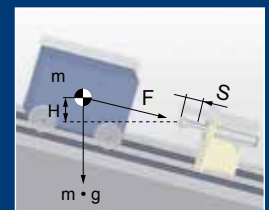


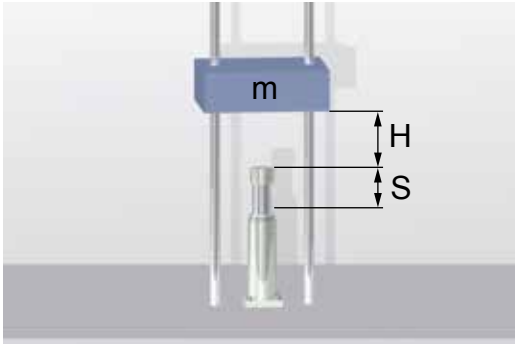
Heavy-Duty Shock Absorbers

ONLINE
Calculation
+ 2D / 3D CAD Download



www.weforma.com

A FALLING MASS



Example

$m = 1000 \text{ kg}$
 $H = 1,5 \text{ m}$
 $S = 0,4 \text{ m}$
 $X = 1/h$
 $n = 1$

Formula & Calculation

$$W_k = m \cdot g \cdot H = 14.715 \text{ Nm}$$

$$W_A = m \cdot g \cdot S = 3.924 \text{ Nm}$$

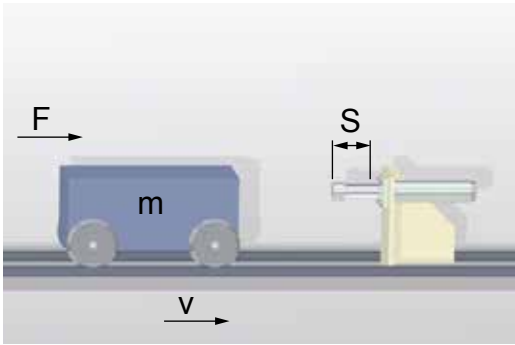
$$W_{kg} = W_k + W_A = 18.639 \text{ Nm}$$

$$W_{kg/h} = W_{kg} \cdot X = 18.639 \text{ Nm/h}$$

Selection

LDS-40-400-XXXX

B LOAD AGAINST SOLID STOP



Example

$m = 40.000 \text{ kg}$
 $v = 2,5 \text{ m/s}$
 $F = 6.000 \text{ N}$
 $S = 0,2 \text{ m}$
 $X = 5/h$
 $n = 2$

Formula & Calculation

$$W_k = \frac{m \cdot v^2}{2} = 125.000 \text{ Nm}$$

with propelling force

$$W_A = F \cdot S = 1.200 \text{ Nm}$$

$$W_{kg} = (W_k + W_A) : n = 63.100 \text{ Nm}$$

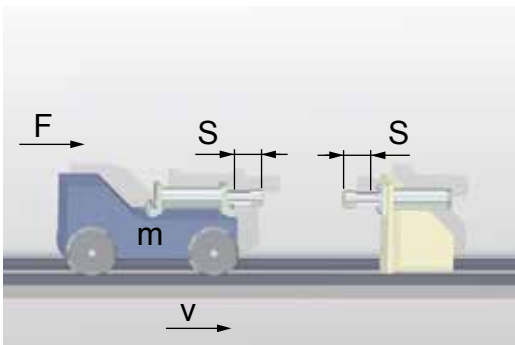
$$W_{kg/h} = W_{kg} \cdot X = 315.500 \text{ Nm/h}$$

$$v_e = v$$

Selection

HLS-100-200-XXXX

J LOAD AGAINST SOLID STOP WITH SHOCK ABSORBERS



Example

$m = 10.000 \text{ kg}$
 $v = 2,6 \text{ m/s}$
 $F = 4.000 \text{ N}$
 $X = 10/h$
 $S = 0,4 \text{ m}$

Formula & Calculation

$$W_k = \frac{m \cdot v^2}{2} : 2 = 16.900 \text{ Nm}$$

with propelling force

$$W_A = F \cdot S = 1.600 \text{ Nm}$$

$$W_{kg} = W_k + W_A = 18.500 \text{ Nm}$$

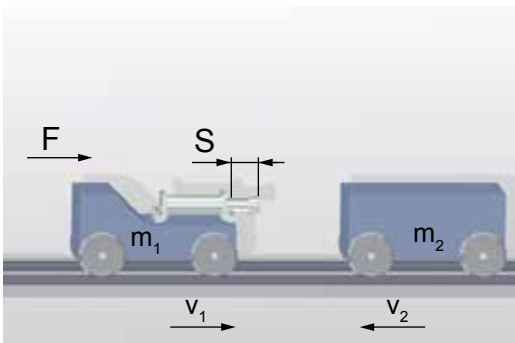
$$W_{kg/h} = W_{kg} \cdot X = 185.000 \text{ Nm/h}$$

$$v_e = v / 2 = 1,3 \text{ m/s}$$

Selection

LDS-40-400-XXXX

K LOAD AGAINST LOAD WITH ONE SHOCK ABSORBER



Example

$m1 = 5.000 \text{ kg}$
 $v1 = 1,6 \text{ m/s}$
 $m2 = 6.000 \text{ kg}$
 $v2 = 2,0 \text{ m/s}$
 $X = 6/h$
 $S = 0,5 \text{ m}$

Formula & Calculation

$$W_k = \frac{(m1 \cdot v1 + m2 \cdot v2)^2}{2 (m1 + m2)} = 17.672 \text{ Nm}$$

with propelling force

$$W_A = F \cdot S$$

$$W_{kg} = W_k + W_A$$

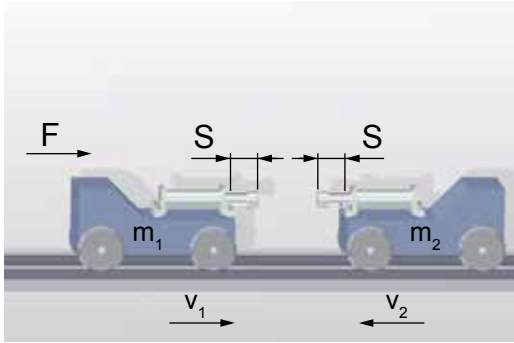
$$W_{kg/h} = W_{kg} \cdot X = 106.032 \text{ Nm/h}$$

$$v_e = v1 + v2 = 3,6 \text{ m/s}$$

Selection

LDS-32-500-XXXX

L LOAD AGAINST LOAD WITH SHOCK ABSORBERS



Example

m1 = 15.000 kg
 v1 = 1,9 m/s
 m2 = 16.000 kg
 v2 = 1,8 m/s
 X = 12/h
 S = 0,4 m

Formula & Calculation

$$W_k = \frac{(m1 \cdot m2) \cdot (v1 + v2)^2}{4 (m1 + m2)} = 26.490 \text{ Nm}$$

with propelling force

$$W_A = F \cdot S$$

$$W_{kg} = W_k + W_A$$

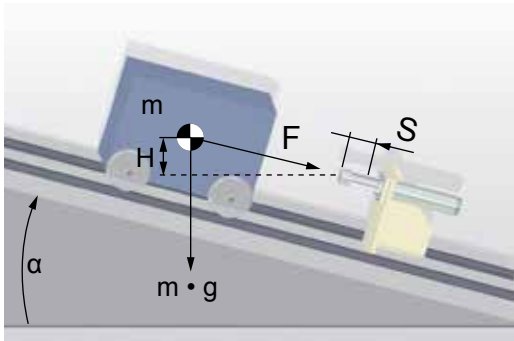
$$W_{kg/h} = W_{kg} \cdot X = 317.880 \text{ Nm/h}$$

$$v_e = (v1 + v2) / 2 = 1,85 \text{ m/s}$$

Selection

LDS-50-400-XXXX

F LOAD ON INCLINE



Example

m = 21.000 kg
 H = 0,5 m
 alpha = 22°
 S = 0,6
 X = 1/h

Formula & Calculation

$$W_k = m \cdot g \cdot H = 103.005 \text{ Nm}$$

$$W_A = m \cdot g \cdot \sin \alpha \cdot S = 46.303 \text{ Nm}$$

$$W_{kg} = W_k + W_A = 149.308 \text{ Nm}$$

$$W_{kg/h} = W_{kg} \cdot X = 149.308 \text{ Nm/h}$$

$$v = v_e = \sqrt{2 \cdot g \cdot H}$$

Selection

HLS-100-600-XXXX

! For a utilization per stroke >80 % the approval of Weforma is necessary!
 at 1/h: number of strokes per year required

Formula

COUNTERFORCE

$$F_G = \frac{W_{kg} \cdot 1,5^*}{S}$$

DECELERATION TIME

$$t = \frac{2 \cdot S}{v_e} \cdot 1,2^*$$

DECELERATION RATE

$$a = \frac{v^2}{2 \cdot S} \cdot 1,2^*$$

Stroke

$$S = \frac{v^2}{2 \cdot a} \cdot 1,2^*$$

*Calculation for optimum setting. Allow a safety margin!

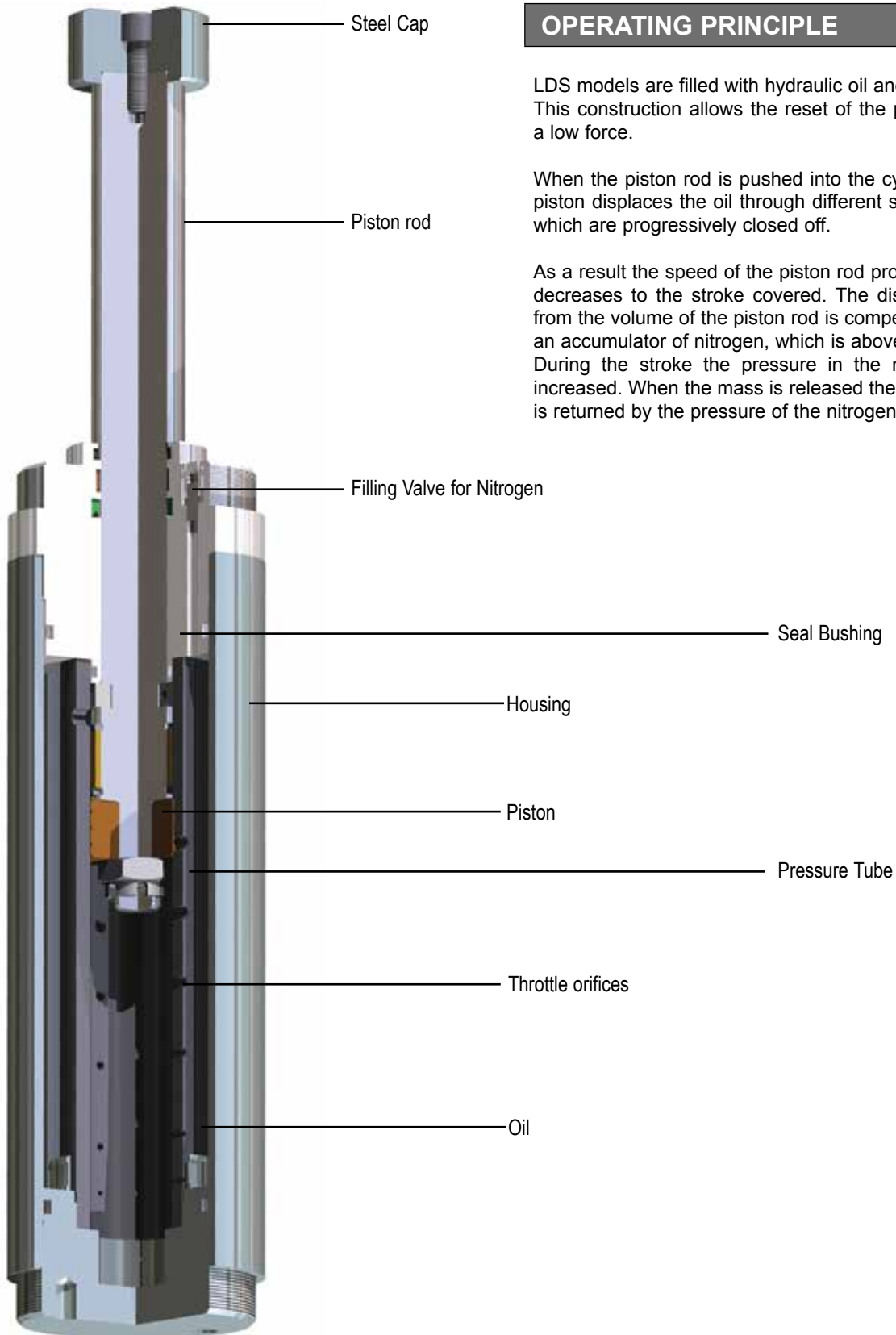
LEGEND

W_k	(Nm)	Kinetic energy
W_A	(Nm)	Propelling force energy
W_{kg}	(Nm)	Total energy / $W_k + W_A$
$W_{kg/h}$	(Nm/h)	Total energy per hour
m	(kg)	Mass
me	(kg)	Effective mass
v	(m/s)	Impact speed
v_e	(m/s)	Effective speed
X	(1/h)	Number of strokes per hour

S	(m)	Stroke
F	(N)	Propelling force
H	(m)	Height
g	(m/s ²)	Accerelation due to gravity (9.81 m/s ²)
α	(°)	Angle
a	(m/s ²)	Acceleration/Deceleration
t	(s)	Deceleration time
F_G	(N)	Counter force

