Miniature Shock Absorbers

Tuning for almost any design

Miniature shock absorbers from ACE are tried-and-tested quality products used in millions of industrial construction designs throughout the world. They optimise machines in an equally reliable and effective way by decelerating loads quickly and without recoil.

The compact, maintenance-free, hydraulic machine elements can be easily and quickly integrated in any construction design and certain models can be directly integrated in pneumatic cylinders. They reduce the load on handling devices, rotary and pivoting actuators, linear cylinders and many other industrial applications and increase their efficiency. Innovative ACE sealing techniques and shock absorber bodies and inner pressure chambers, fully machined from solid high tensile alloy, tube-shaped steel, ensure a long service life.

- Easy, inexpensive constructions
- Large variety of models for every purpose
- Less stress on the machine
- Reduced operating costs
- Maintenance-free

Miniature Shock Absorbers

MC5 to MC75

Page 18

Self-Compensating
Shock absorbers in miniature format
Miniature slides, Pneumatic cylinders, Handling modules, Copiers

MC150 to MC600

Page 20

Self-Compensating, Rolling Diaphragm Technology
Exceptionaly high endurance and with the lowest resetting force
Linear slides, Pneumatic cylinders, Swivel units, Handling modules

MC150-V4A to MC600-V4A

Page 22

Self-Compensating, Stainless Steel, Rolling Diaphragm Technology
Exceptionally high endurance with stainless steel corrosion protection
Clean room areas, Pharmaceutical industry, Medical technology, Food industry

PMCN150 to PMCN600

Page 24

Self-Compensating, Rolling Diaphragm Technology, TPU Bellow
Reliable protection against fluids
Finishing and processing centres, Clean room areas, Pharmaceutical industry, Medical technology

PMCN150-V4A to PMCN600-V4A

Page 26

Self-Compensating, Rolling Diaphragm Technology, TPU Bellow
Optimum corrosion protection
Finishing and processing centres, Clean room areas, Pharmaceutical industry, Medical technology

SC190 to SC925

Page 28

Self-Compensating, Soft-Contact
Long stroke and soft impact
Linear slides, Pneumatic cylinders, Handling modules, Machines and plants

SC²25 to SC²190

Page 30

Self-Compensating, Piston Tube Technology
Piston tube design for maximum energy absorption
Linear slides, Pneumatic cylinders, Swivel units, Handling modules

SC²300 to SC²650

Page 32

Self-Compensating, Piston Tube Technology
Piston tube design for maximum energy absorption
Turntables, Swivel units, Robot arms, Linear slides

MA30 to MA900

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Adjustable
Stepless adjustment
Linear slides, Pneumatic cylinders, Swivel units, Handling modules

Issue 07.2017 – Specifications subject to change

MC5 to MC75

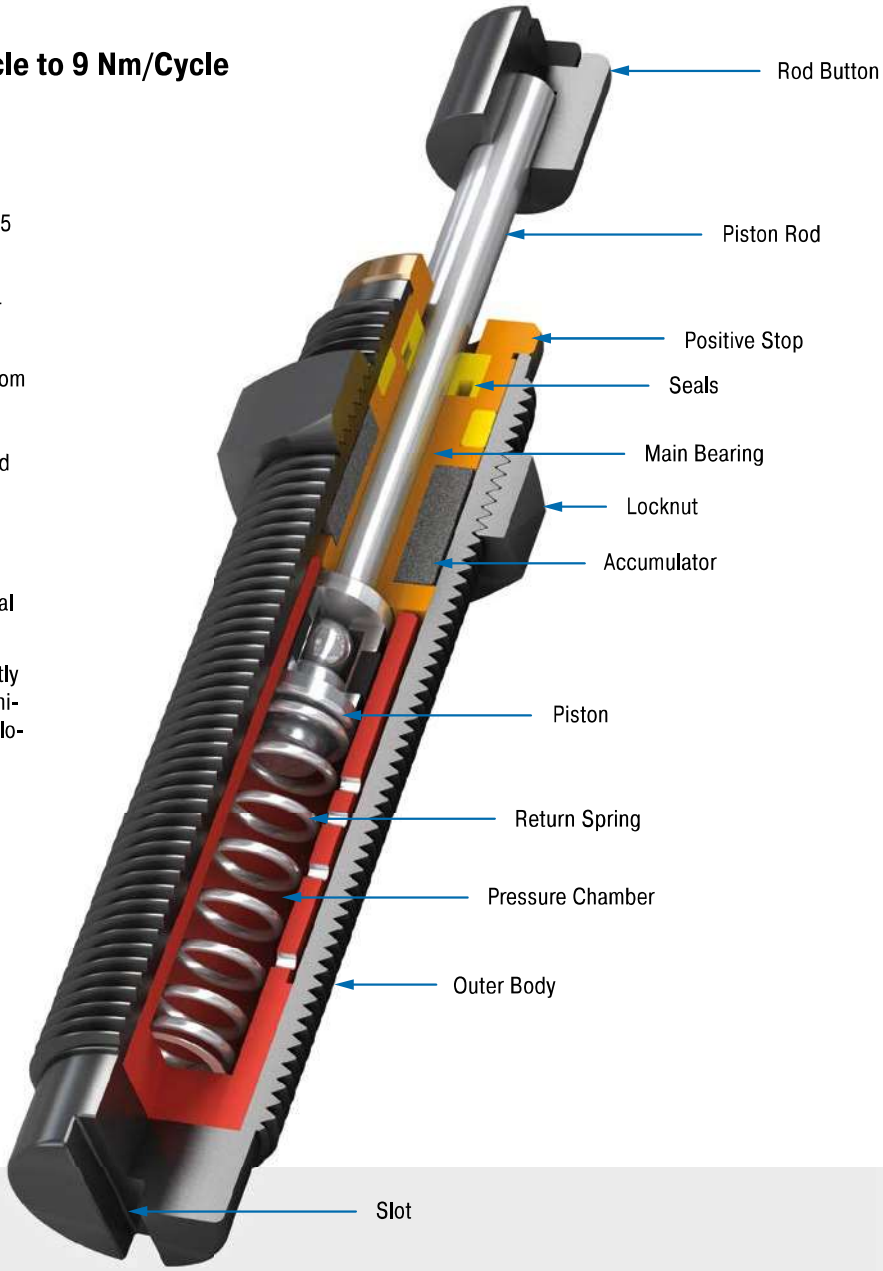
Shock absorbers in miniature format

Self-Compensating
Energy capacity 0.68 Nm/Cycle to 9 Nm/Cycle
Stroke 4 mm to 10 mm

Ideal for compact, efficient designs: The MC5 to MC75 series impresses users with their reduced dimensions and their very short overall lengths and low resetting forces after braking.

The outer body of each damper, produced from one solid piece, are filled with temperature stable oil, offer a continuous thread incl. a supplied lock nut and also have an integrated positive stop. These hydraulic machine elements from ACE, are ready for immediate installation and are maintenance-free. A comprehensive range of energy absorption with a wide range of effective weight potential are further benefits in these minature units.

These miniature shock absorbers are perfectly suited to use in applications such as mechanical engineering, medical and electro-technology and robotics.



Technical Data

Energy capacity: 0.68 Nm/Cycle to 9 Nm/Cycle

Impact velocity range: 0.15 m/s to 4 m/s

Operating temperature range: -10 °C to +66 °C

Mounting: In any position

Positive stop: Integrated

Material: Outer body, Accessories: Steel corrosion-resistant coating; Piston rod: hardened stainless steel; Rod end button: Steel, MC25 and MC75: Elastomer Insert; Locknut: Steel, MC5 and MC9: Aluminium

Damping medium: Oil, temperature stable

Application field: Miniature slides, Pneumatic cylinders, Handling modules, Copiers, Measuring tables, Machines and plants, Locking systems

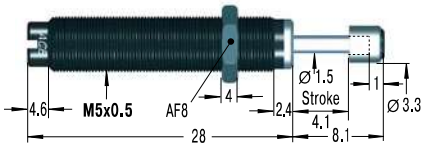
Note: If precise end position datum is required consider use of the stop collar type AH.

Safety instructions: External materials in the surrounding area can attack the seal components and lead to a shorter service life. Please contact ACE for appropriate solution suggestions. Do not paint the shock absorbers due to heat emission.

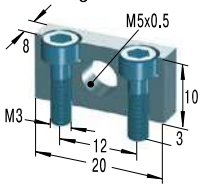
On request: Increased corrosion protection. Special finishes. Models without rod end button also available on request.

Issue 07.2017 – Specifications subject to change

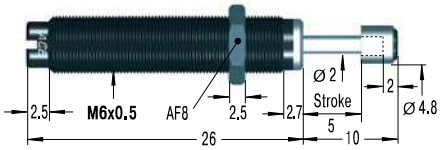
MC5EUM



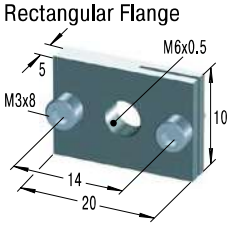
MB5SC2
Mounting Block



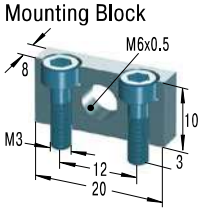
MC9EUM



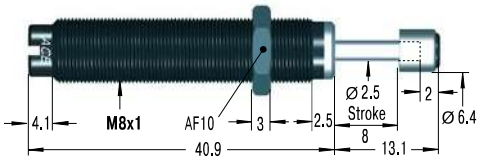
RF6
Rectangular Flange



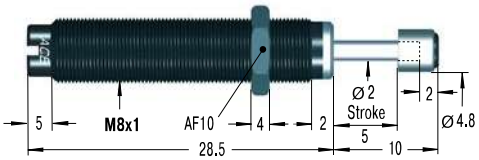
MB6SC2
Mounting Block



MC30EUM for use on new installations

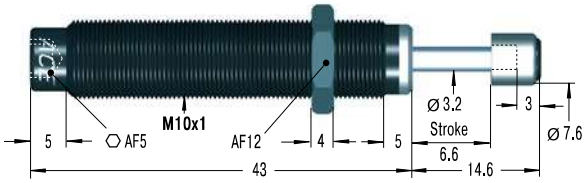


MC10EUM still available in future

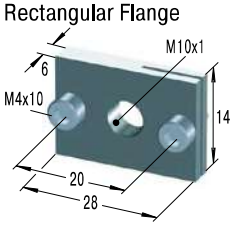


M8x0.75 also available to order

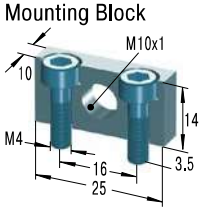
MC25EUM



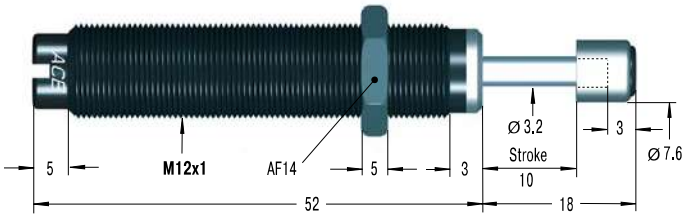
RF10
Rectangular Flange



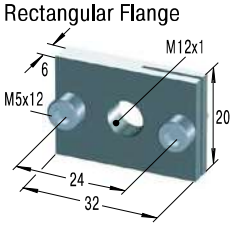
MB10SC2
Mounting Block



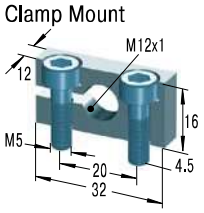
MC75EUM



RF12
Rectangular Flange



MB12
Clamp Mount



Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight me min. kg	Effective Weight me max. kg	Return Force min. N	Return Force max. N	Return Time s	[1] Side Load Angle max. °	Weight kg
MC5EUM-1-B	0.68	2,040	0.5	4.4	1	5	0.2	2	0.003
MC5EUM-2-B	0.68	2,040	3.8	10.8	1	5	0.2	2	0.003
MC5EUM-3-B	0.68	2,040	9.7	18.7	1	5	0.2	2	0.003
MC9EUM-1-B	1	2,000	0.6	3.2	2	4	0.3	2	0.004
MC9EUM-2-B	1	2,000	0.8	4.1	2	4	0.3	2	0.004
MC10EUML-B	1.25	4,000	0.3	2.7	2	4	0.6	3	0.007
MC10EUMH-B	1.25	4,000	0.7	5	2	4	0.6	3	0.007
MC25EUML	2.8	22,600	0.7	2.2	3	6	0.3	2	0.020
MC25EUM	2.8	22,600	1.8	5.4	3	6	0.3	2	0.020
MC25EUMH	2.8	22,600	4.6	13.6	3	6	0.3	2	0.020
MC30EUM-1	3.5	5,600	0.4	1.9	2	6	0.3	2	0.010
MC30EUM-2	3.5	5,600	1.8	5.4	2	6	0.3	2	0.010
MC30EUM-3	3.5	5,600	5	15	2	6	0.3	2	0.010
MC75EUM-1	9	28,200	0.3	1.1	4	9	0.3	2	0.035
MC75EUM-2	9	28,200	0.9	4.8	4	9	0.3	2	0.035
MC75EUM-3	9	28,200	2.7	36.2	4	9	0.3	2	0.035
MC75EUM-4	9	28,200	25	72	4	9	0.3	2	0.035

[1] For applications with higher side load angles consider using the side load adaptor (BV) pages 38 to 45.

