

**Miniature Shock Absorbers
Self-Adjusting, Adjustable
Cushioned Mass
0,9 to 2300 kg**

- **Small, highly efficient units ideal for a wide variety of applications**
- **Reduce installation vibration**
- **Shock absorber (M/59600/AX, .../BX, .../CX) ideal for direct mounting into pneumatic cylinders**
- **Can be used to boost the cushioning capacity of existing actuators**
- **Enable high cycling rates to be used**



Technical Data

Operation:

Self-adjusting hydraulic units
Adjustable hydraulic units (M/59600/Z and .../MZ)

Operating Temperature:

+90°C max.
+65°C max. (M/59600/AX, .../BX and .../CX)

Impact Velocity:

0,3 m/s minimum
3,6 m/s maximum
0,8 m/s minimum (M/59600/AX, .../BX and .../CX)
6 m/s maximum (M/59600/AX, .../BX and .../CX)

Formulae and Calculations:

See page N 1.11.003.01

Other Features:

Install mechanical stop 0,5 to 1 mm before each end of stroke. Shock absorbers (M/59600/AX, .../BX and .../CX) direct mounting into pneumatic cylinder end covers for precision cushioning. Cylinder air pressure 7 bar maximum. Do not rotate piston rod or nylon button as this may cause damage to rolling seal.

Materials:

Burnished steel body, hardened stainless steel (Martensitic) piston rod, synthetic rubber seals EPDM rolling seal for M/59600/AX, .../BX and .../CX (this material is not compatible with petroleum base fluids).

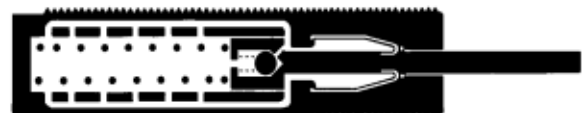
Note: For optimum heat dissipation do not paint or spray shock absorber.

Ordering Information

To order a shock absorber capable of damping a mass of up to 910 kg at up to 45000 Nm/h quote: M/59620/CX

To order a shock absorber for direct mounting into pneumatic cylinder capable of damping a mass of up to 2040 kg at up to 90000 Nm/h quote: M/59625/MZ

To order mountings and accessories refer to appropriate tables.





Capacity Chart • Weights

Model	Cushioned mass (kg) me min. max.	Maximum energy input **		Resetting force min. (N) max.	Resetting time (s)	Maximum angle of deflection	Weight (kg)
		W3 per stroke (Nm)	W4 per hour (Nm/h)				
M/59614/AX	0,9 to 10	17	34000	3 to 5	0,4	4°	0,06
M/59614/BX	8,6 to 86						
M/59614/CX	70 to 200						
M/59620/AX	2,3 to 25	25	45000	4 to 6	0,3	4°	0,15
M/59620/BX	23 to 230						
M/59620/CX	180 to 910						
M/59625/AX	9 to 136	68	68000	5 to 9	0,6	2°	0,26
M/59625/BX	113 to 1130						
M/59625/CX	400 to 2300						
M/59620/BS	2,3 to 14	23	45000	4 to 9	0,1	2°	0,13
M/59620/CS	9 to 55						
M/59620/DS	36 to 180						
M/59625/BS	9 to 55	57	68000	10 to 30	0,2	2°	0,31
M/59625/ES	36 to 227						
M/59625/GS	181 to 1088						
M/59625/DS	14 to 90	90	90000	10 to 35	0,4	2°	0,40
M/59625/FS	68 to 408						
M/59625/HS	217 to 1906						
M/59620/Z	2,3 to 226	25	45000	5 to 10	0,1	2°	0,13
M/59625/Z	9 to 1360	68	68000	10 to 30	0,2	2°	0,31
M/59625/MZ	14 to 2040	100	90000	10 to 35	0,4	1°	0,40

**The ratings per hour of these units may be exceeded if they are switched off periodically or cooled by exhaust air (up to +80°C)