Operating Principle

LDS



OPERATING PRINCIPLE

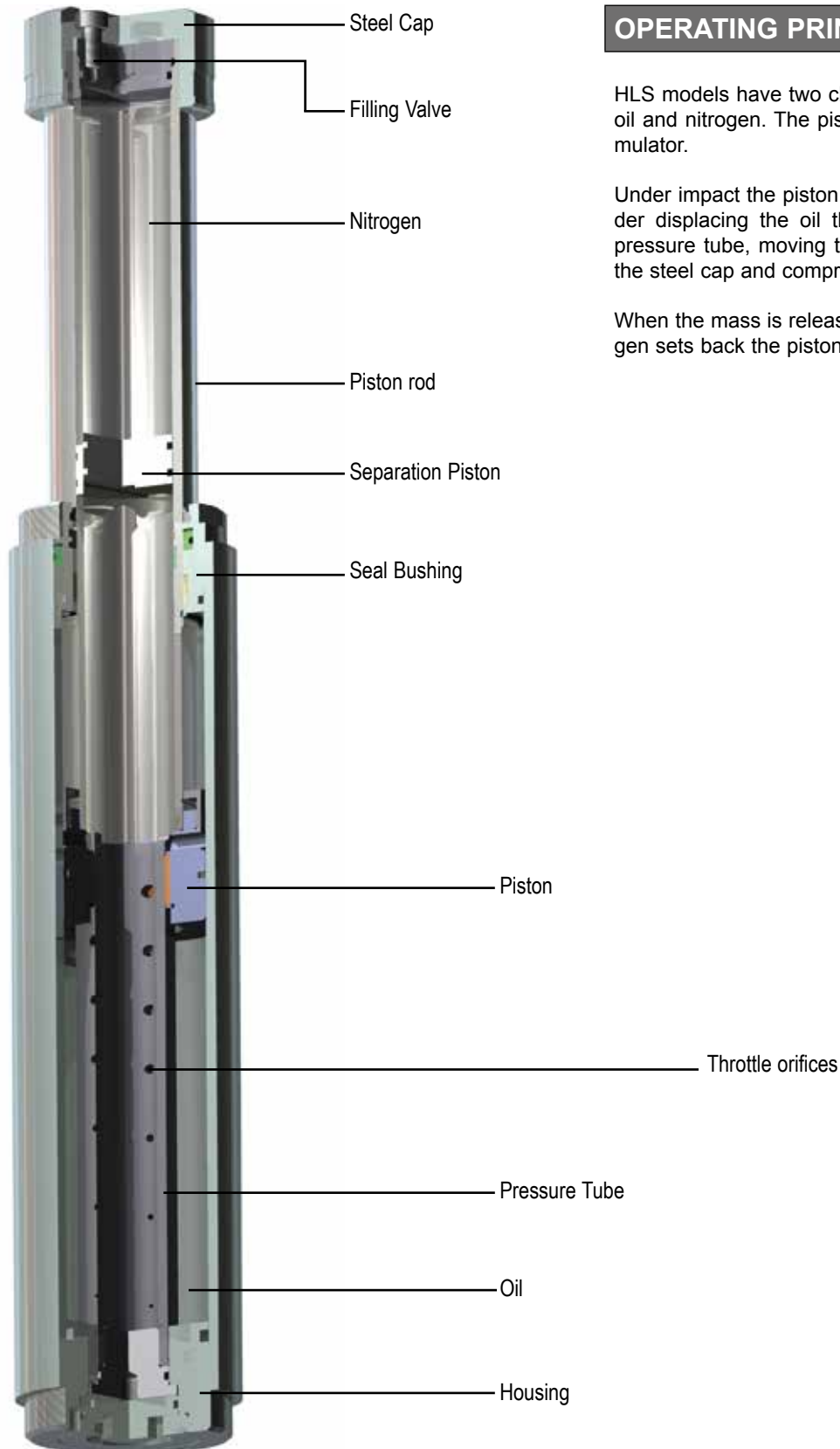
LDS models are filled with hydraulic oil and nitrogen. This construction allows the reset of the piston with a low force.

When the piston rod is pushed into the cylinder, the piston displaces the oil through different sized holes which are progressively closed off.

As a result the speed of the piston rod proportionally decreases to the stroke covered. The displaced oil from the volume of the piston rod is compensated by an accumulator of nitrogen, which is above the oil. During the stroke the pressure in the nitrogen is increased. When the mass is released the piston rod is returned by the pressure of the nitrogen.

Operating Principle

HLS



OPERATING PRINCIPLE

HLS models have two chambers filled with hydraulic oil and nitrogen. The piston rod is used as an accumulator.

Under impact the piston rod is pushed into the cylinder displacing the oil through the orifices into the pressure tube, moving the separator piston towards the steel cap and compressing the nitrogen.

When the mass is released the pressure of the nitrogen sets back the piston rod.



Heavy-Duty Shock Absorbers

LDS



FEATURES

Applications

Automated warehouses, Stacker cranes, Cranes

Deceleration characteristics

Customer spec.

Coating

Housing zinc plated / painted

Extended Life Cycle

Piston rod: hardened / hard chrome-plated

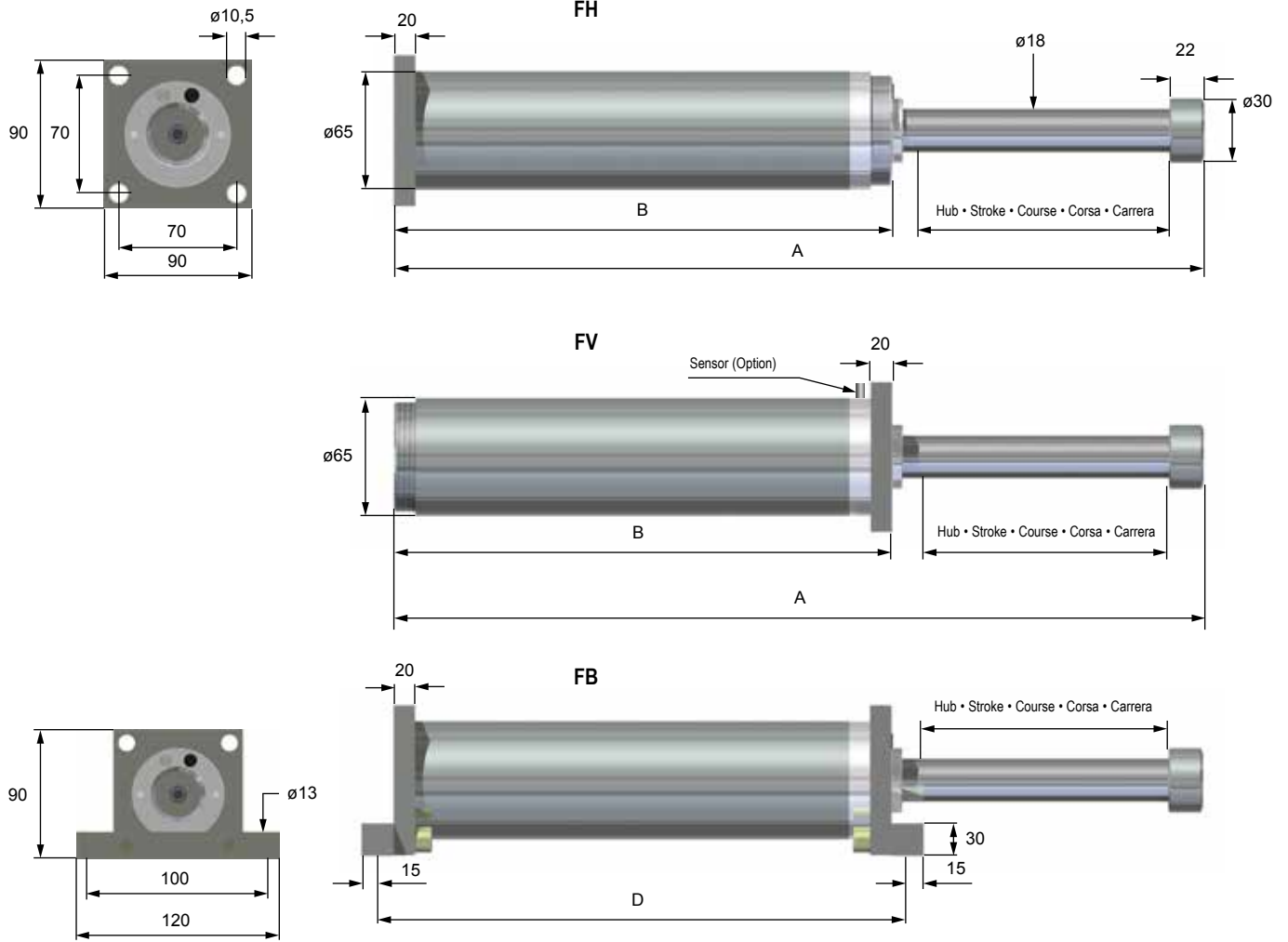
Special seals + oils

Temperatur range

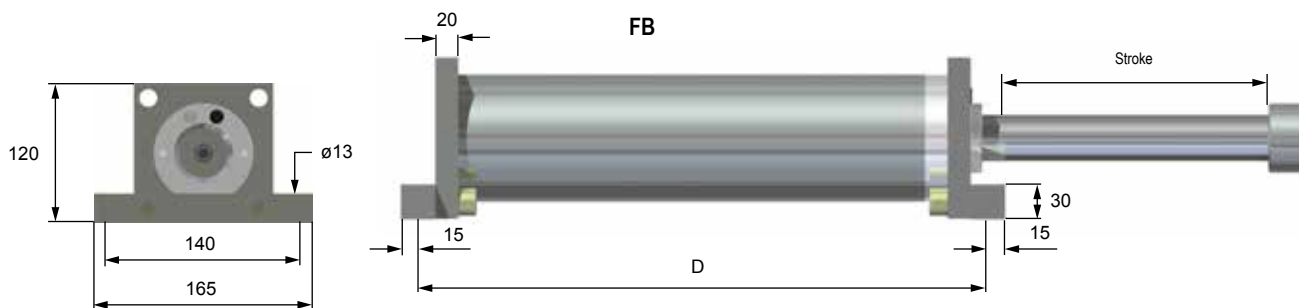
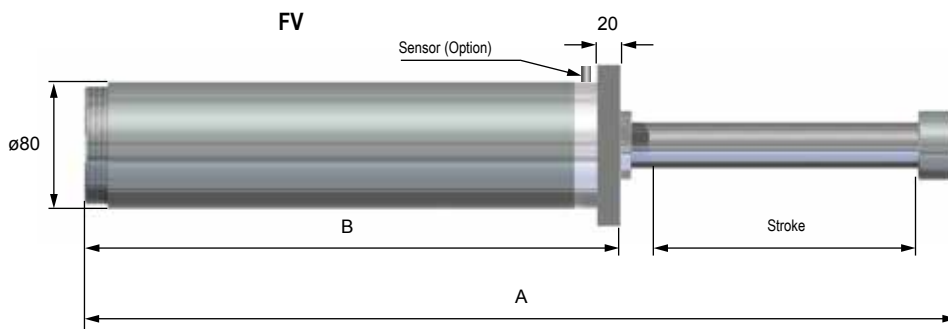
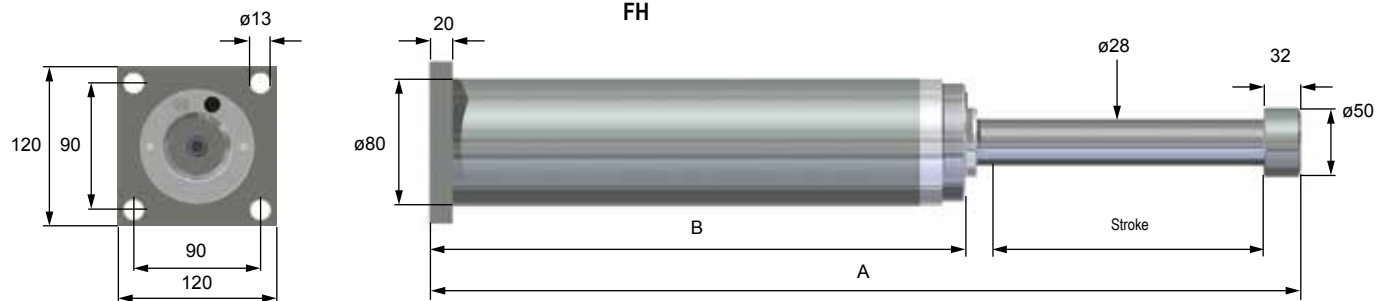
-20°C - +80°C / option: -40°C - +100°C

RoHS - conform

Directive 2002/95/EC

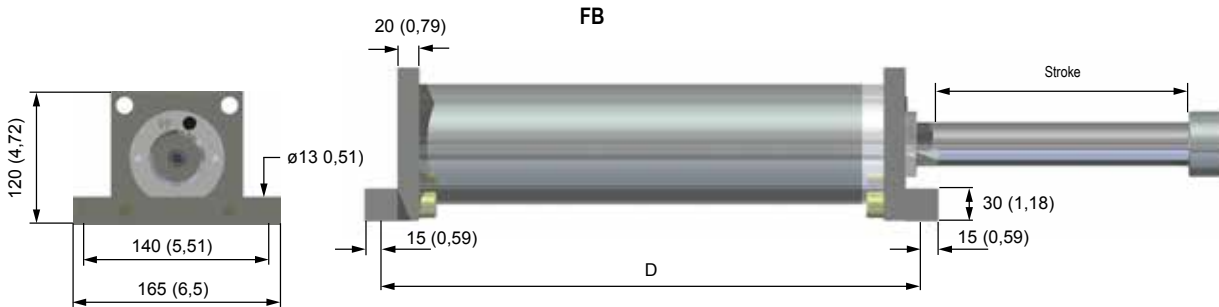
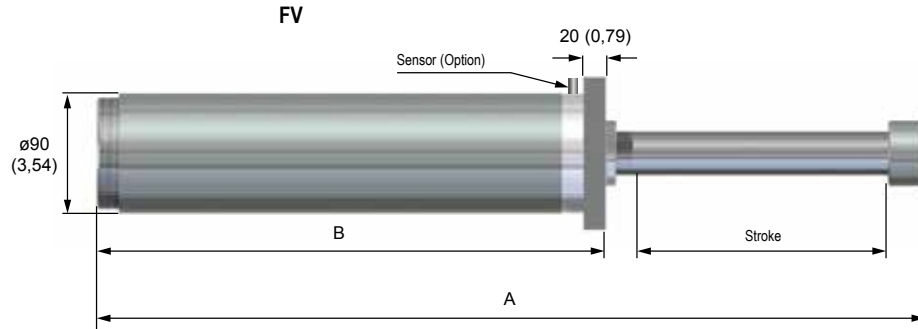
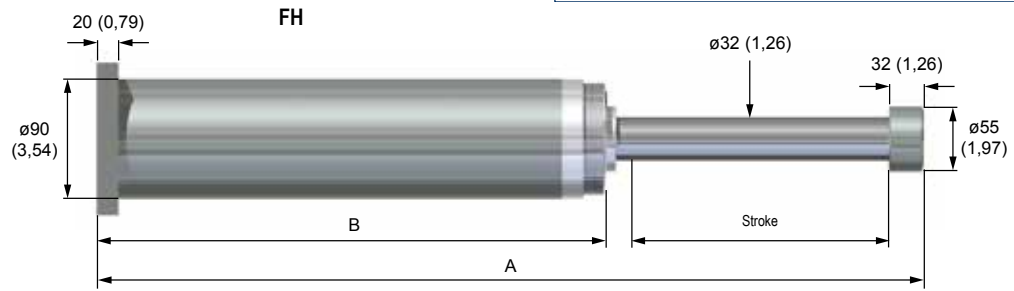
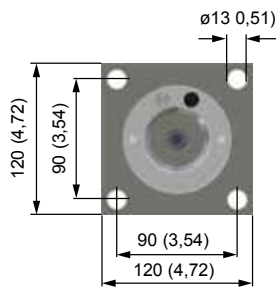


