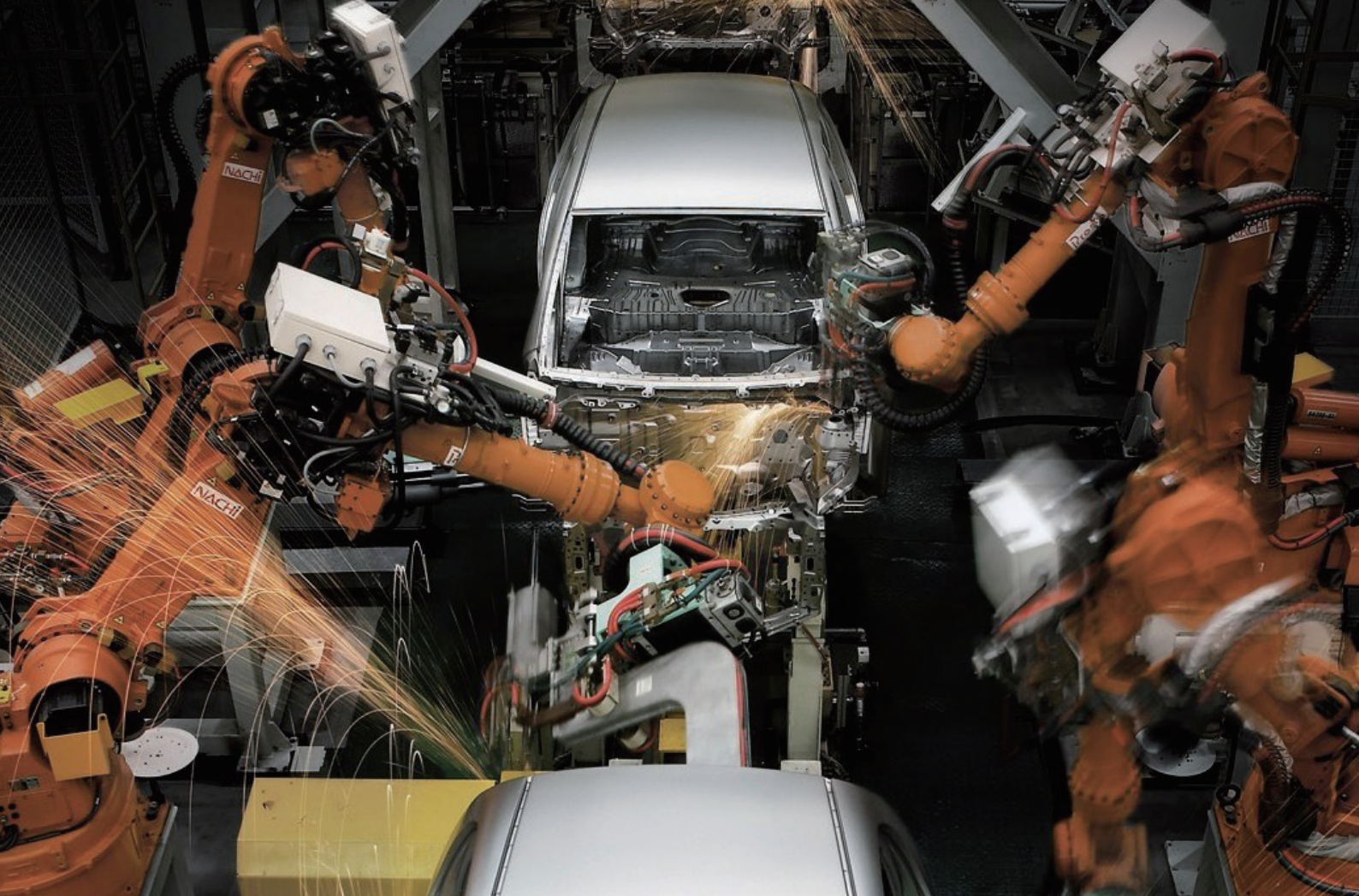




Energy Absorption
Vibration Control

Shock Absorber





EKD

**FOCUSES ON COST-EFFECTIVE ENERGY
ABSORPTION AND VIBRATION ISOLATION
SOLUTIONS.**

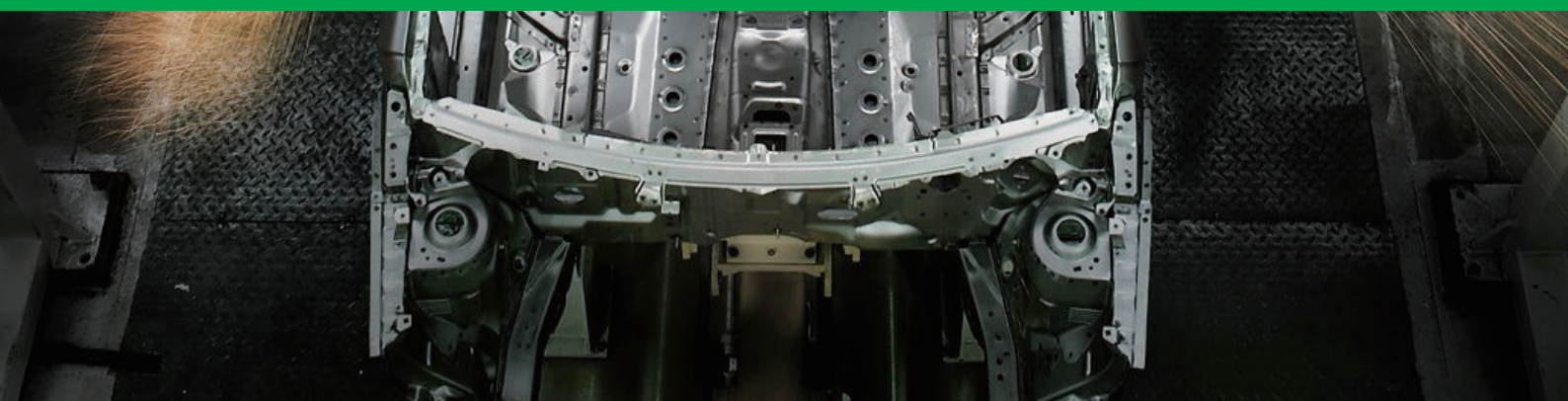


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Shock Absorbers



EK Series Adjustable Hydraulic Shock Absorbers

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EN Series Non-Adjustable Hydraulic Shock Absorbers

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ES Series Non-Adjustable Hydraulic Shock Absorbers- Super Long Service Life Series

Overview, Technical Data	36-37
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A modern building with large windows and a green geometric overlay. The building is partially obscured by a large white and green geometric shape that covers the left and bottom portions of the image. The text is centered within the white area.

**EXCELLENT IN QUALITY
AND VALUE FOR ENERGY
ABSORPTION AND VIBRATION
ISOLATION PRODUCTS**

BRAND PROFILE

Originating from American design and technology, EKD specializes in research and development, manufacture, testing and solutions of energy absorption and vibration control products like hydraulic shock absorbers, viscous dampers, wire rope vibration isolators, polyurethane cushions etc. R&D and manufacture are based in Wuxi, Jiangsu Province. Currently, EKD has 4 complete product lines and the leading product testing lab in the industry.

EKD product's differences and features:

- Leading product design in the world.
- All the key components use top brand products in the industry, more than 60% components are originally from US.
- Standardized assembly process.
- High precision, testing of whole series equipments, testing rate of finished products as high as 100%.

EKD's Brand Advantages:

- Excellent working life and performance.
- Prompt product delivery, enough safety inventories.
- Quick and good technical supports such as product sizing, product testing, and solutions.
- On-site service support from domestic professionals within 24 hours.





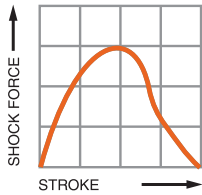
EKD Adjustable Shock Absorbers can simply adjust to fulfill different input speed and force. This series product can adapt to various applications and working conditions. By simply turning an adjustable knob, the damping force can be changed to accommodate a wide range of conditions. Adjustable shock absorbers can be used for absorbing harmful impact on precision components that is driven by cylinder, motor or mass load, etc.

EKD standard adjustable EK Series provides an adjustable knob offered in metric thread configurations with stroke lengths of 25-150mm. EKD low range adjustable EKL Series products are available to control velocities as low as 0.08m/s and propelling forces as high as 17790N, with excellent batch stability.

Features and Benefits

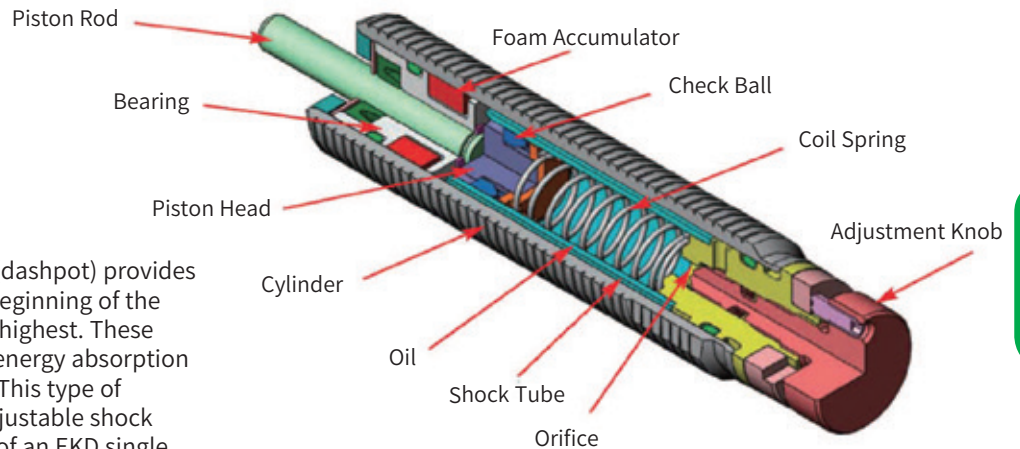
- Adjustable design lets you “fine-tune” your desired damping and lock the numbered adjustment setting.
- Internal orifice design provides excellent deceleration performance and energy absorption efficiency with efficient damping characteristics.
- EKD product is well known for its excellent performance in reaction forces in the industry.
- Threaded cylinders provide mounting flexibility and increase surface area for improved heat dissipation.
- Incorporating optional fluids and seal packages can expand the standard operating temperature range from (-10°C - 80°C) to (-40°C - 100°C).
- ISO quality standards ensure reliable, long-life operation.
- Adjustable design makes EKD products suitable for a wider range of application, from low range products to high performance products.
- A select variety of surface finishes with nickel plating processing provides longest corrosion resistance protection.
- New all stainless steel products are available, including 304 series, 316 series and 316L series.

EKD Adjustable Single Orifice Shock Absorbers



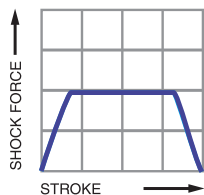
Constant orifice area damping(dashpot) provides the largest shock force at the beginning of the stroke when impact velocity is highest. These shock absorbers provide high-energy absorption in a small, economical design. This type of damping is also available in adjustable shock absorbers. The damping force of an EKD single orifice shock absorber can be changed by turning the adjustment knob. Maximum damping force is achieved by turning the adjustment knob to eight, while minimum damping force is achieved by turning the adjustment knob to zero. 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 an adjustable single orifice shock absorber is shown above. When



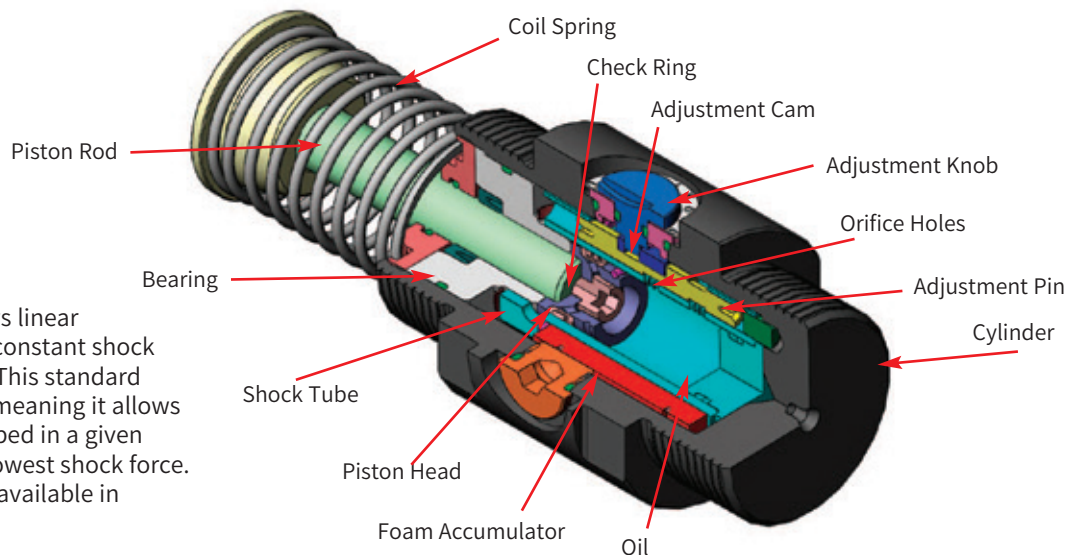
force is applied to the piston rod, the check ball is seated and the valve remained closed. Oil is forced out of the high pressure shock tube chamber through the orifice, creating internal pressure allowing smooth, controlled deceleration of the moving load. When load is removed, the compressed coil spring moves to reposition the piston head, the check ball unseats, opening the valve that permits rapid piston rod return to the original extend 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 hydraulic locked. This is the result of this type of orifice design.

EKD Adjustable Multiple Orifice Shock Absorbers



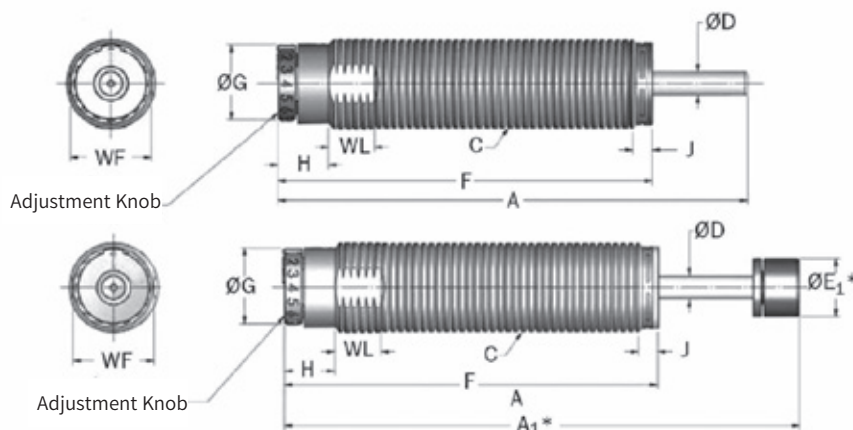
Conventional damping allows linear deceleration by providing a constant shock force over the entire stroke. This standard design is the most efficient, meaning it allows the most energy to be absorbed in a given stroke, while providing the lowest shock force. This type of damping is also available in 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, while minimum damping force is achieved by turning the adjustment knob to zero.



