

Enidine Adjustable Hydraulic Series shock absorbers offer the most flexible solutions to energy absorption application requirements when input parameters vary or are not clearly defined.

By simply turning an adjustment knob, the damping force can be changed to accommodate a wide range of conditions. Enidine offers the broadest range of adjustable shock absorbers and mounting accessories in the marketplace today.

Features and Benefits



Adjustable design lets you "fine-tune" your desired damping and lock the numbered adjustment setting.



Internal orifice design provides deceleration with the most efficient damping characteristics, resulting in the lowest reaction forces in the industry.



Threaded cylinders provide mounting flexibility and increased surface area for improved heat dissipation.



Incorporated optional fluids and seal packages can expand the standard operating temperature range from (-10 to 80°C) to (-30 to 100°C).



A select variety of surface finishes maintains the original quality appearance and provides the longest corrosion resistance protection.



Operational parameters can be expanded through the use of Enidine's Low Range and High Performance products.



ISO quality standards result in reliable, long-life operation.



Custom orificed non-adjustable units (CBOEM) are available to meet specific application requirements.



The Platinum **OEM Small Series** is designed to decelerate light-to-medium loads with the added benefit of corrosion resistant, nickel-plated components.

Enidine Platinum **Low Range (LROEM)** models are available to control velocities as low as 0,08 m/sec and propelling forces as high as 3 335 N.

Together, they comprise the widest range of adjustable shock absorbers in the industry.

All models feature a small envelope size to accommodate space constraints.

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The **OEM Large Series** is available with metric threads and bore diameters from 20mm to 50mm. These models are designed to decelerate medium-to-large loads.

The Enidine **Low Range OEM (LROEM) Large Series** is available to control velocities as low as 0,08 m/sec and propelling forces as high as 17 790 N.

Both OEM and LROEM Large Series units are fully field repairable.

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Adjustable Hydraulic Series

Use this Enidine Product Selection Guide to quickly locate potential adjustable shock absorber models most suited for your requirements. Models are organized in order of smallest to largest energy capacity per cycle within their respective product families.

ENIDINE ADJUSTABLE SHOCK ABSORBERS



The Enidine **OEM Low Profile Series** provides a recessed adjustment knob along with imperial threads and bore diameters of 20mm and 30mm for drop-in competitive interchange.

Low Range (LROEM) Series products are also available to control velocities as low as 0,08 m/sec and propelling forces as high as 17 790 N.

OEM Low Profile and LROEM Series shock absorbers are fully field repairable.

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High Performance (HP) Series design is capable of softly decelerating impact velocities as high as 6,10 m/sec.

Wide range adjustability and multiple damping rates accommodate exact application needs.

Pages 24-25

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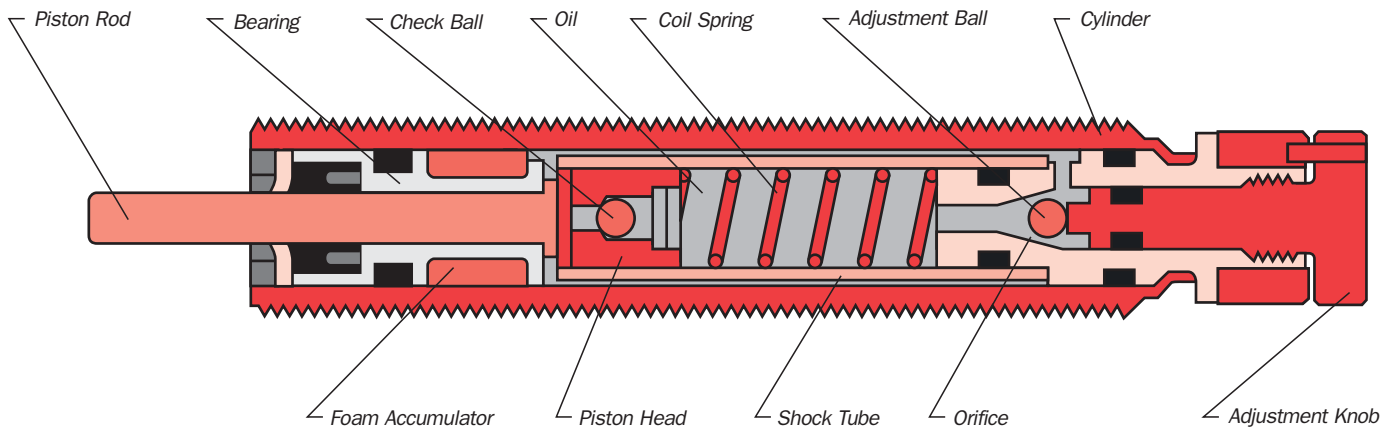
Catalog No. (Model)	(S) Stroke (mm)	(E _T) Max. Nm/cycle	(E _T C) Max. Nm/hour	Damping Type	Page No.
OEM 0.1M (B)	7,0	5,5	12 400	D	19
OEM .15M (B)	10,0	5,5	19 000	D	19
OEM .25M (B)	10,0	5,5	20 000	D	19
LROEM .25M (B)	10,0	5,5	20 000	D	19
OEM .35M (B)	12,0	17,0	34 000	D	19
LROEM .35M (B)	12,0	17,0	34 000	D	19
OEM .5M (B)	12,0	28,0	32 000	D	19
LROEM .5M (B)	12,0	28,0	32 000	D	19
OEM 1.0M (B)	25,0	74,0	70 000	C	19
LROEM 1.0M (B)	25,0	74,0	70 000	C	19
HP 110M	40,0	190,0	75 000	C	24-25
OEM 1.15M x 1	25,0	195,0	75 700	C	19
LROEM 1.15M x 1	25,0	195,0	75 700	C	19
OEM 1.15M x 2	50,0	385,0	98 962	C	19
LROEM 1.15M x 2	50,0	385,0	98 962	C	19
OEM 1.25M x 1	25,0	195,0	91 000	C	19
LROEM 1.25M x 1	25,0	195,0	91 000	C	19
OEM 1.25M x 2	50,0	385,0	111 400	C	19
LROEM 1.25M x 2	50,0	385,0	111 400	C	19
LROEM ¾ x 1	25,0	260,0	126 000	C	20
OEM ¾ x 1	25,0	260,0	126 000	C	20
LROEM 1.5M x 1	25,0	260,0	126 000	C	21
OEM 1.5M x 1	25,0	260,0	126 000	C	21
LROEM ¾ x 2	50,0	520,0	167 000	C	20
OEM ¾ x 2	50,0	520,0	167 000	C	20
LROEM 1.5M x 2	50,0	520,0	167 000	C	21
OEM 1.5M x 2	50,0	520,0	167 000	C	21
LROEM 1 1/8 x 1	25,0	680,0	226 000	C	20
OEM ¾ x 3	75,0	780,0	201 000	C	20
OEM 1.5M x 3	75,0	780,0	201 000	C	21
LROEM 1 1/8 x 2	50,0	1 360	271 000	C	20
OEM 1 1/8 x 2	50,0	1 360	271 000	C	20
LROEM 2.0M x 2	50,0	1 360	271 000	C	21
OEM 2.0M x 2	50,0	1 360	271 000	C	21
OEM 3.0M x 2	50,0	2 300	372 000	C	21
OEM 1 1/8 x 4	100,0	2 710	362 000	C	20
OEM 2.0M x 4	100,0	2 710	362 000	C	21
OEM 4.0M x 2	50,0	3 800	1 503 000	C	21
OEM 3.0M x 3.5	90,0	4 000	652 000	C	21
OEM 1 1/8 x 6	150,0	4 070	421 000	C	20
OEM 2.0M x 6	150,0	4 070	421 000	C	21
OEM 3.0M x 5	125,0	5 700	933 000	C	21
OEM 3.0M x 6.5	165,0	7 300	1 215 000	C	21
OEM 4.0M x 4	100,0	7 700	1 808 000	C	21
OEM 4.0M x 6	150,0	11 500	2 102 000	C	21
OEM 4.0M x 8	200,0	15 400	2 407 000	C	21
OEM 4.0M x 10	250,0	19 200	2 712 000	C	21

Custom Designs - Please consult factory for assistance.