	øPiston	Stroke	Energy/Stroke	max. Counterforce	max. angular tolerance °		Weight		Mounting: horizontal			Mounting: vertical		
	mm (inch)	mm (inch)	Nm (in lbs)	N (lbs)	Emergency	Constant load	FV / FH kg	FB kg	A mm (inch)	B mm (inch)	D mm (inch)	A mm (inch)	B mm (inch)	D mm (inch)
LDS-25-050	25 (0.98)	50 (1.97)	1250 (11063.5)	30000 (6744.27)	2,5	2,5	2,4 (5.29)	3,8 (8.38)	240 (9.45)	158 (6.22)	178 (7.01)	240 (9.45)	158 (6.22)	178 (7.01)
LDS-25-100	25 (0.98)	100 (3.94)	2500 (22127)	30000 (6744.27)	2,5	2	3,1 (6.83)	4,5 (9.92)	340 (13.39)	208 (8.19)	228 (8.98)	340 (13.39)	215 (8.46)	235 (9.25)
LDS-25-150	25 (0.98)	150 (5.91)	3750 (33190.5)	30000 (6744.27)	2,5	2	4,1 (9.04)	5,5 (12.13)	440 (17.32)	258 (10.16)	278 (10.94)	440 (17.32)	275 (10.83)	295 (11.61)
LDS-25-200	25 (0.98)	200 (7.87)	5000 (44254)	30000 (6744.27)	2,5	2	5,4 (11.91)	6,8 (14.99)	540 (21.26)	308 (12.13)	328 (12.91)	540 (21.26)	335 (13.19)	355 (13.98)
LDS-25-250	25 (0.98)	250 (9.84)	6250 (55317.5)	26000 (5845.03)	2	1	6,8 (14.99)	8,2 (18.08)	678 (26.69)	396 (15.59)	416 (16.38)	678 (26.69)	396 (15.59)	416 (16.38)
LDS-25-300	25 (0.98)	300 (11.81)	7300 (64610.84)	22000 (4945.8)	2	1	8,5 (18.74)	9,9 (21.83)	788 (31.02)	456 (17.95)	476 (18.74)	788 (31.02)	456 (17.95)	476 (18.74)



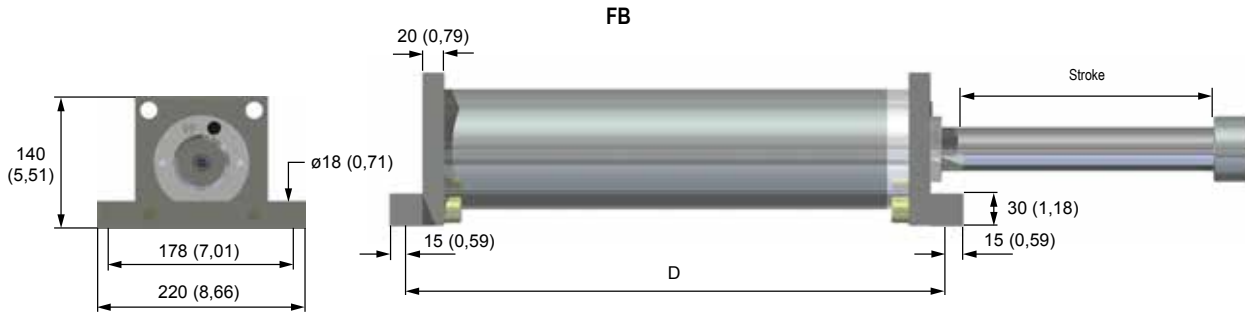
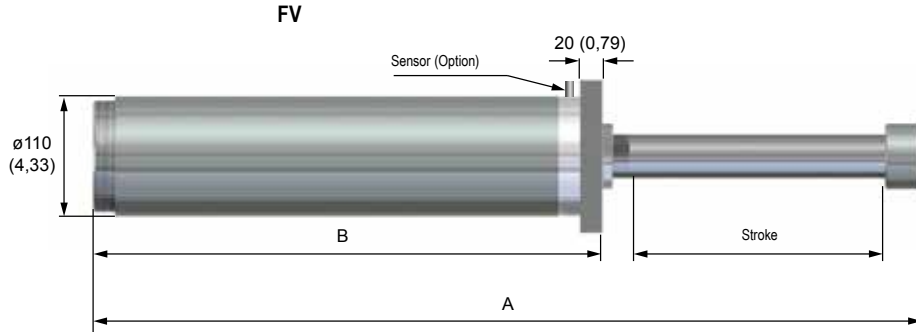
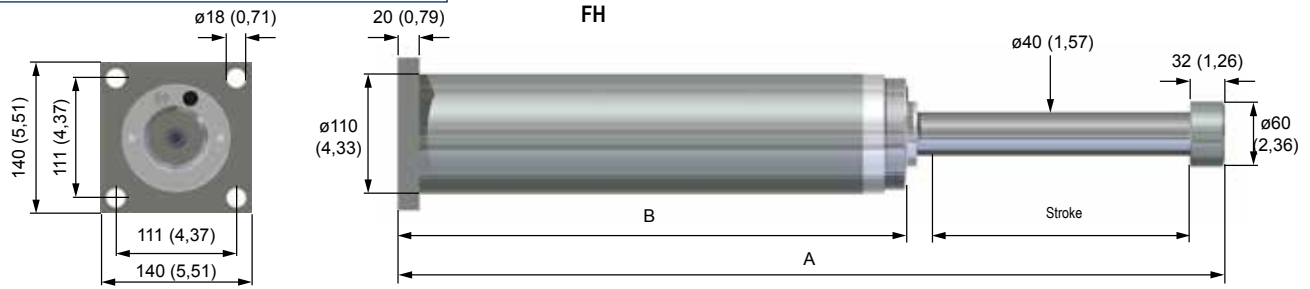
Rear flange recommended only for shock absorbers up to 300 mm stroke!

	øPiston	Stroke	Energy/ Stroke	max. Counterforce	max. angular tolerance		Weight		Mounting: horizontal			Mounting: vertical		
					N (lbs)	Emergency	Constant load	kg (lbs)	FV / FH kg (lbs)	A mm (inch)	B mm (inch)	D mm (inch)	A mm (inch)	B mm (inch)
LDS-32-050	32 (1.26)	50 (1.97)	2000 (17700)	50000 (11240)	2,5	2,5	6 (13.23)	8 (17.64)	314 (12.36)	216 (8.5)	246 (9.69)	314 (12.36)	216 (8.5)	246 (9.69)
LDS-32-100	32 (1.26)	100 (3.94)	4000 (35400)	50000 (11240)	2,5	2	8 (17.64)	10 (22.05)	414 (16.3)	266 (10.47)	296 (11.65)	464 (18.27)	316 (12.44)	346 (13.62)
LDS-32-150	32 (1.26)	150 (5.91)	6000 (53100)	50000 (11240)	2,5	2	9 (19.84)	11 (24.25)	514 (20.24)	316 (12.44)	346 (13.62)	564 (22.2)	346 (13.62)	376 (14.8)
LDS-32-200	32 (1.26)	200 (7.87)	8000 (70800)	50000 (11240)	2,5	2	11 (24.25)	13 (28.66)	614 (24.17)	366 (14.41)	396 (15.59)	664 (26.14)	416 (16.38)	446 (17.56)
LDS-32-250	32 (1.26)	250 (9.84)	10000 (88500)	50000 (11240)	2	1	12 (26.46)	14 (30.87)	714 (28.11)	416 (16.38)	446 (17.56)	814 (32.05)	516 (20.31)	546 (21.5)
LDS-32-300	32 (1.26)	300 (11.81)	12000 (106200)	50000 (11240)	2	1	14 (30.87)	16 (35.27)	814 (32.05)	466 (18.35)	496 (19.53)	914 (35.98)	566 (22.28)	596 (23.46)
LDS-32-350	32 (1.26)	350 (13.78)	14000 (123900)	50000 (11240)	1,5	1	16 (35.27)	18 (39.68)	914 (35.98)	516 (20.31)	546 (21.5)	1024 (40.31)	626 (24.65)	656 (25.83)
LDS-32-400	32 (1.26)	400 (15.75)	16000 (1416120)	50000 (11240)	1,5	0,5	18 (39.68)	20 (44.09)	1014 (39.92)	566 (22.28)	596 (23.46)	1194 (47.01)	746 (29.37)	776 (30.55)
LDS-32-450	32 (1.26)	450 (17.72)	18000 (159310)	50000 (11240)	1	0,5	20 (44.09)	22 (48.5)	1126 (44.33)	626 (24.65)	656 (25.83)	1306 (51.42)	806 (31.73)	836 (32.91)
LDS-32-500	32 (1.26)	500 (19.69)	20000 (177016)	50000 (11240)	1	0,5	22 (48.5)	24 (52.91)	1236 (48.66)	686 (27.01)	716 (28.19)	1386 (54.57)	836 (32.91)	866 (34.09)
LDS-32-550	32 (1.26)	550 (21.65)	22000 (194720)	50000 (11240)	1	0,5	24 (52.91)	26 (57.32)	1346 (52.99)	746 (29.37)	776 (30.55)	1516 (59.69)	916 (36.06)	946 (37.24)
LDS-32-600	32 (1.26)	600 (23.62)	24000 (212420)	50000 (11240)	1	0,5	26 (57.32)	28 (61.73)	1456 (57.32)	806 (31.73)	836 (32.91)	1646 (64.8)	996 (39.21)	1026 (40.39)



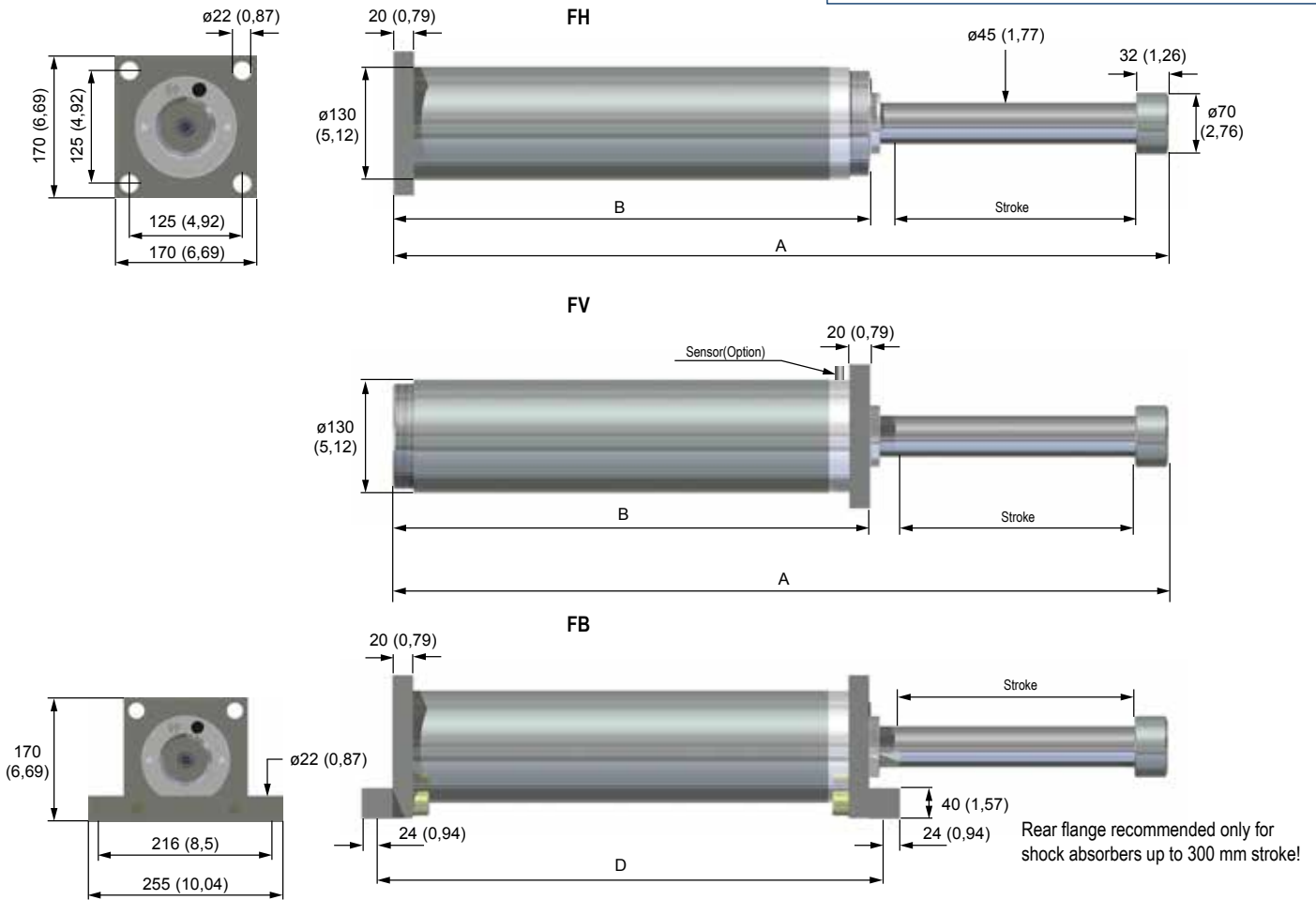
Rear flange recommended only for shock absorbers up to 300 mm stroke!