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-style damping curve. Low velocity range series configurations are available for controlling velocities that fall below the standard adjustable range.

EK 10 → EKL 27 Series

Standard

Note: A1 and E1 apply to button models.

Catalog No./Model	(S) Stroke mm	Optimal Velocity Range m/s	(E _T) Max Energy Nm/C	(E _T C) Max Energy Nm/h	(F _P) Max Reaction Force N	Nominal Coil Spring Force		(F _D) Max Propelling Force N	Weight g
						Extended N	Compressed N		
EK 10x7 (B)	7.0	0.3-3.30	7.0	13 600	1 220	2.2	4.5	350	28
EK 12x10 (B)	10.0	0.3-3.30	7.0	20 900	890	3.5	7.5	350	56
EK 14x10 (B)	10.0	0.3-3.30	7.0	22 000	890	3.5	7.5	350	56
EKL 14x10 (B)	10.0	0.08-1.30	7.0	22 000	890	3.5	7.5	440	56
EK 16x12 (B)	12.7	0.3-3.30	19.0	37 400	2 000	4.5	9.8	530	85
EKL 16x12 (B)	12.7	0.08-1.30	19.0	37 400	2 000	4.5	9.8	890	85
EK 20x12 (B)	12.0	0.3-4.50	31.0	35 200	3 500	5.8	12.4	670	141
EKL 20x12 (B)	12.0	0.08-1.30	31.0	35 200	3 500	8.9	17.0	1 120	141
EK 27x25 (B)	25.0	0.3-3.30	81.0	77 000	4 400	13.0	26.0	1 330	285
EK 25x25 (B)	25.0	0.3-3.30	81.0	77 000	4 400	13.0	26.0	1 330	285
EKL 27x25 (B)	25.0	0.08-1.30	81.0	77 000	4 400	13.0	27.0	2 016	285
EKL 25x25 (B)	25.0	0.08-1.30	81.0	77 000	4 400	13.0	27.0	2 016	285

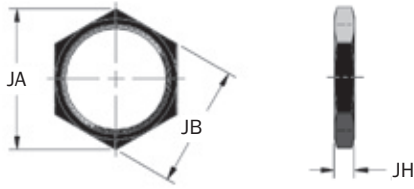
Catalog No./Model	A mm	A ₁ mm	C mm	D mm	E ₁ mm	F mm	G mm	H mm	J mm	WF mm	WL mm
EK 10x7 (B)	57.0	67.0	M10 x 1.0	3.0	8.6	49.4	8.6	10.2	—	—	—
EK 12x10 (B)	81.8	91.7	M12 x 1.0	3.3	8.6	71.4	10.9	14.2	—	11.0	9.7
EK(L) 14x10 (B)	81.8	91.2	M14 x 1.5	3.3	11.2	71.4	10.9	14.2	—	12.0	12.7
EK(L) 16x12 (B)	100.6	110.7	M16 x 1.5	4.0	11.2	87.4	11.2	14.5	0.5	14.0	12.7
EK(L) 20x12 (B)	98.6	110.5	M20 x 1.5	4.8	12.7	84.1	16.0	17.0	—	18.0	12.7
EK(L) 27x25 (B)	130.0	142.7	M27 x 3.0	6.4	15.7	104.0	22.0	14.0	4.6	23.0	12.7
EK(L) 25x25 (B)	130.0	142.7	M25 x 1.5	6.4	15.7	104.0	22.0	14.0	4.6	23.0	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. (B) indicates button model of shock absorber. Buttons cannot be added to non-button models or removed from button models EK10 to EK27.

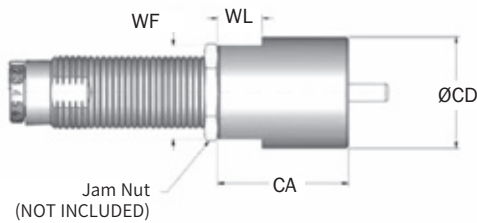
EK 10 → EKL 27 Series

Jam Nut (JN)



Catalog No./Model	Model	JA mm	JB mm	JH mm	Weight g
JN M10 x 1	EK 10x7(B)	15.0	13.0	3.2	2
JN M12 x 1	EK 12x10 (B)	17.0	15.0	4.0	2
JN M14 x 1.5	EKL 14x10 (B)	19.7	17.0	4.0	3
JN M16 x 1.5	EKL 16x12 (B)	20.0	19.0	6.0	5
JN M20 x 1.5	EKL 20x12 (B)	27.7	24.0	4.6	9
JN M27 x 3	EKL 27x25 (B)	37.0	32.0	4.6	15
JN M25 x 1.5	EKL 25x25 (B)	37.0	32.0	4.6	15

Stop Collar (SC)

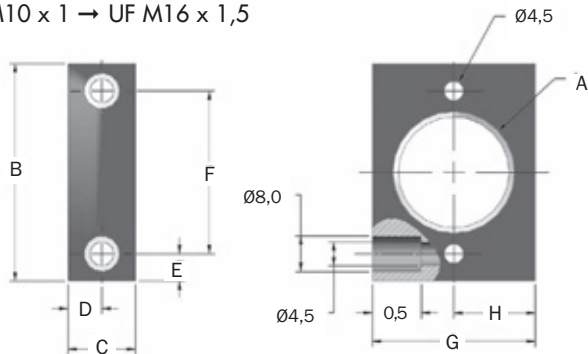


Catalog No./Model	Model	CA mm	CD mm	WF mm	WL mm	Weight g
SC M10 x 1	EK 10x7(B)	19.0	14.3	—	—	11
SC M12 x 1	EK 12x10 (B)	19.0	16.0	—	—	14
SC M14 x 1.5	EKL 14x10 (B)	25.4	19.0	19.0	12.0	38
SC M16 x 1.5	EKL 16x12 (B)	25.4	19.0	—	—	18
SC M20 x 1.5	EKL 20x12 (B)	38.0	25.4	22.0	12.0	63
SC M27 x 3	EKL 27x25 (B)	50.8	38.0	32.0	15.0	215
SC M25 x 1.5	EKL 25x25 (B)	—	—	—	—	—

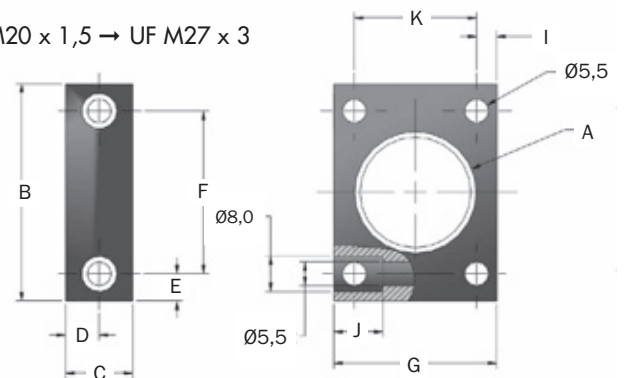
Note: Do not use with urethane striker cap

Universal Retaining Flange (Small Bore) (UF)

UF M10 x 1 → UF M16 x 1,5



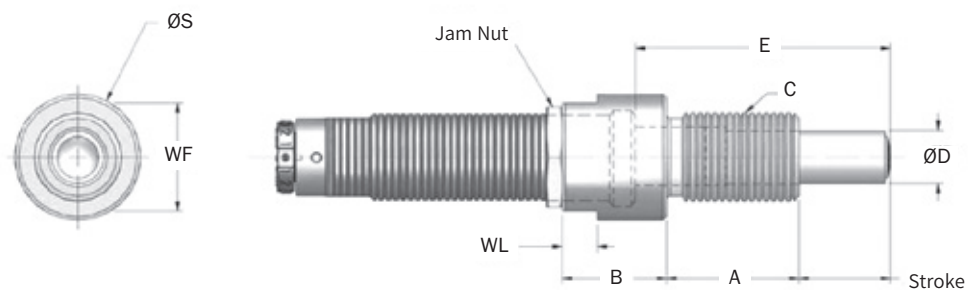
UF M20 x 1,5 → UF M27 x 3



Catalog No./Model	Model	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm
UF M10 x 1	EK 10x7 (B)	M10 x 1	38.0	12.0	6.0	6.25	25.5	25.0	12.5	—	5	—
UF M12 x 1	EK 12x10 (B)	M12 x 1	38.0	12.0	6.0	6.25	25.5	25.0	12.5	—	5	—
UF M14 x 1.5	EKL 14x10 (B)	M14 x 1.5	45.0	16.0	8.0	5.0	35.0	30.0	15.0	—	5	—
UF M16 x 1.5	EKL 16x12 (B)	M16 x 1.5	45.0	16.0	8.0	5.0	35.0	30.0	15.0	—	—	—
UF M20 x 1.5	EKL 20x12 (B)	M20 x 1.5	48.0	16.0	8.0	6.5	35.0	35.0	—	4.75	11.4	25.5
UF M25 x 1.5	EKL 27x25 (B)	M25 x 5	48.0	16.0	8.0	6.5	35.0	35.0	—	4.75	11.4	25.5
UF M27 x 3	EKL 25x25 (B)	M27 X 3	—	—	—	—	—	—	—	—	—	—

EK 10 → EKL 27 Series

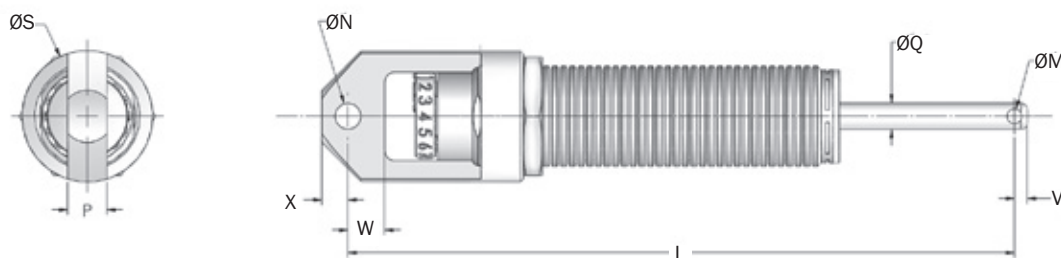
Side Load Adaptor (SLA)



Catalog No./Model	Model	Stroke mm	A mm	B mm	C mm	D mm	E mm	S mm	WF mm	WL mm
SLA 10MF	EK 10x7 (B)	6.4	12	11	—	5	21.9	13	11	0.28
SLA 12MF	EK 12x10 (B)	10.0	18	14	—	6	32.4	16	13	0.28
SLA 14MC	EKL 14x10 (B)	10.0	18	16	M14 x 1.5	8	34.3	18	15	7.0
SLA 16 MF	EKL 16x12 (B)	12.7	20	16	M16 x 1.5	8	39.2	20	17	7.0
SLA 20 MF	EKL 20x12 (B)	12.7	24	14	M20 x 1.5	11	41.5	25	22	7.0
SLA 25 MF	EKL 27x25 (B)	25.0	38	30	M25 x 1.5	15	73.2	36	32	0.28
SLA 27 MC	EKL 25x25 (B)	25.0	38	30	M27 x 3	15	73.2	36	32	0.28

Note: Maximum sideload angle is 30°

CLEVIS MOUNT

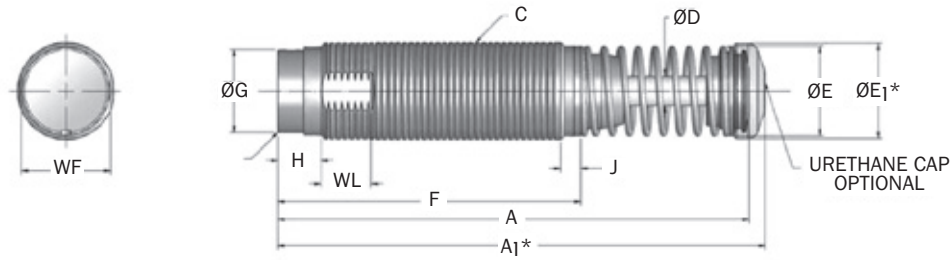


Catalog No./Model	(S) Stroke mm	L mm	M mm +0.010/-0.000	N mm +0.010/-0.000	P mm +0.000/-0.010	Q mm	S mm	V mm	W mm	X mm	Weight g
EK 27x25 CMS	25	162.1	3.58 +0.13/0	6.02 +0.13/0	9.5 0/-0.3	6.4	31.8	3.2	9.0	6.4	394

Note: Maximum sideload angle is 30°

EK 33 → EK 36 Series

Standard



Note: A1 and E1 apply to button models.

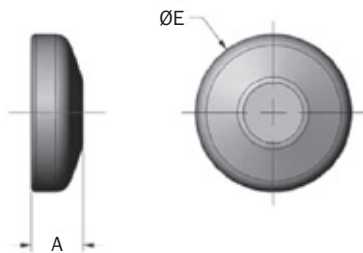
Catalog No./Model	(S) Stroke mm	Optimal Velocity Range m/s	(E _T) Max Energy Nm/C	(E _T C) Max Energy Nm/h	(F _P) Max Reaction Force N	Nominal Coil Spring Force		(F _D) Max Propelling Force N	Weight g
						Extended N	Compressed N		
EK 33x25	25.0	0.3-3.30	215.0	75 700	11 120	56.0	89.0	2 220	482
EKL 33x25	25.0	0.08-2.0	215.0	75 700	11 120	56.0	89.0	3 335	482
EK 33x50	50.0	0.3-3.30	424.0	98 962	11 120	31.0	89.0	2 220	708
EKL 33x50	50.0	0.08-2.0	424.0	98 962	11 120	31.0	89.0	3 335	708
EK 36x25	25.0	0.3-3.30	215.0	91 000	11 120	56.0	89.0	2 220	567
EKL 36x25	25.0	0.08-2.0	215.0	91 000	11 120	56.0	89.0	3 335	567
EK 36x50	50.0	0.3-3.30	424.0	111 400	11 120	31.0	89.0	2 220	737
EKL 36x50	50.0	0.08-2.0	424.0	111 400	11 120	31.0	89.0	3 335	737

Catalog No./Model	A mm	A ₁ mm	C mm	D mm	E mm	E ₁ mm	F mm	G mm	H mm	J mm	WF mm	WL mm
EK(L) 33x25	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
EKL(L) 33x50	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
EK(L) 36x25	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
EKL(L) 36x50	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:

- 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.
- Urethane striker caps are available as accessories for models -(L)33 to EKL36.

