

DAPCO®

Guide Retainer Sets

GRS / GRS.HD Series



Combined Guidance and Retention

- Cost savings over common pins, bushings and spools
- Six rod diameters: 25, 30, 36, 45, 50 and 65 mm
- Robust one-piece housing with top and bottom wipers
- Various stroke lengths to suit application requirements



DADCO produces top quality products at competitive prices and provides a superior level of customer service. Founded in 1958, DADCO's products are widely approved and used in global operations for many industries including metal stamping, automotive and plastic injection molding.

Guide Retainer Sets

Designed for use in dies as a replacement for common pins, bushings and spools, the standard Guide Retainer Set (GRS) and Heavy Duty (GRS.HD) Series feature high quality guided components to ensure exceptionally long service life.

The standard GRS is available in four rod diameter models with pad mass capacity up to 175 kg (386 lb.) when two or more units are used together. The GRS.HD is a more robust configuration, designed to meet strenuous automotive tooling specifications. This version is available in five rod diameter models with pad mass capacity up to 1134 kg (2500 lb.) when two or more units are used together.

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Retainer Mount Choices

To provide additional mounting flexibility, Guide Retainer Sets are available with three different retainer mount options; Flange Mount, Toe Clamp and Heavy Duty.

The Flange Mount option (FM), offered for four rod diameters, is an integral one-piece Mount and Guide Retainer that is machined to close tolerances. Each Flange Mount has four mounting holes and two dowel holes to facilitate installation.

The Toe Clamp option, offered for the GRS.30.T and GRS.36.T guide retainers, permits close mounting configurations. Wide Toe Clamps (W2) in sets of two, or Narrow Toe Clamps (N3) in sets of three, may be ordered with the Guide Rod and Guide Retainer. Additional Toe Clamps may be purchased separately to accommodate personalized mount configurations.

The Heavy Duty mount options are the most durable; offered for the GRS.30, 36, 45, 50 and 65 models. Each integrated heavy duty mount has 4-8 oversized mounting holes to provide optimal rigidity. The construction of these heavy duty models permits up to 10 times the attachment mass and increased operation speed over the standard GRS construction.

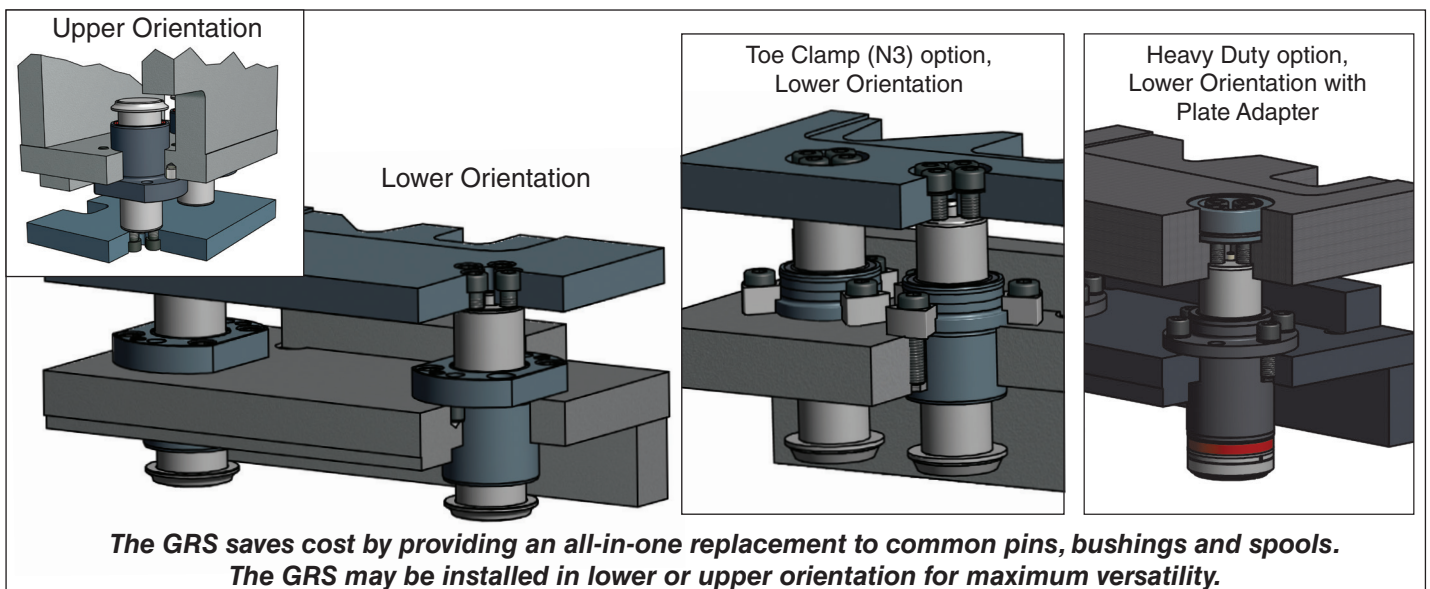
Warranty

DADCO warrants its Guide Retainer Sets to be free from defects in workmanship or materials for a period of one year from date of manufacture.

CAD Templates On-line

DADCO's entire product line is available on-line in solid models and 2D CAD formats. For more information, visit our website, www.dadco.net, or contact DADCO.

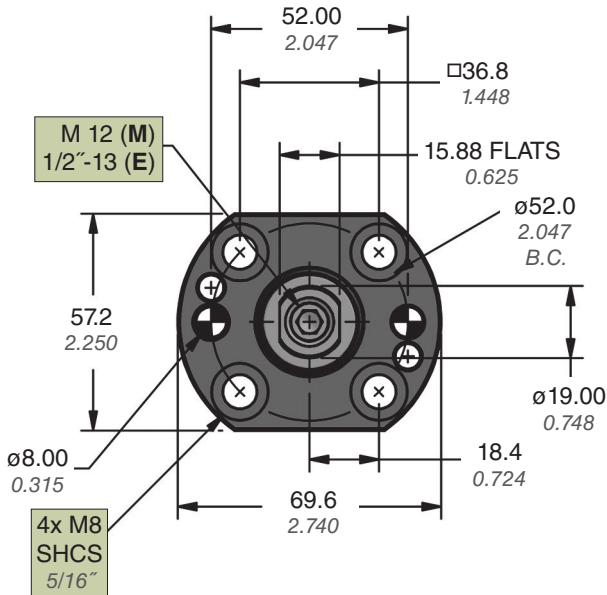
Installation Examples



Guide Retainer Set Profiles

Guide Retainer Sets

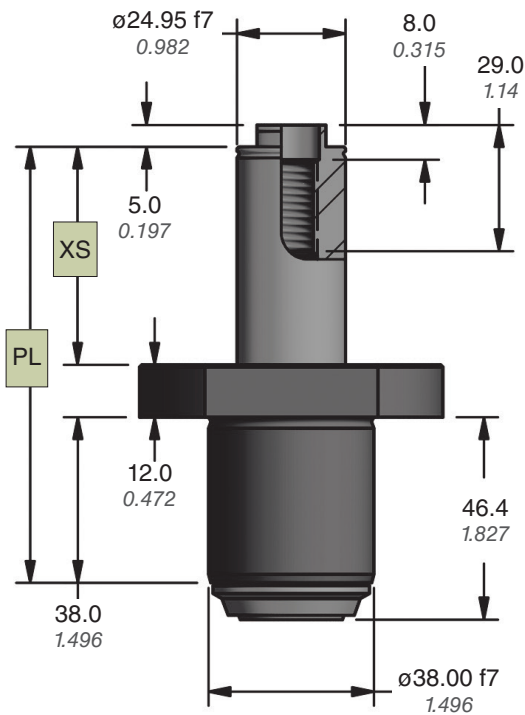
	Rod Diameter					
	ø25	ø30	ø36	ø45	ø50	ø65
FM						
N3 W2						
HD FH						
HD1		NEW!	NEW!	NEW!		
HD2		NEW!	NEW!	NEW!		
HD4 / HD5		NEW!		NEW!		



Pin Extension Code	*XS		PL		Pin Extension Code	*XS		PL	
	mm	inch	mm	inch		mm	inch	mm	inch
0200	20.0	0.787	70.0	2.756	0800	80.0	3.150	130.0	5.118
0300	30.0	1.181	80.0	3.150	0850	85.0	3.346	135.0	5.315
0400	40.0	1.575	90.0	3.543	0900	90.0	3.543	140.0	5.512
0450	45.0	1.772	95.0	3.740	0950	95.0	3.740	145.0	5.709
0500	50.0	1.969	100.0	3.937	1000	100.0	3.937	150.0	5.906
0550	55.0	2.165	105.0	4.134	1100	110.0	4.331	160.0	6.299
0600	60.0	2.362	110.0	4.331	1200	120.0	4.724	170.0	6.693
0650	65.0	2.559	115.0	4.528	1300	130.0	5.118	180.0	7.087
0700	70.0	2.756	120.0	4.724	1400	140.0	5.512	190.0	7.480
0750	75.0	2.953	125.0	4.921	1500	150.0	5.906	200.0	7.874

*XS = PL - GRL

Guide Retainer Length (GRL) = 50 mm (1.969 in)



Velocity Estimate	(m/sec)	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Per GRS	max (lb.)	67	38	24	17	12	9	7	6
	max (kg)	31	17	11	8	6	4	3.4	2.8
Pad Mass		GRS.25 Quantity							
lb.	kg	2	2	2	2	2	2	2	2
5.5	2.5	2	2	2	2	2	3	3	3
11	5	2	2	2	3	3	4	4	5
22	10	2	3	3	4	5	6	7	
44	20	2	3	4	5	7	8		
66	30	2	3	4	5	7	8		
99	45	3	4	6	7				

Ordering Example:

GRS.25. M. 0500. FM.

Part Number:

Includes Series and Guide Rod Diameter

Guide Rod Option:

M = M12, Metric;
E = 1/2"-13, Imperial

For optional plate adapter cap add **AC**.

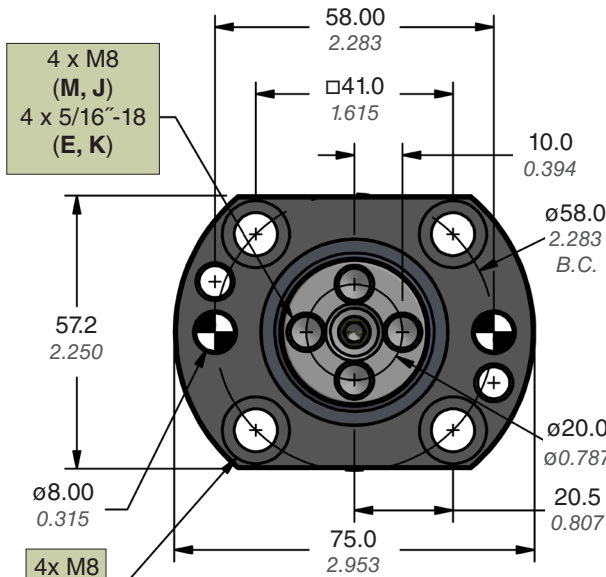
See page 23 for AC options.

Guide Retainer Option:

FM = Flange Mount

Pin Extension Code: 0200 - 1500

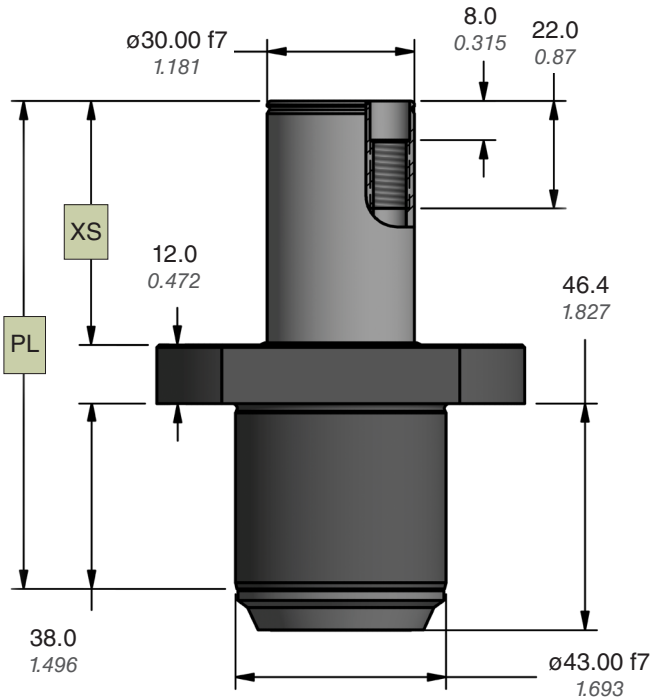
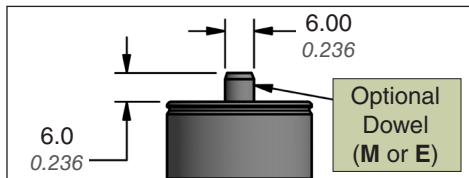
Example: 0500 = 50.0 mm = XS Dimension



Pin Extension Code	*XS		PL		Pin Extension Code	*XS		PL	
	mm	inch	mm	inch		mm	inch	mm	inch
0200	20.0	0.787	70.0	2.756	0800	80.0	3.150	130.0	5.118
0300	30.0	1.181	80.0	3.150	0850	85.0	3.346	135.0	5.315
0400	40.0	1.575	90.0	3.543	0900	90.0	3.543	140.0	5.512
0450	45.0	1.772	95.0	3.740	0950	95.0	3.740	145.0	5.709
0500	50.0	1.969	100.0	3.937	1000	100.0	3.937	150.0	5.906
0550	55.0	2.165	105.0	4.134	1100	110.0	4.331	160.0	6.299
0600	60.0	2.362	110.0	4.331	1200	120.0	4.724	170.0	6.693
0650	65.0	2.559	115.0	4.528	1300	130.0	5.118	180.0	7.087
0700	70.0	2.756	120.0	4.724	1400	140.0	5.512	190.0	7.480
0750	75.0	2.953	125.0	4.921	1500	150.0	5.906	200.0	7.874

