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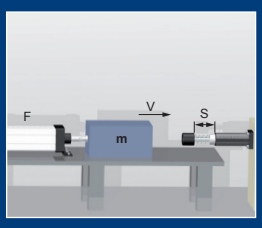
Shock Absorbers

Mega-Line M4
Mega-Line M5
Mega-Line M6
Mega-Line M8
Mega-Line M10
Mega-Line M12

ONLINE
Calculation +
2D / 3D CAD Download



Deceleration Technology

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Benefits

Enlarged Piston:
- High energy absorption

Piston:
- Nitrated guidance system
- Special seals + Oils

Integrated and stop:
- Max. security
- easy installation

ProSurf:
- Surface protection against corrosion

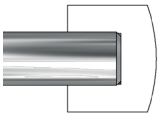
Flats:
- Faster installation

Special models:
- V4A(/DIN1.4404/AISL 316L)
- For pressure chambers up to 7 bar
- USDA-H 1 compliant for food industry
- Cleanroom

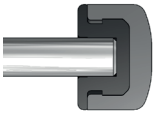
Temperature:
Standard: -20°C - ...+80°
Low-temperature: -50°C-...+60°C
High-temperature: 0°C-...+120°C

Stop caps:

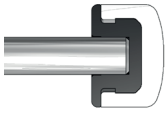
A:
- Standard from POM
- Increased protection of the impact surface



AP:
- 40% noise reduction due to PU
- Increased protection of the impact surface



AP2:
- Longer life time compared to stop cap AP and plastic cap A due to glass fiber reinforced PU cap



AS:
- From hardened steel
- For side forces and difficult operating conditions

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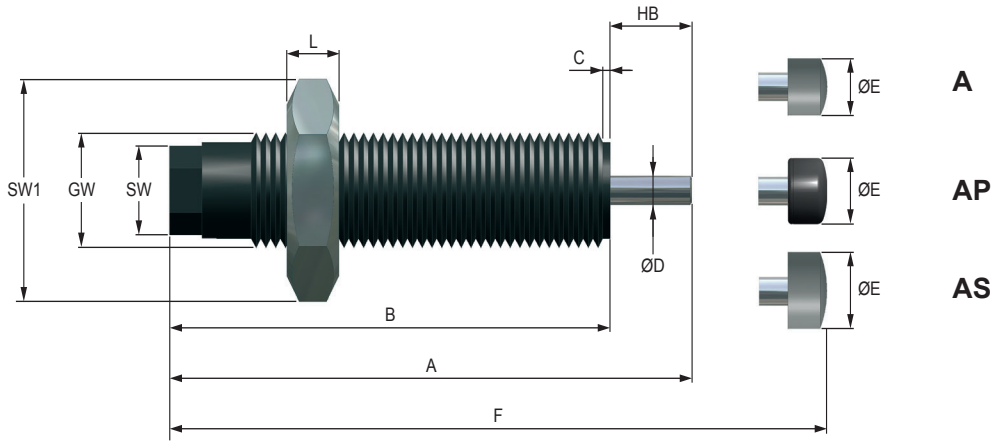

***A**: Plastic **AP:** Soft Touch / **AS:** Steel

DIMENSIONS

	GW	A	B	C	ø D	øE (A)	øE (AP)	øE (AS)	F (A)	F (AP)	F (AS)	L	SW	SW1
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
WS-M 4 x 4	M 4 x 0,35	29,0	25,0	2,0	1,5	3,0	4,3	-	33,0	-	-	3,0	3,0	7,0
WS-M 5 x 4	M 5 x 0,5	29,0	25,0	2,0	1,5	3,0	4,3	-	33,0	33,0	-	3,0	4,0	8,0
WS-M 6 x 5	M 6 x 0,5	32,0	27,0	2,0	2,0	5,0	5,3	-	37,0	37,0	-	3,0	4,0	8,0
WS-M 8 x 5	M 8 x 1	35,0	30,0	2,5	2,3	6,0	6,5	-	41,0	41,5	-	3,0	5,5	11,0
WS-M 10 x 6	M 10 x 1	37,0	31,0	2,5	3,0	6,0	8,5	8,5	43,5	43,5	43,5	3,0	7,0	13,0
WS-M 10 x 8	M 10 x 1	48,0	40,0	2,5	3,0	6,0	8,5	8,5	54,5	54,5	54,5	3,0	7,0	13,0
WS-M 12 x 10	M 12 x 1	61,0	51,0	2,5	4,0	10,0	10,0	10,0	69,0	69,5	69,0	4,0	9,0	14,0