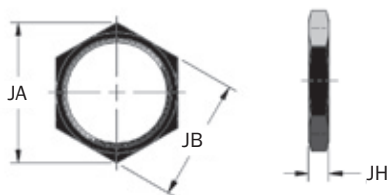
Urethane Striker Cap (USC)



Catalog No./Model	Model	A mm	E mm	Weight g
UC 8609	EK(L) 33/36	10.0	30.5	6

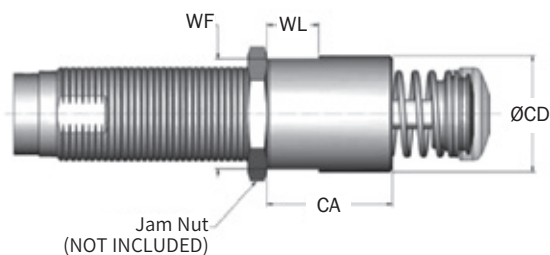
EK 33 → EK 36 Series

Jam Nut (JN)



Catalog No./Model	Model	JA mm	JB mm	JH mm	Weight g
JN M33 x 1.5	EK(L) 33	44.0	38.0	6.4	23
JN M36 x 1.5	EK(L) 36	47.3	41.0	6.4	26

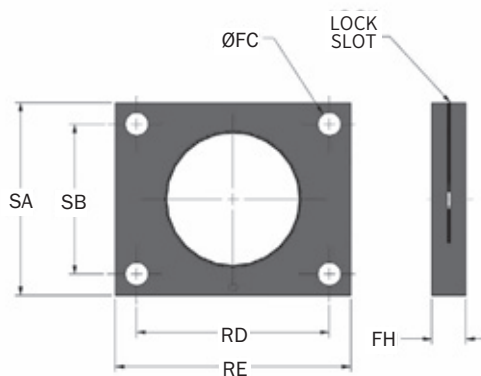
Stop Collar (SC)



Catalog No./Model	Model	CA mm	CD mm	WF mm	WL mm	Weight g
SC M33 x 1.5	EK(L) 33	63.5	38.1	—	—	215
SC M36 x 1.5	EK(L) 36	63.5	43.0	—	—	210

Note: Do not use with urethane striker cap

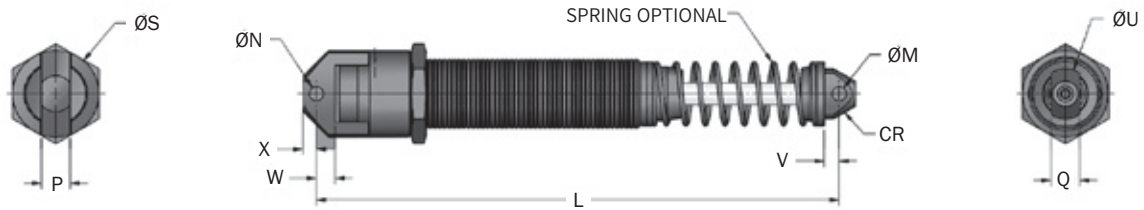
Rectangular Flange (RF)



Catalog No./Model	Model	FC mm	FH mm	RD mm	RE mm	SA mm	SB mm	Bolt Size mm	Weight g
RF M33 x 1.5	EK(L) 33	5.5	9.5	41.3	50.8	44.5	28.6	M5	30
RF M36 x 1.5	EK(L) 36	5.5	9.5	41.3	58.8	44.5	28.6	M5	30

EK 33 → EK 36 Series

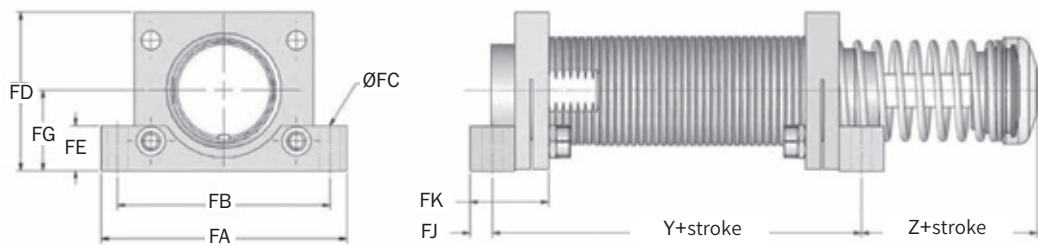
CLEVIS MOUNT



Catalog No./Model	(S) stroke mm	L mm	M mm	N mm	P mm	Q mm	S mm	T mm	V mm	W mm	X mm	CR mm	Weight g
EK(L) 33x25 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
EK(L) 33x50 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
EK(L) 36x25 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
EK(L) 36x50 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

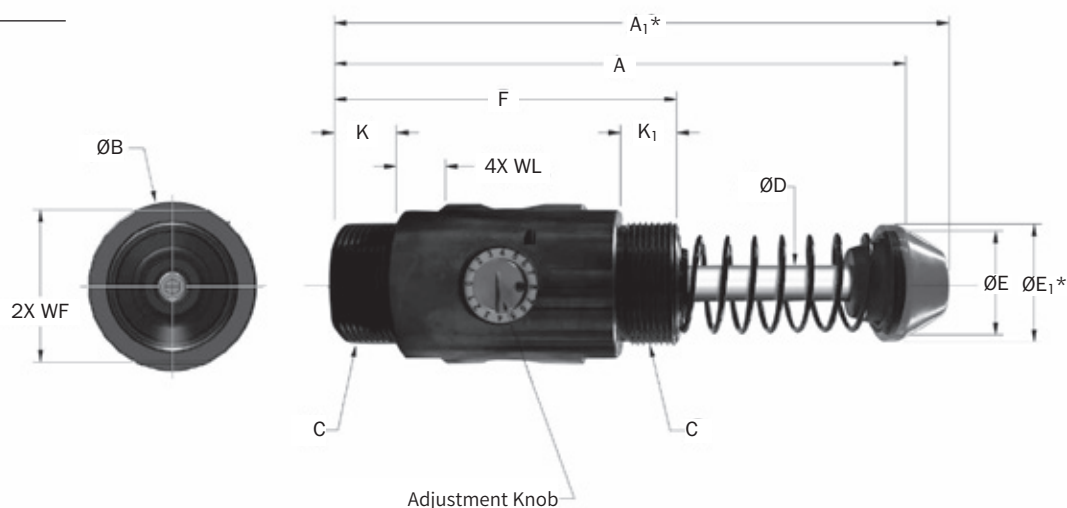
Note: "S" indicates the model comes with spring.

Flange Foot Mount



Catalog No./Model	Model	Y mm	Z mm	FA mm	FB mm	FC mm	FD mm	FE mm	FG mm	FJ mm	FK mm	Size mm	Bolt weight g
FM M33 x 1.5	EK(L) 33	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	EK(L) 36	56.6	31.8	70.0	60.3	6.0	44.5	12.7	22.7	6.4	22.2	M5	100

EK 42 Series

Standard

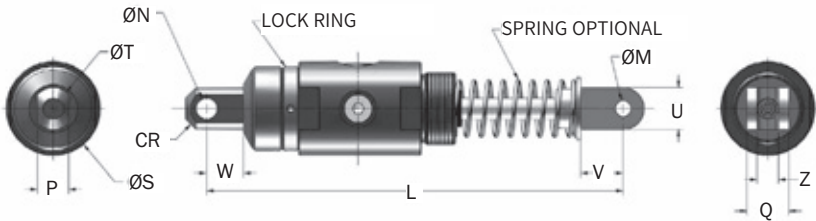
Note: A1 and E1 apply to button models.

Catalog No./Model	(S) Stroke mm	Optimal Velocity Range m/s	(E _T) Max Energy Nm/C	(E _T C) Max Energy Nm/h	(F _P) Max Reaction Force N	Nominal Coil Spring Force		(F _D) Max Propelling Force N	Weight g
						Extended N	Compressed N		
EK 42x25	25.0	0.3-3.5	425	126 000	20 000	48	68	2 890	1.2
EKL 42x25	25.0	0.08-1.3	425	126 000	20 000	48	68	6 660	1.2
EK 42x50	50.0	0.3-3.5	850	167 000	20 000	29	68	2 890	1.7
EKL 42x50	50.0	0.08-1.3	850	167 000	20 000	48	85	6 660	1.7
EK 42x75	75.0	0.3-3.5	1 300	201 000	20 000	29	85	2 890	2.1

Catalog No./Model	C mm	A mm	A ₁ mm	B mm	D mm	E mm	E ₁ mm	F mm	K mm	K ₁ mm	WF mm	WL mm
EK(L) 42x25	M42 x 1.5	144	162	58	13	38	44	92	32	32	40.5	19
EK(L) 42x50	M42 x 1.5	195	213	58	13	38	44	118	45	45	40.5	19
EK(L) 42x75	M42 x 1.5	246	264	58	13	38	44	143	57	57	40.5	19

EK 42 Series

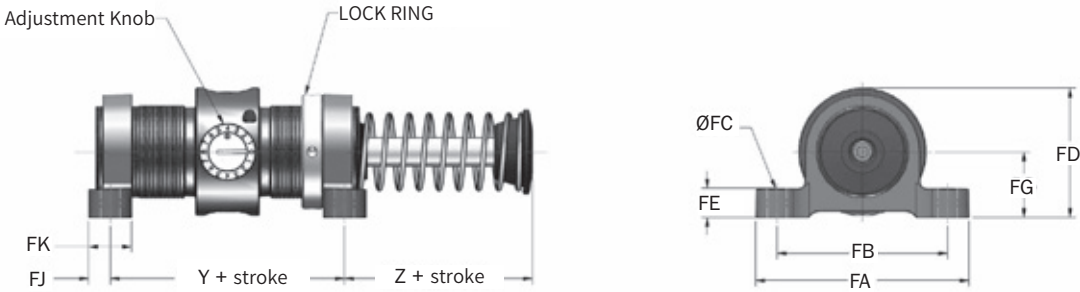
CLEVIS MOUNT



Catalog No./Model	(S) stroke mm	L mm	M mm	N mm	P mm	Q mm	S mm	T mm	U mm	V mm	W mm	Z mm	CR mm	Weight Kg
EK(L) 42x25 CM(S)	25	199.0	9.60 +0.25/0	12.70 +0.25/0	19.0 0/-0.3	25.4	51.0	25.4	25.0	26.0	22.0	12.9 +0.5/-0	14.3	1.59
EK(L) 42x50 CM(S)	50	250.0	9.60 +0.25/0	12.70 +0.25/0	19.0 0/-0.3	25.4	51.0	25.4	25.0	26.0	22.0	12.9 +0.5/-0	14.3	1.7
EK(L) 42x75 CM(S)	75	300.0	9.60 +0.25/0	12.70 +0.25/0	19.0 0/-0.3	25.4	51.0	25.4	25.0	26.0	22.0	12.9 +0.5/-0	14.3	1.95

Note: "S" indicates the model comes with spring

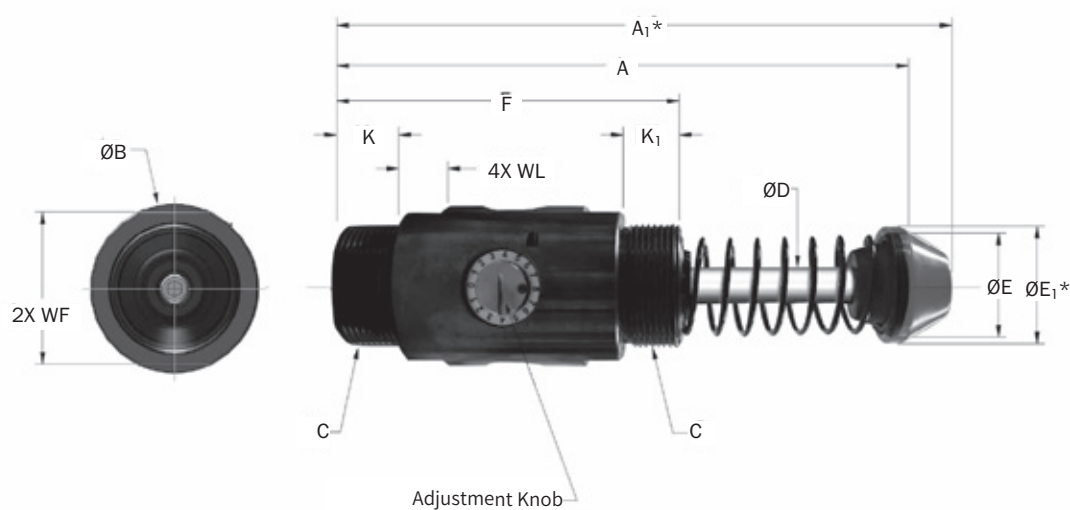
Flange Foot Mount



Catalog No./ Model	Model	Y mm	Z mm	FA mm	FB mm	FC mm	FD mm	FE mm	FG mm	FJ mm	FK mm	Bolt Size mm	Weight g
FM M42 x 1.5	EKL 42	60.5	26.9	95.3	76.2	8.6	55.0	12.7	29.5	9.7	19.1	M8	370

EK

EK 64 Series

Standard

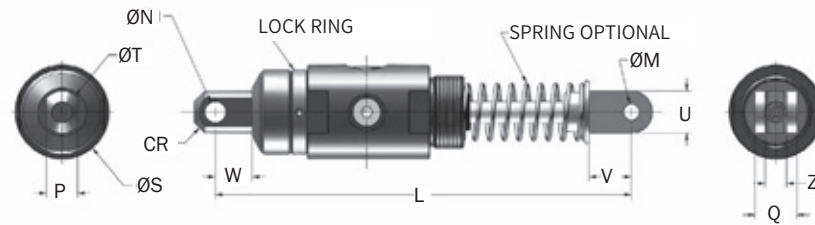
Note: A1 and E1 apply to button models.