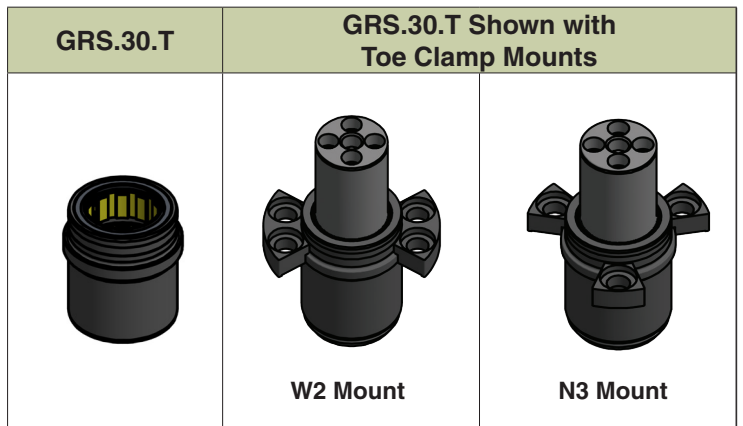
*XS = PL - GRL

Guide Retainer Length (GRL) = 50 mm (1.969 in)



Velocity Estimate (m/sec)		0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Per GRS	max (lb.)	91	51	33	23	17	13	10	8
	max (kg)	41	23	15	10	8	6	5	4

Pad Mass		GRS.30 Quantity							
lb.	kg								
11	5	2	2	2	2	2	2	3	3
22	10	2	2	2	2	3	3	4	4
44	20	2	2	3	3	4	5	6	7
77	35	2	3	4	5	6	8		
110	50	3	4	5	6	8			
143	65	3	4	6	8				



Ordering Example:

GRS.30. J. 0500. FM

Part Number:
Includes Series and Guide Rod Diameter

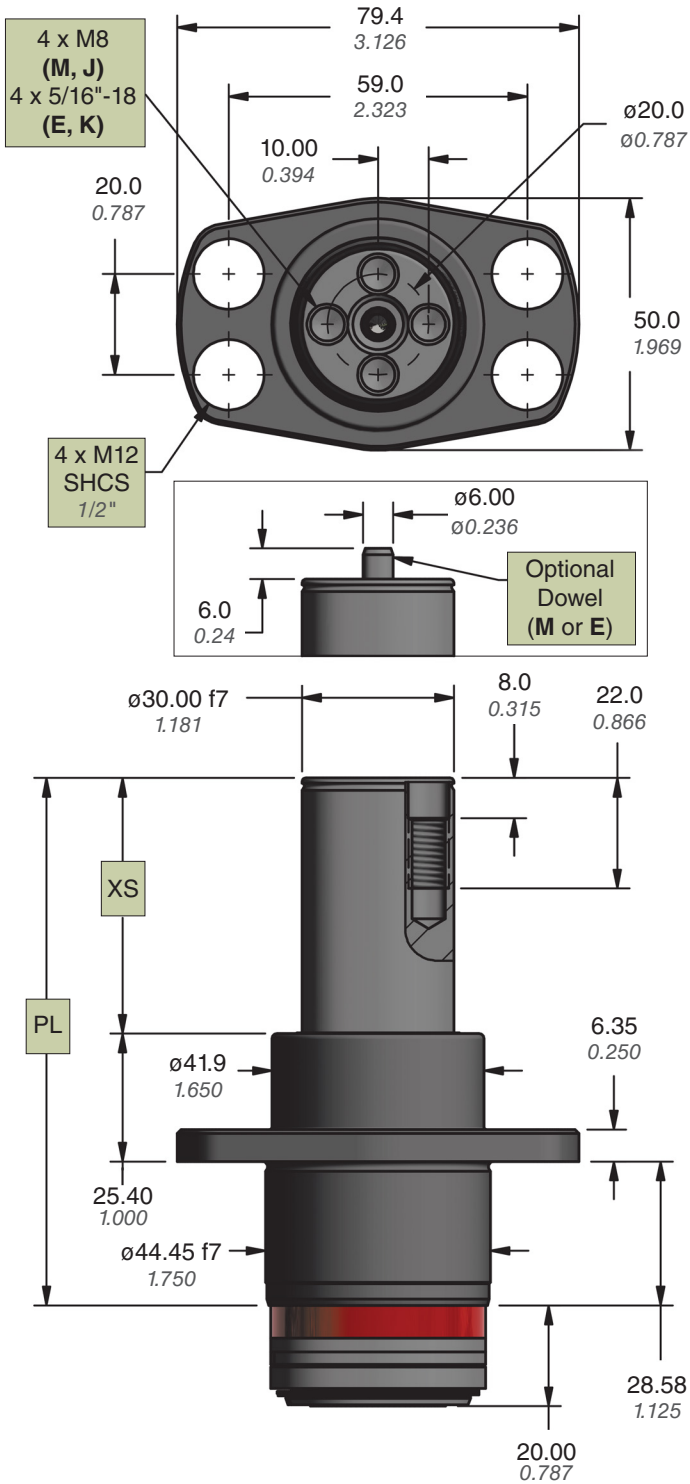
Guide Retainer Mount Option:
FM = Flange Mount, W2 or N3 Mount

Guide Rod Option:
J = 4x M8, Metric; K = 4x 5/16-18, Imperial;
M = 4x M8, Metric with Rod End Dowel;
E = 4x 5/16-18, Imperial with Rod End Dowel

Pin Extension Code: 0200 - 1500
Example: 0500 = 50.0 mm = XS Dimension

Guide Retainer Sets

GRS.30.HD1



Pin Extension Code	*XS		PL	
	mm	inch	mm	inch
0200	20.0	0.787	73.98	2.912
0254	25.4	1.000	79.38	3.125
0300	30.0	1.181	83.98	3.306
0318	31.75	1.250	85.73	3.375
0381	38.1	1.500	92.08	3.625
0400	40.0	1.575	93.98	3.700
0445	44.45	1.750	98.43	3.875
0500	50.0	1.969	103.98	4.094
0508	50.8	2.000	104.78	4.125
0572	57.15	2.250	111.13	4.375
0600	60.0	2.362	113.98	4.487
0635	63.5	2.500	117.48	4.625
0700	70.0	2.756	123.98	4.881
0762	76.2	3.000	130.18	5.125
0800	80.0	3.150	133.98	5.275
0889	88.9	3.500	142.88	5.625
0900	90.0	3.543	143.98	5.668

*XS = PL - GRL
 Guide Retainer Length (GRL) = 53.98 mm (2.125 in)

Velocity Estimate (m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	
Per GRS	max (lb.)	141	98	72	55	44	35	29	24
	max (kg)	64	44	33	25	20	16	13	11

Pad Mass		GRS.30.HD1 Quantity							
lb.	kg	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
50	23	2	2	2	2	3	3	3	4
100	45	2	3	3	3	4	4	5	6
150	68	3	3	4	4	5	6	7	8
200	91	3	4	4	5	6	7	8	
250	113	3	4	5	6	7			
300	136	4	5	6	7	8			
350	159	4	5	6	8				
400	181	4	6	7					

Ordering Example:

GRS.30.HD1. M. 0500

Part Number:

Includes Series, Guide Rod Diameter and Retainer Mount Type

Guide Rod Option:

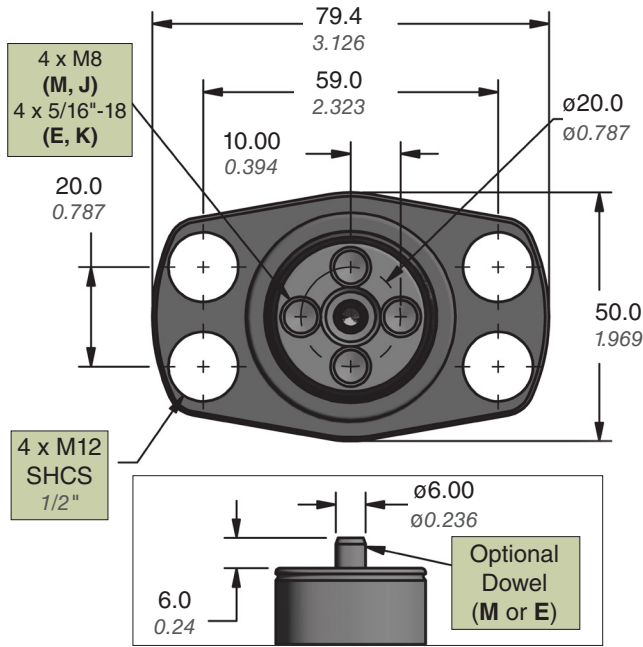
J = 4x M8, Metric; **K** = 4x 5/16"-18, Imperial;
M = 4x M8, Metric with Rod End Dowel;
E = 4x 5/16"-18, Imperial with Rod End Dowel

See page 22 for alternative rod ends.

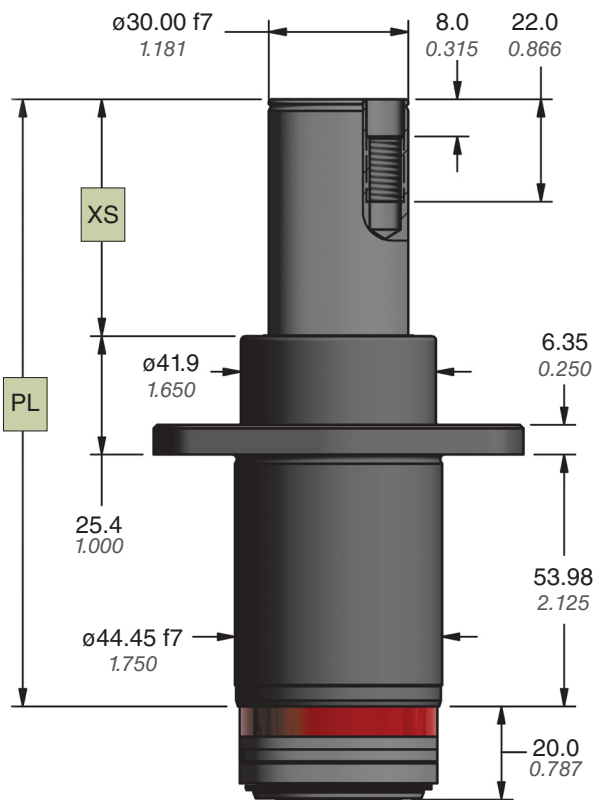
Pin Extension Code: 0200 - 0900

Example: 0500 = 50.0 mm = XS Dimension

GRS.30.HD2



Pin Extension Code	*XS		PL		Pin Extension Code	*XS		PL	
	mm	inch	mm	inch		mm	inch	mm	inch
0200	20.0	0.787	99.38	3.912	0254	25.4	1.000	104.78	4.125
0300	30.0	1.181	109.38	4.306	0318	31.75	1.250	111.13	4.375
0400	40.0	1.575	119.38	4.700	0381	38.1	1.500	117.48	4.625
0500	50.0	1.969	129.38	5.094	0445	44.5	1.750	123.83	4.875
0600	60.0	2.362	139.38	5.487	0508	50.8	2.000	130.18	5.125
0700	70.0	2.756	149.38	5.881	0572	57.15	2.250	136.53	5.375
0800	80.0	3.150	159.38	6.275	0635	63.5	2.500	142.88	5.625
0900	90.0	3.543	169.38	6.668	0702	70.2	2.750	149.23	5.875
1000	100.0	3.937	179.38	7.062	0765	76.5	3.000	155.58	6.125
1100	110.0	4.331	189.38	7.456	0829	82.9	3.250	161.93	6.375
1200	120.0	4.724	199.38	7.849	0892	89.3	3.500	168.28	6.625
1300	130.0	5.118	209.38	8.243	0956	95.7	3.750	174.63	6.875
1400	140.0	5.512	219.38	8.637	1020	102.1	4.000	180.98	7.125
1500	150.0	5.906	229.38	9.031	1084	108.5	4.250	187.33	7.375



*XS = PL - GRL
Guide Retainer Length (GRL) = 79.38 mm (3.125 in)

Velocity Estimate	(m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
Per GRS	max (lb.)	141	98	72	55	44	35	29	24
	max (kg)	64	44	33	25	20	16	13	11
Pad Mass		GRS.30.HD2 Quantity							
lb.	kg								
50	23	2	2	2	2	3	3	3	4
100	45	2	3	3	3	4	4	5	6
150	68	3	3	4	4	5	6	7	8
200	91	3	4	4	5	6	7	8	
250	113	3	4	5	6	7			
300	136	4	5	6	7	8			
350	159	4	5	6	8				
400	181	4	6	7					

Ordering Example:

GRS.30.HD2. M. 0500

Part Number:

Includes Series, Guide Rod Diameter, and Retainer Mount Type

Guide Rod Option:

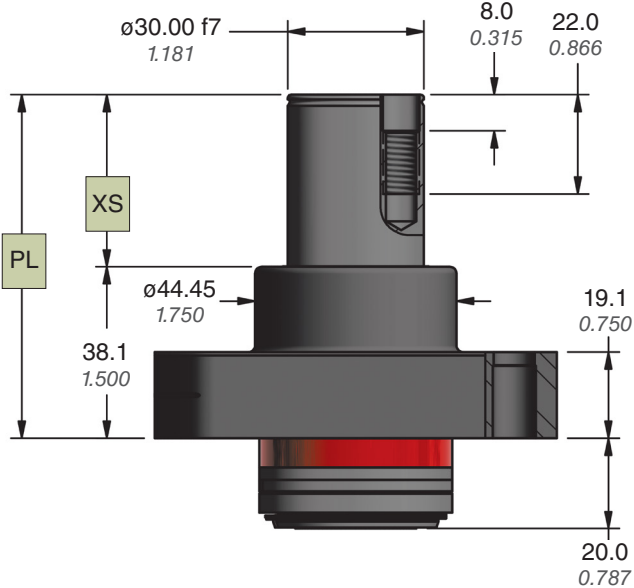
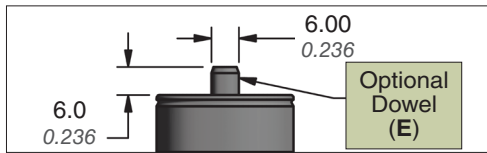
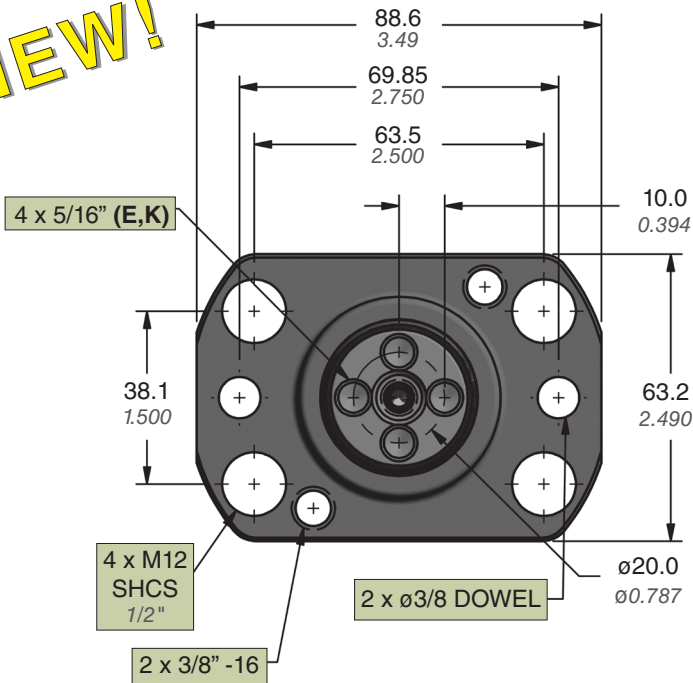
J = 4x M8, Metric; K = 4x 5/16"-18, Imperial;
M = 4x M8, Metric with Rod End Dowel;
E = 4x 5/16"-18, Imperial with Rod End Dowel

See page 22 for alternative rod ends.

Pin Extension Code: 0200 - 1524

Example: 0500 = 50.0 mm = XS Dimension

NEW!



Pin Extension Code	*XS		PL	
	mm	inch	mm	inch
0200	20.00	0.787	58.10	2.287
0254	25.40	1.000	63.50	2.500
0300	30.00	1.181	68.10	2.681
0318	31.75	1.250	69.85	2.750
0381	38.10	1.500	76.20	3.000
0400	40.00	1.575	78.10	3.075
0445	44.45	1.750	82.55	3.250
0500	50.00	1.969	88.10	3.469
0508	50.80	2.000	88.90	3.500
0572	57.15	2.250	95.25	3.750
0600	60.00	2.362	98.10	3.862
0635	63.50	2.500	101.60	4.000
0700	70.00	2.756	108.10	4.256
0762	76.20	3.000	114.30	4.500
0800	80.00	3.150	118.10	4.650
0889	88.90	3.500	127.00	5.000
0900	90.00	3.543	128.10	5.043

***XS = PL - GRL**

Guide Retainer Length (GRL) = 38.10 mm (1.500 in)

Velocity Estimate	(m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
Per GRS	max (lb.)	141	98	72	55	44	35	29	24
	max (kg)	64	44	33	25	20	16	13	11
Pad Mass		GRS.30.HD4 Quantity							
lb.	kg	2	2	2	2	3	3	3	4
50	23	2	3	3	3	4	4	5	6
100	45	3	3	4	4	5	6	7	8
150	68	3	4	4	5	6	7	8	
200	91	3	4	5	6	7			
250	113	4	5	6	7	8			
300	136	4	5	6	8				
350	159	4	6	7					
400	181	4	7						

Ordering Example:

GRS.30.HD4. K. 0500

Part Number:

Includes Series, Guide Rod Diameter, and Retainer Mount Type

Guide Rod Option:

K = 4 x 5/16"–18, Imperial;

E = 4 x 5/16"–18, Imperial with Rod End Dowel

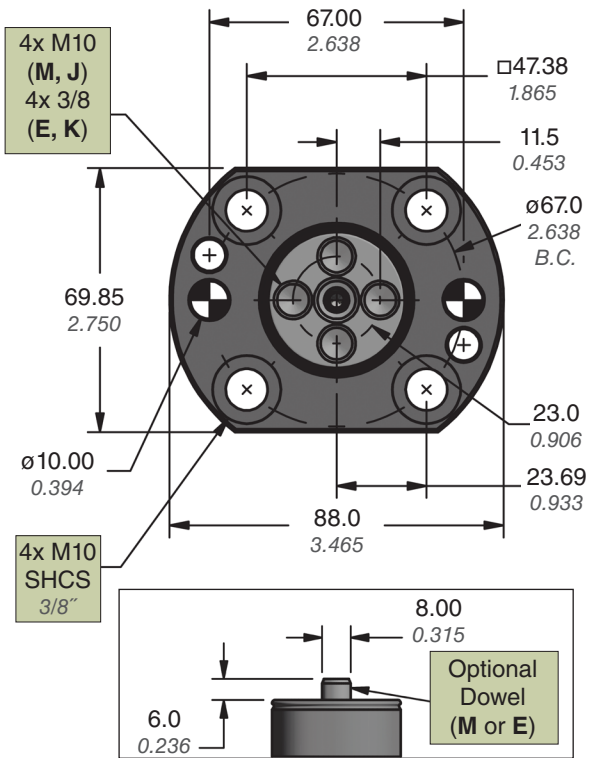
See page 22 for alternative rod ends.

Pin Extension Code: 0200 - 0900

Example: 0318 = 31.75 mm (1.250 in) = XS Dimension

Guide Retainer Sets

GRS.36

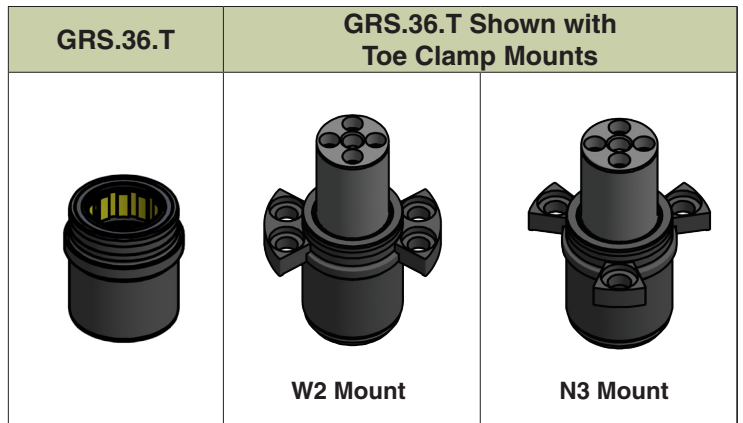
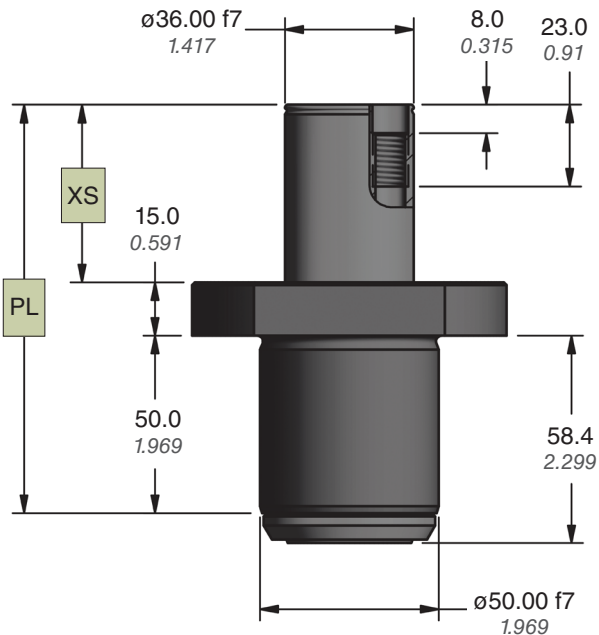


Pin Extension Code	*XS		PL		Pin Extension Code	*XS		PL	
	mm	inch	mm	inch		mm	inch	mm	inch
0200	20.0	0.787	85.0	3.346	0800	80.0	3.150	145.0	5.709
0300	30.0	1.181	95.0	3.740	0850	85.0	3.346	150.0	5.906
0400	40.0	1.575	105.0	4.134	0900	90.0	3.543	155.0	6.102
0450	45.0	1.772	110.0	4.331	0950	95.0	3.740	160.0	6.299
0500	50.0	1.969	115.0	4.528	1000	100.0	3.937	165.0	6.496
0550	55.0	2.165	120.0	4.724	1100	110.0	4.331	175.0	6.890
0600	60.0	2.362	125.0	4.921	1200	120.0	4.724	185.0	7.283
0650	65.0	2.559	130.0	5.118	1300	130.0	5.118	195.0	7.677
0700	70.0	2.756	135.0	5.315	1400	140.0	5.512	205.0	8.071
0750	75.0	2.953	140.0	5.512	1500	150.0	5.906	215.0	8.465

***XS = PL - GRL**

Guide Retainer Length (GRL) = 65 mm (2.559 in)

Velocity Estimate (m/sec)	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	
Per GRS	max (lb.)	178	100	64	44	33	25	20	16
	max (kg)	81	45	29	20	15	11	9	7
Pad Mass		GRS.36 Quantity							
lb.	kg	2	2	2	2	2	2	3	3
22	10	2	2	2	3	3	4	4	5
55	25	2	3	3	4	5	6	7	8
110	50	2	3	4	5	7	8		
165	75	2	3	4	5	6	8		
220	100	3	4	5	6	8			
276	125	3	4	6	8				



Ordering Example:

GRS.36. J. 0500. FM

Part Number: _____

Includes Series and Guide Rod Diameter

Guide Rod Option: _____

J = 4x M10, Metric; **K** = 4x 3/8"-16, Imperial;

M = 4x M10, Metric with Rod End Dowel;

E = 4x 3/8"-16, Imperial with Rod End Dowel

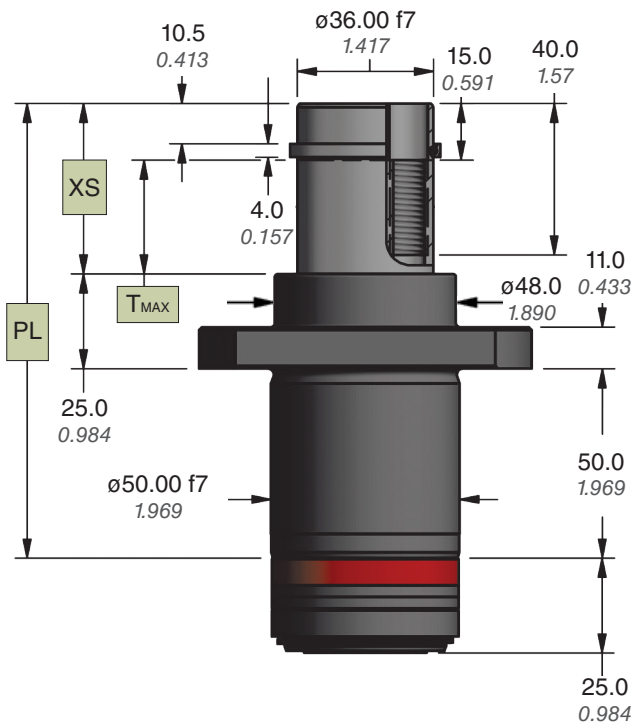
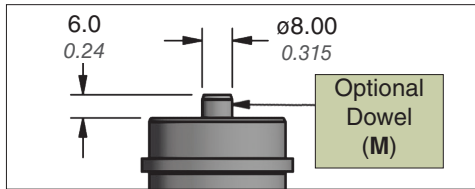
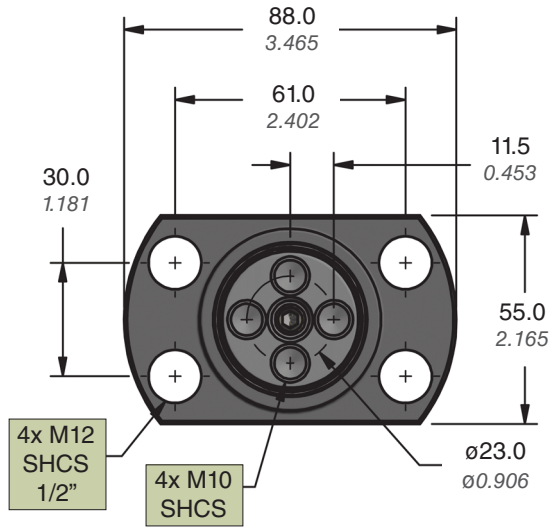
Guide Retainer Mount Option:

FM = Flange Mount, W2 or N3 Mount

Pin Extension Code: 0200 - 1500

Example: 0500 = 50.0 mm = XS Dimension

GRS.36.HD



Pin Extension Code	*XS		PL		Max Travel (T _{MAX})	
	mm	inch	mm	inch	mm	inch
0450	45.0	1.772	120.0	4.724	30.0	1.181
0550	55.0	2.165	130.0	5.118	40.0	1.575
0650	65.0	2.559	140.0	5.512	50.0	1.969
0750	75.0	2.953	150.0	5.906	60.0	2.362
0850	85.0	3.346	160.0	6.299	70.0	2.756
0950	95.0	3.740	170.0	6.693	80.0	3.150
1050	105.0	4.134	180.0	7.087	90.0	3.543
1150	115.0	4.528	190.0	7.480	100.0	3.937
1250	125.0	4.921	200.0	7.874	110.0	4.331
1350	135.0	5.315	210.0	8.268	120.0	4.724
1450	145.0	5.709	220.0	8.661	130.0	5.118

*XS = PL - GRL

Guide Retainer Length (GRL) = 75 mm (2.953 in)

Velocity Estimate (m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	
Per GRS max (lb.)	265	184	135	103	82	66	55	46	
Per GRS max (kg)	120	83	61	47	37	30	25	21	
Pad Mass		GRS.36.HD Quantity							
lb.	kg								
150	68	2	2	3	3	3	4	4	5
200	91	2	3	3	3	4	5	5	6
250	113	2	3	3	4	5	5	6	7
300	136	3	3	4	4	5	6	7	8
350	159	3	3	4	5	6	7	8	
400	181	3	4	4	5	6	8		
450	204	3	4	5	6	7	8		
500	227	3	4	5	6	8			
550	249	4	4	6	7	8			
600	272	4	5	6	7				

Ordering Example:

GRS.36.HD. J. 0550. FH .

