

Shock Absorbers and Rate Controls



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ITT 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.

ITT Enidine's **New ECO OEM Series** adjustable hydraulic shock absorbers are an expansion of our previously released ECO Series product line. These adjustable shock absorbers provide maximum flexibility in a RoHS compliant package. By simply turning an adjustment knob, the damping force can be changed to accommodate a wide range of conditions. ITT Enidine offers the broadest range of adjustable shock absorbers and mounting accessories in the marketplace today.

The ITT Enidine **OEMXT Series** provides a low profile adjustment knob offered in imperial or metric thread configurations with stroke lengths of 1 to 6 inches. For drop-in competitive interchange. **Low Range (LROEMXT) Series** products are also available to control velocities as low as 3 in./sec. and propelling forces as high as 4,000 lbs. OEMXT and OEM Large Series shock absorbers are fully field repairable.

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 increase surface area for improved heat dissipation.
- **Operational parameters can be expanded** through the use of ITT Enidine's Low Range and High Performance products.
- **Custom orificed non-adjustable** units (CBOEM) can be engineered to meet specific application requirements or **emergency impact only requirements.**
- **Special materials and finishes** can be designed to meet specific customer requirements.
 - Optional fluids and seal packages can expand the standard operating temperature range from (15°F to 180°F) to (-30°F to 210°F)
 - Food grade options available
- **ISO quality standards** result in reliable, long-life operation.
- **Fully field repairable units are available** in mid-bore and larger bore product ranges.

Added New Features for the ECO OEM Series

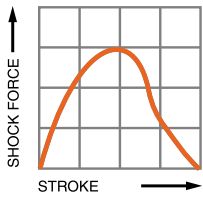
- **Environmentally friendly materials:**
 - ROHS Compliant materials
 - Bio-degradable hydraulic oil
 - Copper-Free design
 - Recyclable packaging materials
- **Introducing our new Enicote II surface finish:**
 - ROHS Compliant
 - Rated at 350 hours salt spray corrosion protection
- **Jam Nut included** with every shock absorber.
- **Wrench flats** promote ease of mounting
- **Capability to mount into pressure chambers**
- **Integrated positive stopping capabilities** up to 100 psi (7 bar).

Adjustable Series Hydraulic Shock Absorbers

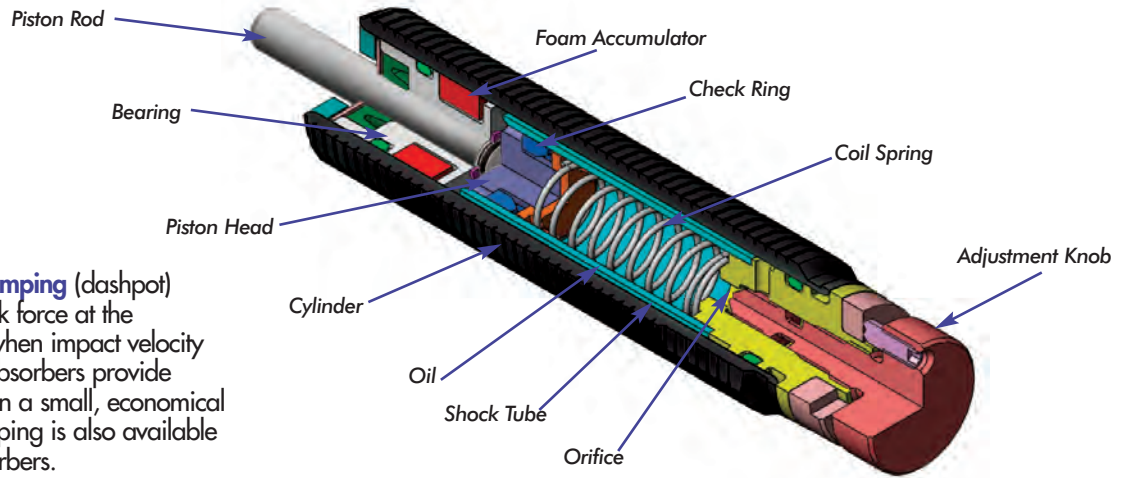
ECO OEM and OEMXT Series

Overview

ITT Enidine Adjustable Single Orifice Shock Absorbers



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

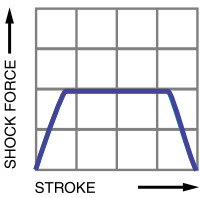


The damping force of an ITT Enidine single orifice shock absorber can be changed by turning the adjustment knob. Maximum damping force is achieved by turning the adjustment knob to eight (8), while minimum damping force is achieved by turning the adjustment knob to zero (0). Turning the adjustment knob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

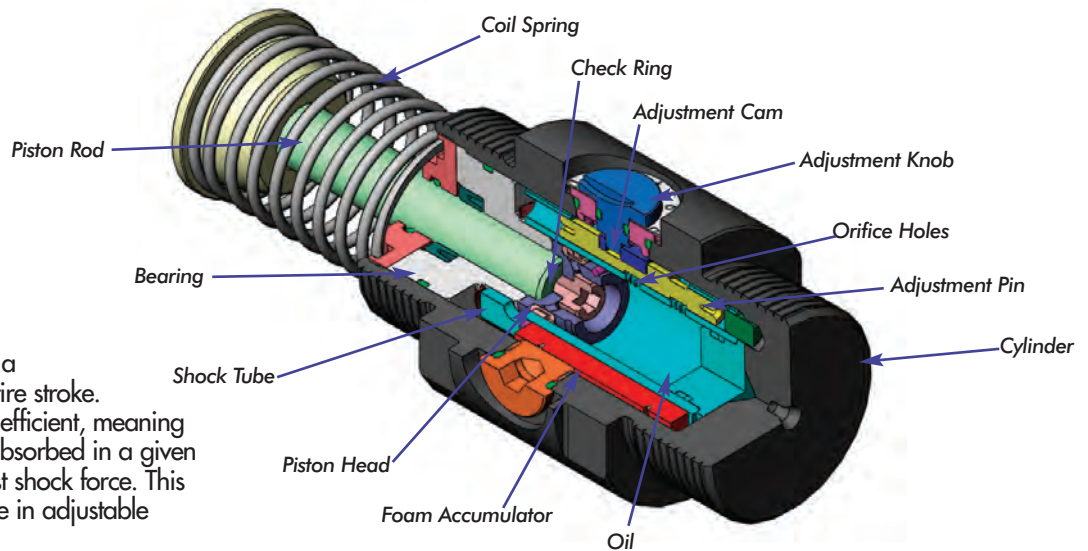
Oil is forced out of the high pressure shock tube chamber through the orifice, creating internal pressure allowing smooth, controlled deceleration of the moving load. When the load is removed, the compressed coil spring moves to reposition the piston head, the check ball unseats, opening the valve that permits rapid piston rod return to the original extended position. The closed cellular foam accumulator compensates for fluid displaced by the piston rod during compression and extension. Without the fluid displacement volume provided by the foam accumulator, the closed system would be hydraulically locked. This type of orifice design produces constant orifice area damping.