SPECIAL THREAD - from stock

Series	Code	Threads	Example
10 x 6	U	3/8-32 UNEF	WS-M 10x6-1 U
10 x 6	UF	7/16-28 UNEF	WS-M 10x6-1 UF
10 x 8	U	3/8-32 UNEF	WS-M 10x8-1 U
10 x 8	UF	7/16-28 UNEF	WS-M 10x8-1 UF

PERFOMANCE

	Stroke	Energy absoption			Effective Mass			Impact Speed	Return spring force
		Constant load	Emergency		-1 (soft)	-2 (medium)	-3 (hard)		
	mm	Nm/HB (max.)	Nm/HB (max.)	Nm/h (max.)	min. - max.kg	min. - max.kg	min. - max.kg	m/s	N
WS-M 4 x 4	4	0,4	0,7	1500	0,1 - 1	0,9 - 3,2	-	0,2 - 1,5	2 - 7
WS-M 5 x 4	4	0,6	1,0	1800	0,1 - 1,2	1,0 - 5,0	-	0,2 - 2,0	2 - 7
WS-M 6 x 5	5	1,0	1,5	3000	0,05 - 1	0,8 - 2,8	1,5 - 4	0,2 - 2,5	2 - 5
WS-M 8 x 5	5	1,5	2,0	4000	0,25 - 3	0,7 - 6	3 - 9	0,2 - 2,5	2 - 5
WS-M 10 x 6	6	2,2	3,0	12000	0,7 - 3	3 - 10	8 - 18	0,2 - 2,5	3 - 6
WS-M 10 x 8	8	3,0	4,0	24000	0,9 - 9	2 - 12	9 - 23	0,2 - 3	3 - 6
WS-M 12 x 10	10	9,0	12,0	27450	1 - 15	10 - 42	25 - 61	0,2 - 3	4 - 10

Technical data at + 20°C

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Technical Data

Weight	M4x4 / M5x4 / M6x5:	3g
	M8x5:	7g
	M10x6:	11g
	M10x8:	14g
	M12x10:	30g
Torque:	M 4 x 4:	0,8 Nm
max. force by using the flats	M 5 x 4:	1,0 Nm
	M 6 x 5:	1,2 Nm
	M 8 x 5:	2 Nm
	M 10 x X:	4 Nm
	M 12 x 10:	8 Nm
Housing	ProSurf	
Piston rod	Hardened stainless steel	
RoHS - compliant	Directive 2002/95/EG	
Included	1 Lock nut	

Adjustment:

The shock absorbers Mega-Line M4 - M12 are self-compensating.

Damping characteristics:
WS-M - self-compensating, linear

The following damping characteristics are available:
- 1 - soft
- 2 - medium
- 3 - hard

The damping level is calculated with the formula for the effective mass.
(see calculation in the catalog)

If the mass in a trial run impacts excessively hard on the fixed stop select the next harder model. If the mass impacts too hard on the shock absorber choose a softer version.

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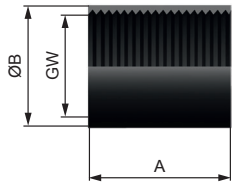
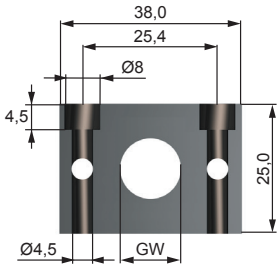
Accessories