	øPiston	Stroke	Energy/ Stroke	max. Counterforce	max. angular tolerance		Weight		Mounting: horizontal			Mounting: vertical		
	mm (inch)	mm (inch)	Nm (in lbs)	N (lbs)	Emergency	Constant load	kg (lbs)	FV / FH kg (lbs)	A mm (inch)	B mm (inch)	D mm (inch)	A mm (inch)	B mm (inch)	D mm (inch)
LDS-40-050	40 (1.57)	50 (1.97)	3000 (26550)	80000 (17985)	2,5	2,5	10 (22.05)	12 (26.46)	298 (11.73)	206 (8.11)	236 (9.29)	298 (11.73)	206 (8.11)	236 (9.29)
LDS-40-100	40 (1.57)	100 (3.94)	6000 (53100)	80000 (17985)	2,5	2	12 (26.46)	13 (28.66)	398 (15.67)	256 (10.08)	286 (11.26)	448 (17.64)	306 (12.05)	336 (13.23)
LDS-40-150	40 (1.57)	150 (5.91)	9000 (79660)	80000 (17985)	2,5	2	13 (28.66)	15 (33.07)	498 (19.61)	306 (12.05)	336 (13.23)	548 (21.57)	356 (14.02)	386 (15.2)
LDS-40-200	40 (1.57)	200 (7.87)	12000 (106210)	80000 (17985)	2,5	2	15 (33.07)	17 (37.48)	598 (23.54)	356 (14.02)	386 (15.2)	648 (25.51)	406 (15.98)	436 (17.17)
LDS-40-250	40 (1.57)	250 (9.84)	16000 (141610)	80000 (17985)	2,5	1	16 (35.27)	18 (39.68)	698 (27.48)	406 (15.98)	436 (17.17)	798 (31.42)	506 (19.92)	536 (21.1)
LDS-40-300	40 (1.57)	300 (11.81)	19000 (168165)	80000 (17985)	2,5	1	18 (39.68)	20 (44.09)	798 (31.42)	456 (17.95)	486 (19.13)	898 (35.75)	566 (22.28)	596 (23.46)
LDS-40-350	40 (1.57)	350 (13.78)	22000 (194720)	80000 (17985)	2	1	19 (41.89)	21 (46.3)	898 (35.35)	506 (19.92)	536 (21.1)	998 (39.29)	606 (23.86)	636 (25.04)
LDS-40-400	40 (1.57)	400 (15.75)	25000 (221270)	80000 (17985)	2	0,5	21 (46.3)	23 (50.71)	1008 (39.69)	566 (22.28)	596 (23.46)	1128 (44.41)	686 (27.01)	716 (28.19)
LDS-40-450	40 (1.57)	450 (17.72)	28000 (247825)	80000 (17985)	1,5	0,5	23 (50.71)	25 (55.12)	1118 (44.02)	626 (24.65)	656 (25.83)	1298 (51.1)	806 (31.73)	836 (32.91)
LDS-40-500	40 (1.57)	500 (19.69)	32000 (283230)	80000 (17985)	1,5	0,5	25 (55.12)	27 (59.53)	1228 (48.35)	686 (27.01)	716 (28.19)	1348 (53.07)	806 (31.73)	836 (32.91)
LDS-40-550	40 (1.57)	550 (21.65)	35000 (309780)	80000 (17985)	1,5	0,5	26 (57.32)	29 (63.94)	1338 (52.68)	746 (29.37)	776 (30.55)	1458 (57.4)	866 (34.09)	896 (35.28)
LDS-40-600	40 (1.57)	600 (23.62)	38000 (336330)	80000 (17985)	1	0,5	28 (61.73)	30 (66.14)	1448 (57.01)	806 (31.73)	836 (32.91)	1568 (61.73)	926 (36.46)	956 (37.64)
LDS-40-650	40 (1.57)	650 (25.59)	41000 (362885)	80000 (17985)	1	0,5	30 (66.14)	32 (70.55)	1558 (61.34)	866 (34.09)	896 (35.28)	1738 (68.43)	1046 (41.18)	1076 (42.36)
LDS-40-700	40 (1.57)	700 (27.56)	44000 (389435)	80000 (17985)	1	0,5	33 (72.75)	35 (77.16)	1668 (65.67)	926 (36.46)	956 (37.64)	1848 (72.76)	1106 (43.54)	1136 (44.72)
LDS-40-750	40 (1.57)	750 (29.53)	48000 (424840)	80000 (17985)	1	0,5	35 (77.16)	37 (81.57)	1778 (77)	986 (38.82)	1016 (40)	1978 (77.87)	1166 (45.91)	1196 (47.09)
LDS-40-800	40 (1.57)	800 (31.5)	51000 (451390)	80000 (17985)	1	0,5	36 (79.37)	38 (83.78)	1888 (74.33)	1046 (41.18)	1076 (42.36)	2068 (81.42)	1226 (48.27)	1256 (49.45)
LDS-40-850	40 (1.57)	850 (33.46)	50000 (442540)	70000 (15740)	1	0,5	38 (83.78)	40 (88.19)	1998 (78.66)	1106 (43.54)	1136 (44.72)	2178 (85.75)	1286 (50.63)	1316 (51.81)
LDS-40-900	40 (1.57)	900 (35.43)	50000 (442540)	70000 (15740)	1	0,5	40 (88.19)	42 (92.6)	2108 (82.99)	1166 (45.91)	1196 (47.09)	2283 (89.88)	1341 (52.8)	1371 (53.98)
LDS-40-950	40 (1.57)	950 (37.4)	49000 (433690)	60000 (13500)	1	0,5	42 (92.6)	44 (97.01)	2218 (87.32)	1226 (48.27)	1256 (49.45)	2403 (94.61)	1411 (55.55)	1441 (46.73)
LDS-40-1000	40 (1.57)	1000 (39.37)	48000 (424840)	60000 (13500)	1	0,5	44 (97.01)	46 (101.41)	2328 (91.65)	1286 (50.63)	1316 (51.81)	2568 (101.1)	1526 (60.08)	1556 (61.26)
LDS-40-1200	40 (1.57)	1200 (47.24)	43000 (380585)	45000 (10120)	1	0,5	46 (101.41)	48 (105.82)	2768 (108.98)	1526 (60.08)	1556 (61.26)	2993 (117.73)	1751 (68.94)	1781 (70.12)

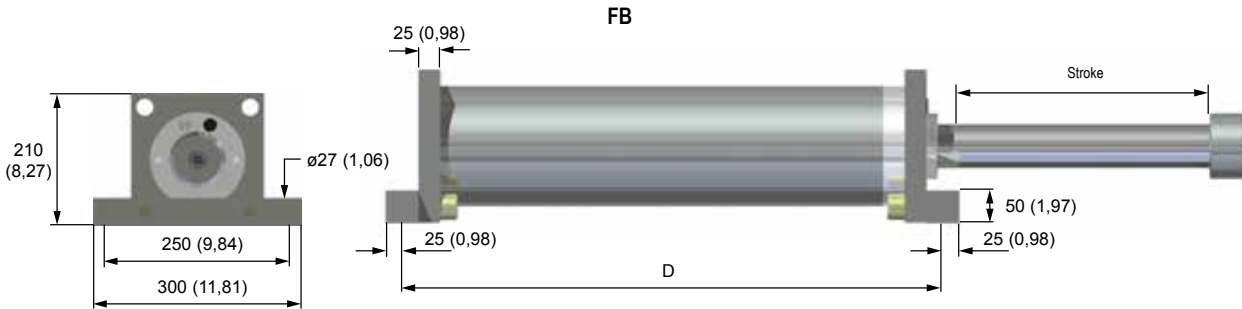
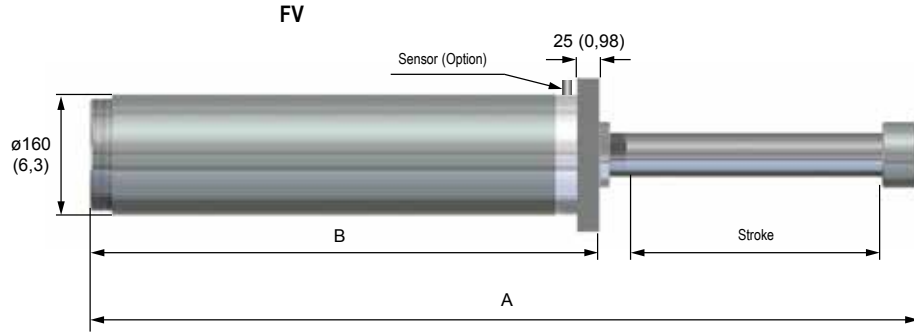
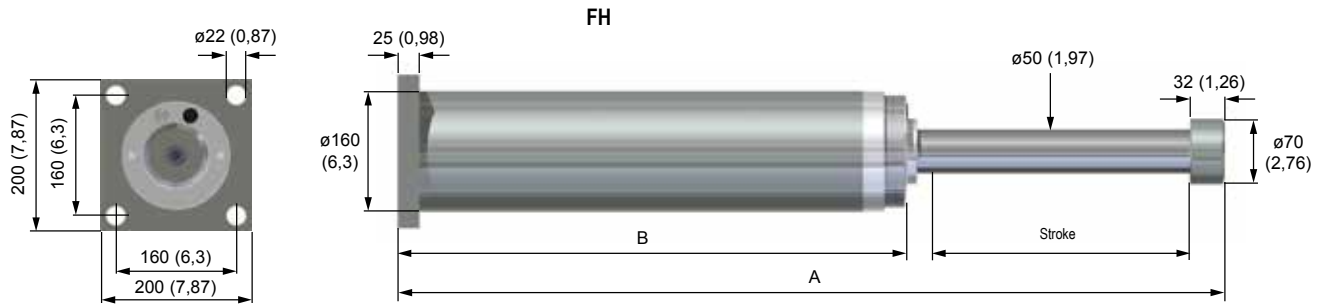


Rear flange recommended only for shock absorbers up to 300 mm stroke!

	øPiston	Stroke	Energy/Stroke	max. Counterforce	max. angular tolerance		Weight		Mounting: horizontal			Mounting: vertical			
					N	Emergency	Constant load	kg	FV / FH	A	B	D	A	B	D
	mm	mm	Nm	N			(lbs)	kg (lbs)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
LDS-50-050	50	50	4000	120000	2,5	2,5	10	12	310	218	248	310	218	248	
	(1,97)	(1,97)	(35405)	(26980)			(22,05)	(26,46)	(12,2)	(8,58)	(9,76)	(12,2)	(8,58)	(9,76)	
LDS-50-100	50	100	9000	120000	2,5	2	12	13	409	267	297	459	267	287	
	(1,97)	(3,94)	(79660)	(26980)			(26,46)	(28,66)	(16,1)	(10,51)	(11,69)	(18,07)	(10,51)	(11,3)	
LDS-50-150	50	150	14000	120000	2,5	2	13	15	509	317	347	544	352	382	
	(1,97)	(5,91)	(123915)	(26980)			(28,66)	(33,07)	(20,04)	(12,48)	(13,66)	(21,42)	(13,86)	(15,04)	
LDS-50-200	50	200	19000	120000	2,5	2	15	17	609	367	397	659	417	447	
	(1,97)	(7,87)	(168165)	(26980)			(33,07)	(37,48)	(23,98)	(14,45)	(15,63)	(25,94)	(16,42)	(17,6)	
LDS-50-250	50	250	24000	120000	2,5	1	16	18	709	417	447	809	517	547	
	(1,97)	(9,84)	(212420)	(26980)			(35,27)	(39,68)	(27,91)	(16,42)	(17,6)	(31,85)	(20,35)	(21,54)	
LDS-50-300	50	300	28000	120000	2,5	1	18	20	809	467	497	909	567	597	
	(1,97)	(11,81)	(247825)	(26980)			(39,68)	(44,09)	(31,85)	(18,39)	(19,57)	(35,79)	(22,32)	(23,5)	
LDS-50-350	50	350	33000	120000	2	1	19	21	909	517	547	1019	627	657	
	(1,97)	(13,78)	(292080)	(26980)			(41,89)	(46,3)	(35,79)	(20,35)	(21,54)	(40,12)	(24,69)	(25,87)	
LDS-50-400	50	400	38000	120000	2	0,5	21	23	1009	567	597	1129	687	717	
	(1,97)	(15,75)	(336330)	(26980)			(46,3)	(50,71)	(39,72)	(22,32)	(23,5)	(44,45)	(27,05)	(28,23)	
LDS-50-450	50	450	43000	120000	1,5	0,5	23	25	1119	627	657	1299	807	837	
	(1,97)	(17,72)	(380585)	(26980)			(50,71)	(55,12)	(44,06)	(24,69)	(25,87)	(51,14)	(31,77)	(32,95)	
LDS-50-500	50	500	48000	120000	1,5	0,5	25	27	1229	687	717	1409	867	897	
	(1,97)	(19,69)	(424840)	(26980)			(55,12)	(59,53)	(48,39)	(27,05)	(28,23)	(55,47)	(34,13)	(35,31)	
LDS-50-550	50	550	52000	120000	1,5	0,5	26	29	1339	747	777	1519	927	957	
	(1,97)	(21,65)	(460245)	(26980)			(57,32)	(63,94)	(52,72)	(29,41)	(30,59)	(59,8)	(36,5)	(37,68)	
LDS-50-600	50	600	57000	120000	1	0,5	28	30	1449	807	837	1629	987	1017	
	(1,97)	(23,62)	(504500)	(26980)			(61,73)	(66,14)	(57,05)	(31,77)	(32,95)	(64,13)	(38,86)	(40,04)	
LDS-50-650	50	650	62000	120000	1	0,5	30	32	1559	867	897	1739	1047	1077	
	(1,97)	(25,59)	(548750)	(26980)			(66,14)	(70,55)	(61,38)	(34,13)	(35,31)	(68,46)	(41,22)	(42,4)	
LDS-50-700	50	700	67000	120000	1	0,5	33	35	1669	927	957	1849	1107	1137	
	(1,97)	(27,56)	(593005)	(26980)			(72,75)	(77,16)	(65,71)	(36,5)	(37,68)	(72,8)	(43,58)	(44,76)	
LDS-50-750	50	750	72000	120000	1	0,5	35	37	1779	987	1017	1959	1167	1197	
	(1,97)	(29,53)	(637260)	(26980)			(77,16)	(81,57)	(70,04)	(38,86)	(40,04)	(77,13)	(45,94)	(47,13)	
LDS-50-800	50	800	76000	120000	1	0,5	36	38	1889	1047	1077	2129	1287	1317	
	(1,97)	(31,5)	(672665)	(26980)			(79,37)	(83,78)	(74,37)	(41,22)	(42,4)	(83,82)	(50,67)	(51,85)	
LDS-50-850	50	850	74000	100000	1	0,5	38	40	1999	1107	1137	2319	1427	1457	
	(1,97)	(33,46)	(654960)	(22500)			(83,78)	(88,19)	(78,7)	(43,58)	(44,76)	(91,3)	(56,18)	(57,36)	
LDS-50-900	50	900	72000	100000	1	0,5	40	42	2109	1167	1197	2369	1427	1457	
	(1,97)	(35,43)	(637260)	(22500)			(88,78)	(92,6)	(83,03)	(45,94)	(47,13)	(93,27)	(56,18)	(57,36)	
LDS-50-950	50	950	72000	90000	1	0,5	42	44	2219	1227	1257	2518	1527	1557	
	(1,97)	(37,4)	(637260)	(20240)			(92,6)	(97,01)	(87,36)	(48,31)	(49,49)	(99,13)	(60,12)	(61,3)	
LDS-50-1000	50	1000	72000	90000	1	0,5	44	46	2329	1287	1317	2569	1527	1557	
	(1,97)	(39,37)	(637260)	(20240)			(97,01)	(101,41)	(91,69)	(50,67)	(51,85)	(101,14)	(60,12)	(61,3)	
LDS-50-1100	50	1100	68000	80000	1	0,5	45	47	2569	1427	1457	2819	1677	1707	
	(1,97)	(43,31)	(601855)	(17990)			(99,21)	(103,62)	(101,14)	(56,18)	(57,36)	(110,98)	(66,02)	(67,2)	
LDS-50-1200	50	1200	64000	67000	1	0,5	46	48	2769	1527	1557	3169	1927	1957	
	(1,97)	(47,24)	(566455)	(15070)			(101,41)	(105,82)	(109,02)	(60,12)	(61,3)	(124,76)	(75,87)	(77,05)	