The internal structure of an adjustable single orifice shock absorber is shown above. When force is applied to the piston rod, the check ball is seated and the valve remains closed.

ITT Enidine Adjustable Multiple Orifice Shock Absorbers



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 is also available in adjustable shock absorbers.

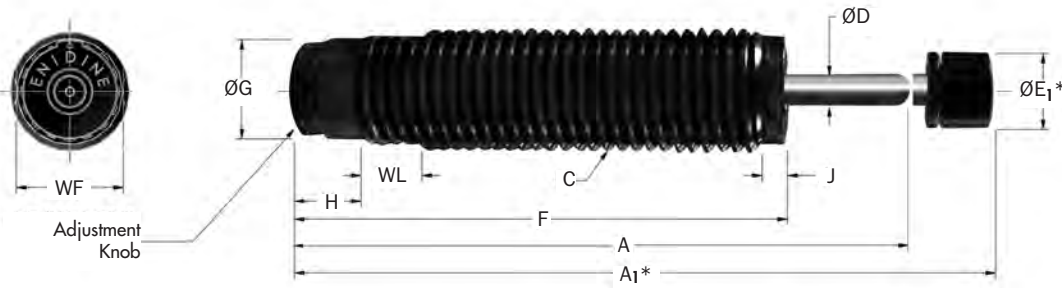


The adjustable multiple orifice shock absorber is similar to the principles described earlier. The check ring replaces the check ball and the adjustment feature uses an adjustment pin instead of an adjustment ball. The damping force of the shock absorber can be changed by turning the adjustment knob. 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. Low velocity range (LR) series configurations are available for controlling velocities that fall below the standard adjustable range.

OEM 0.1M → (LR)OEM 1.0 Series

Standard



*Note: A₁ and E₁ apply to button models. One Hex Jam Nut included with every shock absorber.

Catalog No./Model	(S) Stroke in. (mm)	Optimal Velocity Range in./sec. (m/s)	(E _T) Max. in.-lbs./cycle (Nm/cycle)	(E _T C) Max. in.-lbs./hour (Nm/h)	(F _P) Max. Reaction Force lbs. (N)	Nominal Coil Spring Force		(F _D) Max. Propelling Force lbs. (N)	Model Weight (mass) oz (g)
						Extended lbs. (N)	Compressed lbs. (N)		
OEM .1M (B)	0.28 (7,0)	12-130 (0,3-3,30)	62 (7,0)	120,000 (13 600)	275 (1 220)	0.5 (2,2)	1.0 (4,5)	80 (350)	1 (28)
ECO OEM .15M (B)	0.38 (10,0)	12-130 (0,3-3,30)	62 (7,0)	185,000 (20 900)	200 (890)	0.8 (3,5)	1.7 (7,5)	80 (350)	2 (56)
ECO OEM .25 (B)	0.38 (10,0)	12-130 (0,3-3,30)	62 (7,0)	195,000 (22 000)	200 (890)	0.8 (3,5)	1.7 (7,5)	80 (350)	2 (56)
ECO LROEM .25 (B)	0.38 (10,0)	3-50 (0,08-1,30)	62 (7,0)	195,000 (22 000)	200 (890)	0.8 (3,5)	1.7 (7,5)	100 (440)	2 (56)
ECO LROEM .25M (B)	0.38 (10,0)	3-50 (0,08-1,30)	62 (7,0)	195,000 (22 000)	200 (890)	0.8 (3,5)	1.7 (7,5)	100 (440)	2 (56)
ECO OEM .35 (B)	0.50 (12,7)	12-130 (0,3-3,30)	120 (19,0)	331,000 (37 400)	450 (2 000)	1.0 (4,5)	2.2 (9,8)	120 (530)	3 (85)
ECO OEM .35M (B)	0.50 (12,7)	12-130 (0,3-3,30)	120 (19,0)	331,000 (37 400)	450 (2 000)	1.0 (4,5)	2.2 (9,8)	120 (530)	3 (85)
ECO LROEM .35 (B)	0.50 (12,7)	3-50 (0,08-1,30)	120 (19,0)	331,000 (37 400)	450 (2 000)	1.0 (4,5)	2.2 (9,8)	200 (890)	3 (85)
ECO LROEM .35M (B)	0.50 (12,7)	3-50 (0,08-1,30)	120 (19,0)	331,000 (37 400)	450 (2 000)	1.0 (4,5)	2.2 (9,8)	200 (890)	3 (85)
ECO OEM .5 (B)	0.50 (12,7)	12-180 (0,3-4,50)	275 (31,0)	311,000 (35 200)	775 (3 500)	1.3 (5,8)	2.8 (12,4)	150 (670)	5 (141)
ECO OEM .5M (B)	0.50 (12,7)	12-180 (0,3-4,50)	275 (31,0)	311,000 (35 200)	775 (3 500)	1.3 (5,8)	2.8 (12,4)	150 (670)	5 (141)
ECO LROEM .5 (B)	0.50 (12,7)	3-50 (0,08-1,30)	275 (31,0)	311,000 (35 200)	775 (3 500)	2.0 (8,9)	3.8 (17,0)	250 (1 120)	5 (141)
ECO LROEM .5M (B)	0.50 (12,7)	3-50 (0,08-1,30)	275 (31,0)	311,000 (35 200)	775 (3 500)	2.0 (8,9)	3.8 (17,0)	250 (1 120)	5 (141)
ECO OEM 1.0 (B)	1.00 (25,0)	12-130 (0,3-3,30)	715 (81,0)	681,000 (77 000)	1,000 (4 400)	3.0 (13,0)	6.0 (26,0)	300 (1 330)	10 (285)
ECO OEM 1.0M (B)	1.00 (25,0)	12-130 (0,3-3,30)	715 (81,0)	681,000 (77 000)	1,000 (4 400)	3.0 (13,0)	6.0 (26,0)	300 (1 330)	10 (285)
ECO OEM 1.0MF (B)	1.00 (25,0)	12-130 (0,3-3,30)	715 (81,0)	681,000 (77 000)	1,000 (4 400)	3.0 (13,0)	6.0 (26,0)	300 (1 330)	10 (285)
ECO LROEM 1.0 (B)	1.00 (25,0)	3-50 (0,08-1,30)	715 (81,0)	681,000 (77 000)	1,000 (4 400)	3.0 (13,0)	6.0 (27,0)	450 (2 016)	10 (285)
ECO LROEM 1.0M (B)	1.00 (25,0)	3-50 (0,08-1,30)	715 (81,0)	681,000 (77 000)	1,000 (4 400)	3.0 (13,0)	6.0 (27,0)	450 (2 016)	10 (285)
ECO LROEM 1.0MF (B)	1.00 (25,0)	3-50 (0,08-1,30)	715 (81,0)	681,000 (77 000)	1,000 (4 400)	3.0 (13,0)	6.0 (27,0)	450 (2 016)	10 (285)