Issue 07.2017 – Specifications subject to change

MC150 to MC600

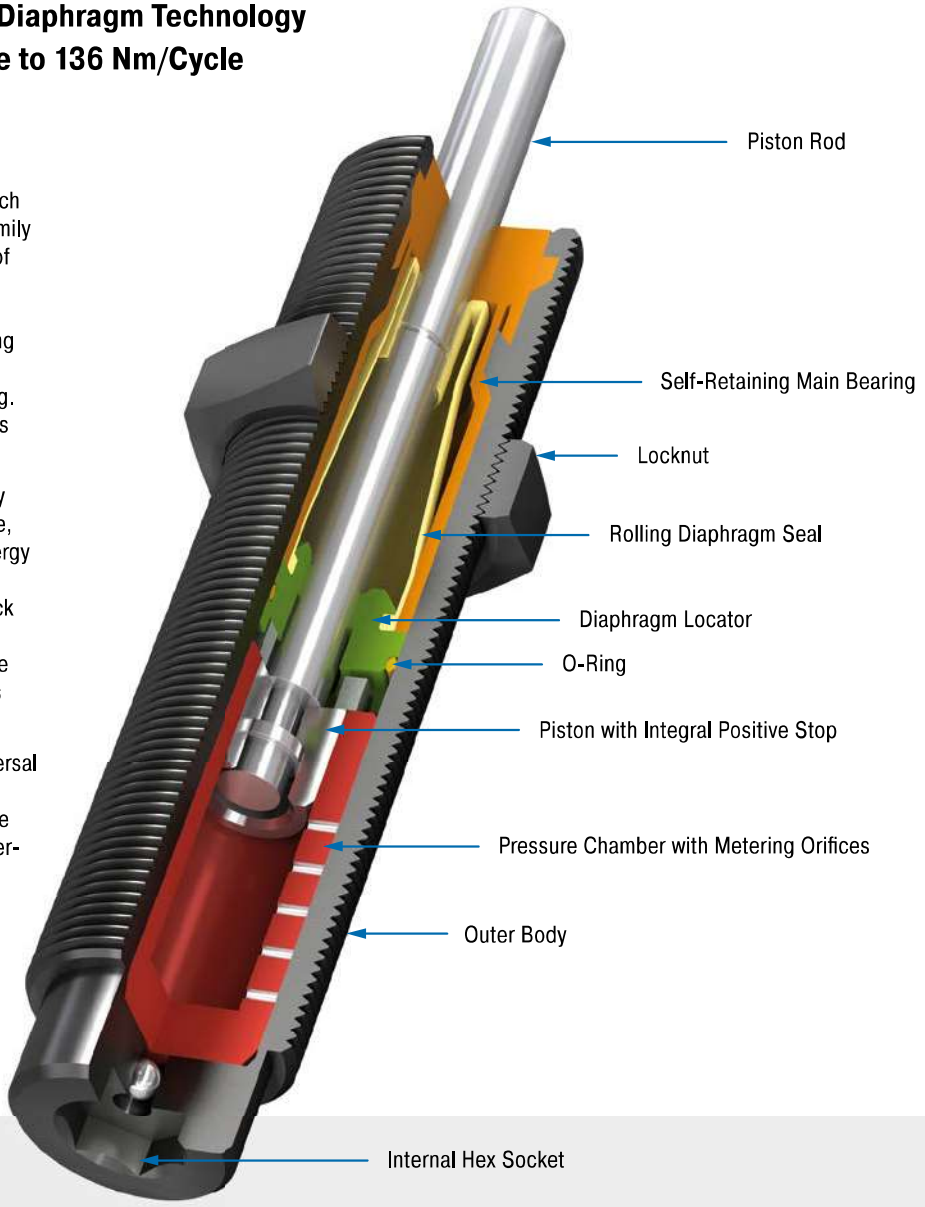
Exceptionaly high endurance and with the lowest resetting force

Self-Compensating, Rolling Diaphragm Technology
Energy capacity 20 Nm/Cycle to 136 Nm/Cycle
Stroke 12 mm bis 25 mm

Tried-and-tested and durable: Due to a hermetically sealed rolling diaphragm in each absorber, the MC150 to MC600 product family is suitable for an exceptional high lifetime of use with up to 25 million cycles. The rolling diaphragm technology perfected by ACE ensures complete separation of the damping fluid from the surrounding air. This makes direct installation in a pressure chamber e.g. as end stop damping in pneumatic cylinders up to approx. 7 bar possible.

The rolling diaphragm also benefits the very low return forces of these maintenance-free, ready-to-install absorbers. Progressive energy capacities, with a wide range of effective weight potential make these miniature shock absorbers, complete with an integrated positive stop a winner. Furthermore, the use of a side load adapter allows impact angles of up to 25°.

Miniature shock absorbers capable of universal mounting even inside a cylinder and also available in stainless steel options. They are often used in mechanical and plant engineering, and a multitude of other applications.



Technical Data

Energy capacity: 20 Nm/Cycle to 136 Nm/Cycle

Impact velocity range: 0.06 m/s to 6 m/s. Other speeds on request.

Operating temperature range: 0 °C to 66 °C

Mounting: in any position

Positive stop: Integrated

Material: Outer body, Accessories: steel corrosion-resistant coating; Main bearing: plastic; Piston rod: hardened stainless steel (1.4125, AISI 440C); Rolling diaphragm: EPDM

Damping medium: oil, temperature stable

Application field: linear slides, pneumatic cylinders, swivel units, handling modules, machines and plants, finishing and processing centres, measuring tables, tool machines, locking systems

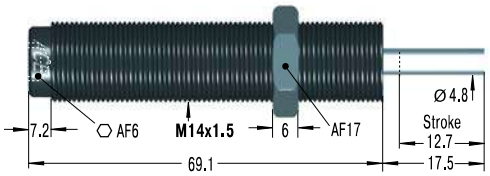
Note: If precise end position datum is required consider use of the stop collar type AH.

Safety instructions: External materials in the surrounding area can attack the rolling seal and lead to a shorter service life. Please contact ACE for appropriate solution suggestions. Suitable for use in pressure chambers up to 7 bar.

On request: Increased corrosion protection. Special threads or other special options.

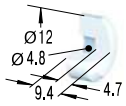
Issue 07.2017 – Specifications subject to change

MC150EUM



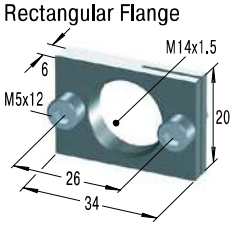
M14x1 also available to special order

PP150
Nylon Button

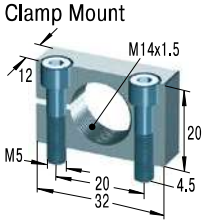


W_3 max = 14 Nm

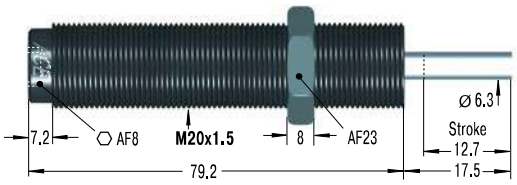
RF14
Rectangular Flange



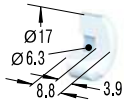
MB14
Clamp Mount



MC225EUM

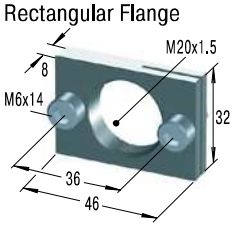


PP225
Nylon Button



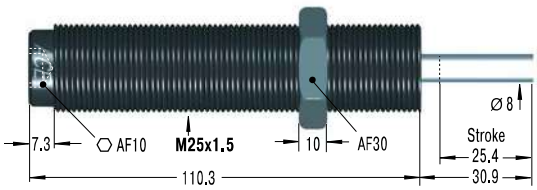
W_3 max = 33 Nm

RF20
Rectangular Flange



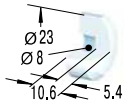
MB20
Clamp Mount

MC600EUM



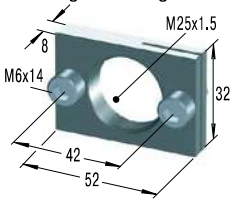
M27x3 also available to special order

PP600
Nylon Button

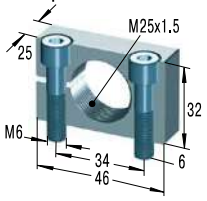


W_3 max = 68 Nm

RF25
Rectangular Flange



MB25
Clamp Mount



Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight me min. kg	Effective Weight me max. kg	Return Force min. N	Return Force max. N	Return Time s	[1] Side Load Angle max. °	Weight kg
MC150EUM	20	34,000	0.9	10	3	8	0.4	4	0.06
MC150EUMH	20	34,000	8.6	86	3	8	0.4	4	0.06
MC150EUMH2	20	34,000	70.0	200	3	8	0.4	4	0.06
MC150EUMH3	20	34,000	181.0	408	3	8	1.0	4	0.06
MC225EUM	41	45,000	2.3	25	4	9	0.3	4	0.13
MC225EUMH	41	45,000	23.0	230	4	9	0.3	4	0.13
MC225EUMH2	41	45,000	180.0	910	4	9	0.3	4	0.13
MC225EUMH3	41	45,000	816.0	1,814	4	9	0.3	4	0.13
MC600EUM	136	68,000	9.0	136	5	10	0.6	2	0.31
MC600EUMH	136	68,000	113.0	1,130	5	10	0.6	2	0.31
MC600EUMH2	136	68,000	400.0	2,300	5	10	0.6	2	0.31
MC600EUMH3	136	68,000	2,177.0	4,536	5	10	0.6	2	0.31

[1] For applications with higher side load angles consider using the side load adaptor (BV) pages 38 to 45.

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MC150-V4A to MC600-V4A

Exceptionally high endurance with stainless steel corrosion protection

Self-Compensating, Stainless Steel, Rolling Diaphragm Technology

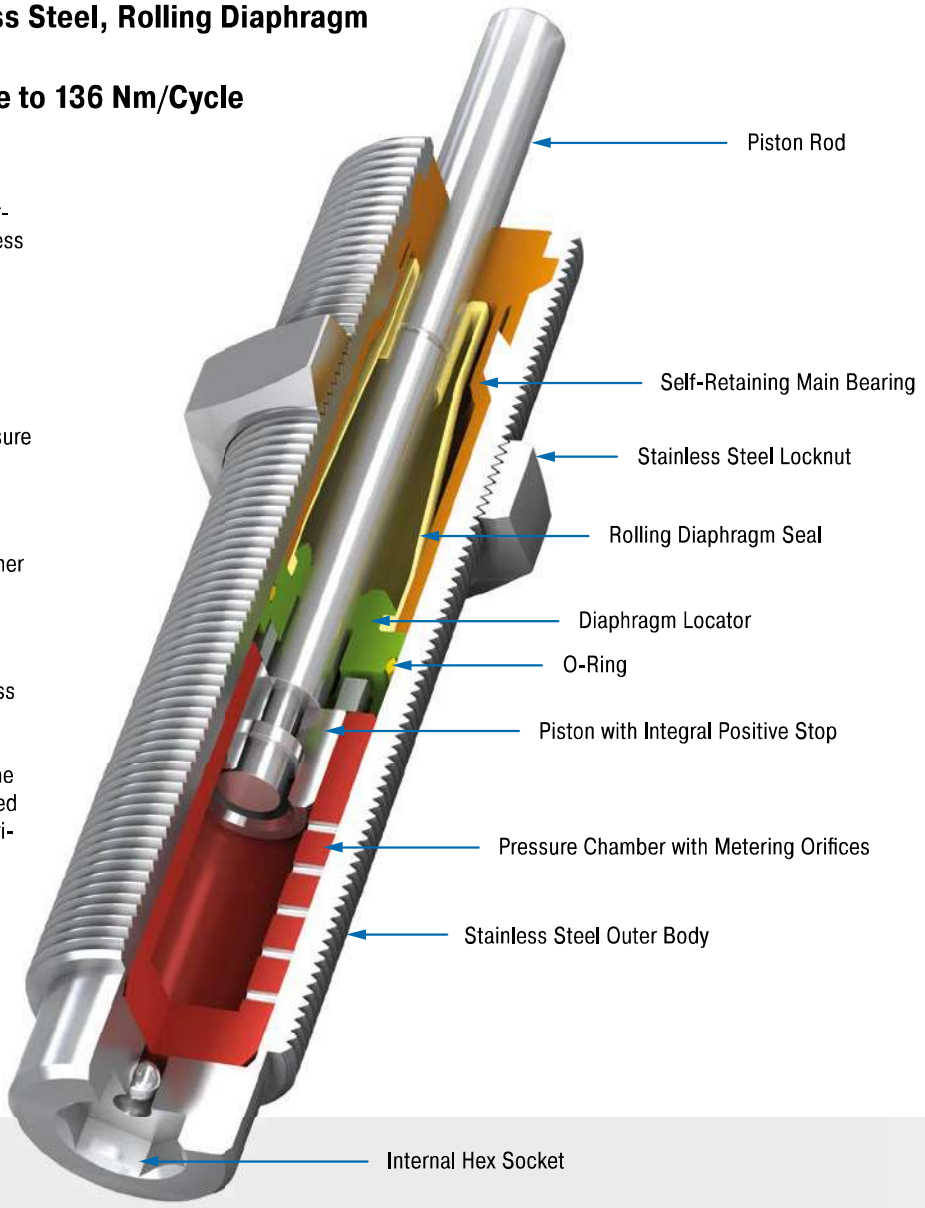
Energy capacity 20 Nm/Cycle to 136 Nm/Cycle

Stroke 12 mm to 25 mm

Brilliant in every respect: These high performance miniature shock absorbers in stainless steel are based on the MC150 to MC600 product family and its proven damping technology. This means that these special absorbers offer all of the benefits of the MC standard units such as the proven ACE rolling diaphragm technology for maximum service life and direct installation in a pressure chamber with up to approx. 7 bar.

Thanks to perfectly progressive maximum energy absorption and effective weight potential, their use is augmented even further by the outer body and a complete range of accessories made of stainless steel (material 1.4404).

Miniature shock absorbers made of stainless steel are mainly used in medical and electro-technology, but also in shipbuilding, packaging and chemicals industry and in the food processing. For the latter, they are filled with a special oil in order to fulfil the authorisation conditions (NSF-H1) for this market.



Technical Data

Energy capacity: 20 Nm/Cycle to 136 Nm/Cycle

Impact velocity range: 0.06 m/s to 6 m/s. Other speeds on request.

Operating temperature range: 0 °C to 66 °C

Mounting: In any position

Positive stop: Integrated

Material: Outer body, Locknut, Accessories: Stainless steel (1.4404, AISI 316L); Main bearing: Plastic; Piston rod: Hardened stainless steel (1.4125, AISI 440C); Rolling diaphragm: EPDM

Damping medium: Oil, temperature stable

Application field: Clean room areas, Pharmaceutical industry, Medical technology, Food industry, Linear slides, Pneumatic cylinders, Handling modules, Machines and plants, Finishing and processing centres

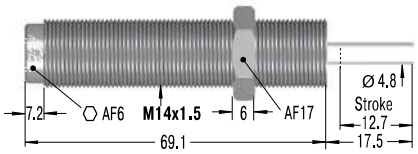
Note: If precise end position datum is required consider use of the stop collar type AH.

Safety instructions: External materials in the surrounding area can attack the rolling seal and lead to a shorter service life. Please contact ACE for appropriate solution suggestions. Suitable for use in pressure chambers up to 7 bar.

On request: Special oil with food approval. Special threads or other special options available on request.

