

Shock Absorbers

Mega-Line M4 - M12



Mega-Line 0,1 - 0,2



Energy absorption

0,4 - 9 Nm / Stroke
3.5 - 80 in-lbs / Stroke

Stroke

4 - 10 mm
0.16 - 0.39 in

Thread

M4x0,35 / M5x0,5 / M6x0,5
M8x1 / M10x1 / M12x1
3/8-32 UNEF
7/16-28 UNEF
1/2-20 UNF

Energy absorption

4 - 22 Nm / Stroke
35 - 195 in-lbs / Stroke

Stroke

7 - 12 mm
0.28 - 0.47 in

Thread

M8x1 / M10x1 / M12x1
3/8-32 UNEF
7/16-28 UNEF
1/2-20 UNF

FEATURES

Enlarged Piston

High energy absorption (M4-M12)
Max. +400% Energy (0,1 - 0,2)
Max. -50% Costs / Nm

ProSurf

Long-life surface protection

Characteristics

Adjustable (WE-M)
Self-compensating (WS-M)
Progressiv (WP-M)

Extended Life Time

Nitrated guidance system
Piston rod: hardened stainless steel (M4-M12)
Piston: hardened, Titanium
aluminium nitride (M4-M12)
Special seals + oils

Temperature

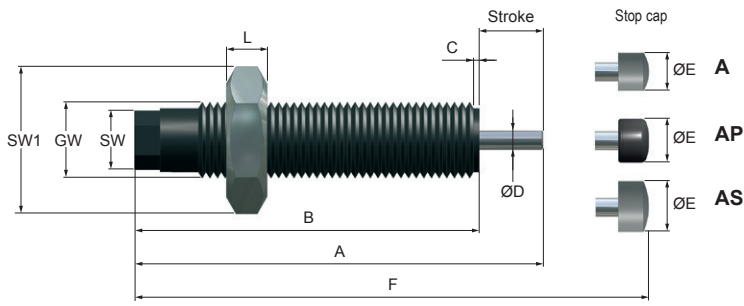
-20°C - +80°C / -4°F - 176°F
Option: -50°C - +60°C / -58°F - 140°F
0°C - +120°C / 32°F - 248°F

Integrated End Stop

Flats

Special models

Stainless steel (Page 40)
Pressure chambers up to 7 bar
USDA-H1-compliant for food industry



*A: Plastic / AP: Soft Touch / AS: Steel

Weight

M4x4 / M5x4 / M6x5: 3 g (0.003 lbs)
 M8x5: 7 g (0.015 lbs) / M10x6: 11 g (0.025 lbs)
 M10x8: 14 g (0.03 lbs) / M12x10: 30 g (0.067 lbs)

Return spring force

M 4 x 4: 0,8 Nm (7 lbs) / M 5 x 4: 1,0 Nm (9 lbs)
 M 6 x 5: 1,2 Nm (10 lbs) / M 8 x 5: 2 Nm (17 lbs)
 M 10 x 8: 4 Nm (35 lbs) / M 12 x 10: 8 Nm (70 lbs)