Catalog No./Model	A in. (mm)	A ₁ in. (mm)	C in. (mm)	D in. (mm)	E ₁ in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	WF in. (mm)	WL in. (mm)
OEM 0.1M (B)	2.25 (57,0)	2.63 (67,0)	M10 x 1,0	.12 (3,0)	0.34 (8,6)	1.95 (49,4)	.34 (8,6)	.40 (10,2)	-	-	-
ECO OEM .15M (B)	3.22 (81,8)	3.61 (91,7)	M12 x 1,0	.13 (3,3)	0.34 (8,6)	2.81 (71,4)	.43 (10,9)	.56 (14,2)	-	.43 (11,0)	.38 (9,7)
ECO (LR)OEM .25 (B)	3.22 (81,8)	3.59 (91,2)	½-20 UNF	.13 (3,3)	0.44 (11,2)	2.81 (71,4)	.43 (10,9)	.56 (14,2)	-	.44 (11,2)	.50 (12,7)
ECO (LR)OEM .25M (B)	3.22 (81,8)	3.59 (91,2)	(M14 x 1,5)	.13 (3,3)	0.44 (11,2)	2.81 (71,4)	.43 (10,9)	.56 (14,2)	-	.44 (11,2)	.50 (12,7)
ECO (LR)OEM .35 (B)	3.96 (100,6)	4.36 (110,7)	⅜-18 UNF	.16 (4,0)	0.44 (11,2)	3.44 (87,4)	.44 (11,2)	.57 (14,5)	.02 (0,5)	.50 (12,7)	.50 (12,7)
ECO (LR)OEM .35M (B)	3.96 (100,6)	4.36 (110,7)	(M16 x 1,5)	.16 (4,0)	0.44 (11,2)	3.44 (87,4)	.44 (11,2)	.57 (14,5)	.02 (0,5)	.50 (12,7)	.50 (12,7)
ECO (LR)OEM .5 (B)	3.88 (98,6)	4.35 (110,5)	¾-16 UNF	.19 (4,8)	0.50 (12,7)	3.31 (84,1)	.63 (16,0)	.67 (17,0)	-	.68 (17,0)	.50 (12,7)
ECO (LR)OEM .5M (B)	3.88 (98,6)	4.35 (110,5)	(M20 x 1,5)	.19 (4,8)	0.50 (12,7)	3.31 (84,1)	.63 (16,0)	.67 (17,0)	-	.68 (17,0)	.50 (12,7)
ECO (LR)OEM 1.0 (B)	5.12 (130,0)	5.62 (142,7)	1-12 UNF	.25 (6,4)	0.62 (15,7)	4.09 (104,0)	.87 (22,0)	.55 (14,0)	.18 (4,6)	.88 (22,0)	.50 (12,7)
ECO (LR)OEM 1.0M (B)	5.12 (130,0)	5.62 (142,7)	(M27 x 3,0)	.25 (6,4)	0.62 (15,7)	4.09 (104,0)	.87 (22,0)	.55 (14,0)	.18 (4,6)	.88 (22,0)	.50 (12,7)
ECO (LR)OEM 1.0MF (B)	5.12 (130,0)	5.62 (142,7)	(M25 x 1,5)	.25 (6,4)	0.62 (15,7)	4.09 (104,0)	.87 (22,0)	.55 (14,0)	.18 (4,6)	.88 (22,0)	.50 (12,7)

- 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. For mounting accessories, see pages 22-23.
 3. (B) indicates button model of shock absorber. Buttons cannot be added to non-button models or removed from button models OEM .1M to OEM 1.0M.