Issue 07.2017 – Specifications subject to change

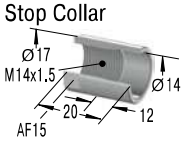
MC150EUM-V4A



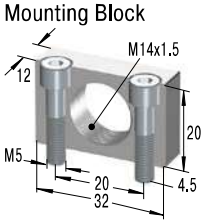
PP150
Nylon Button

W_3 max = 14 Nm

AH14-V4A
Stop Collar

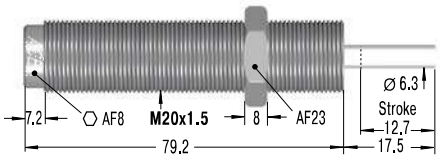


MB14SC2-V4A
Mounting Block



KM14-V4A
Locknut

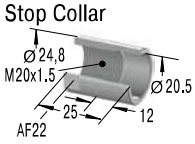
MC225EUM-V4A



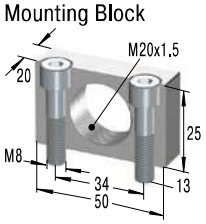
PP225
Nylon Button

W_3 max = 33 Nm

AH20-V4A
Stop Collar

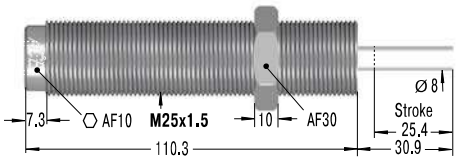


MB20SC2-V4A
Mounting Block



KM20-V4A
Locknut

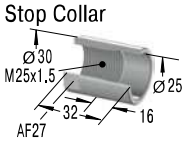
MC600EUM-V4A



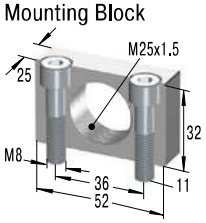
PP600
Nylon Button

W_3 max = 68 Nm

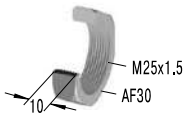
AH25-V4A
Stop Collar



MB25SC2-V4A
Mounting Block



KM25-V4A
Locknut



Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight me min. kg	Effective Weight me max. kg	Return Force min. N	Return Force max. N	Return Time s	[1] Side Load Angle max. °	Weight kg
MC150EUM-V4A	20	34,000	0.9	10	3	5	0.4	4	0.06
MC150EUMH-V4A	20	34,000	8.6	86	3	5	0.4	4	0.06
MC150EUMH2-V4A	20	34,000	70.0	200	3	5	0.4	4	0.06
MC150EUMH3-V4A	20	34,000	181.0	408	3	5	1.0	4	0.06
MC225EUM-V4A	41	45,000	2.3	25	4	6	0.3	4	0.13
MC225EUMH-V4A	41	45,000	23.0	230	4	6	0.3	4	0.13
MC225EUMH2-V4A	41	45,000	180.0	910	4	6	0.3	4	0.13
MC225EUMH3-V4A	41	45,000	816.0	1,814	4	6	0.3	4	0.13
MC600EUM-V4A	136	68,000	9.0	136	5	9	0.6	2	0.31
MC600EUMH-V4A	136	68,000	113.0	1,130	5	9	0.6	2	0.31
MC600EUMH2-V4A	136	68,000	400.0	2,300	5	9	0.6	2	0.31
MC600EUMH3-V4A	136	68,000	2,177.0	4,536	5	9	0.6	2	0.31

[1] For applications with higher side load angles please contact ACE.

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PMCN150 to PMCN600

Reliable protection against fluids

Self-Compensating, Rolling Diaphragm Technology, TPU Bellow

Energy capacity 20 Nm/Cycle to 136 Nm/Cycle

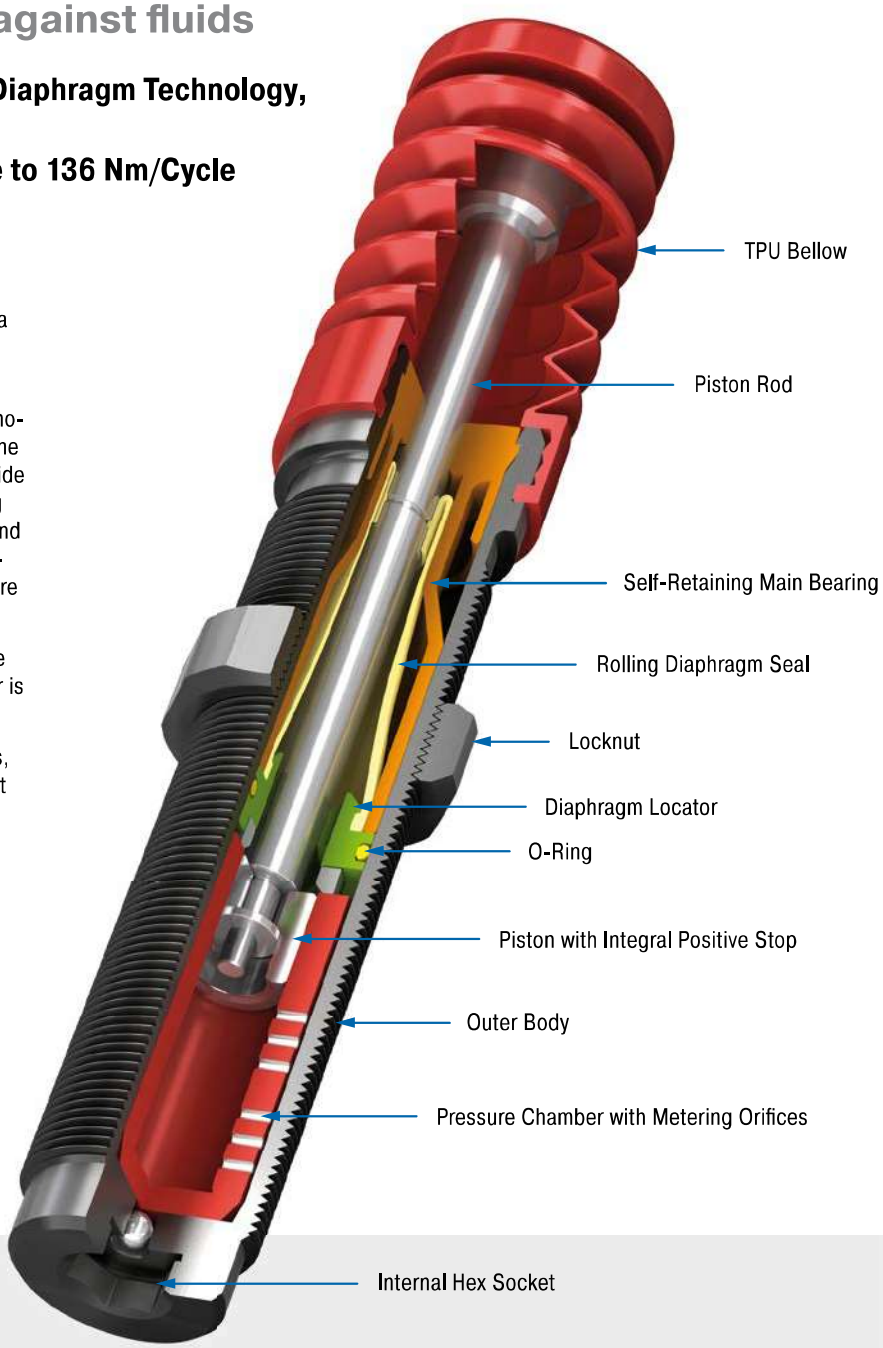
Stroke 12 mm to 25 mm

Hermetically sealed: The shock absorbers from the ACE Protection series PMCN have a compact, perfectly sealed cap as a special feature.

This protection bellows, made of TPU (thermo-plastic polyurethane), safely encapsulates the proven ACE rolling diaphragm from the outside environment. Aggressive cutting, lubricating and cleaning agents don't stand a chance and the function of the maintenance-free, ready-to-install shock absorber is retained. They are also available in full stainless steel.

The PMCN series is a good alternative to the SP type air bleed collar if no compressed air is available on the machine or system.

Reliable protection against aggressive fluids, these miniature shock absorbers are the first choice everywhere where conventional dampers wear out too quickly, eg. As in machining centers or other applications of mechanical engineering.



Technical Data

Energy capacity: 20 Nm/Cycle to 136 Nm/Cycle

Impact velocity range: 0.06 m/s to 6 m/s. Other speeds on request.

Operating temperature range: 0 °C to 66 °C

Mounting: In any position

Positive stop: Integrated

Material: Outer body: Steel corrosion-resistant coating; Main bearing: Plastic; Piston rod: Hardened stainless steel (1.4125, AISI 440C); Bellow: TPU, steel insert: Stainless steel (1.4404/1.4571, AISI 316L/316Ti); Rolling diaphragm: EPDM

Damping medium: Oil, temperature stable

Application field: Finishing and processing centres, Clean room areas, Pharmaceutical industry, Medical technology, Food industry, Linear slides, Pneumatic cylinders, Machines and plants

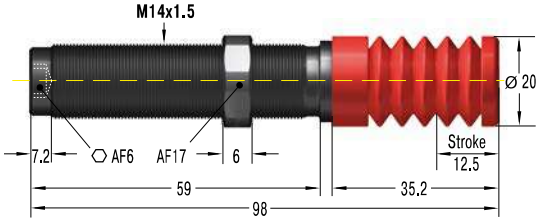
Note: Final preliminary test must be done on the application.

Safety instructions: Do not paint the shock absorbers due to heat emission.

On request: Special accessories available on request.

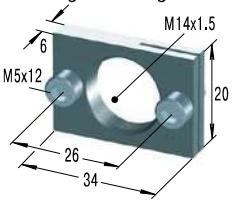
Issue 07.2017 – Specifications subject to change

PMCN150EUM

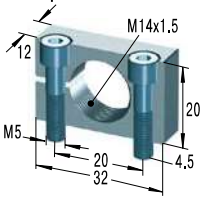


KM14
Locknut

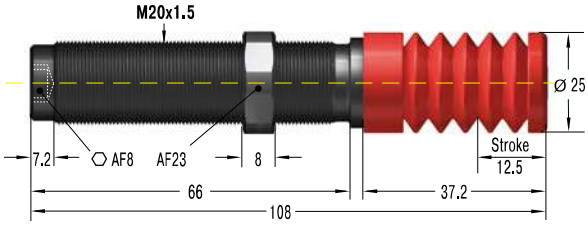
RF14
Rectangular Flange



MB14
Clamp Mount

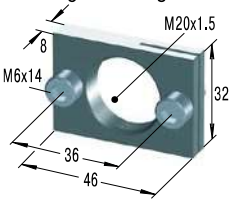


PMCN225EUM

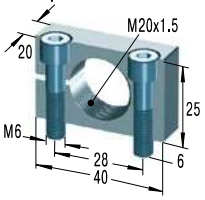


KM20
Locknut

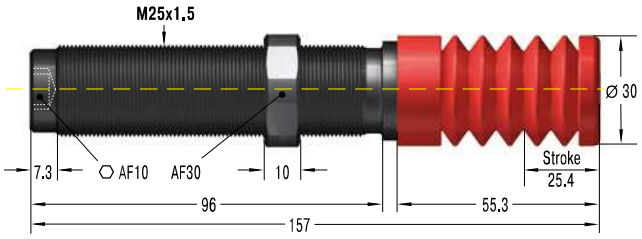
RF20
Rectangular Flange



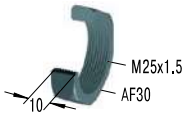
MB20
Clamp Mount



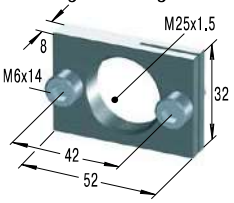
PMCN600EUM



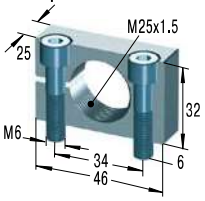
KM25
Locknut



RF25
Rectangular Flange



MB25
Clamp Mount



Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight me min. kg	Effective Weight me max. kg	Return Force min. N	Return Force max. N	Return Time s	Side Load Angle max. °	Weight kg
PMCN150EUM	20	34,000	0.9	10	8	80	0.4	4	0.07
PMCN150EUMH	20	34,000	8.6	86	8	80	0.4	4	0.07
PMCN150EUMH2	20	34,000	70.0	200	8	80	0.4	4	0.07
PMCN150EUMH3	20	34,000	181.0	408	8	80	1.0	4	0.07
PMCN225EUM	41	45,000	2.3	25	8	85	0.3	4	0.17
PMCN225EUMH	41	45,000	23	230	8	85	0.3	4	0.17
PMCN225EUMH2	41	45,000	180.0	910	8	85	0.3	4	0.17
PMCN225EUMH3	41	45,000	816.0	1,814	8	85	0.3	4	0.17
PMCN600EUM	136	68,000	9.0	136	8	90	0.6	2	0.32
PMCN600EUMH	136	68,000	113.0	1,130	8	90	0.6	2	0.32
PMCN600EUMH2	136	68,000	400	2,300	8	90	0.6	2	0.32
PMCN600EUMH3	136	68,000	2,177.0	4,536	8	90	0.6	2	0.32

PMCN150-V4A to PMCN600-V4A

Optimum corrosion protection

Self-Compensating, Rolling Diaphragm Technology, TPU Bellow

Energy capacity 20 Nm/Cycle to 136 Nm/Cycle

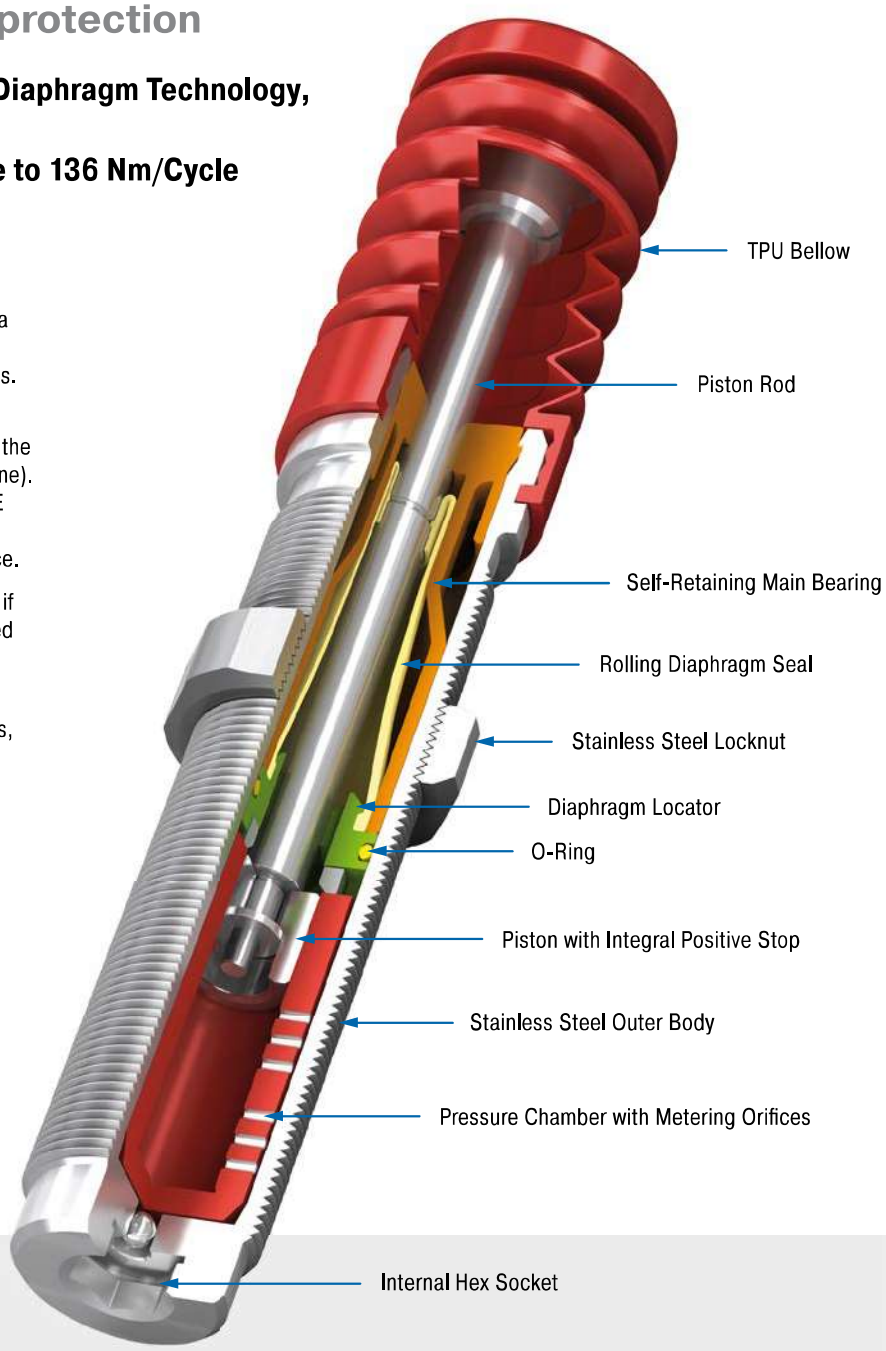
Stroke 12 mm to 25 mm

Hermetically sealed and rustproof: The Protection series PMCN is also available in a stainless steel design. This is or particular interest to the food and packaging industries.