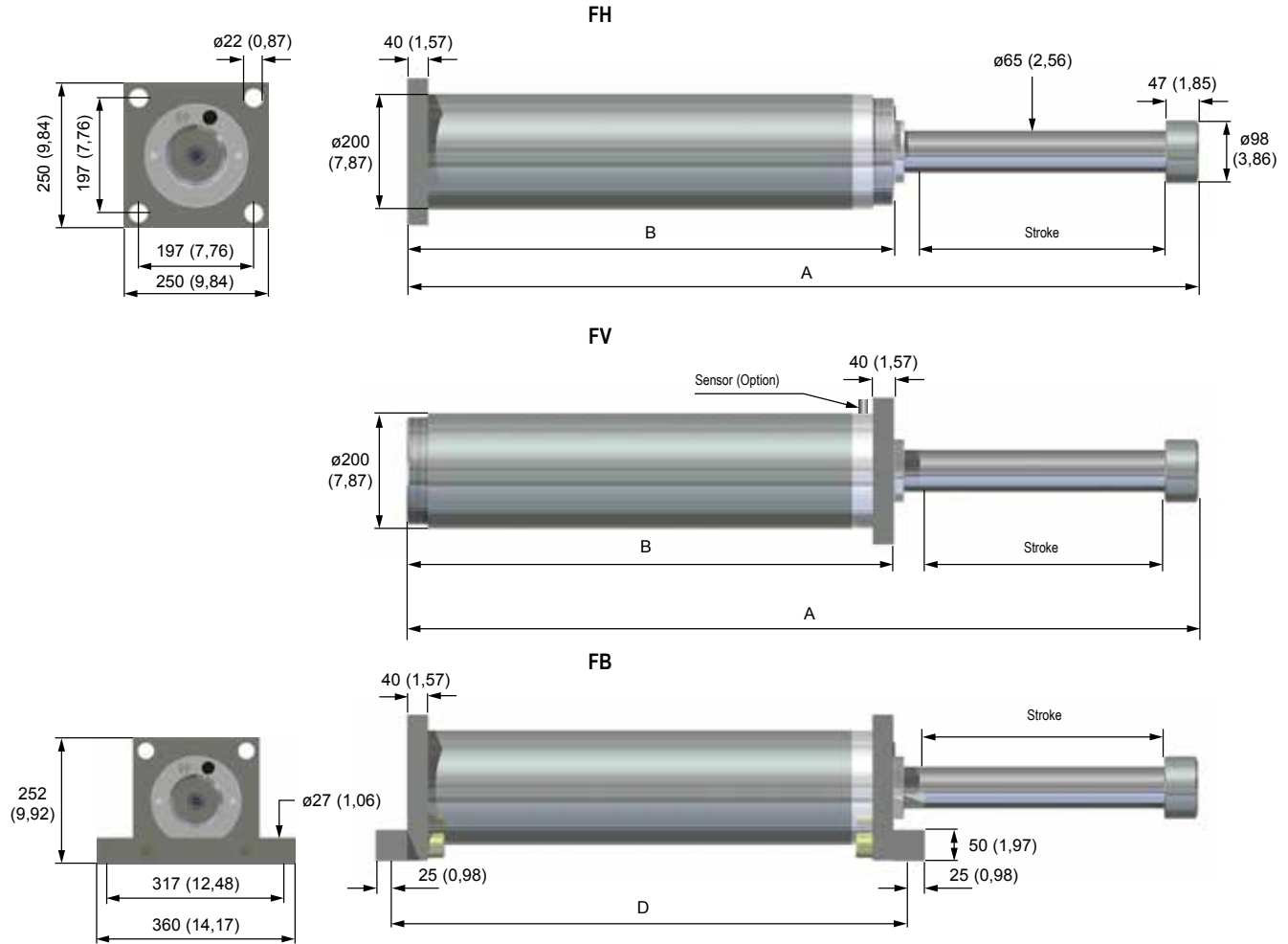


	øPiston	Stroke	Energy/Stroke	max. Counterforce		max. angular tolerance		Weight		Mounting: horizontal			Mounting: vertical		
				Nm (in lbs)	N (lbs)	Emergency	Constant load	kg (lbs)	FV / FH kg (lbs)	A mm (inch)	B mm (inch)	D mm (inch)	A mm (inch)	B mm (inch)	D mm (inch)
LDS-75-050	75 (2.95)	50 (1.97)	9600 (84970)	240000 (53960)	2	2	23 (50.71)	29 (63.94)	318 (12.52)	226 (8.9)	258 (10.16)	318 (12.52)	226 (8.9)	258 (10.16)	
LDS-75-075	75 (2.95)	75 (2.95)	14400 (127450)	240000 (53960)	2	1,5	25 (55.12)	31 (68.34)	365 (14.37)	247 (9.72)	279 (10.98)	365 (14.37)	247 (9.72)	279 (10.98)	
LDS-75-100	75 (2.95)	100 (3.94)	19200 (169935)	240000 (53960)	2	1,5	26 (57.32)	32 (70.55)	418 (16.46)	276 (10.87)	308 (12.13)	418 (16.46)	276 (10.87)	308 (12.13)	
LDS-75-125	75 (2.95)	125 (4.92)	24000 (212420)	240000 (53960)	2	1,5	27 (59.53)	33 (72.75)	468 (18.43)	301 (11.85)	333 (13.11)	468 (18.43)	301 (11.85)	333 (13.11)	
LDS-75-150	75 (2.95)	150 (5.91)	28800 (254905)	240000 (53960)	2	1,5	29 (63.94)	35 (77.16)	540 (21.26)	348 (13.7)	380 (14.96)	540 (21.26)	348 (13.7)	380 (14.96)	
LDS-75-200	75 (2.95)	200 (7.87)	38400 (339875)	240000 (53960)	1,5	1	31 (68.34)	37 (81.57)	618 (24.33)	376 (14.8)	408 (16.06)	618 (24.33)	376 (14.8)	408 (16.06)	
LDS-75-250	75 (2.95)	250 (9.84)	48000 (424840)	240000 (53960)	1,5	0,5	34 (74.96)	40 (88.19)	718 (28.27)	426 (16.77)	458 (18.03)	718 (28.27)	426 (16.77)	458 (18.03)	
LDS-75-300	75 (2.95)	300 (11.81)	57600 (509810)	240000 (53960)	1,5	0,5	37 (81.57)	43 (94.8)	818 (32.2)	476 (18.74)	508 (20)	818 (32.2)	476 (18.74)	508 (20)	
LDS-75-350	75 (2.95)	350 (13.78)	67200 (594775)	240000 (53960)	1,5	0,5	40 (88.19)	46 (101.41)	969 (38.15)	576 (22.68)	608 (23.94)	969 (38.15)	576 (22.68)	608 (23.94)	
LDS-75-400	75 (2.95)	400 (15.75)	76800 (679745)	240000 (53960)	1,5	0,5	43 (94.8)	49 (108.03)	1070 (42.13)	627 (24.69)	659 (25.94)	1070 (42.13)	627 (24.69)	659 (25.94)	
LDS-75-450	75 (2.95)	450 (17.72)	86400 (764710)	240000 (53960)	1,5	0,5	45 (99.21)	51 (112.44)	1171 (46.1)	678 (26.69)	710 (27.95)	1171 (46.1)	678 (26.69)	710 (27.95)	
LDS-75-500	75 (2.95)	500 (19.69)	94000 (831975)	235000 (52830)	1,5	0,5	50 (110.23)	56 (123.46)	1272 (50.08)	729 (28.7)	761 (29.96)	1272 (50.08)	729 (28.7)	761 (29.96)	
LDS-75-600	75 (2.95)	600 (23.62)	112800 (998370)	235000 (52830)	1	0,5	56 (123.46)	62 (136.69)	1472 (57.95)	830 (32.68)	862 (33.94)	1472 (57.95)	830 (32.68)	862 (33.94)	
LDS-75-700	75 (2.95)	700 (27.56)	136900 (1211675)	230000 (51700)	1	0,5	62 (136.69)	68 (149.92)	1675 (65.94)	932 (36.69)	964 (37.95)	1675 (65.94)	932 (36.69)	964 (37.95)	
LDS-75-800	75 (2.95)	800 (31.5)	134000 (1186010)	195000 (43840)	1	0,5	67 (147.71)	73 (160.94)	1876 (73.86)	1033 (40.67)	1065 (41.93)	1876 (73.86)	1033 (40.67)	1065 (41.93)	
LDS-75-900	75 (2.95)	900 (35.43)	134000 (1186010)	185000 (41590)	1	0,5	73 (160.94)	79 (174.17)	2125 (86.66)	1182 (46.54)	1214 (47.8)	2125 (86.66)	1182 (46.54)	1214 (47.8)	
LDS-75-1000	75 (2.95)	1000 (39.37)	134000 (1186010)	170000 (38220)	1	0,5	79 (174.17)	85 (187.4)	2324 (91.5)	1282 (50.47)	1314 (51.73)	2324 (91.5)	1282 (50.47)	1314 (51.73)	
LDS-75-1100	75 (2.95)	1100 (43.31)	134000 (1186010)	160000 (35970)	1	0,5	85 (187.4)	91 (200.62)	2525 (99.41)	1382 (54.41)	1414 (55.67)	2525 (99.41)	1382 (54.41)	1414 (55.67)	
LDS-75-1200	75 (2.95)	1200 (47.24)	134000 (1186010)	150000 (33720)	1	0,5	91 (200.62)	97 (213.85)	2724 (104.24)	1482 (58.35)	1514 (59.61)	2724 (104.24)	1482 (58.35)	1514 (59.61)	
LDS-75-1400	75 (2.95)	1400 (55.12)	134000 (1186010)	140000 (31480)	0,8	0,3	102 (224.88)	107 (235.9)	3275 (128.94)	1832 (72.13)	1864 (73.39)	3275 (128.94)	1832 (72.13)	1864 (73.39)	
LDS-75-1500	75 (2.95)	1500 (59.06)	130000 (1150610)	140000 (31480)	0,8	0,3	105 (231.49)	110 (242.51)	3491 (137.44)	1948 (76.69)	1980 (77.95)	3491 (137.44)	1948 (76.69)	1980 (77.95)	
LDS-75-1600	75 (2.95)	1600 (62.99)	120000 (1062100)	140000 (31480)	0,6	0,2	120 (264.56)	125 (275.58)	3725 (146.65)	2082 (83.23)	2114 (83.23)	3725 (146.65)	2082 (83.23)	2114 (83.23)	
LDS-75-1800	75 (2.95)	1800 (70.87)	120000 (1062100)	140000 (31480)	0,5	0,2	140 (308.65)	145 (319.68)	4175 (164.37)	2332 (91.81)	2364 (93.07)	4175 (164.37)	2332 (91.81)	2364 (93.07)	



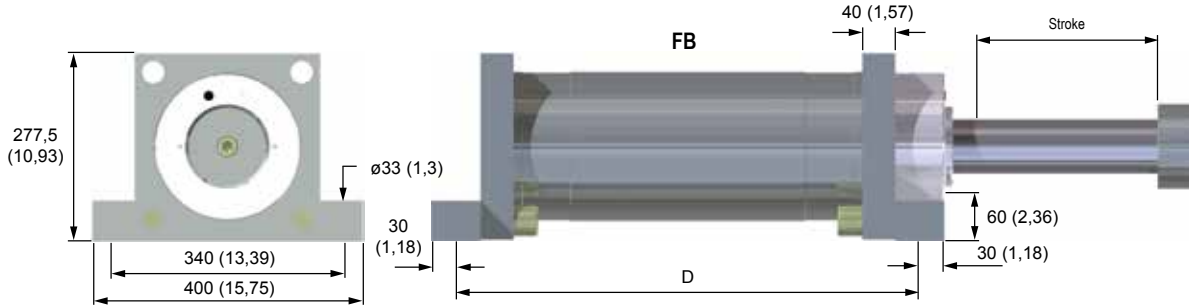
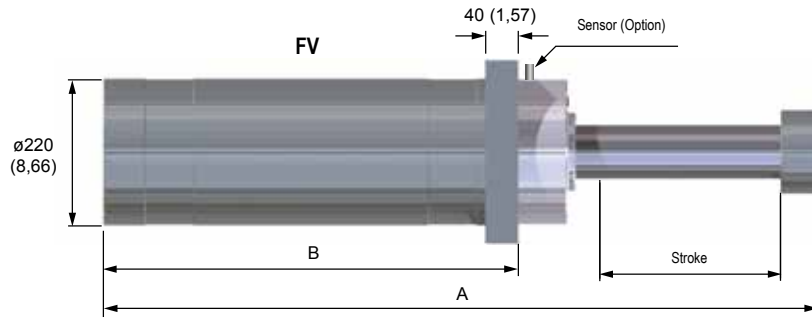
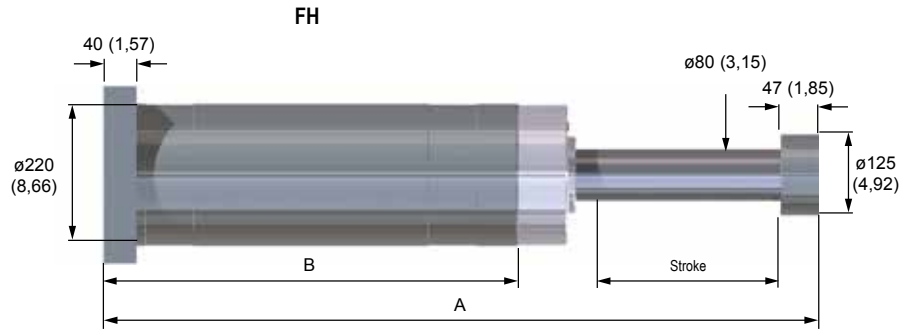
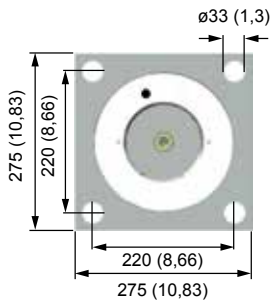
Rear flange recommended only for shock absorbers up to 300 mm stroke!