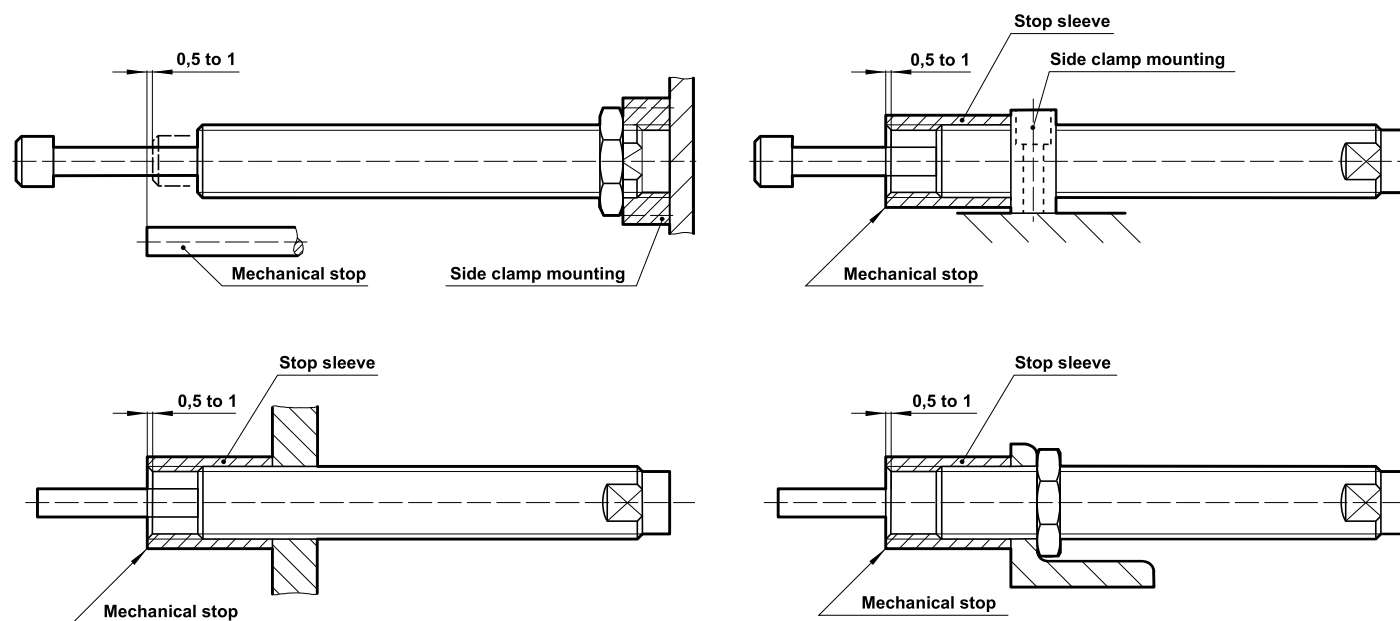
Formulae and Calculations: See page N 1.11.003.01

Weights of Mountings (kg)

Model	 Nylon Cap	 Style 'N'	 Stop Sleeve	 Style 'T'	 Style 'F'	 Style 'R'
59614	0,002	0,005	0,015	0,048	-	-
59620	0,003	0,010	0,032	0,043	-	-
59625	0,007	0,020	0,120	0,043	0,014	0,044 (0,049) *