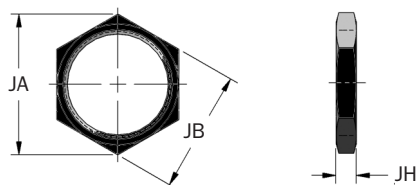
Adjustable Series Hydraulic Shock Absorbers

ECO OEM Small Bore Series

OEM 0.1M → (LR)OEM 1.0 Series

Accessories

Jam Nut (JN)

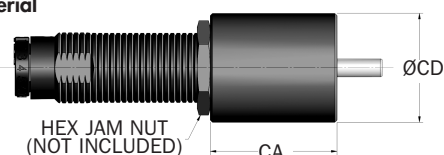


*Note: One Hex Jam Nut included with every shock absorber.

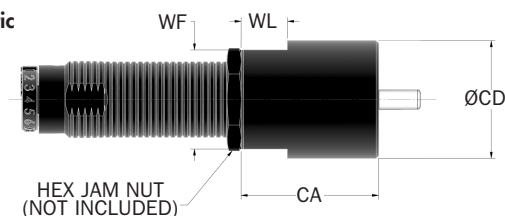
Catalog No./Model	Part Number	Model (Ref)	JA in. (mm)	JB in. (mm)	JH in. (mm)	Weight (mass) oz. (g)
JN M10 x 1	J223840167	ECO OEM 0.1M (B)	0.59 (15,0)	0.51 (13,0)	.13 (3,2)	0.1 (2)
JN M12 x 1	J223841035	ECO OEM .15M (B)	0.68 (17,0)	0.59 (15,0)	.16 (4,0)	0.1 (2)
JN 1/2 - 20	J123842166	ECO (LR)OEM .25 (B)	0.72 (19,7)	0.63 (17,0)	.12 (4,0)	0.1 (3)
JN M14 x 1,5	J223842165	ECO (LR)OEM .25M (B)	0.72 (19,7)	0.63 (17,0)	(4,0)	(3)
JN 3/8 - 18	J123842034	ECO (LR)OEM .35 (B)	1.01 (25,4)	0.88 (22,0)	.31 (7,9)	0.6 (15)
JN M16 x 1,5	J224055035	ECO (LR)OEM .35M (B)	1.01 (25,4)	0.88 (22,0)	(6,0)	(5)
JN 1/4 - 16	J123844034	ECO (LR)OEM .5 (B)	1.08 (27,1)	0.94 (24,0)	.18 (4,6)	0.3 (7)
JN M20 x 1,5	J223844035	ECO (LR)OEM .5M (B)	1.08 (27,1)	0.94 (24,0)	(4,6)	(9)
JN 1-12	J123846034	ECO (LR)OEM 1.0 (B)	1.30 (33,0)	1.13 (29,0)	.18 (4,6)	0.5 (11)
JN M27 x 3	J124059034	ECO (LR)OEM 1.0M (B)	1.30 (33,0)	1.13 (29,0)	(4,6)	(15)
JN M25 x 1,5	J223846035	ECO (LR)OEM 1.0MF (B)	1.30 (33,0)	1.13 (29,0)	(4,6)	(15)

Stop Collar (SC)

Imperial



Metric



Catalog No./Model	Part Number	Model (Ref)	CA in. (mm)	CD in. (mm)	WF in. (mm)	WL in. (mm)	Weight (mass) oz. (g)
Δ SC M10 x 1	M923840171	OEM 0.1M (B)	0.75 (19,0)	0.63 (16,3)	-	-	0.5 (11)
Δ SC M12 x 1	M923841058	OEM 0.15M (B)	0.75 (19,0)	0.63 (16,0)	-	-	0.5 (14)
Δ SC 1/2 - 20	M923842057	(LR)OEM .25 (B)	1.00 (25,4)	0.75 (19,0)	-	-	1.0 (38)
Δ SC M14 x 1,5	M923842171	(LR)OEM .25M (B)	1.00 (25,4)	0.69 (17,5)	-	-	1.0 (18)
Δ SC 3/8 - 18	M924055199	(LR)OEM .35 (B)	1.50 (38,0)	1.00 (25,4)	-	-	2.0 (63)
Δ SC M16 x 1,5	M924055199	(LR)OEM .35M (B)	1.50 (38,0)	1.00 (25,4)	-	-	2.0 (63)
Δ SC 1/4 - 16	M923844057	(LR)OEM .5 (B)	1.75 (44,5)	1.50 (38,0)	-	-	8.0 (215)
Δ SC M20 x 1,5	M924057058	(LR)OEM .5M (B)	1.75 (44,5)	1.50 (38,0)	-	-	8.0 (215)
Δ SC 1-12 x 1	M923846057	(LR)OEM 1.0 (B)	1.75 (44,5)	1.50 (38,0)	-	-	8.0 (215)
Δ SC M27 x 3	M923846170	(LR)OEM 1.0M (B)	1.75 (44,5)	1.50 (38,0)	-	-	8.0 (215)
Δ SC M25 x 1,5	M923846171	(LR)OEM 1.0MF (B)	1.75 (44,5)	1.50 (38,0)	-	-	8.0 (215)

Notes: 1. *Do not use with urethane striker cap. 2. Δ = Non-standard lead time items, contact ITT Endine.

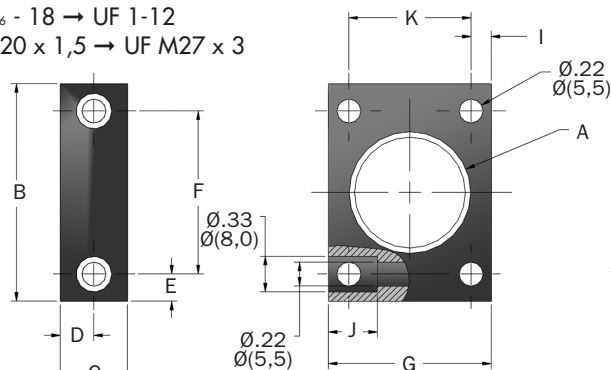
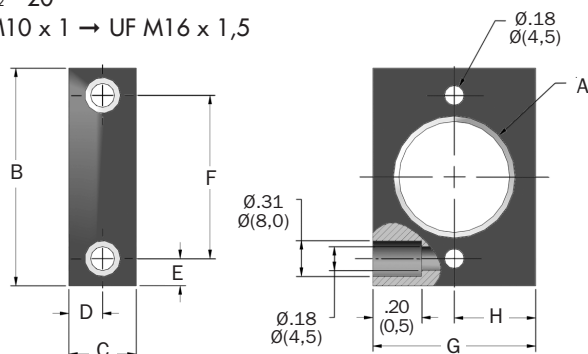
Universal Retaining Flange (Small Bore) (UF)