Their main special feature is the compact, totally sealed bellow between the body and the cap made of TPU (thermoplastic polyurethane). This protection safely encapsulates the ACE rolling diaphragm from the outside environment. Aggressive fluids don't stand a chance.

The PMCN series is an excellent alternative if the accessory option of the SP type air bleed collar cannot be used due to a lack of compressed air.

The PMCN series miniature shock absorbers, produced from stainless steel, are primarily suitable for use in the food industry, but are also wherever an elegant look is important e.g. in shipbuilding.



Technical Data

Energy capacity: 20 Nm/Cycle to 136 Nm/Cycle

Impact velocity range: 0.06 m/s to 6 m/s. Other speeds on request.

Operating temperature range: 0 °C to 66 °C

Mounting: In any position

Positive stop: Integrated

Material: Outer body: Stainless steel (1.4404, AISI 316L); Main bearing: Plastic; Piston rod: Hardened stainless steel (1.4125, AISI 440C); Bellow: TPU, steel insert: Stainless steel (1.4404/1.4571, AISI 316L/316Ti); Rolling diaphragm: EPDM

Damping medium: Oil, temperature stable

Application field: Finishing and processing centres, Clean room areas, Pharmaceutical industry, Medical technology, Food industry, Machines and plants

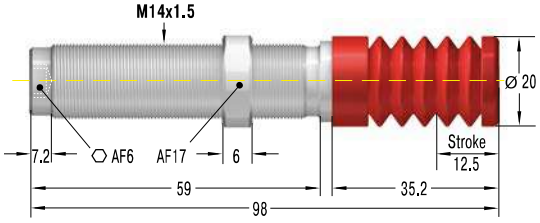
Note: Final preliminary test must be done on the application.

Safety instructions: Do not paint the shock absorbers due to heat emission.

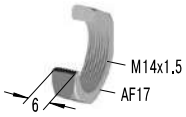
On request: Special accessories available on request.

Issue 07.2017 – Specifications subject to change

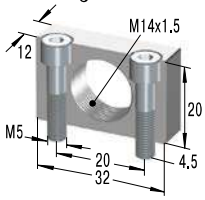
PMCN150EUM-V4A



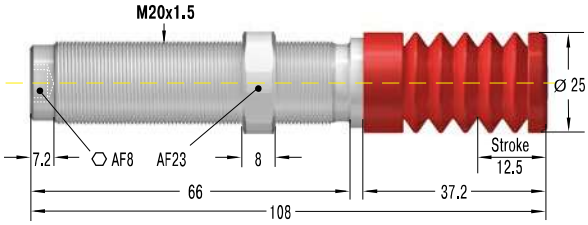
KM14-V4A
Locknut



MB14SC2-V4A
Mounting Block

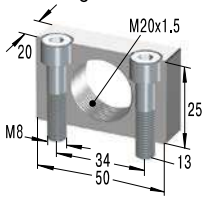


PMCN225EUM-V4A

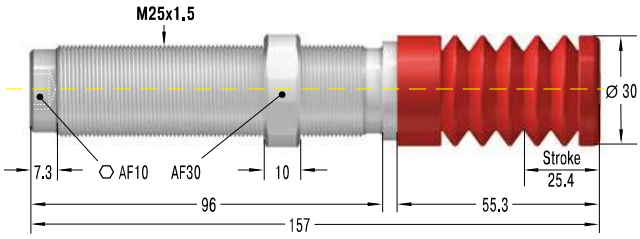


KM20-V4A
Locknut

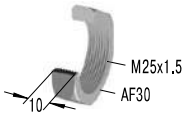
MB20SC2-V4A
Mounting Block



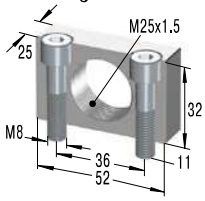
PMCN600EUM-V4A



KM25-V4A
Locknut



MB25SC2-V4A
Mounting Block



Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight me min. kg	Effective Weight me max. kg	Return Force min. N	Return Force max. N	Return Time s	Side Load Angle max. °	Weight kg
PMCN150EUM-V4A	20	34,000	0.9	10	8	80	0.4	4	0.07
PMCN150EUMH-V4A	20	34,000	8.6	86	8	80	0.4	4	0.07
PMCN150EUMH2-V4A	20	34,000	70.0	200	8	80	0.4	4	0.07
PMCN150EUMH3-V4A	20	34,000	181.0	408	8	80	1.0	4	0.07
PMCN225EUM-V4A	41	45,000	2.3	25	8	85	0.3	4	0.17
PMCN225EUMH-V4A	41	45,000	23.0	230	8	85	0.3	4	0.17
PMCN225EUMH2-V4A	41	45,000	180.0	910	8	85	0.3	4	0.17
PMCN225EUMH3-V4A	41	45,000	816.0	1,814	8	85	0.3	4	0.17
PMCN600EUM-V4A	136	68,000	9.0	136	8	90	0.6	2	0.32
PMCN600EUMH-V4A	136	68,000	113.0	1,130	8	90	0.6	2	0.32
PMCN600EUMH2-V4A	136	68,000	400.0	2,300	8	90	0.6	2	0.32
PMCN600EUMH3-V4A	136	68,000	2,177.0	4,536	8	90	0.6	2	0.32

SC190 to SC925

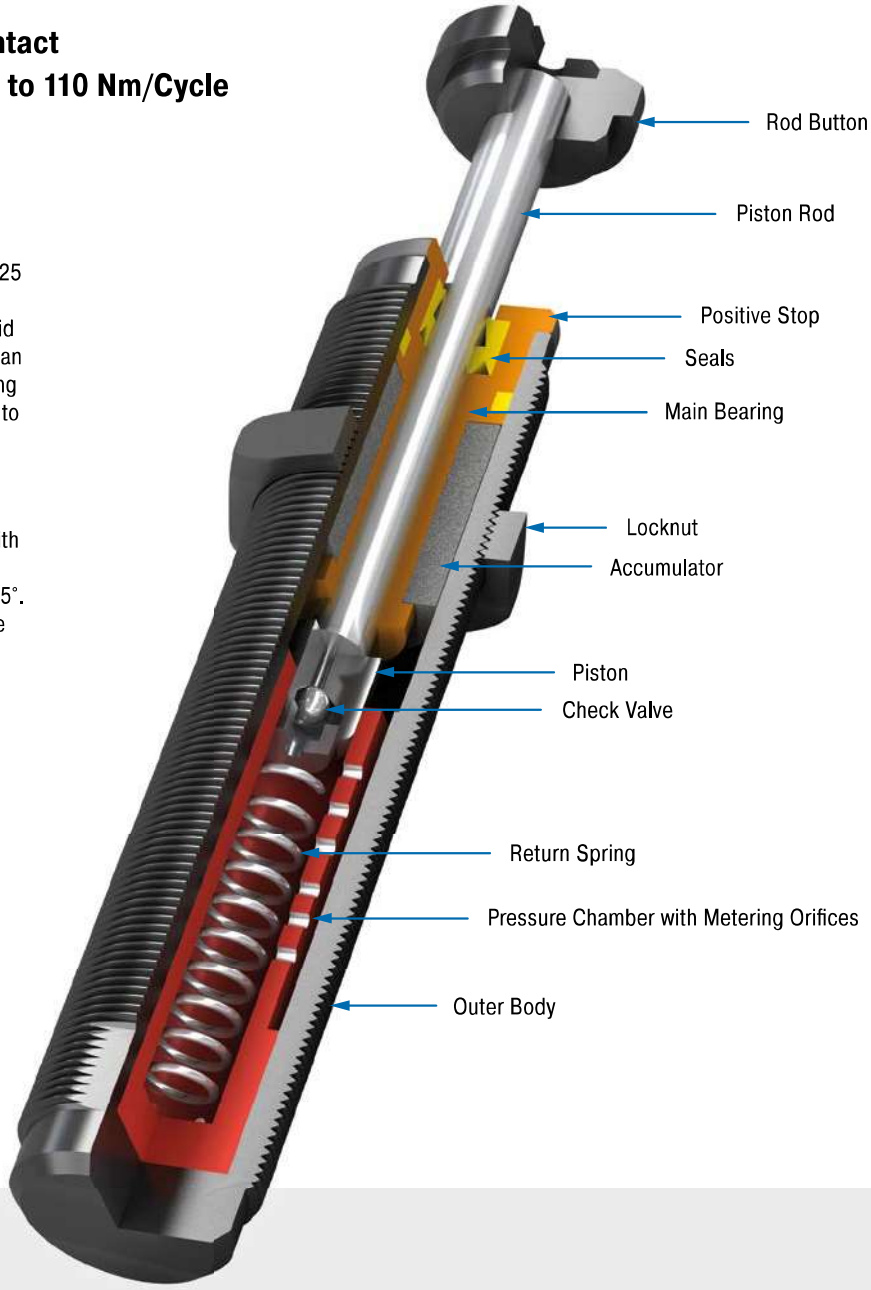
Long stroke and soft impact

Self-Compensating, Soft-Contact
Energy capacity 25 Nm/Cycle to 110 Nm/Cycle
Stroke 16 mm to 40 mm

Ideal for soft damping: The SC found in the model code from the ACE series SC190 to 925 stands for ‚soft contact'. These miniature shock absorbers manufactured from one solid piece are designed in such a way that they can be setup with a linear or a progressive braking curve. The soft damping character is thanks to the special, long strokes producing smooth deceleration and low reaction forces.

These maintenance-free, ready-to-install hydraulic machine elements are equipped with an integrated positive stop. The use of side load adapter allows impact angles of up to 25°. Thanks to the designed overlapping effective weight ranges, these dampers cover an effective load range of below 1 kg to more than 2,000 kg!

The miniature shock absorbers from the SC190 to 925 series are used in mechanical engineering and primarily in the areas of handling and automation.



Technical Data

Energy capacity: 25 Nm/Cycle to 110 Nm/Cycle

Impact velocity range: 0.15 m/s to 3.66 m/s. Other speeds on request.

Operating temperature range: 0 °C to 66 °C

Mounting: in any position

Positive stop: Integrated

Material: Outer body, Accessories: steel corrosion-resistant coating; Piston rod: hardened stainless steel

Damping medium: oil, temperature stable

Application field: linear slides, pneumatic cylinders, handling modules, machines and plants, finishing and processing centres, measuring tables, tool machines

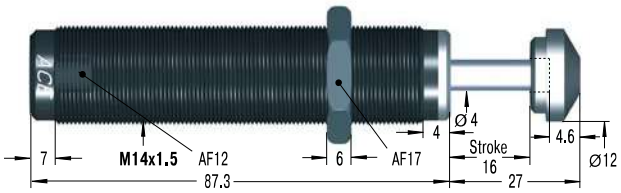
Note: If precise end position datum is required consider use of the stop collar type AH.

Safety instructions: External materials in the surrounding area can attack the seal components and lead to a shorter service life. Please contact ACE for appropriate solution suggestions. Do not paint the shock absorbers due to heat emission.

On request: Nickel-plated or weartec finish (seawater resistant) or other special finishes available to special order. Models without rod end button.