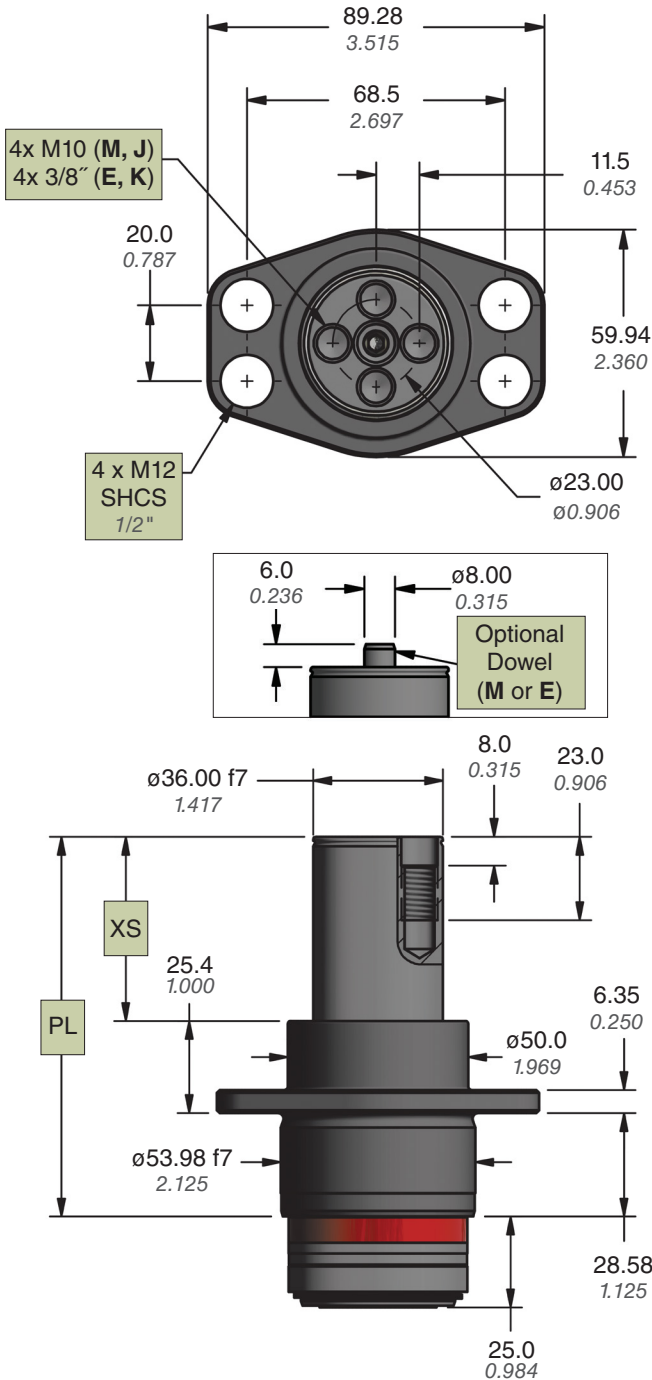
Part Number: Includes Series, Guide Rod Diameter, and Retainer Mount Type
Guide Rod Option: J = Metric; M = Metric, with Rod End Dowel

For optional plate adapter add **AC**. See page 23 for AC options.

Guide Retainer Mount Option: FH = Flange Mount

Pin Extension Code: 0450 - 1450
 Example: 0550 = 55.0 mm = XS Dimension

NEW!



Pin Extension Code	*XS		PL	
	mm	inch	mm	inch
0200	20.0	0.787	73.98	2.912
0254	25.4	1.000	79.38	3.125
0300	30.0	1.181	83.98	3.306
0318	31.75	1.250	85.73	3.375
0381	38.1	1.500	92.08	3.625
0400	40.0	1.575	93.98	3.700
0445	44.45	1.750	98.43	3.875
0500	50.0	1.969	103.98	4.094
0508	50.8	2.000	104.78	4.125
0572	57.15	2.250	111.13	4.375
0600	60.0	2.362	113.98	4.487
0635	63.5	2.500	117.48	4.625
0700	70.0	2.756	123.98	4.881
0762	76.2	3.000	130.18	5.125
0800	80.0	3.150	133.98	5.275
0889	88.9	3.500	142.88	5.625
0900	90.0	3.543	143.98	5.668

*XS = PL - GRL
 Guide Retainer Length (GRL) = 53.98 mm (2.125 in)

Velocity Estimate (m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
Per GRS max (lb.)	185	129	94	72	57	46	38	32
Per GRS max (kg)	84	58	43	33	26	21	17	15

Pad Mass		GRS.36.HD1 Quantity							
lb.	kg								
50	23	2	2	2	2	2	3	3	3
100	45	2	2	3	3	3	4	4	5
150	68	2	3	3	4	4	5	5	6
200	91	3	3	4	4	5	6	7	8
250	113	3	3	4	5	6	7	8	
300	136	3	4	5	6	7	8		
350	159	3	4	5	6	8			
400	181	4	5	6	7	8			
450	204	4	5	6	8				
500	227	4	5	7	8				

Ordering Example:

GRS.36.HD1. M. 0500.

Part Number:

Includes Series, Guide Rod Diameter, and Retainer Mount Type

Guide Rod Option:

J = 4x M10, Metric; **K** = 4x 3/8"-16, Imperial;
M = 4x M10, Metric with Rod End Dowel;
E = 4x 3/8"-16, Imperial with Rod End Dowel

See page 22 for alternative rod ends.

For optional plate adapter add **AC**.
 See page 23 for AC options.

Pin Extension Code: 0200 - 0900

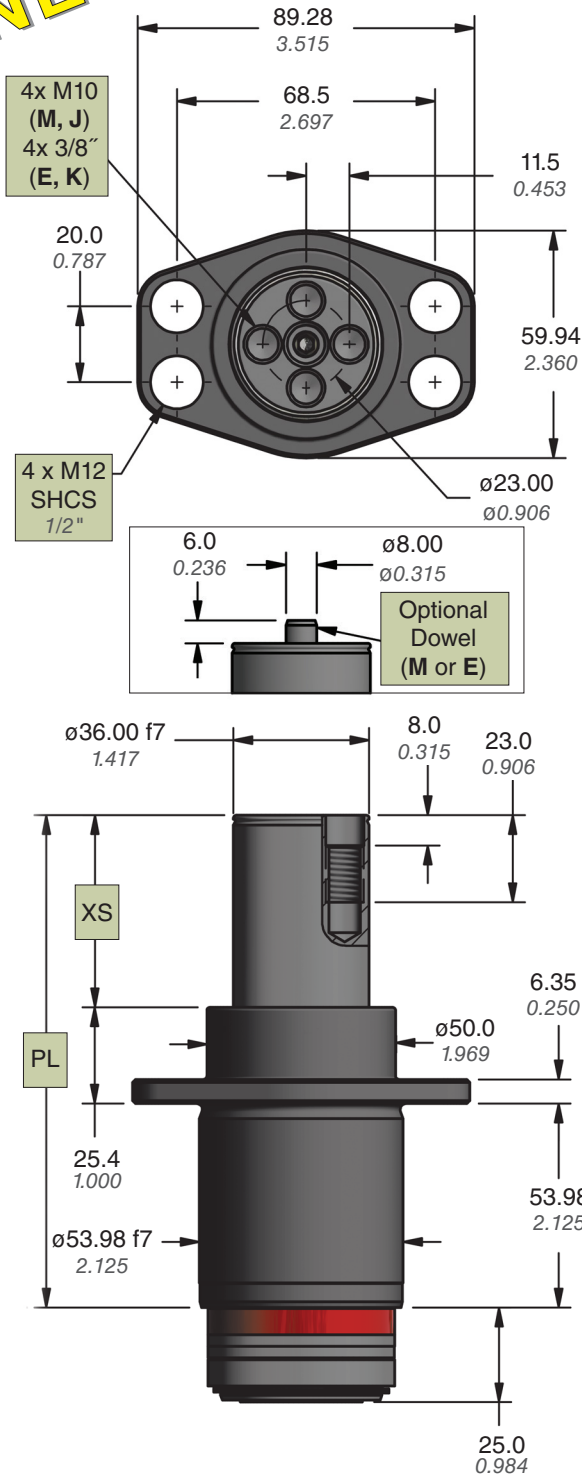
Example:

0500 = 50.0 mm = XS Dimension

NEW!

GRS.36.HD2

Guide Retainer Sets



Pin Extension Code	*XS		PL		Pin Extension Code	*XS		PL	
	mm	inch	mm	inch		mm	inch	mm	inch
0200	20.0	0.787	99.38	3.912	0254	25.4	1.000	104.78	4.125
0300	30.0	1.181	109.38	4.306	0318	31.75	1.250	111.13	4.375
0400	40.0	1.575	119.38	4.700	0381	38.1	1.500	117.48	4.625
0500	50.0	1.969	129.38	5.094	0445	44.45	1.750	123.83	4.875
0600	60.0	2.362	139.38	5.487	0508	50.8	2.000	130.18	5.125
0700	70.0	2.756	149.38	5.881	0572	57.15	2.250	136.53	5.375
0800	80.0	3.150	159.38	6.275	0635	63.5	2.500	142.88	5.625
0900	90.0	3.543	169.38	6.668	0762	76.2	3.000	155.58	6.125
1000	100.0	3.937	179.38	7.062	0889	88.9	3.500	168.28	6.625
1100	110.0	4.331	189.38	7.456	1016	101.6	4.000	180.98	7.125
1200	120.0	4.724	199.38	7.849	1143	114.3	4.500	193.68	7.625
1300	130.0	5.118	209.38	8.243	1270	127.0	5.000	206.38	8.125
1400	140.0	5.512	219.38	8.637	1397	139.7	5.500	219.08	8.625
1500	150.0	5.906	229.38	9.031	1524	152.4	6.000	231.78	9.125

***XS = PL - GRL**
Guide Retainer Length (GRL) = 79.38 mm (3.125 in)

Velocity Estimate (m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
Per GRS max (lb.)	185	129	94	72	57	46	38	32
Per GRS max (kg)	84	58	43	33	26	21	17	15

Pad Mass		GRS.36.HD2 Quantity							
lb.	kg								
50	23	2	2	2	2	2	3	3	3
100	45	2	2	3	3	3	4	4	5
150	68	2	3	3	4	4	5	5	6
200	91	3	3	4	4	5	6	7	8
250	113	3	3	4	5	6	7	8	
300	136	3	4	5	6	7	8		
350	159	3	4	5	6	8			
400	181	4	5	6	7	8			
450	204	4	5	6	8				
500	227	4	5	7	8				

Ordering Example:

GRS.36.HD2. M. 0500.

Part Number:

Includes Series, Guide Rod Diameter, and Retainer Mount Type

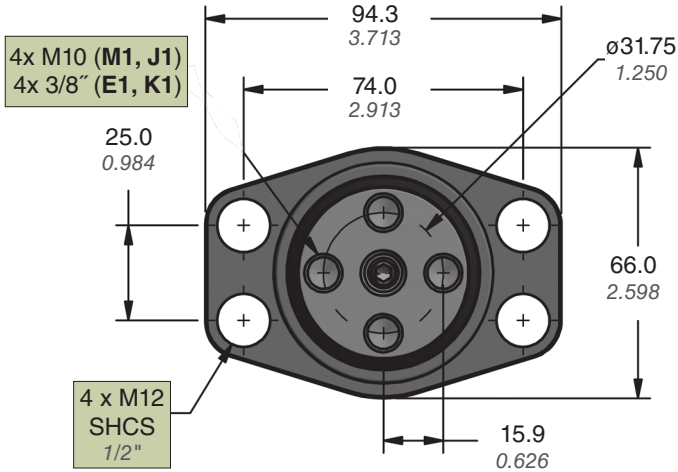
Guide Rod Option:

J = 4x M10, Metric; **K** = 4x 3/8"-16, Imperial;
M = 4x M10, Metric with Rod End Dowel;
E = 4x 3/8"-16, Imperial with Rod End Dowel
 See page 22 for alternative rod ends.