Key for Damping Type:
D – Dashpot
C – Conventional

ADJUSTABLES

Enidine Adjustable Single Orifice Shock Absorber



Adjustment Technique

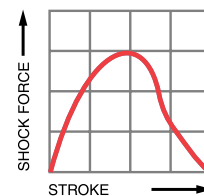
The damping force of an Enidine single orifice shock absorber can be changed by turning the adjustment knob. Maximum damping force is achieved by turning the adjustment knob to eight (8), while minimum damping force is achieved by turning the adjustment knob to zero (0). Turning the adjustment knob causes the adjustment ball to increase or decrease the clearance (orifice area) between the ball and its seat, depending on rotation direction.

The internal structure of adjustable single orifice shock absorber is shown above. When a force is applied to the piston rod, the check ball is seated and the valve remains closed. Oil is forced through the orifice, creating pressure on the piston head that provides the resisting force. When the load is removed, the compressed coil spring moves to reposition the piston head and the check ball unseats, opening the valve that permits rapid fluid return. The closed cellular foam accumulator is compressed by the oil during

the stroke, compensating for the fluid displaced by the piston rod during compression. Without the fluid displacement volume provided by the foam accumulator, the system would be hydraulically locked. This type of orifice design produces constant orifice area damping.

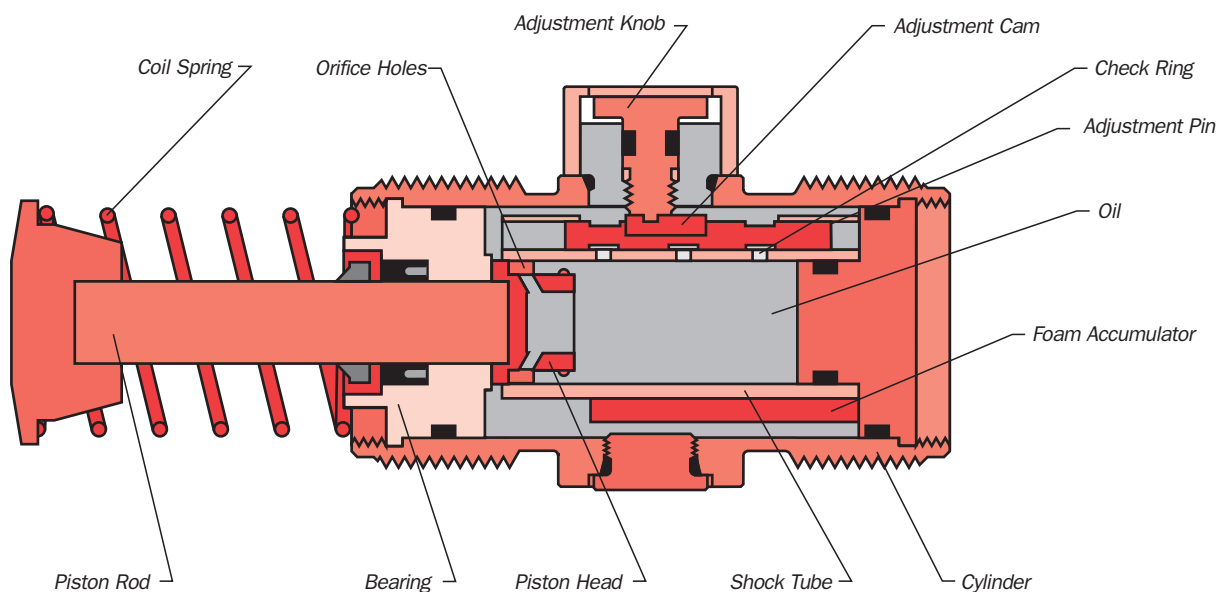
Damping Type

Constant orifice area damping (**Dashpot**) provides the largest shock force at the beginning of the stroke when the impact velocity is highest. These shock absorbers provide high-energy absorption in a small, economical design. This type of damping technology is also available in non-adjustable shock absorber models.



Featuring a standard corrosion-resistant nickel-plated exterior, Enidine Platinum Series shock absorbers provide higher energy capacities than traditional shock absorbers within the same envelope size.

Enidine Adjustable Multiple Orifice Shock Absorber



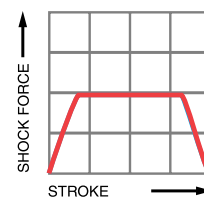
Adjustment Technique

The adjustable multiple orifice shock absorber is similar to the principles described earlier. The check ring replaces the check ball and the adjustment feature uses an adjustment pin instead of an adjustment ball. The damping force of the shock absorber can be changed by turning the adjustment knob. Maximum damping force is achieved by turning the adjustment knob to eight (8), while minimum damping force is achieved by turning the adjustment knob to zero (0).

Turning the adjustment knob rotates the adjustment cam within the shock absorber. The cam, in turn, moves the adjustment pin in the shock tube, closing or opening the orifice holes. By closing the orifice holes, the total orifice area of the shock absorber is reduced, thus increasing the damping force of the shock absorber. The adjustable shock absorber enables the user to change the damping force of the unit, should input conditions change, while still maintaining a conventional-type damping curve.

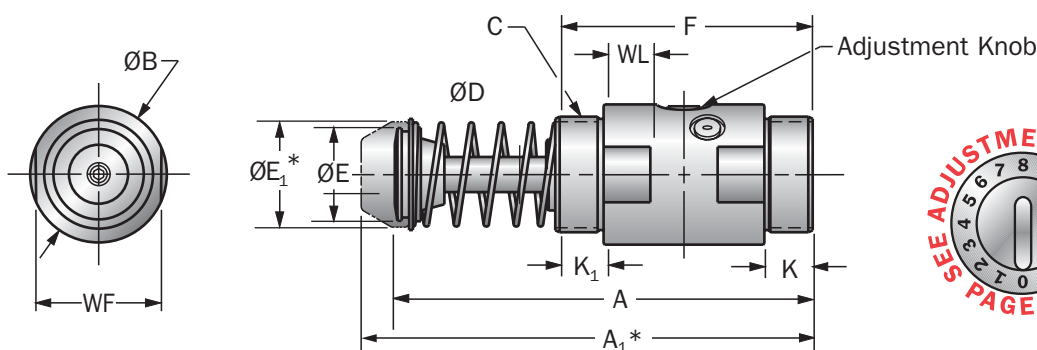
Damping Type

Conventional damping allows linear deceleration by providing a constant shock force over the entire stroke. This standard design is the most efficient, meaning it allows the most energy to be absorbed in a given stroke while providing the lowest shock force. This type of damping can be found in both adjustable and non-adjustable shock absorbers.





OEM 3/4 → OEM 1 1/8



ADJUSTABLES

*Note: A₁ and E₁ apply to urethane striker cap accessory.

Catalog No. (Model)	Bore Size (mm)	(S) Stroke (mm)	Optimal Velocity Range (m/sec)	(E _T) Max. Nm/cycle	(E _T C) Max. Nm/hour	(F _P) Max. Shock Force (N)	Nominal Coil Spring Force		(F _P) Max. Propelling Force (N)	Model Weight (g)
							Extended (N)	Compressed (N)		
OEM 3/4 x 1	20	25,0	0,3-3,5	260	126 000	13 000	49	68	2 890	1,2
LROEM 3/4 x 1	20	25,0	0,08-1,3	260	126 000	13 000	49	68	6 660	1,2
OEM 3/4 x 2	20	50,0	0,3-3,5	520	167 000	13 000	32	68	2 890	1,3
LROEM 3/4 x 2	20	50,0	0,08-1,3	520	167 000	13 000	49	80	6 660	1,3
OEM 3/4 x 3	20	75,0	0,3-3,5	780	201 000	13 000	32	80	2 890	1,6
LROEM 1 1/8 x 1	30	25,0	0,08-0,8	680	226 000	34 500	115	155	17 790	2,9
OEM 1 1/8 x 2	30	50,0	0,3-3,5	1 360	271 000	34 500	76	155	6 660	4,5
LROEM 1 1/8 x 2	30	50,0	0,08-0,8	1 360	271 000	34 500	76	155	17 760	4,5
OEM 1 1/8 x 4	30	100,0	0,3-3,5	2 710	362 000	34 500	79	160	6 660	5,3
OEM 1 1/8 x 6	30	150,0	0,3-3,5	4 070	421 000	34 500	90	285	6 660	6,6

All dimensions in millimeters.