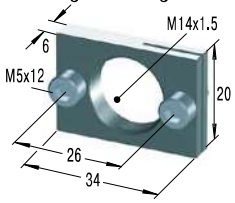
Issue 07.2017 – Specifications subject to change

SC190EUM; 0 to 4

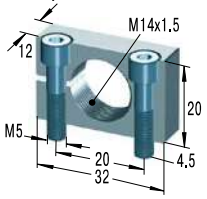


M14x1 and M16x1 also available to special order

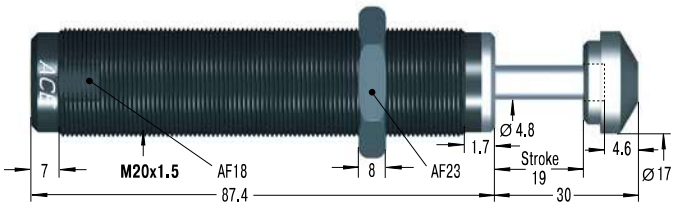
RF14
Rectangular Flange



MB14
Clamp Mount

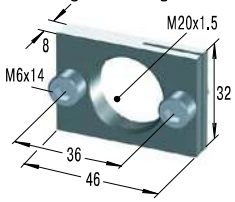


SC300EUM; 0 to 4

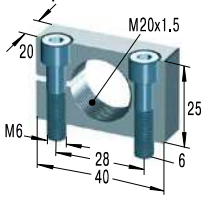


M22x1.5 also available to special order

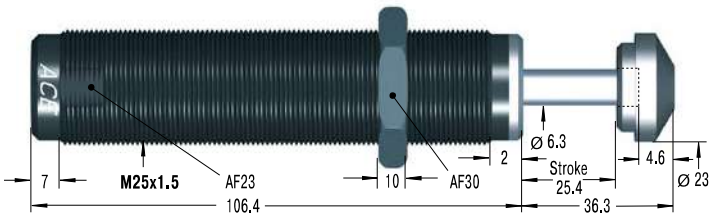
RF20
Rectangular Flange



MB20
Clamp Mount

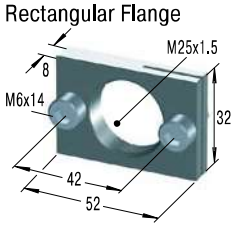


SC650EUM; 0 to 4



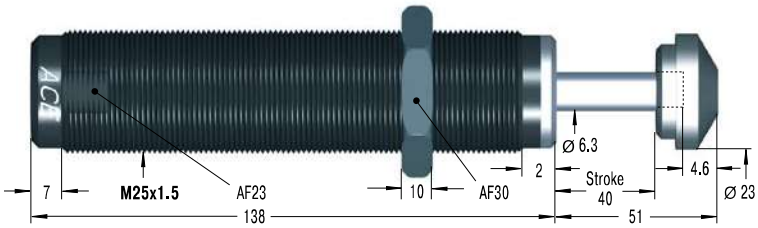
M26x1.5 also available to special order

RF25
Rectangular Flange

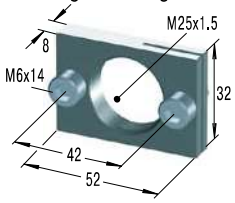


MB25
Clamp Mount

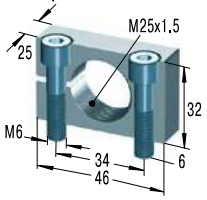
SC925EUM; 0 to 4



RF25
Rectangular Flange



MB25
Clamp Mount



Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight Soft-Contact me min. kg	Soft-Contact me max. kg	Self-Compensating me min. kg	Self-Compensating me max. kg	Hardness	Return Force min. N	Return Force max. N	Return Time s	[1] Side Load Angle max. °	Weight kg
SC190EUM-0	25	34,000	-	-	0.7	4	-0	4	9	0.25	5	0.08
SC190EUM-1	25	34,000	2.3	6	1.4	7	-1	4	9	0.25	5	0.08
SC190EUM-2	25	34,000	5.5	16	3.6	18	-2	4	9	0.25	5	0.08
SC190EUM-3	25	34,000	14	41	9.0	45	-3	4	9	0.25	5	0.08
SC190EUM-4	25	34,000	34	91	23.0	102	-4	4	9	0.25	5	0.08
SC300EUM-0	33	45,000	-	-	0.7	4	-0	5	10	0.10	5	0.18
SC300EUM-1	33	45,000	2.3	7	1.4	8	-1	5	10	0.10	5	0.18
SC300EUM-2	33	45,000	7	23	4.5	27	-2	5	10	0.10	5	0.18
SC300EUM-3	33	45,000	23	68	14.0	82	-3	5	10	0.10	5	0.18
SC300EUM-4	33	45,000	68	181	32.0	204	-4	5	10	0.10	5	0.18
SC650EUM-0	73	68,000	-	-	2.3	14	-0	11	32	0.20	5	0.34
SC650EUM-1	73	68,000	11	36	8.0	45	-1	11	32	0.20	5	0.34
SC650EUM-2	73	68,000	34	113	23.0	136	-2	11	32	0.20	5	0.34
SC650EUM-3	73	68,000	109	363	68.0	408	-3	11	32	0.20	5	0.34
SC650EUM-4	73	68,000	363	1,089	204.0	1,180	-4	11	32	0.20	5	0.34
SC925EUM-0	110	90,000	8	25	4.5	29	-0	11	32	0.40	5	0.42
SC925EUM-1	110	90,000	22	72	14.0	90	-1	11	32	0.40	5	0.42
SC925EUM-2	110	90,000	59	208	40.0	227	-2	11	32	0.40	5	0.42
SC925EUM-3	110	90,000	181	612	113.0	726	-3	11	32	0.40	5	0.42
SC925EUM-4	110	90,000	544	1,952	340.0	2,088	-4	11	32	0.40	5	0.42

[1] For applications with higher side load angles consider using the side load adaptor (BV) pages 38 to 45.

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SC²25 to SC²190

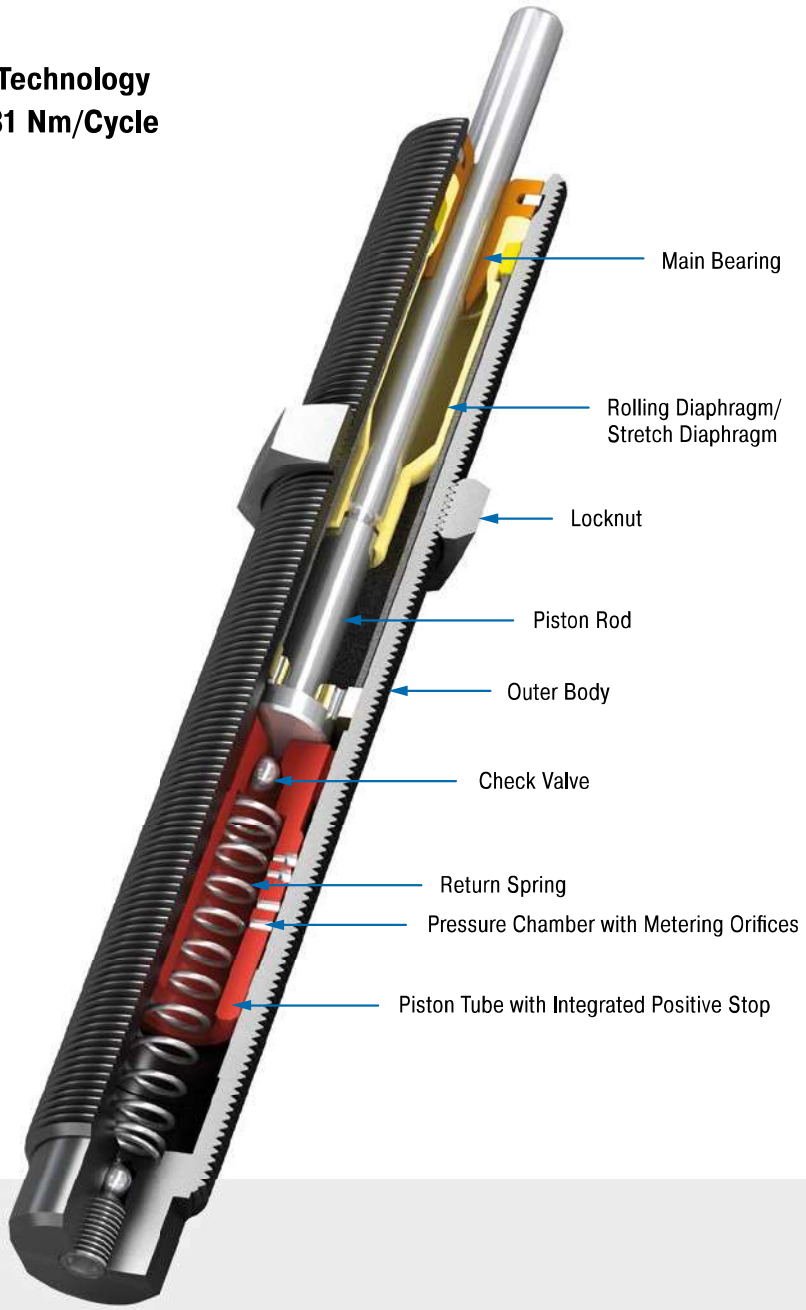
Piston tube design for maximum energy absorption

Self-Compensating, Piston Tube Technology
Energy capacity 10 Nm/Cycle to 31 Nm/Cycle
Stroke 8 mm to 12 mm

Soft damping, but enormous capacity: The range of ‚soft contact' absorbers SC²25 to 190 extends from thread size M10 to M14 and covers effective weight ranges of 1 kg to 1,550 kg. All models are characterised by high energy absorption and they also unite the piston tube technology with the diaphragm seal perfected by ACE. This enables direct installation as end position damping in pneumatic cylinders at 5 to 7 bar or applications where deceleration needs to take placed close to the pivot point.

They are maintenance-free, have an integrated positive stop and are mountable in any position. The option of a side load adapter allows impact angles of up to 25°.

Thanks to their robust design and their durability, these miniature shock absorbers can be used for a wide range of applications. Designers mainly use them for pick and place systems, pneumatic rotary modules and in automation applications.



Technical Data

Energy capacity: 10 Nm/Cycle to 31 Nm/Cycle

Impact velocity range: 0.1 m/s to 5.7 m/s. Other speeds on request.

Operating temperature range: 0 °C to 66 °C

Mounting: In any position

Positive stop: Integrated

Material: Outer body, Accessories: Steel corrosion-resistant coating; Piston rod: hardened stainless steel; Rolling diaphragm: SC²190: EPDM; Stretch diaphragm: SC²25 and SC²75: Nitrile

Damping medium: Oil, temperature stable

Application field: Linear slides, Pneumatic cylinders, Swivel units, Handling modules, Machines and plants, Finishing and processing centres, Measuring tables, Tool machines, Locking systems

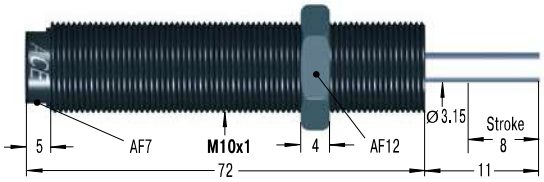
Note: If precise end position datum is required consider use of the stop collar type AH.

Safety instructions: External materials in the surrounding area can attack the rolling and stretch seals and lead to a shorter service life. Please contact ACE for appropriate solution suggestions.

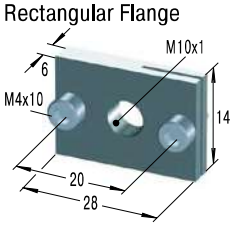
On request: Increased corrosion protection. Special finishes.

Issue 07.2017 – Specifications subject to change

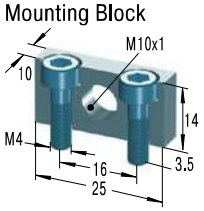
SC25EUM; 5 to 7



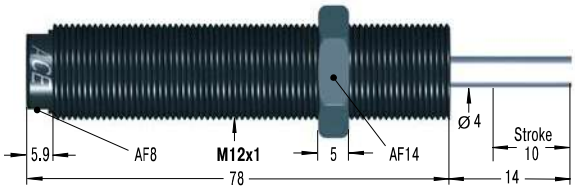
RF10
Rectangular Flange



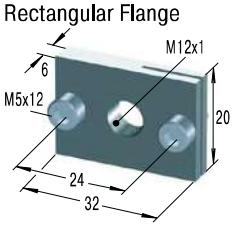
MB10SC2
Mounting Block



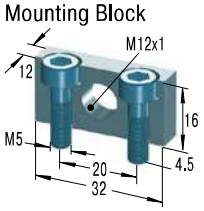
SC75EUM; 5 to 7



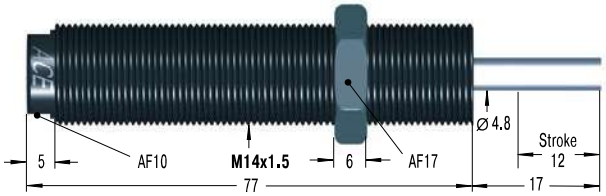
RF12
Rectangular Flange



MB12SC2
Mounting Block

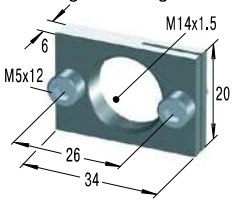


SC190EUM; 5 to 7

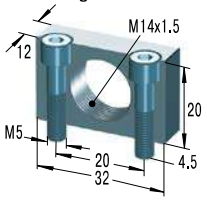


M14x1 also available to special order

RF14
Rectangular Flange



MB14SC2
Mounting Block



Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight me min. kg	Effective Weight me max. kg	Hardness	Return Force min. N	Return Force max. N	Return Time s	[1] Side Load Angle max. °	Weight kg
SC25EUM-5	10	16,000	1	5	-5	4.5	14	0.3	2	0.029
SC25EUM-6	10	16,000	4	44	-6	4.5	14	0.3	2	0.029
SC25EUM-7	10	16,000	42	500	-7	4.5	14	0.3	2	0.029
SC75EUM-5	16	30,000	1	8	-5	6.0	19	0.3	2	0.047
SC75EUM-6	16	30,000	7	78	-6	6.0	19	0.3	2	0.047
SC75EUM-7	16	30,000	75	800	-7	6.0	19	0.3	2	0.047
SC190EUM-5	31	50,000	2	16	-5	6.0	19	0.4	2	0.055
SC190EUM-6	31	50,000	13	140	-6	6.0	19	0.4	2	0.055
SC190EUM-7	31	50,000	136	1,550	-7	6.0	19	0.4	2	0.055

[1] For applications with higher side load angles consider using the side load adaptor (BV) pages 38 to 45.

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SC²300 to SC²650

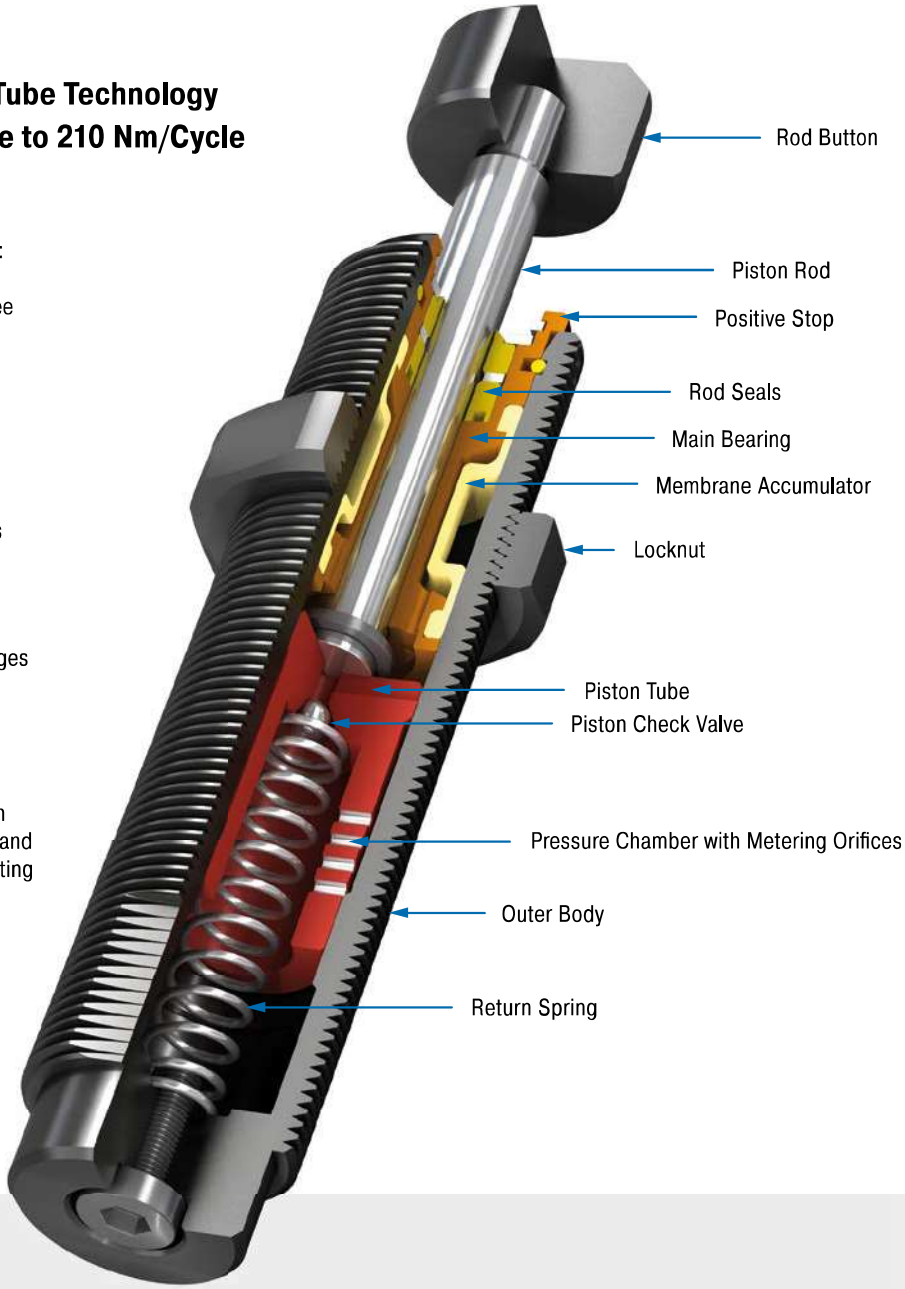
Piston tube design for maximum energy absorption

Self-Compensating, Piston Tube Technology
Energy capacity 73 Nm/Cycle to 210 Nm/Cycle
Stroke 15 mm to 23 mm

Added safety with accumulator technology: The larger ‚soft contact' models from the SC²300 to 650 are available with up to three times the energy absorption compaired to similar sizes of standard shock absorbers SC190 to 925, due to the ACE piston tube speciality. Furthermore, the membrane accumulator serves as a compensation element for the oil displaced in the shock absorber and replaces the standard use of absorber materials. This increases process safety even further.

