

## Mega-Line Shock Absorbers



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## 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

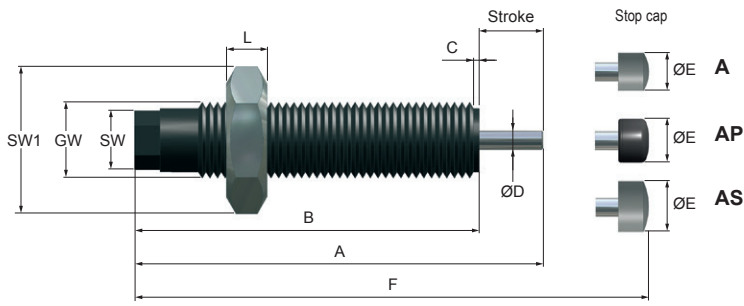
-20°C - +80°C / -4°F - 176°F  
Option: -50°C - +60°C / -58°F - 140°F  
0°C - +120°C / 32°F - 248°F

#### 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



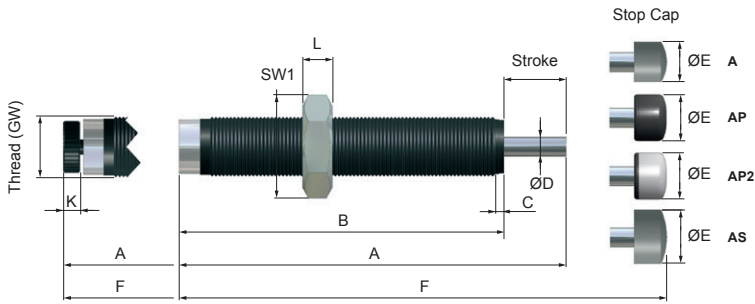
**DIMENSIONS**

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

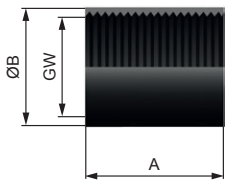
## DIMENSIONS

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

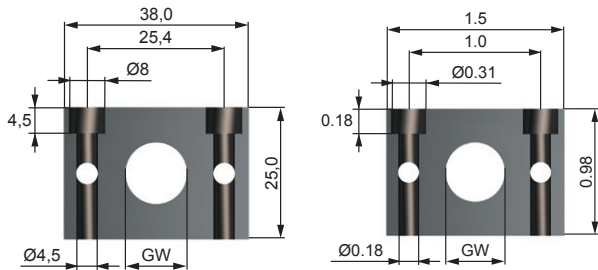
	Stroke mm (inch)	Energy absorption		Effective mass							
		Constant load		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)	
		Nm/HB max. (in lbs/HB max.)	Nm/h max. (in lbs/h max.)	min kg (min lbs)	max kg (max lbs)	min kg (min lbs)	max kg (max lbs)	min kg (min lbs)	max kg (max lbs)	min kg (min lbs)	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



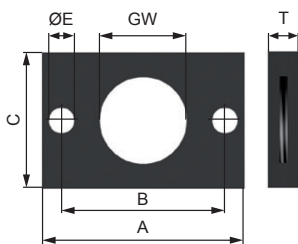
Thread	A	ØB
	mm (inch)	
M 6 x 0,5	8 (0.31)	10 (0.39)
M 8 x 1	12 (0.47)	11 (0.43)
M 10 x 1	15 (0.59)	14 (0.55)
3/8-32 UNEF	15 (0.59)	14 (0.55)
7/16-28 UNEF	15 (0.59)	14 (0.55)
M 12 x 1	20 (0.79)	16 (0.63)
1/2-20 UNF	20 (0.79)	16 (0.63)

### RECTANGULAR FLANGE



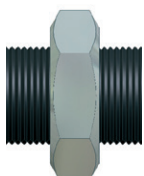
Thread (GW)	Width mm (inch)	Width = T
M 10 x 1; M 12 x 1	12 (0.47)	
3/8-32 UNEF; 7/16-28 UNEF; 1/2-20 UNF		

### CLAMPING FLANGE



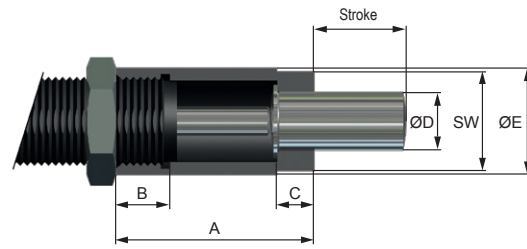
Thread (GW)	A	B	C	E	T
	mm (inch)				
M6x0,5	20 (0.79)	14 (0.55)	10 (0.39)	3,2 (0.13)	5 (0.20)
M8x1	25 (0.98)	18 (0.71)	15 (0.59)	4,2 (0.17)	6 (0.24)
M10x1	28 (1.10)	20 (0.79)	15 (0.59)	4,2 (0.17)	6 (0.24)
M12x1	32 (1.26)	24 (0.94)	20 (0.79)	5,5 (0.22)	6 (0.24)

### LOCK NUT



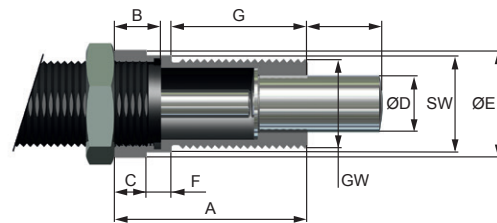
Thread	Thread
M4x0,35	M10x1
M5x0,5	3/8-32 UNEF
M6x0,5	7/16-28 UNEF
M8x1	M12x1

### AK1 FOR SIDE FORCES



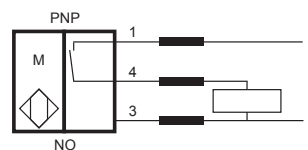
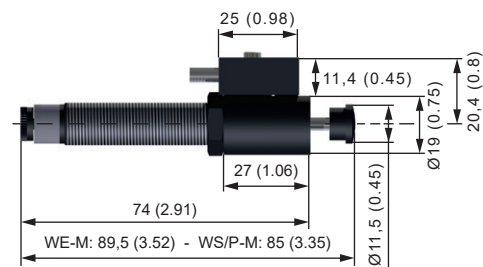
GW		A	B	C	øD	øE	SW
		mm (inch)					
M10x6	M10x1	17,5 (0.69)	7 (0.28)	5 (0.20)	7 (0.28)	14 (0.55)	13 (0.51)
M10x8	M10x1	20,5 (0.81)	7 (0.28)	5 (0.20)	7 (0.28)	14 (0.55)	13 (0.51)
M12x10	M12x1	23,0 (0.91)	7 (0.28)	5 (0.20)	9 (0.35)	15 (0.59)	14 (0.55)
0,15	M10x1	23,5 (0.93)	7 (0.28)	5 (0.20)	6 (0.24)	14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

## Shock Absorbers

### Mega-Line 0,25 / 0,35

### Mega-Line 0,5

### Mega-Line 1,0



#### Energy absorption

30 - 35 Nm / Stroke  
266 - 310 in-lbs / Stroke

#### Stroke

14 mm  
0.55 in

#### Thread

M14x1 / M14x1,5  
M16x1 / M16x1,5  
1/2-20 UNF  
9/16-18 UNEF

#### Energy absorption

65 - 125 Nm / Stroke  
575 - 1106 in-lbs / Stroke

#### Stroke

13 - 40 mm  
0.51 - 1.57 in

#### Thread

M20x1 / M20x1,5  
3/4-16 UNF

#### Energy absorption

220 - 390 Nm / Stroke  
1947 - 3452 in-lbs / Stroke

#### Stroke

25 - 80 mm  
0.98 - 3.15 in

#### Thread

M24x1,5 / M25x1,5  
M27x1,5 / M27x3  
1-12 UNF

## FEATURES

#### Helix Principle

Max +400% Energy  
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: hardened,  
Titanium aluminium nitride  
Special seals + oils

#### Temperature

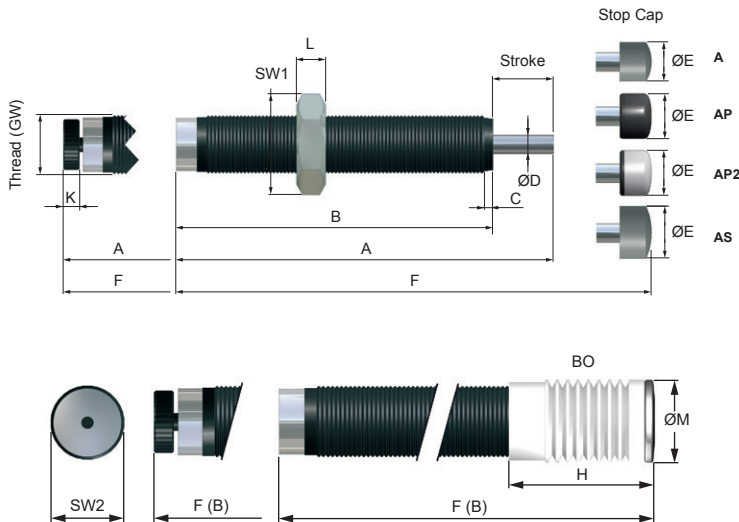
-20°C - +80°C / -4°F - 176°F  
Option: -50°C - +60°C / -58°F - 140°F  
0°C - +120°C / 32°F - 248°F

#### Integrated End Stop

#### Flats

#### Special models

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



**Weight**

0,25: 0,05 kg (0.11 lbs) / 0,35: 0,07 kg (0.16 lbs)

**Impact Speed**

WE-M / WS-M: 0,08 - 6,0 m/s (0.27 - 19.7 ft/s)  
 WP-M: 0,30 - 8,0 m/s (1.0 - 26.3 ft/s)

**Return spring force**

0,25 / 0,35: 13 N/min - 23 N/max (2.93 lbs/min - 5.17 lbs/max)  
 Version "BO": 25 N/min - 35 N/max (5.62 lbs/min - 7.83 lbs/max)

**Torque: max. force by using the flats**

0,25 / 0,35: 20 Nm (177 lbs)

**Included**

1 Lock nut



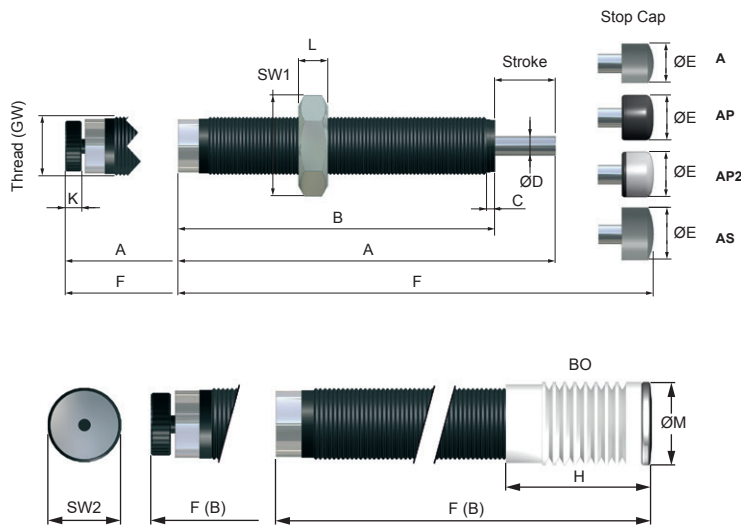
**DIMENSIONS**

Thread	A	B	C	øD	øE (A)	øE (AP)	øE (AS)	F (A)	F (AP)	F (AS)	K	L	SW	SW1	F (B)	øM	H
mm (inch)																	
WE-M 0,25UC	97	78	2,5	4	10	10	10	105	105	105	4,5	5	13	22	109	20	33
WE-M 0,25UF	(3.82)	(3.07)	(0.1)	(0.16)	(0.39)	(0.39)	(0.39)	(4.13)	(4.13)	(4.13)	(0.18)	(0.2)	(0.51)	(0.87)	(4.29)	(0.79)	(1.3)
WS-M 0,25UC	92	78	2,5	4	10	10	10	100	101	100	-	5	13	22	104	20	33
WS-M 0,25UF	(3.62)	(3.07)	(0.1)	(0.16)	(0.39)	(0.39)	(0.39)	(3.94)	(3.98)	(3.94)	-	(0.2)	(0.51)	(0.87)	(4.09)	(0.79)	(1.3)
WP-M 0,25UC	92	78	2,5	4	10	10	10	100	101	100	-	5	13	22	104	20	33
WP-M 0,25UF	(3.62)	(3.07)	(0.1)	(0.16)	(0.39)	(0.39)	(0.39)	(3.94)	(3.98)	(3.94)	-	(0.2)	(0.51)	(0.87)	(4.09)	(0.79)	(1.3)
WE-M 0,25	97	78	2,5	4	10	10	10	105	105	105	4,5	5	13	17	109	20	33
WS-M 0,25	(3.82)	(3.07)	(0.1)	(0.16)	(0.39)	(0.39)	(0.39)	(4.13)	(4.13)	(4.13)	(0.18)	(0.2)	(0.51)	(0.67)	(4.29)	(0.79)	(1.3)
WP-M 0,25	92	78	2,5	4	10	10	10	100	100	100	-	5	13	17	104	20	33
	(3.62)	(3.07)	(0.1)	(0.16)	(0.39)	(0.39)	(0.39)	(3.94)	(3.94)	(3.94)	-	(0.2)	(0.51)	(0.67)	(4.09)	(0.79)	(1.3)
WE-M 0,35	97	78	2,5	4	10	10	10	105	105	105	4,5	6	14	19	109	22	33
WS-M 0,35	(3.82)	(3.07)	(0.1)	(0.16)	(0.39)	(0.39)	(0.39)	(4.13)	(4.13)	(4.13)	(0.18)	(0.24)	(0.55)	(0.75)	(4.29)	(0.87)	(1.3)
WP-M 0,35	92	78	2,5	4	10	10	10	100	101	100	-	6	14	19	104	22	33
	(3.62)	(3.07)	(0.1)	(0.16)	(0.39)	(0.39)	(0.39)	(3.94)	(3.98)	(3.94)	-	(0.24)	(0.55)	(0.75)	(4.09)	(0.87)	(1.3)

**PERFORMANCE**

	Stroke mm (inch)	Energy absorption		Effective mass									
		Constant load		-0 (very soft)		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)	
		Nm/HB (in lbs/HB) (max.)	Nm/h (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)	min. kg (min. lbs)	max. kg (max. lbs)
WE-M 0,25UC WE-M 0,25UF WE-M 0,25	14 (0.55)	30 (265)	50000 (442.5)	-	-	1,6 (3.5)	1500 (3.3)	-	-	-	-	-	-
WS-M 0,25UC WS-M 0,25UF WS-M 0,25	14 (0.55)	30 (265)	50000 (442.5)	0,9 (2)	8 (17.6)	3,5 (7.7)	17 (37.5)	9,9 (21.8)	76 (167)	62 (137)	252 (555)	250 (551)	950 (2.1)
WP-M 0,25UC WP-M 0,25UF WP-M 0,25	14 (0.55)	30 (265)	50000 (442.5)	-	-	0,8 (1.8)	3,7 (8.1)	3 (6.6)	26 (57)	21 (42)	165 (364)	-	-
WE-M 0,35	14 (0.55)	35 (310)	52500 (465)	-	-	6,5 (14.3)	1750 (3.85)	-	-	-	-	-	-
WS-M 0,35	14 (0.55)	35 (310)	52500 (465)	1,9 (4.2)	4,5 (9.9)	4 (8.8)	25 (55)	22 (48.5)	90 (199)	85 (187)	428 (944)	420 (926)	1320 (2.91)
WP-M 0,35	14 (0.55)	35 (310)	52500 (465)	-	-	1,1 (2.4)	6,4 (14.1)	5 (11)	28 (62)	25 (55)	280 (617)	-	-

## Mega-Line 0,5



### Weight

0,5 : 0,14 kg (0.30 lbs) / 0,5 x 40 : 0,20 kg (0.45 lbs)

### Impact Speed

WE-M / WS-M: 0,08 - 6,0 m/s (0.27 - 19.7 ft/s)  
WP-M: 0,30 - 8,0 m/s (1.0 - 26.3 ft/s)

### Return spring force

0,5 / 0,5x40: 12 N/min - 23 N/max (2.7 lbs/min - 5.17 lbs/max)  
Version "BO": 50 N/min - 70 N/max (1.3 lbs/min - 15.8 lbs/max)