Catalog No. (Model)	A	A ₁	B	C	D	E	E ₁	F	K	K ₁	WF	WL
OEM 3/4 x 1	144	162	58	1 3/4 - 12 UN	13	38	44	92	23	21	51	10
LROEM 3/4 x 1	144	162	58	1 3/4 - 12 UN	13	38	44	92	23	21	51	10
OEM 3/4 x 2	195	213	58	1 3/4 - 12 UN	13	38	44	118	23	21	51	12
LROEM 3/4 x 2	195	213	58	1 3/4 - 12 UN	13	38	44	118	23	21	51	12
OEM 3/4 x 3	246	264	58	1 3/4 - 12 UN	13	38	44	143	23	21	51	12
LROEM 1 1/8 x 1	175	193	77	2 1/2 - 12 UN	19	50	57	114	26	26	70	12
OEM 1 1/8 x 2	226	243	77	2 1/2 - 12 UN	19	50	57	140	26	26	70	25
LROEM 1 1/8 x 2	226	243	77	2 1/2 - 12 UN	19	50	57	140	26	26	70	25
OEM 1 1/8 x 4	328	345	77	2 1/2 - 12 UN	19	50	57	191	26	26	70	25
OEM 1 1/8 x 6	456	473	77	2 1/2 - 12 UN	19	60	60	241	26	26	70	25

Notes: 1. All shock absorbers will function satisfactorily at 5% of their maximum rated energy per cycle.

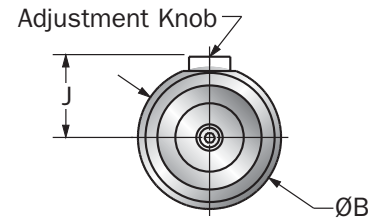
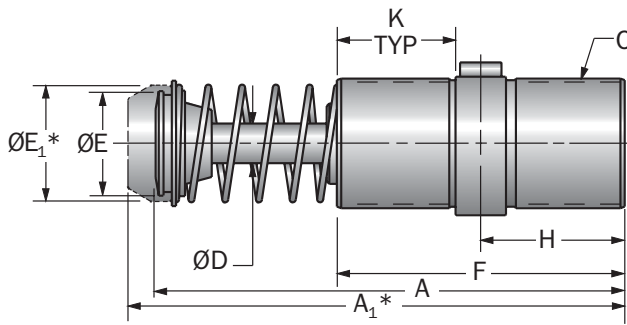
All dimensions in millimeters.

- If less than 5%, a smaller model should be specified.
- Air/Oil (AOEM, LRAOEM) models – max. energy per hour is 20% higher than the standard OEM/LROEM models.
- For mounting accessories, see pages 22-30.
- Rear flange mounting not recommended for OEM 1 1/8 x 6 when mounting horizontally.

Adjustable Hydraulic Series

OEM Large Series

OEM 1.5M → OEM 4.0M



*Note: A₁ and E₁ apply to urethane striker cap accessory.

Catalog No. (Model)	Bore Size (mm)	(S) Stroke (mm)	Optimal Velocity Range (m/sec)	(E _T) Max. Nm/cycle	(E _T -C) Optimal Max. Nm/hour	(F _P) Max. Shock Force (N)	Nominal Coil Spring Force		(F _P) Max. Propelling Force (N)	Model Weight (kg)
							Extended (N)	Compressed (N)		
OEM 1.5M x 1	20	25	0,3-3,5	260	126 000	13 000	49	68	2 890	0,9
LROEM 1.5M x 1	20	25	0,08-1,3	260	126 000	13 000	49	68	6 660	0,9
OEM 1.5M x 2	20	50	0,3-3,5	520	167 000	13 000	32	68	2 890	1,0
LROEM 1.5M x 2	20	50	0,08-1,3	520	167 000	13 000	49	80	6 660	1,0
OEM 1.5M x 3	20	75	0,3-3,5	780	201 000	13 000	32	80	2 890	1,2
OEM 2.0M x 2	30	50	0,3-3,5	1 360	271 000	34 500	76	155	6 660	3,4
LROEM 2.0M x 2	30	50	0,08-0,8	1 360	271 000	34 500	76	155	17 760	3,4
OEM 2.0M x 4	30	100	0,3-3,5	2 710	362 000	34 500	69	160	6 660	4,0
OEM 2.0M x 6	30	150	0,3-3,5	4 070	421 000	34 500	90	285	6 660	5,0
OEM 3.0M x 2	40	50	0,3-4,3	2 300	372 000	67 000	110	200	12 000	7,0
OEM 3.0M x 3.5	40	90	0,3-4,3	4 000	652 000	67 000	110	200	12 000	9,1
OEM 3.0M x 5	40	125	0,3-4,3	5 700	933 000	67 000	71	200	12 000	10,9
OEM 3.0M x 6.5	40	165	0,3-4,3	7 300	1 215 000	67 000	120	330	12 000	13,6
OEM 4.0M x 2	50	50	0,3-4,3	3 800	1 503 000	111 000	225	290	21 000	15,0
OEM 4.0M x 4	50	100	0,3-4,3	7 700	1 808 000	111 000	155	290	21 000	18,2
OEM 4.0M x 6	50	150	0,3-4,3	11 500	2 102 000	111 000	135	310	21 000	20,0
OEM 4.0M x 8	50	200	0,3-4,3	15 400	2 407 000	111 000	180	355	21 000	30,0
OEM 4.0M x 10	50	250	0,3-4,3	19 200	2 712 000	111 000	135	355	21 000	33,0

All dimensions in millimeters.

Catalog No. (Model)	A	A ₁	B	C	D	E	E ₁	F	H	J	K
(LR)OEM 1.5M x 1	144	162	51	M42 x 1,5	13	38	44	92	46	37	32
(LR)OEM 1.5M x 2	195	213	51	M42 x 1,5	13	38	44	118	59	37	45
OEM 1.5M x 3	246	264	51	M42 x 1,5	13	38	44	143	72	37	57
(LR)OEM 2.0M x 2	226	243	73	M64 x 2	19	50	57	140	70	48	50
OEM 2.0M x 4	328	345	73	M64 x 2	19	50	57	191	96	48	76
OEM 2.0M x 6	456	473	73	M64 x 2	19	60	60	241	121	48	76
OEM 3.0M x 2	245	265	98	M85 x 2	22	69	76	140	70	58	51
OEM 3.0M x 3.5	323	343	98	M85 x 2	22	69	76	179	90	58	71
OEM 3.0M x 5	399	419	98	M85 x 2	22	69	76	217	109	58	71
OEM 3.0M x 6.5	494	514	98	M85 x 2	22	81	81	256	128	58	71
OEM 4.0M x 2	313	335	127	M115 x 2	35	88	95	203	102	74	80
OEM 4.0M x 4	414	436	127	M115 x 2	35	88	95	254	127	74	105
OEM 4.0M x 6	516	538	127	M115 x 2	35	88	95	305	153	74	108
OEM 4.0M x 8	643	665	127	M115 x 2	35	88	95	356	178	74	108
OEM 4.0M x 10	745	767	127	M115 x 2	35	88	95	406	203	74	108

All dimensions in millimeters.

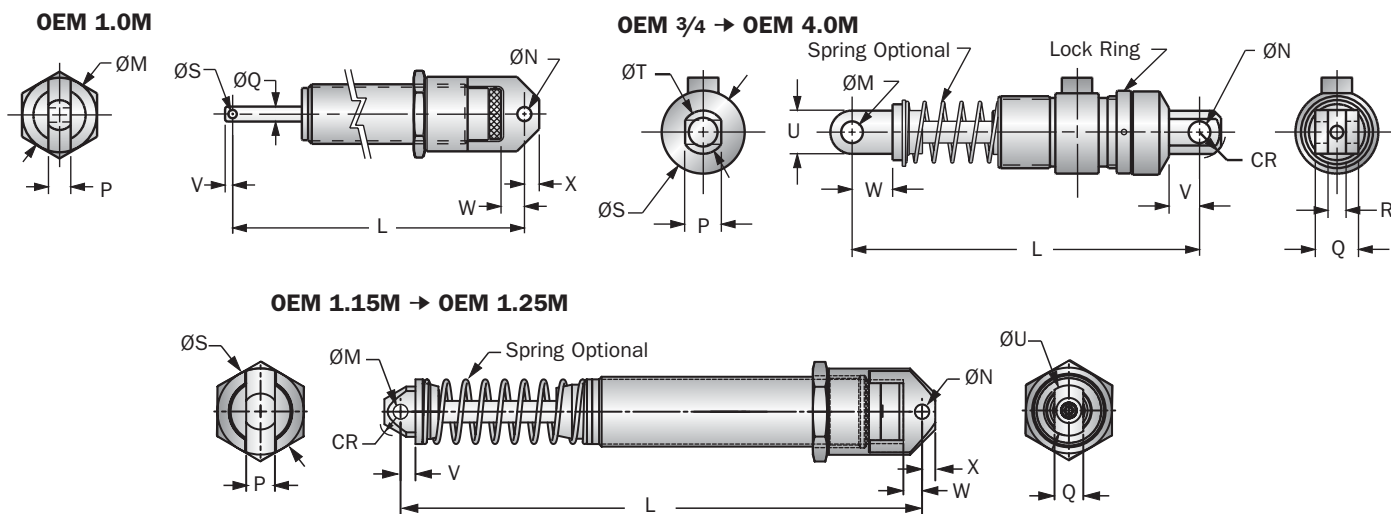
Notes: 1. All shock absorbers will function satisfactorily at 5% of their maximum rated energy per cycle.