The absorbers, which are perfect for rotary modules for example, are available in progressively stepped effective weight ranges with an integrated positive stop. They are maintenance-free and ready for direct installation. The side load adapter option allows impact angles of up to 25°.

These miniature shock absorbers offer high performance levels with a long service life and are particularly popular for handling, mounting very close to pivots and automation tasks.



Technical Data

Energy capacity: 73 Nm/Cycle to 210 Nm/Cycle

Impact velocity range: 0.09 m/s to 3.66 m/s. Other speeds on request.

Operating temperature range: 0 °C to 66 °C

Mounting: in any position

Positive stop: Integrated

Material: Outer body: steel corrosion-resistant coating; Piston rod: hardened stainless steel; Accessories: hardened steel and corrosion-resistant coating

Damping medium: oil, temperature stable

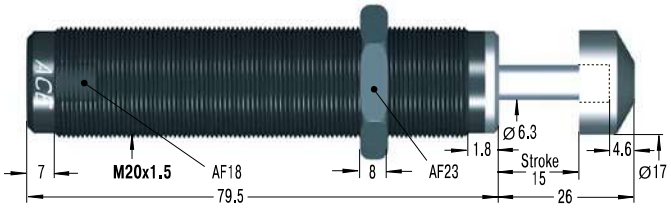
Application field: turntables, swivel units, robot arms, linear slides, pneumatic cylinders, handling modules, machines and plants, finishing and processing centres, tool machines

Note: If precise end position datum is required consider use of the stop collar type AH.

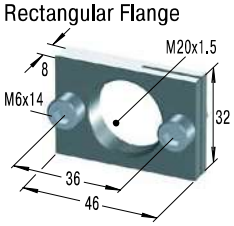
On request: Increased corrosion protection. Special finishes.

Issue 07.2017 – Specifications subject to change

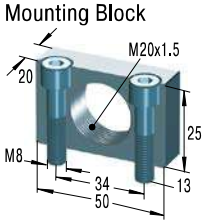
SC300EUM; 5 to 9



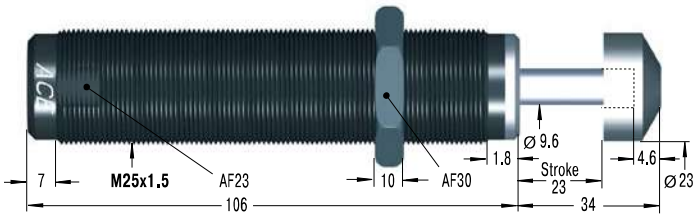
RF20
Rectangular Flange



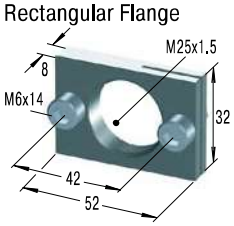
MB20SC2
Mounting Block



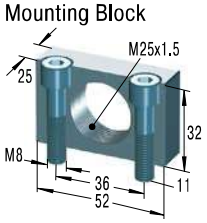
SC650EUM; 5 to 9



RF25
Rectangular Flange



MB25SC2
Mounting Block



Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight me min. kg	Effective Weight me max. kg	Hardness	Return Force min. N	Return Force max. N	Return Time s	[1] Side Load Angle max. °	Weight kg
SC300EUM-5	73	45,000	11	45	-5	8	18	0.2	5	0.150
SC300EUM-6	73	45,000	34	136	-6	8	18	0.2	5	0.150
SC300EUM-7	73	45,000	91	181	-7	8	18	0.2	5	0.150
SC300EUM-8	73	45,000	135	680	-8	8	18	0.2	5	0.150
SC300EUM-9	73	45,000	320	1,950	-9	8	18	0.2	5	0.150
SC650EUM-5	210	68,000	23	113	-5	11	33	0.3	5	0.310
SC650EUM-6	210	68,000	90	360	-6	11	33	0.3	5	0.310
SC650EUM-7	210	68,000	320	1,090	-7	11	33	0.3	5	0.310
SC650EUM-8	210	68,000	770	2,630	-8	11	33	0.3	5	0.310
SC650EUM-9	210	68,000	1,800	6,350	-9	11	33	0.3	5	0.310

[1] For applications with higher side load angles consider using the side load adaptor (BV) pages 38 to 45.

MA30 to MA900

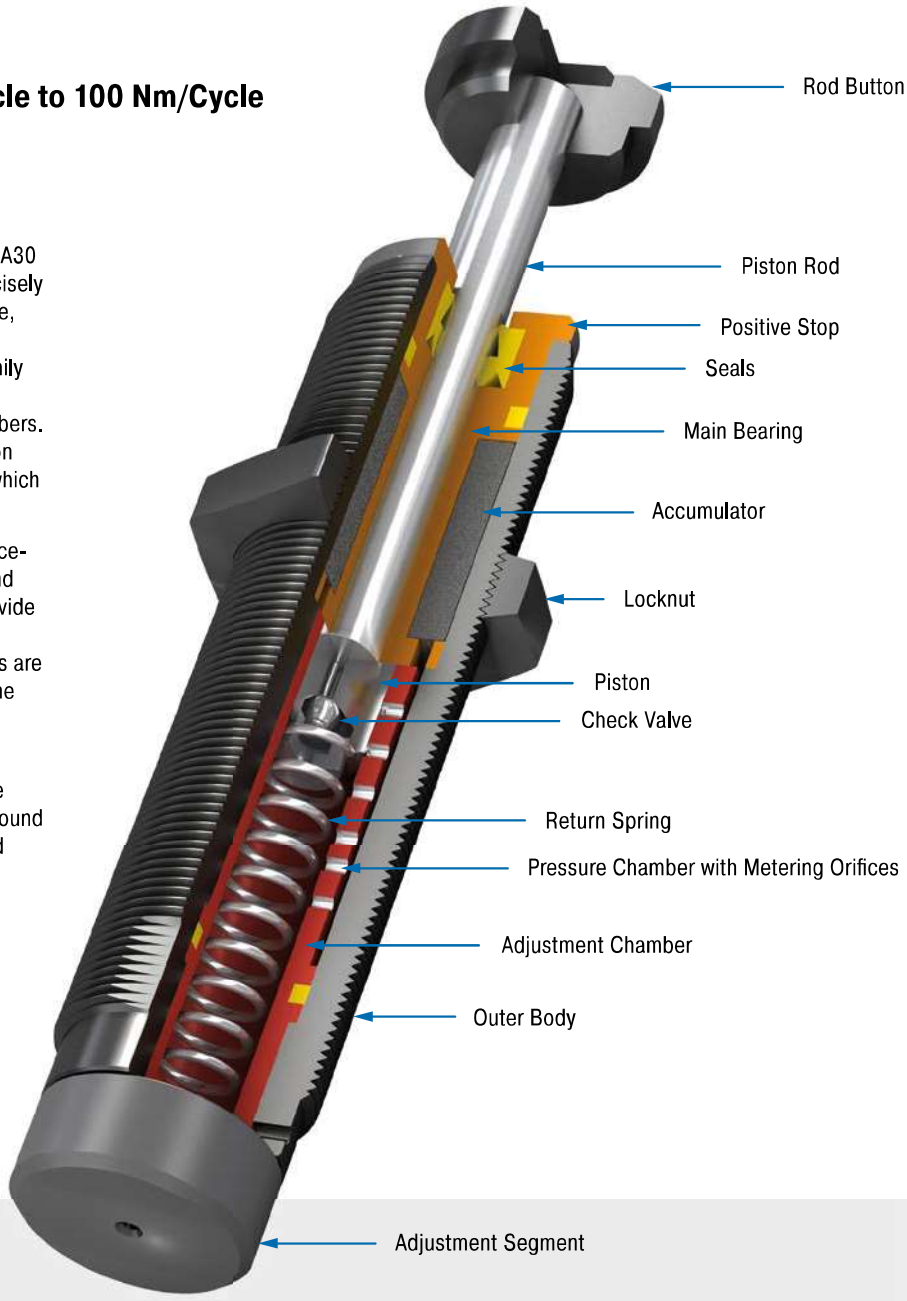
Stepless adjustment

Adjustable
Energy capacity 3.5 Nm/Cycle to 100 Nm/Cycle
Stroke 8 mm to 40 mm

The miniature shock absorbers from the MA30 to MA900 series can be adjusted and precisely adapted to your requirements. For example, the MA150 displays the rolling diaphragm technology from the MC150 to MC600 family and offers all of the advantages of this technology, such as use in pressure chambers. Thanks to long strokes (including 40 mm on the MA900) lower reaction forces result, which provide a soft damping characteristic.

All variations of these units are maintenance-free, ready-to-install machine elements and have an integrated positive stop. They provide the best service where application data changes, where the calculation parameters are not clear or where maximum flexibility in the possible usage is required.

The adjustable miniature shock absorbers from ACE can be used to meet precisely the customer's application and are therefore found everywhere in mechanical engineering and many other applications.



Technical Data

Energy capacity: 3.5 Nm/Cycle to 100 Nm/Cycle

Impact velocity range: 0.15 m/s to 4.5 m/s. Other speeds on request.

Operating temperature range: 0 °C to 66 °C

Mounting: in any position

Positive stop: Integrated

Adjustment: Hard impact at the start of stroke, adjust the ring towards 9 or PLUS. Hard impact at the end of stroke, adjust the ring towards 0 or MINUS.

Material: Outer body, Accessories: steel corrosion-resistant coating; Piston rod: hardened stainless steel

Damping medium: oil, temperature stable

Application field: linear slides, pneumatic cylinders, swivel units, handling modules, machines and plants, finishing and processing centres, automatic machinery, tool machines, locking systems

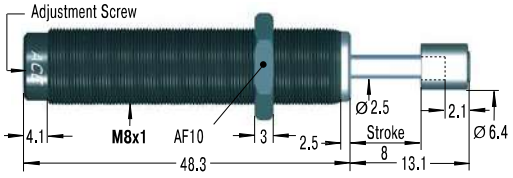
Note: If precise end position datum is required consider use of the stop collar type AH. Shock absorber is preset at delivery in a neutral position between hard and soft.

Safety instructions: External materials in the surrounding area can attack the seal components and lead to a shorter service life. Please contact ACE for appropriate solution suggestions. Do not paint the shock absorbers due to heat emission.

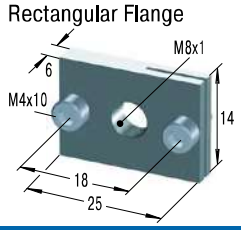
On request: Nickel-plated or other special options available to special order. Models without rod end button.

Issue 07.2017 – Specifications subject to change

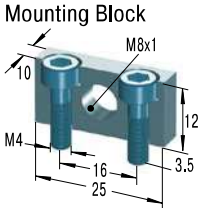
MA30EUM



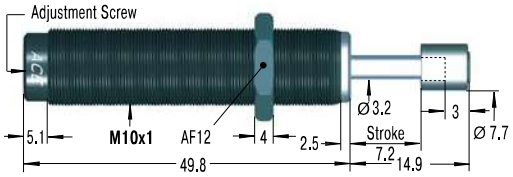
RF8
Rectangular Flange



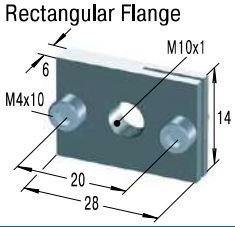
MB8SC2
Mounting Block



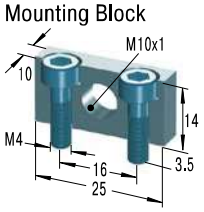
MA50EUM-B



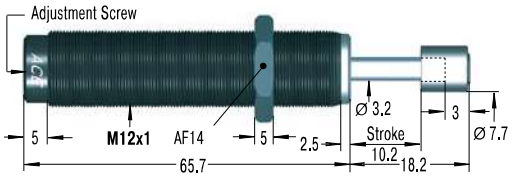
RF10
Rectangular Flange



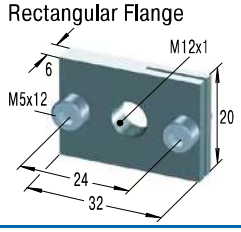
MB10SC2
Mounting Block



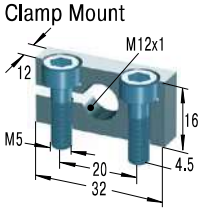
MA35EUM



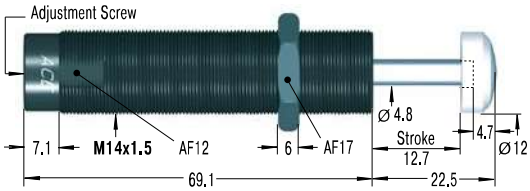
RF12
Rectangular Flange



MB12
Clamp Mount

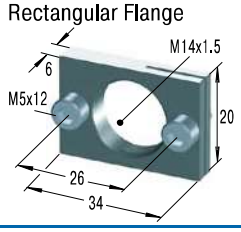


MA150EUM

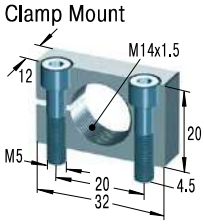


M14x1 also available to special order

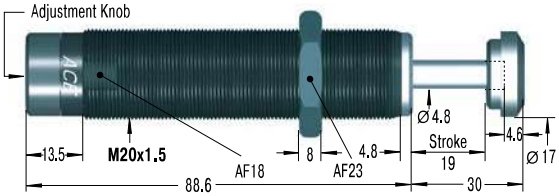
RF14
Rectangular Flange



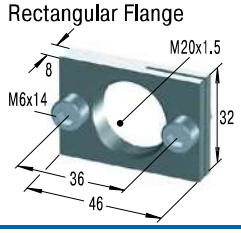
MB14
Clamp Mount



MA225EUM

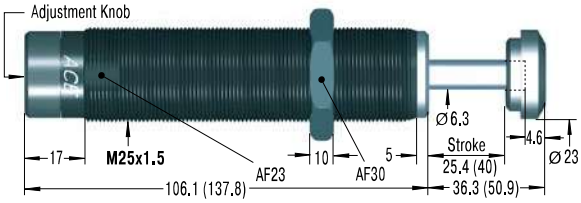


RF20
Rectangular Flange



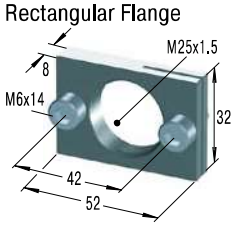
MB20
Clamp Mount

MA600EUM / MA900EUM



Dimensions for MA900EUM in ( ). MA600EUML with M27x3 available to special order

RF25
Rectangular Flange



MB25
Clamp Mount

Additional accessories, mounting, installation ... see from page 36.

