

Stacker Crane *and* Crane Bumper

*Safety Industrial Shock Absorbers
for Emergency Applications*



Enertrols[®]

WORLDWIDE SPECIALISTS IN ADVANCED
LINEAR DECELERATION TECHNOLOGY

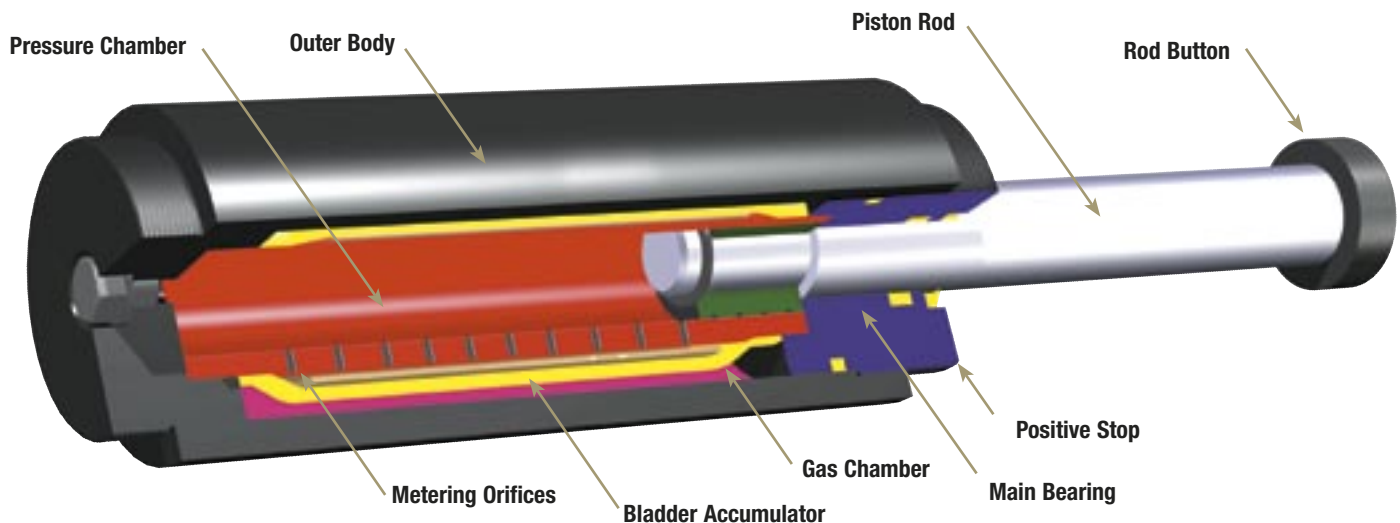
Enertrols Stacker Crane Shock Absorbers (ESCS Series) are designed primarily for emergency applications to improve the performance and safe operation of equipment such as automated storage and retrieval systems. During normal operation, the shock absorbers are required to provide only minimal resistance, but are designed to function under full load conditions when necessary. In an emergency condition, when the velocity of the system carriage is greater than normal, the ESCS shock absorber responds to protect the installation by providing controlled deceleration.

In the normal ready condition the piston rod is fully extended. When the impacting load strikes the absorber, the hydraulic oil behind the piston is forced out through a series of metering orifices. The number of metering orifices in action reduces proportionally through the stroke and the load velocity is thereby smoothly reduced to zero. The internal pressure and thus the reaction force remains constant throughout the entire stroke length. The displaced oil is stored in the bladder accumulator. The integrated gas chamber, containing low pressure nitrogen, provides the return force to reset the rod to its extended position and functions as an accumulator for the hydraulic oil displaced during operation.

Applications include: automated storage and retrieval systems, automotive manufacturing and production equipment, theme park rides, and small overhead cranes.



Stacker Crane Shock Absorbers ESCS-38 to 63

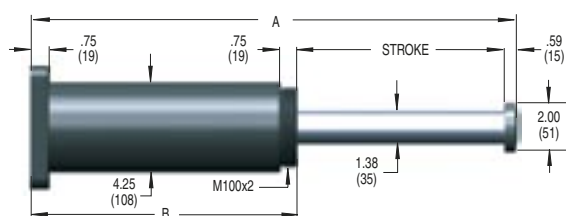


Ordering Information

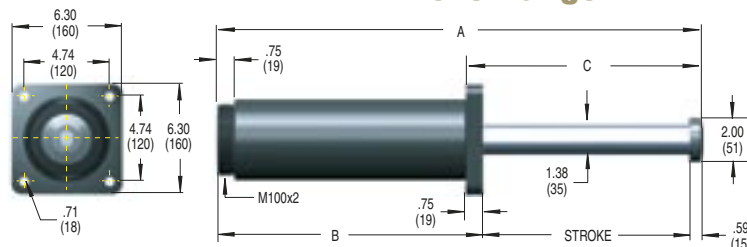
ESCS-38-200-F- -X

ESCS Series	Bore Diameter (mm)	Stroke Length (mm)	Flange Location	Application Number	Specials
Stacker Crane Shock Absorbers	38	50	F Front Flange		Environmental Finish
	50	100	R Rear Flange		Custom Flanges
	63	150	S Side Mount		Fluid
		200			
		250			
		300			
		1000			
		1200			

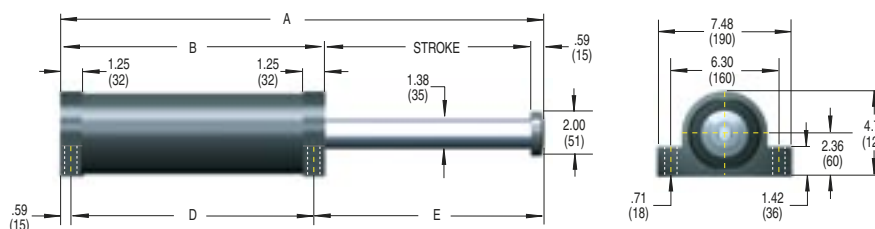
Rear Flange



Front Flange



Side Mount



Dimensions in inches (millimeters)