For optional plate adapter add **AC**.
 See page 23 for AC options.

Pin Extension Code: 0200 - 1524

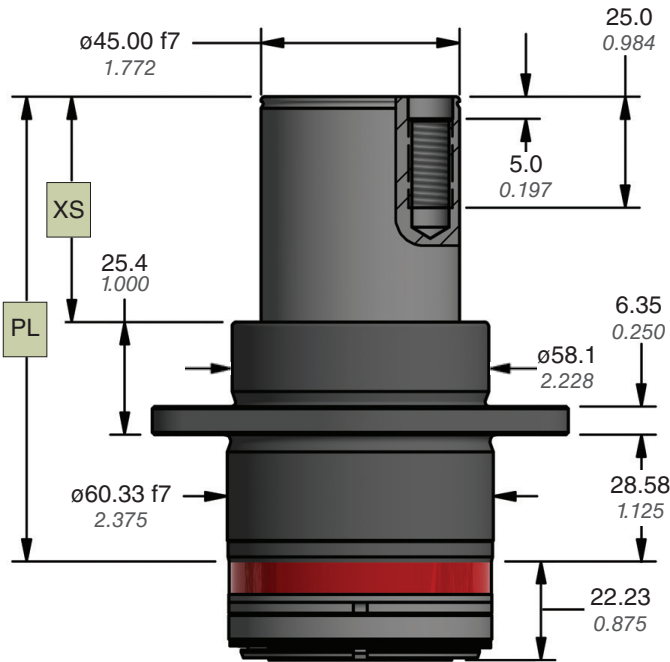
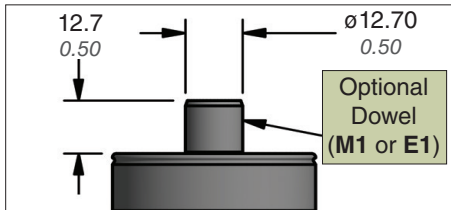
Example:
 0500 = 50.0 mm = XS Dimension



Pin Extension Code	*XS		PL		Pin Extension Code	*XS		PL	
	mm	inch	mm	inch		mm	inch	mm	inch
0200	20.0	0.787	73.98	2.912	0572	57.15	2.250	111.13	4.375
0254	25.4	1.000	79.38	3.125	0600	60.0	2.362	113.98	4.487
0300	30.0	1.181	83.98	3.306	0635	63.5	2.500	117.48	4.625
0318	31.75	1.250	85.73	3.375	0700	70.0	2.756	123.98	4.881
0381	38.1	1.500	92.08	3.625	0762	76.2	3.000	130.18	5.125
0400	40.0	1.575	93.98	3.700	0800	80.0	3.150	133.98	5.275
0445	44.45	1.750	98.43	3.875	0889	88.9	3.500	142.88	5.625
0500	50.0	1.969	103.98	4.094	0900	90.0	3.543	143.98	5.668
0508	50.8	2.000	104.78	4.125					

*XS = PL - GRL

Guide Retainer Length (GRL) = 53.98 mm (2.125 in)



Velocity Estimate (m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
Per GRS max (lb.)	317	220	162	124	98	79	66	55
Per GRS max (kg)	144	100	73	56	44	36	30	25

Pad Mass		GRS.45.HD1 Quantity							
lb.	kg								
150	68	2	2	2	3	3	3	4	4
200	91	2	2	3	3	4	4	5	5
250	113	2	3	3	4	4	5	5	6
300	136	2	3	3	4	5	5	6	7
350	159	3	3	4	4	5	6	7	8
400	181	3	3	4	5	6	7	8	
450	204	3	4	4	5	6	7	8	
500	227	3	4	5	6	7	8		
550	249	3	4	5	6	7	8		
600	272	3	4	5	6	8			
650	295	4	4	6	7	8			
700	318	4	5	6	7				

Ordering Example:

GRS.45.HD1. J1. 0500.

Part Number:

Includes Series, Guide Rod Diameter, and Retainer Mount Type

Guide Rod Option:

J1 = 4 x M10, Metric;

K1 = 4 x 3/8"-16, Imperial;

M1 = 4 x M10, Metric with Dowel;

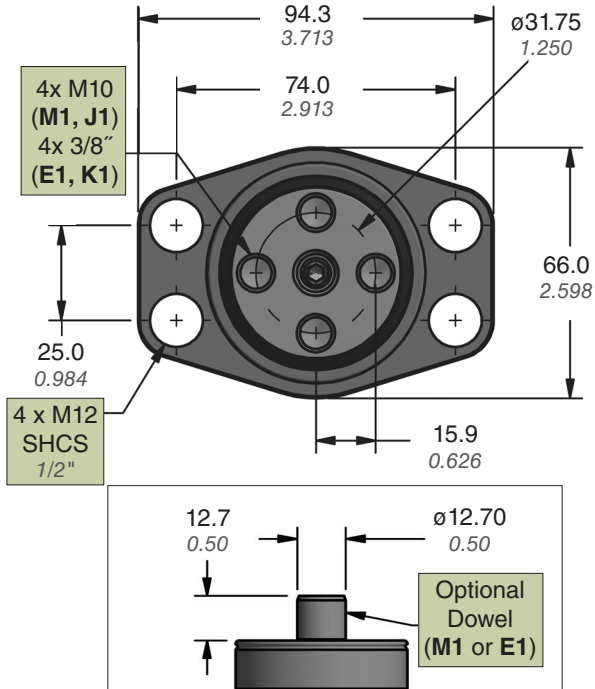
E1 = 4 x 3/8"-16, Imperial with Dowel;

See page 22 for alternative rod ends.

For optional plate adapter cap, add **AC4**.
See page 23 for AC options.

Pin Extension Code: 0200 - 0900

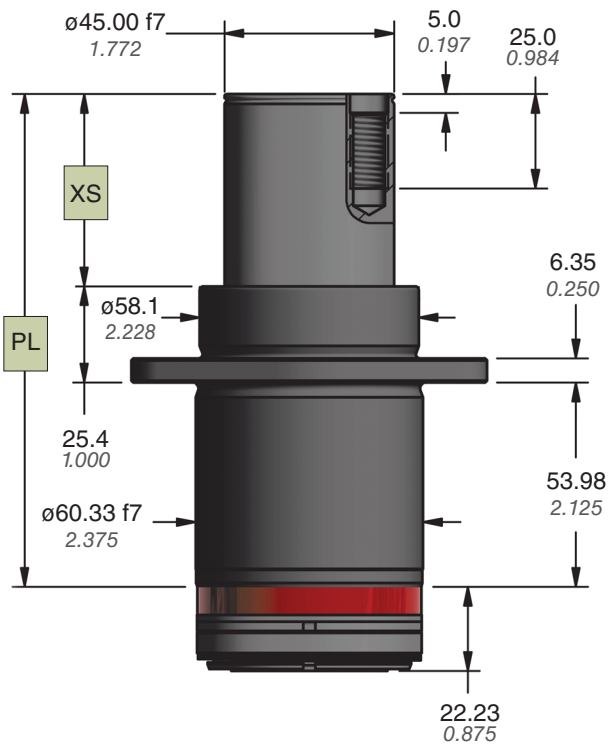
Example: 0500 = 50.0 mm = XS Dimension



Pin Extension Code	*XS		PL		Pin Extension Code	*XS		PL	
	mm	inch	mm	inch		mm	inch	mm	inch
0200	20.0	0.787	99.38	3.912	0254	25.4	1.000	104.78	4.125
0300	30.0	1.181	109.38	4.306	0318	31.75	1.250	111.13	4.375
0400	40.0	1.575	119.38	4.700	0381	38.1	1.500	117.48	4.625
0500	50.0	1.969	129.38	5.094	0445	44.45	1.750	123.83	4.875
0600	60.0	2.362	139.38	5.487	0508	50.8	2.000	130.18	5.125
0700	70.0	2.756	149.38	5.881	0572	57.15	2.250	136.53	5.375
0800	80.0	3.150	159.38	6.275	0635	63.5	2.500	142.88	5.625
0900	90.0	3.543	169.38	6.669	0762	76.2	3.000	155.58	6.125
1000	100.0	3.937	179.38	7.062	0889	88.9	3.500	168.28	6.625
1100	110.0	4.331	189.38	7.456	1016	101.6	4.000	180.98	7.125
1200	120.0	4.724	199.38	7.849	1143	114.3	4.500	193.68	7.625
1300	130.0	5.118	209.38	8.243	1270	127.0	5.000	206.38	8.125
1400	140.0	5.512	219.38	8.637	1397	139.7	5.500	219.08	8.625
1500	150.0	5.906	229.38	9.031	1524	152.4	6.000	231.78	9.125

***XS = PL - GRL**

Guide Retainer Length (GRL) = 79.38 mm (3.125 in)



Velocity Estimate (m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	
Per GRS	max (lb.)	317	220	162	124	98	79	66	55
	max (kg)	144	100	73	56	44	36	30	25

Pad Mass		GRS.45.HD2 Quantity							
lb.	kg								
150	68	2	2	2	3	3	3	4	4
200	91	2	2	3	3	4	4	5	5
250	113	2	3	3	4	4	5	5	6
300	136	2	3	3	4	5	5	6	7
350	159	3	3	4	4	5	6	7	8
400	181	3	3	4	5	6	7	8	
450	204	3	4	4	5	6	7	8	
500	227	3	4	5	6	7	8		
550	249	3	4	5	6	7	8		
600	272	3	4	5	6	8			
650	295	4	4	6	7	8			
700	318	4	5	6	7				

Ordering Example:

GRS.45.HD2. J1. 0500.

Part Number:

Includes Series, Guide Rod Diameter, and Retainer Mount Type

Guide Rod Option:

J1 = 4 x M10, Metric;

K1 = 4 x 3/8"-16, Imperial;

M1 = 4 x M10, Metric with Dowel;

E1 = 4 x 3/8"-16, Imperial with Dowel;

See page 22 for alternative rod ends.

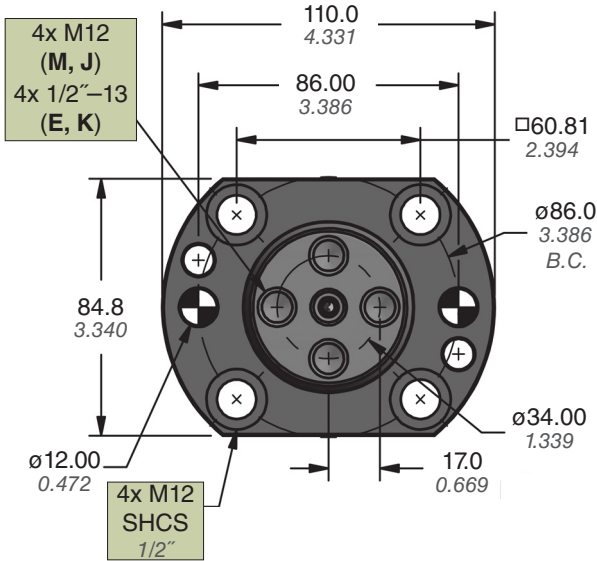
For optional plate adapter cap, add **AC4**.
See page 23 for AC options.

Pin Extension Code: 0200 - 1524

Example: 0500 = 50.0 mm = XS Dimension

Guide Retainer Sets

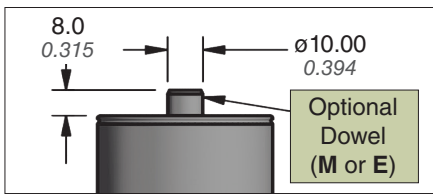
GRS.50



Pin Extension Code	XS		PL		Pin Extension Code	XS		PL	
	mm	inch	mm	inch		mm	inch	mm	inch
0200	20.0	0.787	100.0	3.937	0800	80.0	3.150	160.0	6.299
0300	30.0	1.181	110.0	4.331	0850	85.0	3.346	165.0	6.496
0400	40.0	1.575	120.0	4.724	0900	90.0	3.543	170.0	6.693
0450	45.0	1.772	125.0	4.921	0950	95.0	3.740	175.0	6.890
0500	50.0	1.969	130.0	5.118	1000	100.0	3.937	180.0	7.087
0550	55.0	2.165	135.0	5.315	1100	110.0	4.331	190.0	7.480
0600	60.0	2.362	140.0	5.512	1200	120.0	4.724	200.0	7.874
0650	65.0	2.559	145.0	5.709	1300	130.0	5.118	210.0	8.268
0700	70.0	2.756	150.0	5.906	1400	140.0	5.512	220.0	8.661
0750	75.0	2.953	155.0	6.102	1500	150.0	5.906	230.0	9.055