Performance

TYPES	Max. Energy Capacity W_3 Nm/cycle	Max. Energy Capacity W_4 Nm/h	Effective Weight me min. kg	Effective Weight me max. kg	Return Force min. N	Return Force max. N	Return Time s	[1] Side Load Angle max. °	Weight kg
MA30EUM	3.5	5,650	0.23	15	1.7	5.3	0.3	2.0	0.011
MA50EUM-B	5.5	13,550	4.50	20	3.0	6.0	0.3	2.0	0.025
MA35EUM	4.0	6,000	6.00	57	5.0	11.0	0.2	2.0	0.045
MA150EUM	22.0	35,000	1.00	109	3.0	5.0	0.4	2.0	0.061
MA225EUM	25.0	45,000	2.30	226	5.0	10.0	0.1	2.0	0.173
MA600EUM	68.0	68,000	9.00	1,360	10.0	30.0	0.2	2.0	0.352
MA900EUM	100.0	90,000	14.00	2,040	10.0	35.0	0.4	1.0	0.414

[1] For applications with higher side load angles consider using the side load adaptor (BV) pages 38 to 45.

Minature Shock Absorber Accessories M5 to M25

Selection Chart


Locknut


Stop Collar


Clamp Mount


[1] Mounting Block


Rectangular Flange


Universal Mount

Shock Absorber Type	KM	AH	MB	MBSC2	RF	UM
Thread M5x0.5						
MC5EUM	KM5	AH5	–	MB5SC2	–	–
Thread M6x0.5						
MC9EUM	KM6	AH6	–	MB6SC2	RF6	–
Thread M8x1						
MA30EUM	KM8	AH8	–	MB8SC2	RF8	–
MC10EUM	KM8	AH8	–	MB8SC2	RF8	–
MC30EUM	KM8	AH8	–	MB8SC2	RF8	–
Thread M10x1						
MA50EUM-B	KM10	AH10	–	MB10SC2	RF10	UM10
MC25EUM	KM10	AH10	–	MB10SC2	RF10	UM10
SC25EUM; 5 to 7	KM10	AH10	–	MB10SC2	RF10	UM10
Thread M12x1						
MA35EUM	KM12	AH12	MB12	–	RF12	UM12
MC75EUM	KM12	AH12	MB12	–	RF12	UM12
SC75EUM; 5 to 7	KM12	AH12	–	MB12SC2	RF12	UM12
Thread M14x1.5						
MA150EUM	KM14	AH14	MB14	–	RF14	UM14
MC150EUM	KM14	AH14	MB14	–	RF14	UM14
MC150EUM-V4A	KM14-V4A	AH14-V4A	–	MB14SC2-V4A	–	–
PMCN150EUM	KM14	–	MB14	–	RF14	UM14
PMCN150EUM-V4A	KM14-V4A	–	–	MB14SC2-V4A	–	–
SC190EUM; 0 to 4	KM14	AH14	MB14	–	RF14	UM14
SC190EUM; 5 to 7	KM14	AH14	–	MB14SC2	RF14	UM14
Thread M20x1.5						
MA225EUM	KM20	AH20	MB20	–	RF20	UM20
MC225EUM	KM20	AH20	MB20	–	RF20	UM20
MC225EUM-V4A	KM20-V4A	AH20-V4A	–	MB20SC2-V4A	–	–
PMCN225EUM	KM20	–	MB20	–	RF20	UM20
PMCN225EUM-V4A	KM20-V4A	–	–	MB20SC2-V4A	–	–
SC300EUM; 0 to 4	KM20	AH20	MB20	–	RF20	UM20
SC300EUM; 5 to 9	KM20	AH20	–	MB20SC2	RF20	UM20
Thread M25x1.5						
MA600EUM	KM25	AH25	MB25	–	RF25	UM25
MA900EUM	KM25	AH25	MB25	–	RF25	UM25
MC600EUM	KM25	AH25	MB25	–	RF25	UM25
MC600EUM-V4A	KM25-V4A	AH25-V4A	–	MB25SC2-V4A	–	–
PMCN600EUM	KM25	–	MB25	–	RF25	UM25
PMCN600EUM-V4A	KM25-V4A	–	–	MB25SC2-V4A	–	–
SC650EUM; 0 to 4	KM25	AH25	MB25	–	RF25	UM25
SC650EUM; 5 to 9	KM25	AH25	–	MB25SC2	RF25	UM25
SC925EUM; 0 to 4	KM25	AH25	MB25	–	RF25	UM25

[1] Use a locknut for protection if a clamp mount MB...SC2 is installed.

[2] Only mountable on units without button.
Remove the button from the shock absorber, if there's one fitted!

Dimensions can be found on the corresponding accessories pages.

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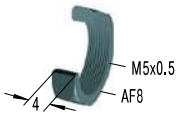
[2] Side Load Adaptor	[2] Steel Shroud	Air Bleed Collar	Switch Stop Collar	Steel Button	Steel/Urethane Button	Nylon Button	
BV	**PB**	**SP**	**AS**	**PS**	**BP**	**PP**	Page
Thread M5x0.5							
–	–	–	–	–	–	–	38
Thread M6x0.5							
–	–	–	–	–	–	–	38
Thread M8x1							
BV8	PB8	–	–	–	–	–	38
BV8A	PB8-A	–	–	–	–	–	38
BV8	PB8	–	–	–	–	–	38
Thread M10x1							
BV10	PB10	–	AS10	PS10	–	–	39
BV10	PB10	–	AS10	PS10	–	–	39
BV10SC	PB10SC	–	–	–	–	–	39
Thread M12x1							
BV12	PB12	–	AS12	PS12	–	–	39
BV12	PB12	–	AS12	PS12	–	–	39
BV12SC	PB12SC	SP12	AS12	PS12SC	–	–	39
Thread M14x1.5							
BV14	PB14	SP14	AS14	PS14	–	included	40
BV14	PB14	SP14	AS14	PS14	–	PP150	40
–	–	–	–	–	–	PP150	40
–	–	–	–	–	–	–	40
–	–	–	–	–	–	–	40
BV14SC	PB14SC	–	AS14	included	BP14	–	40
BV14	PB14	SP14	AS14	PS14	–	–	40
Thread M20x1.5							
BV20SC	PB20SC	–	AS20	included	BP20	–	41
BV20	PB20	SP20	AS20	PS20	–	PP225	41
–	–	–	–	–	–	PP225	41
–	–	–	–	–	–	–	41
–	–	–	–	–	–	–	41
BV20SC	PB20SC	–	AS20	included	BP20	–	41
BV20SC	PB20SC	–	AS20	included	–	–	41
Thread M25x1.5							
BV25SC	PB25SC	–	AS25	included	BP25	–	42
–	–	–	AS25	included	BP25	–	42
BV25	PB25	SP25	AS25	PS25	–	PP600	42
–	–	–	–	–	–	PP600	42
–	–	–	–	–	–	–	42
–	–	–	–	–	–	–	42
BV25SC	PB25SC	–	AS25	included	BP25	–	42
BV25SC	PB25	–	AS25	included	–	–	42
–	–	–	AS25	included	BP25	–	42

For selection chart, see pages 36 to 37

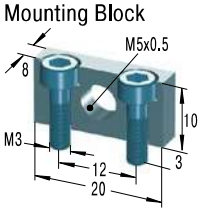
M5x0.5

KM5
Locknut



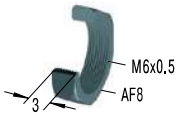
AH5
Stop Collar

MB5SC2
Mounting Block

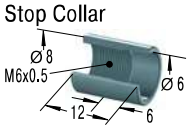


M6x0.5

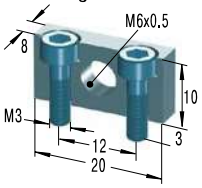
KM6
Locknut



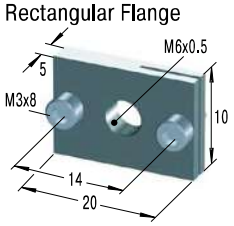
AH6
Stop Collar



MB6SC2
Mounting Block



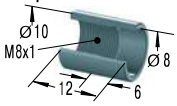
RF6
Rectangular Flange



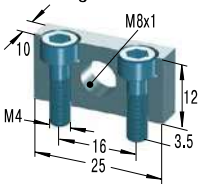
M8x1

KM8
Locknut

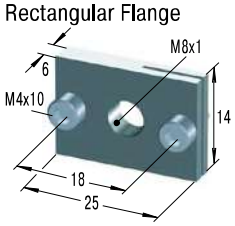
AH8
Stop Collar



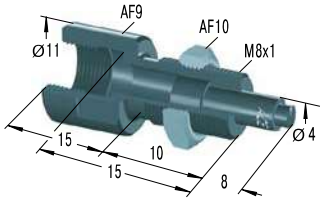
MB8SC2
Mounting Block



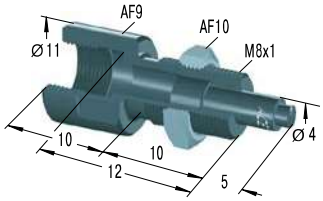
RF8
Rectangular Flange



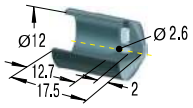
BV8
Side Load Adaptor



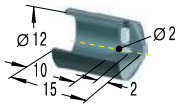
BV8A
Side Load Adaptor



PB8
Steel Shroud



PB8-A
Steel Shroud



For mounting, installation, ..., see pages 43 to 46.

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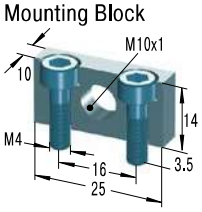
For selection chart, see pages 36 to 37

M10x1

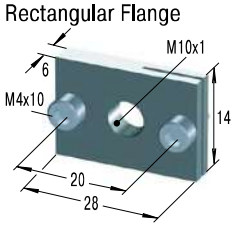
KM10
Locknut

AH10
Stop Collar

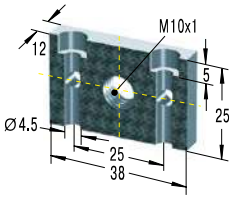
MB10SC2
Mounting Block



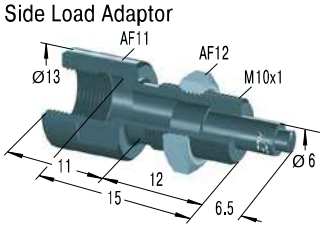
RF10
Rectangular Flange



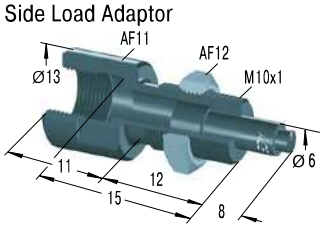
UM10
Universal Mount



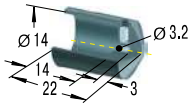
BV10
Side Load Adaptor



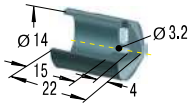
BV10SC
Side Load Adaptor



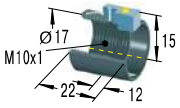
PB10
Steel Shroud



PB10SC
Steel Shroud

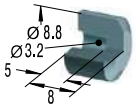


AS10
Switch Stop Collar



inc. Proximity Switch

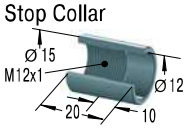
PS10
Steel Button



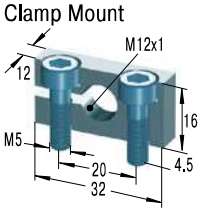
M12x1

KM12
Locknut

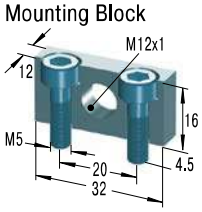
AH12
Stop Collar



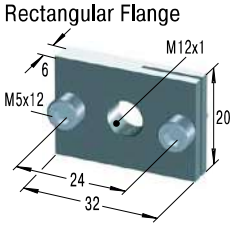
MB12
Clamp Mount



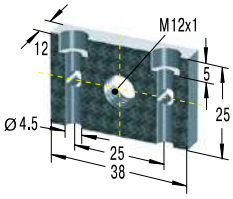
MB12SC2
Mounting Block



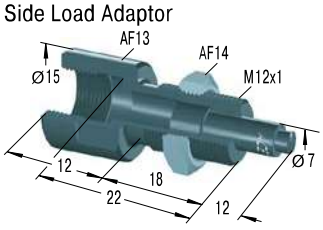
RF12
Rectangular Flange



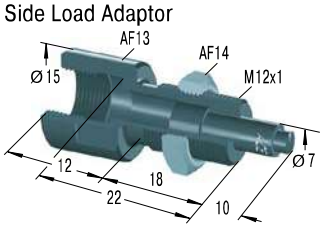
UM12
Universal Mount



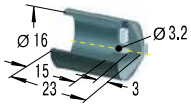
BV12
Side Load Adaptor



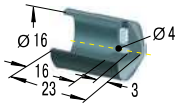
BV12SC
Side Load Adaptor



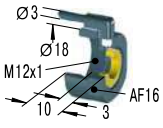
PB12
Steel Shroud



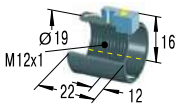
PB12SC
Steel Shroud



SP12
Air Bleed Collar

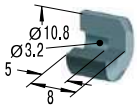


AS12
Switch Stop Collar

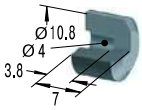


inc. Proximity Switch

PS12
Steel Button



PS12SC
Steel Button



For mounting, installation, ..., see pages 43 to 46.