Stop limit nut



GW*	A mm	ØB mm	Code
M8x1	12	11	14018
M10x1	15	14	15018
M12x1	20	16	17018

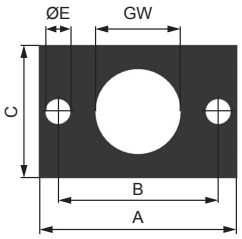
Rectangular flange



GW*	T mm	Code
M10x1	12	15013
M12x1	12	17013

Widht = T

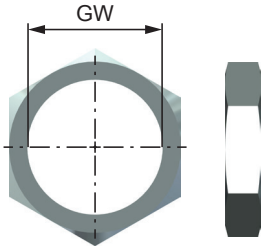
Clamping flange



GW*	A mm	B mm	C mm	E mm	T mm	Code
M6x0,5	20	14	10	3,2	5	SK13013
M8x1	25	18	15	4,2	6	SK14013
M10x1	28	20	15	4,2	6	SK15013
M12x1	32	24	20	5,5	6	SK17013

Width = T

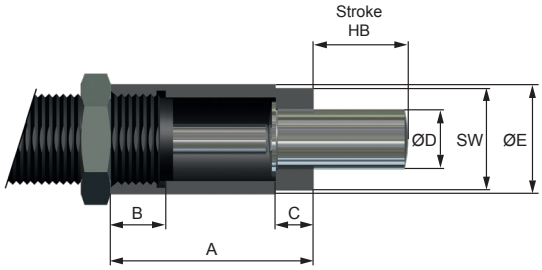
Lock nut



GW*	Code
M4x0,35	11012
M5x0,5	12012
M6x0,5	13012
M8x1	14012
M10x1	15012
M12x1	17012

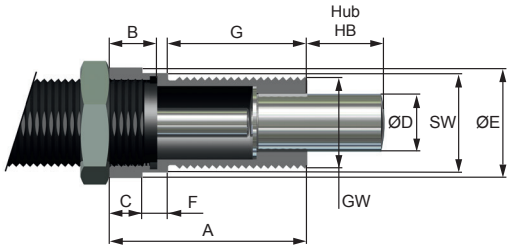
Solutions for Side Forces

AK 1



	GW*	A mm	B mm	C mm	ø D mm	ø E mm	SW mm	Code
M10x6	M10x1	17,5	7	5	7	14	13	15119
M10x8	M10x1	20,5	7	5	7	14	13	15319
M12x10	M12x1	23,0	7	5	9	15	14	17019

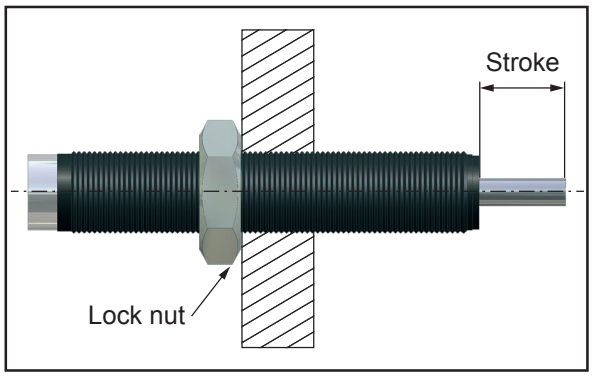
AK 2



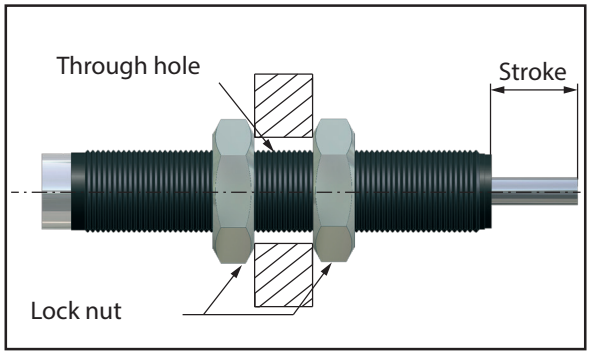
	GW*	A mm	B mm	C mm	ø D mm	ø E mm	F mm	G mm	SW mm	Code
M8x5	M8x1	19	7	5	4	12	4	10	10	S14119-AK2
M10x6	M10x1	22	7	5	6	14	5	12	13	S15119-AK2
M12x10	M12x1	28	7	5	7	15	5	18	14	S17019-AK2