Catalog No./Model	(S) Stroke mm	Optimal Velocity Range m/s	(E _T) Max Energy Nm/C	(E _T C) Max Energy Nm/h	(F _P) Max Reaction Force N	Nominal Coil Spring Force		(F _D) Max Propelling Force N	Weight g
						Extended N	Compressed N		
EK 64x50	50.0	0.3-3.5	2 260	271 000	51 000	75	155	6 660	3.6
EKL 64x50	50.0	0.08-1.35	2 260	271 000	51 000	75	155	17 760	3.6
EK 64x100	100.0	0.3-3.5	4 520	362 000	51 000	70	160	6 660	4.9
EK 64x150	150.0	0.3-3.5	6 780	421 000	51 000	90	284	6 660	6.4

Catalog No./Model	C mm	A mm	A ₁ mm	B mm	D mm	E mm	E ₁ mm	F mm	K mm	K ₁ mm	WF mm	WL mm
EK(L) 64x50	M64 x 2.0	226	243	77	19	50	57	140	50	50	61.5	25
EK 64x100	M64 x 2.0	328	345	77	19	50	57	191	75	75	61.5	25
EK 64x150	M64 x 2.0	456	473	77	19	57	57	241	75	75	61.5	25

EK 64 Series

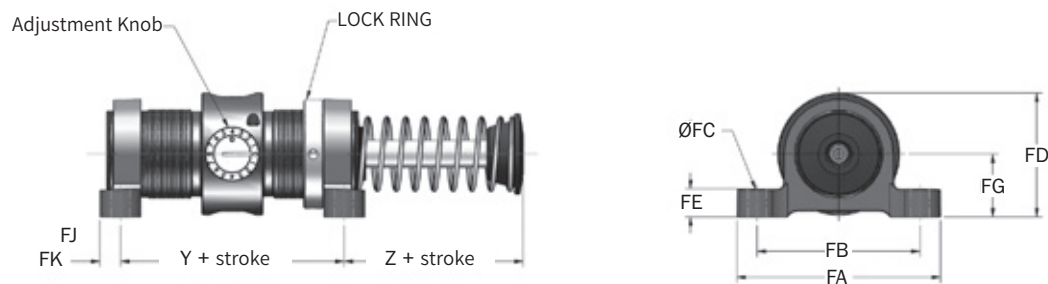
CLEVIS MOUNT



Catalog No./Model	(S) stroke mm	L mm	M mm	N mm	P mm	Q mm	S mm	T mm	U mm	V mm	W mm	Z mm	CR mm	Weight Kg
EK 64x50 CM(S)	50	306.0	19.07 +0.25/0	19.07 +0.25/0	31.7 0/-0.3	38.1 +0.8/-0.8	73.0	38.1	38.0	36.0	26.0	16.3 +0.25/-0.25	23.0	5.30
EK 64x100 CM(S)	100	408.0	19.07 +0.25/0	19.07 +0.25/0	31.7 0/-0.3	38.1 +0.8/-0.8	73.0	38.0	38.0	36.0	26.0	16.3 +0.25/-0.25	23.0	6.08
EK 64x150 CM(S)	150	537.0	19.07 +0.25/0	19.07 +0.25/0	31.7 0/-0.3	38.1 +0.8/-0.8	73.0	38.0	38.0	36.0	26.0	16.3 +0.25/-0.25	23.0	7.39

Note: "S" indicates the model comes with spring

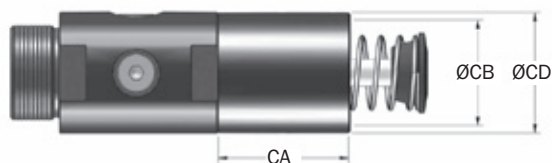
Flange Foot Mount



Catalog No./ Model	Model	Y mm	Z mm	FA mm	FB mm	FC mm	FD mm	FE mm	FG mm	FJ mm	FK mm	Bolt Size mm	Weight g
FM M64 x 2	EKL 64	76.2	39.6	43.0	124.0	10.4	89.7	16.0	44.5	11.2	22.4	M10	1.08

Stop Collar (JN)

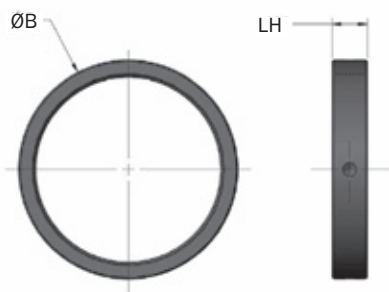
EK 42 - EK 64



Catalog No./Model	Model	CA mm	CB mm	CD mm	Weight g
SC M42 x 1.5 x 1	EKL 42x25	62.0	49.0	56.0	397
SC M42 x 1.5 x 2	EKL 42x50	75.0	49.0	56.0	539
SC M42 x 1.5 x 3	EK 42x75	87.0	49.0	56.0	652
SC M64 x 2 x 2	EKL 64x50	89.0	65.0	76.0	936
SC M64 x 2 x 4	EK 64x100	114.0	65.0	76.0	1191
SC M64 x 2 x 6	EK 64x150	143.0	65.0	76.0	1475

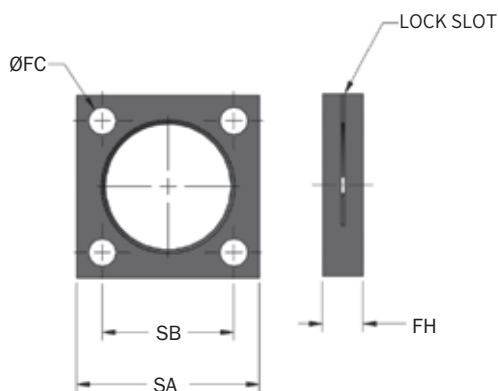
Note: Do not use with urethane striker cap

LOCK RING (LR)



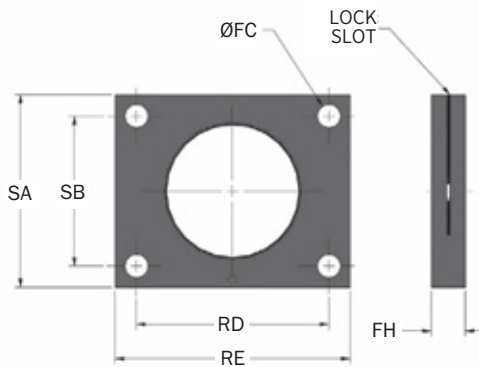
Catalog No./Model	Model	B mm	LH mm	Weight g
LR M42 x 1.5	EK(L) 42	50.8	9.6	85
LR M64 x 2	EK(L) 64	73.0	12.7	114

Square Flange (SF)



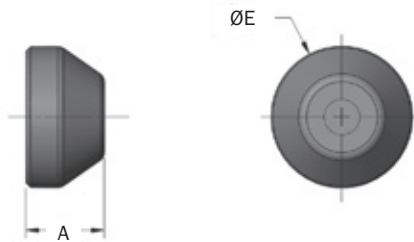
Catalog No./Model	Model	FC mm	FH mm	SA mm	SB mm	Bolt Size mm	Weight g
SF M42 x 1.5	EK(L) 42	8.6	12.7	57.2	41.4	M8	140
SF M64 x 2	EK(L) 64	10.4	15.7	90.0	89.0	M10	570

Rectangular Flange (RF)



Catalog No./ Model	Model	FC mm	FH mm	RD mm	RE mm	SA mm	SB mm	Bolt Size mm	Weight g
RF M42 x 1.5	EK(L) 42	8.6	12.7	60.5	76.2	57.2	41.4	M8	260

Urethane Striker Cap (UC)



Catalog No./ Model	Model	A mm	E mm	Weight g
UC 2940	EK(L) 42	24.5	44.5	14
UC 3010	EK(L) 64	24.1	57.0	23



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: EK 36x25

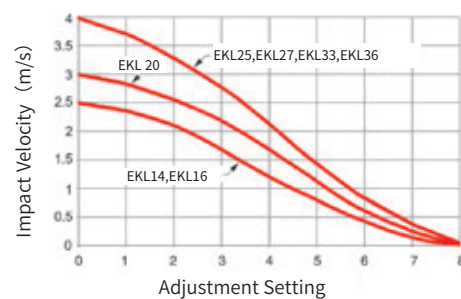
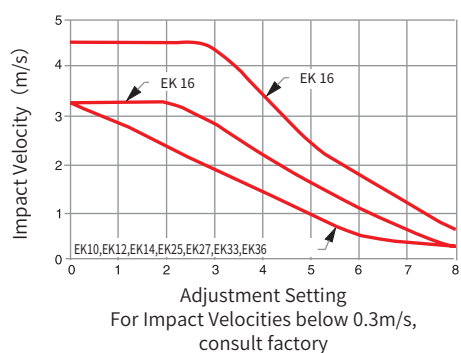
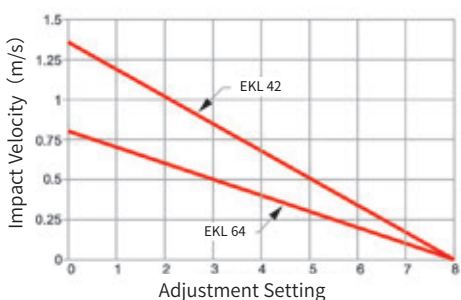
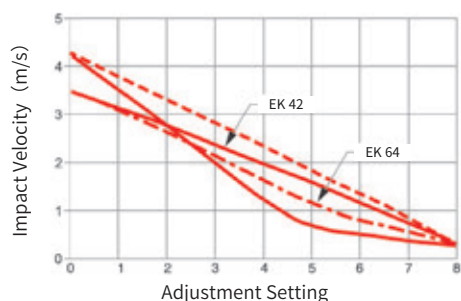
1. Impact Velocity: 1.0m/s
2. Intersection Point: Adjustment Setting 5
3. Useable Adjustment Setting Range: 0 to 5

Example : EKL 64x50

1. Impact Velocity: 0.5m/s
2. Intersection Point: Adjustment Setting 3
3. Useable Adjustment Setting Range: 0 to 3

Useable Adjustment Setting Range

Position 0 provides minimum damping force
Position 8 provides maximum damping force



360°adjustment with setscrew locking
EK 42 and EK 64



360°adjustment with setscrew locking
EKL 42 and EKL 64



180°adjustment with setscrew
locking
EK 10 - EK 20



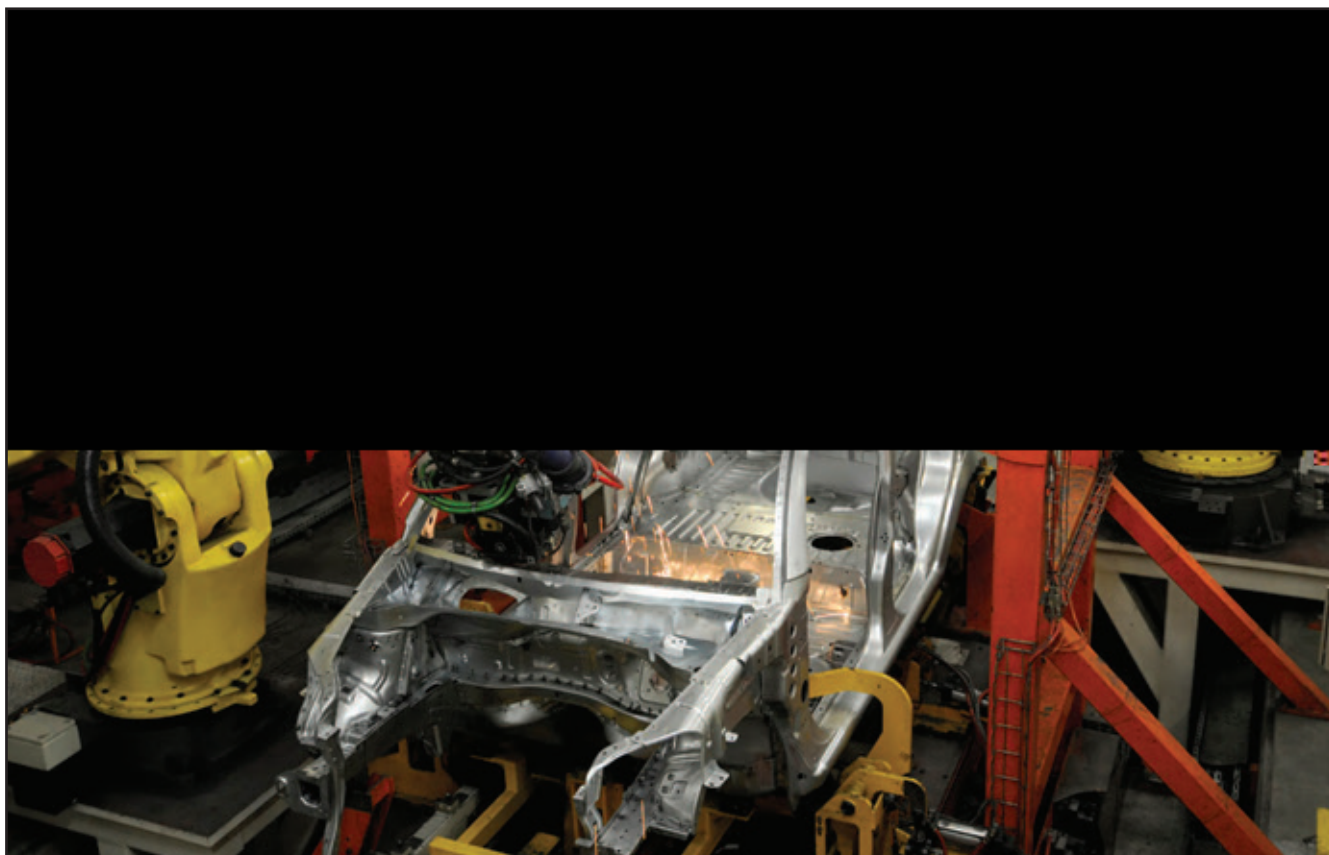
360°adjustment with setscrew locking
EK 25 and EK 27



180°adjustment with setscrew
locking
EKL 14 - EKL 20



360°adjustment with setscrew locking
EKL 25 and EKL 27



Automotive Manufacturing Applications



Bottling Applications



Industrial Automation Applications



EKD Non-Adjustable Hydraulic Shock Absorber was designed of an integrated and non-detachable unit, powerful, compact and reliable, with high energy absorption efficiency. This series product has very long working life up to 25-30 million life cycles with excellent performance stability. Non-adjustable shock absorber is widely used for absorbing the impact and shock energy on high-frequency, precision equipments and provides perfect safety stop.