UF 1/2 - 20

UF M10 x 1 → UF M16 x 1,5

UF 3/8 - 18 → UF 1-12

UF M20 x 1,5 → UF M27 x 3



Catalog No./Model	Part Number	Model (Ref)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	I in. (mm)	J in. (mm)	K in. (mm)
Δ UF M10 x 1	U16363189	ECO OEM 0.1M(B)	M10 x 1 (M10 x 1)	1.50 (38,0)	.47 (12,0)	.24 (6,0)	.25 (6,25)	1.00 (25,5)	0.98 (25,0)	0.49 (12,5)	-	.20 (5)	-
Δ UF M12 x 1	U15588189	ECO OEM .15M(B)	M12 x 1 (M12 x 1)	1.50 (38,0)	.47 (12,0)	.24 (6,0)	.25 (6,25)	1.00 (25,5)	0.98 (25,0)	0.49 (12,5)	-	.20 (5)	-
Δ UF 1/2 - 20	U13935095	ECO (LR)OEM .25(B)	1/2 - 20 UNF	1.50 (45,0)	.56 (16,0)	.28 (8,0)	.25 (5,0)	1.00 (35,0)	1.00 (30,0)	0.50 (15,0)	-	.20 (5)	-
Δ UF M14 x 1,5	U13935143	ECO (LR)OEM .25M	(M14 x 1,5)	(45,0)	(16,0)	(8,0)	(5,0)	(35,0)	(30,0)	(15,0)	-	(5)	-
Δ UF M16 x 1,5	U19018143	ECO (LR)OEM .35M	(M16 x 1,5)	(45,0)	(16,0)	(8,0)	(5,0)	(35,0)	(30,0)	(15,0)	-	-	-
Δ UF 3/8 - 18	U120275095	ECO (LR)OEM .5(B)	3/8 - 18 UNF	2.00 (48,0)	.62 (16,0)	.31 (8,0)	.25 (6,5)	1.50 (35,0)	1.50 (35,0)	-	.19 (4,75)	.45 (11,4)	1.12 (25,5)
Δ UF M20 x 1,5	U1202646143	ECO (LR)OEM .5M	(M20 x 1,5)	(48,0)	(16,0)	(8,0)	(6,5)	(35,0)	(35,0)	-	(4,75)	(11,4)	(25,5)
Δ UF 1-12	U19599095	ECO (LR)OEM 1.0(B)	1-12 UNF	2.00 (48,0)	.62 (16,0)	.31 (8,0)	.25 (6,5)	1.50 (35,0)	1.50 (35,0)	-	.19 (4,75)	.45 (11,4)	1.12 (25,5)
Δ UF M25 x 1,5	U12584143	ECO (LR)OEM 1.0M	(M25 x 1,5)	(48,0)	(16,0)	(8,0)	(6,5)	(35,0)	(35,0)	-	(4,75)	(11,4)	(25,5)
Δ UF M27 x 3	U12587143	ECO (LR)OEM 1.0M	(M27 x 3)	(48,0)	(16,0)	(8,0)	(6,5)	(35,0)	(35,0)	-	(4,75)	(11,4)	(25,5)

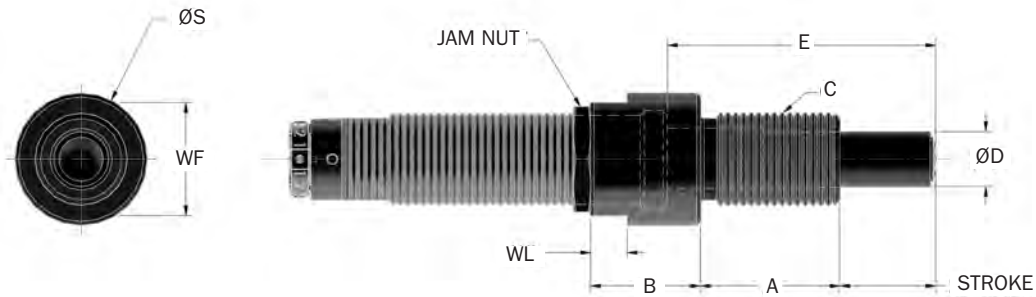
⊗ = Non-standard lead time items, contact Endine.

Adjustable Series

OEM 0.1M → OEM 1.0 Series

Side Load Adaptor (SLA)

Adjustable Series



Catalog No./Model	Part Number	Model (Ref)	Stroke in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	S in. (mm)	WF in. (mm)	WL in. (mm)
SLA 10MF	SLA 33457	ECO OEM 0.1M	.25 (6,4)	.47 (12)	.43 (11)	M10 x 1	.20 (5)	.85 (21,9)	.51 (13)	11 (11)	.28 (0,28)
SLA 12MF	SLA 33299	ECO OEM .15M	.38 (10,0)	.71 (18)	.55 (14)	M12 x 1	.24 (6)	1.28 (32,4)	.63 (16)	13 (13)	.28 (0,28)
SLA 1/2 - 20 x .38	SLA 71133	ECO (LR)OEM .25	.38 (10,0)	.71 (18)	.65 (16)	1/2 - 20 UNF	.31 (8)	1.37 (34,3)	.71 (18)	.63 (15)	.28 (7,0)
SLA 14MC	SLA 34756	ECO (LR)OEM .25M				(M14 x 1,5)					
SLA 9/16 - 18 x .50	SLA 71134	ECO (LR)OEM .35	.5 (12,7)	.79 (20)	.63 (16)	9/16 - 18 UNF	.31 (8)	1.55 (39,2)	.71 (20)	.63 (17)	.28 (7,0)
SLA 16 MF	SLA 34757	ECO (LR)OEM .35M				(M16 x 1,5)					
SLA 3/4 - 16 x .50	SLA 33847	ECO (LR)OEM .5	.5 (12,7)	.94 (24)	.55 (14)	3/4 - 16 UNF	.43 (11)	1.64 (41,5)	.98 (25)	.88 (22)	.28 (7,0)
SLA 20 MC	SLA 33262	ECO (LR)OEM .5M				(M20 x 1,5)					
SLA 1-12 x 1	SLA 33848	ECO (LR)OEM 1.0	1.0 (25,0)	1.50 (38)	1.80 (30)	1-12 UNF	.59 (15)	2.88 (73,2)	1.42 (36)	1.25 (32)	.39 (0,28)
SLA 25 MF	SLA 33263	ECO (LR)OEM 1.0MF				(M25 x 1,5)					
SLA 27 MC	SLA 33296	ECO (LR)OEM 1.0M				(M27 x 3)					