Model	Stroke	A	B	C	D	E	E ₃ Energy per Cycle in lbs (kJNm)	We Effective Weight Range lbs (kg)	Shipping Weight lbs (kg) F&R S
ESCS-38-50	1.97 (50)	10.63 (270)	8.07 (205)	3.31 (84)	6.89 (175)	3.15 (80)	32,000 (3.6)	750-19,600 (340-8,900)	27.3 (12.4) 29.1 (13.2)
ESCS-38-100	3.94 (100)	14.57 (370)	10.04 (255)	5.28 (134)	8.77 (225)	5.21 (132)	64,000 (7.2)	1,500-39,200 (680-17,800)	32.0 (14.5) 33.8 (15.4)
ESCS-38-150	5.91 (150)	18.50 (470)	12.01 (305)	7.24 (184)	10.83 (275)	7.08 (180)	96,000 (10.8)	2,250-58,900 (1,020-26,700)	35.9 (16.3) 37.8 (17.1)
ESCS-38-200	7.87 (200)	22.44 (570)	13.98 (355)	9.21 (234)	12.80 (325)	9.05 (230)	127,000 (14.4)	3,000-78,500 (1,360-35,600)	39.9 (18.1) 41.7 (18.9)
ESCS-38-250	9.84 (250)	26.38 (670)	15.94 (405)	11.18 (284)	14.77 (375)	11.02 (280)	159,000 (18.0)	3,750-97,900 (1,700-44,400)	43.8 (19.9) 45.6 (20.7)
ESCS-38-300	11.81 (300)	30.91 (785)	18.50 (470)	13.15 (334)	17.33 (440)	12.99 (330)	191,000 (21.6)	4,500-117,500 (2,040-53,300)	48.9 (22.2) 50.7 (23.0)
ESCS-38-350	13.78 (350)	34.84 (885)	20.47 (520)	15.12 (384)	19.29 (490)	14.96 (380)	223,000 (25.2)	5,250-137,100 (2,380-62,200)	52.8 (23.9) 54.6 (24.8)
ESCS-38-400	15.75 (400)	39.37 (1,000)	23.03 (585)	17.09 (434)	21.85 (555)	16.93 (430)	255,000 (28.8)	6,000-156,700 (2,720-711,000)	57.9 (26.2) 59.7 (27.1)
ESCS-38-500	19.69 (500)	47.83 (1,215)	27.56 (700)	21.02 (534)	26.38 (670)	20.56 (530)	319,000 (36.0)	7,500-196,000 (3,400-88,900)	66.9 (30.3) 68.7 (31.2)
ESCS-38-600	23.62 (600)	56.30 (1,430)	32.09 (815)	24.96 (634)	30.91 (785)	24.80 (630)	382,000 (43.2)	8,990-235,200 (4,080-106,700)	75.9 (34.4) 77.7 (35.3)
ESCS-38-700	27.56 (700)	64.76 (1,645)	36.61 (930)	28.90 (734)	35.43 (900)	28.74 (730)	446,000 (50.4)	10,490-274,300 (4,760-124,400)	84.9 (38.5) 86.7 (39.3)
ESCS-38-800	31.50 (800)	73.23 (1,860)	41.14 (1,045)	32.83 (834)	39.97 (1,015)	32.67 (830)	510,000 (57.6)	11,990-313,500 (5,440-142,200)	93.9 (42.6) 95.7 (43.4)

Technical Data

Maximum force: 18,000 lbs (80 kN)

Impact velocity range: 3-15 ft/sec (0.9 to 4.6 m/s)

Minimum return force: 45 lbs. (0.2 kN)

Operating temperature: 10° to 150°F (-12°C to 66°C)
(Consult factory for optional ranges).

Oil type: ATF

Custom environmental protection options of paint, plating, rod bellows, etc. are available. Consult factory for your specific needs.

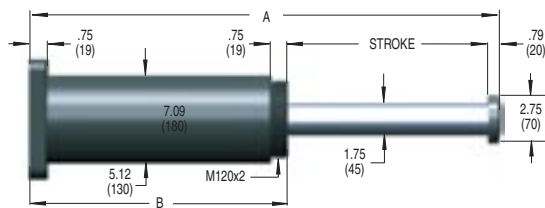
Note: Buttons are standard on all stacker crane shock absorbers.

Note: An integral mechanical stop is built into the front of all units.

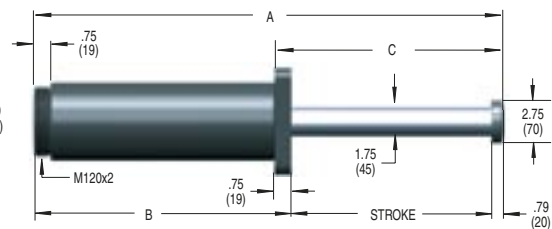
All stacker crane shock absorbers have special orifice designs and must be sized per application.

Note: All dimensions and tolerance values listed in this catalog are nominal and subject to change without prior notice.