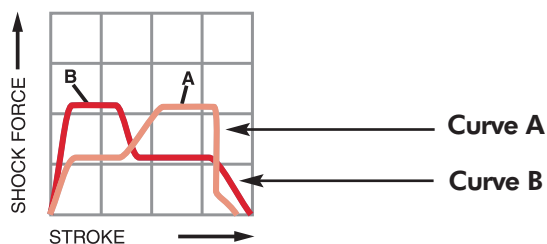
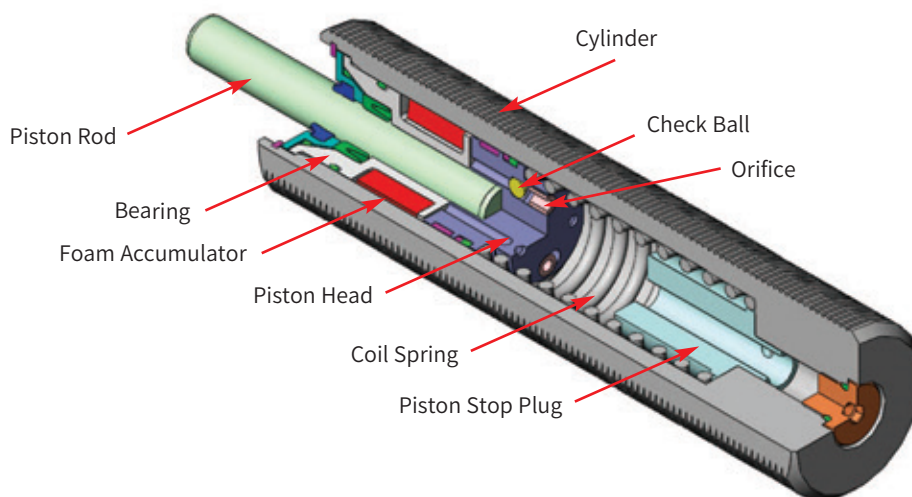
EN Series Non-adjustable Hydraulic Shock Absorber comes with a self-compensating design, it can accommodate high range and high frequency conditions, while energy absorption performance in low range and high shock conditions is ensured. Surface finishes with nickel plating processing provides excellent corrosion resistance protection.

New all stainless steel products are available, including 304 series, 316 series and 316L series.

Features and Benefits

- Extensive non-adjustable product line offers flexibility in both size and energy absorption capacity to fulfill a wide range of application requirements.
- Tamperproof design ensures repeatable performance and super long service life.
- Special materials and finishes can be designed to meet specific customer requirements.
- Incorporating optional fluids and seal packages can expand the standard operating temperature range from (-10°C-80°C) to (-40°C-100°C) .
- Threaded cylinders provide mounting flexibility and increase surface area for improved heat dissipation.
- A select variety of surface finishes maintains original quality appearance and provides the longest corrosion resistance protection.
- ISO quality standards ensure reliable, long-life operation and very high batch stability.

EKD Non-Adjustable multiple orifice shock absorbers



Self-compensating damping

Self-compensating damping maintains acceptable deceleration with conventional type damping characteristics. Self-compensating shock absorbers operate over a wide range of weights and velocities. These shock absorbers are well suited for high drive force, low velocity applications, and where energy conditions may change. Curve A shows the shock force vs stroke curve of a self-compensating shock absorber impacted with a low velocity and high drive force. Curve B shows the shock force vs stroke curve of a self-compensating shock absorber impacted with a high velocity and low drive force.

The design of a multi-orifice shock absorber features a double cylinder arrangement with space between the concentric shock tube and cylinder, and a series of orifice holes drilled down the length of the shock tube wall.

During piston movement, the check ring is seated and oil is forced through the orifices in the shock tube wall, into the closed cellular foam accumulator and behind the piston head.

As the piston head moves, it closes off orifice holes,

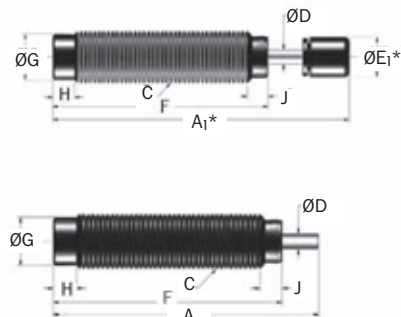
thus reducing the available orifice area in proportion to the velocity. After the load is removed the coil spring pushes the piston rod outward. This unseats the check ring and permits the oil to flow from the accumulator and across the piston head, back into the shock tube. This allows quick repositioning for the next impact.

Low Pressure multiple orifice shock absorbers can provide progressive or self-compensating damping, depending on the impact conditions.

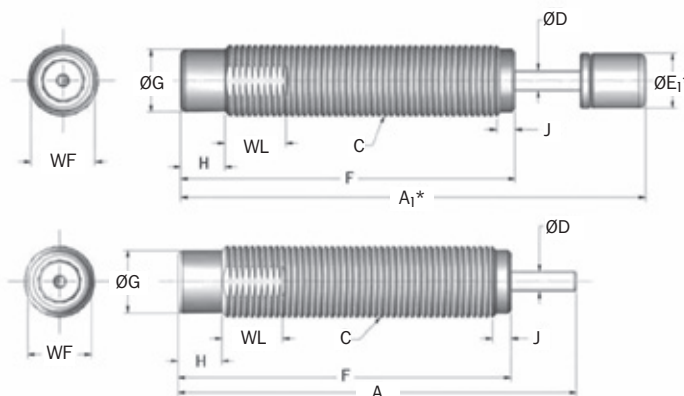
Standard

EN 8 → EN 27 Series

EN 8 → EN 10 Series



EN 12 → EN 27 Series



Note: A1 and E1 apply to button models.

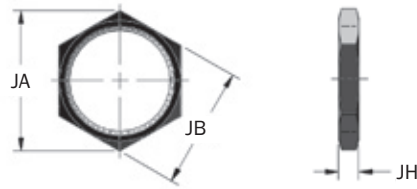
Catalog No./Model	(S) Stroke mm	(ET) Max Energy Nm/C	(ETC) Max Energy Nm/h	(FP) Max Reaction Force N	Nominal Coil Spring Force		(FD) Max Propelling Force N	Weight g
					Extended N	Compressed N		
EN 8x6 (B)	6.4	4.0	6 215	890	2.7	5.6	200	16
EN 10x7 (B)	7.0	7.0	13 640	1 600	2.2	4.5	350	28
EN 12x10 (B)	10.4	12.0	31 020	2 000	3.0	7.0	220	56
EN 14x12 (B)	12.7	24.0	37 400	2 800	4.5	11.0	890	68
EN 14x16 (B)	16.0	30.0	44 000	2 800	4.5	11.0	890	68
EN 20x12 (B)	12.7	32.0	49 720	3 750	6.0	15.0	1 600	123
EN 20x22 (B)	22.0	62.0	59 070	3 750	8.9	30.0	1 600	136
EN 25x25 (B)	25.0	105.0	77 000	5 500	13.0	27.0	2 200	297
EN 27x25 (B)	25.0	105.0	77 000	5 500	13.0	27.0	2 200	297

Catalog No./Model	Damping Constant	A mm	A1 mm	C mm	D mm	E1 mm	F mm	G mm	H mm	J mm	WF mm	WL mm
EN 8x6 (B)	-1.-2.-3	47.0	57.0	M8 x 1.0	2.5	6.8	40.9	6.6	4.6	2.5	—	—
EN 10x7 (B)	-1.-2.-3	54.0	64.0	M10 x 1.0	3.0	8.6	46.5	8.6	4.6	3.3	—	—
EN 12x10 (B)	-1.-2.-3	62.2	72.4	M12 x 1.0	3.0	10.2	52.1	9.9	6.9	2.5	11.0	9.5
EN 14x12 (B)	-1.-2.-3	82.7	92.2	M14 x 1.5	4.0	11.2	69.5	10.9	5.1	1.0	.50	12.7
EN 14x16 (B)	-1.-2.-3	97.5	107.2	M14 x 1.5	4.0	11.2	81.3	10.9	7.6	1.0	.50	12.7
EN 20x12 (B)	-1.-2.-3	87.9	99.9	M20 x 1.5	4.8	12.7	74.4	16.3	7.6	1.0	18.0	12.7
EN 20x22 (B)	-1.-2.-3	118.4	130.3	M20 x 1.5	4.8	12.7	95.5	16.3	7.6	1.0	18.0	12.7
EN 25x25 (B)	-1.-2.-3	128.8	141.5	M25 x 1.5	6.4	15.7	102.6	22.0	12.7	4.6	23.0	12.7
EN 27x25 (B)	-1.-2.-3	128.8	141.5	M27 x 3.0	6.4	15.7	102.6	22.0	12.7	4.6	23.0	12.7

Note: Please see page28-29 for damping constant curves.

EN 8 → EN 27 Series

Jam Nut (JN)

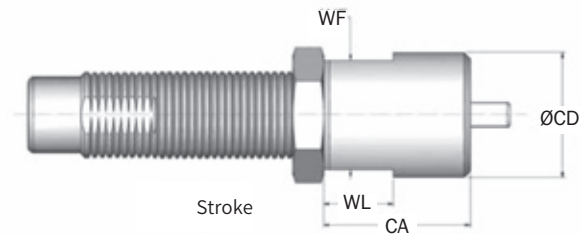


Catalog No./ Model	Model	JA mm	JB mm	JH mm	Weight g
JN M8 x 1	EN 8x6 (B)	14.0	12.0	4.0	2
JN M10 x 1	EN 10x7 (B)	17.3	15.0	4.0	2
JN M12 x 1	EN 12x10 (B)	15.0	13.0	3.2	2
JN M14 x 1.5	EN 14x12/16 (B)	19.7	17.0	4.0	3
JN M20 x 1.5	EN 20x12/22 (B)	27.7	24.0	4.6	9
JN M25 x 1.5	EN 25x25 (B)	37.0	32.0	4.6	15
JN M27 x 3	EN 27x25 (B)	37.0	32.0	4.6	15

EN

Stop Collar (SC)

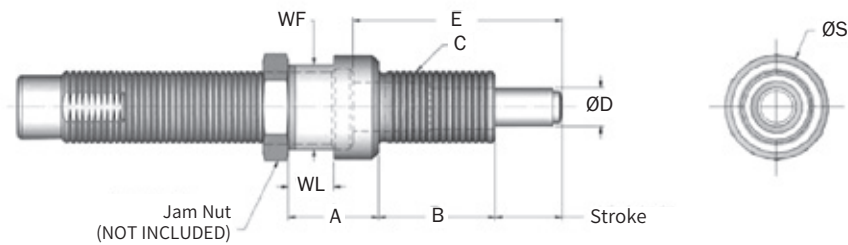
EN8 → EN27



Catalog No./ Model	Model	CA mm	CB mm	CD mm	WF mm	WL mm	Weight g
SC M8 x 1	EN 8x6 (B)	19.0	12.0	14.0	—	—	23
SC M10 x 1	EN 10x7 (B)	19.0	—	14.3	—	—	11
SC M12 x 1	EN 12x10 (B)	19.0	—	16.0	14.0	9.0	14
SC M14 x 1.5	EN 14x12/16 (B)	25.4	—	21.0	19.0	12.0	38
SC M20 x 1.5	EN 20x12/22 (B)	38.0	—	25.0	22.0	12.0	63
SC M25 x 1.5	EN 25x25 (B)	44.5	—	38.0	32.0	15.0	215
SC M27 x 3	EN 27x25 (B)	44.5	—	38.0	32.0	15.0	215

EN 8 → EN 27 Series

Side Load Adaptor (SLA)

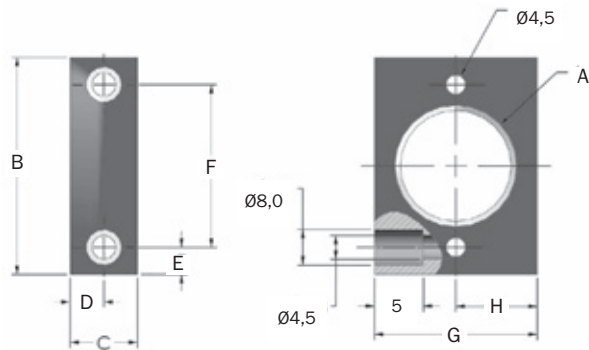


Catalog No./Model	Model	Stroke mm	A mm	B mm	C mm	D mm	E mm	S mm	WF mm	WL mm
SLA 10 MF	EN 10x7 (B)	6.4	12	11	M10 x 1	5.0	21.9	13.0	11.0	4.0
SLA 12 MF	EN 12x10 (B)	10.0	18	14	M12 x 1	6.0	32.4	14.0	13.0	7.0
SLA 14 MC	EN 14x16 (B)	12.7	20	16	M14 x 1.5	8.0	39.2	18.0	15.0	7.0
SLA 14 MCS	EN 14x12 (B)	12.7	20	16	M14 x 1.5	8.0	39.2	18.0	15.0	7.0
SLA 20 MC	EN 20x22 (B)	22.0	32	17	M20 x 1.5	11.0	62.0	25.0	22.0	7.0
SLA 20 MCS	EN 20x12 (B)	12.7	24	14	M20 x 1.5	11.0	41.5	25.0	22.0	7.0
SLA 25 MF	EN 25x25 (B)	25.4	38	30	M25 x 1.5	15.0	73.2	36.0	32.0	7.0
SLA 25 MC	EN 27x25 (B)	25.4	38	30	M27 x 3	15.0	73.2	36.0	32.0	10.0

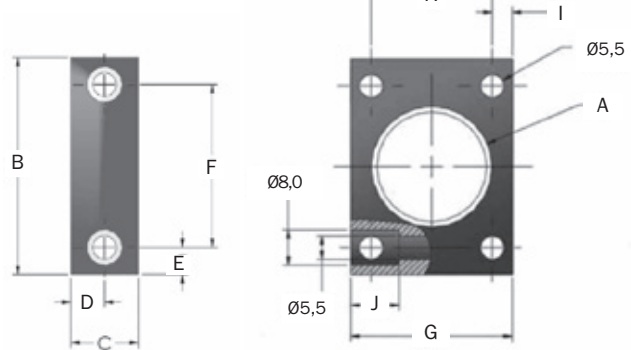
Note: Maximum sideload angle is 30°

Universal Retaining Flange (Small Bore) (UF)