Notes: 1. Maximum sideload angle is 30°. 2. Part Numbers in page color are non-standard lead time items, contact ITT Enidine.

Clevis Mount



Catalog No./Model	(S) Stroke in. (mm)	L in. (mm)	M +.010/-0.000 in. (mm)	N +.010/-0.000 in. (mm)	P +.000/-0.010 in. (mm)	Q in. (mm)	S in. (mm)	V in. (mm)	W in. (mm)	X in. (mm)	Weight (mass) oz. (g)
Δ ECO OEM 1.0 CMS	1.0	6.38	.141 +.005/-0.000	.251 +.005/-0.000	.375 +.000/-0.010	.25	1.25	.13	.35	.25	13.9
Δ ECO OEM 1.0M CMS	25	162,1	3,58 +0,13/0	6,02 +0,13/0	9,5 0/0,3	6,4	31,8	3,2	9,0	6,4	394

Notes: 1. Maximum sideload angle is 30°. 2. Δ = Non-standard lead time items, contact ITT Enidine.

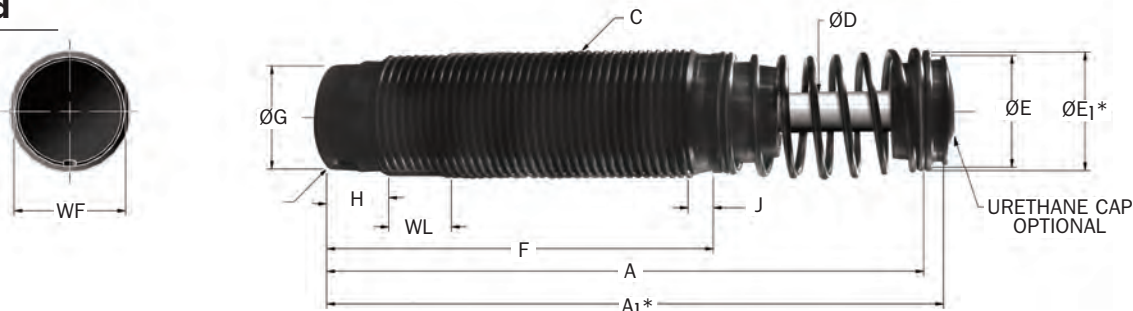
Adjustable Series Hydraulic Shock Absorbers

ECO OEM Small Bore Series

OEM 1.15 → (LR)OEM 1.25 Series

Technical Data

Standard



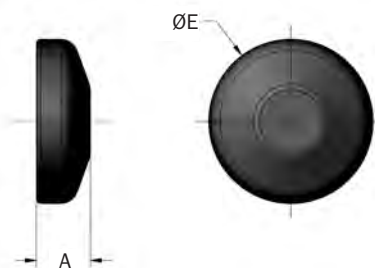
*Note: A₁ and E₁ apply to urethane striker cap accessory.

Catalog No./Model	(S) Stroke in. (mm)	Optimal Velocity Range in./sec. (m/s)	(E _T) Max. in.-lbs./cycle (Nm/cycle)	(E _T C) Max. in.-lbs./hour (Nm/h)	(F _P) Max. Reaction Force lbs. (N)	Nominal Coil Spring Force		(F _P) Max. Propelling Force lbs. (N)	Weight (mass) oz (g)
						Extended lbs. (N)	Compressed lbs. (N)		
△ ECO OEM 1.15 x 1	1.00	12-130	1,900	137,000	2,500	12.5	20.0	500	17
△ ECO OEM 1.15M x 1	(25,0)	(0,3-3,30)	(215,0)	(83 300)	(11 120)	(56,0)	(89,0)	(2 220)	(482)
△ ECO LROEM 1.15 x 1	1.00	3-80	1,900	237,000	2,500	12.5	20.0	750	17
△ ECO LROEM 1.15M x 1	(25,0)	(0,08-2,0)	(215,0)	(83 300)	(11 120)	(56,0)	(89,0)	(3 335)	(482)
△ ECO OEM 1.15 x 2	2.00	12-130	3,750	963,000	2,500	7.0	20.0	500	25
△ ECO OEM 1.15M x 2	(50,0)	(0,3-3,30)	(424,0)	(108 800)	(11 120)	(31,0)	(89,0)	(2 220)	(708)
△ ECO LROEM 1.15 x 2	2.00	3-80	3,750	963,000	2,500	7.0	20.0	750	25
△ ECO LROEM 1.15M x 2	(50,0)	(0,08-2,0)	(424,0)	(108 800)	(11 120)	(31,0)	(89,0)	(3 335)	(708)
△ ECO OEM 1.25 x 1	1.00	12-130	1,900	886,000	2,500	12.5	20.0	500	20
△ ECO OEM 1.25M x 1	(25,0)	(0,3-3,30)	(215,0)	(100 100)	(11 120)	(56,0)	(89,0)	(2 220)	(567)
△ ECO LROEM 1.25 x 1	1.00	3-80	1,900	886,000	2,500	12.5	20.0	750	20
△ ECO LROEM 1.25M x 1	(25,0)	(0,08-2,0)	(215,0)	(100 100)	(11 120)	(56,0)	(89,0)	(3 335)	(567)
△ ECO OEM 1.25 x 2	2.00	12-130	3,750	1,084,000	2,500	7.0	20.0	500	26
△ ECO OEM 1.25M x 2	(50,0)	(0,3-3,30)	(424,0)	(122 500)	(11 120)	(31,0)	(89,0)	(2 220)	(737)
△ ECO LROEM 1.25 x 2	2.00	3-80	3,750	1,084,000	2,500	7.0	20.0	750	26
△ ECO LROEM 1.25M x 2	(50,0)	(0,08-2,0)	(424,0)	(122 500)	(11 120)	(31,0)	(89,0)	(3 335)	(737)