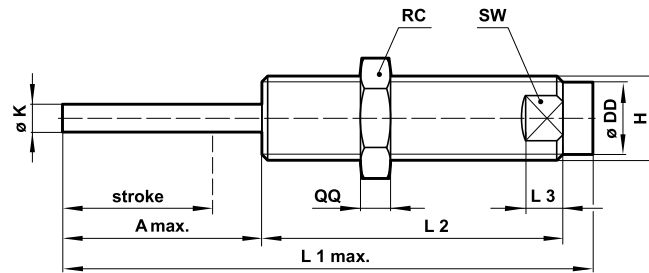
* Versions Z, MZ, S

Mounting Example





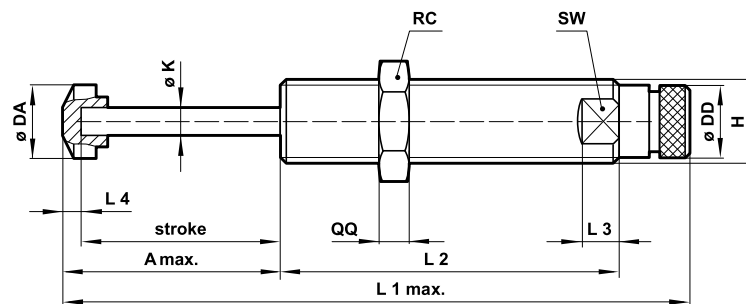
Basic Dimensions



Model	Stroke	A	Ø DD	H	Ø K	L1	L2	L3	QQ	RC	SW (A/F)
M/59614/AX, ..BX, ../CX	12,5	17,5	12	M 14 x 1,5	4,8	87	61	12	5	17	12
M/59620/AX, ..BX, ../CX	12,5	17,5	17	M 20 x 1,5	6,3	97	71	12	6	24	18
M/59625/AX, ..BX, ../CX	25,4	32	23	M 25 x 1,5	8	142,5	102	12	8	30	23

Shock absorbers are supplied with one locknut as standard.

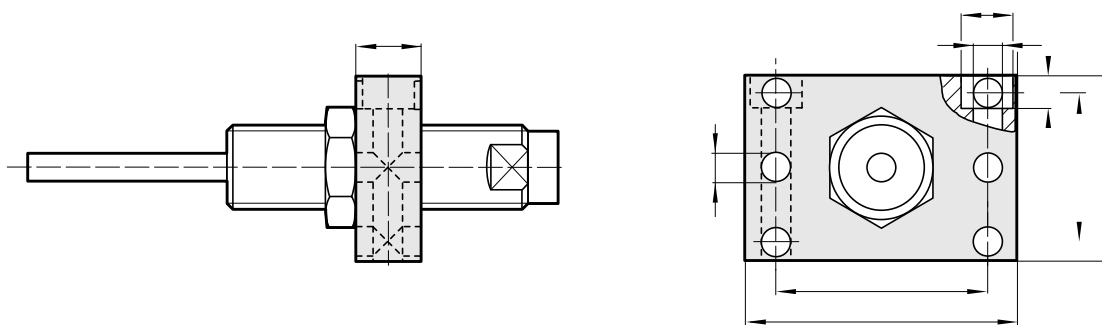
Basic Dimensions



Model	Stroke	A	Ø DA	Ø DD	H	Ø K	L1	L2	L3	L4	QQ	RC	SW (A/F)
M/59620/BS, ../CS, ../DS	19	30	17	17	M 20 x 1,5	4,8	118	75	12	4,5	6	24	18
M/59625/BS, ../ES, ../GS	25,4	36,5	23	22,5	M 25 x 1,5	6,3	143	78	12	4,5	8	30	23
M/59625/DS, ../FS, ../HS	40	51	23	22,5	M 25 x 1,5	6,3	189	109,5	12	4,5	8	30	23
M/59620/Z	19	30	17	17	M 20 x 1,5	4,8	118	75	12	4,5	6	24	18
M/59625/Z	25,4	36,5	23	22,5	M 25 x 1,5	6,3	143	90	12	4,5	8	30	23
M/59625/MZ	40	51	23	22,5	M 25 x 1,5	6,3	189	121,5	12	4,5	8	30	23

Shock absorbers are supplied with one locknut as standard.

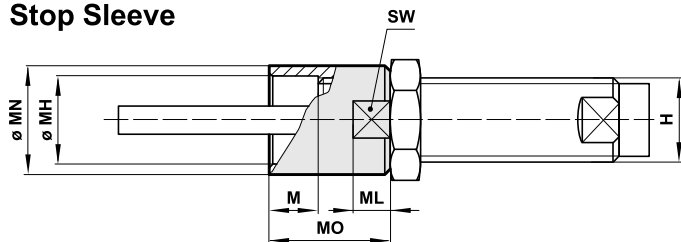
Side Clamp Mounting Style 'T'



Model	Shock absorber	B	C	D	E	Ø F	Ø G	H	J	M
M/P34720	59614	35	45	-	16	4,5	8	M14 x 1,5	29	5
M/P70063	59620	35	47	25,5	16	5,5	10	M20 x 1,5	35	10
M/P29882	59625	35	47	25,5	16	5,5	10	M25 x 1,5	35	10