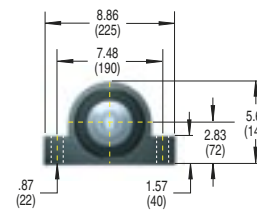
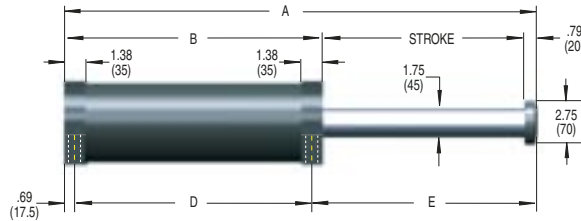
Rear Flange



Front Flange



Side Mount



Dimensions in inches (millimeters)

Model	Stroke	A	B	C	D	E	E ₃	We	Shipping Weight	
							Energy per Cycle in lbs (kJNm)	Effective Weight Range lbs (kg)	lbs (kg)	S
ESCS-50-100	3.94 (100)	15.35 (390)	10.63 (270)	5.47 (139)	9.25 (235)	5.41 (138)	124,000 (14)	2,950-172,000 (1,340-78,000)	48.1 (21.8)	51.3 (23.3)
ESCS-50-150	5.91 (150)	19.29 (490)	12.60 (320)	7.44 (189)	11.22 (285)	7.38 (188)	186,000 (21)	4,430-258,000 (2,010-117,000)	53.7 (24.4)	57.0 (25.8)
ESCS-50-200	7.87 (200)	23.23 (590)	14.57 (370)	9.41 (239)	13.19 (335)	9.35 (238)	248,000 (28)	5,910-344,000 (2,680-156,000)	59.1 (26.8)	62.3 (28.3)
ESCS-50-250	9.84 (250)	27.17 (690)	16.54 (420)	11.38 (289)	15.16 (385)	11.32 (288)	310,000 (35)	7,390-428,000 (3,350-194,000)	64.9 (29.4)	68.1 (30.9)
ESCS-50-300	11.81 (300)	31.69 (805)	19.09 (485)	13.35 (339)	17.71 (450)	13.29 (338)	372,000 (42)	8,860-514,000 (4,020-233,000)	71.6 (32.5)	74.9 (34.0)
ESCS-50-350	13.78 (350)	35.63 (905)	21.06 (535)	15.31 (389)	19.69 (500)	15.25 (387)	434,000 (49)	10,340-600,000 (4,690-272,000)	77.2 (35.0)	80.4 (36.5)
ESCS-50-400	15.75 (400)	40.16 (1,020)	23.62 (600)	17.28 (439)	22.25 (565)	17.22 (438)	496,000 (56)	11,820-686,000 (5,360-311,000)	84.2 (38.2)	87.5 (39.7)
ESCS-50-500	19.69 (500)	48.62 (1,235)	28.15 (715)	21.22 (539)	26.77 (680)	21.16 (538)	620,000 (70)	14,750-858,000 (6,690-389,000)	96.8 (43.9)	100.1 (45.4)
ESCS-50-600	23.62 (600)	57.09 (1,450)	32.68 (830)	25.16 (639)	31.30 (795)	25.10 (638)	743,000 (84)	17,700-1,030,000 (8,030-467,000)	109.4 (49.6)	112.7 (51.1)
ESCS-50-700	27.56 (700)	65.55 (1,665)	37.20 (945)	29.09 (739)	35.83 (910)	29.03 (737)	867,000 (98)	20,660-1,199,000 (9,370-544,000)	122.0 (55.3)	125.2 (56.8)
ESCS-50-800	31.50 (800)	74.02 (1,880)	41.73 (1,060)	33.03 (839)	40.36 (1,025)	32.97 (838)	991,000 (112)	23,590-1,371,000 (10,700-622,000)	134.6 (61.0)	137.8 (62.5)
ESCS-50-1000	39.37 (1,000)	90.94 (2,310)	50.79 (1,290)	40.91 (1,039)	49.40 (1,255)	40.85 (1,038)	1,239,000 (140)	29,540-1,715,000 (13,400-778,000)	159.7 (72.4)	163.0 (73.9)

Technical Data

Maximum force: 36,000 lbs (160 kN)

Impact velocity range: 2-15 ft/sec (0.6 to 4.6 m/s)

Minimum return force: 72 lbs. (0.3 kN)

Operating temperature: 10° to 150°F (-12°C to 66°C)
(Consult factory for optional ranges).

Oil type: ATF

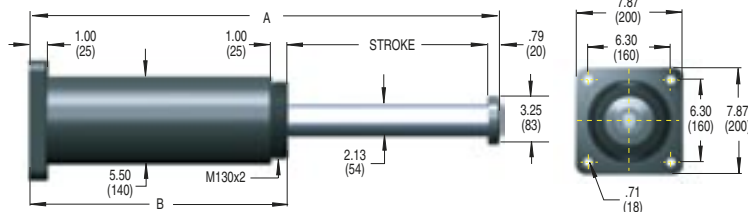
Custom environmental protection options of paint, plating, rod bellows, etc. are available. Consult factory for your specific needs.

Note: Buttons are standard on all stacker crane shock absorbers.

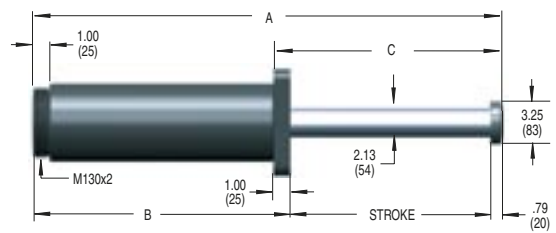
Note: An integral mechanical stop is built into the front of all units.

All stacker crane shock absorbers have special orifice designs and must be sized per application.