### Torque: max. force by using the flats

0,5 / 0,5x40: 25 Nm (220 lbs)

### Included

1 Lock nut

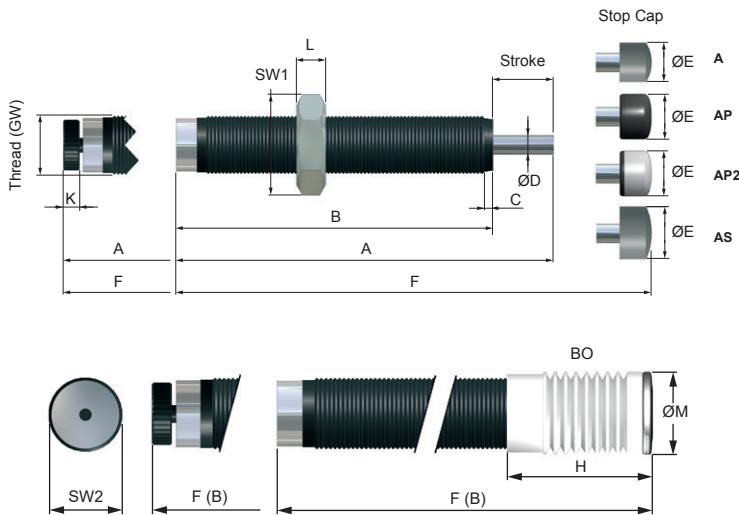
## DIMENSIONS

Thread	A	B	C	øD	øE (A)	øE (AS)	øE (AS)	F (A)	F (A)	F (AS)	K	L	SW	SW1	F (B)	øM	H	
mm (inch)																		
WE-M 0,5 x 13	M 20 x 1	94 (3.7)	75 (2.95)	2,5 (0.1)	6 (0.24)	12 (0.47)	17 (0.67)	16 (0.63)	104 (4.09)	105 (4.13)	104 (4.09)	6 (0.24)	6 (0.24)	18 (0.71)	24 (0.94)	104 (4.09)	25 (0.98)	30 (1.18)
WS-M 0,5 x 13	M 20 x 1	88 (3.46)	75 (2.95)	2,5 (0.1)	6 (0.24)	12 (0.47)	17 (0.67)	16 (0.63)	98 (3.86)	99 (3.9)	98 (3.86)	-	6 (0.24)	18 (0.71)	24 (0.94)	98 (3.86)	25 (0.98)	30 (1.18)
WP-M 0,5 x 13																		
WE-M 0,5 x 19	M 20 x 1	113 (4.45)	88 (3.46)	2,5 (0.1)	6 (0.24)	12 (0.47)	17 (0.67)	16 (0.63)	123 (4.84)	125 (4.92)	123 (4.84)	6 (0.24)	6 (0.24)	18 (0.71)	24 (0.94)	123 (4.84)	25 (0.98)	36 (1.18)
WE-M 0,5 x 19U																		
WS-M 0,5 x 19	M 20 x 1	107 (4.21)	88 (3.46)	2,5 (0.1)	6 (0.24)	12 (0.47)	17 (0.67)	16 (0.63)	117 (4.61)	119 (4.69)	117 (4.61)	-	6 (0.24)	18 (0.71)	24 (0.94)	117 (4.61)	25 (0.98)	36 (1.18)
WP-M 0,5 x 19																		
WS-M 0,5 x 19U	3/4-16 UNF	107 (4.21)	88 (3.46)	2,5 (0.1)	6 (0.24)	12 (0.47)	17 (0.67)	16 (0.63)	117 (4.61)	119 (4.69)	117 (4.61)	-	6 (0.24)	18 (0.71)	24 (0.94)	117 (4.61)	25 (0.98)	36 (1.18)
WP-M 0,5 x 19U																		
WE-M 0,5 x 40	M 20 x 1	171 (6.73)	125 (4.92)	2,5 (0.1)	6 (0.24)	12 (0.47)	17 (0.67)	16 (0.63)	181 (7.13)	183 (7.2)	181 (7.13)	6 (0.24)	6 (0.24)	18 (0.71)	24 (0.94)	-	-	-
WS-M 0,5 x 40	M 20 x 1	165 (6.5)	125 (4.92)	2,5 (0.1)	6 (0.24)	12 (0.47)	17 (0.67)	16 (0.63)	175 (6.89)	177 (6.97)	177 (6.97)	-	6 (0.24)	18 (0.71)	24 (0.94)	-	-	-
WP-M 0,5 x 40																		

## PERFORMANCE

	Stroke mm inch	Energy absorption		Effective mass									
		Constant load		-0 (very soft)		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)	
		Nm/Stroke in lbs/Stroke (max.)	Nm/h 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)	min. kg (min. lbs)	max. kg (max. lbs)
WE-M 0,5 x 13	13 (0.51)	65 (575)	52000 (460000)	-	-	6 (132)	3250 (7165)	-	-	-	-	-	-
WS-M 0,5 x 13	13 (0.51)	65 (575)	52000 (460000)	18 (4)	85 (188)	75 (165)	36 (80)	20 (44)	160 (353)	130 (287)	610 (1345)	520 (1147)	3500 (7715)
WP-M 0,5 x 13	13 (0.51)	65 (575)	52000 (460000)	-	-	18 (4)	85 (188)	64 (141)	58 (128)	44 (97)	360 (794)	-	-
WE-M 0,5 x 19	19 (0.75)	100 (885)	76500 (677000)	-	-	9 (20)	4500 (9920)	-	-	-	-	-	-
WE-M 0,5 x 19U													
WS-M 0,5 x 19	19 (0.75)	100 (885)	76500 (677000)	26 (57)	106 (234)	10 (22)	86 (190)	40 (88)	209 (209)	170 (375)	800 (1765)	680 (1500)	4050 (8930)
WS-M 0,5 x 19U													
WP-M 0,5 x 19	19 (0.75)	100 (885)	76500 (677000)	-	-	26 (57)	125 (275)	10 (22)	89 (460)	69 (152)	555 (1225)	-	-
WP-M 0,5 x 19U													
WE-M 0,5 x 40	40 (1.57)	125 (1106)	95625 (846000)	-	-	12 (265)	6300 (13900)	-	-	-	-	-	-
WS-M 0,5 x 40	40 (1.57)	125 (1106)	95625 (846000)	35 (77)	16 (353)	14 (31)	69 (152)	40 (88)	305 (675)	250 (551)	1180 (2601)	1000 (2205)	6250 (13780)
WP-M 0,5 x 40	40 (1.57)	125 (1106)	95625 (846000)	-	-	35 (77)	20 (44)	13 (286)	100 (220)	90 (199)	690 (1520)	-	-





**Weight**

1,0: 0,29 kg (0.65 lbs) / 1,0x40: 0,39 kg (0.86 lbs) / 1,0x80: 0,63 kg (1.4 lbs)

**Impact Speed**

WE-M / WS-M: 0,08 - 6,0 m/s (0.27 - 19.7 ft/s)  
WP-M: 0,30 - 8,0 m/s (1.0 - 26.3 ft/s)

**Return spring force**

1,0: 15 N/min - 31 N/max (3.38 lbs/min - 6.97 lbs/max)  
Version "BO": 60 N/min - 80 N/max (13.5 lbs/min - 18 lbs/max)  
1,0 x 40: 11 N/min - 20 N/max (2.47 lbs/min - 4.5 lbs/max)  
1,0 x 80: 14 N/min - 31 N/max (3.15 lbs/min - 6.97 lbs/max)

**Torque: max. force by using the flats**

1,0 / 1,0 x 40 / 1,0 x 80: 30 Nm (265 lbs)

**Included**

1 Lock nut



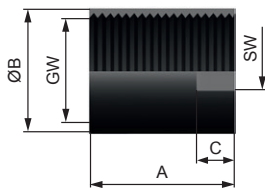
**DIMENSIONS**

Thread	A	B	C	ØD	ØE (A)	ØE (AS)	ØE (AS)	F (A)	F (AS)	F (AS)	K	L	SW	SW1	F (B)	ØM	H	
mm (inch)																		
WE-M 1,0	M 24 x 1,5	141	108	3,5	8	16	21	20	154	156	154	8	8	23	30	154	30	50
WE-M 1,0U	1-12	(5.55)	(4.25)	(0.14)	(0.31)	(0.63)	(0.83)	(0.79)	(6.06)	(6.14)	(6.06)	(0.31)	(0.25)	(0.91)	(1.25)	(6.06)	(1.18)	(1.97)
WS-M 1,0	M 24 x 1,5	133	108	3,5	8	16	21	20	146	148	146	-	8	23	30	146	30	50
WP-M 1,0	M 24 x 1,5	(5.24)	(4.25)	(0.14)	(0.31)	(0.63)	(0.83)	(0.79)	(5.75)	(5.83)	(5.75)	-	(0.25)	(0.91)	(1.25)	(5.75)	(1.18)	(1.97)
WS-M 1,0U	1-12																	
WP-M 1,0U	1-12																	
WE-M 1,0 x 40	M 24 x 1,5	178	130	3,5	8	16	21	20	191	193	191	8	8	23	30	-	-	-
WE-M 1,0 x 40U	1-12	(7.01)	(5.12)	(0.14)	(0.31)	(0.63)	(0.83)	(0.79)	(7.52)	(7.6)	(7.52)	(0.31)	(0.25)	(0.91)	(1.25)	-	-	-
WS-M 1,0 x 40	M 24 x 1,5	170	130	3,5	8	16	21	20	183	185	183	-	8	23	30	-	-	-
WP-M 1,0 x 40	M 24 x 1,5	(6.69)	(5.12)	(0.14)	(0.31)	(0.63)	(0.83)	(0.79)	(7.2)	(7.28)	(7.2)	-	(0.25)	(0.91)	(1.25)	-	-	-
WS-M 1,0 x 40U	1-12																	
WP-M 1,0 x 40U	1-12																	
WE-M 1,0 x 80	M 24 x 1,5	321	233	3,5	8	16	21	20	334	336	334	8	8	-	30	-	-	-
WE-M 1,0 x 80U	M 24 x 1,5	(12.64)	(9.17)	(0.14)	(0.31)	(0.63)	(0.83)	(0.79)	(13.15)	(13.23)	(13.15)	(0.31)	(0.31)	-	(1.18)	-	-	-
WS-M 1,0 x 80	M 24 x 1,5	313	233	3,5	8	16	21	20	326	328	326	-	8	-	30	-	-	-
WP-M 1,0 x 80	M 24 x 1,5	(12.32)	(9.17)	(0.14)	(0.31)	(0.63)	(0.83)	(0.79)	(12.83)	(12.91)	(12.83)	-	(0.31)	-	(1.18)	-	-	-

**PERFORMANCE**

	Stroke mm (inch)	Energy absorption			Effective mass								
		Constant load		-0 (very soft)		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)	
		Nm/HB (in lbs/HB) (max.)	Nm/h (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)	min. kg (min. lbs)	max. kg (max. lbs)
WE-M 1,0	25 (0.98)	220 (1950)	105600 (934650)	-	-	22 (48.5)	11000 (24250)	-	-	-	-	-	-
WE-M 1,0U													
WS-M 1,0	25 (0.98)	220 (1950)	105600 (934650)	6 (13.2)	29 (64)	24 (53)	120 (265)	70 (154)	460 (1014)	440 (970)	2050 (4520)	1760 (3880)	10800 (23810)
WS-M 1,0U													
WP-M 1,0	25 (0.98)	220 (1950)	105600 (934650)	-	-	6 (13.2)	27,5 (60.6)	21 (46.3)	195 (430)	150 (330)	1200 (2645)	-	-
WP-M 1,0U													
WE-M 1,0 x 40	40 (1.57)	390 (3450)	175500 (1553300)	-	-	38 (83.8)	18000 (39700)	-	-	-	-	-	-
WE-M 1,0 x 40U													
WS-M 1,0 x 40	40 (1.57)	390 (3450)	175500 (1553300)	15 (33.1)	103 (227)	44 (97)	216 (477)	135 (298)	962 (2120)	780 (1720)	3600 (7940)	3100 (6835)	19500 (42990)
WS-M 1,0 x 40 U													
WP-M 1,0 x 40	40 (1.57)	390 (3450)	175500 (1553300)	-	-	10 (22)	48 (106)	39 (86)	340 (750)	270 (595)	2150 (4740)	-	-
WP-M 1,0 x 40U													
WE-M 1,0 x 80	80 (3.15)	390 (3450)	175500 (1553300)	-	-	38 (83.8)	18000 (39700)	-	-	-	-	-	-
WE-M 1,0 x 80U													
WS-M 1,0 x 80	80 (3.15)	390 (3450)	175500 (1553300)	15 (33.1)	103 (227)	44 (97)	216 (477)	135 (298)	962 (2120)	780 (1720)	3600 (7940)	3100 (6835)	19500 (42990)
WS-M 1,0 x 80 U													
WP-M 1,0 x 80	80 (3.15)	390 (3450)	175500 (1553300)	-	-	10 (22)	48 (106)	39 (86)	340 (750)	270 (595)	2150 (4740)	-	-
WP-M 1,0 x 80U													

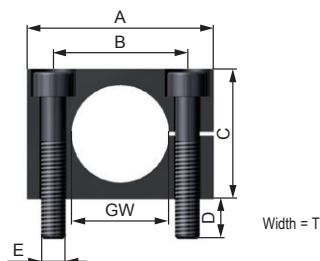
## STOP LIMIT NUT



Thread	A	ØB	C	SW
	mm (inch)			
9/16-18	20 (0.79)	18 (0.71)	8 (0.31)	19 (0.75)
M14x1	20 (0.79)	18 (0.71)	6 (0.24)	19 (0.75)
M16x1	25 (0.98)	21 (0.83)	8 (0.31)	19 (0.75)
3/4-16 UNF	35 (1.38)	25 (0.98)	8 (0.31)	22 (0.87)
M20x1	35 (1.38)	25 (0.98)	8 (0.31)	22 (0.87)
1-12	38 (1.50)	31 (1.22)	10 (0.39)	30 (1.18)
M24x1,5	38 (1.50)	31 (1.22)	10 (0.39)	30 (1.18)

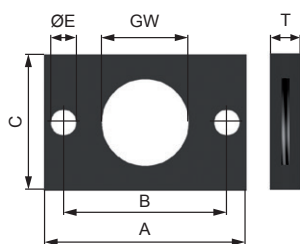


## RECTANGULAR FLANGE



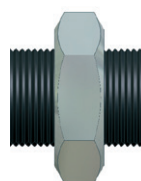
Thread (GW)	A	B	C	D	E	T
	mm (inch)					
9/16-18UNEF	32 (1.26)	20 (0.79)	20 (0.79)	5 (0.20)	M5	12 (0.47)
M14x1	32 (1.26)	20 (0.79)	20 (0.79)	5 (0.20)	M5	12 (0.47)
M16x1	40 (1.57)	28 (1.10)	25 (0.98)	6 (0.26)	M6	20 (0.79)
3/4-16 UNF	40 (1.57)	28 (1.10)	25 (0.98)	6 (0.24)	M6	20 (0.79)
M20x1	40 (1.57)	28 (1.10)	25 (0.98)	6 (0.24)	M6	20 (0.79)
1-12	46 (1.81)	33 (1.30)	32 (1.26)	6 (0.24)	M6	25 (0.98)
M24x1,5	46 (1.81)	33 (1.30)	32 (1.26)	6 (0.24)	M6	25 (0.98)

## CLAMPING FLANGE



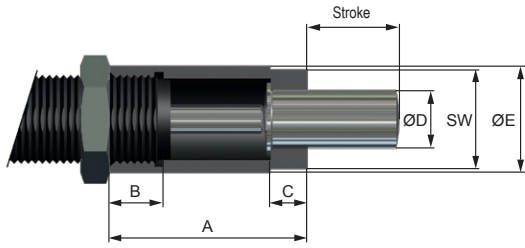
Thread (GW)	A	B	C	E	T
	mm (inch)				
M14x1	34 (1.34)	26 (1.02)	20 (0.79)	5,5 (0.22)	6 (0.24)
M16x1	34 (1.34)	26 (1.02)	20 (0.79)	5,5 (0.22)	6 (0.24)
M20x1	46 (1.81)	36 (1.42)	30 (1.18)	6,6 (0.26)	8 (0.31)
M24x1,5	52 (2.05)	42 (1.65)	35 (1.38)	6,6 (0.26)	8 (0.31)

