch Length	Recommended Stripper Length "L"
80	44
90	54
100	64



CATALOG TYPE	SHANK Ø	L +1.0/-0.6 STRIPPER LENGTHS	d3	d1	d2	b	VENT HOLE
*MTS16-XX TO BE USE ON MTB010016	10.0	44	15.75	31	28	6	3
		54					
		64					
*MTS20-XX TO BE USE ON MTB013020	13.0	44	19.75	36	33	7	3
		54					
		64					
*MTS25-XX TO BE USE ON MTB016025	16.0	44	24.75	43	40	7	3
		54					
		64					
*MTS32-XX TO BE USE ON MTB020032	20.0	44	31.75	55	50	7	3
		54					
		64					
*MTS40-XX TO BE USE ON MTB025040	25.0	44	39.75	65	60	8	3
		54					
		64					
*MTS40-XX TO BE USE ON MTB032040	32.0	44	39.75	65	60	8	3
		54					
		64					

# BALL LOCK ACCESSORIES

TRUE-SET



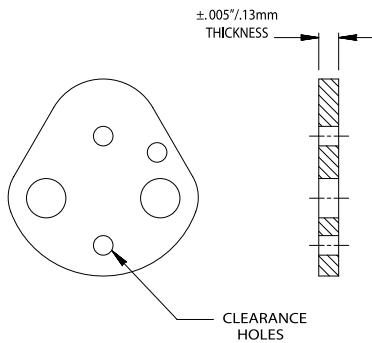
## INCH

TRUE SET RETAINER	SOC.HD. CAP SCREW	DOWELS	BALL	SPRING	BALL RELEASE SCREW	ANGLE HOLE SET SCREW	
HEAVY DUTY	IRH 37	IAC 31-175 5/16-18 x 1-3/4	IAD 18-75 3/16 x 3/4	IAB 37 3/8 DIA.	IAS 37 3/8 DIA. H.D.	IAN 37	
	IRH 50	IAC 37-200 3/8-16 x 2	IAD 25-75 1/4 x 3/4	IAB 50 1/2 DIA.	IAS 50 1/2 DIA.		
	IRH 62						
	IRH 75						
	IRH 87						
	IRH 100	IAC 50-200 1/2 - 13 x 2	IAN 50				
IRH 125							
LIGHT DUTY	IRL 25	IAC 31-150 5/16-18 x 1-1/2		IAD 12-75 1/8 x 3/4	IAB 25 1/4 DIA.	IAS 25 1/4 DIA.	IAN 50
	IRL 37			IAD 18-75 3/16 x 3/4	IAB 31 5/16 DIA.	IAS 31 5/16 DIA.	
	IRL 50	IAC 37-150 3/8-16 x 1-1/2		IAD 25-75 1/4 x 3/4	IAB 37 3/8 DIA.	IAS 37 3/8 DIA. L.D.	
	IRL 62						
	IRL 75						
	IRL 87						
	IRL 100						
	IRL 125						

## METRIC

TRUE SET RETAINER	SOC.HD. CAP SCREW	DOWELS	BALL	SPRING	BALL RELEASE SCREW	ANGLE HOLE SET SCREW
HEAVY DUTY	MRH 10	MAC 8-45 M8 x 45	MAD 6-20 6mm x 20	MAB 10 10mm	MAS 10 (W/CLIP) MAS 10T (W/SCREW) 10mm	MAN 10
	MRH 13			MAB 12 12mm	MAS 12 (W/CLIP) MAS 12T (W/SCREW) 12mm 13mm/40mm	MAC 4-20 M4 X 20
	MRH 16					
	MRH 20					
	MRH 25					
	MRH 32			MAC 12-50 M12 x 50	MAN 12	
MRH 40						
LIGHT DUTY	MRL 06	MAC 6-35 M6 X 35	MAD 3-20 3mm x 20 MAD 6-20 6mm x 20	MAB 6 6mm	MAS 6 6mm	MAC 3-15 M3 x 15
	MRL 10	MAC 8-35 M8 x 35	MAD 6-20 6mm x 20	MAB 8 8mm	MAS 8 8mm	MAC 4-20 M4 x 20
	MRL 13					
	MRL 16					
	MRL 20	MAC 10-40 M10 x 40	MAN 12			
	MRL 25					
	MRL 32	MAC 12-40 M12 x 40				
	MRL 38					