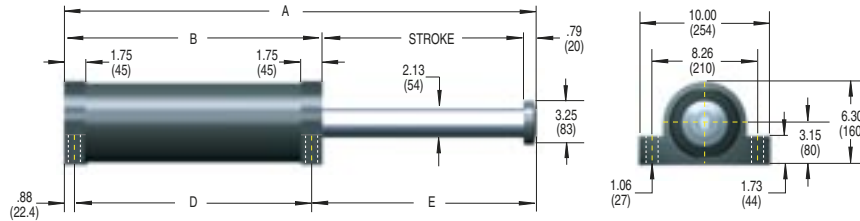
Rear Flange



Front Flange



Side Mount



Dimensions in inches (millimeters)

Model	Stroke	A	B	C	D	E	E ₃ Energy per Cycle in lbs (kJm)	W _e Effective Weight Range lbs (kg)	Shipping Weight lbs (kg) F&R S
ESCS-63-100	3.94 (100)	15.94 (405)	11.22 (285)	5.71 (145)	9.47 (241)	5.59 (142)	159,000 (18)	3,750-317,000 (1,700-144,000)	62.8 (28.5) 71.2 (32.3)
ESCS-63-150	5.91 (150)	19.88 (505)	13.19 (335)	7.68 (195)	11.44 (291)	7.56 (192)	239,000 (27)	5,620-476,000 (2,550-216,000)	69.6 (31.6) 78.0 (35.4)
ESCS-63-200	7.87 (200)	23.82 (605)	15.16 (385)	9.65 (245)	13.41 (341)	9.53 (242)	319,000 (36)	7,500-635,000 (3,400-288,000)	76.4 (34.6) 84.7 (38.4)
ESCS-63-250	9.84 (250)	27.76 (705)	17.13 (435)	11.61 (295)	15.39 (391)	11.49 (292)	398,000 (45)	9,370-794,000 (4,250-360,000)	83.2 (37.7) 91.6 (41.5)
ESCS-63-300	11.81 (300)	31.69 (805)	19.09 (485)	13.58 (345)	17.35 (441)	13.46 (342)	478,000 (54)	11,240-952,000 (5,100-432,000)	90.0 (40.8) 98.3 (44.6)
ESCS-63-350	13.78 (350)	36.42 (925)	21.85 (555)	15.55 (395)	20.11 (511)	15.43 (392)	558,000 (63)	13,120-1,111,000 (5,950-504,000)	99.3 (45.1) 107.7 (48.9)
ESCS-63-400	15.75 (400)	40.35 (1,025)	23.82 (605)	17.52 (445)	22.01 (561)	17.40 (442)	637,000 (72)	15,010-1,270,000 (6,810-576,000)	106.1 (48.1) 114.5 (51.9)
ESCS-63-500	19.69 (500)	49.02 (1,245)	28.54 (725)	21.46 (545)	26.80 (681)	21.34 (542)	797,000 (90)	18,760-1,587,000 (8,510-720,000)	122.3 (55.5) 130.7 (59.3)
ESCS-63-600	23.62 (600)	56.89 (1,445)	32.48 (825)	25.39 (645)	30.74 (781)	25.30 (642)	956,000 (108)	22,510-1,905,000 (10,210-864,000)	135.9 (61.6) 144.2 (65.4)
ESCS-63-700	27.56 (700)	65.55 (1,665)	37.20 (945)	29.33 (745)	35.46 (901)	29.21 (746)	1,115,000 (126)	26,260-2,222,000 (11,910-1,008,000)	152.0 (69.0) 160.4 (72.8)
ESCS-63-800	31.50 (800)	73.43 (1,865)	41.14 (1,045)	33.27 (845)	39.40 (1,001)	33.15 (842)	1,275,000 (144)	29,980-2,540,000 (13,600-1,152,000)	165.6 (75.1) 174.0 (78.9)
ESCS-63-1000	39.37 (1,000)	89.96 (2,285)	49.80 (1,265)	41.14 (1,045)	48.06 (1,221)	41.02 (1,042)	1,593,000 (180)	37,480-3,175,000 (17,000-1,440,000)	195.4 (88.6) 203.7 (92.4)
ESCS-63-1200	47.24 (1,200)	106.50 (2,705)	58.46 (1,485)	49.02 (1,245)	56.72 (1,441)	48.90 (1,242)	1,912,000 (216)	44,970-3,810,000 (20,400-1,728,000)	225.1 (102.1) 233.5 (105.9)

Technical Data

Maximum force: 47,200 lbs (210 kN)

Impact velocity range: 1.6-15 ft/sec (0.5 to 4.6 m/s)

Minimum return force: 106 lbs. (0.5 kN)

Operating temperature: 10° to 150°F (-12°C to 66°C)
(Consult factory for optional ranges).

Oil type: ATF

Custom environmental protection options of paint, plating, rod bellows, etc. are available. Consult factory for your specific needs.

Note: Buttons are standard on all stacker crane shock absorbers.

Note: An integral mechanical stop is built into the front of all units.

All stacker crane shock absorbers have special orifice designs and must be sized per application.