## LOCK NUT



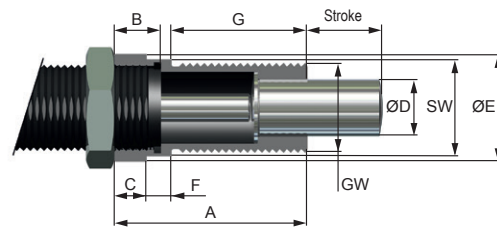
Thread
M14x1
M16x1
3/4-16 UNF
M20x1
1-12
M24x1,5

### AK1 FOR SIDE FORCES



	GW	mm (inch)					
		A	B	C	ØD	ØE	SW
0,25	M14x1	32 (1.26)	10 (0.39)	6 (0.24)	9 (0.35)	18 (0.71)	15 (0.59)
0,35	M16x1	33 (1.30)	10 (0.39)	5 (0.20)	12 (0.47)	20 (0.79)	17 (0.67)
0,5x19	M20x1	42 (1.65)	16 (0.63)	8 (0.31)	12 (0.47)	24 (0.94)	22 (0.87)
1,0	M24x1,5	53,5 (2.11)	14,5 (0.57)	10 (0.39)	16 (0.63)	29 (1.14)	27 (1.06)

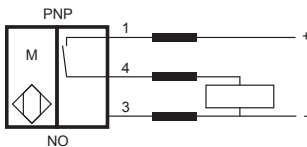
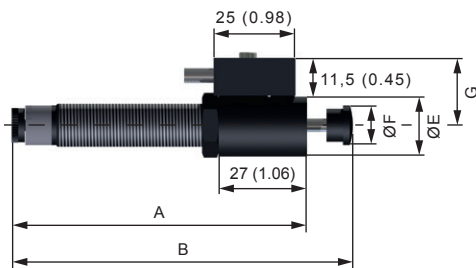
### AK2 FOR SIDE FORCES



	GW	mm (inch)							
		A	B	C	ØD	ØE	F	G	SW
0,25	M14x1	32 (1.26)	8 (0.31)	8 (0.31)	8 (0.31)	18 (0.71)	4 (0.16)	20 (0.79)	16 (0.63)
0,35	M16x1	32 (1.26)	8 (0.31)	8 (0.31)	8 (0.31)	20 (0.79)	4 (0.16)	20 (0.79)	19 (0.75)
0,5x13	M20x1	34 (1.34)	9 (0.35)	7 (0.28)	12 (0.47)	24 (0.94)	7 (0.28)	20 (0.79)	22 (0.87)
0,5x19	M20x1	38 (1.50)	9 (0.35)	6 (0.24)	12 (0.47)	24 (0.94)	7 (0.28)	25 (0.98)	22 (0.87)
1,0	M24x1,5	54 (2.13)	13 (0.51)	9 (0.35)	16 (0.63)	30 (1.18)	7 (0.28)	38 (1.50)	27 (1.06)



### AK1 FOR SIDE FORCES

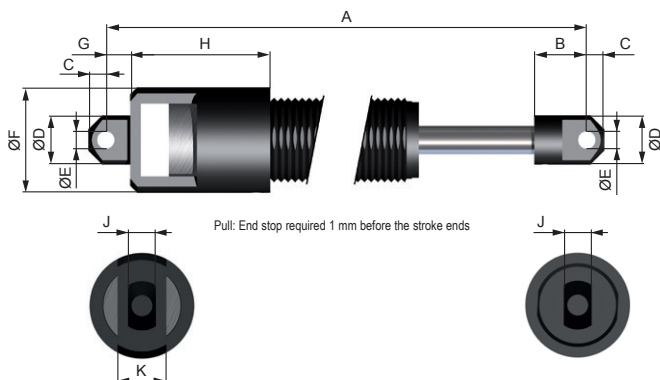


Included

Proximity Switch, Switch cap, Stop limit nut

	mm (inch)				
	A	B	ØE	ØF	G
WE-M 0,25	92,0 (3.62)	100 (3.94)	19 (0.75)	11,5 (0.45)	20,5 (0.81)
WS-M 0,25 WP-M 0,25	87,5 (3.44)	105 (4.13)	19 (0.75)	11,5 (0.45)	20,5 (0.81)
WE-M 0,35	90,0 (3.54)	100 (3.94)	21 (0.83)	11,5 (0.45)	21,5 (0.85)
WS-M 0,35 WP-M 0,35	85,5 (3.37)	105 (4.13)	21 (0.83)	11,5 (0.45)	21,5 (0.85)
WE-M 0,5x13	88,5 (3.48)	104 (4.09)	28 (1.10)	21 (0.83)	25 (0.98)
WS-M 0,5x13 WP-M 0,5x13	82,5 (3.25)	98 (3.86)	28 (1.10)	21 (0.83)	25 (0.98)
WE-M 0,5x19	101,5 (4)	123 (4.84)	28 (1.10)	21 (0.83)	25 (0.98)
WS-M 0,5x19 WP-M 0,5x19	95,5 (3.76)	117 (4.61)	28 (1.10)	21 (0.83)	25 (0.98)
WE-M 0,5x40	138,5 (5.45)	181 (7.13)	28 (1.10)	21 (0.83)	25 (0.98)
WS-M 0,5x40 WP-M 0,5x40	132,5 (5.22)	177 (6.97)	28 (1.10)	21 (0.83)	25 (0.98)
WE-M 1,0	122,5 (4.82)	154 (6.06)	35 (1.38)	29 (1.14)	28,5 (1.12)
WS-M 1,0 WP-M 1,0	114,5 (4.51)	146 (5.75)	35 (1.38)	29 (1.14)	28,5 (1.12)
WE-M 1,0x40	144,5 (5.69)	191 (7.52)	35 (1.38)	29 (1.14)	28,5 (1.12)
WS-M 1,0x40 WP-M 1,0x40	136,5 (5.37)	183 (7.20)	35 (1.38)	29 (1.14)	28,5 (1.12)
WE-M 1,0x80	247,5 (9.74)	334 (13.15)	35 (1.38)	29 (1.14)	28,5 (1.12)
WS-M 1,0x80 WP-M 1,0x80	239,5 (9.43)	326 (12.83)	35 (1.38)	29 (1.14)	28,5 (1.12)

### CLEVIS MOUNTING



	mm (inch)										
	A	B	C	ØD	ØE	ØF	G	H	J	K	
WE-M 0,5x13SB	119 (4.69)	13 (0.51)	5 (0.20)	12 (0.47)	5 (0.20)	26 (1.02)	5 (0.20)	35 (1.38)	6 (0.24)	12 (0.47)	
WS/P-M0,5x13SB	111 (4.37)	13 (0.51)	5 (0.20)	12 (0.47)	5 (0.20)	26 (1.02)	5 (0.20)	35 (1.38)	6 (0.24)	12 (0.47)	
WE-M 0,5x19SB	138 (5.43)	13 (0.51)	5 (0.20)	12 (0.47)	5 (0.20)	26 (1.02)	5 (0.20)	35 (1.38)	6 (0.24)	12 (0.47)	
WS/P-M0,5x19SB	130 (5.12)	13 (0.51)	5 (0.20)	12 (0.47)	5 (0.20)	26 (1.02)	5 (0.20)	35 (1.38)	6 (0.24)	12 (0.47)	
WE-M 1,0SB	168 (6.61)	15 (0.59)	5 (0.20)	14 (0.55)	5 (0.20)	30 (1.18)	7 (0.28)	40 (1.57)	8 (0.31)	14 (0.55)	
WS-M 1,0SB WP-M 1,0SB	158 (6.22)	15 (0.59)	5 (0.20)	14 (0.55)	5 (0.20)	30 (1.18)	7 (0.28)	40 (1.57)	8 (0.31)	14 (0.55)	

## Shock Absorbers

### Mega-Line 1,25

### Mega-Line 1,5

### Mega-Line 2,0



#### Energy absorption

300 - 900 Nm / Stroke  
2655 - 7966 in-lbs / Stroke

#### Stroke

25 - 100 mm  
0.98 - 3.94 in

#### Thread

M32x1,5 / M33x1,5 / M36x1,5  
1-1/4-12 UNF  
1-3/8-12 UNF

#### Energy absorption

870 - 2400 Nm / Stroke  
7700 - 21242 in-lbs / Stroke

#### Stroke

25 - 100 mm  
0.98 - 3.94 in

#### Thread

M45x2 / M42x1,5 / M45x1,5  
1-3/4-12 UNF

#### Energy absorption

1500 - 8000 Nm / Stroke  
13276 - 70806 in-lbs / Stroke

#### Stroke

25 - 150 mm  
0.98 - 3.94 in

#### Thread

M62x2 / M64x2  
2-1/2-12 UNF

## FEATURES

#### Helix Principle

Max +300% Energy  
Max. -50% Costs / Nm

#### ProAdjust

Protected Adjustment

#### ProTec

Solid body without retaining ring

#### Characteristics

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

#### Extended Life Time

Nitrated guidance system  
Piston: hardened,  
Titanium aluminium nitride  
Special seals + oils

#### Temperature

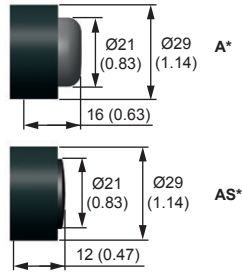
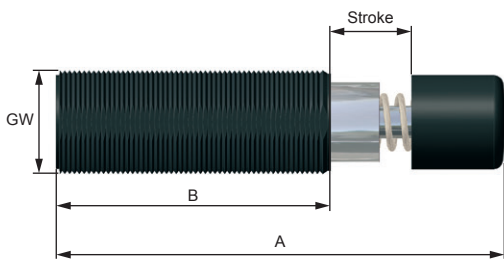
-20°C - +80°C / -4°F - 176°F  
Option: -50°C - +60°C / -58°F - 140°F  
0°C - +120°C / 32°F - 248°F

#### Integrated End Stop

#### Flats

#### Special models

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



\*A: PU / AS: Steel  
Add "A / AS" after the part no.

**Weight**

1,25 x 1 : 0,45 kg (1 lbs) / 1,25 x 2 : 0,55 kg (1.22 lbs) /  
1,25 x 3 : 0,70 kg (1.55 lbs)

**Impact Speed**

WE-M : 0,02 - 6,0 m/s (0.07 - 19.7 ft/s)  
WS-M : 0,10 - 6,0 m/s (0.33 - 19.7 ft/s)  
WP-M : 0,40 - 8,0 (1.32 - 26.3 ft/s)

**Return spring force**

1,25 x 1 : 30 N/min - 50 N/max (6.75 lbs/min - 11.25 lbs/max)  
1,25 x 2 : 23 N/min - 50 N/max (5.17 lbs/min - 11.25 lbs/max)  
1,25 x 3 : 15 N/min - 100 N/max (3.38 lbs/min - 22.5 lbs/max)

**Torque: max. force by using the flats**

1,25 : 40 Nm (360 lbs)



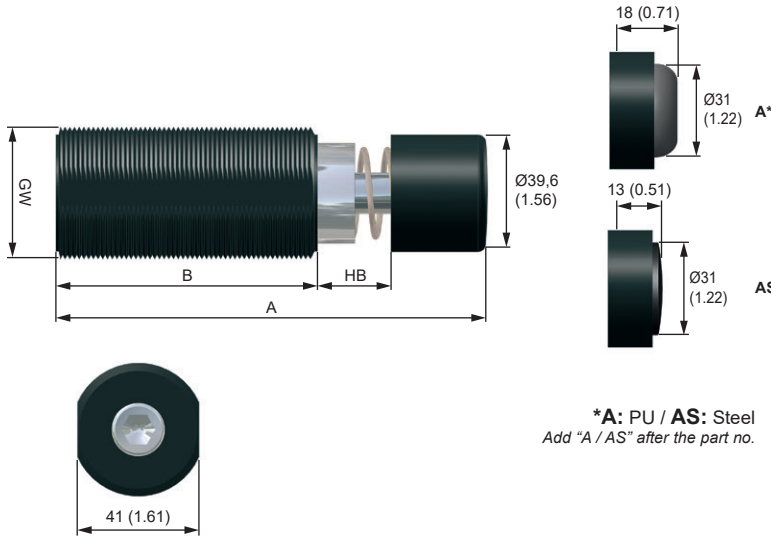
**DIMENSIONS**

	GW		GW		GW	A mm (inch)	B mm (inch)
WE-M 1,25 x 1 WS-M 1,25 x 1 WP-M 1,25 x 1	M 32 x 1,5	WE-M 1,25 x 1U WS-M 1,25 x 1U WP-M 1,25 x 1U	1-1/4-12	WE-M 1,25 x 1UF WS-M 1,25 x 1UF WP-M 1,25 x 1UF	1-3/8-12	138 (5.43)	85 (3.35)
WE-M 1,25 x 2 WS-M 1,25 x 2 WP-M 1,25 x 2	M 32 x 1,5	WE-M 1,25 x 2U WS-M 1,25 x 2U WP-M 1,25 x 2U	1-1/4-12	WE-M 1,25 x 2UF WS-M 1,25 x 2UF WP-M 1,25 x 2UF	1-3/8-12	188 (7.4)	110 (4.33)
WE-M 1,25 x 3 WS-M 1,25 x 3 WP-M 1,25 x 3	M 32 x 1,5	WE-M 1,25 x 3U WS-M 1,25 x 3U WP-M 1,25 x 3U	1-1/4-12	WE-M 1,25 x 3UF WS-M 1,25 x 3UF WP-M 1,25 x 3UF	1-3/8-12	243 (9.57)	140 (5.51)
WS-M 1,25 x 4 WP-M 1,25 x 4	M 32 x 1,5	WS-M 1,25 x 4U WP-M 1,25 x 4U	1-1/4-12	WS-M 1,25 x 4UF WP-M 1,25 x 4UF	1-3/8-12	306 (12.05)	154 (6.06)

**PERFORMANCE**

	Stroke (HB)	Energy absorption				Effective mass								
		Constant load	External tank		-0 (very soft)		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)	
			Nm/HB (in lbs/HB) (max.)	Nm/h (in lbs/h) (max.)	Nm/h (in lbs/h)	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)	min. kg (min. lbs)
WE-M 1,25 x 1 WS-M 1,25 x 1UF WP-M 1,25 x 1UF	25 (0.98)	300 (2655)	120000 (1062100)	240000 (2124200)	10 (22)	100 (220)	60 (132)	2950 (6500)	600 (1322)	89000 (196215)	-	-	-	-
WS-M 1,25 x 1 WS-M 1,25 x 1U WS-M 1,25 x 1UF	25 (0.98)	300 (2655)	120000 (1062100)	240000 (2124200)	7 (15)	32 (70)	28 (62)	130 (286)	80 (176)	590 (1300)	440 (970)	2050 (4520)	2000 (4410)	12500 (27560)
WP-M 1,25 x 1 WP-M 1,25 x 1U WP-M 1,25 x 1UF	25 (0.98)	300 (2655)	120000 (1062100)	240000 (2124200)	-	-	7 (15)	35 (77)	30 (66)	260 (573)	207 (456)	1650 (3640)	-	-
WE-M 1,25 x 2 WE-M 1,25 x 2U WE-M 1,25 x 2UF	50 (1.97)	500 (4425)	150000 (1327600)	300000 (2655200)	15 (33)	160 (352)	100 (220)	4000 (8818)	800 (1763)	120000 (264560)	-	-	-	-
WS-M 1,25 x 2 WS-M 1,25 x 2U WS-M 1,25 x 2UF	50 (1.97)	500 (4425)	150000 (1327600)	300000 (2655200)	13 (28)	60 (132)	56 (123)	240 (529)	160 (352)	1200 (2645)	1000 (2205)	4200 (9260)	4000 (8820)	25000 (55120)
WP-M 1,25 x 2 WP-M 1,25 x 2U WP-M 1,25 x 2UF	50 (1.97)	500 (4425)	150000 (1327600)	300000 (2655200)	-	-	7 (15)	35 (77)	30 (66)	260 (573)	207 (456)	1650 (3640)	-	-
WE-M 1,25 x 3 WE-M 1,25 x 3U WE-M 1,25 x 3UF	75 (2.95)	750 (6640)	225000 (1991400)	450000 (3982900)	-	-	150 (330)	6000 (13230)	-	-	-	-	-	-
WS-M 1,25 x 3 WS-M 1,25 x 3U WS-M 1,25 x 3UF	75 (2.95)	750 (6640)	225000 (1991400)	450000 (3982900)	20 (44)	99 (218)	85 (187)	400 (882)	240 (529)	1850 (4080)	1000 (2205)	7000 (15435)	6000 (13230)	37000 (81575)
WP-M 1,25 x 3 WP-M 1,25 x 3U WP-M 1,25 x 3UF	75 (2.95)	750 (6640)	225000 (1991400)	450000 (392900)	-	-	20 (44)	99 (218)	75 (165)	660 (1455)	520 (1145)	4100 (9040)	-	-
WS-M 1,25 x 4 WS-M 1,25 x 4U WS-M 1,25 x 4UF	100 (3.94)	900 (7966)	270000 (2389701)	540000 (4779405)	25 (55)	112 (247)	100 (221)	500 (1103)	290 (639)	2200 (4851)	1800 (3969)	8500 (18743)	7200 (15876)	45000 (99225)
WP-M 1,25 x 4 WP-M 1,25 x 4U WP-M 1,25 x 4UF	100 (3.94)	900 (7966)	270000 (2389701)	540000 (4779405)	-	-	25 (55)	112 (247)	88 (194)	800 (1764)	622 (1371)	5000 (11025)	-	-