	øPiston	Stroke	Energy/ Stroke	max. Counterforce	max. angular tolerance		Weight		Mounting: horizontal			Mounting: vertical		
					Emergency	Constant load	kg (lbs)	FV / FH kg (lbs)	A mm (inch)	B mm (inch)	D mm (inch)	A mm (inch)	B mm (inch)	D mm (inch)
LDS-80-050	80	50	11800	280000	2	2	26	32	418	325	375	418	325	375
	(3.15)	(1.97)	(104440)	(62950)			(57.32)	(70.55)	(16.46)	(12.8)	(14.76)	(16.46)	(12.8)	(14.76)
LDS-80-100	80	100	24200	280000	2	1.5	29	35	543	400	450	543	400	450
	(3.15)	(3.94)	(214190)	(62950)			(63.94)	(77.16)	(21.38)	(15.75)	(17.72)	(21.38)	(15.75)	(17.72)
LDS-80-150	80	150	36300	280000	2	1.5	32	38	643	450	500	643	450	500
	(3.15)	(5.91)	(321285)	(62950)			(70.55)	(83.78)	(25.31)	(17.72)	(19.69)	(25.31)	(17.72)	(19.69)
LDS-80-200	80	200	48500	280000	1.5	0.5	34	40	768	525	575	768	525	575
	(3.15)	(7.87)	(429265)	(62950)			(74.96)	(88.19)	(30.24)	(20.67)	(22.64)	(30.24)	(20.67)	(22.64)
LDS-80-250	80	250	61500	280000	1.5	0.5	37	42	868	575	625	868	575	625
	(3.15)	(9.84)	(544325)	(62950)			(81.57)	(92.62)	(34.17)	(22.64)	(24.61)	(34.17)	(22.64)	(24.61)
LDS-80-300	80	300	73800	280000	1.5	0.5	41	47	993	650	700	993	650	700
	(3.15)	(11.81)	(653190)	(62950)			(90.39)	(103.62)	(39.09)	(25.59)	(27.56)	(39.09)	(25.59)	(27.56)
LDS-80-400	80	400	98000	280000	1.5	0.5	46	52	1193	750	800	1193	750	800
	(3.15)	(15.75)	(867380)	(62950)			(101.41)	(114.64)	(46.97)	(29.53)	(31.5)	(46.97)	(29.53)	(31.5)
LDS-80-500	80	500	122300	275000	1.5	0.5	54	60	1418	875	925	1418	875	925
	(3.15)	(19.69)	(1082455)	(61830)			(119.05)	(132.28)	(55.83)	(34.45)	(36.42)	(55.83)	(34.45)	(36.42)
LDS-80-600	80	600	147400	275000	1	0.5	61	67	1618	975	1025	1618	975	1025
	(3.15)	(23.62)	(1304610)	(61830)			(134.48)	(147.71)	(63.7)	(38.39)	(40.35)	(63.7)	(38.39)	(40.35)
LDS-80-700	80	700	171000	260000	1	0.5	65	71	1843	1100	1150	1843	1100	1150
	(3.15)	(27.56)	(1513490)	(58450)			(143.3)	(156.53)	(72.56)	(43.31)	(45.28)	(72.56)	(43.31)	(45.28)
LDS-80-800	80	800	198000	245000	1	0.5	71	77	2043	1200	1250	2043	1200	1250
	(3.15)	(31.5)	(1752460)	(55080)			(156.53)	(169.76)	(80.43)	(47.24)	(49.21)	(80.43)	(47.24)	(49.21)
LDS-80-900	80	900	210000	225000	1	0.5	76	82	2293	1350	1400	2293	1350	1400
	(3.15)	(35.43)	(1858670)	(50590)			(167.55)	(180.78)	(90.28)	(53.15)	(55.12)	(90.28)	(53.15)	(55.12)
LDS-80-1000	80	1000	210000	225000	1	0.5	84	90	2493	1450	1500	2493	1450	1500
	(3.15)	(39.37)	(1858670)	(50590)			(185.19)	(198.42)	(98.15)	(57.09)	(59.06)	(98.15)	(57.09)	(59.06)
LDS-80-1200	80	1200	200000	190000	1	0.3	98	103	2893	1650	1700	2893	1650	1700
	(3.15)	(47.24)	(1770160)	(42720)			(216.06)	(227.08)	(113.9)	(64.96)	(66.93)	(113.9)	(64.96)	(66.93)
LDS-80-1400	80	1400	190000	150000	0.8	0.3	118	125	3393	1950	2000	3393	1950	2000
	(3.15)	(55.12)	(1681655)	(33720)			(260.15)	(275.58)	(133.58)	(76.77)	(78.74)	(133.58)	(76.77)	(78.74)
LDS-80-1600	80	1600	190000	150000	0.6	0.2	140	150	3893	2250	2300	3893	2250	2300
	(3.15)	(62.99)	(1681655)	(33720)			(308.65)	(330.7)	(153.27)	(88.58)	(90.55)	(153.27)	(88.58)	(90.55)
LDS-80-1800	80	1800	190000	150000	0.5	0.2	175	185	4293	2450	2500	4293	2450	2500
	(3.15)	(70.87)	(1681655)	(33720)			(385.82)	(407.86)	(169.02)	(96.46)	(98.43)	(169.02)	(96.46)	(98.43)



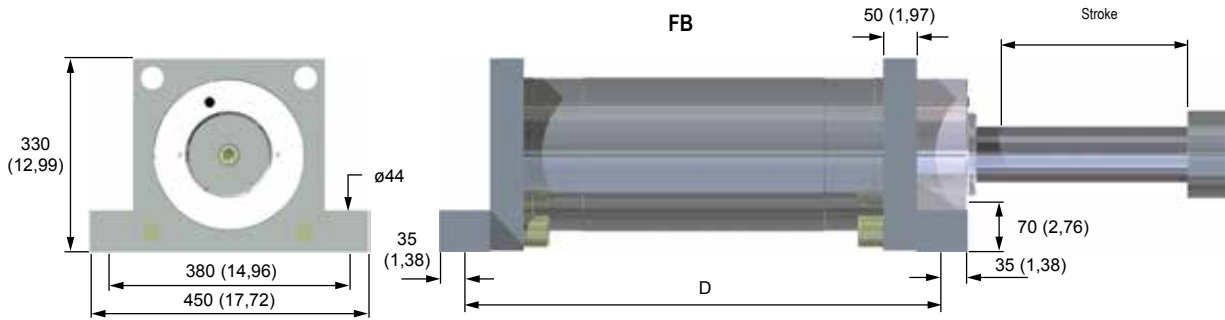
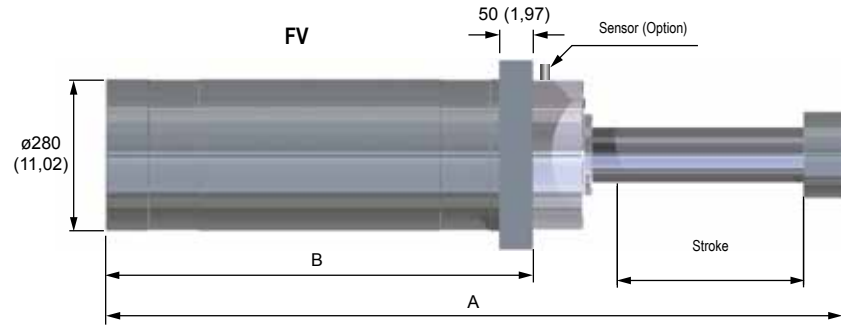
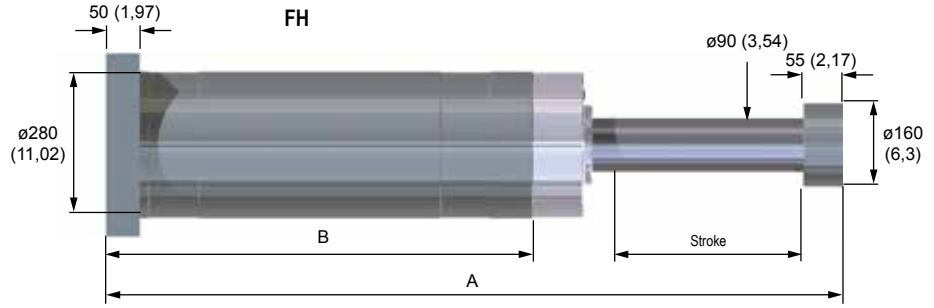
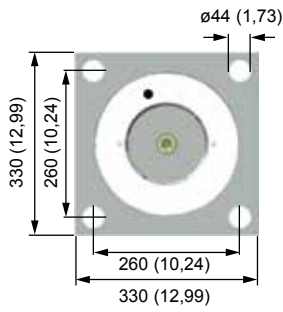
Rear flange recommended only for shock absorbers up to 300 mm stroke!

	øPiston	Stroke	Energy/ Stroke	max. Counterforce	max. angular tolerance		Weight		Mounting: horizontal			Mounting: vertical		
	mm (inch)	mm (inch)	Nm (in lbs)	N (lbs)	Emergency	Constant load	kg (lbs)	FV / FH kg (lbs)	A mm (inch)	B mm (inch)	D mm (inch)	A mm (inch)	B mm (inch)	D mm (inch)
LDS-100-050	100 (3.94)	50 (1.97)	15500 (137190)	360000 (80930)	2	2	55 (121.26)	90 (198.42)	425 (16.73)	313 (12.32)	363 (14.29)	425 (16.73)	313 (12.32)	363 (14.29)
LDS-100-100	100 (3.94)	100 (3.94)	31000 (274375)	360000 (80930)	2	1.5	60 (132.28)	95 (209.44)	525 (20.67)	363 (14.29)	413 (16.26)	535 (21.06)	373 (14.69)	423 (16.65)
LDS-100-150	100 (3.94)	150 (5.91)	46500 (411565)	360000 (80930)	2	1.5	65 (143.3)	100 (220.47)	625 (24.61)	413 (16.26)	463 (18.23)	645 (25.39)	433 (17.05)	483 (19.02)
LDS-100-200	100 (3.94)	200 (7.87)	62000 (548750)	360000 (80930)	1.5	1	70 (154.33)	105 (231.49)	725 (28.54)	463 (18.23)	513 (20.2)	755 (29.72)	493 (19.41)	543 (21.38)
LDS-100-250	100 (3.94)	250 (9.84)	77500 (685940)	360000 (80930)	1.5	0.5	75 (165.35)	110 (242.51)	825 (32.48)	513 (20.2)	563 (22.17)	865 (34.06)	553 (21.77)	603 (23.74)
LDS-100-300	100 (3.94)	300 (11.81)	93000 (823125)	360000 (80930)	1.5	0.5	85 (187.4)	120 (264.56)	1000 (39.37)	643 (25.31)	693 (27.28)	1000 (39.37)	643 (25.31)	693 (27.28)
LDS-100-400	100 (3.94)	400 (15.75)	124000 (1097500)	360000 (80930)	1.5	0.5	95 (209.44)	130 (286.61)	1200 (47.24)	743 (29.25)	793 (31.22)	1200 (47.24)	743 (29.25)	793 (31.22)
LDS-100-500	100 (3.94)	500 (16.69)	155000 (1371875)	360000 (80930)	1.5	0.5	105 (231.49)	140 (308.65)	1405 (55.31)	848 (33.39)	898 (35.35)	1405 (55.31)	848 (33.39)	898 (35.35)
LDS-100-600	100 (3.94)	600 (23.62)	186000 (1646250)	360000 (80930)	1.5	0.5	115 (253.54)	150 (330.7)	1605 (63.19)	948 (37.32)	998 (39.29)	1635 (64.37)	978 (38.5)	1028 (40.47)
LDS-100-700	100 (3.94)	700 (27.56)	217000 (1920625)	360000 (80930)	1	0.5	125 (275.58)	160 (352.75)	1805 (71.06)	1048 (41.26)	1098 (43.23)	1845 (72.64)	1088 (42.83)	1138 (44.8)
LDS-100-800	100 (3.94)	800 (31.5)	248000 (2195000)	360000 (80930)	1	0.5	135 (297.63)	170 (374.79)	2015 (79.33)	1153 (45.39)	1203 (47.36)	2065 (81.3)	1203 (47.36)	1253 (49.33)
LDS-100-900	100 (3.94)	900 (35.43)	279000 (2469480)	360000 (80930)	1	0.5	145 (319.68)	180 (396.84)	2215 (87.2)	1253 (49.33)	1303 (51.3)	2285 (89.96)	1323 (52.09)	1373 (54.06)
LDS-100-1000	100 (3.94)	1000 (39.37)	250000 (2212700)	300000 (67445)	1	0.5	155 (341.72)	190 (418.89)	2415 (95.08)	1353 (53.27)	1403 (55.24)	2515 (99.02)	1453 (57.2)	1503 (59.17)
LDS-100-1200	100 (3.94)	1200 (47.24)	212000 (1876370)	212000 (47660)	1	0.5	165 (363.77)	210 (462.98)	2815 (110.83)	1553 (61.14)	1603 (63.11)	2965 (116.73)	1703 (67.05)	1753 (69.02)



Rear flange recommended only for shock absorbers up to 300 mm stroke!