If less than 5%, a smaller model should be specified.

2. Air/Oil (AOEM, LRAOEM) models – max. energy per hour is 20% higher than the standard OEM/LROEM models (see page 14).

3. For mounting accessories, see pages 22-30.

4. Rear flange mounting of OEM 2.0M x 6, OEM 3.0M x 6.5, OEM 4.0M x 8 and OEM 4.0M x 10 models not recommended when mounting horizontally.



Catalog No. (Model)	(S) Stroke (mm)	L	M	N	P	Q	R	S	T	U	V	W	X	CR	Model Weight
OEM 1.0M CMS	25	162,1	3,58 +0,13/0	6,02 +0,13/0	9,5 0/-0,3	6,4 0/-0,1	—	31,8	—	—	3,2	9,0	6,4	—	394 g
(LR)OEM 1.15M x 1 CM(S)	25	163,6	6,02 +0,13/0	6,02 +0,13/0	12,7 0/-0,3	12,7 0/-0,3	—	38,1	—	22,3	6,0	8,3	5,9	10,0	725 g
(LR)OEM 1.15M x 2 CM(S)	50	230,4	6,02 +0,13/0	6,02 +0,13/0	12,7 0/-0,3	12,7 0/-0,3	—	38,1	—	22,3	6,0	8,3	5,9	10,0	861 g
(LR)OEM 1.25M x 1 CM(S)	25	163,6	6,02 +0,13/0	6,02 +0,13/0	12,7 0/-0,3	12,7 0/-0,3	—	38,1	—	22,3	6,0	8,3	5,9	10,0	725 g
(LR)OEM 1.25M x 2 CM(S)	50	230,4	6,02 +0,13/0	6,02 +0,13/0	12,7 0/-0,3	12,7 0/-0,3	—	38,1	—	22,3	6,0	8,3	5,9	10,0	861 g
(LR)OEM 3/4 x 1 CM(S)	25	199,0	9,60 +0,25/0	12,70 +0,25/0	19,0 0/-0,3	25,4	12,9 +0,5/0	51,0	25,4	25,0	26,0	22,0	—	15,0	1,59 kg
(LR)OEM 3/4 x 2 CM(S)	50	250,0	9,60 +0,25/0	12,70 +0,25/0	19,0 0/-0,3	25,4	12,9 +0,5/0	51,0	25,4	25,0	26,0	22,0	—	15,0	1,72 kg
OEM 3/4 x 3 CM(S)	75	300,0	9,60 +0,25/0	12,70 +0,25/0	19,0 0/-0,3	25,4	12,9 +0,5/0	51,0	25,4	25,0	26,0	22,0	—	15,0	1,95 kg
(LR)OEM 1 1/8 x 2 CM(S)	50	306,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	73,0	38,0	38,0	36,0	26,0	—	23,0	5,30 kg
OEM 1 1/8 x 4 CM(S)	100	408,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	73,0	38,0	38,0	36,0	26,0	—	23,0	6,08 kg
OEM 1 1/8 x 6 CM(S)	150	537,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	73,0	38,0	38,0	36,0	26,0	—	23,0	7,39 kg
(LR)OEM 1.5M x 1 CM(S)	25	199,0	9,60 +0,25/0	12,70 +0,25/0	19,0 0/-0,3	25,4	12,9 +0,5/0	51,0	25,4	25,0	26,0	22,0	—	15,0	1,33 kg
(LR)OEM 1.5M x 2 CM(S)	50	250,0	9,60 +0,25/0	12,70 +0,25/0	19,0 0/-0,3	25,4	12,9 +0,5/0	51,0	25,4	25,0	26,0	22,0	—	15,0	14,1 kg
OEM 1.5M x 3 CM(S)	75	300,0	9,60 +0,25/0	12,70 +0,25/0	19,0 0/-0,3	25,4	12,9 +0,5/0	51,0	25,4	25,0	26,0	22,0	—	15,0	1,59 kg
(LR)OEM 2.0M x 2 CM(S)	50	306,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	73,0	38,1	38,0	36,0	26,0	—	23,0	4,26 kg
OEM 2.0M x 4 CM(S)	100	408,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	73,0	38,1	38,0	36,0	26,0	—	23,0	4,85 kg
OEM 2.0M x 6 CM(S)	150	537,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	73,0	38,1	38,0	36,0	26,0	—	23,0	5,85 kg
OEM 3.0M x 2 CM(S)	50	325,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	98,0	38,1	38,0	36,0	26,0	—	23,0	8,66 kg
OEM 3.0M x 3.5 CM(S)	90	402,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	98,0	38,1	38,0	36,0	26,0	—	23,0	10,70 kg
OEM 3.0M x 5 CM(S)	125	479,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	98,0	38,1	38,0	36,0	26,0	—	23,0	12,52 kg
OEM 3.0M x 6.5 CM(S)	165	574,0	19,07 +0,25/0	19,07 +0,25/0	31,7 0/-0,3	38,0	16,0 +0,5/0	98,0	38,1	38,0	36,0	26,0	—	23,0	15,24 kg
OEM 4.0M x 2 CM(S)	50	432,0	25,42 +0,25/0	25,42 +0,25/0	38,1 0/-0,3	90,5	38,2 +0,5/0	127,0	57,2	51,0	51,0	44,0	—	35,0	19,23 kg
OEM 4.0M x 4 CM(S)	100	533,0	25,42 +0,25/0	25,42 +0,25/0	38,1 0/-0,3	90,5	38,2 +0,5/0	127,0	57,2	51,0	51,0	44,0	—	35,0	22,41 kg
OEM 4.0M x 6 CM(S)	150	635,0	25,42 +0,25/0	25,42 +0,25/0	38,1 0/-0,3	90,5	38,2 +0,5/0	127,0	57,2	51,0	51,0	44,0	—	35,0	24,22 kg
OEM 4.0M x 8 CM(S)	200	762,0	25,42 +0,25/0	25,42 +0,25/0	38,1 0/-0,3	90,5	38,2 +0,5/0	127,0	57,2	51,0	51,0	44,0	—	35,0	34,20 kg
OEM 4.0M x 10 CM(S)	250	864,0	25,42 +0,25/0	25,42 +0,25/0	38,1 0/-0,3	90,5	38,2 +0,5/0	127,0	57,2	51,0	51,0	44,0	—	35,0	37,37 kg

Notes: 1. Clevis mount not recommended for OEM 2.0M x 6, OEM 3.0M x 6.5, OEM 4.0M x 8 and OEM 4.0M x 10 models when mounted horizontally.
 2. "S" designates model is supplied with spring.

All dimensions in millimeters.

Adjustable Hydraulic Series

Useable Adjustment Settings

After properly sizing the shock absorber, the useable range of adjustment settings for the application can be determined:

1. Locate the intersection point of the application's impact velocity and the selected model graph line.
2. The intersection is the **maximum** adjustment setting to be used. Adjustments exceeding this maximum suggested setting could overload the shock absorber.
3. The useable adjustment setting range is from the 0 setting to the **maximum** adjustment setting as determined in step 2.

Example: OEM 1.25M x 1

1. Impact Velocity: 1,0 m/sec
2. Intersection Point: Adjustment Setting 5
3. Useable Adjustment Setting Range: 0 to 5

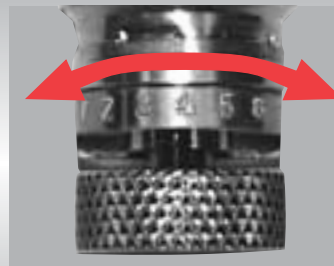
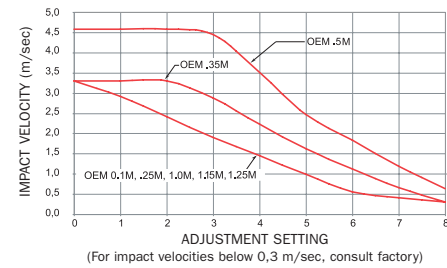
Example: LROEM 1 1/8 x 2

1. Impact Velocity: 0,5 m/sec
2. Intersection Point: Adjustment Setting 3
3. Useable Adjustment Setting Range: 0 to 3

Position 0 provides minimum damping force, position 8 provides maximum damping force.