# Mega-Line 1,5



### Weight

1,5 x 1 : 0,95 kg (2.1 lbs) / 1,5 x 2 : 1,10 kg (2.5 lbs) /  
1,5 x 3 : 1,20 kg (2.7 lbs)

### Impact Speed

WE-M : 0,02 - 6,0 m/s (0.07 - 19.7 ft/s)  
WS-M : 0,10 - 6,0 m/s (0.33 - 19.7 ft/s)  
WP-M : 0,40 - 8,0 m/s (1.32 - 26.3 ft/s)

### Return spring force

1,5 x 1 : 50 N/min - 70 N/max (11.3 lbs/min - 15.8 lbs/max)  
1,5 x 2 : 35 N/min - 70 N/max (7.87 lbs/min - 15.8 lbs/max)  
1,5 x 3 : 35 N/min - 80 N/max (7.87 lbs/min - 18 lbs/max)

### Torque: max. force by using the flats

1,5 : 40 Nm (360 lbs)

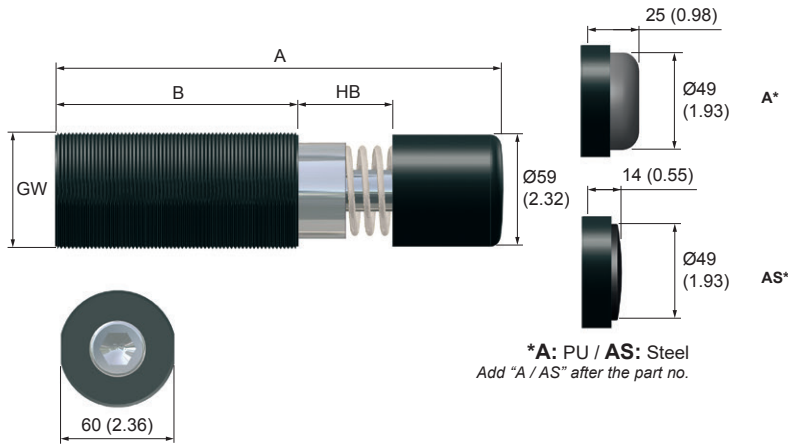
\*A: PU / AS: Steel  
Add "A / AS" after the part no.

## DIMENSIONS

GW		GW		A		B		Thread		Thread		A		B	
				mm (inch)		mm (inch)						mm (inch)		mm (inch)	
WE-M 1,5 x 1	M 45 x 2	WE-M 1,5 x 1U	1-3/4-12	148 (5.83)	89 (3.5)	WE-M 1,5 x 3	M 45 x 2	WE-M 1,5 x 3U	1-3/4-12	248 (9.76)	139 (5.47)				
WS-M 1,5 x 1	M 45 x 2	WS-M 1,5 x 1U	1-3/4-12	148 (5.83)	89 (3.5)	WS-M 1,5 x 3	M 45 x 2	WS-M 1,5 x 3U	1-3/4-12	248 (9.76)	139 (5.47)				
WP-M 1,5 x 1	M 45 x 2	WP-M 1,5 x 1U	1-3/4-12	148 (5.83)	89 (3.5)	WP-M 1,5 x 3	M 45 x 2	WP-M 1,5 x 3U	1-3/4-12	248 (9.76)	139 (5.47)				
WE-M 1,5 x 2	M 45 x 2	WE-M 1,5 x 2U	1-3/4-12	198 (7.8)	114 (4.49)	WS-M 1,5 x 4	M 45 x 2	WS-M 1,5 x 4U	1-3/4-12	327 (12.87)	176 (6.93)				
WS-M 1,5 x 2	M 45 x 2	WS-M 1,5 x 2U	1-3/4-12	198 (7.8)	114 (4.49)	WP-M 1,5 x 4	M 45 x 2	WP-M 1,5 x 4U	1-3/4-12	327 (12.87)	176 (6.93)				
WP-M 1,5 x 2	M 45 x 2	WP-M 1,5 x 2U	1-3/4-12	198 (7.8)	114 (4.49)										

## PERFORMANCE

	Stroke (HB)	Energy absorption				Effective mass								
		Constant load	External tank		-0 (very soft)		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)	
			Nm/HB (in lbs/HB) (max.)	Nm/h (in lbs/h) (max.)	Nm/h (in lbs/h)	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)	min. kg (min. lbs)
WE-M 1,5 x 1	25 (0.98)	870 (7700)	261000 (2310000)	450000 (3850000)	30 (66)	250 (551)	150 (330)	21000 (46300)	6200 (13670)	240000 (529120)	-	-	-	-
WE-M 1,5 x 1U														
WS-M 1,5 x 1	25 (0.98)	870 (7700)	261000 (2310000)	450000 (3850000)	24 (53)	114 (251)	98 (216)	480 (1600)	280 (617)	2100 (4630)	1740 (3836)	8200 (18080)	6960 (15345)	43500 (95900)
WS-M 1,5 x 1U														
WP-M 1,5 x 1	25 (0.98)	870 (7700)	261000 (2310000)	450000 (3850000)	-	-	24 (53)	108 (238)	85 (187)	770 (1698)	600 (1323)	4800 (10580)	-	-
WP-M 1,5 x 1U														
WE-M 1,5 x 2	50 (1.97)	1350 (11950)	340000 (2987500)	544000 (4780000)	45 (99)	430 (948)	300 (661)	26000 (26000)	10800 (23810)	330000 (727540)	-	-	-	-
WE-M 1,5 x 2U														
WS-M 1,5 x 2	50 (1.97)	1350 (11950)	340000 (2987500)	544000 (4780000)	35 (77)	170 (375)	160 (353)	680 (680)	440 (970)	2900 (6395)	2700 (5952)	12700 (28000)	10800 (23810)	67500 (148820)
WS-M 1,5 x 2U														
WP-M 1,5 x 2	50 (1.97)	1350 (11950)	340000 (2987500)	544000 (4780000)	-	-	37 (82)	160 (160)	130 (287)	1200 (2645)	940 (2072)	7500 (16535)	-	-
WP-M 1,5 x 2U														
WE-M 1,5 x 3	75 (2.95)	2100 (18600)	420000 (3720000)	670000 (5580000)	70 (155)	670 (1478)	450 (992)	27600 (57320)	16800 (37040)	500000 (1102330)	-	-	-	-
WE-M 1,5 x 3U														
WS-M 1,5 x 3	75 (2.95)	2100 (18600)	420000 (3720000)	670000 (5580000)	40 (88)	270 (595)	240 (530)	1100 (2425)	670 (1477)	5000 (11025)	4200 (9260)	19500 (4300)	16800 (37040)	105000 (23150)
WS-M 1,5 x 3U														
WP-M 1,5 x 3	75 (2.95)	2100 (18600)	420000 (3720000)	670000 (5580000)	-	-	58 (128)	260 (573)	200 (440)	1850 (4080)	1450 (3200)	11600 (25575)	-	-
WP-M 1,5 x 3U														
WS-M 1,5 x 4	100 (3.94)	2400 (21241)	480000 (4248360)	720000 (6372540)	70 (154)	315 (694)	270 (595)	1330 (2932)	770 (1697)	5925 (13064)	4800 (10584)	22650 (49943)	19200 (42336)	120000 (264600)
WS-M 1,5 x 4U														
WP-M 1,5 x 4	100 (3.94)	2400 (21241)	480000 (4248360)	720000 (6372540)	-	-	70 (154)	300 (661)	240 (529)	2130 (4696)	1660 (3660)	13300 (29326)	-	-
WP-M 1,5 x 4U														



**Weight**

2,0 x 1 : 2,0 kg (4.5 lbs) / 2,0 x 2 : 3,0 kg (6.7 lbs)  
 2,0 x 4 : 3,9 kg (8.6 lbs) / 2,0 x 6 : 4,8 kg (10.6 lbs)

**Impact Speed**

WE-M : 0,02 - 6,0 m/s (0.07 - 19.7 ft/s)  
 WS-M : 0,10 - 6,0 m/s (0.33 - 19.7 ft/s)  
 WP-M : 0,40 - 8,0 m/s (1.32 - 26.3 ft/s)

**Return spring force**

2,0 x 1 : 50 N/min - 130 N/max (11.25 lbs/min - 29.23 lbs/max)  
 2,0 x 2 : 40 N/min - 130 N/max (9.00 lbs/min - 29.23 lbs/max)  
 2,0 x 4 : 45 N/min - 130 N/max (10.11 lbs/min - 29.23 lbs/max)  
 2,0 x 6 : 35 N/min - 130 N/max (7.87 lbs/min - 29.23 lbs/max)

**Torque: max. force by using the flats**

2,0 : 40 Nm (360 lbs)



**DIMENSIONS**

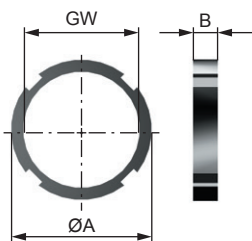
GW		GW		A		B		GW		GW		A		B			
				mm (inch)								mm (inch)					
WE-M 2,0 x 1	M 62 x 2	WE-M 2,0 x 1U	2-1/2-12	186 (7.32)	104 (4.09)	WE-M 2,0 x 4	M 62 x 2	WE-M 2,0 x 4U	2-1/2-12	336 (13.23)	179 (7.05)	WE-M 2,0 x 2	M 62 x 2	WE-M 2,0 x 2U	2-1/2-12	236 (9.29)	129 (5.08)
WS-M 2,0 x 1	M 62 x 2	WS-M 2,0 x 1U	2-1/2-12	186 (7.32)	104 (4.09)	WS-M 2,0 x 4	M 62 x 2	WS-M 2,0 x 4U	2-1/2-12	336 (13.23)	179 (7.05)	WS-M 2,0 x 2	M 62 x 2	WS-M 2,0 x 2U	2-1/2-12	236 (9.29)	129 (5.08)
WP-M 2,0 x 1	M 62 x 2	WP-M 2,0 x 1U	2-1/2-12	186 (7.32)	104 (4.09)	WP-M 2,0 x 4	M 62 x 2	WP-M 2,0 x 4U	2-1/2-12	336 (13.23)	179 (7.05)	WP-M 2,0 x 2	M 62 x 2	WP-M 2,0 x 2U	2-1/2-12	236 (9.29)	129 (5.08)

**PERFORMANCE**

	Stroke (HB) mm (inch)	Energy absorption				Effective mass								
		Constant load Nm/HB (max.) (in lbs/HB)	External tank Nm/h (in lbs/h) (max.)	-0 (very soft)		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)		
				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)	min. kg (min. lbs)	max. kg (max. lbs)	
WE-M 2,0 x 1	25 (0.98)	1500 (13.28)	150000 (1327500)	240000 (2124000)	60 (132)	480 (1060)	300 (660)	41150 (90725)	12000 (26455)	470000 (1036200)	-	-	-	-
WE-M 2,0 x 1U	25 (0.98)	1500 (13.28)	150000 (1327500)	240000 (2124000)	31 (68)	197 (435)	170 (375)	830 (1830)	480 (1060)	3700 (8160)	3000 (6615)	14100 (31085)	12000 (26455)	75000 (165350)
WS-M 2,0 x 1	25 (0.98)	1500 (13.28)	150000 (1327500)	240000 (2124000)	-	-	31 (68)	187 (412)	150 (330)	1330 (294)	1030 (2270)	8300 (18300)	-	-
WS-M 2,0 x 1U	25 (0.98)	1500 (13.28)	150000 (1327500)	240000 (2124000)	-	-	31 (68)	187 (412)	150 (330)	1330 (294)	1030 (2270)	8300 (18300)	-	-
WP-M 2,0 x 1	25 (0.98)	1500 (13.28)	150000 (1327500)	240000 (2124000)	-	-	31 (68)	187 (412)	150 (330)	1330 (294)	1030 (2270)	8300 (18300)	-	-
WP-M 2,0 x 1U	25 (0.98)	1500 (13.28)	150000 (1327500)	240000 (2124000)	-	-	31 (68)	187 (412)	150 (330)	1330 (294)	1030 (2270)	8300 (18300)	-	-
WE-M 2,0 x 2	50 (1.97)	2500 (22.13)	250000 (2213000)	400000 (3540800)	80 (176)	800 (1765)	500 (1105)	63700 (140435)	14000 (30865)	600000 (1322800)	-	-	-	-
WE-M 2,0 x 2U	50 (1.97)	2500 (22.13)	250000 (2213000)	400000 (3540800)	52 (115)	330 (730)	280 (620)	1385 (3055)	800 (1765)	6150 (13600)	5000 (11025)	23500 (51810)	20000 (44095)	125000 (275585)
WS-M 2,0 x 2	50 (1.97)	2500 (22.13)	250000 (2213000)	400000 (3540800)	-	-	52 (115)	310 (685)	250 (550)	2200 (4850)	1730 (3815)	13800 (30425)	-	-
WS-M 2,0 x 2U	50 (1.97)	2500 (22.13)	250000 (2213000)	400000 (3540800)	-	-	52 (115)	310 (685)	250 (550)	2200 (4850)	1730 (3815)	13800 (30425)	-	-
WP-M 2,0 x 2	50 (1.97)	2500 (22.13)	250000 (2213000)	400000 (3540800)	-	-	52 (115)	310 (685)	250 (550)	2200 (4850)	1730 (3815)	13800 (30425)	-	-
WP-M 2,0 x 2U	50 (1.97)	2500 (22.13)	250000 (2213000)	400000 (3540800)	-	-	52 (115)	310 (685)	250 (550)	2200 (4850)	1730 (3815)	13800 (30425)	-	-
WE-M 2,0 x 4	100 (3.94)	5000 (44.26)	350000 (3097850)	525000 (4646775)	160 (352)	1600 (353)	1000 (2205)	62500 (137795)	40000 (88190)	1000000 (2204660)	-	-	-	-
WE-M 2,0 x 4U	100 (3.94)	5000 (44.26)	350000 (3097850)	525000 (4646775)	104 (230)	650 (1435)	565 (1245)	2770 (6110)	1600 (3530)	12350 (27230)	10000 (22050)	47200 (104060)	40000 (88190)	250000 (551165)
WS-M 2,0 x 4	100 (3.94)	5000 (44.26)	350000 (3097850)	525000 (4646775)	-	-	100 (220)	625 (1380)	490 (1080)	4400 (970)	3460 (7630)	27700 (61070)	-	-
WS-M 2,0 x 4U	100 (3.94)	5000 (44.26)	350000 (3097850)	525000 (4646775)	-	-	100 (220)	625 (1380)	490 (1080)	4400 (970)	3460 (7630)	27700 (61070)	-	-
WP-M 2,0 x 4	100 (3.94)	5000 (44.26)	350000 (3097850)	525000 (4646775)	-	-	100 (220)	625 (1380)	490 (1080)	4400 (970)	3460 (7630)	27700 (61070)	-	-
WP-M 2,0 x 4U	100 (3.94)	5000 (44.26)	350000 (3097850)	525000 (4646775)	-	-	100 (220)	625 (1380)	490 (1080)	4400 (970)	3460 (7630)	27700 (61070)	-	-
WE-M 2,0 x 6	150 (5.91)	8000 (70.81)	400000 (3540250)	650000 (5735205)	250 (551)	2400 (5290)	1250 (2755)	105000 (231490)	64000 (141100)	1000000 (2204660)	-	-	-	-
WE-M 2,0 x 6U	150 (5.91)	8000 (70.81)	400000 (3540250)	650000 (5735205)	160 (353)	1050 (2315)	905 (1995)	4430 (9770)	2560 (5645)	19750 (43545)	16000 (35275)	75500 (166450)	64000 (141100)	400000 (881865)
WS-M 2,0 x 6	150 (5.91)	8000 (70.81)	400000 (3540250)	650000 (5735205)	-	-	160 (353)	1000 (2205)	790 (1740)	7100 (15655)	5330 (11750)	44000 (97005)	-	-
WS-M 2,0 x 6U	150 (5.91)	8000 (70.81)	400000 (3540250)	650000 (5735205)	-	-	160 (353)	1000 (2205)	790 (1740)	7100 (15655)	5330 (11750)	44000 (97005)	-	-
WP-M 2,0 x 6	150 (5.91)	8000 (70.81)	400000 (3540250)	650000 (5735205)	-	-	160 (353)	1000 (2205)	790 (1740)	7100 (15655)	5330 (11750)	44000 (97005)	-	-
WP-M 2,0 x 6U	150 (5.91)	8000 (70.81)	400000 (3540250)	650000 (5735205)	-	-	160 (353)	1000 (2205)	790 (1740)	7100 (15655)	5330 (11750)	44000 (97005)	-	-