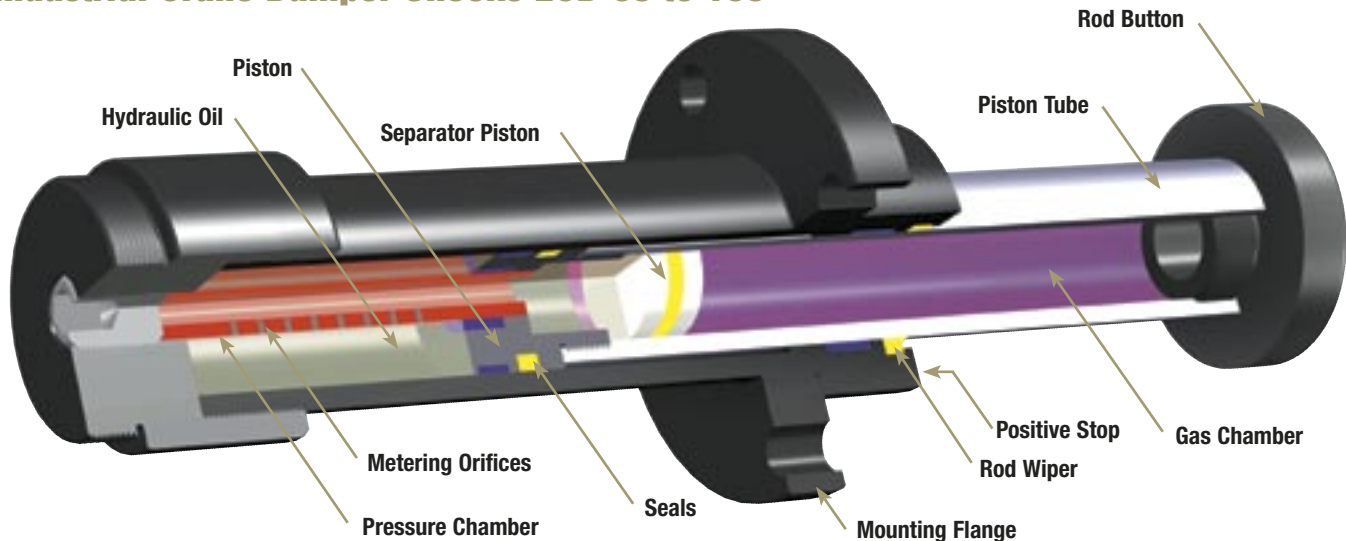
Enertrols ECB Series Heavy Industrial Shock Absorbers are designed for emergency deceleration and improved performance of large industrial equipment. During normal operation at low velocity, the shock absorbers provide minimal pneumatic resistance. In an emergency or high velocity condition, the shock absorbers respond hydraulically to protect the installation from damaging reaction forces by providing controlled deceleration.

Enertrols Crane and Heavy Industrial Shock Absorbers are self-contained devices which utilize multiple orifices to provide controlled linear deceleration while minimizing reaction forces. In the ready and normal position, the piston rod is extended. When the impact load strikes the shock absorber, hydraulic fluid is displaced by a piston through the orifices in the metering tube. As the shock absorber continues through the stroke, the orifices are progressively closed and the velocity is reduced while the kinetic energy is converted to thermal energy. As a result, the load is brought to rest without the high recoil forces and low efficiencies associated with helical springs and rubber bumpers. The displaced oil passes into a gas pressurized piston accumulator located within the piston rod. By controlling the flow of the fluid, the rod is smoothly returned to the extended and ready position for the next cycle.

Applications include: overhead cranes, conveyors, turntables, dockside equipment, steel/foundries, elevators, lumber mills, offshore rigs, bridges and more.



Industrial Crane Bumper Shocks ECB-63 to 160

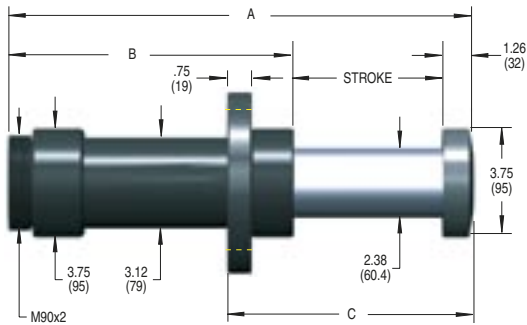


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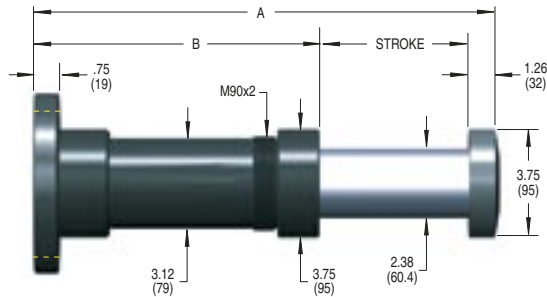
ECB-63-100-F-B- -X

ECB Series	Bore Diameter (mm)	Stroke Length (mm)	Flange Location	Crane Button and Safety Cable	Application Number	Specials
Industrial Crane	63	100	500	F Front Flange		Environmental Finish
Bumper Shock	100	200	600	R Rear Flange		Custom Flanges
	160	300	800	B Optional Larger Button (includes safety cable)		Fluid
		400				

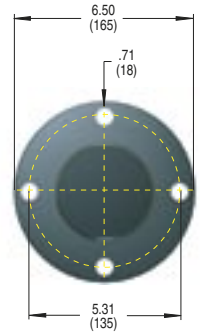
Front Flange



Rear Flange



Flange



Dimensions in inches (millimeters)

Model	Stroke	A	B	C	Rod Return Force lbs (kN)		E ₃ Energy per Cycle in lbs (kNm)	We Effective Weight Range lbs. (kg)	Shipping Weight lbs (kg)
ECB-63-100	3.94 (100)	16.54 (420)	11.34 (288)	7.56 (192)	344 (1.5)	3,669 (16.3)	141,600 (16)	3,330-282,000 (1,510-128,000)	28.0 (12.7)
ECB-63-200	7.87 (200)	27.56 (700)	18.43 (468)	11.50 (292)	344 (1.5)	4,815 (21.4)	283,200 (32)	6,660-564,000 (3,020-256,000)	36.8 (16.7)
ECB-63-300	11.81 (300)	38.58 (980)	25.51 (648)	15.43 (392)	344 (1.5)	5,393 (24.0)	424,800 (48)	10,010-847,000 (4,540-384,000)	45.8 (20.8)
ECB-63-400	15.75 (400)	49.61 (1,260)	32.60 (828)	19.37 (492)	344 (1.5)	5,720 (25.4)	566,400 (64)	13,340-1,129,000 (6,050-512,000)	54.6 (24.8)
ECB-63-500	19.69 (500)	60.63 (1,540)	39.69 (1,008)	23.31 (592)	344 (1.5)	5,949 (26.5)	708,000 (80)	16,670-1,411,000 (7,560-640,000)	63.5 (28.8)

Technical Data

Maximum force: 42,000 lbs. (187 kN)

Impact velocity range: 1.6-15 ft/sec (0.5 to 4.6 m/s)

Minimum return force: 106 lbs. (0.5kN)

Operating temperature: 10° to 150°F (-12°C to 66°C)
(Consult factory for optional ranges).