UF M10 x 1 → UF M14 x 1,5



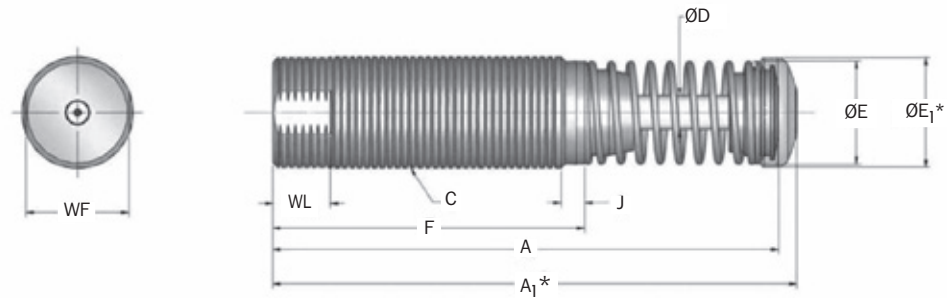
UF M20 x 1,5 → UF M27 x 3



Catalog No./Model	Model	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm
UF M10 x 1	EN 10x7 (B)	M10 x 1	38.0	12.0	6.0	6.25	25.5	25.0	12.5	—	5.0	—
UF M12 x 1	EN 12x10 (B)	M12 x 1	38.0	12.0	6.0	6.25	25.5	25.0	12.5	—	5.0	—
UF M14 x 1.5	EN 14x12/16 (B)	M14 x 1.5	45.0	16.0	8.0	5.0	35.0	30.0	15.0	—	5.0	—
UF M20x 1.5	EN 20x12/22 (B)	M20 x 1.5	48.0	16.0	8.0	6.5	35.0	35.0	—	4.75	10.0	25.5
UF M25 x 1.5	EN 25x25 (B)	M25 x 1.5	48.0	16.0	8.0	6.5	35.0	35.0	—	4.75	10.0	25.5
UF M27 x 3	EN 27x25 (B)	M27 X 3	48.0	16.0	8.0	6.5	35.0	35.0	—	4.75	10.0	25.5

EN 33 → EN 36 Series

Standard



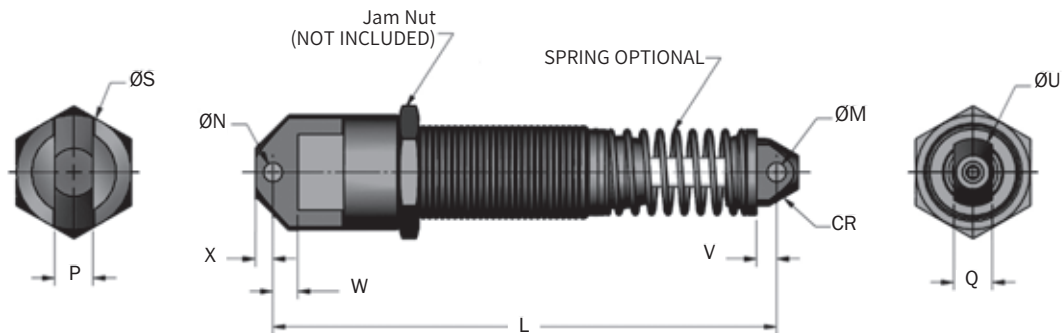
Note: A1 and E1 apply to button models.

Catalog No./Model	(S) Stroke mm	(ET) Max Energy Nm/C	(ETC) Max Energy Nm/h	(FP) Max Reaction Force N	Nominal Coil Spring Force		(FD) Max Propelling Force N	Weight g
					Extended N	Compressed N		
EN 33x25 (B)	25.0	160.0	75 700	11 120	56.0	89.0	3 100	482
EN 36x25 (B)	25.0	160.0	91 000	11 120	56.0	89.0	3 100	595
EN 33x50 (B)	50.0	310.0	90 300	11 120	31.0	89.0	3 100	652
EN 36x50 (B)	50.0	310.0	111 000	11 120	31.0	89.0	3 100	765

Catalog No./Model	Damping Constant	A mm	A1 mm	C mm	D mm	E mm	E1 mm	F mm	J mm	WF mm	WL mm
EN 33x25 (B)	-1.-2.-3	140.2	145.3	M33 x 1.5	9.5	29.0	30.5	87.0	5.3	30.0	16.0
EN 36x25 (B)	-1.-2.-3	140.2	145.3	M36 x 1.5	9.5	29.0	30.5	87.0	5.3	33.0	16.0
EN 33x50 (B)	-1.-2.-3	207.0	212.0	M33 x 1.5	9.5	29.0	30.5	128.0	5.3	30.0	16.0
EN 36x50 (B)	-1.-2.-3	207.0	212.0	M36 x 1.5	9.5	29.0	30.5	128.0	5.3	33.0	16.0

EN 33 → EN 36 Series

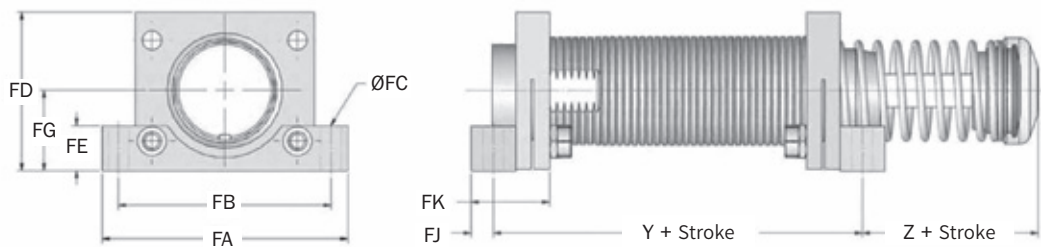
CLEVIS MOUNT



Catalog No./Model	L mm	M +0.005/-0.000 mm	N +0.005/-0.000 mm	P +0.000/-0.010 mm	Q +0.000/-0.010 mm	S mm	U mm	V mm	W mm	X mm	CR mm	Weight Kg
EN 33x25 CM(S)	167	6.38	6.38	12.70	12.70	38	23	6	12	6.1	11.2	0.59
EN 36x25 CM(S)	234	6.38	6.38	12.70	12.70	38	23	6	12	6.1	11.2	0.77
EN 33x50 CM(S)	180	6.38	6.38	12.70	12.70	38	22	6	24	6.0	11.2	0.73
EN 36x25 CM(S)	230	6.38	6.38	12.70	12.70	38	22	6	24	6.0	11.2	0.86

Note: "S" indicates the model comes with spring

Flange Foot Mount

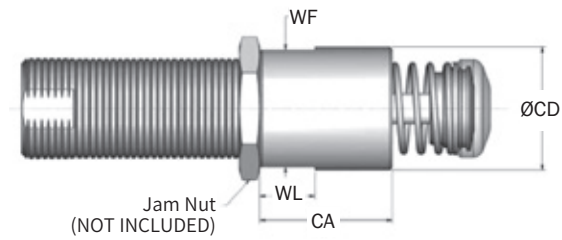


Catalog No./Model	Model	Y mm	Z mm	FA mm	FB mm	FC mm	FD mm	FE mm	FG mm	FJ mm	FK mm	Bolt Size mm	Weight g
FM M33 x 1.5	EN 33	57.2	31.8	70.0	60.3	5.90	45.0	12.7	22.7	6.4	22.2	M5	100
FM M36 x 1.5	EN 36	57.2	31.8	70.0	60.3	5.90	45.0	12.7	22.7	6.4	22.2	M5	100

- Shock absorbers must be ordered separately from foot mount kit.
- All foot mount kits include two foot mounts.

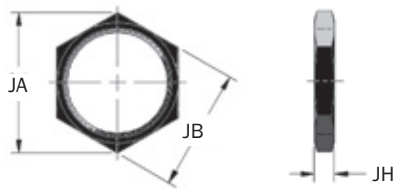
EN 33 → EN 36 Series

Stop Collar (SC)



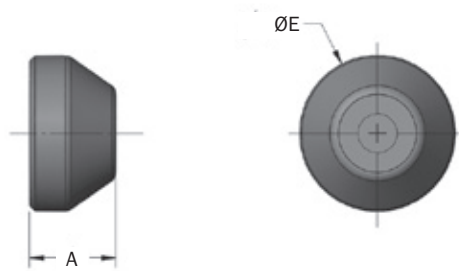
Catalog No./Model	Model	CA mm	CD mm	WF mm	WL mm	Weight g
SC M33 x 1.5	EN 33	41.0	38.0	36.0	17.0	210
SC M36 x 1.5	EN 36	63.5	43.0	41.0	18.0	210

Jam Nut (JN)



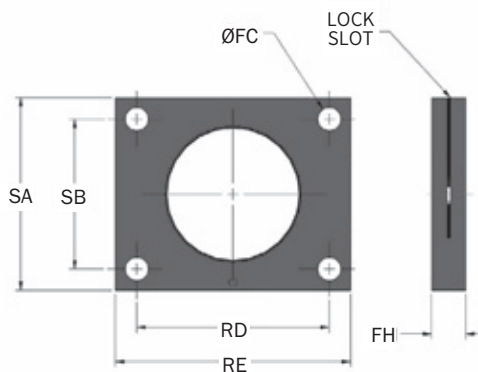
Catalog No./Model	Model	JA mm	JB mm	JH mm	Weight g
JN M33 x 1.5	EN 33	47.3	41.0	6.4	27
JN M36 x 1.5	EN 36	47.3	41.0	6.4	27

Urethane Striker Cap (USC)



Catalog No./Model	Model	A mm	E mm	Weight g
UC 8609	EN 33, EN 36	10.0	30.5	3

Rectangular Flange (RF)

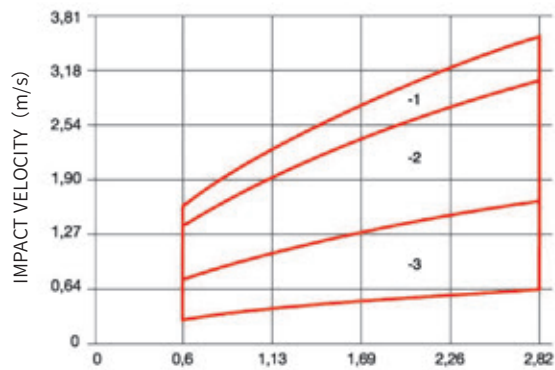


Catalog No./Model	Model	FC mm	FH mm	RD mm	RE mm	SA mm	SB mm	Bolt Size mm	Weight g
RF M33 x 1.5	EN 33	5.5	9.5	41.3	50.8	44.5	28.6	M5	30
RF M36 x 1.5	EN 36	5.5	9.5	41.3	58.8	44.5	28.6	M5	30

EN 8x6 → EN 20x12 Series

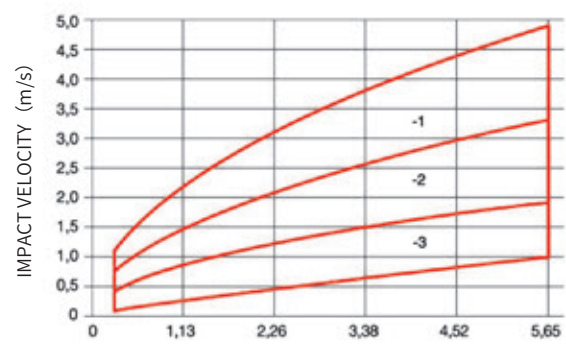
EN 8x6

TOTAL ENERGY (Nm/c)



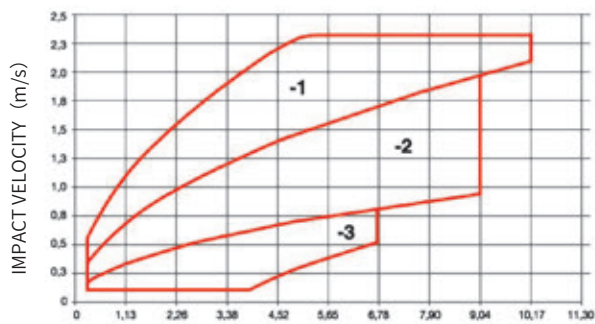
EN 10x7

TOTAL ENERGY (Nm/c)



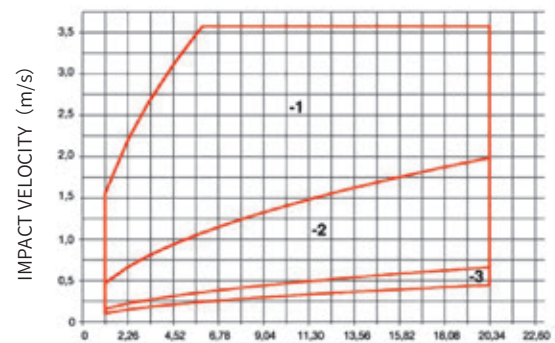
EN 12x10

TOTAL ENERGY (Nm/c)



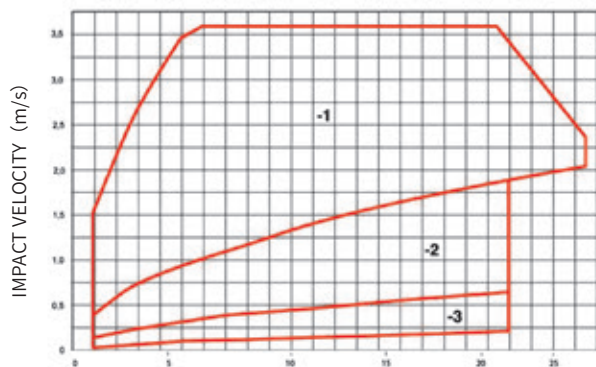
EN 14x12

TOTAL ENERGY (Nm/c)



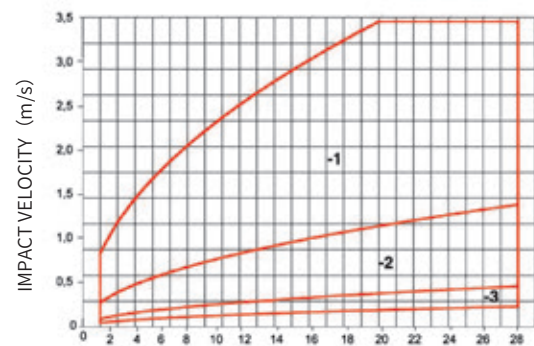
EN 14x16

TOTAL ENERGY (Nm/c)