Catalog No./Model	A in. (mm)	A ₁ in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	E ₁ in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	WF in. (mm)	WL in. (mm)
△ ECO (LR)OEM 1.15 x 1	5.92	6.12	1 ¼ - 12 UNF	.38	1.13	1.20	3.81	1.10	.55	.21	1.12	.63
△ ECO (LR)OEM 1.15M x 1	(150,0)	(155,5)	(M33 x 1,5)	(9,5)	(29,0)	(30,5)	(97,0)	(28,0)	(14,0)	(5,3)	(30,0)	(16,0)
△ ECO (LR)OEM 1.15 x 2	8.54	8.74	1 ¼ - 12 UNF	.38	1.13	1.20	5.43	1.10	.55	.21	1.12	.63
△ ECO (LR)OEM 1.15M x 2	(217,0)	(222,0)	(M33 x 1,5)	(9,5)	(29,0)	(30,5)	(138,0)	(28,0)	(14,0)	(5,3)	(30,0)	(16,0)
△ ECO (LR)OEM 1.25 x 1	5.92	6.12	1 ¼ - 12 UNF	.38	1.13	1.20	3.81	1.10	.55	.21	1.25	.63
△ ECO (LR)OEM 1.25M x 1	(150,0)	(155,5)	(M36 x 1,5)	(9,5)	(29,0)	(30,5)	(97,0)	(28,0)	(14,0)	(5,3)	(33,0)	(16,0)
△ ECO (LR)OEM 1.25 x 2	8.54	8.74	1 ¼ - 12 UNF	.38	1.13	1.20	5.43	1.10	.55	.21	1.25	.63
△ ECO (LR)OEM 1.25M x 2	(217,0)	(222,0)	(M36 x 1,5)	(9,5)	(29,0)	(30,5)	(138,0)	(28,0)	(14,0)	(5,3)	(33,0)	(16,0)

- 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. For mounting accessories, see pages 25-26.
- 3. Urethane striker caps are available as accessories for models OEM 1.15M x 1 to OEM 1.25M x 2.
- 4. △ = Non-standard lead time items, contact ITT Enidine.

Urethane Striker Cap (USC)

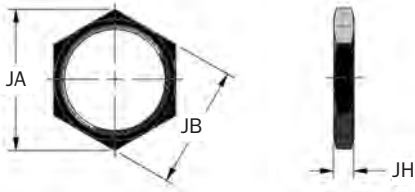


Catalog No./Model	Part Number	Model (Ref)	A in. (mm)	E in. (mm)	Weight (mass) oz. (g)
UC 8609	C98609079	ECO (LR)OEM 1.15/1.25	.39 (10,0)	1.20 (30,5)	0.2 (6)

Adjustable Series

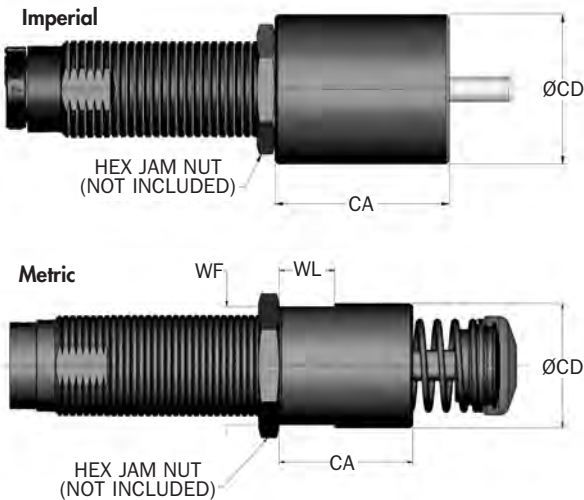
OEM 1.15 → OEM 1.25 Series

Jam Nut (JN)



Catalog No./Model	Part Number	Model (Ref)	JA in. (mm)	JB in. (mm)	JH in. (mm)	Weight (mass) oz. (g)
JN 1 1/4 - 12	J124061034	ECO OEM 1.15	1.73	1.50	.25	0.8
JN M33 x 1,5	J224061035	ECO (LR)OEM 1.15M	(44,0)	(38,0)	(6,4)	(23)
JN 1 3/8 - 12	J124063034	ECO OEM 1.25	1.88	1.63	.25	0.9
JN M36 x 1,5	J224063035	ECO (LR)OEM 1.25M	(47,3)	(41,0)	(6,4)	(26)

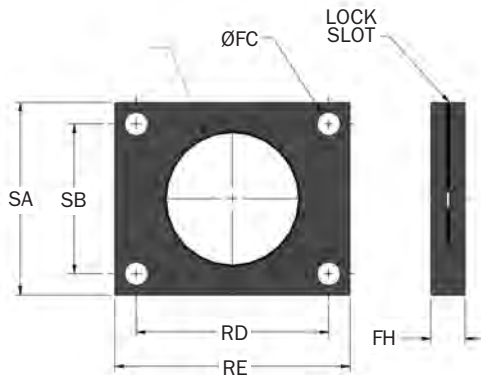
Stop Collar (SC)