Included

1 Lock nut



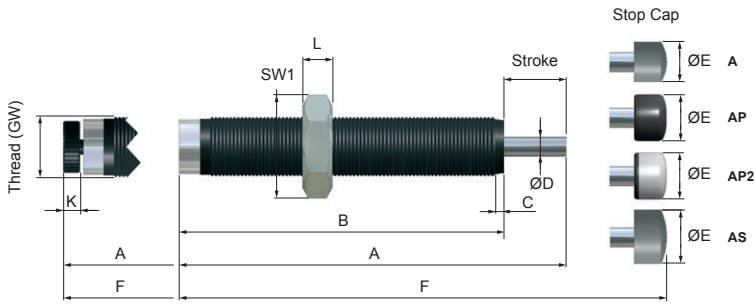
DIMENSIONS

GW		GW		A	B	C	ØD	ØE (A)	ØE (AP)	ØE (AS)	F (A)	F (AP)	F (AS)	L	SW	SW1-U	SW1-M
mm (inch)																	
WS-M 4 x 4	M 4 x 0,35	-	-	29 (1.14)	25 (0.98)	2 (0.08)	1,5 (0.06)	3 (0.12)	4,3 (0.17)	-	33 (1.3)	33 (1.3)	-	3 (0.12)	3 (0.12)	7 (0.28)	7 (0.28)
WS-M 5 x 4	M 5 x 0,5	-	-	29 (1.14)	25 (0.98)	2 (0.08)	1,5 (0.06)	3 (0.12)	4,3 (0.17)	-	33 (1.3)	33 (1.3)	-	3 (0.12)	4 (0.16)	8 (0.31)	8 (0.31)
WS-M 6 x 5	M 6 x 0,5	-	-	32 (1.26)	27 (1.06)	2 (0.08)	2 (0.08)	5 (0.2)	5,3 (0.21)	-	37 (1.46)	37 (1.46)	-	3 (0.12)	4 (0.16)	8 (0.31)	8 (0.31)
WS-M 8 x 5	M 8 x 1	-	-	35 (1.38)	30 (1.18)	2,5 (0.1)	2,3 (0.09)	6 (0.24)	6,5 (0.26)	-	41 (1.61)	41,5 (1.61)	-	3 (0.12)	5,5 (0.22)	11 (0.43)	11 (0.43)
WS-M 10 x 6	M 10 x 1	WS-M 10 x 6U	3/8-32 UNEF	37 (1.46)	31 (1.22)	2,5 (0.1)	3 (0.12)	6 (0.24)	8,5 (0.33)	8,5 (0.33)	43,5 (1.71)	43,5 (1.71)	43,5 (1.71)	3 (0.12)	7 (0.28)	13 (0.5)	13 (0.5)
WS-M 10 x 8	M 10 x 1	WS-M 10 x 8U	3/8-32 UNEF	48 (1.89)	40 (1.57)	2,5 (0.1)	3 (0.12)	6 (0.24)	8,5 (0.33)	8,5 (0.33)	54,5 (2.15)	54,5 (2.15)	54,5 (2.15)	3 (0.12)	7 (0.28)	13 (0.5)	13 (0.5)
-	-	WS-M 10 x 6UF	7/16-28 UNEF	37 (1.46)	31 (1.22)	2,5 (0.1)	3 (0.12)	6 (0.24)	8,5 (0.33)	8,5 (0.33)	43,5 (1.71)	43,5 (1.71)	43,5 (1.71)	4 (0.16)	7 (0.28)	-	14 (0.55)
-	-	WS-M 10 x 8UF	7/16-28 UNEF	48 (1.89)	40 (1.57)	2,5 (0.1)	3 (0.12)	6 (0.24)	8,5 (0.33)	8,5 (0.33)	54,5 (2.15)	54,5 (2.15)	54,5 (2.15)	4 (0.16)	7 (0.28)	-	14 (0.55)
WS-M 12 x 10	M 12 x 1	WS-M 12 x 10UH	1/2-20 UNF	61 (2.4)	51 (2.01)	2,5 (0.1)	4 (0.16)	10 (0.39)	10 (0.39)	10 (0.39)	69 (2.72)	69,5 (2.74)	69 (2.72)	4 (0.16)	9 (0.35)	14 (0.55)	14 (0.55)

PERFORMANCE

	Stroke mm (inch)	Energy absorption				Effective mass						Impact Speed		Return spring force	
		Constant load		Emergency	-1 (soft)		-2 (medium)		-3 (hard)		min m/s (ft/s)	max m/s (ft/s)	min. N (lbs)	max. N (lbs)	
		Nm/HB (max. lbs)	Nm/HB (max. lbs)	Nm/h (max. lbs)	min. kg (lbs)	max. kg (lbs)	min. kg (lbs)	max. kg (lbs)	min. kg (lbs)	max. kg (lbs)					
WS-M 4 x 4	4 (0.16)	0,4 (3.6)	0,7 (6.2)	1500 (13.3)	0,1 (0.22)	1 (2.2)	0,9 (2)	3,2 (7.1)	-	-	0,2 (0.66)	1,5 (4.9)	2 (0.45)	7 (1.58)	
WS-M 5 x 4	4 (0.16)	0,6 (5.4)	1 (8.9)	1800 (16)	0,1 (0.22)	1,2 (2.7)	1 (2.2)	5 (11.1)	-	-	0,2 (0.66)	2 (6.6)	2 (0.45)	7 (1.58)	
WS-M 6 x 5	5 (0.2)	1 (8.9)	1,5 (13.3)	3000 (26.6)	0,05 (0.11)	1 (2.2)	0,8 (1.8)	2,8 (13.7)	1,5 (3.3)	4 (8.9)	0,2 (0.66)	2,5 (8.2)	2 (0.45)	5 (1.13)	
WS-M 8 x 5	5 (0.2)	1,5 (13.3)	2 (17.7)	4000 (35.4)	0,25 (0.55)	3 (6.6)	0,7 (1.6)	6 (6.2)	3 (6.6)	9 (19.9)	0,2 (0.66)	2,5 (8.2)	2 (0.45)	5 (1.13)	
WS-M 10 x 6 WS-M 10 x 6U WS-M 10 x 6UF	6 (0.24)	2,2 (19.5)	3 (26.6)	12000 (110)	0,7 (1.55)	3 (6.6)	3 (6.6)	10 (22)	8 (17.7)	18 (39.7)	0,2 (0.66)	2,5 (8.2)	3 (0.68)	6 (1.35)	
WS-M 10 x 8 WS-M 10 x 8U WS-M 10 x 8UF	8 (0.32)	3 (26.6)	4 (35.5)	24000 (215)	0,9 (2)	9 (19.9)	2 (4.4)	12 (26.5)	9 (19.9)	23 (50.7)	0,2 (0.66)	3 (9.9)	3 (0.68)	6 (1.35)	
WS-M 12 x 10 WS-M 12 x 10UH	10 (0.39)	9 (79.7)	12 (106.2)	27450 (245)	1 (2.2)	15 (33)	10 (22)	42 (92.6)	25 (55.1)	61 (134.5)	0,2 (0.66)	3 (9.9)	4 (0.9)	10 (2.25)	