EN 20x12

TOTAL ENERGY (Nm/c)

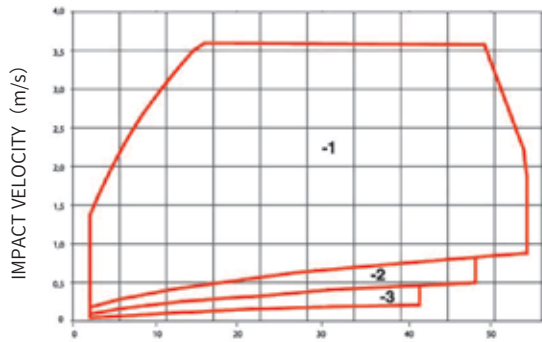


Note: Minimum impact velocity for EN models is 0.1m/sec

EN 20x22 → EN 36x50 Series

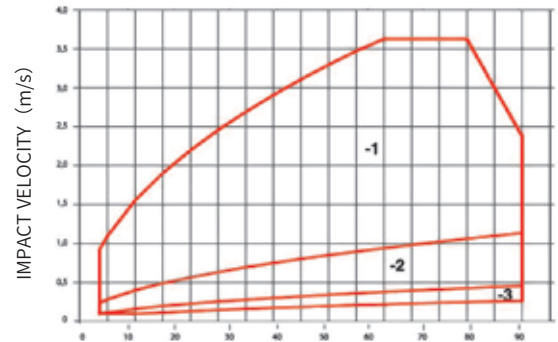
EN 20x22

TOTAL ENERGY (Nm/c)



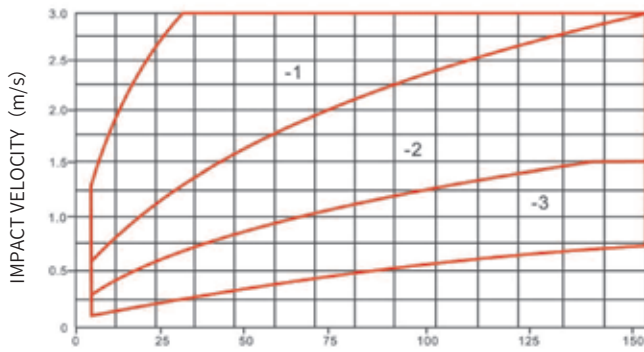
EN 25/27x25

TOTAL ENERGY (Nm/c)



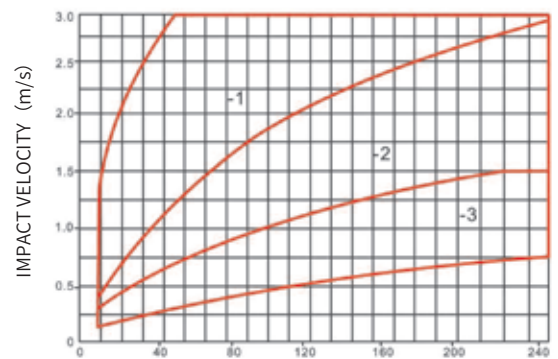
EN 33/36x25

TOTAL ENERGY (Nm/c)



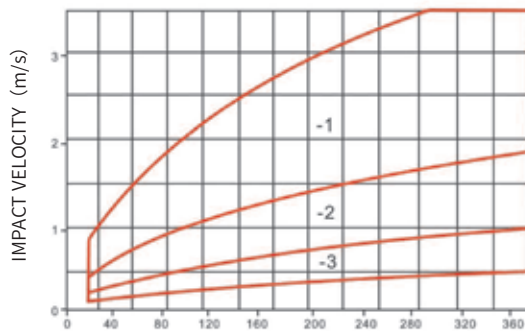
EN 33/36x50

TOTAL ENERGY (Nm/c)



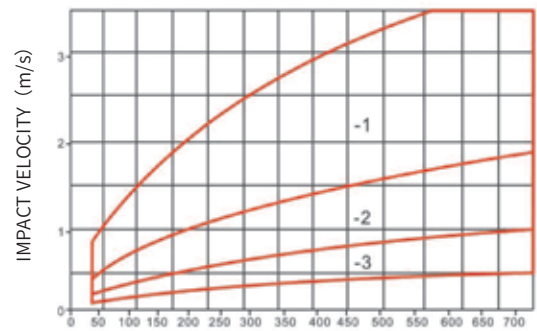
EN 33/36x25

TOTAL ENERGY (Nm/c)



EN 33/36x50

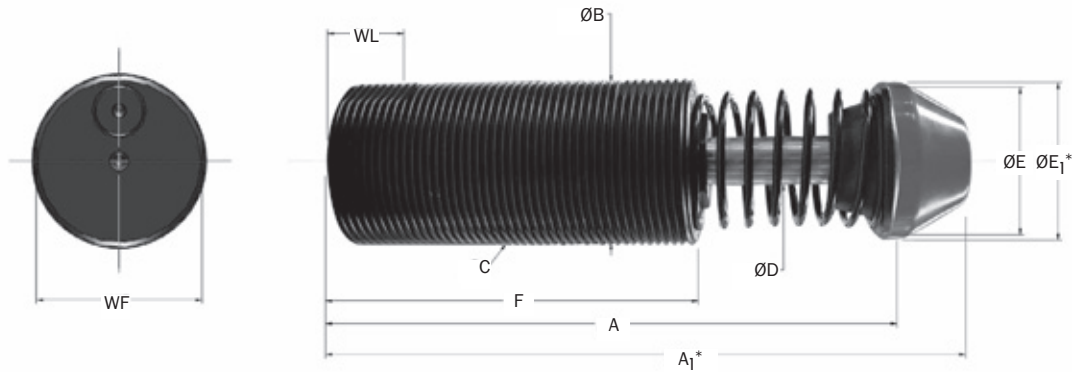
TOTAL ENERGY (Nm/c)



Note: Minimum impact velocity for EN models is 0.1m/sec

EN 45 → EN 64 Series

Standard



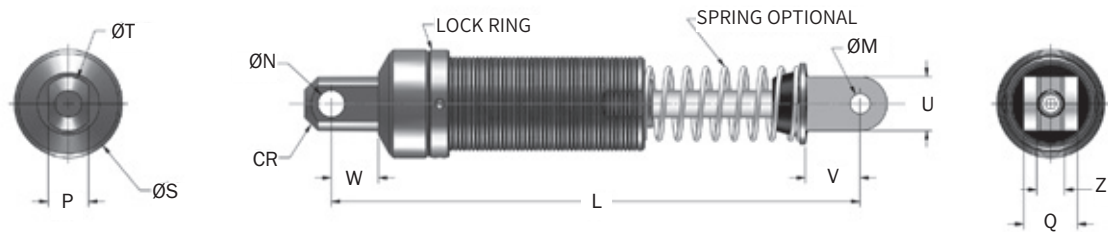
Note: A1 and E1 apply to button models.

Catalog No./ Model	(S) Stroke mm	(ET) Max Energy Nm/C	(ETC) Max Energy Nm/h	(FP) Max Reaction Force N	Nominal Coil Spring Force		(FD) Max Propelling Force N	Weight g
					Extended N	Compressed N		
EN 45x25	25.0	367.0	126 000	29 000	48.0	68.0	6 700	1.0
EN 45x50	50.0	735.0	167 000	29 000	29.0	78.0	6 700	1.1
EN 45x75	75.0	1 130.0	201 000	29 000	31.0	78.0	6 700	1.3
EN 64x50	50.0	1 865.0	271 000	60 500	80.0	155.0	17 800	2.7
EN 64x100	100.0	3 729.0	362 000	60 500	69.0	160.0	17 800	3.3
EN 64x150	150.0	5 650.0	421 000	60 500	87.0	285.0	17 800	4.2

Catalog No./ Model	Damping Constant	A mm	A1 mm	C mm	D mm	E mm	E1 mm	F mm	WF mm	WL mm
EN 45x25	-1.-2.-3	144.0	162.0	MF M45 x 1.5	12.7	38.0	44.5	92.0	43.5	19.0
EN 45x50	-1.-2.-3	195.0	213.0	MF M45 x 1.5	12.7	38.0	44.5	118.0	43.5	19.0
EN 45x75	-1.-2.-3	246.0	264.0	MF M45 x 1.5	12.7	38.0	44.5	143.0	43.5	19.0
EN 64x50	-1.-2.-3	226.0	243.0	MF M64 x 2.0	19.0	50.0	57.0	140.0	61.5	19.0
EN 64x100	-1.-2.-3	328.0	345.0	MF M64 x 2.0	19.0	50.0	57.0	191.0	61.5	19.0
EN 64x150	-1.-2.-3	956.0	473.0	MF M64 x 2.0	19.0	60.0	60.0	241.0	61.5	19.0

EN 45 → EN 64 Series

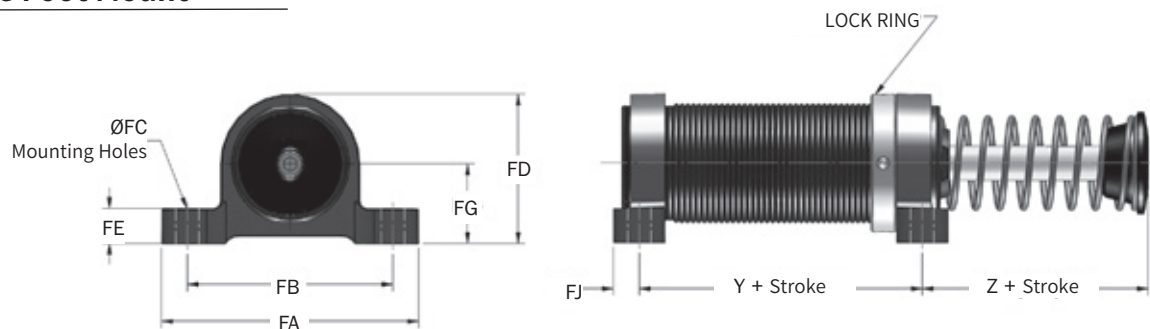
Clevis Mount



Catalog No./ Model	L mm	M +0.13/-0.00 mm	N +0.13/-0.00 mm	P +0.00/-0.25 mm	Q +0.00/-0.25 mm	S mm	T mm	U mm	V mm	W mm	Z +0.51/-0.00 mm	CR mm	Weight Kg
EN 45x25 (MCS)	199	9.60	12.70	19.00	25.4	51	25	25	26	22	12.9	14.3	1.36
EN 45x50 (MCS)	250	9.60	12.70	19.00	25.4	51	25	25	26	22	12.9	14.3	1.45
EN 45x75 (MCS)	300	9.60	12.70	19.00	25.4	51	25	25	26	22	12.9	14.3	1.63
EN 64x50 (MCS)	306	19.07	19.07	31.70	38.0	73	38	38	35	26	16.0	23.0	3.72
EN 64x100 (MCS)	408	19.07	19.07	31.70	38.0	73	38	38	35	26	16.0	23.0	4.22
EN 64x150 (MCS)	537	19.07	19.07	31.70	38.0	73	38	38	35	26	16.0	23.0	5.08

Note: "S" indicates the model comes with spring

Flange Foot Mount

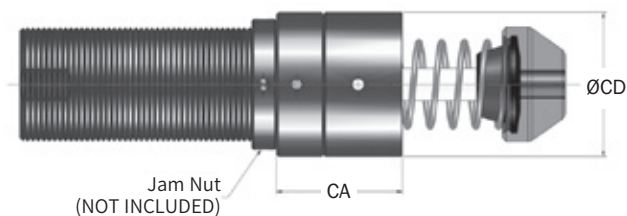


Catalog No./ Model	Model	Y mm	Z mm	FA mm	FB mm	FC mm	FD mm	FE mm	FG mm	FJ mm	Bolt Size mm	Weight g
FM M45 x 1.5	EN 45	60.5	26.9	95.3	76.2	8.60	55.0	12.7	29.5	9.7	M8	370
FM M64 x 2	EN 64	76.2	39.6	143.0	124.0	10.40	85.6	16.0	44.5	11.2	M10	1 050

Note:
1. EN 64x50 Z dimension is 68.3mm
2. Shock absorbers must be ordered separately from foot mount kit.
3. All foot mount kits include two foot mounts and lock ring.

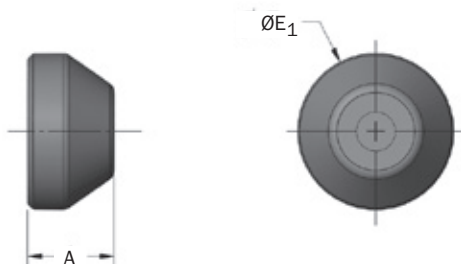
EN 45 → EN 64 Series

Stop Collar (SC)



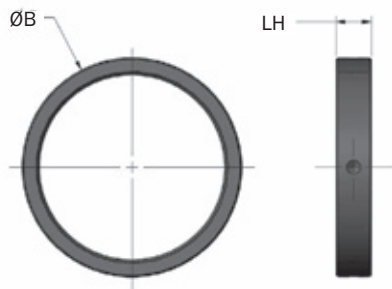
Catalog No./Model	Model	CA mm	CD mm	Weight g
SC M45 x 1.5	EN 45	49.0	56.5	340
SC M64 x 2 x 2	EN 64x50	89.0	76.0	936
SC M64 x 2 x 4	EN 64x100	114.0	76.0	1 191
SC M64 x 2 x 6	EN 64x150	143.0	76.0	1 475

Urethane Striker Cap (USC)



Catalog No./Model	Model	A mm	E1 mm	Weight g
UC 2940	EN 45	24.5	44.5	14
UC 3010	EN 64	24.0	57.0	23

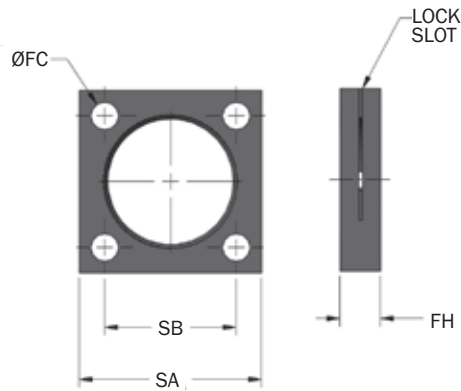
LOCK RING (LR)



Catalog No./Model	Model	B mm	LH mm	Weight g
LR M45 x 1.5	EN 45	57.2	9.5	75
LR M64 x 2	EN 64	72.9	12.7	85