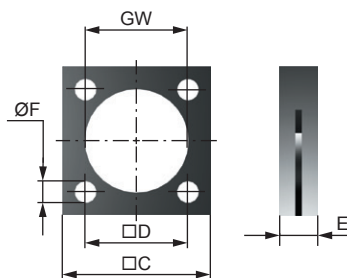
## Accessories

### LOCK NUT



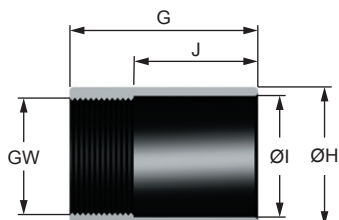
Thread		Ø A B	
		mm (inch)	
M32x1,5; 1-1/4-12; 1-3/8-12	1,25	38 (1.50)	6,5 (0.26)
M45x2; 1-3/4-12	1,5	54 (2.13)	8 (0.31)
M62x2; 2-1/2-12	2,0	74 (2.91)	10 (0.39)

### SQUARE FLANGE



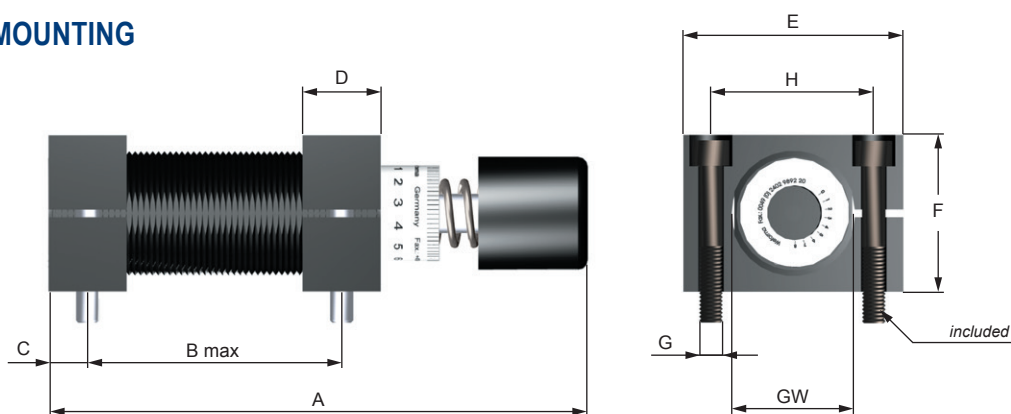
Thread		C	D	E	ØF
		mm (inch)			
M32x1,5; 1-1/4-12; 1-3/8-12	1,25	45 (1.77)	31 (1.22)	12 (0.47)	6,6 (0.26)
M45x2; 1-3/4-12	1,5	55 (2.17)	43 (1.69)	12 (0.47)	9 (0.35)
M62x2; 2-1/2-12	2,0	80 (3.15)	60 (2.36)	20 (0.79)	11 (0.43)

### STOP LIMIT NUT



Thread		G	ØH	ØI	J
		mm (inch)			
M32x1,5; 1-1/4-12; 1-3/8-12	1,25	60 (2.36)	38 (1.50)	33 (1.30)	35 (1.38)
M45x2; 1-3/4-12	1,5	65 (2.56)	54 (2.13)	47 (1.85)	35 (1.38)
M62x2; 2-1/2-12	2,0	100 (3.94)	74 (2.91)	65 (2.56)	60 (2.36)

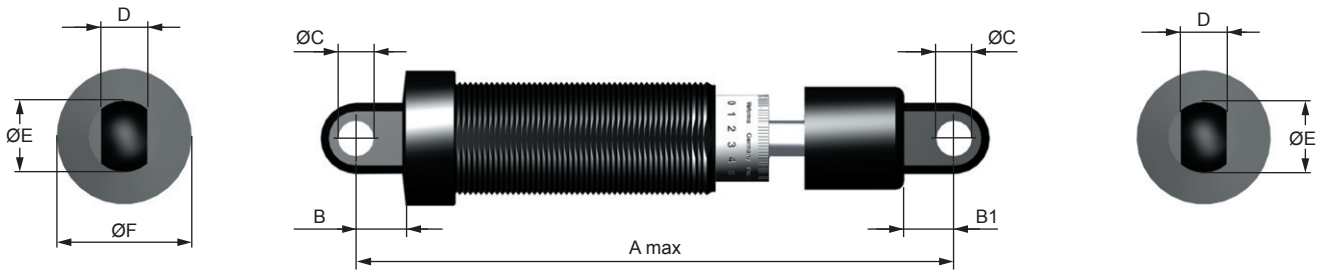
### FOOT MOUNTING



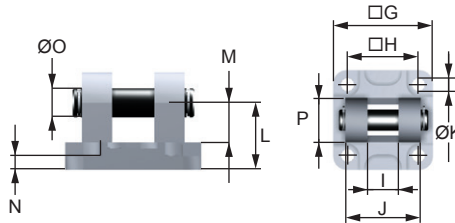
Thread (GW)			A	B max	C	D	E	F	G	H	
mm (inch)											
1,25 x 1	1-1/4-12	1-3/8-12	M32x1,5	138 (5.43)	65 (2.56)	10 (0.39)	20 (0.79)	56 (2.20)	40 (1.57)	M6	41 (1.61)
1,25 x 2	1-1/4-12	1-3/8-12	M32x1,5	188 (7.40)	90 (3.54)	10 (0.39)	20 (0.79)	56 (2.20)	40 (1.57)	M6	41 (1.61)
1,25 x 3	1-1/4-12	1-3/8-12	M32x1,5	243 (9.57)	120 (4.72)	10 (0.39)	20 (0.79)	56 (2.20)	40 (1.57)	M6	41 (1.61)
1,25 x 4	1-1/4-12	1-3/8-12	M32x1,5	306 (12.05)	134 (2.28)	10 (0.39)	20 (0.79)	56 (2.20)	40 (1.57)	M6	41 (1.61)
1,5 x 1	1-3/4-12	M 45 x 2		148 (5.83)	64 (2.52)	12,5 (0.49)	25 (0.98)	80 (3.15)	56 (2.20)	M8	58 (2.28)
1,5 x 2	1-3/4-12	M 45 x 2		198 (7.80)	89 (3.50)	12,5 (0.49)	25 (0.98)	80 (3.15)	56 (2.20)	M8	58 (2.28)
1,5 x 3	1-3/4-12	M 45 x 2		248 (9.76)	114 (4.49)	12,5 (0.49)	25 (0.98)	80 (3.15)	56 (2.20)	M8	58 (2.28)
2,0 x 1	2-1/2-12	M62 x 2		186 (7.32)	79 (3.11)	12,5 (0.49)	25 (0.98)	100 (3.94)	80 (3.15)	M10x80	76 (2.99)
2,0 x 2	2-1/2-12	M62 x 2		236 (9.29)	104 (4.09)	12,5 (0.49)	25 (0.98)	100 (3.94)	80 (3.15)	M10x80	76 (2.99)
2,0 x 4	2-1/2-12	M62 x 2		336 (13.23)	154 (6.06)	12,5 (0.49)	25 (0.98)	100 (3.94)	80 (3.15)	M10x80	76 (2.99)
2,0 x 6	2-1/2-12	M62 x 2		453 (17.83)	221 (8.70)	12,5 (0.49)	25 (0.98)	100 (3.94)	80 (3.15)	M10x80	76 (2.99)



## CLEVIS MOUNTING



Clevis flange



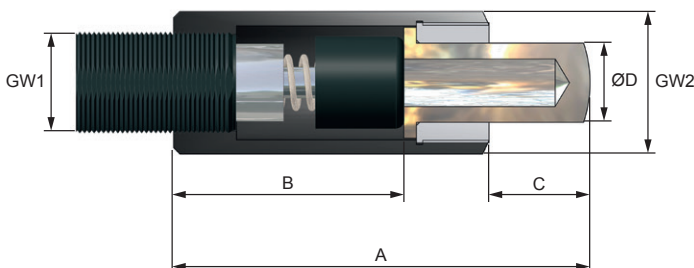
Pull: End stop required 1 mm before the stroke ends

Standard: Shock absorber with clevis mounting is delivered without return spring. Return spring is available on request.



Thread	Thread	A max	B	B1	ØC	D	ØE	ØF	G	H	I	J	ØK	L	M	N	ØO	P	
		mm (inch)																	
1,25 x 1	M32x1,5	1-1/4-12	168	14	14	10	13	20	38	45	32	14	34	6,5	22	13	5	10	20
		1-3/8-12	(6.61)	(0.55)	(0.55)	(0.39)	(0.51)	(0.79)	(1.50)	(1.77)	(1.26)	(0.55)	(1.34)	(0.26)	(0.87)	(0.51)	(0.20)	(0.39)	(0.79)
1,25 x 2	M32x1,5	1-1/4-12	218	14	14	10	13	20	38	45	32	14	34	6,5	22	13	5	10	20
		1-3/8-12	(8.58)	(0.55)	(0.55)	(0.39)	(0.51)	(0.79)	(1.50)	(1.77)	(1.26)	(0.55)	(1.34)	(0.26)	(0.87)	(0.51)	(0.20)	(0.39)	(0.79)
1,25 x 3	M32x1,5	1-1/4-12	273	14	14	10	13	20	38	45	32	14	34 34	6,5	22	13	5 5	10	20
		1-3/8-12	(10.75)	(0.55)	(0.55)	(0.39)	(0.51)	(0.79)	(1.50)	(1.77)	(1.26)	(0.55)	(1.34)	(0.26)	(0.87)	(0.51)	(0.20)	(0.39)	(0.79)
1,25 x 4	M32x1,5	1-1/4-12	336	14	14	10	13	20	38	45	32	14	34	6,5	22	13	5	10	20
		1-3/8-12	(13.23)	(0.55)	(0.55)	(0.39)	(0.51)	(0.79)	(1.50)	(1.77)	(1.26)	(0.55)	(1.34)	(0.26)	(0.87)	(0.51)	(0.20)	(0.39)	(0.79)
1,5 x 1	M45x2	1-3/4-12	203	28	18	16	20	28	53	65	46	21	45	9	27	15	6	16	29
			(7.99)	(1.10)	(0.71)	(0.63)	(0.79)	(1.10)	(2.09)	(2.56)	(1.81)	(0.83)	(1.77)	(0.35)	(1.06)	(0.59)	(0.24)	(0.63)	(1.14)
1,5 x 2	M45x2	1-3/4-12	253	28	18	16	20	28	53	65	46	21	45	9	27	15	6	16	29
			(9.96)	(1.10)	(0.71)	(0.63)	(0.79)	(1.10)	(2.09)	(2.56)	(1.81)	(0.83)	(1.77)	(0.35)	(1.06)	(0.59)	(0.24)	(0.63)	(1.14)
1,5 x 3	M45x2	1-3/4-12	303	28	18	16	20	28	53	65	46	21	45	9	27	15	6	16	29
			(11.93)	(1.10)	(0.71)	(0.63)	(0.79)	(1.10)	(2.09)	(2.56)	(1.81)	(0.83)	(1.77)	(0.35)	(1.06)	(0.59)	(0.24)	(0.63)	(1.14)
2,0 x 1	M62x2	2-1/2-12	272	35	35	20	24	40	74	95	72	25	65	11	36	22	10	20	42
			(10.71)	(1.38)	(1.38)	(0.79)	(0.94)	(1.57)	(2.91)	(3.74)	(2.83)	(0.98)	(2.56)	(0.43)	(1.42)	(0.87)	(0.39)	(0.79)	(1.65)
2,0 x 2	M62x2	2-1/2-12	322	35	35	20	24	40	74	95	72	25	65	11	36	22	10	20	42
			(12.68)	(1.38)	(1.38)	(0.79)	(0.94)	(1.57)	(2.91)	(3.74)	(2.83)	(0.98)	(2.56)	(0.43)	(1.42)	(0.87)	(0.39)	(0.79)	(1.65)
2,0 x 4	M62x2	2-1/2-12	422	35	35	20	24	40	74	95	72	25	65	11	36	22	10	20	42
			(16.61)	(1.38)	(1.38)	(0.79)	(0.94)	(1.57)	(2.91)	(3.74)	(2.83)	(0.98)	(2.56)	(0.43)	(1.42)	(0.87)	(0.39)	(0.79)	(1.65)
2,0 x 6	M62x2	2-1/2-12	539	35	35	20	24	40	74	95	72	25	65	11	36	22	10	20	42
			(21.22)	(1.38)	(1.38)	(0.79)	(0.94)	(1.57)	(2.91)	(3.74)	(2.83)	(0.98)	(2.56)	(0.43)	(1.42)	(0.87)	(0.39)	(0.79)	(1.65)

## AK1 FOR SIDE FORCES



	GW1	GW2	A	B	C	ØD
mm (inch)						
1,25 x 1	M32x1,5	M45x2	132,0	73	32,0	25
			(5.20)	(2.87)	(1.26)	(0.98)
1,25 x 2	M32,1,5	M45x2	184,5	98	59,5	25
			(7.26)	(3.86)	(2.34)	(0.98)
1,5 x 1	M45x2	M62x2	135,5	77	31,5	35
			(5.33)	(3.03)	(1.24)	(1.38)
1,5 x 2	M45x2	M62x2	182,0	102	53,0	35
			(7.17)	(4.02)	(2.09)	(1.38)
2,0 x 1	M62x2	M85x2	158,5	102	29,5	55
			(6.24)	(4.02)	(1.16)	(2.17)
2,0 x 2	M62x2	M85x2	208,5	127	54,5	55
			(8.21)	(5.00)	(2.15)	(2.17)

## Shock Absorbers

### Mega-Line 3,0



### Mega-Line 4,0



#### Energy absorption

4000 - 24000 Nm / Stroke  
35403 - 212419 in-lbs / Stroke

#### Stroke

50 - 250 mm  
1.97 - 9.84 in

#### Thread

M85x2

#### Energy absorption

4000 - 24000 Nm / Stroke  
35403 - 212419 in-lbs / Stroke

#### Stroke

50 - 250 mm  
1.97 - 9.84 in

#### Thread

M115x2

## FEATURES

#### Helix Principle

Max. +200% Energy (Mega-Line 3,0)  
Max. +50% Energy (Mega-Line 4,0)  
Max. -50% Costs / Nm

#### ProAdjust

Protected Adjustment

#### ProTec

Solid body without retaining ring

#### Characteristics

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

#### Extended Life Time

Nitrated guidance system  
Piston: hardened,  
Titanium aluminium nitride  
Special seals + oils

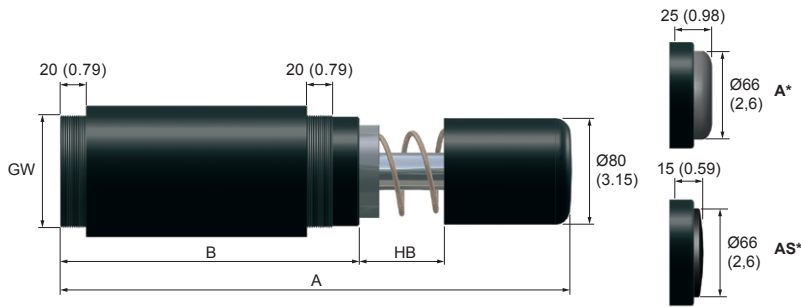
#### Temperature

-20°C - +80°C / -4°F - 176°F

#### Integrated End Stop

#### Special models

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



**Weight**

3,0 x 2 : 7 kg (15.5 lbs) / 3,0 x 4 : 9 kg (20 lbs)  
 3,0 x 6 : 12 kg (26.5 lbs) / 3,0 x 8 : 15 kg (33.1 lbs)  
 3,0 x 10 : 20 kg (44.1 lbs)

**Impact Speed**

WE-M : 0,0 - 6,0 m/s (0.07 - 19.7 ft/s)  
 WS-M : 0,10 - 6,0 m/s (0.33 - 19.7 ft/s)  
 WP-M : 0,40 - 8,0 m/s (1.32 - 26.3 ft/s)

**Return spring force**

3,0 x 2 : 120 N/min - 200 N/max (26.98 lbs/min - 44.97 lbs/max)  
 3,0 x 4 : 120 N/min - 250 N/max (26.98 lbs/min - 56.2 lbs/max)  
 3,0 x 6 : 170 N/min - 250 N/max (38.22 lbs/min - 56.2 lbs/max)  
 3,0 x 8 : 170 N/min - 250 N/max (38.22 lbs/min - 56.2 lbs/max)  
 3,0 x 10 : 170 N/min - 280 N/max (38.22 lbs/min - 69.95 lbs/max)



\*A: PU / AS: Steel  
 Add "A / AS" after the part no.