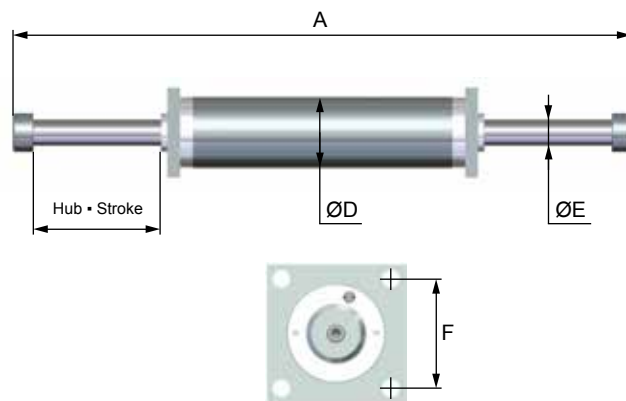
	øPiston	Stroke	Energy/ Stroke	max. Counterforce	max. angular tolerance		Weight		Mounting: horizontal			Mounting: vertical		
					Emergency	Constant load	kg (lbs)	FV / FH kg (lbs)	A mm (inch)	B mm (inch)	D mm (inch)	A mm (inch)	B mm (inch)	D mm (inch)
LDS-125-050	125 (4.92)	50 (1.97)	23000 (203570)	552000 (124100)	2	2	85 (187.4)	127 (279.99)	462 (18.19)	295 (11.61)	355 (13.98)	462 (18.19)	295 (11.61)	355 (13.98)
LDS-125-100	125 (4.92)	100 (3.94)	46000 (407140)	552000 (124100)	2	1,5	90 (198.42)	132 (291.02)	562 (22.13)	345 (13.58)	405 (15.94)	562 (22.13)	345 (13.58)	405 (15.94)
LDS-125-150	125 (4.92)	150 (5.91)	69000 (610710)	552000 (124100)	2	1,5	99 (218.26)	141 (310.86)	662 (26.06)	395 (15.55)	455 (17.91)	662 (26.06)	395 (15.55)	455 (17.91)
LDS-125-200	125 (4.92)	200 (7.87)	92000 (814275)	552000 (124100)	1,5	1	105 (231.49)	147 (324.09)	762 (30)	445 (17.52)	505 (19.88)	788 (31.02)	471 (18.54)	531 (20.91)
LDS-125-250	125 (4.92)	250 (9.84)	115000 (1017845)	552000 (124100)	1,5	0,5	115 (253.54)	157 (346.13)	872 (34.33)	505 (19.88)	565 (22.24)	898 (35.35)	531 (20.91)	591 (23.27)
LDS-125-300	125 (4.92)	300 (11.81)	138000 (1221410)	552000 (124100)	1,5	0,5	120 (264.56)	162 (357.15)	984 (38.74)	567 (22.32)	627 (24.69)	1020 (40.16)	603 (23.74)	663 (26.1)
LDS-125-400	125 (4.92)	400 (15.75)	185000 (1637400)	552000 (124100)	1,5	0,5	135 (297.63)	177 (390.22)	1227 (48.31)	710 (27.95)	770 (30.31)	1278 (50.31)	761 (29.96)	#WERT!
LDS-125-500	125 (4.92)	500 (19.69)	231000 (2044535)	552000 (124100)	1,5	0,5	165 (363.77)	207 (456.36)	1475 (58.07)	858 (33.78)	918 (36.14)	1537 (60.51)	920 (36.22)	980 (38.58)
LDS-125-600	125 (4.92)	600 (23.62)	277000 (2451675)	552000 (124100)	1,5	0,5	180 (396.84)	222 (489.43)	1723 (67.83)	1006 (39.61)	1066 (41.97)	1783 (70.2)	1066 (41.97)	1126 (44.33)
LDS-125-700	125 (4.92)	700 (27.56)	325000 (2876510)	552000 (124100)	1	0,5	190 (418.89)	232 (511.48)	1970 (77.56)	1153 (45.39)	1213 (47.46)	2050 (80.71)	1233 (48.54)	1293 (50.91)
LDS-125-800	125 (4.92)	800 (31.5)	370000 (3274800)	552000 (124100)	1	0,5	205 (451.96)	247 (544.55)	2219 (87.36)	1302 (51.26)	1362 (53.62)	2321 (91.38)	1404 (55.28)	1464 (57.64)
LDS-125-900	125 (4.92)	900 (35.43)	415000 (3673085)	552000 (124100)	1	0,5	215 (474)	257 (566.6)	2467 (97.13)	1450 (57.09)	1510 (59.45)	2574 (101.34)	1557 (61.3)	1617 (63.66)
LDS-125-1000	125 (4.92)	1000 (39.37)	460000 (4071370)	552000 (124100)	1	0,5	230 (507.07)	272 (599.67)	2715 (106.89)	1598 (62.94)	1658 (65.28)	2837 (111.69)	1720 (67.72)	1780 (70.08)
LDS-125-1200	125 (4.92)	1200 (47.24)	410000 (3628828)	410000 (92200)	1	0,5	250 (551.17)	292 (643.76)	3211 (126.42)	1894 (74.57)	1954 (76.93)	3368 (132.6)	2051 (80.75)	2111 (83.11)



Rear flange recommended only for shock absorbers up to 300 mm stroke!

	øPiston	Stroke	Energy/ Stroke	max. Counterforce	max. angular tolerance		Weight		Mounting: horizontal			Mounting: vertical		
	mm (inch)	mm (inch)	Nm (in lbs)	N (lbs)	Emergency	Constant load	kg (lbs)	FV / FH kg (lbs)	A mm (inch)	B mm (inch)	D mm (inch)	A mm (inch)	B mm (inch)	D mm (inch)
LDS-160-050	160 (6.3)	50 (1.97)	37500 (331905)	900000 (202330)	2	2	160 (352.75)	215 (474)	512 (20.16)	340 (13.39)	410 (16.14)	512 (20.16)	340 (13.39)	410 (16.14)
LDS-160-100	160 (6.3)	100 (3.94)	75000 (663810)	900000 (202330)	2	1,5	170 (374.79)	225 (496.05)	612 (24.09)	390 (15.35)	460 (18.11)	612 (24.09)	390 (15.35)	460 (18.11)
LDS-160-150	160 (6.3)	150 (5.91)	112000 (991290)	900000 (202330)	2	1,5	185 (407.86)	240 (529.12)	712 (28.03)	440 (17.32)	510 (20.08)	712 (28.03)	440 (17.32)	510 (20.08)
LDS-160-200	160 (6.3)	200 (7.87)	150000 (1327620)	900000 (202330)	1,5	1	195 (429.91)	250 (551.17)	812 (31.97)	490 (19.29)	560 (22.05)	812 (31.97)	490 (19.29)	560 (22.05)
LDS-160-250	160 (6.3)	250 (9.84)	190000 (1681655)	900000 (202330)	1,5	0,5	205 (451.96)	260 (573.21)	902 (35.51)	530 (20.87)	600 (23.62)	902 (35.51)	530 (20.87)	600 (23.65)
LDS-160-300	160 (6.3)	300 (11.81)	220000 (1947180)	900000 (202330)	1,5	0,5	215 (474)	270 (595.26)	1007 (39.65)	585 (23.03)	655 (25.79)	1007 (39.65)	585 (23.03)	655 (25.79)
LDS-160-400	160 (6.3)	400 (15.75)	300000 (2655240)	900000 (202330)	1,5	0,5	235 (518.1)	290 (639.35)	1217 (47.91)	695 (27.36)	765 (30.12)	1227 (48.31)	705 (27.76)	775 (30.51)
LDS-160-500	160 (6.3)	500 (19.69)	380000 (3363305)	900000 (202330)	1,5	0,5	260 (573.21)	315 (694.47)	1457 (57.36)	835 (32.87)	905 (35.63)	1467 (57.76)	845 (33.27)	1005 (39.57)
LDS-160-600	160 (6.3)	600 (23.62)	455000 (4027115)	900000 (202330)	1,5	0,5	310 (683.44)	365 (804.7)	1697 (66.81)	975 (38.39)	1045 (41.14)	1707 (67.2)	985 (38.78)	1055 (41.54)
LDS-160-700	160 (6.3)	700 (27.56)	530000 (4690925)	900000 (202330)	1	0,5	330 (727.54)	385 (848.79)	1937 (76.26)	1115 (43.9)	1185 (46.65)	1957 (77.05)	1135 (44.69)	1205 (47.44)
LDS-160-800	160 (6.3)	800 (31.5)	605000 (5354735)	900000 (202330)	1	0,5	360 (793.68)	415 (914.93)	2177 (85.71)	1255 (49.41)	1325 (52.17)	2197 (86.5)	1275 (50.2)	1345 (52.95)
LDS-160-900	160 (6.3)	900 (35.43)	680000 (6018545)	900000 (202330)	1	0,5	390 (859.82)	445 (981.07)	2417 (95.16)	1395 (54.92)	1465 (57.68)	2437 (95.94)	1425 (56.1)	1495 (58.86)
LDS-160-1000	160 (6.3)	1000 (39.37)	795000 (7036390)	900000 (202330)	1	0,5	420 (925.96)	475 (1047.21)	2657 (104.61)	1535 (60.43)	1605 (63.19)	2697 (106.18)	1575 (62.01)	1645 (64.76)
LDS-160-1200	160 (6.3)	1200 (47.24)	800000 (7080640)	800000 (179850)	1	0,5	450 (992.1)	505 (1113.35)	3137 (123.5)	1815 (71.46)	1885 (74.21)	3187 (125.47)	1865 (73.43)	1935 (76.18)

Heavy-Duty Shock Absorbers, double-acting



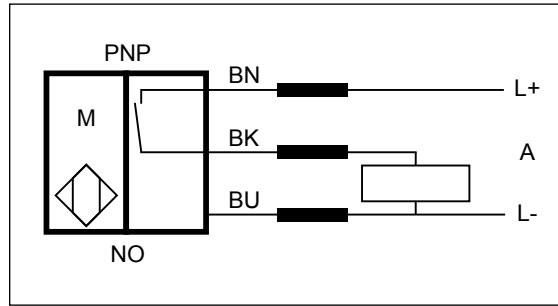
FEATURES

- Customer-specific modification to suit application scenario
- Strokes: 50 - 1000 mm
- Energy absorption: up to 400.000 Nm / stroke

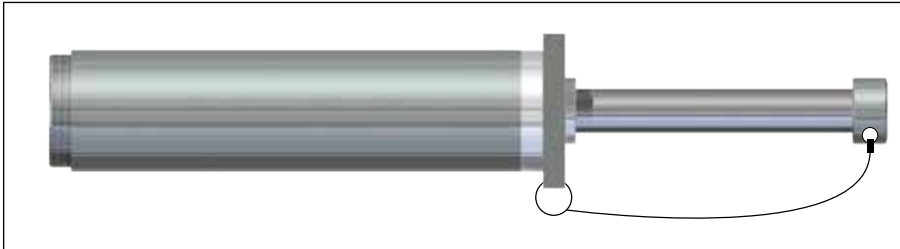
For the selection the following information is required:

- Mass (kg)
- Speed (m/s)
- Propelling force (N)
- Drive power (kW)
- Number of strokes / h
- At 1/h: number of strokes per year
- Temperature (°C)
- Stroke (mm)
- Dimensions according to drawing

PROXIMITY SWITCH

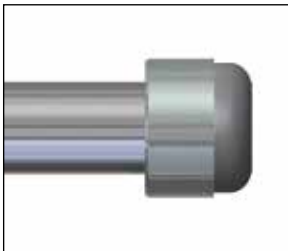


SECURITY CHAIN



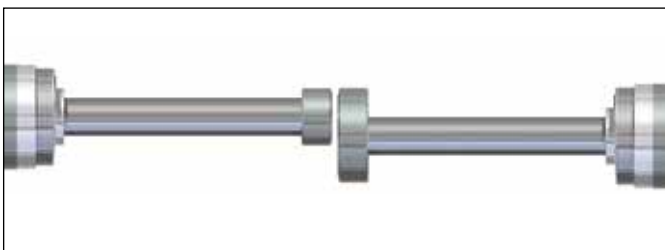
For safety reasons we recommend the use of a security chain when the installation height of the LDS / HLS heavy-duty shock absorber is 2 m or above.

STOP CAP



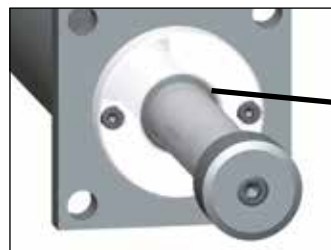
	D	F	ØE1
LDS 32	39,5 (1.56)	18 (0.71)	31 (1.22)
LDS 40	59,0 (2.32)	25 (0.98)	49 (1.93)
LDS 50	59,0 (2.32)	25 (0.98)	49 (1.93)
LDS 75	80,0 (3.15)	25 (0.98)	66 (2.59)
LDS 80	80,0 (3.15)	25 (0.98)	66 (2.59)
LDS 100	98,0 (3.86)	25 (0.98)	66 (2.59)

ENLARGED STOP CAP



Application: Shock absorber against Shock absorber

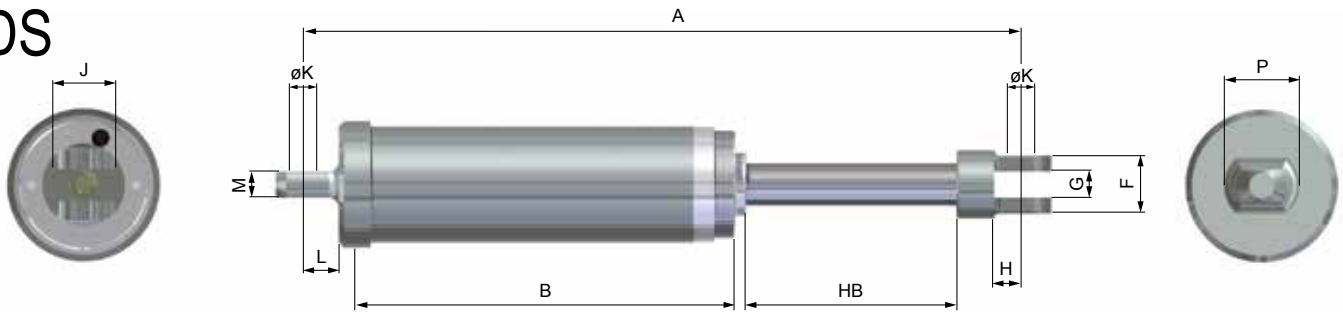
METAL WIPER



(Stroke: -10 mm)

Clevis Mounting

LDS



From series LDS-80
Female rod clevis mounted on both sides!