Useable Adjustment Setting Range

Platinum OEM Small Series

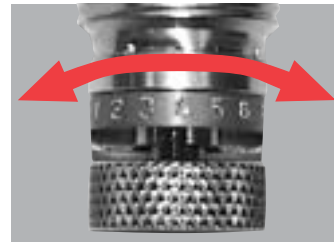
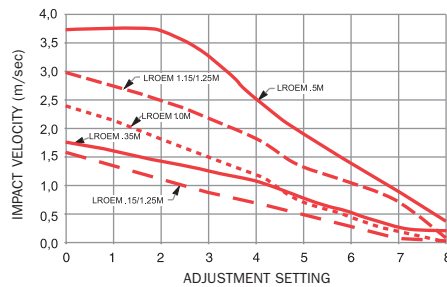


180° adjustment with setscrew locking. (OEM 0.1M – OEM .5M)



360° adjustment with setscrew locking. (OEM 1.0M)

Platinum Low Range OEM Small Series

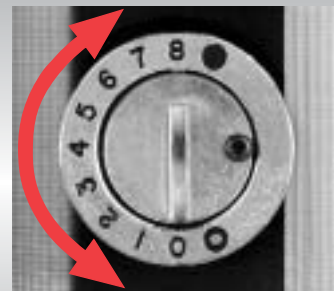
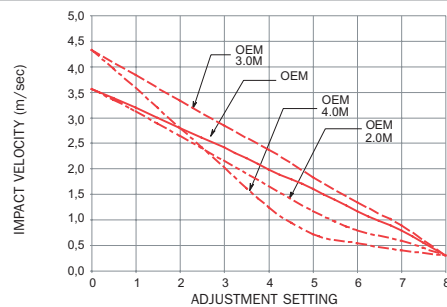


180° adjustment with setscrew locking. (LROEM .15M – LROEM .5M)



360° adjustment with setscrew locking. (LROEM 1.0M)

OEM Large

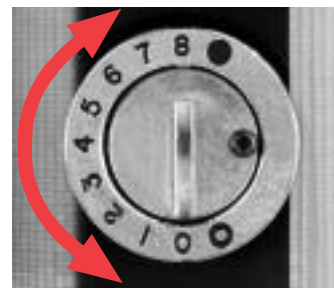
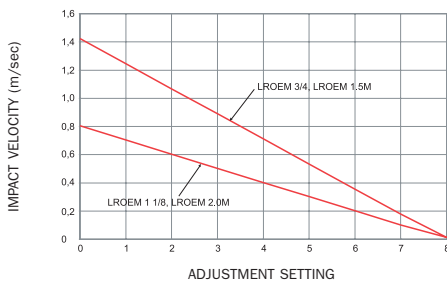


180° adjustment with setscrew locking. (OEM 1.5M – OEM 4.0M)

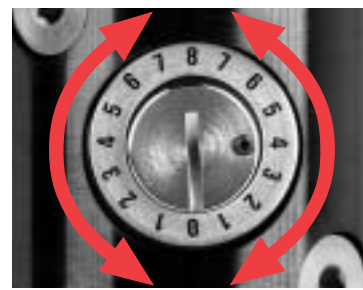


360° adjustment with setscrew locking. (OEM 3/4 and OEM 1 1/8)

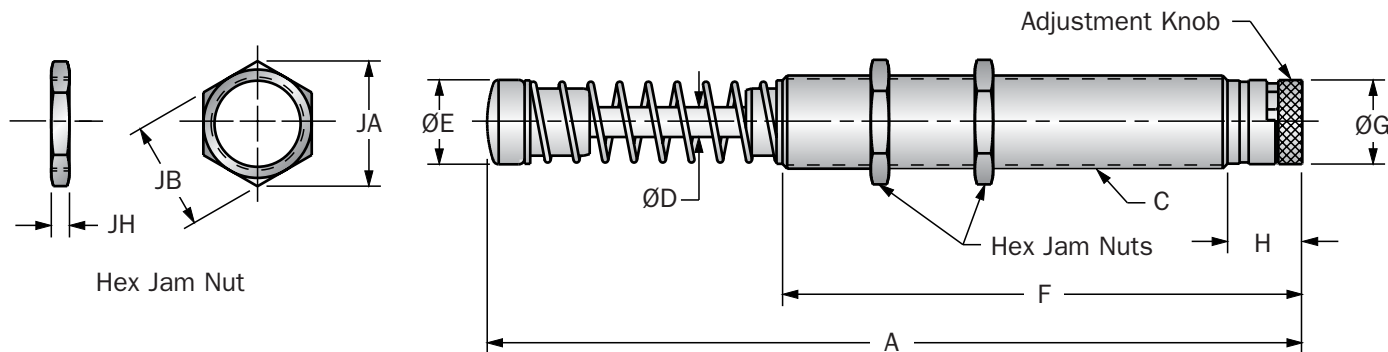
Low Range OEM Large



180° adjustment with setscrew locking (LROEM 1.5M and LROEM 2.0M)



360° adjustment with setscrew locking (LROEM 3/4 and LROEM 1 1/8)



Catalog No. (Model)	Bore Size (mm)	(S) Stroke (mm)	Optimal Velocity Max. Range (m/sec)	(E _F) Max. Nm/cycle	(E _F C) Max. Nm/hour	(F _P) Max. Shock Force (N)	Nominal Coil Spring Force		(F _D) Max. Propelling Force (N)	Model Weight (g)
							Extended (N)	Compressed (N)		
HP110MF/MC-1	14	40	4,0 – 6,0	190	75 000	7 500	18	49	2 200	454
HP110MF/MC-2	14	40	2,0 – 4,5	190	75 000	7 500	18	49	2 200	454
HP110MF/MC-3	14	40	0,75 – 3,0	190	75 000	7 500	18	49	2 200	454

All dimensions in millimeters.

Catalog No. (Model)	A	C	D	E	F	G	H	JA	JB	JH
HP110MF-1, -2, -3	215	M25 x 1,5	8	22	138	22	20	36,7	31,8	4,6
HP110MC-1, -2, -3	215	M25 x 2,0	8	22	138	22	20	36,7	31,8	4,6

All dimensions in millimeters.



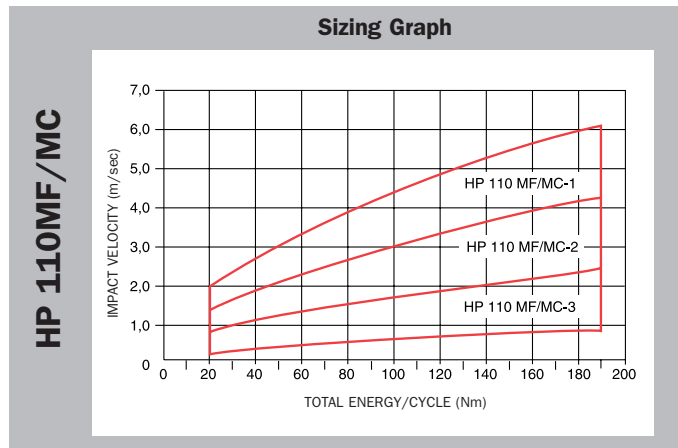
Adjustable Hydraulic Series

HP Series Shock Absorber Sizing

1. Determine load weight (kg), impact velocity (m/sec), propelling force (N) if any, and cycles per hour.
2. Calculate total energy per cycle (Nm/c) and total energy per hour (Nm/hr). Consult this catalog's sizing section (pages 5-12) for assistance if required.
3. Compare the calculated total energy per cycle (Nm/c), total energy per hour (Nm/hr) and propelling force (kg) to the values listed above.
4. Locate the intersection point of the determined impact velocity (m/sec) and total energy per cycle (Nm/c) on the sizing graph to select the appropriate model.
5. Refer to the usable adjustment settings graph (below) to determine the maximum adjustment setting.
6. Contact Enidine for applications with requirements which fall outside the sizing graph.