**DIMENSIONS**

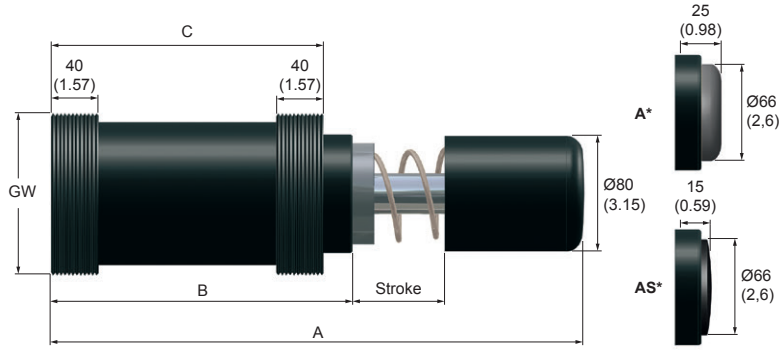
GW	A	B	
		mm (inch)	
WE-M 3,0 x 2	M 85 x 2	319 (12.56)	225 (8.86)
WS-M 3,0 x 2	M 85 x 2	319 (12.56)	225 (8.86)
WP-M 3,0 x 2	M 85 x 2	319 (12.56)	225 (8.86)
WE-M 3,0 x 4	M 85 x 2	419 (16,5)	275 (10.83)
WS-M 3,0 x 4	M 85 x 2	419 (16,5)	275 (10.83)
WP-M 3,0 x 4	M 85 x 2	419 (16,5)	275 (10.83)
WE-M 3,0 x 6	M 85 x 2	569 (22,4)	325 (12,8)
WS-M 3,0 x 6	M 85 x 2	569 (22,4)	325 (12,8)
WP-M 3,0 x 6	M 85 x 2	569 (22,4)	325 (12,8)

GW	A	B	
		mm (inch)	
WE-M 3,0 x 8	M 85 x 2	669 (26.34)	375 (14.76)
WS-M 3,0 x 8	M 85 x 2	669 (26.34)	375 (14.76)
WP-M 3,0 x 8	M 85 x 2	669 (26.34)	375 (14.76)
WE-M 3,0 x 10	M 85 x 2	769 (30.28)	425 (16.73)
WS-M 3,0 x 10	M 85 x 2	769 (30.28)	425 (16.73)
WP-M 3,0 x 10	M 85 x 2	769 (30.28)	425 (16.73)

**PERFORMANCE**

Stroke	Energy absorption						Effective mass						
	mm (inch)	Constant load		External tank		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)	
		Nm/HB (max.) (in lbs/HB)	Nm/h (max.) (in lbs/h)	Nm/h (in lbs/h)	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 3,0 x 2	50 (1.97)	4000 (35405)	1200000 (10621500)	1500000 (13276875)	280 (620)	89000 (196215)	-	-	-	-	-	-	
WS-M 3,0 x 2	50 (1.97)	4000 (35405)	1200000 (10621500)	1500000 (13276875)	695 (1535)	2480 (5470)	2000 (4410)	6050 (13340)	5550 (12125)	15400 (33955)	12500 (27560)	40000 (88190)	
WP-M 3,0 x 2	50 (1.97)	4000 (35405)	1200000 (10621500)	1500000 (13276875)	165 (365)	500 (1105)	400 (885)	3550 (7830)	2800 (6175)	22000 (48505)	-	-	
WE-M 3,0 x 4	100 (3.94)	9000 (79660)	1800000 (15932000)	2250000 (19915000)	600 (1325)	112500 (248025)	-	-	-	-	-	-	
WS-M 3,0 x 4	100 (3.94)	9000 (79660)	1800000 (15932000)	2250000 (19915000)	1750 (3860)	550 (1215)	4500 (9920)	13600 (29985)	12500 (27560)	34700 (76505)	28800 (63495)	88000 (194010)	
WP-M 3,0 x 4	100 (3.94)	9000 (79660)	1800000 (15932000)	2250000 (19915000)	360 (795)	1125 (2480)	890 (1965)	8000 (17640)	6300 (13890)	50000 (110235)	-	-	
WE-M 3,0 x 6	150 (5.91)	14000 (123915)	2100000 (18587250)	2625000 (23172105)	925 (2040)	175000 (385815)	-	-	-	-	-	-	
WS-M 3,0 x 6	150 (5.91)	14000 (123915)	2100000 (18587250)	2625000 (23172105)	3710 (8180)	11700 (25794)	7000 (15435)	21200 (46740)	19500 (42990)	54000 (119055)	44500 (98110)	138200 (304685)	
WP-M 3,0 x 6	150 (5.91)	14000 (123915)	2100000 (18587250)	2625000 (23172105)	555 (1225)	1750 (3860)	1380 (3045)	12400 (27340)	9700 (21385)	7700 (16975)	-	-	
WE-M 3,0 x 8	200 (7.87)	19000 (168165)	2660000 (23543100)	3325000 (29428875)	1250 (2755)	237500 (523610)	-	-	-	-	-	-	
WS-M 3,0 x 8	200 (7.87)	19000 (168165)	2660000 (23543100)	3325000 (29428875)	2750 (6065)	8640 (19050)	7500 (16535)	28700 (62275)	26400 (58205)	73300 (161605)	59400 (130960)	187600 (413595)	
WP-M 3,0 x 8	200 (7.87)	19000 (168165)	2660000 (23543100)	3325000 (29428875)	750 (1655)	2375 (5240)	1870 (4125)	16800 (37040)	13100 (28880)	105000 (231490)	-	-	
WE-M 3,0 x 10	250 (9.84)	24000 (212420)	2880000 (25490400)	3600000 (31863000)	1580 (3485)	300000 (661400)	-	-	-	-	-	-	
WS-M 3,0 x 10	250 (9.84)	24000 (212420)	2880000 (25490400)	3600000 (31863000)	4680 (10320)	14800 (32630)	12000 (26455)	36200 (79810)	33300 (73415)	92600 (204150)	75000 (165350)	237300 (523165)	
WP-M 3,0 x 10	250 (9.84)	24000 (212420)	2880000 (25490400)	3600000 (31863000)	950 (2095)	3000 (6615)	2370 (5225)	21300 (46960)	16600 (36600)	133300 (293885)	-	-	

# Mega-Line 4,0



### Weight

4,0 x 2: 10 kg (22 lbs) / 4,0 x 4: 12 kg (26.5 lbs) /  
 4,0 x 6: 15 kg (33.1 lbs) / 4,0 x 8: 18 kg (39.68) /  
 4,0 x 10: 23 kg (50.71)

### Impact Speed

WE-M : 0,02 - 6,0 m/s (0.07 - 19.7 ft/s)  
 WS-M : 0,10 - 6,0 m/s (0.33 - 19.7 ft/s)  
 WP-M : 0,40 - 8,0 m/s (1.32 - 26.3 ft/s)

### Return spring force

4,0 x 2 : 120 N/min - 200 N/max (26.98 lbs/min - 44.97 lbs/max)  
 4,0 x 4 : 120 N/min - 250 N/max (26.98 lbs/min - 56.2 lbs/max)  
 4,0 x 6 : 170 N/min - 250 N/max (38.22 lbs/min - 56.2 lbs/max)  
 4,0 x 8 : 170 N/min - 250 N/max (38.22 lbs/min - 56.2 lbs/max)  
 4,0 x 10 : 170 N/min - 280 N/max (38.22 lbs/min - 69.95 lbs/max)

\*A: PU / AS: Steel  
 Add "A / AS" after the part no.

## DIMENSIONS

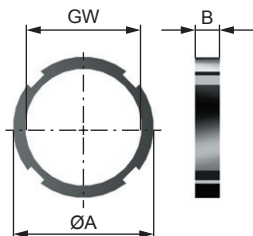
GW		A B C		
		mm (inch)		
WE-M 4,0 x 2	M 115 x 2	319 (12.56)	225 (8.86)	205 (8.07)
WS-M 4,0 x 2	M 115 x 2	319 (12.56)	225 (8.86)	205 (8.07)
WP-M 4,0 x 2	M 115 x 2	319 (12.56)	225 (8.86)	205 (8.07)
WE-M 4,0 x 4	M 115 x 2	419 (16,5)	275 (10.83)	255 (10.04)
WS-M 4,0 x 4	M 115 x 2	419 (16,5)	275 (10.83)	255 (10.04)
WP-M 4,0 x 4	M 115 x 2	419 (16,5)	275 (10.83)	255 (10.04)
WE-M 4,0 x 6	M 115 x 2	569 (22,4)	325 (12,8)	305 (12.01)
WS-M 4,0 x 6	M 115 x 2	569 (22,4)	325 (12,8)	305 (12.01)
WP-M 4,0 x 6	M 115 x 2	569 (22,4)	325 (12,8)	305 (12.01)

GW		A B C		
		mm (inch)		
WE-M 4,0 x 8	M 115 x 2	669 (26.34)	375 (14.76)	355 (13.98)
WS-M 4,0 x 8	M 115 x 2	669 (26.34)	375 (14.76)	355 (13.98)
WP-M 4,0 x 8	M 115 x 2	669 (26.34)	375 (14.76)	355 (13.98)
WE-M 4,0 x 10	M 115 x 2	769 (30.28)	425 (16.73)	405 (15.94)
WS-M 4,0 x 10	M 115 x 2	769 (30.28)	425 (16.73)	405 (15.94)
WP-M 4,0 x 10	M 115 x 2	769 (30.28)	425 (16.73)	405 (15.94)

## PERFORMANCE

Stroke	Energy absorption						Effective mass						
	mm (inch)	Constant load		External tank		-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)	
		Nm/HB (max.) (in lbs/HB)	Nm/h (max.) (in lbs/h)	Nm/h (max.) (in lbs/h)	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 4,0 x 2	50 (1.97)	4000 (35405)	1200000 (10621500)	1500000 (13276875)	280 (620)	89000 (196215)	-	-	-	-	-	-	
WS-M 4,0 x 2	50 (1.97)	4000 (35405)	1200000 (10621500)	1500000 (13276875)	695 (1535)	2480 (5470)	2000 (4410)	6050 (13340)	5550 (12125)	15400 (33955)	12500 (27560)	40000 (88190)	
WP-M 4,0 x 2	50 (1.97)	4000 (35405)	1200000 (10621500)	1500000 (13276875)	165 (365)	500 (1105)	400 (885)	3550 (7830)	2800 (6175)	22000 (48505)	-	-	
WE-M 4,0 x 4	100 (3.94)	9000 (79660)	1800000 (15932000)	2250000 (19915000)	600 (1325)	112500 (248025)	-	-	-	-	-	-	
WS-M 4,0 x 4	100 (3.94)	9000 (79660)	1800000 (15932000)	2250000 (19915000)	1750 (3860)	550 (1215)	4500 (9920)	13600 (29985)	12500 (27560)	34700 (76505)	28800 (63495)	88000 (194010)	
WP-M 4,0 x 4	100 (3.94)	9000 (79660)	1800000 (15932000)	2250000 (19915000)	360 (795)	1125 (2480)	890 (1965)	8000 (17640)	6300 (13890)	50000 (110235)	-	-	
WE-M 4,0 x 6	150 (5.91)	14000 (123915)	2100000 (18587250)	2625000 (23172105)	925 (2040)	175000 (385815)	-	-	-	-	-	-	
WS-M 4,0 x 6	150 (5.91)	14000 (123915)	2100000 (18587250)	2625000 (23172105)	3710 (8180)	11700 (25794)	7000 (15435)	21200 (46740)	19500 (42990)	54000 (119055)	44500 (98110)	138200 (304685)	
WP-M 4,0 x 6	150 (5.91)	14000 (123915)	2100000 (18587250)	2625000 (23172105)	555 (1225)	1750 (3860)	1380 (3045)	12400 (27340)	9700 (21385)	7700 (16975)	-	-	
WE-M 4,0 x 8	200 (7.87)	19000 (168165)	2660000 (23543100)	3325000 (29428875)	1250 (2755)	237500 (523610)	-	-	-	-	-	-	
WS-M 4,0 x 8	200 (7.87)	19000 (168165)	2660000 (23543100)	3325000 (29428875)	2750 (6065)	8640 (19050)	7500 (16535)	28700 (62275)	26400 (58205)	73300 (161605)	59400 (130960)	187600 (413595)	
WP-M 4,0 x 8	200 (7.87)	19000 (168165)	2660000 (23543100)	3325000 (29428875)	750 (1655)	2375 (5240)	1870 (4125)	16800 (37040)	13100 (28880)	105000 (231490)	-	-	
WE-M 4,0 x 10	250 (9.84)	24000 (212420)	2880000 (25490400)	3600000 (31863000)	1580 (3485)	300000 (661400)	-	-	-	-	-	-	
WS-M 4,0 x 10	250 (9.84)	24000 (212420)	2880000 (25490400)	3600000 (31863000)	4680 (10320)	14800 (32630)	12000 (26455)	36200 (79810)	33300 (73415)	92600 (204150)	75000 (165350)	237300 (523165)	
WP-M 4,0 x 10	250 (9.84)	24000 (212420)	2880000 (25490400)	3600000 (31863000)	950 (2095)	3000 (6615)	2370 (5225)	21300 (46960)	16600 (36600)	133300 (293885)	-	-	

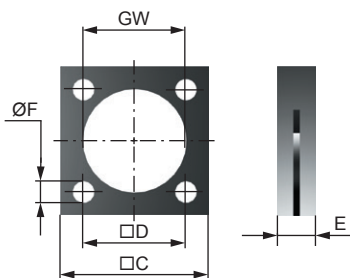
LOCK NUT



Thread		ø A	B
		mm (inch)	
M 85 x 2	3,0x2 - 3,0x4	99 (3.90)	10 (0.39)
M 85 x 2	3,0x2A - 3,0x4A	99 (3.90)	10 (0.39)
M 85 x 2	3,0x6 - 3,0x10	99 (3.90)	10 (0.39)
M 85 x 2	3,0x6A - 3,0x10A	99 (3.90)	10 (0.39)
M115x2	4,0x2 - 4,0x4	127 (5.00)	15 (0.59)
M115x2	4,0x2A - 4,0x4A	127 (5.00)	15 (0.59)
M115x2	4,0x6 - 4,0x10	127 (5.00)	15 (0.59)
M115x2	4,0x6A - 4,0x10A	127 (5.00)	15 (0.59)