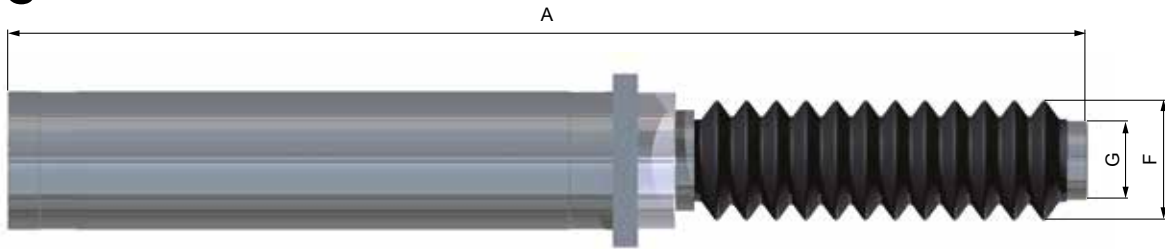
DIMENSIONS

	Stroke	A	F	G	H	J	øK	L	M	P
	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
LDS-32-050	50 (1.97)	398 (15.67)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-32-100	100 (3.94)	498 (19.61)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-32-150	150 (5.91)	598 (23.54)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-32-200	200 (7.87)	698 (27.48)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-32-250	250 (9.84)	798 (31.42)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-32-300	300 (11.81)	898 (35.35)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-40-050	50 (1.97)	382 (15.04)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-40-100	100 (3.94)	482 (18.98)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-40-150	150 (5.91)	582 (22.91)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-40-200	200 (7.87)	682 (26.85)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-40-250	250 (9.84)	782 (30.79)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-40-300	300 (11.81)	882 (34.72)	38,1 (1.5)	16,3 (0.64)	35 (1.38)	38,1 (1.5)	20 (0.79)	38 (1.5)	25 (0.98)	38 (1.5)
LDS-50-050	50 (1.97)	398 (15.67)	55 (2.17)	25 (0.98)	34 (1.34)	40 (1.57)	20 (0.79)	40 (1.57)	25 (0.98)	40 (1.57)
LDS-50-100	100 (3.94)	497 (19.57)	55 (2.17)	25 (0.98)	34 (1.34)	40 (1.57)	20 (0.79)	40 (1.57)	25 (0.98)	40 (1.57)
LDS-50-150	150 (5.91)	597 (23.5)	55 (2.17)	25 (0.98)	34 (1.34)	40 (1.57)	20 (0.79)	40 (1.57)	25 (0.98)	40 (1.57)
LDS-50-200	200 (7.87)	697 (27.44)	55 (2.17)	25 (0.98)	34 (1.34)	40 (1.57)	20 (0.79)	40 (1.57)	25 (0.98)	40 (1.57)
LDS-50-250	250 (9.84)	797 (31.38)	55 (2.17)	25 (0.98)	34 (1.34)	40 (1.57)	20 (0.79)	40 (1.57)	25 (0.98)	40 (1.57)
LDS-50-300	300 (11.81)	897 (35.31)	55 (2.17)	25 (0.98)	34 (1.34)	40 (1.57)	20 (0.79)	40 (1.57)	25 (0.98)	40 (1.57)
LDS-75-050	50 (1.97)	432 (17.01)	90 (3.54)	38 (1.5)	32 (1.26)	60 (2.36)	25 (0.98)	45 (1.77)	38 (1.5)	60 (2.36)
LDS-75-075	75 (2.95)	483 (19.02)	90 (3.54)	38 (1.5)	32 (1.26)	60 (2.36)	25 (0.98)	45 (1.77)	38 (1.5)	60 (2.36)
LDS-75-100	100 (3.94)	520 (20.47)	90 (3.54)	38 (1.5)	32 (1.26)	60 (2.36)	25 (0.98)	45 (1.77)	38 (1.5)	60 (2.36)
LDS-75-125	125 (4.92)	585 (23.03)	90 (3.54)	38 (1.5)	32 (1.26)	60 (2.36)	25 (0.98)	45 (1.77)	38 (1.5)	60 (2.36)
LDS-75-150	150 (5.91)	642 (25.28)	90 (3.54)	38 (1.5)	32 (1.26)	60 (2.36)	25 (0.98)	45 (1.77)	38 (1.5)	60 (2.36)
LDS-75-200	200 (7.87)	736 (28.98)	90 (3.54)	38 (1.5)	32 (1.26)	60 (2.36)	25 (0.98)	45 (1.77)	38 (1.5)	60 (2.36)
LDS-75-250	250 (9.84)	838 (32.99)	90 (3.54)	38 (1.5)	32 (1.26)	60 (2.36)	25 (0.98)	45 (1.77)	38 (1.5)	60 (2.36)
LDS-75-300	300 (11.81)	940 (37.01)	90 (3.54)	38 (1.5)	32 (1.26)	60 (2.36)	25 (0.98)	45 (1.77)	38 (1.5)	60 (2.36)
LDS-80-050	50 (1.97)	551 (21.69)	90 (3.54)	38 (1.5)	50 (1.97)	60 (2.36)	30 (1.18)	50 (1.97)	0 (0)	0 (0)
LDS-80-100	100 (3.94)	676 (26.61)	90 (3.54)	38 (1.5)	50 (1.97)	60 (2.36)	30 (1.18)	50 (1.97)	0 (0)	0 (0)
LDS-80-150	150 (5.91)	776 (30.55)	90 (3.54)	38 (1.5)	50 (1.97)	60 (2.36)	30 (1.18)	50 (1.97)	0 (0)	0 (0)
LDS-80-200	200 (7.87)	901 (35.47)	90 (3.54)	38 (1.5)	50 (1.97)	60 (2.36)	30 (1.18)	50 (1.97)	0 (0)	0 (0)
LDS-80-250	250 (9.84)	1001 (39.41)	90 (3.54)	38 (1.5)	50 (1.97)	60 (2.36)	30 (1.18)	50 (1.97)	0 (0)	0 (0)
LDS-80-300	300 (11.81)	1126 (44.33)	90 (3.54)	38 (1.5)	50 (1.97)	60 (2.36)	30 (1.18)	50 (1.97)	0 (0)	0 (0)
LDS-100-050	50 (1.97)	570 (22.44)	140 (5.51)	65 (2.56)	50 (1.97)	100 (3.94)	50 (1.97)	70 (2.76)	0 (0)	0 (0)
LDS-100-100	100 (3.94)	672 (26.46)	140 (5.51)	65 (2.56)	50 (1.97)	100 (3.94)	50 (1.97)	70 (2.76)	0 (0)	0 (0)
LDS-100-150	150 (5.91)	772 (30.39)	140 (5.51)	65 (2.56)	50 (1.97)	100 (3.94)	50 (1.97)	70 (2.76)	0 (0)	0 (0)
LDS-100-200	200 (7.87)	875 (34.45)	140 (5.51)	65 (2.56)	50 (1.97)	100 (3.94)	50 (1.97)	70 (2.76)	0 (0)	0 (0)
LDS-100-250	250 (9.84)	976 (38.43)	140 (5.51)	65 (2.56)	50 (1.97)	100 (3.94)	50 (1.97)	70 (2.76)	0 (0)	0 (0)
LDS-100-300	300 (11.81)	1143 (45)	140 (5.51)	65 (2.56)	50 (1.97)	100 (3.94)	50 (1.97)	70 (2.76)	0 (0)	0 (0)
LDS-125-050	50 (1.97)	640 (25.2)	150 (5.91)	70 (2.76)	70 (2.76)	100 (3.94)	60 (2.36)	80 (3.15)	0 (0)	0 (0)
LDS-125-100	100 (3.94)	751 (29.57)	150 (5.91)	70 (2.76)	70 (2.76)	100 (3.94)	60 (2.36)	80 (3.15)	0 (0)	0 (0)
LDS-125-150	150 (5.91)	853 (33.58)	150 (5.91)	70 (2.76)	70 (2.76)	100 (3.94)	60 (2.36)	80 (3.15)	0 (0)	0 (0)
LDS-125-200	200 (7.87)	955 (37.6)	150 (5.91)	70 (2.76)	70 (2.76)	100 (3.94)	60 (2.36)	80 (3.15)	0 (0)	0 (0)
LDS-125-250	250 (9.84)	1055 (41.54)	150 (5.91)	70 (2.76)	70 (2.76)	100 (3.94)	60 (2.36)	80 (3.15)	0 (0)	0 (0)
LDS-125-300	300 (11.81)	1157 (45.55)	150 (5.91)	70 (2.76)	70 (2.76)	100 (3.94)	60 (2.36)	80 (3.15)	0 (0)	0 (0)

We reserve the right to make changes without further notice!

Protection Bellow

LDS



	LDS 32 / 40	LDS 50 / 75	LDS 80 / 100 / 125	LDS 160
ØG	55 mm (2.17 inch)	70 mm (2.76 inch)	125 mm (4.92 inch)	160 mm (6.3 inch)
ØF	120 mm (4.72 inch)	130 mm (5.12 inch)	190 mm (7.48 inch)	220 mm (8.66 inch)

LDS 32	
Stroke	A
mm (inch)	mm (inch)
50 (1.97)	380 (14.96)
100 (3.94)	480 (18.9)
150 (5.91)	580 (22.83)
200 (7.87)	680 (26.77)
250 (9.84)	780 (30.71)
300 (11.81)	935 (36.81)
350 (13.78)	1035 (40.75)
400 (15.75)	1135 (44.69)
450 (17.72)	1245 (49.02)
500 (19.69)	1355 (53.35)
550 (21.65)	1465 (57.68)
600 (23.62)	1575 (62.01)

LDS 40	
Stroke	A
mm (inch)	mm (inch)
50 (1.97)	370 (14.57)
100 (3.94)	470 (18.5)
150 (5.91)	570 (22.44)
200 (7.87)	670 (26.38)
250 (9.84)	770 (30.31)
300 (11.81)	925 (36.42)
350 (13.78)	1025 (40.35)
400 (15.75)	1135 (44.69)
450 (17.72)	1245 (49.02)
500 (19.69)	1355 (53.35)
550 (21.65)	1465 (57.68)
600 (23.62)	1575 (62.01)
650 (25.59)	1750 (68.9)
700 (27.56)	1860 (73.23)
750 (29.53)	1970 (77.56)
800 (31.5)	2080 (81.89)
850 (33.46)	2190 (86.22)
900 (35.43)	2300 (90.55)
950 (37.4)	2410 (94.88)
1000 (39.37)	2520 (99.21)
1200 (47.24)	2960 (116.54)

LDS 50	
Stroke	A
mm (inch)	mm (inch)
50 (1.97)	382 (15.04)
100 (3.94)	481 (18.94)
150 (5.91)	581 (22.87)
200 (7.87)	681 (26.81)
250 (9.84)	781 (30.75)
300 (11.81)	936 (36.85)
350 (13.78)	1036 (40.79)
400 (15.75)	1136 (44.72)
450 (17.72)	1246 (49.06)
500 (19.69)	1356 (53.39)
550 (21.65)	1466 (57.72)
600 (23.62)	1576 (62.05)
650 (25.59)	1686 (66.38)
700 (27.56)	1861 (73.27)
750 (29.53)	1971 (77.6)
800 (31.5)	2081 (81.93)
850 (33.46)	2191 (86.26)
900 (35.43)	2301 (90.59)
950 (37.4)	2411 (94.92)
1000 (39.37)	2521 (99.25)

LDS 75	
Stroke	A
mm (inch)	mm (inch)
50 (1.97)	390 (15.35)
75 (2.95)	436 (17.17)
100 (3.94)	490 (19.29)
125 (4.92)	540 (21.26)
150 (5.91)	612 (24.09)
200 (7.87)	690 (27.17)
250 (9.84)	790 (31.1)
300 (11.81)	945 (37.2)
350 (13.78)	1095 (43.11)
400 (15.75)	1196 (47.09)
450 (17.72)	1297 (51.06)
500 (19.69)	1398 (55.04)
600 (23.62)	1599 (62.95)
700 (27.56)	1866 (73.46)
800 (31.5)	2067 (81.38)
900 (35.43)	2316 (91.18)
1000 (39.37)	2516 (99.06)

LDS 80	
Stroke	A
mm (inch)	mm (inch)
50 (1.97)	484 (19.06)
100 (3.94)	609 (23.98)
150 (5.91)	709 (27.91)
200 (7.87)	834 (32.83)
250 (9.84)	934 (36.77)
300 (11.81)	1104 (43.46)
400 (15.75)	1304 (51.34)
500 (19.69)	1529 (60.2)
600 (23.62)	1729 (68.07)
700 (27.56)	2004 (78.9)
800 (31.5)	2204 (86.77)
900 (35.43)	2454 (96.61)
1000 (39.37)	2654 (104.49)

LDS 100	
Stroke	A
mm (inch)	mm (inch)
50 (1.97)	487 (19.17)
100 (3.94)	587 (23.11)
150 (5.91)	687 (27.05)
200 (7.87)	787 (30.98)
250 (9.84)	887 (34.92)
300 (11.81)	1112 (43.78)
400 (15.75)	1321 (52.01)
500 (19.69)	1517 (59.72)
600 (23.62)	1717 (67.6)
700 (27.56)	1967 (77.44)
800 (31.5)	2172 (85.51)
900 (35.43)	2372 (93.39)
1000 (39.37)	2527 (99.49)

LDS 125	
Stroke	A
mm (inch)	mm (inch)
50 (1.97)	469 (18.46)
100 (3.94)	569 (22.4)
150 (5.91)	669 (26.34)
200 (7.87)	769 (30.28)
250 (9.84)	879 (34.61)
300 (11.81)	1036 (40.79)
400 (15.75)	1279 (50.35)
500 (19.69)	1527 (60.12)
600 (23.62)	1775 (69.88)
700 (27.56)	2072 (81.57)
800 (31.5)	2321 (91.38)
900 (35.43)	2569 (101.14)
1000 (39.37)	2817 (110.91)

LDS 160	
Stroke	A
mm (inch)	mm (inch)
50 (1.97)	587 (23.11)
100 (3.94)	687 (27.05)
150 (5.91)	787 (30.98)
200 (7.87)	887 (34.92)
250 (9.84)	1055 (41.54)
300 (11.81)	1160 (45.67)
400 (15.75)	1370 (53.94)
500 (19.69)	1610 (63.39)
600 (23.62)	1850 (72.83)
700 (27.56)	2090 (82.28)
800 (31.5)	2408 (94.8)
900 (35.43)	2648 (104.25)
1000 (39.37)	2888 (113.7)
1200 (47.24)	3368 (132.6)