Example: Horizontal Application

1. Weight (W): 16 kg
Impact Velocity (V): 4,5 m/sec
Propelling Force (F_D): None
Cycles/Hour (C): 80
2. Total Energy/Cycle (E_T): 162 Nm/c
Total Energy/Hour ($E_T \cdot C$): 12 960 Nm/hr
3. Compare total energy/cycle (162 Nm) and total energy/hour (12 960 Nm/hr) to the HP Engineering Data chart.
4. Intersection Point: HP 110 MC-1



Useable Adjustment Settings

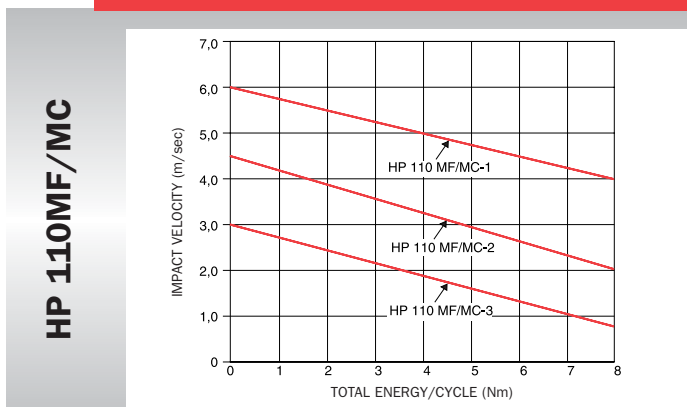
After properly sizing the shock absorber, the useable range of adjustment settings for the application can be determined.

1. Locate the intersection point of the application's impact velocity and the selected HP model graph line.
2. The intersection is the **maximum** adjustment setting to be used. Adjustments exceeding this setting could overload the shock absorber.
3. The useable adjustment range is from the 0 setting to the **maximum** adjustment setting as determined in step 2.

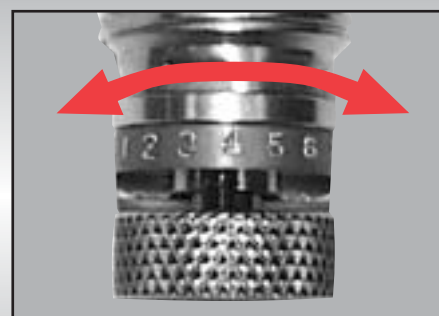
Example: HP 110 MF/MC-1

1. Impact Velocity: 4,5 m/sec
2. Intersection Point: Adjustment Setting 6
3. Useable Adjustment Setting Range: 0 to 6

Useable Adjustment Settings



Position 0 provides minimum damping force, position 8 provides maximum damping force.

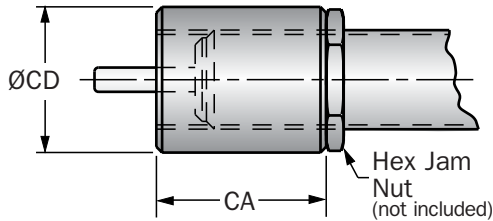


180° adjustment with setscrew locking.

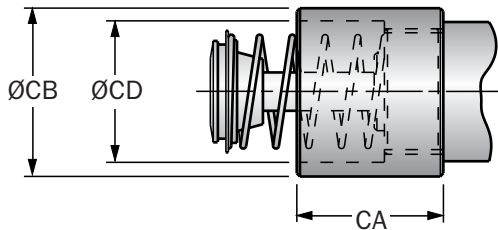


STOP COLLAR (SC)

OEM 0.1M → OEM 1.25M
HP 110M



OEM 3/4 → OEM 2.0M

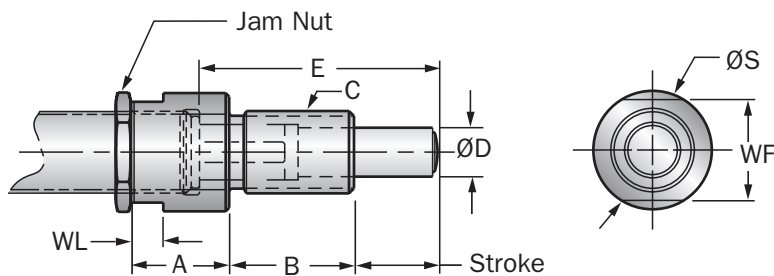


Catalog No.	Part Number	Model (Ref)	CA	CB	CD	Weight (g)
SC M10 x 1	M98921171	OEM 0.1M (B)	19,0	–	14,3	11
SC M12 x 1	M930289171	OEM .15M (B)	19,0	–	16,0	14
SC M14 x 1,5	M930281171	OEM .25M (B)	25,4	–	19,0	38
SC M16 x 1,5	M99018199	OEM .35M (B)	25,4	–	19,0	18
SC M20 x 1,5	M930282171	OEM .5M (B)	38,0	–	25,4	63
SC M27 x 3	M930283171	OEM 1.0M (B)	44,5	–	38,0	215
SC M25 x 1,5	M930284171	OEM 1.0M (B)	44,5	–	38,1	215
SC M36 x 1,5	M930285171	OEM 1.25M	63,5	38,0	43,0	210
SC M2½-12*	8KE2940	(LR)OEM ¾	49,0	49,6	56,5	340
SC M2½-12 x 2	8KE3010	(LR)OEM 1½ x 2 & 4	63,0	65,0	76,0	652
SC M2½-12 x 6	8KE3012	OEM 1½ x 6	93,0	65,0	76,0	936
SC M42 x1,5 x 1	8K2940	(LR)OEM 1.5M x 1	62,0	49,0	56,0	397
SC M42 x1,5 x 2	8K2941	(LR)OEM 1.5M x 2	75,0	49,0	56,0	539
SC M42 x1,5 x 3	8K2942	OEM 1.5M x 3	87,0	49,0	56,0	652
SC M64 x 2 x 2	M93010057	(LR)OEM 2.0M x 2	89,0	65,0	76,0	936
SC M64 x 2 x 4	M93011057	OEM 2.0M x 4	114,0	65,0	76,0	1191
SC M64 x 2 x 6	M93012057	OEM 2.0M x 6	143,0	65,0	76,0	1475
SC M25 x 2 x 1,56	M930288171	HP 110 MC	50,8	–	38,0	215
SC M25 x 1,5 x 1,56	M931291171	HP 110 MF	50,8	–	38,0	215

* Do not use with urethane striker cap.

All dimensions in millimeters.

SIDE LOAD ADAPTERS (SLA)



Catalog No.	Part Number	Model (Ref)	Stroke (mm)	A	B	C	D	E	S	WF	WL
SLA 10MF	SLA33457	OEM 0.1M	6,4	12	11	M10 x 1	5	21,9	13	11	0,28
SLA 12MF	SLA33299	OEM .15M	10,0	18	14	M12 x 1	6	32,4	16	13	0,28
SLA 14MC	SLA34756	(LR)OEM .25M	10,0	18	16	M14 x 1,5	8	34,3	18	15	7,0
SLA 16MF	SLA34757	(LR)OEM .35M	12,7	20	16	M16 x 1	8	39,2	20	17	7,0
SLA 20MF	SLA33262	(LR)OEM .5M	12,7	24	14	M20 x 1,5	11	41,5	25	22	7,0
SLA 25MF	SLA33263	(LR)OEM 1.0MF	25,0	38	30	M25 x 1,5	15	73,2	36	32	0,28
SLA 27MC	SLA33296	(LR)OEM 1.0M	25,0	38	30	M27 x 3	15	73,2	36	32	0,28

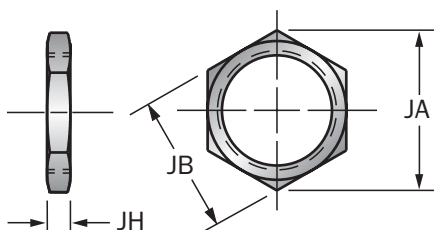
Notes: 1. To be used with non-button models only.
2. Maximum sideload angle is 30°.

All dimensions in millimeters.