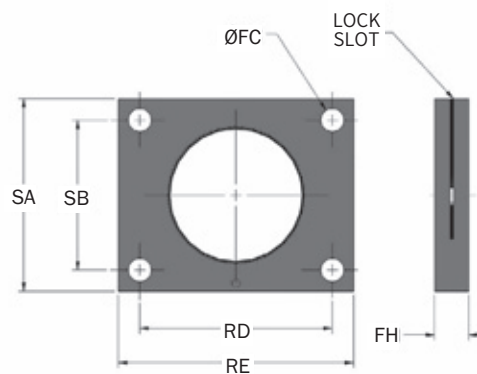
EN 45 → EN 64 Series

Square Flange (SF)



Catalog No./ Model	Model	FC mm	FH mm	SA mm	SB mm	Bolt Size mm	Weight g
SF M45 x 1.5	EN 45	8.6	12.7	57.2	41.3	M8	140
SF M64 x 2	EN 64	10.4	15.7	85.1	69.9	M10	570

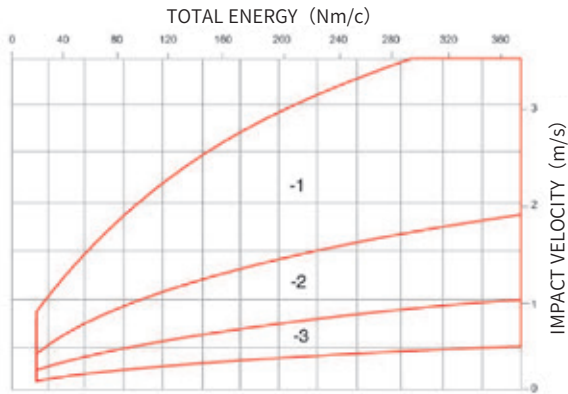
Rectangular Flange (RF)



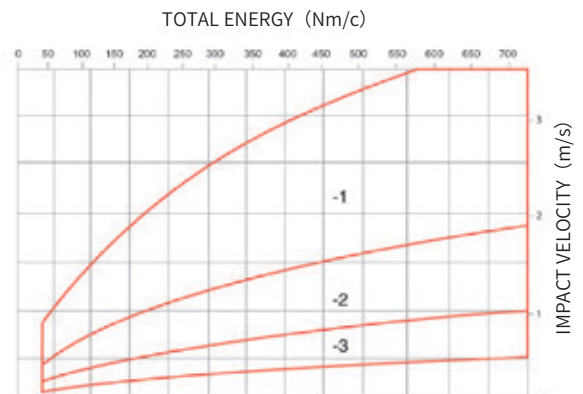
Catalog No./ Model	Model	FC mm	FH mm	RD mm	RE mm	SA mm	SB mm	Bolt Size mm	Weight g
RF M45 x 1.5	EN 45	8.6	12.7	60.5	76.2	57.2	41.4	M8	260

EN 45 → EN 64 Series

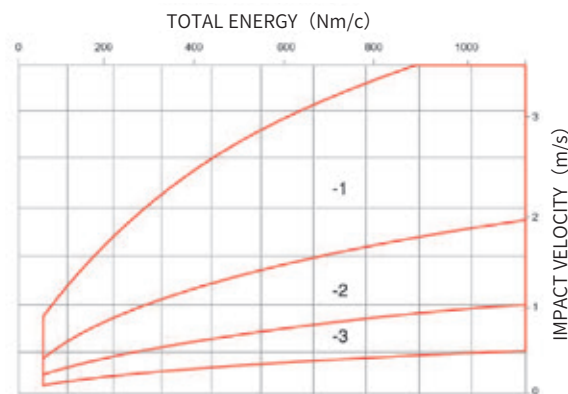
EN 45x25



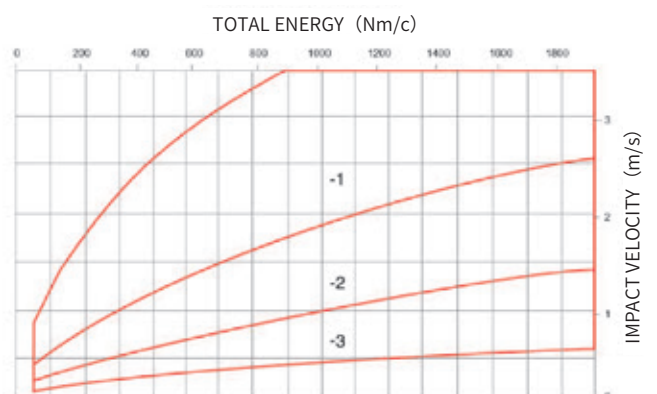
EN 45x50



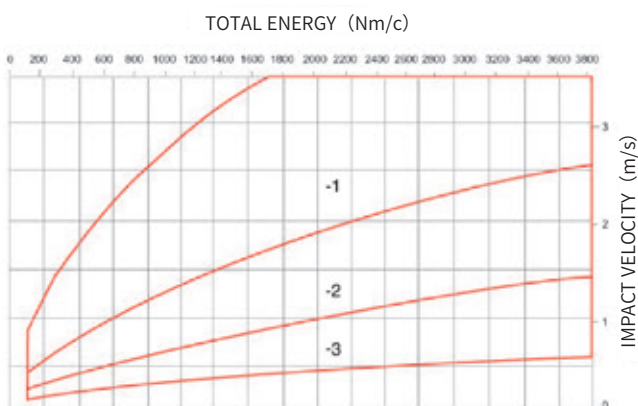
EN 45x75



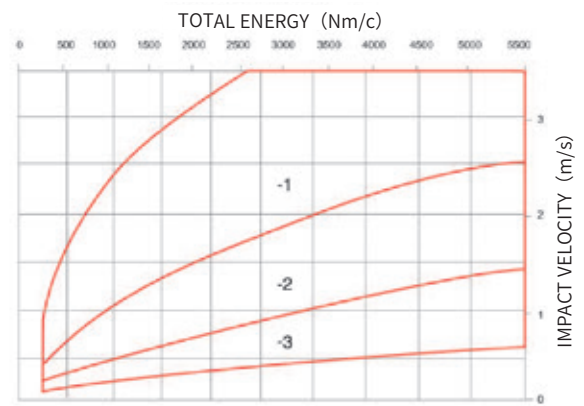
EN 64x50



EN 64x100



EN 64x150



Note: Minimum impact velocity for EN models is 0.1m/sec



Factory Automation Applications



Food Processing Applications



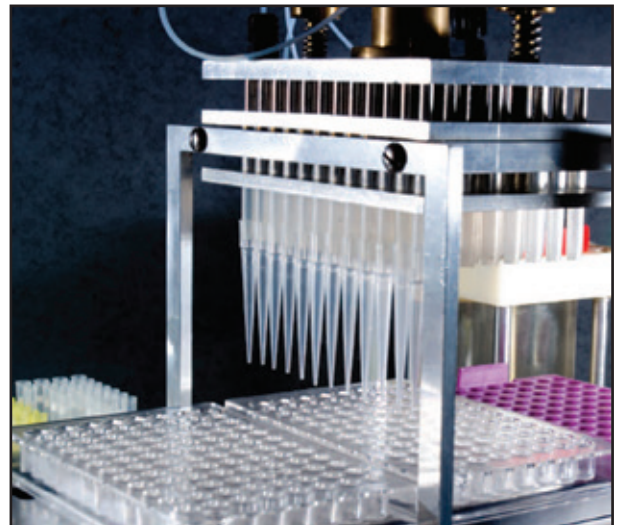
Factory Automation Applications



Robotics Applications



Conveyor Systems Applications



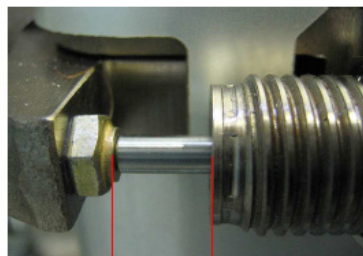
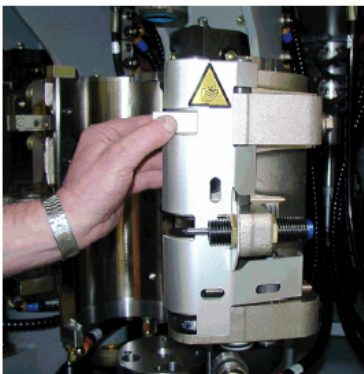
Medical Laboratory Applications



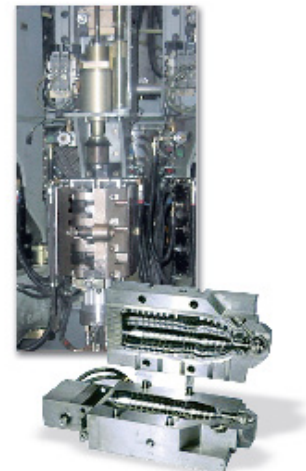
Features and Benefits

EKD Non-Adjustable Super Long Service Life Series Shock Absorbers ES Series was specially designed for harsh application environments. It provides super long service life and super high endurance capacity. This series product was designed of an integrated unit, completely maintenance-free, with very long working life up to 25 million life cycles. It is widely used in precision mechanical damping like beverage packaging industry which has very stringent requirements for product quality and service life.

We have researched and developed a variety of customized products based on clients' different needs, to fit clients' machinery perfectly. Currently we have developed dozens of products in different specifications and models. The newest all stainless steel product is particularly suitable for applications in harsh environment.

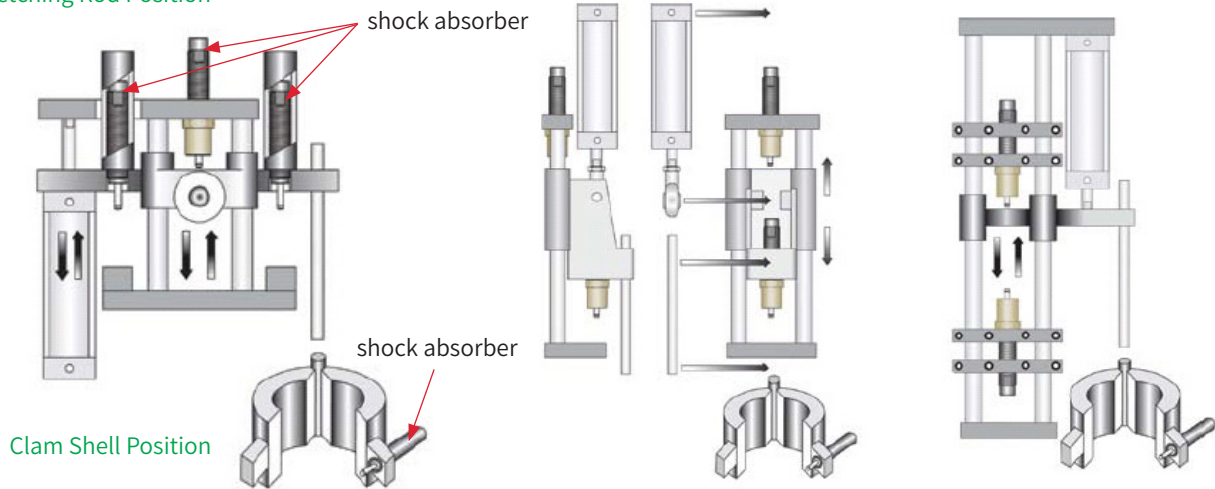


Adjust stroke length as needed



Mounting diagram of shock absorbers in
Beverage Industry

Stretching Rod Position



Clam Shell Position

Catalog No./Model	Model	Mounting Position	Service Life	Suggested Optimal Operation Stroke	Piston Rod Length (Max. Stroke)	Mounted Thread	Total Length	Note
ES18373	Cold Filling	Clam Shell / Stretching	15 million	19 mm	26.2 mm	M27 x 3.0	141.4 mm	with cap
ES18374	Hot Filling	Clam Shell / Stretching	15 million	19 mm	26.2 mm	M27 x 3.0	128.8 mm	no cap
ES18294	Hot Filling	Clam Shell / Stretching	20 million	13 mm	26.2 mm	M27 x 3.0	144.6 mm	with cap
ES18295	Hot Filling	Mold Clamping Position	15 million	8 mm	14.8 mm	M20 x 1.5	103.9 mm	with cap
ES18212	Universal	Clam Shell / Stretching	20 million	19 mm	26.2mm	M25 x 1.5	141.4 mm	with cap
ES18213	Universal	Clam Shell / Stretching	25 million	19 mm	19.2mm	M25 x 1.5	137.6 mm	with cap
ES18363	Hot Filling	Mold Clamping Position	15 million	4 mm	19.2 mm	M27 x 3.0	121.8 mm	no cap
ES18062	Hot Filling	Stretching Rod Position	15 million	11 mm	19.2 mm	M27 x 3.0	133.8 mm	no cap
ES18983	Universal	Mold Clamping Position	15 million	5 mm	13.2 mm	M14 x 1.5	90.7 mm	with cap
ES18983F-BN	Universal	Mold Clamping Position	15 million	5 mm	13.2 mm	M14 x 1.0	82.7 mm	Special cap
ES18985	Universal	Mold Clamping Position	15 million	4 mm	10.1 mm	M12 x 1.0	72.4 mm	with cap

Catalog No./Model	(S) Stroke mm	Optimal velocity range m/s	(E _T) Max Energy Nm/C	(E _T C) Max Energy Nm/h	(F _P) Max Reaction Force N	Nominal Coil Spring Force		(F _D) Max Propelling Force N	Weight g
						Extended N	Compressed N		
ES18373	19 mm	1.2—5.5	95	142500	6000	13	27	2600	290
ES18374	19 mm	1.2—4.5	110	198000	6000	13	27	2600	280
ES18294	13 mm	1.2—4.5	110	198000	6000	13	27	2600	297
ES18295	8 mm	1.2—4.5	65	117000	3900	8.9	30	1800	136
ES18212	19 mm	1.2—4.5	105	189000	6000	13	27	2600	297
ES18213	19 mm	1.2—4.5	110	198000	6000	13	27	2600	297
ES18363	4 mm	1.2—4.5	110	198000	6000	13	27	2600	280
ES18062	11 mm	1.2—4.5	110	198000	6000	13	27	2600	280
ES18983	5 mm	1.5—5.0	30	54000	3000	4.5	11	950	68
ES18983F-BN	5 mm	1.5—5.0	30	54000	3000	4.5	11	950	68
ES18985	4 mm	1.5—5.5	16	28800	2200	3	7	300	56

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