Oil type: ATF

Note: An integral mechanical stop is built into the front of all units.

Note: Buttons are standard on all industrial crane bumper shock absorbers. Safety cable is optional.

Custom environmental protection options of paint, plating, rod bellows, etc. are available.
Consult factory for your specific needs.

All crane bumper shock absorbers have special orifice designs and must be sized per application.
Enertrols crane bumper shock absorbers are designed to AISE standards.

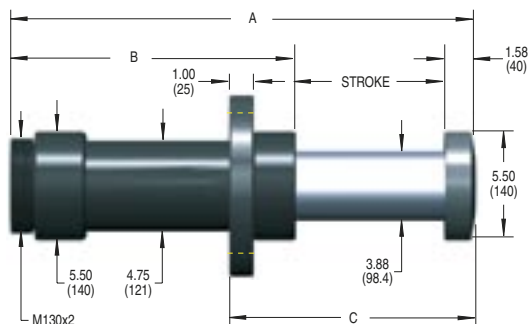
Optional Larger Button

(Optional larger button includes safety cable)

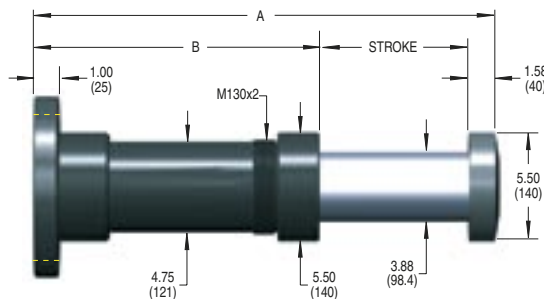
Diameter Z	ECB-63	ECB-100	ECB-160
inch	5.00	7.00	9.00
(mm)	(127)	(178)	(229)



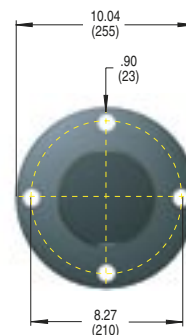
Front Flange



Rear Flange



Flange



Dimensions in inches (millimeters)

Model	Stroke	A	B	C	Rod Return Force		E ₃ Energy per Cycle in lbs (kJNm)	We Effective Weight Range lbs (kg)	Shipping Weight lbs (kg)
					Fully Out	Fully In			
ECB-100-200	7.87 (200)	28.94 (735)	19.49 (495)	12.60 (320)	880 (3.9)	8,850 (39.4)	708,000 (80)	16,670-1,411,000 (7,560-640,000)	93.7 (42.5)
ECB-100-300	11.81 (300)	39.57 (1,005)	26.18 (665)	16.54 (420)	880 (3.9)	11,196 (49.8)	1,062,000 (120)	25,000-2,116,000 (11,340-960,000)	112.1 (50.8)
ECB-100-400	15.75 (400)	50.20 (1,275)	32.87 (835)	20.47 (520)	880 (3.9)	12,912 (57.4)	1,416,000 (160)	33,330-2,822,000 (15,120-1,280,000)	130.4 (59.1)
ECB-100-500	19.69 (500)	60.83 (1,545)	39.57 (1,005)	24.41 (620)	880 (3.9)	14,216 (63.2)	1,770,000 (200)	41,670-3,527,000 (18,900-1,600,000)	148.7 (67.5)
ECB-100-600	23.62 (600)	71.46 (1,815)	46.26 (1,175)	28.35 (720)	880 (3.9)	15,237 (67.8)	2,124,000 (240)	50,000-4,233,000 (22,680-1,920,000)	167.0 (75.8)

Technical Data

Maximum force: 105,000 lbs. (467 kN)

Impact velocity range: 1.6-15 ft/sec (0.5 to 4.6 m/s)

Minimum return force: 106 lbs. (0.5kN)

Operating temperature: 10° to 150°F (-12°C to 66°C)
(Consult factory for optional ranges).

Oil type: ATF

Note: An integral mechanical stop is built into the front of all units.

Note: Buttons are standard on all industrial crane bumper shock absorbers.
Safety cable is optional.

Custom environmental protection options of paint, plating, rod bellows, etc.
are available. Consult factory for your specific needs.

Optional Larger Button

(Optional larger button includes safety cable)

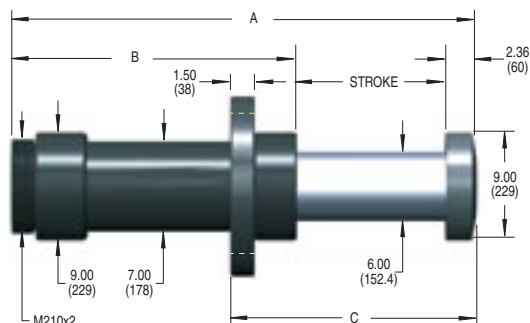
Diameter Z	ECB-63	ECB-100	ECB-160
inch	5.00	7.00	9.00
(mm)	(127)	(178)	(229)



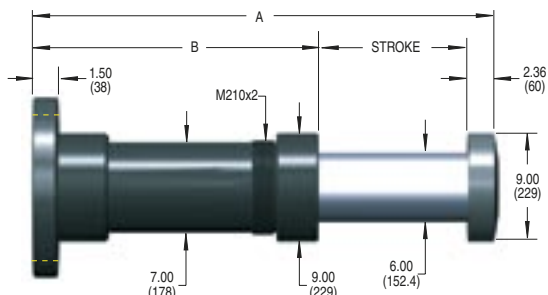
All crane bumper shock absorbers have special orifice designs and must be sized per application.

Enertrols crane bumper shock absorbers are designed to AISE standards.