Adjustable Hydraulic Series Accessories

Accessories

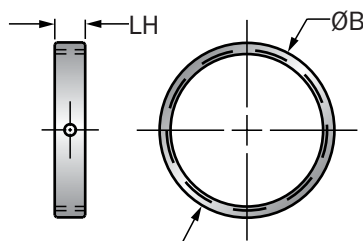
JAM NUT (JN)



Catalog No.	Part Number	Model (Ref)	JA	JB	JH	Weight (g)
JN M10 x 1	J24421035	OEM 0.1M	15,0	13,0	3,2	2
JN M12 x 1	J25588035	OEM .15M	17,0	15,0	4,0	2
JN M14 x 1,5	J23935035	(LR)OEM .25M	19,7	17,0	4,0	3
JN M16 x 1,5	J230844167	(LR)OEM .35M	20,0	19,0	6,0	5
JN M20 x 1,5	J22646035	(LR)OEM .5M	27,7	24,0	4,6	9
JN M27 x 3	J22587035	(LR)OEM 1.0M	37,0	32,0	4,6	15
JN M25 x 1,5	J23004035	(LR)OEM 1.0MF	37,0	32,0	4,6	15
JN M36 x 1,5	J23164035	(LR)OEM 1.25M	47,3	41,0	6,4	27
JN M33 x 1,5	J28609035	(LR)OEM 1.15M	47,3	41,0	6,4	27

All dimensions in millimeters.

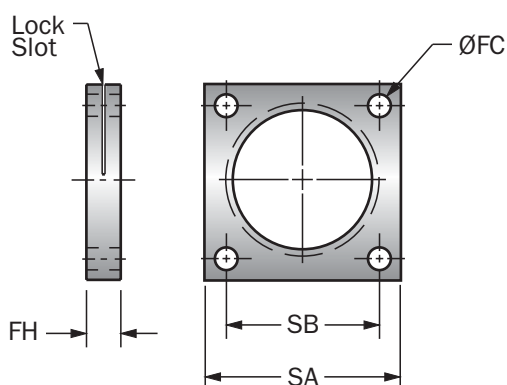
LOCK RING (LR)



Catalog No.	Part Number	Model (Ref)	B	LH	Weight (g)
LR 1 ³ / ₄ -12	F8E2940049	(LR)OEM ³ / ₄	50,8	9,5	57
LR 2 ¹ / ₂ -12	F8E3010049	(LR)OEM 1 ¹ / ₈	73,0	9,5	85
LR M42 x 1,5	F82940049	(LR)OEM 1.5M	50,8	9,6	85
LR M64 x 2	F83010049	(LR)OEM 2.0M	73,0	12,7	114
LR M85 x 2	F83330049	OEM 3.0M	98,2	16,0	226
LR M115 x 2	F83720049	OEM 4.0M	126,7	22,4	397

All dimensions in millimeters.

SQUARE FLANGE (SF)

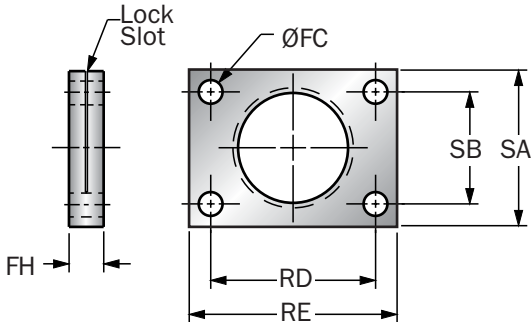


Catalog No.	Part Number	Model (Ref)	FC	FH	SA	SB	Bolt Size	Weight (g)
SF 1 ³ / ₄ -12	M4E2940056	(LR)OEM ³ / ₄	8,6	12,7	57,2	41,4	M8	140
SF 2 ¹ / ₂ -12	M4E3010056	(LR)OEM 1 ¹ / ₈	10,4	15,7	90,0	89,0	M10	570
SF M42 x 1,5	M42940056	(LR)OEM 1.5M	8,6	12,7	57,2	41,4	M8	140
SF M64 x 2	M43010056	(LR)OEM 2.0M	10,4	15,7	90,0	89,0	M10	570
SF M85 x 2	M43330056	OEM 3.0M	13,5	19,0	101,6	76,2	M13	680
SF M115 x 2	M43720056	OEM 4.0M	16,5	25,4	139,7	111,3	M16	1 590

All dimensions in millimeters.



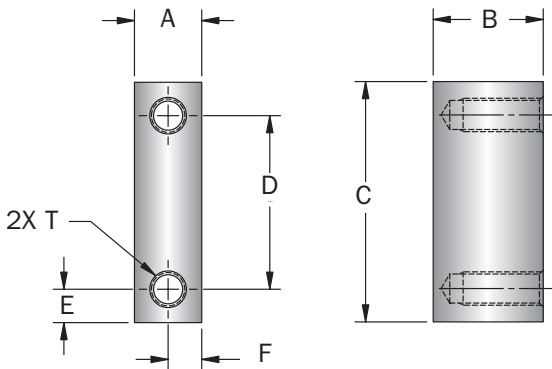
RECTANGULAR FLANGE (RF)



Catalog No.	Part Number	Model (Ref)	FC	FH	RD	RE	SA	SB	Bolt Size	Weight (g)
RF M33 x 1,5	N121049141	(LR)OEM 1.15M	5,5	9,5	41,3	50,8	44,5	28,6	M5	30
RF M36 x 1,5	N121293129	(LR)OEM 1.25M	5,5	9,5	41,3	58,8	44,5	28,6	M5	30
RF 1 3/4-12	M5E2940053	(LR)OEM 3/4	8,6	12,7	60,5	76,2	57,2	41,4	M8	250
RF M42 x 1,5	M52940053	(LR)OEM 1.5M	8,6	12,7	60,5	76,2	57,2	41,4	M8	260
RF M85 x 2	M53330053	OEM 3.0M	13,5	19,1	101,6	127,0	101,6	76,2	M13	1 040

All dimensions in millimeters.

STOP BAR KIT (SB) **NEW**

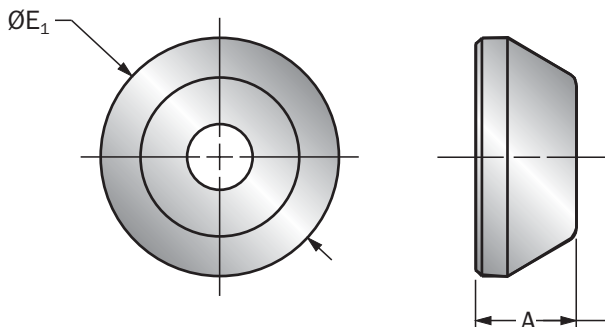


Kit Part Number	Model (Ref)	A	B	C	D	E	F	T	Bolt Size	Weight (g)
T58706300	OEM 3/4	16,0	26,2	57,2	41,4	7,9	8,1	5/16 - 24 UNF X 18mm DEEP	5/16	173
T58650300	OEM 1 1/8	12,7	36,1	88,9	69,9	9,7	8,1	3/8 - 24 UNF X 18mm DEEP	3/8	298

Note: Kit includes 2 Stop Bars, Rectangular Flange, and Lock Ring.

All dimensions in millimeters.

URETHANE STRIKER CAP (UC)



Catalog No.	Part Number	Model (Ref)	A	E ₁	Weight (g)
UC 8609	C98609079	(LR)OEM 1.15/1.25M	14,7	35,0	6
UC 2940	C92940079	(LR)OEM 3/4	24,5	44,5	14
UC 3010	C93010079	(LR)OEM 1 1/8	24,1	57,0	23
UC 2940	C92940079	(LR)OEM 1.5M	24,5	44,5	14
UC 3010	C93010079	(LR)OEM 2.0M	24,1	57,0	23
UC 3330	C93330079	OEM 3.0M	31,4	76,0	85
UC 3720	C93720079	OEM 4.0M	37,5	95,0	170

Note: For complete shock absorber dimension with urethane striker cap, refer to engineering data, pages 19-21.

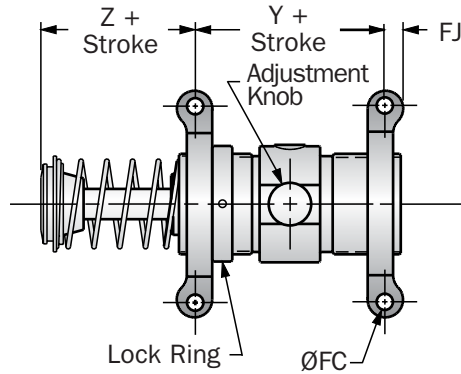
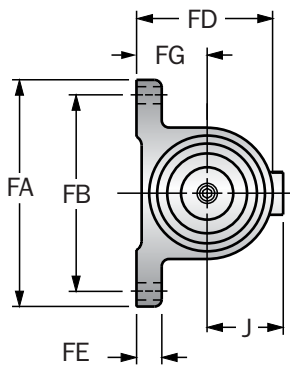
All dimensions in millimeters.