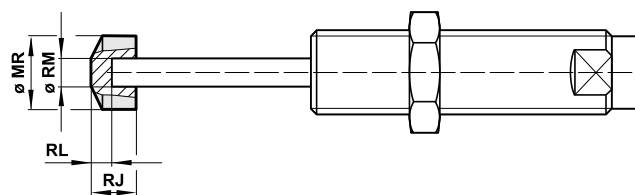


Stop Sleeve



Model	Shock absorber	H	M	Ø MH	ML	Ø MN	MO	SW
M/P29876	59614	M 14 x 1,5	12	14,5	6	18	19	15
M/P29876	59620	M 20 x 1,5	12	20,5	8	25	25	22
M/P29878	59625	M 25 x 1,5	16	25,5	10	32	45	27

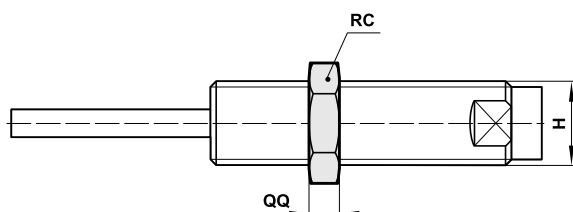
Polypad



Model	Shock absorber	Ø MR	RL	Ø RM	RJ
M/P29873	M/59614/*X	12	11	4,5	4,8
M/P29874	M/59620/*X	17	11	5	6,3
M/P29875	M/59625/*X	23	13,5	6,5	8

* Versions A, B or C

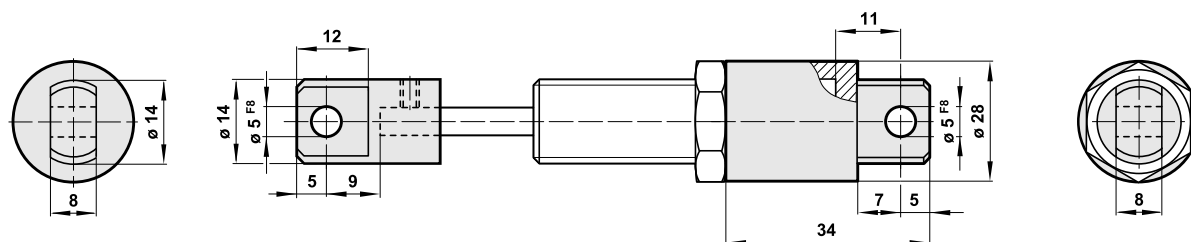
Locknut Style 'N'



Model	Shock absorber	H	QQ	RC (A/F)
M/P1501/106	59614	M 14 x 1,5	5	17
M/P1501/107	59620	M 20 x 1,5	6	24
M/P1501/108	59625	M 25 x 1,5	8	30

Piston Rod Clevis Mounting Style 'F'

Model: M/P 70065 for shock absorbers M/59625/AX, .../BX and .../CX

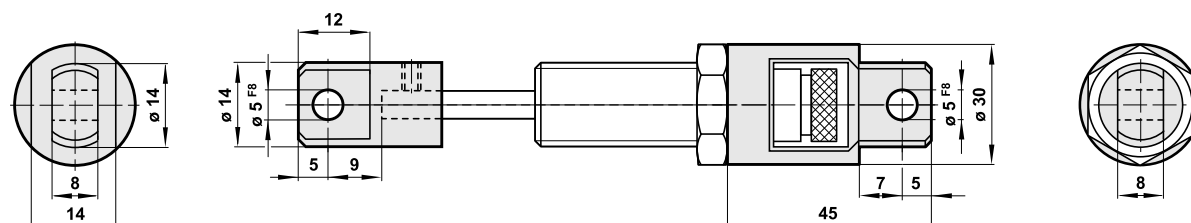


Rear Eye Mounting Style 'R'

Model: M/P 70064 for shock absorbers M/59625/AX, .../BX and .../CX

Piston Rod Clevis Mounting Style 'F'

Model: M/P 70069 for shock absorbers M/59625/Z, .../MZ and .../S



Rear Eye Mounting Style 'R'

Model: M/P 70068 for shock absorbers M/59625/Z, .../MZ and .../S

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under 'Technical Data'.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult NORGREN.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.