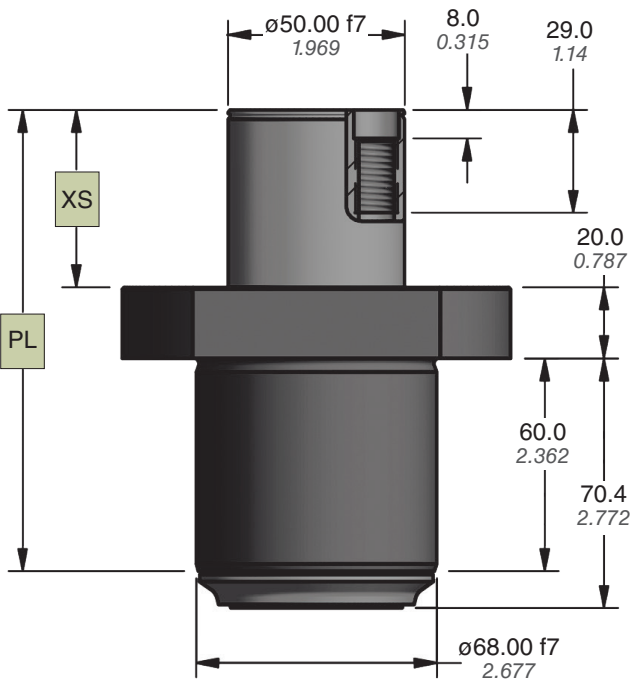
*XS = PL - GRL

Guide Retainer Length (GRL) = 80 mm (3.150 in)



Velocity Estimate (m/sec)	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	
Per GRS	max (lb.)	269	152	97	67	49	38	30	24
	max (kg)	122	69	44	31	22	17	14	11

Pad Mass		GRS.50 Quantity							
lb.	kg								
22	10	2	2	2	2	2	2	2	2
55	25	2	2	2	2	3	3	3	4
110	50	2	2	3	3	4	4	5	6
165	75	2	3	3	4	5	6	7	8
276	125	3	3	4	6	7			
386	175	3	4	5	7				



Ordering Example:

GRS.50. J. 0500. FM

Part Number:

Includes Series and Guide Rod Diameter

Guide Retainer Mount Option:

FM = Flange Mount

Guide Rod Option:

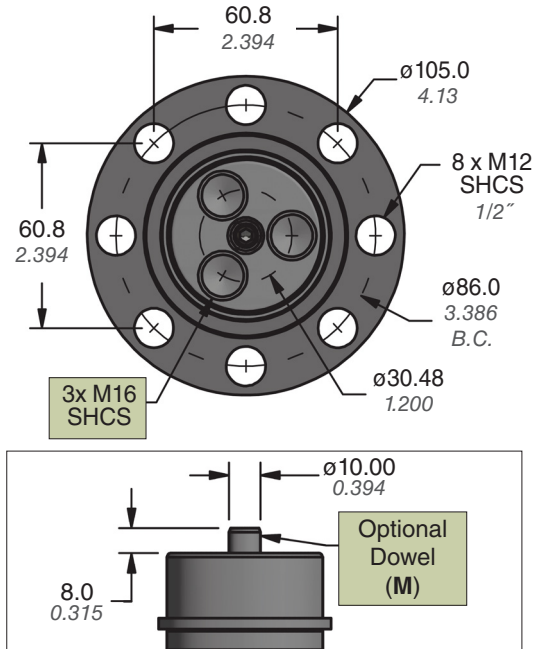
J = 4x M12, Metric, K = 4x 1/2"-13, Imperial;

M = 4x M12, Metric with Rod End Dowel;

E = 4x 1/2"-13, Imperial with Rod End Dowel

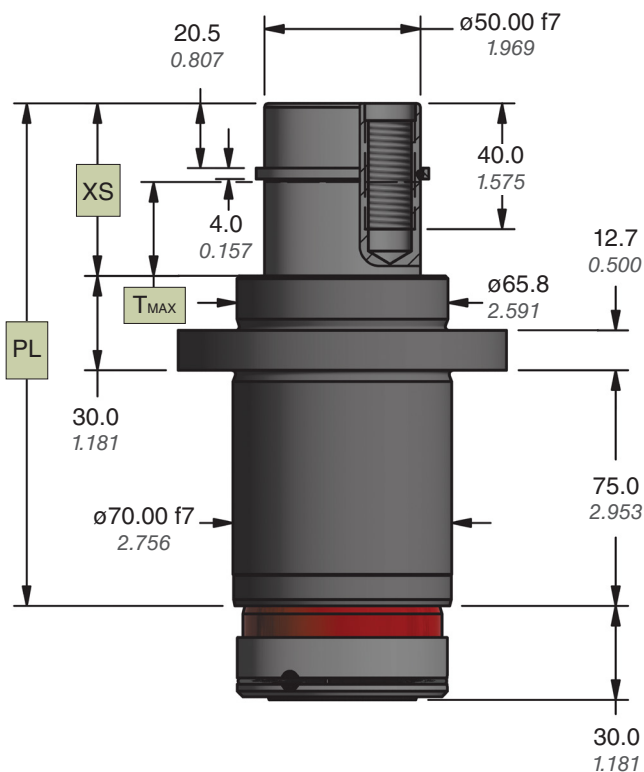
Pin Extension Code: 0200 - 1500

Example: 0500 = 50.0 mm = XS Dimension



Pin Extension Code	*XS		PL		Max Travel (T _{MAX})	
	mm	inch	mm	inch	mm	inch
0550	55.0	2.165	160.0	6.299	30.0	1.181
0650	65.0	2.559	170.0	6.693	40.0	1.575
0750	75.0	2.953	180.0	7.087	50.0	1.969
0850	85.0	3.346	190.0	7.480	60.0	2.362
0950	95.0	3.740	200.0	7.874	70.0	2.756
1050	105.0	4.134	210.0	8.268	80.0	3.150
1150	115.0	4.528	220.0	8.661	90.0	3.543
1250	125.0	4.921	230.0	9.055	100.0	3.937
1350	135.0	5.315	240.0	9.449	110.0	4.331
1450	145.0	5.709	250.0	9.843	120.0	4.724
1550	155.0	6.102	260.0	10.236	130.0	5.118

*XS = PL - GRL
 Guide Retainer Length (GRL) = 105 mm (4.133 in)



Velocity Estimate (m/sec)	GRS.50.HD Quantity								
	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	
Per GRS	max (lb.)	1058	735	540	413	327	265	219	184
	max (kg)	480	333	245	188	148	120	99	83

Pad Mass		GRS.50.HD Quantity							
lb.	kg	2	2	2	2	2	3	3	3
250	113	2	2	2	2	2	3	3	3
500	227	2	2	2	3	3	3	4	4
750	340	2	3	3	3	4	4	5	6
1000	454	2	3	3	4	5	5	6	7
1250	567	3	3	4	5	5	6	7	8
1500	680	3	4	4	5	6	7	8	
1750	794	3	4	5	6	7	8		
2000	907	3	4	5	6	8			
2250	1021	4	5	6	7	8			
2500	1134	4	5	6	8				

Ordering Example:

GRS.50.HD. J. 0550. FH .

Part Number:
 Includes Series, Guide Rod Diameter, and Retainer Mount Type

Guide Rod Option:
 J = Metric;
 M = Metric, with Rod End Dowel

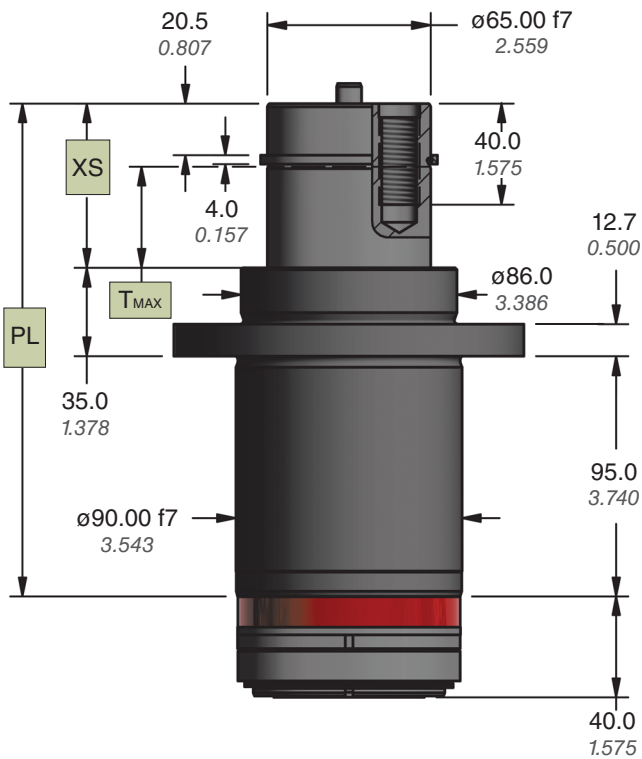
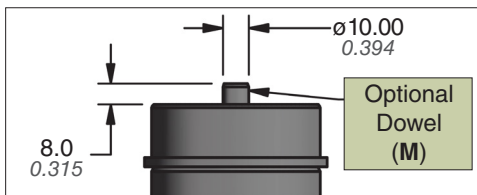
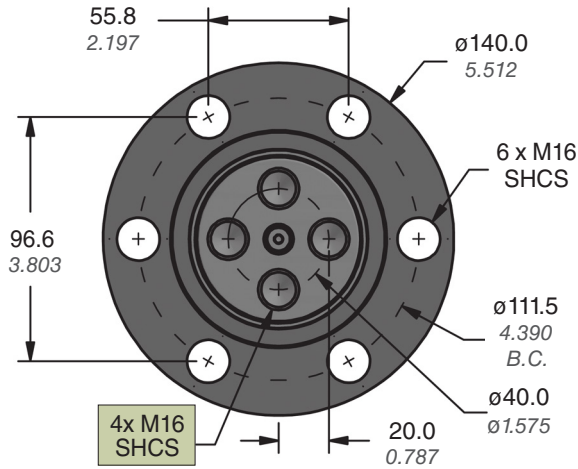
For optional plate adapter add **AC**.
 See page 23 for AC options.

Guide Retainer Mount Option:
 FH = Flange Mount

Pin Extension Code: 0550 - 1550

Example: 0550 = 55.0 mm = XS Dimension

GRS.65.HD



Pin Extension Code	XS		PL		Max Travel (T _{MAX})	
	mm	inch	mm	inch	mm	inch
0550	55.0	2.165	185.0	7.283	30.0	1.181
0650	65.0	2.559	195.0	7.677	40.0	1.575
0750	75.0	2.953	205.0	8.071	50.0	1.969
0850	85.0	3.346	215.0	8.465	60.0	2.362
0950	95.0	3.740	225.0	8.858	70.0	2.756
1050	105.0	4.134	235.0	9.252	80.0	3.150
1150	115.0	4.528	245.0	9.646	90.0	3.543
1250	125.0	4.921	255.0	10.039	100.0	3.937
1350	135.0	5.315	265.0	10.433	110.0	4.331
1450	145.0	5.709	275.0	10.827	120.0	4.724
1550	155.0	6.102	285.0	11.220	130.0	5.118

*XS = PL - GRL
 Guide Retainer Length (GRL) = 130 mm (5.118 in)

Velocity Estimate	(m/sec)	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
Per GRS	max (lb.)	1411	980	720	551	435	353	292	245
	max (kg)	640	444	327	250	198	160	132	111
Pad Mass		GRS.65.HD Quantity							
lb.	kg								
250	113	2	2	2	2	2	2	2	3
500	227	2	2	2	2	3	3	3	4
750	340	2	2	3	3	3	4	4	5
1000	454	2	3	3	3	4	4	5	6
1250	567	2	3	3	4	4	5	6	7
1500	680	3	3	4	4	5	6	7	8
1750	794	3	3	4	5	6	6	8	
2000	907	3	4	4	5	6	7	8	
2250	1021	3	4	5	6	7	8		
2500	1134	3	4	5	6	7			

Ordering Example:

GRS.65.HD. J. 0550. FH .

Part Number:
 Includes Series, Guide Rod Diameter, and Retainer Mount Type
Guide Rod Option:
 J = Metric;
 M = Metric, with Rod End Dowel

For optional plate adapter add **AC**.
 See page 23 for AC options.