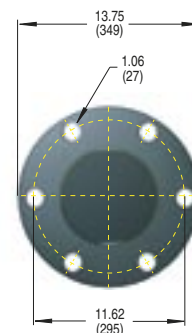
Front Flange



Rear Flange



Flange



Dimensions in inches (millimeters)

Model	Stroke	A	B	C	Rod Return Force lbs (kN) Fully Out Fully In		E ₃ Energy per Cycle in lbs (kNm)	We Effective Weight Range lbs (kg)	Shipping Weight lbs (kg)
ECB-160-400	15.75 (400)	55.12 (1,400)	37.01 (940)	23.62 (600)	2,148 (9.6)	14,124 (62.8)	2,124,000 (240)	50,000-4,233,000 (22,680-1,920,000)	340.9 (154.6)
ECB-160-600	23.62 (600)	78.74 (2,000)	52.76 (1,340)	31.50 (800)	2,148 (9.6)	14,135 (62.9)	3,186,000 (360)	75,000-6,349,000 (34,020-2,880,000)	414.4 (188.0)
ECB-160-800	31.50 (800)	102.36 (2,600)	68.50 (1,740)	39.37 (1,000)	2,148 (9.6)	14,146 (62.9)	4,248,000 (480)	100,000-8,466,000 (45,360-3,840,000)	487.9 (221.3)

Technical Data

Maximum force: 157,000 lbs. (700 kN)

Impact velocity range: 1.6-15 ft/sec (0.5 to 4.6 m/s)

Minimum return force: 106 lbs. (0.5kN)

Operating temperature: 10° to 150°F (-12°C to 66°C)
(Consult factory for optional ranges).

Oil type: ATF

Note: An integral mechanical stop is built into the front of all units.

Note: Buttons are standard on all industrial crane bumper shock absorbers. Safety cable is optional.

Custom environmental protection options of paint, plating, rod bellows, etc. are available. Consult factory for your specific needs.

Optional Larger Button

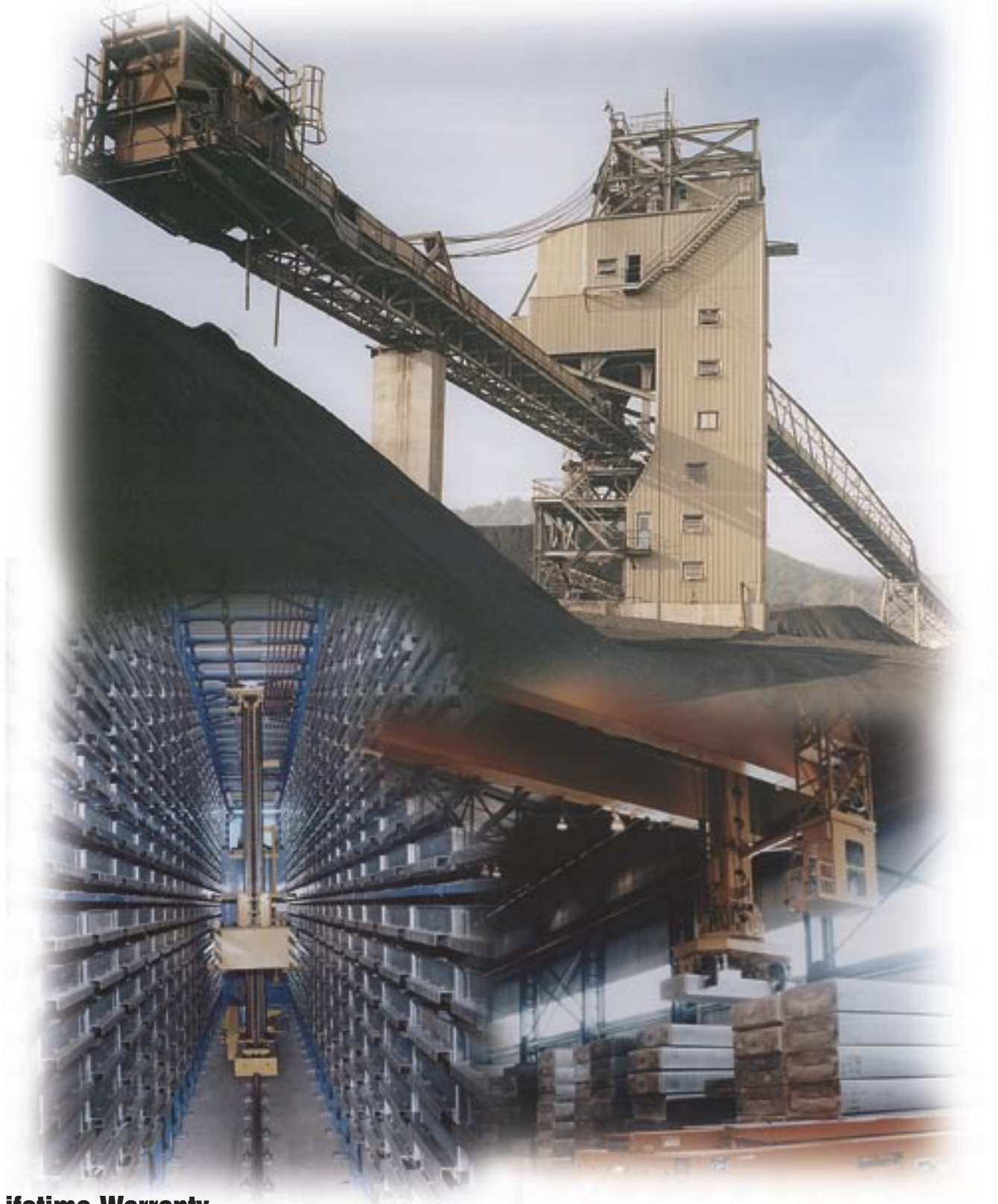
(Optional larger button includes safety cable)

Diameter Z	ECB-63	ECB-100	ECB-160
inch	5.00	7.00	9.00
(mm)	(127)	(178)	(229)



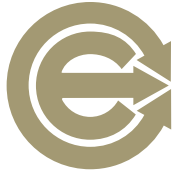
All crane bumper shock absorbers have special orifice designs and must be sized per application.
Enertrols crane bumper shock absorbers are designed to AISE standards.