## TRUE-SET BALL LOCK SHIM PLATES



CATALOG NUMBER INCH	CATALOG NUMBER METRIC
IAX 25	MAX 10
IAX 37	MAX 13
IAX 50	MAX 16
IAX 62	MAX 20
IAX 75	MAX 25
IAX 87	MAX 32
IAX 100	MAX 40
IAX 125	

AVAILABLE THICKNESS INCH	ORDERING NUMBER INCH
.071	071
.118	118
.125	125
.187	187
.236	236
.250	250
.394	394
.512	512

AVAILABLE THICKNESS METRIC	ORDERING NUMBER METRIC
1.8	018
3.0	030
3.18	031
4.75	047
6.0	060
6.35	063
10.0	100
13.0	130

ORDERING EXAMPLE: IAX 50-125

**SR**

OPEN IN-LINE DOWEL FOR SLUG RELIEF

## SPECIAL BACKING PLATE RETAINER ACCESSORIES

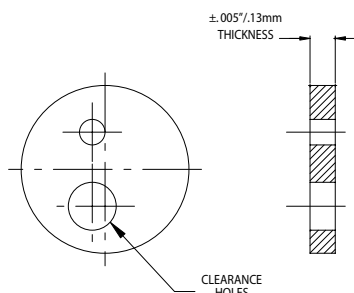
ANGLE HOLE	SPRINGS	BALL
1/4 DIA.	IAS 25S	IAB 25
5/16 DIA.	IAS 31S	IAB 31
3/8 DIA.	IAS 37S	IAB 37
1/2 DIA.	IAS 50S	IAB 50

ANGLE HOLE	SPRINGS	BALL
6mm DIA.	MAS 6S	MAB 6
8mm DIA.	MAS 8S	MAB 8
10mm DIA.	MAS 10S	MAB 10
12mm DIA.	MAS 12S	MAB 12

## ECONOMY ROUND TRUE-SET BALL LOCK ACCESSORIES

TRUE SET RETAINER	SOC.HD. CAP SCREW	DOWELS	BALL	SPRING	BALL RELEASE SCREW	ANGLE HOLE SET SCREW
IRR 37	IAC43-175 TL 7/16"-14 x 1.75	IAD 18-75 3/16 X 3/4	IAB 37 3/8 DIA.	IAS 37T 3/8 DIA. H.D.	IAN 37	
IRR 50						
IRR 62						
IRR 75	IAC62-200 TL 5/8"-11 x 2.0 LONG	IAD 25-75 1/4 x 3/4	IAB 50 1/2 DIA.	IAS 50T 1/2 DIA. H.D.	IAN 50	
IRR 87						
IRR 100						
IRR 125						
	IAC75-200 TL 3/4"-10 x 2.0 LONG					

TRUE SET RETAINER	SOC.HD. CAP SCREW	DOWELS	BALL	SPRING	BALL RELEASE SCREW	ANGLE HOLE SET SCREW
MRR 10	MAC 12-50 TL M12-1.75 x 50mm	MAD 6-20 6mm X 20	MAB 10 10mm	MAS 10T 10 mm	MAN 10	
MRR 13						
MRR 16						
MRR 20	MAC16-50 TL M16-2.0 x 50mm	MAB 12 12mm	MAS 12T 12mm	MAC 4-20 4mm X 20	MAN 12	
MRR 25						
MRR 32						
MRR 40						
	MAC20-50 TL M20-2.5 x 50mm					



## ECONOMY ROUND TRUE-SET BALL LOCK SHIM PLATES

CATALOG NUMBER INCH	CATALOG NUMBER METRIC
IAY 37	MAY 10
IAY 50	MAY 13
IAY 62	MAY 16
IAY 75	MAY 20
IAY 87	MAY 25
IAY 100	MAY 32
IAY 125	MAY 40

AVAILABLE THICKNESS INCH	ORDERING NUMBER INCH
.071	071
.118	118
.125	125
.187	187
.236	236
.250	250
.394	394
.512	512

AVAILABLE THICKNESS METRIC	ORDERING NUMBER METRIC
1.8	018
3.0	030
3.18	031
4.75	047
6.0	060
6.35	063
10.0	100
13.0	130

ORDERING EXAMPLE: IAY 50-125

# BALL LOCK RETAINER ACCESSORIES

TRUE-SET



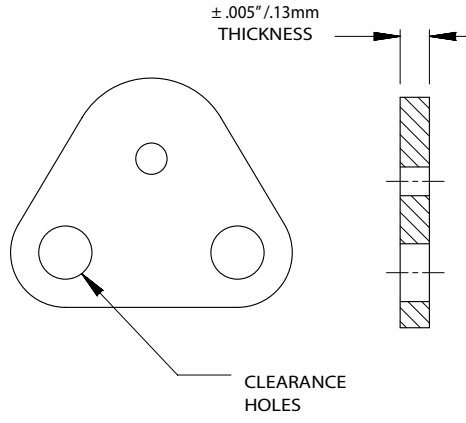
## SPECIAL BACKING PLATE RETAINER ACCESSORIES