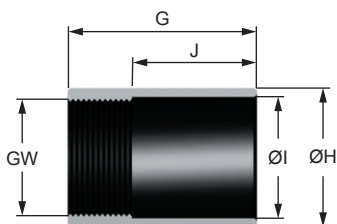


SQUARE FLANGE



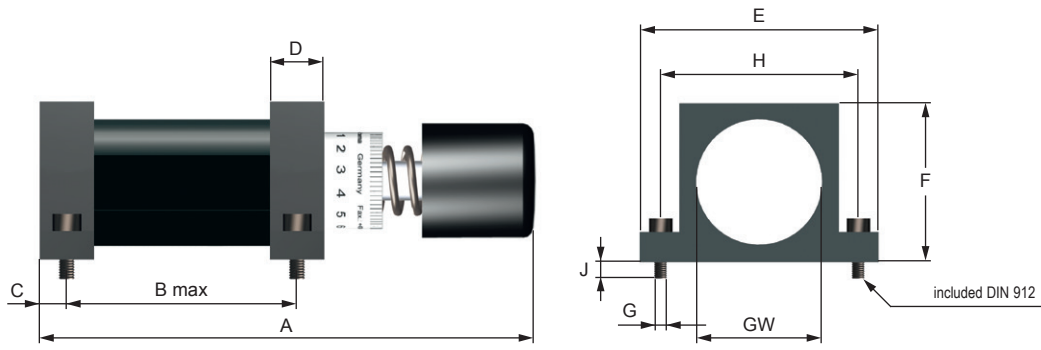
Thread		C	D	øF	E
		mm (inch)			
M 85 x 2	3,0x2 - 3,0x4	140 (5.51)	111 (4.37)	17 (0.67)	20 (0.79)
M 85 x 2	3,0x2A - 3,0x4A	140 (5.51)	111 (4.37)	17 (0.67)	20 (0.79)
M 85 x 2	3,0x6 - 3,0x10	140 (5.51)	111 (4.37)	17 (0.67)	20 (0.79)
M 85 x 2	3,0x6A - 3,0x10A	140 (5.51)	111 (4.37)	17 (0.67)	20 (0.79)
M115x2	4,0x2 - 4,0x4	140 (5.51)	111 (4.37)	17 (0.67)	25 (0.98)
M115x2	4,0x2A - 4,0x4A	140 (5.51)	111 (4.37)	17 (0.67)	25 (0.98)
M115x2	4,0x6 - 4,0x10	140 (5.51)	111 (4.37)	17 (0.67)	25 (0.98)
M115x2	4,0x6A - 4,0x10A	140 (5.51)	111 (4.37)	17 (0.67)	25 (0.98)

STOP LIMIT NUT



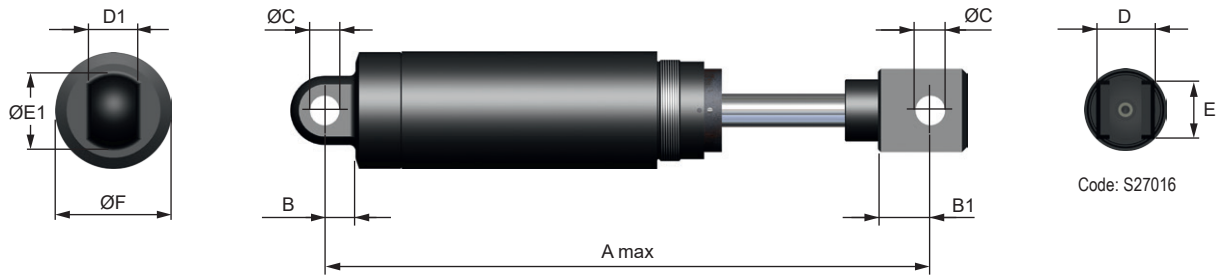
Thread		G	øH	øI	J
		mm (inch)			
M 85 x 2	3,0x2 - 3,0x4	85 (3.35)	100 (3.94)	83 (3.27)	63 (2.48)
M 85 x 2	3,0x2A - 3,0x4A	110 (4.33)	100 (3.94)	83 (3.27)	88 (3.46)
M 85 x 2	3,0x6 - 3,0x10	135 (5.31)	100 (3.94)	83 (3.27)	113 (4.45)
M 85 x 2	3,0x6A - 3,0x10A	160 (6.30)	100 (3.94)	83 (3.27)	138 (5.43)
M115x2	4,0x2 - 4,0x4	106 (4.17)	130 (5.12)	110 (4.33)	66 (2.60)
M115x2	4,0x2A - 4,0x4A	131 (5.16)	130 (5.12)	110 (4.33)	91 (3.58)
M115x2	4,0x6 - 4,0x10	156 (6.14)	130 (5.12)	110 (4.33)	116 (4.57)
M115x2	4,0x6A - 4,0x10A	181 (7.13)	130 (5.12)	110 (4.33)	141 (5.55)

FOOT MOUNTING



Thread (GW)		A	B max	C	D	E	F	G	H
mm (inch)									
3,0 x 2	M85 x 2	319 (12.56)	186 (7.32)	10 (0.39)	20 (0.79)	157 (6.18)	105 (4.13)	M12	134 (5.28)
3,0 x 4	M85 x 2	419 (16.50)	286 (11.26)	10 (0.39)	20 (0.79)	157 (6.18)	105 (4.13)	M12	134 (5.28)
3,0 x 6	M85 x 2	569 (22.40)	286 (11.26)	10 (0.39)	20 (0.79)	157 (6.18)	105 (4.13)	M12	134 (5.28)
3,0 x 8	M85 x 2	669 (26.34)	336 (13.23)	10 (0.39)	20 (0.79)	157 (6.18)	105 (4.13)	M12	134 (5.28)
3,0 x 10	M85 x 2	769 (30.28)	386 (15.20)	10 (0.39)	20 (0.79)	157 (6.18)	105 (4.13)	M12	134 (5.28)
4,0 x 2	M 115 x 2	319 (12.56)	180 (7.09)	12,5 (0.49)	25 (0.98)	203 (7.99)	149 (5.87)	M16x80	165 (6.50)
4,0 x 4	M 115 x 2	419 (16.50)	230 (9.06)	12,5 (0.49)	25 (0.98)	203 (7.99)	149 (5.87)	M16x80	165 (6.50)
4,0 x 6	M 115 x 2	569 (22.40)	280 (11.02)	12,5 (0.49)	25 (0.98)	203 (7.99)	149 (5.87)	M16x80	165 (6.50)
4,0 x 8	M 115 x 2	669 (26.34)	330 (12.99)	12,5 (0.49)	25 (0.98)	203 (7.99)	149 (5.87)	M16x80	165 (6.50)
4,0 x 10	M 115 x 2	769 (30.28)	380 (14.96)	12,5 (0.49)	25 (0.98)	203 (7.99)	149 (5.87)	M16x80	165 (6.50)

CLEVIS MOUNTING

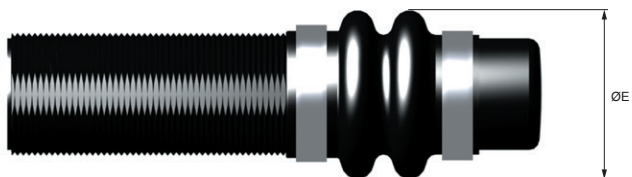


Pull: End stop required 1 mm before the stroke ends

Standard: Shock absorber with clevis mounting is delivered without return spring. Return spring is available on request.

GW*		A max	B	B1	ø C	D	E	ø F	D1	ø E1
		mm	mm	mm	mm	mm	mm	mm	mm	mm
3,0 x 2	M85 x 2	411 (16.18)	26 (1.02)	44 (1.73)	25,4 (1)	70 (2.76)	70 (2.76)	98 (3.86)	38 (1.5)	58 (2.28)
3,0 x 4	M85 x 2	511 (20.12)	26 (1.02)	44 (1.73)	25,4 (1)	70 (2.76)	70 (2.76)	98 (3.86)	38 (1.5)	58 (2.28)
3,0 x 6	M85 x 2	661 (26.02)	26 (1.02)	44 (1.73)	25,4 (1)	70 (2.76)	70 (2.76)	98 (3.86)	38 (1.5)	58 (2.28)
3,0 x 8	M85 x 2	761 (29.96)	26 (1.02)	44 (1.73)	25,4 (1)	70 (2.76)	70 (2.76)	98 (3.86)	38 (1.5)	58 (2.28)
3,0 x 10	M85 x 2	861 (33.9)	26 (1.02)	44 (1.73)	25,4 (1)	70 (2.76)	70 (2.76)	98 (3.86)	38 (1.5)	58 (2.28)
4,0 x 2	M115 x 2	428 (16.85)	44 (1.73)	55 (2.17)	25,4 (1)	89 (3.5)	51 (2.01)	127 (5)	38 (1.5)	57 (2.24)
4,0 x 4	M115 x 2	528 (20.79)	44 (1.73)	55 (2.17)	25,4 (1)	89 (3.5)	51 (2.01)	127 (5)	38 (1.5)	57 (2.24)
4,0 x 6	M115 x 2	680 (26.77)	44 (1.73)	55 (2.17)	25,4 (1)	89 (3.5)	51 (2.01)	127 (5)	38 (1.5)	57 (2.24)
4,0 x 8	M115 x 2	770 (30.31)	44 (1.73)	55 (2.17)	25,4 (1)	89 (3.5)	51 (2.01)	127 (5)	38 (1.5)	57 (2.24)
4,0 x 10	M115 x 2	880 (34.65)	44 (1.73)	55 (2.17)	25,4 (1)	89 (3.5)	51 (2.01)	127 (5)	38 (1.5)	57 (2.24)

PROTECTION BELLOW



	$\varnothing E$ mm (inch)
1,25 x 1	65 (2.56)
1,25 x 2	65 (2.56)
1,5 x 1	60 (2.36)
1,5 x 2	80 (3.15)
1,5 x 3	80 (3.15)

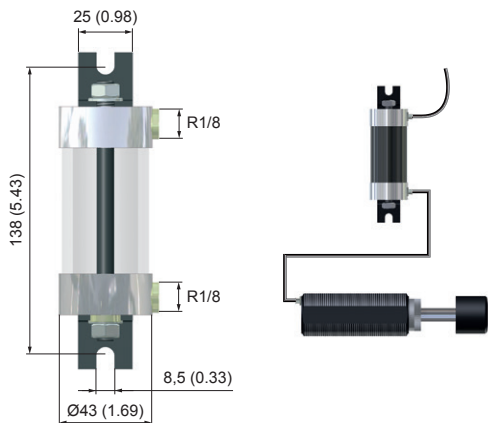
	$\varnothing E$ mm (inch)
2,0 x 1	90 (3.54)
2,0 x 2	90 (3.54)
2,0 x 4	90 (3.54)
2,0 x 6	90 (3.54)



EXTERNAL TANK

AT 1

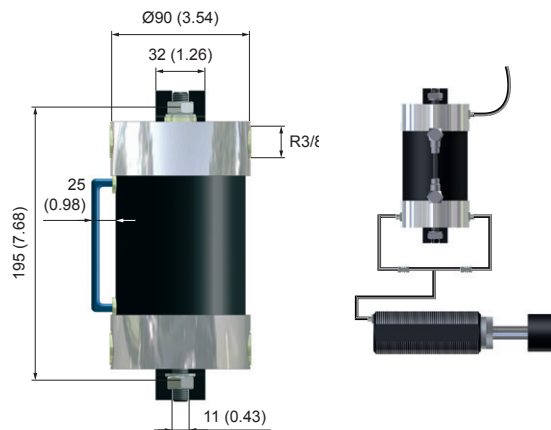
WS-M 1,25 - WS-M 1,5  
WE-M 1,25 - WE-M 1,5  
WP-M 1,25



Code: 23810

AT 2

WS-M 2,0  
WE-M 2,0



Code: 23820



**WE-M 1,25 x 2 - 1AT**  
For shock absorbers without return spring

**WE-M 1,25 x 2 - 1ATF**  
For shock absorbers with return spring

**WM-AT 1**  
For external tank



Optimum cooling and therefore  
higher energy absorption per hour

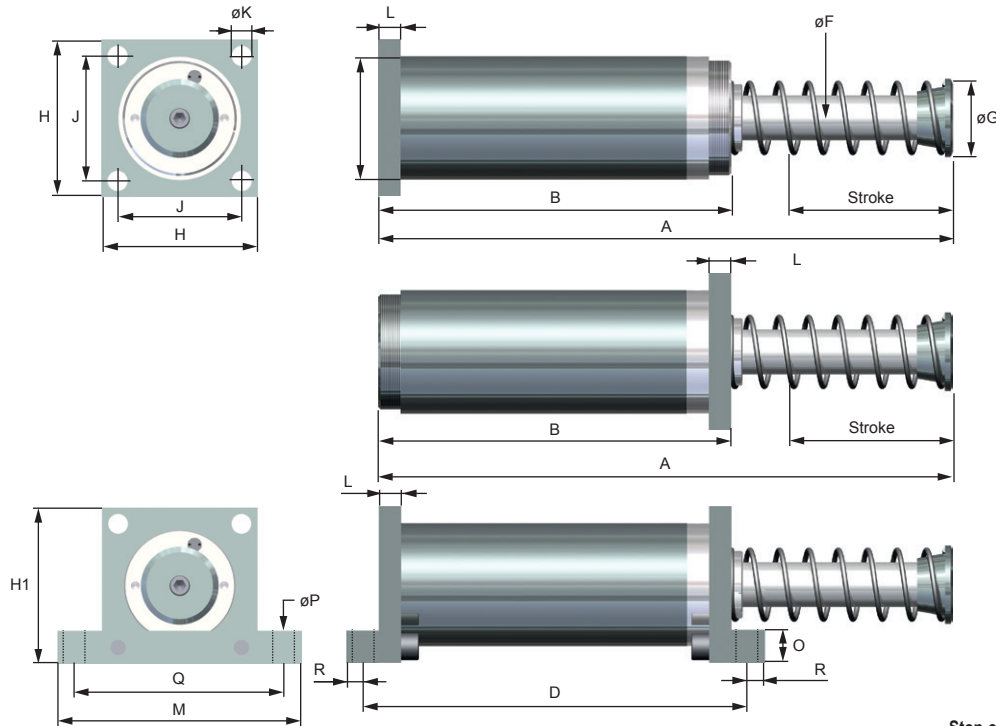
# Mega-Line 5,0 - 10,0



## High energy absorption up to 11520 kNm/h

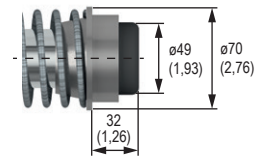
Deceleration	WS-M: self-compensating WE-M: adjustable
Extended Life Time	Piston rod: hardened / hard chrome-plated Housing: zinc plated
Temperature range	-20°C - +80°C -4°F - +176°F
Optional	Lower or higher impact speed Lower or higher temperatures





End stop required 2 - 3 mm before the stroke ends

Stop cap PU (Add "A" after the part no.)