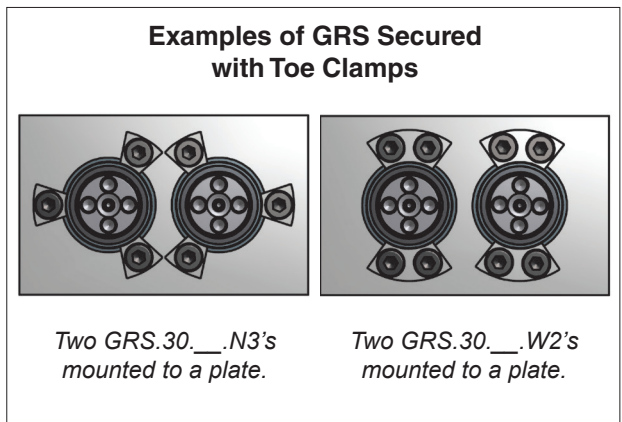
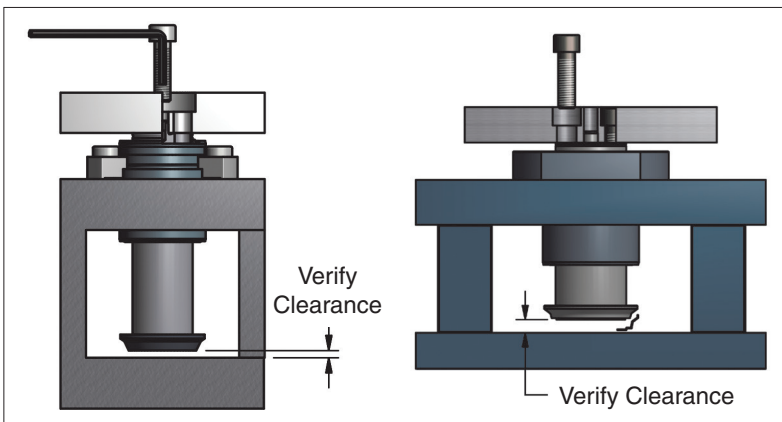
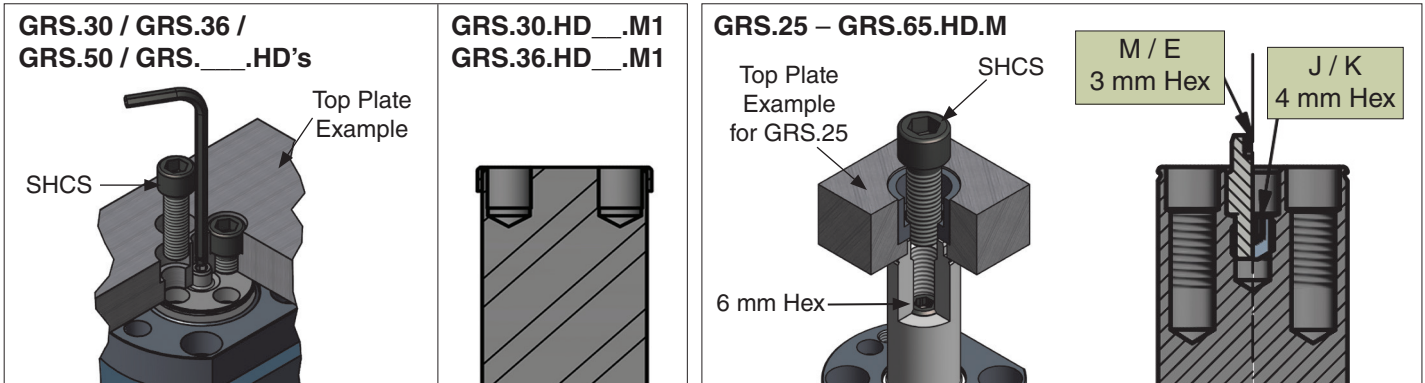
Guide Retainer Mount Option:
 FH = Flange Mount

Pin Extension Code: 0550 - 1550

Example: 0550 = 55.0 mm = XS Dimension

Design Considerations

The GRS series requires machining from only one side of the plate. Most models have a small hex socket located in the center of the Guide Rod that facilitates alignment through the plate during installation and removal. The GRS.25 Guide Rod has flats to prevent rotation and may be installed with the Plate Adapter Cap (*sold separately*).



Verify that there is adequate clearance for travel during operation. Overstroking the rod or impacting the bottom of the Guide Retainer Set will cause permanent damage.

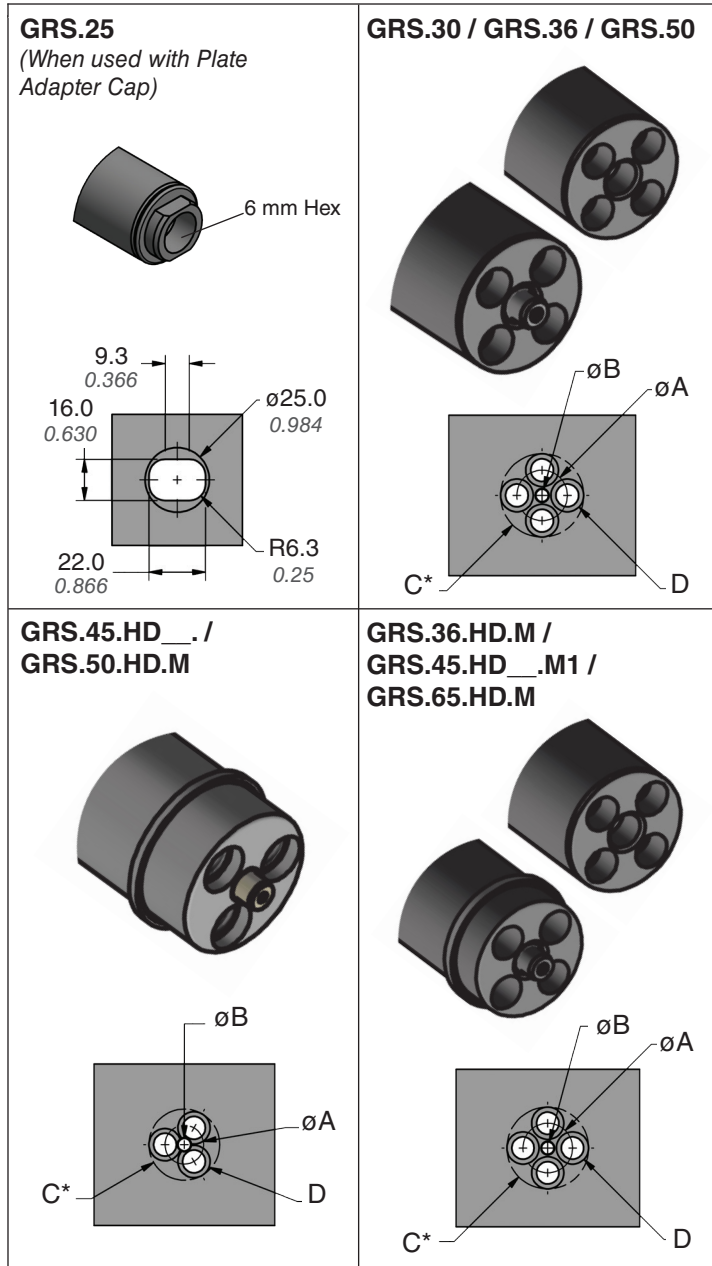
DADCO Toe Clamp Mounts are compact, permitting GRS to be located in close proximity to one another. Toe Clamps should be evenly spaced around the retainer to balance the load.

Pad Flex

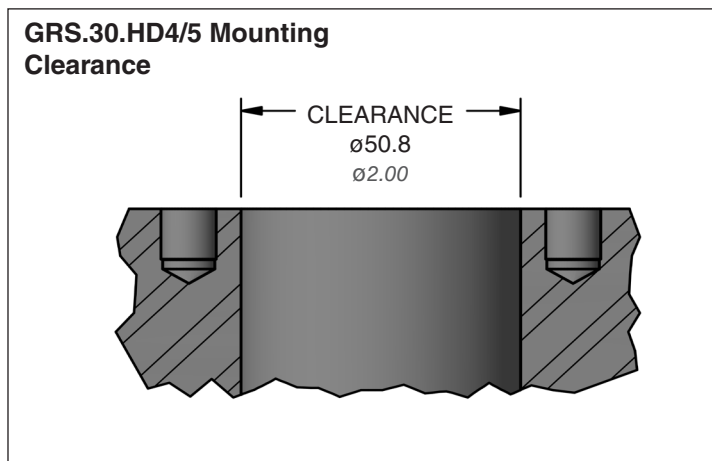
Minimum Distance		
GRS	A	B
GRS.25	50 mm 1.969	80 mm 3.150
GRS.30	60 mm 2.362	85 mm 3.346
GRS.36	65 mm 2.559	100 mm 3.937
GRS.50	70 mm 2.756	115 mm 4.528
GRS.30.HD...	60 mm 2.362	85 mm 3.346
GRS.36.HD...	65 mm 2.559	100 mm 3.937
GRS.45.HD...	70 mm 2.756	110 mm 4.331
GRS.50.HD...	70 mm 2.756	115 mm 4.528
GRS.65.HD...	90 mm 3.543	150 mm 5.906

Deceleration of the pad may cause pad flexing to occur. Add additional GRS to the center to prevent side load from inertial deflection at end of stroke travel. Lighter pads may result in a flexible structure requiring center support. Heavier pads will require additional GRS to distribute the weight according to the shape and die steel attachments.

Guide Rod Attachment Details



* Optional Single Counterbore



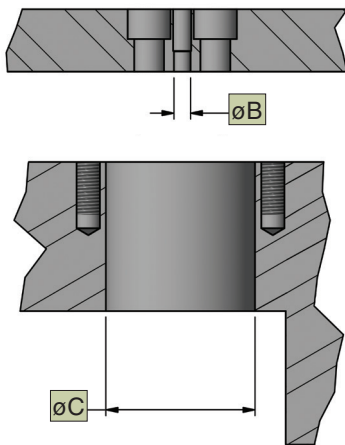
GRS Model	A	ϕB H7	C	D
GRS.30.J	20.00 0.787	-	$\phi 34.0$ 1.339	4 x M8 SHCS
GRS.30.M		6.00		4 x 5/16"-18
GRS.30.K		-	6.00	
GRS.30.E		6.00		
GRS.30.HD__J	20.00 0.787	-	$\phi 34.0$ 1.339	4 x M8 SHCS
GRS.30.HD__M		6.00		4 x 5/16"-18
GRS.30.HD__K		-	6.00	
GRS.30.HD__E		6.00		
GRS.36.J	23.00 0.906	-	$\phi 41.0$ 1.614	4 x M10 SHCS
GRS.36.M		8.00		4 x 3/8"-16
GRS.36.K		-	8.00	
GRS.36.E		8.00		
GRS.36.HD.J	23.00 0.906	-	$\phi 41.0$ 1.614	4 x M10 SHCS
GRS.36.HD.M		8.00		
GRS.36.HD__J	23.00 0.906	-	$\phi 41.0$ 1.614	4 x M10 SHCS
GRS.36.HD__M		8.00		4 x 3/8"-16
GRS.36.HD__K		-	8.00	
GRS.36.HD__E		8.00		
GRS.45.HD__M1	31.75 1.250	12.70 0.500	$\phi 50.0$ 1.970	4 x M10 SHCS
GRS.45.HD__J1				4 x 3/8"-16
GRS.45.HD__K1				
GRS.45.HD__E1				
GRS.50.J	34.00 1.339	-	$\phi 54.0$ 2.126	4 x M12 SHCS
GRS.50.M		10.00		4 x 1/2"-13
GRS.50.K		-	10.00	
GRS.50.E		10.00		
GRS.50.HD.J	30.48 1.200	10.00 0.394	$\phi 56.5$ 2.224	3 x M16 SHCS
GRS.65.HD.J	40.00 1.575	10.00 0.394	$\phi 66.0$ 2.599	4 x M16 SHCS

Machining Details

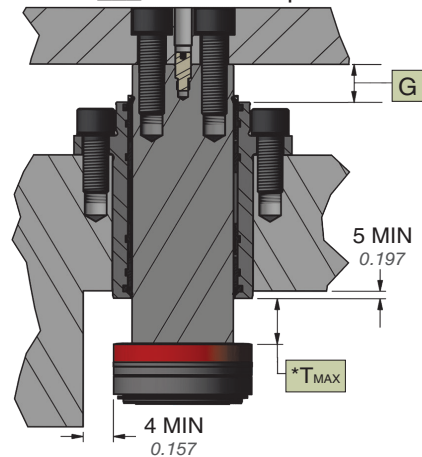
Model	ϕB H7	ϕC H8	$\phi D1$	$\phi D2$	F_{MAX}	G
GRS.25	-	38.00 1.496	25.030 – 25.065 0.9854 – 0.9868	25.00 0.984	10.00 0.394	≥ 3.00 mm 0.118
GRS.30	6.00 0.236	43.00 1.693	30.045 – 30.085 1.1829 – 1.1844	-	10.00 0.394	≥ 3.00 mm 0.118
GRS.30.HD__M/E/J/K	6.00 0.236	44.45 1.750	30.045 – 30.085 1.1829 – 1.1844	-	10.00 0.394	≥ 3.00 mm 0.118
GRS.30.HD1 / HD2.M1	-	44.45 1.750	31.795 – 31.835 1.2518 – 1.2533	-	5.00 0.197	≥ 6.00 mm 0.236
GRS.30.HD4 / HD5.M1	-	See page 20	31.795 – 31.835 1.2518 – 1.2533	-	5.00 0.197	≥ 6.00 mm 0.236
GRS.36	8.00 0.315	50.00 1.969	36.045 – 36.085 1.4191 – 1.4207	-	10.00 0.394	≥ 3.00 mm 0.118
GRS.36.HD__M/E/J/K	8.00 0.315	53.98 2.125	36.045 – 36.085 1.4191 – 1.4207	-	10.00 0.394	≥ 3.00 mm 0.118
GRS.36.HD	8.00 0.315	50.00 1.969	36.045 – 36.085 1.4191 – 1.4207	50.00 1.969	10.00 0.394	≥ 15.00 mm 0.591
GRS.36.HD1 / HD2.M1/E1	-	53.98 2.125	38.145 – 38.185 1.5018 – 1.5033	-	5.00 0.197	≥ 6.00 mm 0.236
GRS.45.HD1 / HD2.J1 / K1	12.7 0.500	60.33 2.375	45.045 – 45.100 1.7734 – 1.7756	57.2 2.25	15.00 0.591	≥ 3.00 mm 0.118
GRS.45.HD1 / HD2.J2 / K2	-	60.33 2.375	44.495 – 44.550 1.7518 – 1.7539	50.80 2.000	6.35 0.250	≥ 10.00 mm 0.394
GRS.50	10.00 0.394	68.00 2.677	50.045 – 50.100 1.9703 – 1.9724	-	15.00 0.591	≥ 3.00 mm 0.118
GRS.50.HD	10.00 0.394	70.00 2.756	50.045 – 50.100 1.9703 – 1.9724	58.00 2.283	20.00 0.787	≥ 25.00 mm 0.984
GRS.65.HD	10.00 0.394	90.00 3.543	65.045 – 65.100 2.5608 – 2.5630	90.00 3.543	20.00 0.787	≥ 25.00 mm 0.984

Verify that there is adequate clearance for the GRS.HD during operation. Allow for clearance at the bottom of the stroke and avoid overstroking the rod or impacting the bottom of the Guide Retainer Set; both will cause permanent damage.