Installation

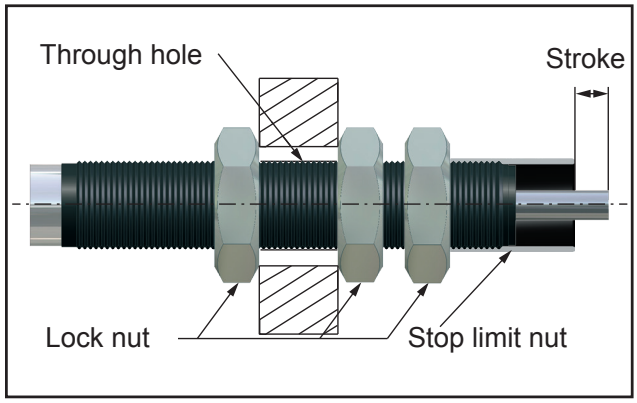
Installation with Lock nut



Installation with 2 Lock nuts



Installation with stop limit nut



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Safety Instructions

Before installation, commissioning, servicing and repair the data sheet is to be noticed. This work may only be performed by trained, introduced staff.

Electric connections according to the suitable national regulation. For Germany: VDE regulation VD E0100

Before all repair and servicing works the energy supplies (main switch, etc.) have to be switched off! Moreover, measures are necessary to prevent an unintential reconnect. For example, a warning sign “service works“ or “maintenance work“, applied to the switch.

Designated use

Check before installation and make sure the type name on the shock absorber or on the packaging is corresponding with delivery note. Industrial shock absorbers are maintenance-free and ready for installation.

- Temperature influence: at higher temperatures the shock absorber characteristic will change.
- Movable loads have to be protected during the installation and maintenance against unintentional processes.
- In operation outside the allowed temperature range, the shock absorber can lose his function. Due to heat radiation don’t paint the shock absorber.
- Fluids, gases and a dirty environment can affect or destroy the sealing system of the shock absorber. The result could be a failure malfunction. Piston rod and sealing system has to be protected against fluids, gases and a dirty environment.
- Damages at the piston rod can destroy the sealing system. Don’t grease or oil the piston rod.
- Avoid traction forces on the piston rod to present internal damages.
- The shock absorber can be pulled out of the construction during the impact.The construction needs to be able to resist the max counterforce. Sufficient security must be calculated.
  The maximum counterforces performed in the calculation program can vary from the really appearing counter forces, because these are based on theoretical values.

Fundamentals

Shock absorbers may under no circumstances be:

-painted

-welded

-held with clamps

-used on pull*

In hazardous environments (dirt, humidity, oil) shock absorbers must be protected against damage and failure with the necessary accessory. If several shock absorbers are used on the same application, the deceleration has to be distributed equally. The “Torque” (PERFORMANCE) indicates the maximum force by using the flats. The Weforma catalogue shows technical data with both minimum and maximum values. If a product is to be used in continuous operation and within a range of 20% from the minimum and maximum values shown, then written confirmation of suitability of use from Weforma is necessary.

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Important information

Integrated end-stop

Up to the M4 - M12 Mega-Line series the shock absorbers are provided with an integrated end-stop. If the integrated end-stop is used the remaining energy before end of stroke must not be higher than 10% of the total energy. For all models which are used as an emergency stop an external fixed stop is necessary.

Installation situation

The installation situation is any, however always in such a way that the complete shock absorber stroke can be used. The shock absorbers must be mounted like that the forces in centerinke about the piston rod are initiated. The maximum angle out of centre amounts to 3 °. With a bigger angle out of centre an AK1 / AK2 (see equipment) must be used.

Liability

Due to the number of possible uses of our products and the conditions of use that lie outside of our scope of influence, we accept no liability as to whether the purchase object is suitable for the Client‘s intended purpose. The verification to this effect, in particular the verification as to whether the purchase object is suitable for the planned use, is the responsibility of the Client alone, unless expressly agreed otherwise in writing.

For the reasons we accept no liability for the suitability of the purchase object for the purpose intended by the Client, except in cases of intent or gross negligence.

With damages, the not designated use and from high-handed, in these instructions do not originate to intended interventions, any guarantee and liability claim goes out towards the manufacturer.

Guarantee

By non-use of the original spare parts the guarantee claim goes out.

Environment protection

By the exchange from damaged parts is to be respected to a proper disposal.