Adjustable Hydraulic Series Accessories

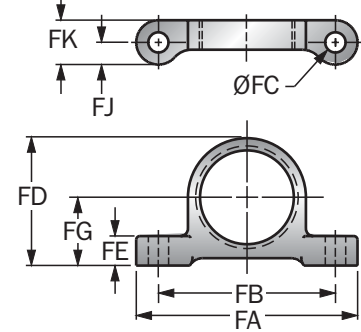
Accessories

FOOT MOUNT (FM)

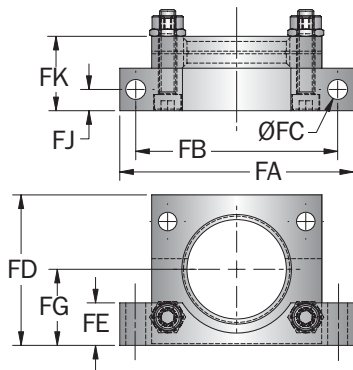
Typical Foot Mount Installation



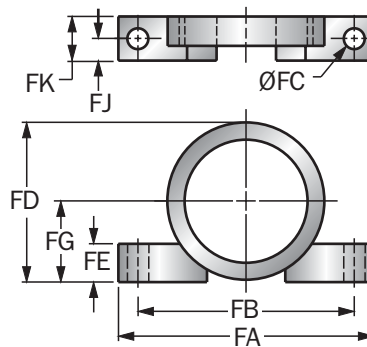
OEM 3/4, OEM 1 1/8, OEM 1.5M and OEM 2.0M



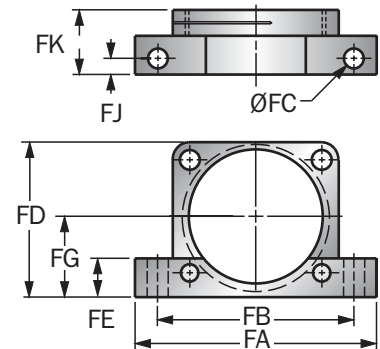
OEM 1.15M → OEM 1.25M



OEM 3.0M



OEM 4.0M



Catalog No.	Part Number	Model (Ref)	J	Y	Z	FA	FB	FC	FD	FE	FG	FJ	FK	Bolt Size	Weight (g)	Notes
FM M33 x 1,5	2F21049306	(LR)OEM 1.15M	—	56,6	31,8	70,0	60,3	6,0	44,5	12,7	22,7	6,4	22,2	M5	100	—
FM M36 x 1,5	2F21293306	(LR)OEM 1.25M	—	56,6	31,8	70,0	60,3	6,0	44,5	12,7	22,7	6,4	22,2	M5	100	—
FM 1 3/4-12	2FE2940	(LR)OEM 3/4	—	60,5	27,0	95,3	76,2	8,6	55,0	12,7	29,5	9,7	19,1	M8	350	—
FM 2 1/2-12	2FE3010	(LR)OEM 1 1/8	—	76,2	39,6	143,0	124,0	10,4	89,7	16,0	44,5	11,2	22,4	M10	1 050	1
FM M42 x 1,5	2F2940	(LR)OEM 1.5M	37	60,5	27,0	95,3	76,2	8,6	55,0	12,7	29,5	9,7	19,1	M8	370	—
FM M64 x 2	2F3010	(LR)OEM 2.0M	48	76,2	39,6	143,0	124,0	10,4	89,7	16,0	44,5	11,2	22,4	M10	1 080	2
FM M85 x 2	2F3330	OEM 3.0M	58	81,0	59,0	165,0	139,7	13,5	103,0	25,4	52,3	14,1	28,7	M12	1 984	3
FM M115 x 2	2F3720	OEM 4.0M	74	190,5	37,0	203,2	165,0	16,8	149,4	38,0	79,5	16,0	50,8	M16	3 900	4

Notes:

- OEM 1 1/8 x 6, Z dimension is 68,3mm.
- OEM 2.0M x 6, Z dimension is 68,3mm.
- OEM 3.0M x 6,5, Z dimension is 77,7mm.
- OEM 4.0M x 8 and 4.0M x 10M, Z dimension is 62,0mm.

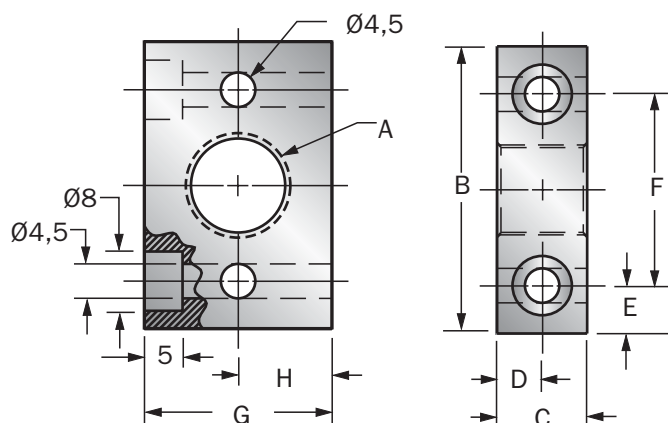
- Shock absorber must be ordered separately from the foot mount kit.
- All foot mount kits include two foot mounts. A lock ring is also supplied with all kits but the OEM 1.15M/1.25M foot mount kit.
- For rear foot mount, dimension FJ is 22,4mm.

All dimensions in millimeters.

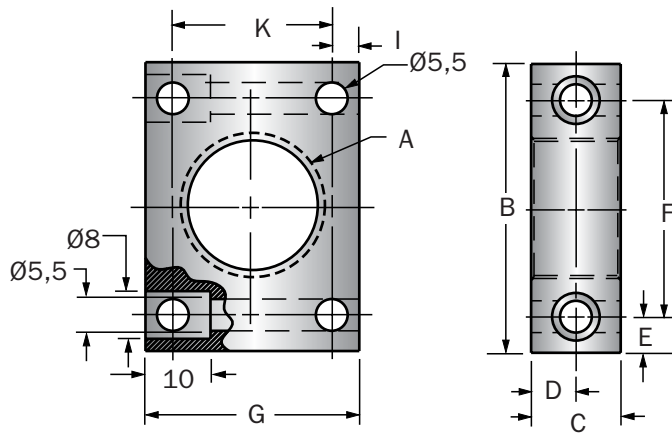


UNIVERSAL RETAINING FLANGE (SMALL BORE) (UF)

UF M10 x 1 → UF M14 x 1,5



UF M16 x 1,5 → UF M27 x 3



ADJUSTABLES

Catalog No.	Part Number	Model (Ref)	A	B	C	D	E	F	G	H	K
UF M10 x 1	U16363189	OEM 0.1M (B)	M10 x 1	38,0	12,0	6,0	6,25	25,5	25,0	12,5	–
UF M12 x 1	U15588189	OEM .15M (B)	M12 x 1	38,0	12,0	6,0	6,25	25,5	25,0	12,5	–
UF M14 x 1,5	U13935143	(LR)OEM .25M (B)	M14 x 1,5	45,0	16,0	8,0	5,0	35,0	30,0	15,0	–
UF M16 x 1,5	U19018143	(LR)OEM .35M (B)	M16 x 1,5	see drawing							25,5
UF M20 x 1,5	U12646143	(LR)OEM .5M (B)	M20 x 1,5								25,5
UF M25 x 1,5*	U13004143	OEM 1.0MF/HP 110MF	M25 x 1,5								25,5
UF M25 x 2*	U15568143	HP 110MC	M25 x 2								25,5
UF M27 x 3*	U12587143	OEM 1.0M	M27 x 3								25,5

*Please use special jam nuts only.

All dimensions in millimeters.

Ordering Information

SHOCK ABSORBERS

10

Select quantity

OEM 1.0M

Select catalog number:
 • OEM, HP (Adjustable)
 • LROEM (Low range adjustable)
 • CBOEM (Non-adjustable)

B

Select piston rod type:
 • “_” (No button)
 • “B” (Button model, OEM 0.1M, .25M, .35M, .5M and 1.0M only)
 • “CM” (Clevis mount)

Application Data

Required for CBOEM and CBAOEM models only:

- Vertical or Horizontal motion
- Weight
- Impact velocity
- Propelling force (if any)
- Other (temperature or other environmental conditions)
- Cycles per hour

ACCESSORIES

Example 1

10

Select quantity

LR M45 x 1,5 Lock Ring
(P/N F8637049)

Select catalog/part number

Example 2

5

Select quantity

UC 2940 Urethane Striker Cap
(P/N C92940079)

Select catalog/part number