Mega-Line 0,1 - 0,2



*A: Plastic / AP: Soft Touch / AS: Steel

Weight

0,1: 10 g (0.022 lbs) / 0,15: 20 g (0.045 lbs) / 0,2: 36 g (0.080 lbs)

Impact Speed

WE-M: 0,2 - 3,5 m/s (0.65 - 11.5 ft/s)
WS-M / WP-M: 0,2 - 5,0 m/s (0.65 - 16.5 ft/s)

Return spring force

0,1: 2,5 N/min - 6 N/max (0.56 lbs/min - 1.35 lbs/max)
0,15: 3,6 N/min - 8 N/max (0.81 lbs/min - 1.8 lbs/max)
0,2: 3,5 N/min - 7 N/max (0.65 lbs/min - 16.5 lbs/max)

Torque: max. force by using the flats

0,1: 2 Nm (17 lbs) / 0,15: 6 Nm (53 lbs) / 0,2: 10 Nm (88 lbs)

Included

1 Lock nut

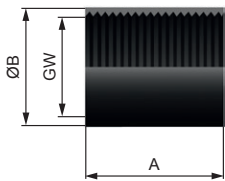
DIMENSIONS

GW	A	B	C	ø D	øE (A)	øE (AP / AP2)	øE (AS)	F (A)	F (AP / AP2)	F (AS)	L	SW1	K	
														mm (inch)
WE-M 0,1	M 8 x 1	56 (2.44)	45 (1.91)	2,5 (0.1)	2,5 (0.12)	6 (0.24)	6,5 (0.33)	-	61,5 (2.7)	63 (1.52)	-	3 (0.12)	11 (0.5)	3,5 (0.14)
WS-M 0,1 WP-M 0,1	M 8 x 1	51 (2.34)	44 (1.95)	2,5 (0.1)	2,5 (0.12)	6 (0.24)	6,5 (0.33)	-	57 (2.6)	58 (2.6)	-	3 (0.12)	11 (0.5)	-
WE-M 0,15	M 10 x 1	62 (2.44)	48,5 (1.91)	2,5 (0.1)	3 (0.12)	6 (0.24)	8,5 (0.33)	8,5 (0.33)	68,5 (2.7)	68,5 (1.52)	68,5 (2.7)	3 (0.12)	13 (0.56)	3,5 (0.14)
WE-M 0,15U	3/8-32 UNEF													
WS-M 0,15 WP-M 0,15	M 10 x 1	59,5 (2.34)	49,5 (1.95)	2,5 (0.1)	3 (0.12)	6 (0.24)	8,5 (0.33)	8,5 (0.33)	66 (2.6)	66 (2.6)	66 (2.6)	3 (0.12)	13 (0.56)	-
WS-M 0,15U WP-M 0,15U	3/8-32 UNEF													
WE-M 0,15UF	7/16-28 UNEF	62 (2.44)	48,5 (1.91)	2,5 (0.1)	3 (0.12)	6 (0.24)	8,5 (0.33)	8,5 (0.33)	68,5 (2.7)	68,5 (1.52)	68,5 (2.7)	3 (0.12)	13 (0.56)	3,5 (0.14)
WS-M 0,15UF WP-M 0,15UF	7/16-28 UNEF	59,5 (2.34)	49,5 (1.95)	2,5 (0.1)	3 (0.12)	6 (0.24)	8,5 (0.33)	8,5 (0.33)	66 (2.6)	66 (2.6)	66 (2.6)	3 (0.12)	13 (0.56)	-
WE-M 0,2	M 12 x 1	81,5 (3.21)	66 (2.6)	2,5 (0.1)	4 (0.16)	10 (0.39)	10 (0.39)	10 (0.39)	89,5 (3.52)	90 (3.54)	89,5 (3.52)	4 (0.16)	14 (0.63)	3,5 (0.14)
WE-M 0,2UH	1/2-20 UNF													
WS-M 0,2 WP-M 0,2	M 12 x 1	77 (3.03)	65 (2.56)	2,5 (0.1)	4 (0.16)	10 (0.39)	10 (0.39)	10 (0.39)	85 (3.35)	86 (3.39)	85 (3.35)	4 (0.16)	14 (0.63)	-
WS-M 0,2UH WP-M 0,2UH	1/2-20 UNF													