Pocket and Clearance Dimensions

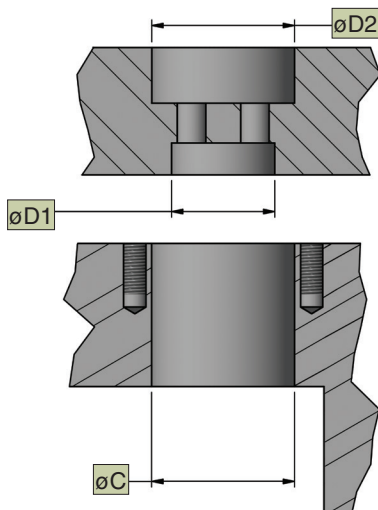


GRS.___.HD.M Example

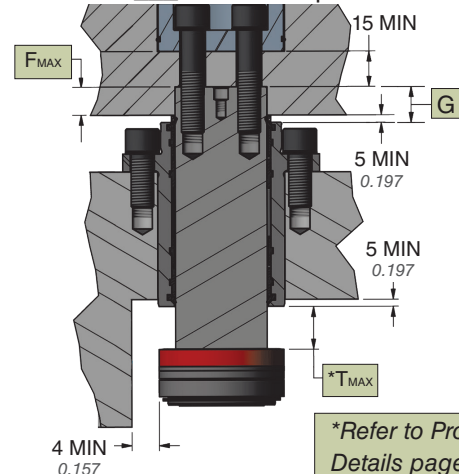


Pocket and Clearance Dimensions when using Optional Plate Adapter

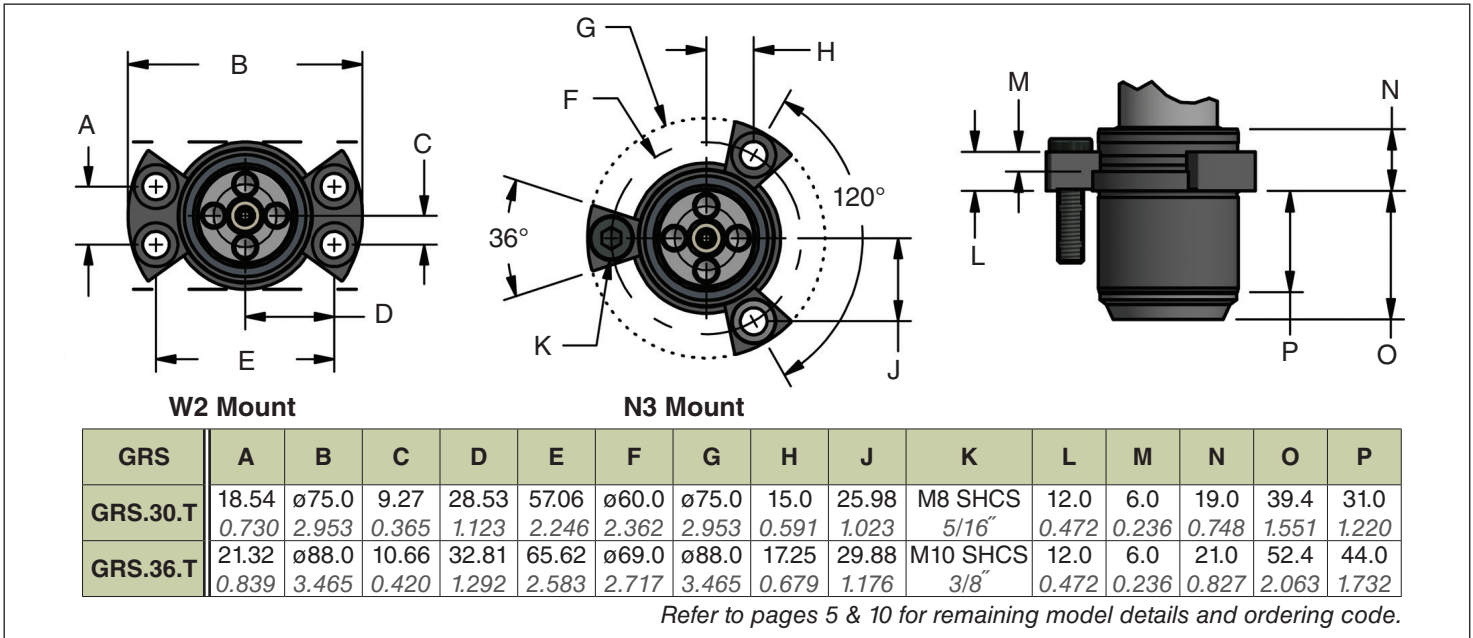
GRS._AC.



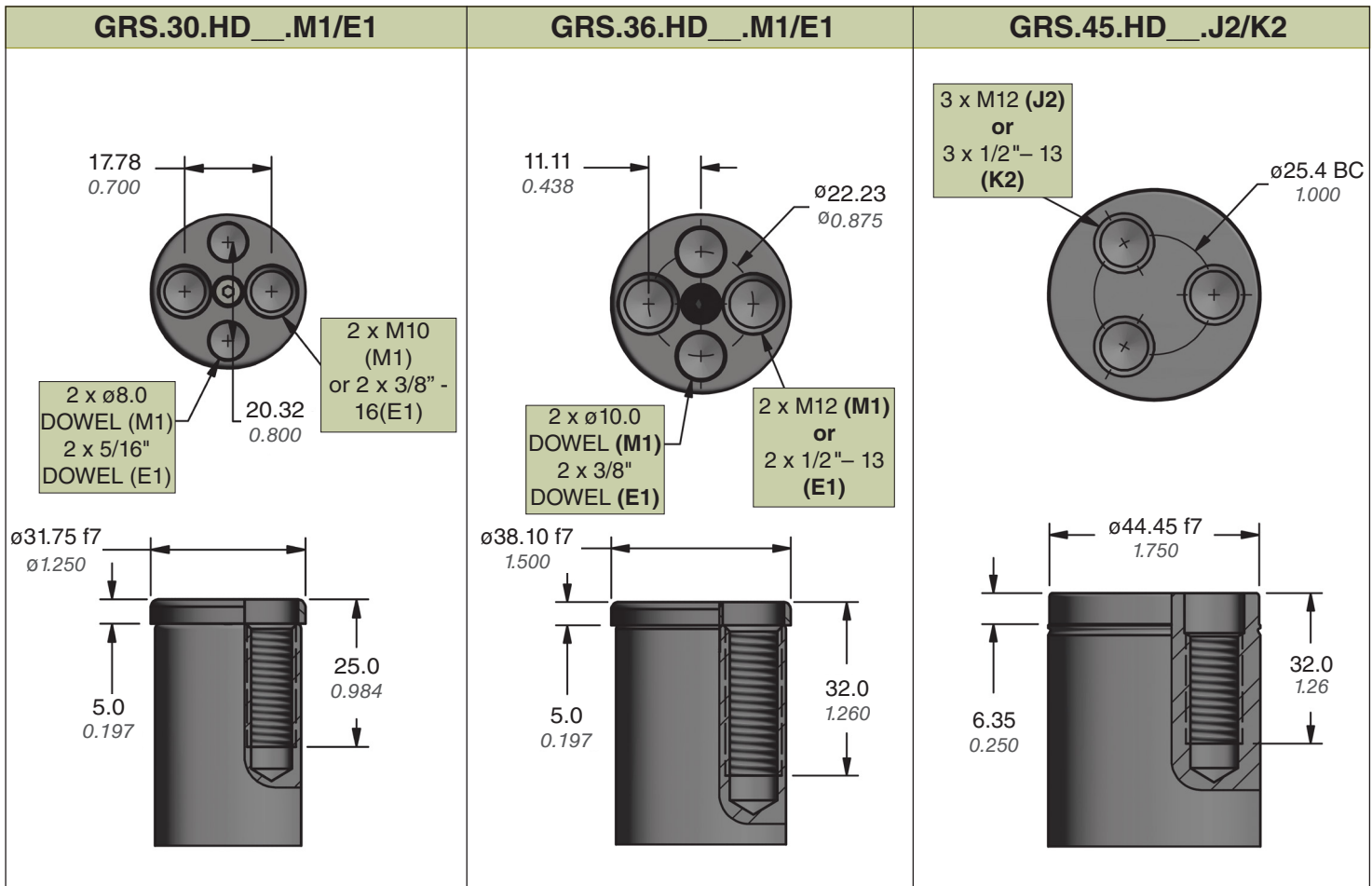
GRS.___.HD.J Example



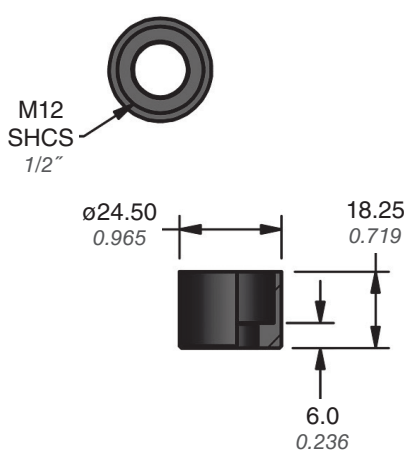
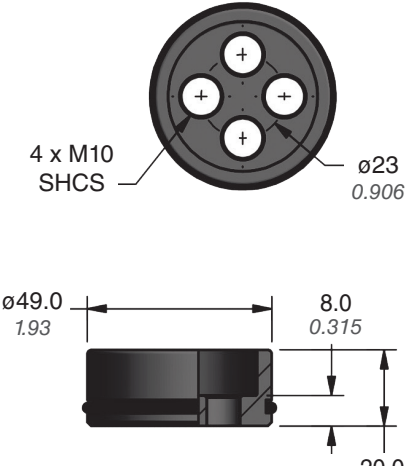
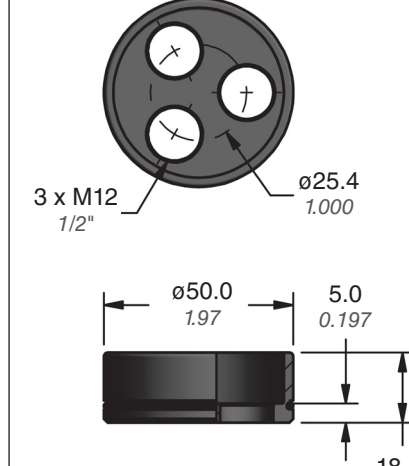
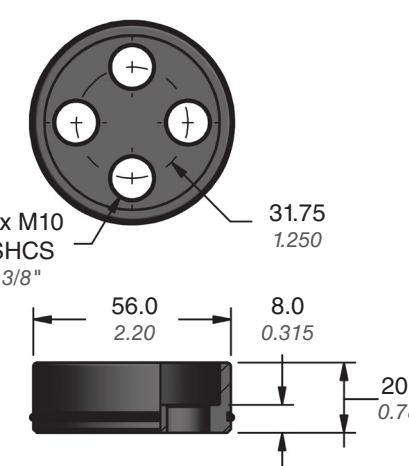
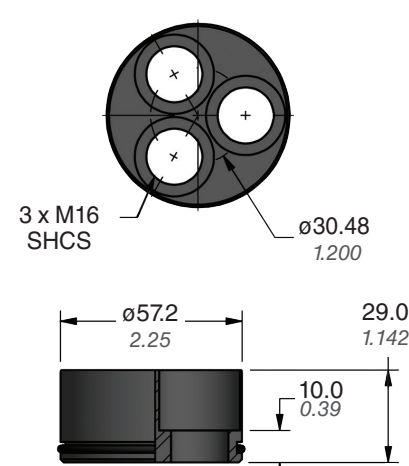
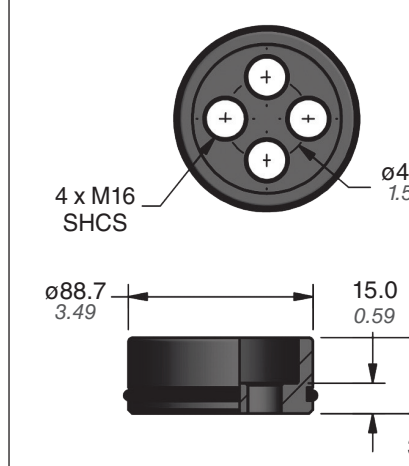
Toe Clamp Mount Options for GRS.30.T / GRS.36.T



Optional Rod Ends



Optional Plate Adapter Caps

GRS.25.AC	GRS.36.AC	GRS.45.AC3
		
GRS.45.AC4	GRS.50.AC	GRS.65.AC
		
Ordering Example:	GRS with Cap: GRS.50.HD.J.0550.FH.AC	Cap Only: GRS.50.AC

Repair Kits

Includes bushings, rod wiper, dampener and a maintenance manual.

Model	Kit Number	Model	Kit Number
GRS.25	GRS.25.RK	GRS.30.HD5	GRS.30.HD5.RK
GRS.30	GRS.30.RK	GRS.36.HD	GRS.36.HD.RK
GRS.36	GRS.36.RK	GRS.45.HD1	GRS.45.HD1.RK
GRS.50	GRS.50.RK	GRS.45.HD2	GRS.45.HD2.RK
GRS.30.HD1	GRS.30.HD1.RK	GRS.50.HD	GRS.50.HD.RK
GRS.30.HD2	GRS.30.HD2.RK	GRS.65.HD	GRS.65.HD.RK
GRS.30.HD4	GRS.30.HD4.RK		



Side-by-Side GRS Feature Comparison

Available in six rod diameter sizes: 25, 30, 36, 45, 50 and 65.

Patented