Catalog No./Model	Part Number	Model (Ref)	CA in. (mm)	CD in. (mm)	WF in. (mm)	WL in. (mm)	Weight (mass) oz. (g)
△ SC 1 1/4 - 12	M924061057	ECO OEM 1.15	2.50	1.50	-	-	7.0
△ SC M33 x 1.5	M924061058	ECO OEM 1.15M	(63,5)	(38,1)	-	-	(215)
△ SC 1 3/8 - 12	M924063057	ECO OEM 1.25	2.50	1.69	-	-	7.0
△ SC M36 x 1,5	M924063058	ECO OEM 1.25M	(63,5)	(43,0)	(41,0)	(18,0)	(210)
△ SC 1-12HP x 1.56	M924129181	HP 110	2.00	1.50	-	-	-
△ SC M25 x 2 x 1,56	M924129058	HP 110 MC	(50,8)	(38,0)	(32,0)	(15,0)	8.0
△ SC M25 x 1,5 x 1,56	M924129180	HP 110 MF	(50,8)	(38,0)	(32,0)	(15,0)	(215)

Notes: 1. *Do not use with urethane striker cap. 2. △ = Non-standard lead time items, contact Enidine.

Rectangular Flange (RF)



Catalog No./Model	Part Number	Model (Ref)	FC in. (mm)	FH in. (mm)	RD in. (mm)	RE in. (mm)	SA in. (mm)	SB in. (mm)	Bolt Size in. (mm)	Wt. (mass) oz. (g)
RF 1 1/4 - 12	N121049129	ECO (LR)OEM 1.15	.22	.38	1.63	2.00	1.75	1.13	#10	1.0
RF M33 x 1,5	N121049141	ECO (LR)OEM 1.15M	(5,5)	(9,5)	(41,3)	(50,8)	(44,5)	(28,6)	(M5)	(30)
RF 1 3/8 - 12	N121293129	ECO (LR)OEM 1.25	.22	.38	1.63	2.00	1.75	1.13	#10	1.0
RF M36 x 1,5	N121293141	ECO (LR)OEM 1.25M	(5,5)	(9,5)	(41,3)	(58,8)	(44,5)	(28,6)	(M5)	(30)

Adjustable Series Hydraulic Shock Absorbers

ECO OEM Small Bore Series

Accessories

OEM 1.15 → OEM 1.25 Series

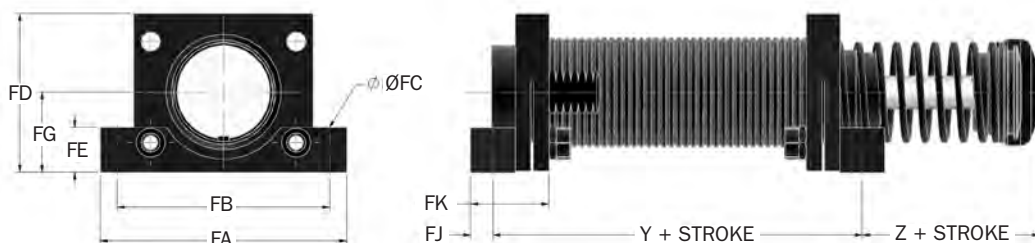
Clevis Mount



Catalog No./Model	(S) Stroke in. (mm)	L in. (mm)	M in. (mm)	N in. (mm)	P in. (mm)	Q in. (mm)	S in. (mm)	T in. (mm)	V in. (mm)	W in. (mm)	X in. (mm)	CR in. (mm)	Weight (mass) oz. (g)
Δ ECO (LR)OEM 1.15 x 1 CM(S)	1.0 (25)	6.44 (163,6)	.251 (6,02)	.251 (6,02)	.500 (12,7)	.500 (12,7)	1.50 (38,1)	.88 (22,3)	.23 (6,0)	.33 (8,3)	.23 (5,9)	.44 (10,0)	1.6 (725)
Δ ECO (LR)OEM 1.15 x 2 CM(S)	2.0 (50)	9.07 (230,4)	.251 (6,02)	.251 (6,02)	.500 (12,7)	.500 (12,7)	1.50 (38,1)	.88 (22,3)	.23 (6,0)	.33 (8,3)	.23 (5,9)	.44 (10,0)	1.6 (861)
Δ ECO (LR)OEM 1.25 x 1 CM(S)	1.0 (25)	6.44 (163,6)	.251 (6,02)	.251 (6,02)	.500 (12,7)	.500 (12,7)	1.50 (38,1)	.88 (22,3)	.23 (6,0)	.33 (8,3)	.23 (5,9)	.44 (10,0)	1.6 (725)
Δ ECO (LR)OEM 1.25 x 2 CM(S)	2.0 (50)	9.07 (230,4)	.251 (6,02)	.251 (6,02)	.500 (12,7)	.500 (12,7)	1.50 (38,1)	.88 (22,3)	.23 (6,0)	.33 (8,3)	.23 (5,9)	.44 (10,0)	1.9 (861)

Notes: 1. "S" designates model is supplied with spring. 2. Δ = Non-standard lead time items, contact ITT Enidine.

Flange Foot Mount



Catalog No./Model	Part Number	Model (Ref)	Y in. (mm)	Z in. (mm)	FA in. (mm)	FB in. (mm)	FC in. (mm)	FD in. (mm)	FE in. (mm)	FG in. (mm)	FJ in. (mm)	FK in. (mm)	Size in. (mm)	Bolt Weight lbs. (kg)
FM 1 1/4 - 12	2F21049305	ECO (LR)OEM 1.15	2.23	1.25	2.75	2.38	.23	1.75	0.50	0.90	0.25	0.88	#10	4.0 oz.
FM 1 3/8 - 12	2F21293305	ECO (LR)OEM 1.25	2.23	1.25	2.75	2.38	.23	1.75	0.50	0.90	0.25	0.88	#10	4.0 oz.
FM M33 x 1,5	2F21049306	ECO (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)	(100g)
FM M36 x 1,5	2F21293306	ECO (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)	(100g)

Adjustable Series