PERFORMANCE

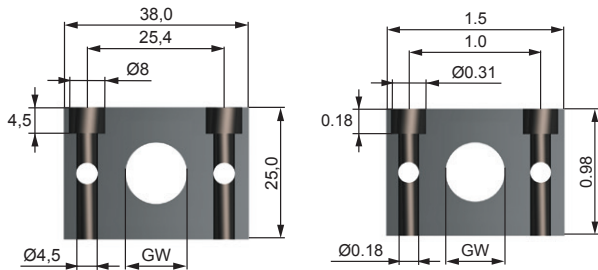
	Stroke mm (inch)	Energy absorption		Effective mass									
		Constant load		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)			
		Nm/HB max. (in lbs/HB max.)	Nm/h max. (in lbs/h max.)	min kg (min lbs)	max kg (max lbs)	min kg (min lbs)	max kg (max lbs)	min kg (min lbs)	max kg (max lbs)	min kg (min lbs)	max kg (max lbs)		
WE-M 0,1	7 (0.39)	4 (133)	14400 (213)	0,65 (2.2)	50 (1100)	-	-	-	-	-	-	-	-
WS-M 0,1	7 (0.39)	4 (133)	14400 (213)	0,65 (3.5)	2 (16.5)	1,3 (13.5)	5,5 (157)	1,7 (135)	50 (555)	-	-	-	-
WP-M 0,1	7 (0.39)	4 (133)	14400 (213)	0,3 (2.2)	0,9 (4.9)	0,65 (4.4)	2 (16.5)	1,8 (13.5)	8 (156)	-	-	-	-
WE-M 0,15 WE-M 0,15U WE-M 0,15UF	10 (0.39)	15 (133)	24000 (213)	1 (2.2)	500 (1100)	-	-	-	-	-	-	-	-
WS-M 0,15 WS-M 0,15U WS-M 0,15UF	10 (0.39)	15 (133)	24000 (213)	1,6 (3.5)	7,5 (16.5)	6,1 (13.5)	71 (157)	61 (135)	252 (555)	232 (512)	750 (1.66)	-	-
WP-M 0,15 WP-M 0,15U WP-M 0,15UF	10 (0.39)	15 (133)	24000 (213)	1 (2.2)	2,2 (4.9)	2 (4.4)	7,5 (16.5)	6,1 (13.5)	71 (156)	-	-	-	-
WE-M 0,2 WE-M 0,2UH	12 (0.47)	22 (195)	35200 (311.5)	9 (19.8)	800 (1765)	-	-	-	-	-	-	-	-
WS-M 0,2 WS-M 0,2UH	12 (0.47)	22 (195)	35200 (311.5)	2 (4.4)	11 (24.3)	10 (22)	107 (236)	104 (230)	360 (795)	343 (56)	1100 (2.43)	-	-
WP-M 0,2 WP-M 0,2UH	12 (0.47)	22 (195)	35200 (311.5)	1,5 (3.3)	2,8 (6.2)	2 (4.4)	21 (46.3)	17 (37.5)	92 (202)	-	-	-	-

STOP LIMIT NUT



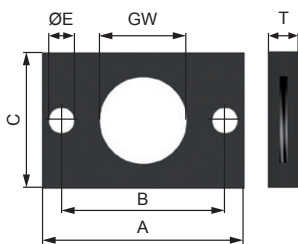
Thread	A	ØB
	mm (inch)	
M 6 x 0,5	8 (0.31)	10 (0.39)
M 8 x 1	12 (0.47)	11 (0.43)
M 10 x 1	15 (0.59)	14 (0.55)
3/8-32 UNEF	15 (0.59)	14 (0.55)
7/16-28 UNEF	15 (0.59)	14 (0.55)
M 12 x 1	20 (0.79)	16 (0.63)
1/2-20 UNF	20 (0.79)	16 (0.63)