	SPRINGS	BALLS
6 DIA.	MAS 6S	MAB 6
8 DIA.	MAS 8S	MAB 8
10 DIA.	MAS 10S	MAB 10
12 DIA.	MAS 12S	MAB 12

## BOOSTER SPRINGS

	INCH
	PUNCH SIZE - Ø.375" HDBL CATALOG # IAS037B PUNCH SIZE Ø.50"-Ø1.25" HDBL CATALOG # IAS050B
	METRIC
	PUNCH SIZE - Ø10MM HDBL CATALOG # MAS010B PUNCH SIZE Ø13MM-Ø40MM HDBL CATALOG # MAS012B

## MINI TRUE-SET RETAINER SHIM PLATES



CATALOG NUMBER
MAM 10
MAM 13
MAM 16
MAM 20
MAM 25
MAM 32
MAM 40

AVAILABLE THICKNESS INCH	ORDERING NUMBER INCH
3.0	030
6.0	060
10.0	100
13.0	130

ORDERING EXAMPLE: MAM 13-060

## BALL RELEASE TOOLS

**ANGLE TIP**  
(for all Retainers) Metric Cat. No. MAT 01 Inch Cat. No. IAT 01

**STRAIGHT TIP**  
(for all Retainers) Metric Cat. No. MAT 02 Inch Cat. No. IAT 02

**THREADED TIP HEAVY DUTY**  
(for True Set Retainers) Metric Cat. No. MAT 03 Inch Cat. No. IAT 03

**THREADED TIP LIGHT DUTY**  
(for True Set Retainers) Metric Cat. No. MAT 04 Inch Cat. No. IAT 04

**ANGLE HOLE SET SCREW TOOL**  
(for True Set Retainers) Metric Cat. No. MAO 01 Inch Cat. No. IAO 01

# SHOULDER RETAINER ACCESSORIES

TRUE-SET



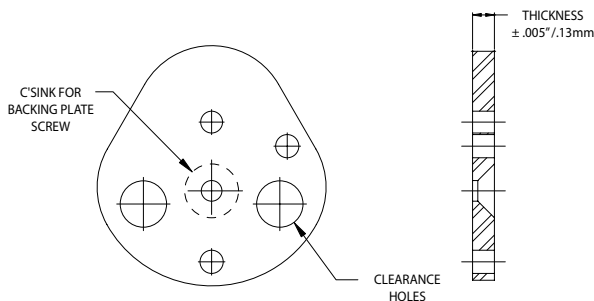
## INCH

TRUE SET SHOULDER RETAINER	SOC.HD. CAP SCREW	DOWELS
IRN-37 / IRO-37	IAC 31-150 5/16-18 X 1.50 LONG	IAD 25-75 Ø.250 X .75 LONG
IRN-50 / IRO-50		IAD 31-150 Ø.3125 X 1.50 LONG
IRN-62 / IRO-62		
IRN-75 / IRO-75		
IRN-100 / IRO-100	IAC 50-175 1/2-13 X 1.75 LONG	
IRN-125 / IRO-125		

## METRIC

TRUE SET SHOULDER RETAINER	SOC.HD. CAP SCREW	DOWELS
MRN-10 / MRO-10	MAC 8-35 M8 X 35mm LONG	MAD 6-20 Ø6.00 X 20mm LONG
MRN-13 / MRO-13		
MRN-16 / MRO-16		
MRN-20 / MRO-20	MAC 10-40 M10 X 40mm LONG	
MRN-25 / MRO-25	MAC 12-40	
MRN-32 / MRO-32	M12 X 40mm LONG	

## TRUE-SET SHOULDER RETAINER BACKING PLATES



CATALOG NUMBER INCH	CATALOG NUMBER METRIC
IAW 37	MAW 10
IAW 50	MAW 13
IAW 62	MAW 16
IAW 75	MAW 20
IAW 100	MAW 25
IAW 125	MAW 32

AVAILABLE THICKNESS INCH	ORDERING NUMBER INCH
.188	188
.250	250

AVAILABLE THICKNESS METRIC	ORDERING NUMBER METRIC
4.75	047
6.35	063

ORDERING EXAMPLE: IAW 50-063



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