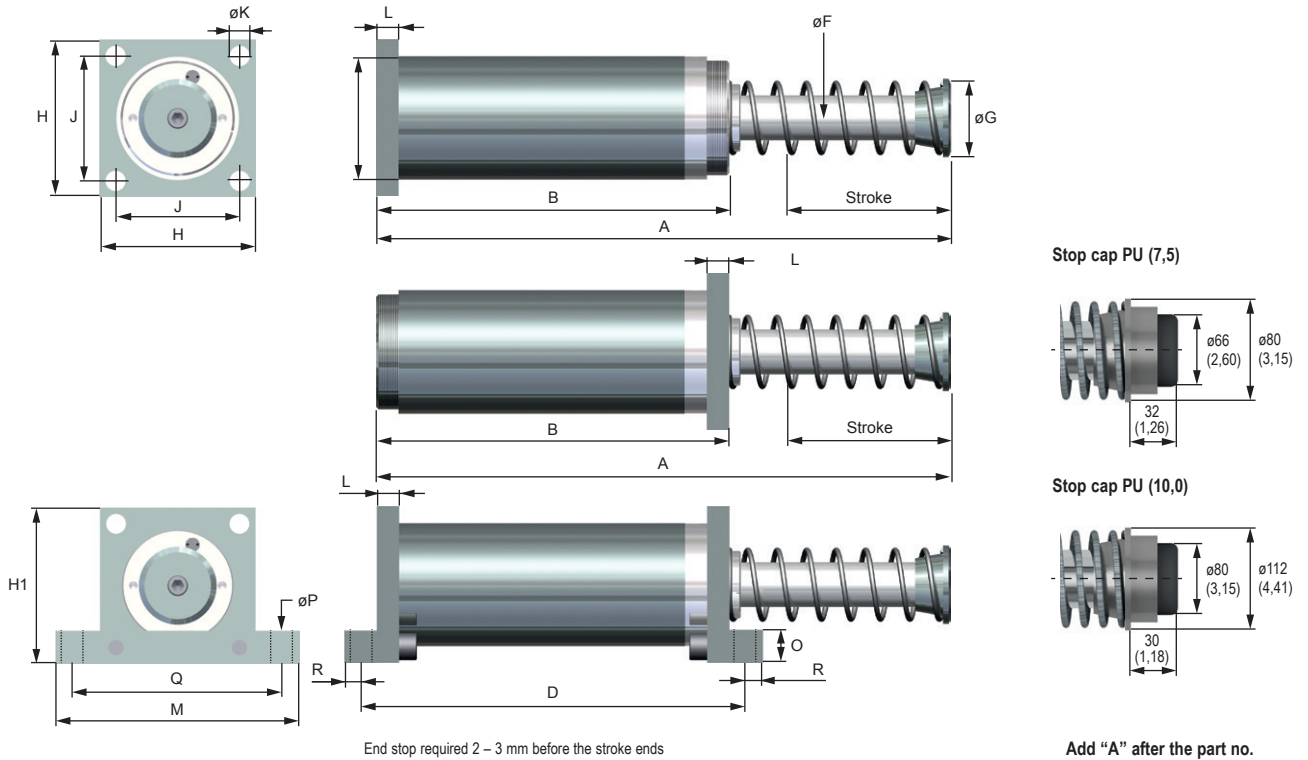
## DIMENSIONS

	A	B	D	øE	øF	øG	H	J	øK	L	M	H1	O	øP	Q	R	Weight
	mm (inch)																kg (lbs)
WS-M 5,0-050	313 (12.32)	214 (8.43)	244 (9.61)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	13 (28.66)
WS-M 5,0-100	414 (16.30)	262 (10.31)	292 (11.50)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	15 (33.07)
WS-M 5,0-150	516 (20.31)	317 (12.48)	347 (13.66)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	17 (37.48)
WS-M 5,0-200	648 (25.51)	361 (14.21)	391 (15.39)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	19,5 (43.00)
WS-M 5,0-250	750 (29.53)	413 (16.26)	443 (17.44)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	23 (50.70)

## PERFORMANCE

	Stroke mm (inch)	Energy absorption		Effective mass								Impact Speed m/s min. - max. (ft/s min. - max.)	Return spring force N min. - max. (lbs min. max.)
		Nm / HB (max. lbs)	Nm/h (max. lbs)	-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)			
				min. kg (lbs)	max. kg (lbs)	min. kg (lbs)	max. kg (lbs)	min. kg (lbs)	max. kg (lbs)	min. kg (lbs)	max. kg (lbs)		
WS-M 5,0-050	50 (1.97)	4000 (35400)	1200000 (10620000)	690 (1520)	2470 (5445)	2000 (4410)	5555 (12250)	4730 (10430)	14220 (31350)	12500 (27560)	39500 (87085)	0,3 - 3,4 (0,98 - 11,15)	100 - 400 (22 - 90)
WS-M 5,0-100	100 (3.94)	8000 (70810)	1520000 (13453900)	1380 (3050)	4930 (10870)	4000 (8820)	11110 (24495)	9460 (20860)	28440 (62700)	25000 (55120)	79000 (174170)	0,3 - 3,4 (0,98 - 11,15)	100 - 400 (22 - 90)
WS-M 5,0-150	150 (5.91)	11000 (973360)	1650000 (10104000)	1900 (4190)	6790 (14970)	5500 (12125)	15280 (33690)	13000 (28660)	39110 (86225)	34375 (75785)	108640 (239515)	0,3 - 3,4 (0,98 - 11,15)	100 - 400 (22 - 90)
WS-M 5,0-200	200 (7.87)	15000 (132770)	1950000 (17260100)	2595 (5725)	9260 (20415)	7500 (16540)	20830 (45925)	17750 (39135)	53330 (117575)	46875 (103345)	148150 (326620)	0,3 - 3,4 (0,98 - 11,15)	100 - 400 (22 - 90)
WS-M 5,0-250	250 (9.84)	19000 (168165)	2280000 (20179800)	3290 (7260)	11730 (25860)	9500 (20950)	26390 (58180)	22485 (49570)	67555 (148935)	59375 (130900)	187650 (413705)	0,3 - 3,4 (0,98 - 11,15)	100 - 400 (22 - 90)

# Mega-Line WS-M 7,5 / 10,0

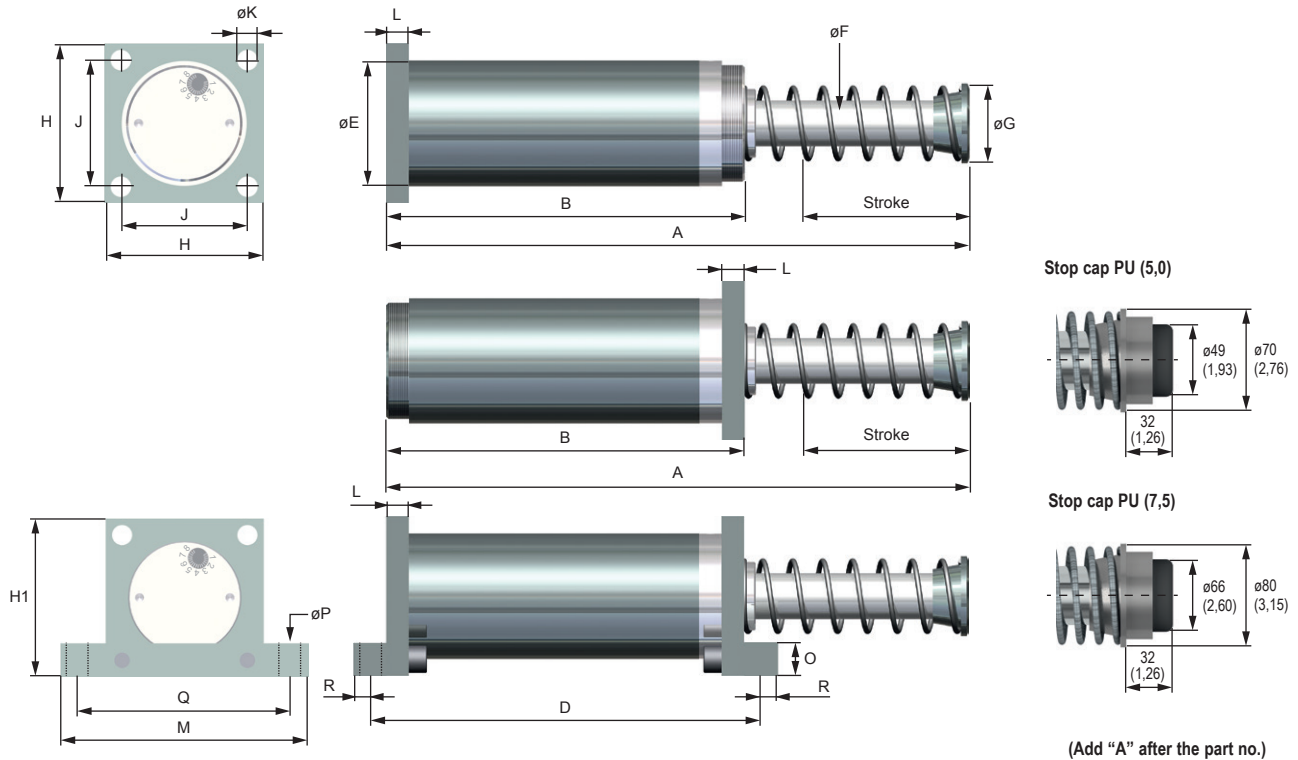


## DIMENSIONS

	A	B	D	øE	øF	øG	H	J	øK	L	M	H1	O	øP	Q	R	Weight
	mm (inch)																kg (lbs)
WS-M 7.5-125	490 (19.29)	301 (11.85)	333 (13.11)	130 (5.12)	45 (1.77)	80 (3.15)	170 (6.69)	125 (4.92)	22 (0.87)	20 (0.79)	255 (10.04)	160 (6.3)	40 (1.57)	22 (0.87)	216 (8.5)	24 (0.94)	29 (63.93)
WS-M 7.5-200	641 (25.24)	376 (14.8)	408 (16.06)	130 (5.12)	45 (1.77)	80 (3.15)	170 (6.69)	125 (4.92)	22 (0.87)	20 (0.79)	255 (10.04)	160 (6.3)	40 (1.57)	22 (0.87)	216 (8.5)	24 (0.94)	33.5 (73.85)
WS-M 7.5-300	895 (35.24)	471 (18.54)	503 (19.8)	130 (5.12)	45 (1.77)	80 (3.15)	170 (6.69)	125 (4.92)	22 (0.87)	20 (0.79)	255 (10.04)	160 (6.3)	40 (1.57)	22 (0.87)	216 (8.5)	24 (0.94)	41 (90.39)
WS-M 10.0-150	716 (28.19)	434 (17.09)	484 (19.06)	200 (7.87)	65 (2.56)	112 (4.41)	250 (9.84)	197 (7.76)	22 (0.87)	40 (1.57)	360 (14.17)	254 (10)	50 (1.97)	27 (1.06)	317 (12.48)	25 (0.98)	60 (132.2)
WS-M 10.0-200	818 (32.2)	536 (21.1)	586 (23.07)	200 (7.87)	65 (2.56)	112 (4.41)	250 (9.84)	197 (7.76)	22 (0.87)	40 (1.57)	360 (14.17)	254 (10)	50 (1.97)	27 (1.06)	317 (12.48)	25 (0.98)	68 (149.9)
WS-M 10.0-400	1300 (51.18)	733 (28.86)	783 (30.83)	200 (7.87)	65 (2.56)	112 (4.41)	250 (9.84)	197 (7.76)	22 (0.87)	40 (1.57)	360 (14.17)	254 (10)	50 (1.97)	27 (1.06)	317 (12.48)	25 (0.98)	146 (321.9)

## PERFORMANCE

Stroke	Energy absorption		Effective mass								Impact Speed	Return spring force	
			-1 (soft)		-2 (medium)		-3 (hard)		-4 (very hard)				
	mm (inch)	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)	min. kg (lbs)			max. kg (lbs)
WS-M 7.5-125	125 (4.92)	16000 (141620)	2560000 (22659200)	2770 (6110)	9870 (21760)	8000 (17640)	22200 (48500)	18935 (41745)	56880 (125400)	50000 (110235)	158025 (348400)	0,3 - 3,4 (0.98 - 11.15)	200 - 450 (45 - 102)
WS-M 7.5-200	200 (7.87)	25000 (221270)	4000000 (35403200)	4325 (9535)	15430 (34020)	12500 (27560)	34720 (76545)	29585 (65225)	88880 (195950)	78125 (172240)	246910 (544350)	0,3 - 3,4 (0.98 - 11.15)	200 - 450 (45 - 102)
WS-M 7.5-300	300 (11.81)	37000 (327480)	5920000 (52396800)	6400 (14110)	22840 (50360)	18500 (40790)	51390 (113300)	43790 (96545)	131555 (290040)	115625 (254920)	365430 (805650)	0,3 - 3,4 (0.98 - 11.15)	200 - 450 (45 - 102)
WS-M 10.0-150	150 (5.91)	50000 (442540)	3150000 (27880020)	3500 (7720)	9180 (20240)	8650 (19070)	18900 (41670)	17360 (38275)	44440 (97975)	-	-	0,3 - 5,0 (0.98 - 16.4)	350 - 900 (80 - 200)
WS-M 10.0-200	200 (7.87)	65000 (575300)	3575000 (31641500)	4630 (10210)	11930 (26300)	11250 (24800)	24570 (54170)	22570 (49760)	57700 (127210)	-	-	0,3 - 5,0 (0.98 - 16.4)	350 - 900 (80 - 200)
WS-M 10.0-400	400 (15.74)	128000 (1139200)	11520000 (102528000)	9115 (20095)	23500 (51810)	22145 (48825)	48395 (106700)	44440 (97975)	113770 (250825)	-	-	0,3 - 5,0 (0.98 - 16.4)	350 - 900 (80 - 200)



**DIMENSIONS**

	A	B	D	øE	øF	øG	H	J	øK	L	M	H1	O	øP	Q	R	Weight
	mm (inch)																kg (lbs)
WE-M 5,0-050	313 (12.32)	214 (8.43)	244 (9.61)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	14 (30.86)
WE-M 5,0-100	414 (16.3)	262 (10.31)	292 (11.5)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	16 (35.27)
WE-M 5,0-150	516 (20.31)	317 (12.48)	347 (13.66)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	18 (39.68)
WE-M 5,0-200	648 (25.51)	361 (14.21)	391 (15.39)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	20 (44.09)
WE-M 5,0-250	750 (29.53)	413 (16.26)	443 (17.44)	110 (4.33)	40 (1.57)	70 (2.76)	140 (5.51)	111 (4.37)	18 (0.71)	20 (0.79)	220 (8.66)	140 (5.51)	30 (1.18)	18 (0.71)	178 (7.01)	15 (0.59)	24 (52.91)
WE-M 7,5-125	490 (19.29)	301 (11.85)	333 (13.11)	130 (5.12)	45 (1.77)	80 (3.15)	170 (6.69)	125 (4.92)	22 (0.87)	20 (0.79)	255 (10.04)	160 (6.3)	40 (1.57)	22 (0.87)	216 (8.5)	24 (0.94)	29 (63.93)
WE-M 7,5-200	641 (25.24)	376 (14.8)	408 (16.06)	130 (5.12)	45 (1.77)	80 (3.15)	170 (6.69)	125 (4.92)	22 (0.87)	20 (0.79)	255 (10.04)	160 (6.3)	40 (1.57)	22 (0.87)	216 (8.5)	24 (0.94)	33,5 (73.85)
WE-M 7,5-300	895 (35.24)	471 (18.54)	503 (19.8)	130 (5.12)	45 (1.77)	80 (3.15)	170 (6.69)	125 (4.92)	22 (0.87)	20 (0.79)	255 (10.04)	160 (6.3)	40 (1.57)	22 (0.87)	216 (8.5)	24 (0.94)	41 (90.39)

**PERFORMANCE**

	Stroke	Energy absorption		Effective mass				Return spring force
	mm (inch)	Nm / HB (max. lbs)	Nm/h (max. lbs)	-0		-1		N min. - max. (lbs min. - max.)
				min. kg (lbs)	max. kg (lbs)	min. kg (lbs)	max. kg (lbs)	
WE-M 5,0-050	50 (1.97)	4000 (35400)	1200000 (10620000)	-	-	260 (575)	65000 (143300)	100 - 400 (22 - 90)
WE-M 5,0-100	100 (3.94)	9000 (79660)	1350000 (11949000)	-	-	280 (620)	72000 (158735)	100 - 400 (22 - 90)
WE-M 5,0-150	150 (5.91)	14000 (123910)	1680000 (14869200)	-	-	430 (950)	78000 (171963)	100 - 400 (22 - 90)
WE-M 5,0-200	200 (7.87)	20000 (177020)	2000000 (17702000)	-	-	625 (1380)	111000 (244720)	100 - 400 (22 - 90)
WE-M 5,0-250	250 (9.84)	24000 (212420)	1920000 (16993600)	-	-	750 (1650)	133300 (293885)	100 - 400 (22 - 90)
WE-M 7,5-125	125 (4.92)	16000 (141610)	2320000 (20533450)	500 (1100)	1580 (3485)	1280 (2820)	158000 (348340)	200 - 450 (45 - 102)
WE-M 7,5-200	200 (7.87)	28000 (247825)	3640000 (32217250)	875 (1930)	2765 (6100)	2240 (4940)	224000 (493845)	200 - 450 (45 - 102)
WE-M 7,5-300	300 (11.81)	44000 (389435)	5280000 (46732200)	1375 (3030)	4345 (9580)	3520 (7760)	244000 (537940)	200 - 450 (45 - 102)