Automated storage & retrieval systems, overhead cranes and more...



Lifetime Warranty

Enertrols ESCS and ECB products are guaranteed to be free of defects in materials and workmanship. Enertrols will repair or replace any of its products determined to have a defect in materials or workmanship at any time for the life of the product.



***Enertrols*® Other Models** **Industrial Hydraulic Shock Absorbers**

Enertrols has a complete product line with over 100 standard shock absorber models with capacities from 25 to over 1½ million inch-pounds per cycle. Most models can be equipped with internal accumulators as self-contained units, or equipped with external accumulators and air/oil tanks for maximum heat capacity. They are available in both adjustable and non-adjustable types in all of the basic standard mounting styles.

In addition, we offer industry a choice of primary or welded fixed-flange mounting models in most bore and stroke sizes. Special application models, such as our PROX SHOCK™ line equipped with position-sensing electronic proximity switches, the QCM™ (Quick-Change Mount) Models, Standard Long-Stroke Models and designed-to-order specials are also available.



**Gold Line™ Primary
Series 3/4" Bore
Adjustable Shock
Absorbers**

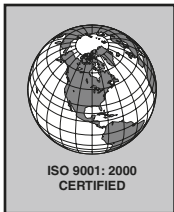


**Gold Line™ Fixed-Flange
Mounting Series 3/4" Bore
Adjustable Shock Absorbers**



**Armor Line™ Non-Adjustable
Miniature Self-Compensating
Shock Absorber**

Quality Assurance



Every component produced for Enertrols products receives inspection coverage to assure conformance with all the requirements, specifications and drawings of our products. Both management and manufacturing, as well as all other personnel, are in complete agreement that the reliability requirements of our products preclude any compromise in the quality of any component part. Enertrols was awarded ISO 9001: 2000 Certification in 2002.

Enertrols engineering department controls all product drawings and specifications with a system that assures the latest information will be available to, and at the time and place of, inspection. Final inspection is performed on all manufactured parts and processes in accordance with applicable purchase orders, work orders, drawings and specifications.

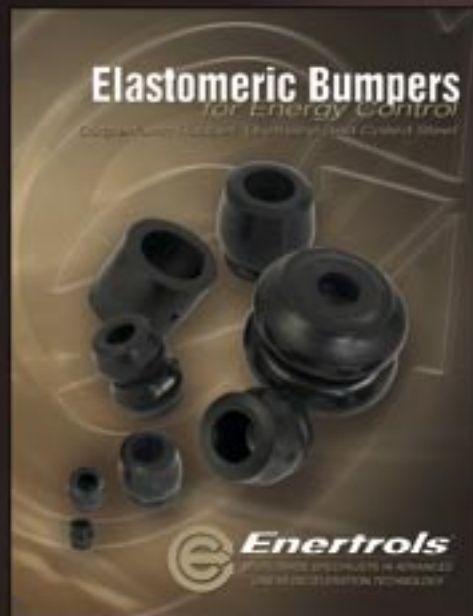
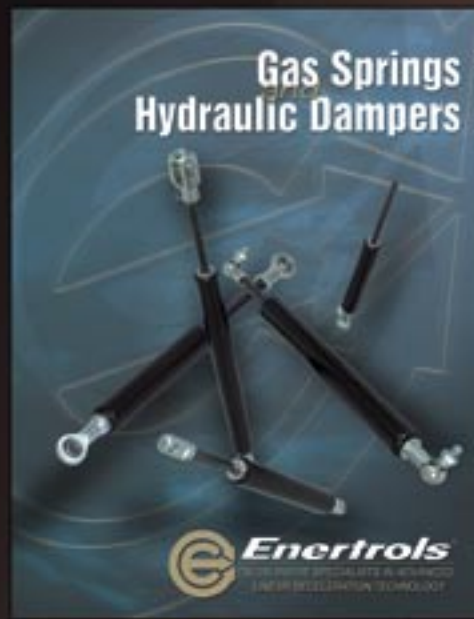
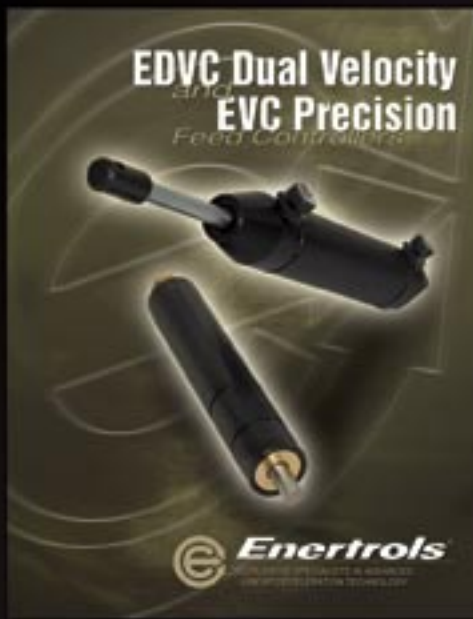
A sampling plan that is in accordance with mil spec MIL-105-D is used by inspectors whenever feasible to assure the acceptance of quality parts only. All completed assemblies and shock absorbers are inspected for quality and performance prior to shipment. Approved units are then properly packaged to prevent damage during transit.



**SILVERLINE™ SASL,
Primary Mount
Shock Absorber
with Rear Flange**



Latest New Products from Enertrols



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