RECTANGULAR FLANGE



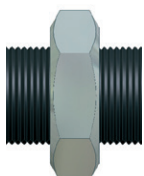
Thread (GW)	Width mm (inch)	Width = T
M 10 x 1; M 12 x 1	12 (0.47)	
3/8-32 UNEF; 7/16-28 UNEF; 1/2-20 UNF		

CLAMPING FLANGE



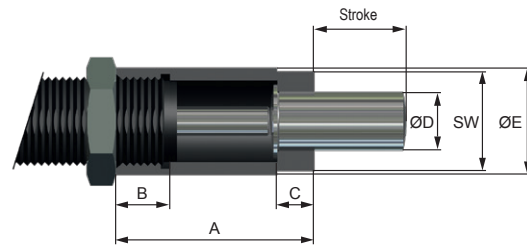
Thread (GW)	A	B	C	E	T
	mm (inch)				
M6x0,5	20 (0.79)	14 (0.55)	10 (0.39)	3,2 (0.13)	5 (0.20)
M8x1	25 (0.98)	18 (0.71)	15 (0.59)	4,2 (0.17)	6 (0.24)
M10x1	28 (1.10)	20 (0.79)	15 (0.59)	4,2 (0.17)	6 (0.24)
M12x1	32 (1.26)	24 (0.94)	20 (0.79)	5,5 (0.22)	6 (0.24)

LOCK NUT



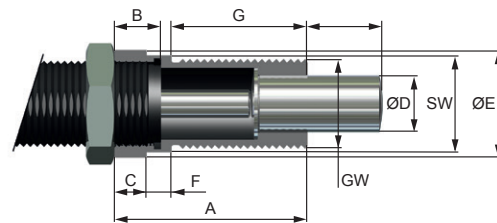
Thread	Thread
M4x0,35	M10x1
M5x0,5	3/8-32 UNEF
M6x0,5	7/16-28 UNEF
M8x1	M12x1

AK1 FOR SIDE FORCES



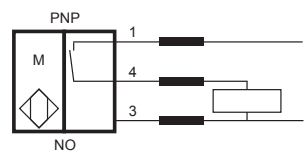
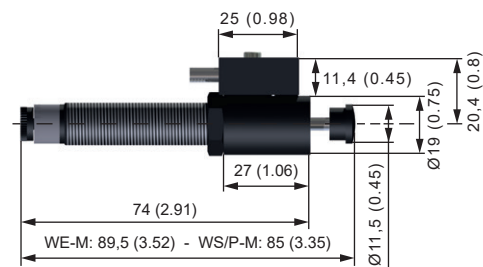
GW		A	B	C	øD	øE	SW
		mm (inch)					
M10x6	M10x1	17,5 (0.69)	7 (0.28)	5 (0.20)	7 (0.28)	14 (0.55)	13 (0.51)
M10x8	M10x1	20,5 (0.81)	7 (0.28)	5 (0.20)	7 (0.28)	14 (0.55)	13 (0.51)
M12x10	M12x1	23,0 (0.91)	7 (0.28)	5 (0.20)	9 (0.35)	15 (0.59)	14 (0.55)
0,15	M10x1	23,5 (0.93)	7 (0.28)	5 (0.20)	6 (0.24)	14 (0.55)	13 (0.51)
0,2	M12x1	25,0 (0.98)	7 (0.28)	5 (0.20)	9 (0.35)	15 (0.59)	14 (0.55)

AK2 FOR SIDE FORCES



GW		A	B	C	øD	øE	F	G	SW
		mm (inch)							
M8x5	M8x1	19 (0.75)	7 (0.28)	5 (0.20)	4 (0.16)	12 (0.47)	4 (0.16)	10 (0.39)	10 (0.39)
M10x6	M10x1	22 (0.87)	7 (0.28)	5 (0.20)	6 (0.24)	14 (0.55)	5 (0.20)	12 (0.47)	13 (0.51)
M12x10	M12x1	28 (1.10)	7 (0.28)	5 (0.20)	7 (0.28)	15 (0.59)	5 (0.20)	18 (0.71)	14 (0.55)

AK1 FOR SIDE FORCES (Mega-Line 0,2)



Included
Proximity Switch, Switch cap, Stop limit nut