For selection chart, see pages 36 to 37

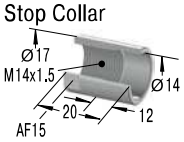
M14x1,5

KM14
Locknut

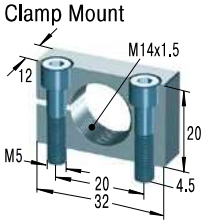
KM14-V4A
Locknut

AH14
Stop Collar

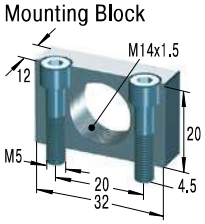
AH14-V4A
Stop Collar



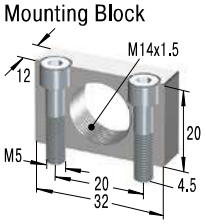
MB14
Clamp Mount



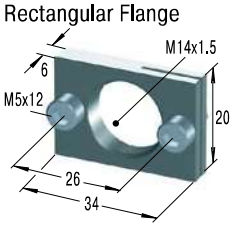
MB14SC2
Mounting Block



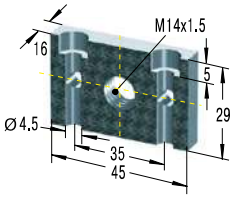
MB14SC2-V4A
Mounting Block



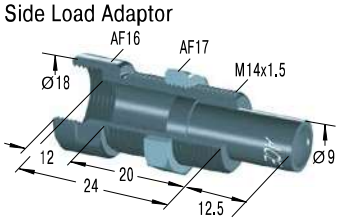
RF14
Rectangular Flange



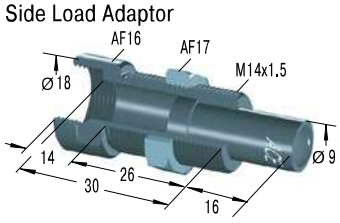
UM14
Universal Mount



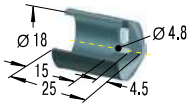
BV14
Side Load Adaptor



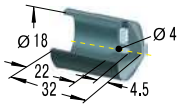
BV14SC
Side Load Adaptor



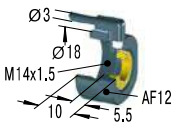
PB14
Steel Shroud



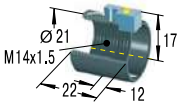
PB14SC
Steel Shroud



SP14
Air Bleed Collar



AS14
Switch Stop Collar

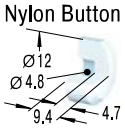


inc. Proximity Switch

PS14
Steel Button

BP14
Steel/Urethane Button

PP150
Nylon Button



W_3 max = 14 Nm

For mounting, installation, ..., see pages 43 to 46.

For selection chart, see pages 36 to 37

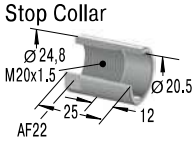
M20x1.5

KM20
Locknut

KM20-V4A
Locknut

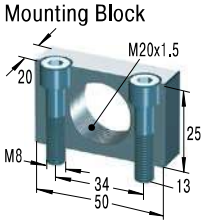
AH20
Stop Collar

AH20-V4A
Stop Collar

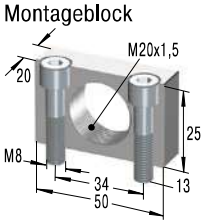


MB20
Clamp Mount

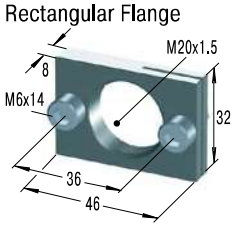
MB20SC2
Mounting Block



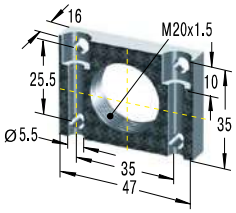
MB20SC2-V4A
Montageblock



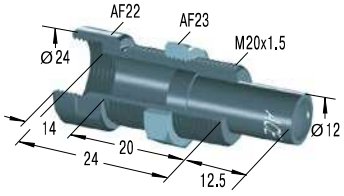
RF20
Rectangular Flange



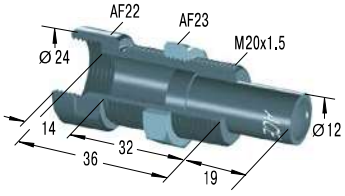
UM20
Universal Mount



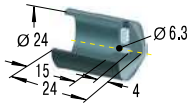
BV20
Side Load Adaptor



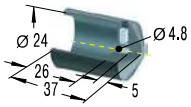
BV20SC
Side Load Adaptor



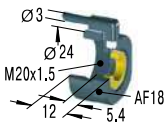
PB20
Steel Shroud



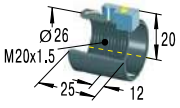
PB20SC
Steel Shroud



SP20
Air Bleed Collar

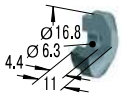


AS20
Switch Stop Collar



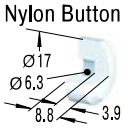
inc. Proximity Switch

PS20
Steel Button



BP20
Steel/Urethane Button

PP225
Nylon Button



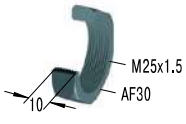
W_3 max = 33 Nm

For mounting, installation, ..., see pages 43 to 46.

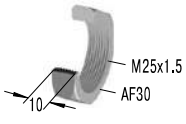
For selection chart, see pages 36 to 37

M25x1.5

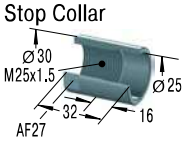
KM25
Locknut



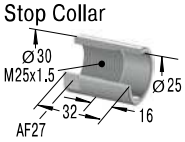
KM25-V4A
Locknut



AH25
Stop Collar

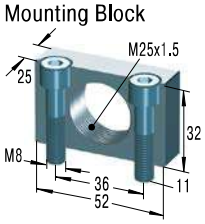


AH25-V4A
Stop Collar

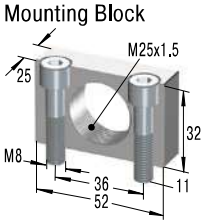


MB25
Clamp Mount

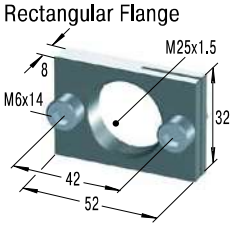
MB25SC2
Mounting Block



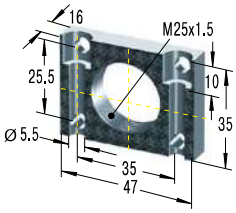
MB25SC2-V4A
Mounting Block



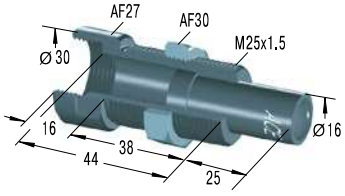
RF25
Rectangular Flange



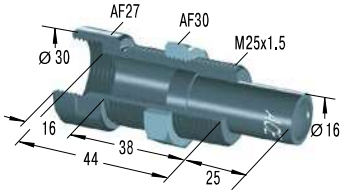
UM25
Universal Mount



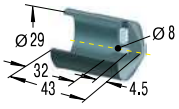
BV25
Side Load Adaptor



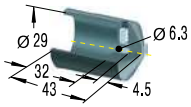
BV25SC
Side Load Adaptor



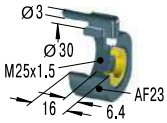
PB25
Steel Shroud



PB25SC
Steel Shroud

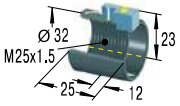


SP25
Air Bleed Collar



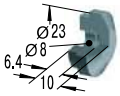
For VC2515FT to VC2555FT
reduction of the stroke 6.4 mm

AS25
Switch Stop Collar



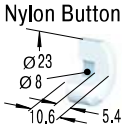
inc. Proximity Switch

PS25
Steel Button



BP25
Steel/Urethane Button

PP600
Nylon Button

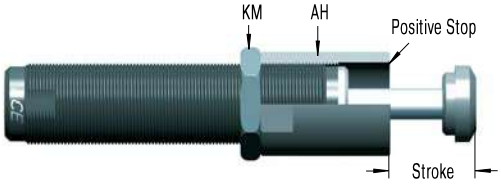


W_3 max = 68 Nm

For mounting, installation, ..., see pages 43 to 46.

Issue 07.2017 – Specifications subject to change

AH



Stop Collar

All ACE miniature shock absorbers have an integral positive stop. An optional stop collar (AH...) can be added if desired to give fine adjustment of final stopping position.

MB

Clamp Mount

When using the MB clamp mount no locknut is needed on the shock absorber (split clamp action). The clamp mount is very compact and allows fine adjustment of the shock absorber position by turning in and out.

Safety instructions

When foot mounting the types with combined piston and inner tube SC²25EUM to SC²650EUM and the types MC5EUM, MC9EUM, MC10EUM, MC30EUM, MC25EUM and MA30EUM, the mounting block MB (SC²) must be used.

Delivery

Two socket head screws are included with the clamp mount.

Dimensions

TYPES	Screw Size	Max. Torque Nm
MB12	M5x16	6
MB14	M5x20	6
MB20	M6x25	11
MB25	M6x30	11

MBSC2

Mounting Block

The mounting block MB...SC2 ensures the stable fixation of shock absorbers of the SC²-Series. Due to the piston tube technology of this series, this mounting block has no clamp slot. The mounting block is also used for types MC5EUM to MC30EUM as well as type MA30EUM.

Mounting information

As the MB (SC²) has no clamp slot, the shock absorber has to be tightened with the supplied locknut.

Delivery

Two socket head screws are included with the clamp mount.

RF

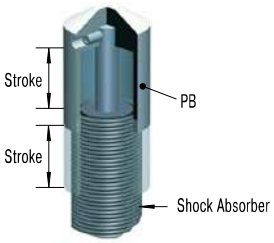
Rectangular Flange

The rectangular flange RF provides a space saving convenient assembly and does not need a lock nut to hold the shock absorber. Therefore achieving a neat, compact and flat surface mounting.

Dimensions

TYPES	Screw Size	Max. Torque Nm
RF6	M3x8	3
RF8	M4x10	4
RF10	M4x10	4
RF12	M5x12	6
RF14	M5x12	6
RF20	M6x14	11
RF25	M6x14	11

PB



Steel Shroud

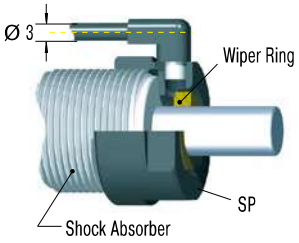
Grinding beads, sand, welding splatter, paints and adhesives etc. can adhere to the piston rod. They then damage the rod seals and the shock absorber quickly fails. In many cases the installation of the optional steel shroud can provide worthwhile protection and increase lifetime.

Ordering information
The PB steel shroud can only be installed onto a shock absorber without rod end button.

For part number MA, MC, SC please order with “M-880” suffix. Part numbers MA150EUM, MC150EUM to MC600EUM and SC25EUM to SC190EUM5-7 are supplied without a button.

Safety instructions
When installing don‘t forget to allow operating space for the shroud to move as the shock absorber is cycled.

SP

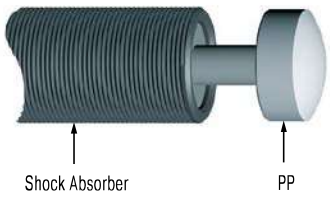


Air Bleed Collar

Air bleed collar (includes integral stop collar) protects shock absorber from ingress of abrasive contaminents like cement, paper or wood dust into the rod seal area. It also prevents aggressive fluids such as cutting oils, coolants etc. damaging the seals. Air bleed supply 0.5 to 1 bar. Low air consumption. The constant air bleed prevents contaminants passing the wiper ring and entering the shock absorber seal area.

Safety instructions
Do not switch off air supply whilst machine is operating! The air bleed collar cannot be used on all similar body thread sized shock absorbers. The air bleed collar is only for types MC150EUM to MC600EUM, MA150EUM, SC75EUM and SC190EUM5-7.

PP



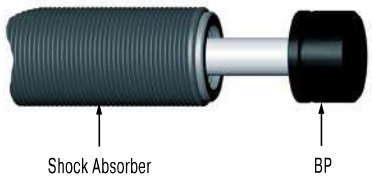
Nylon Button

While the use of industrial shock absorbers already achieves a considerable reduction in noise levels, the additional use of PP impact buttons made of glass fibre reinforced nylon reduces noise levels even further, making it easy to fulfil the regulations of the new Noise Control Ordinance. At the same time, wear of impact surface is drastically minimized. The PP buttons are available for shock absorbers in series MC150EUM to MC600EUM.

Mounting information
The buttons are fitted simply by pressing onto the piston rod.
We recommend to additionally fix the nylon button with LOCTITE.

Delivery
Model MA150EUM is supplied as standard with PP button.

BP



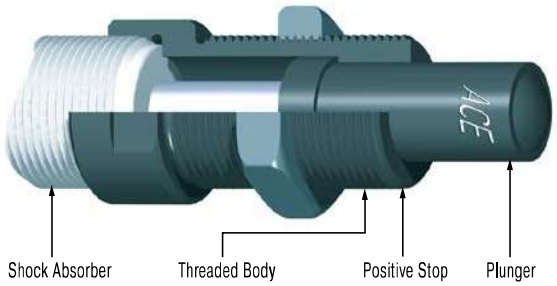
Steel/Urethane Button

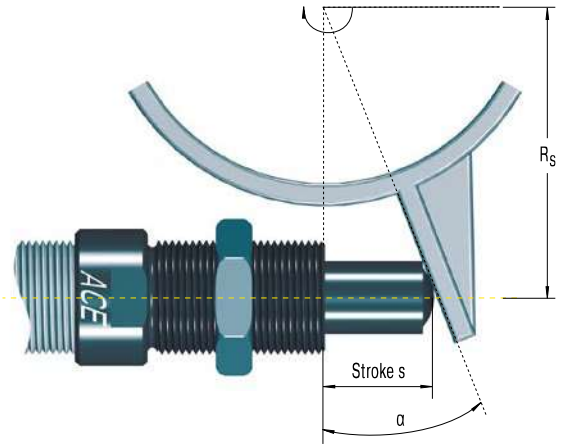
These impact buttons made of urethane offer all above advantages of the PP nylon button in terms of reducing noise and wear. They fit easily onto the piston rod of the corresponding shock absorber. BP buttons must additionally be secured with LOCTITE.

Please refer to the accessories table on pages 36 to 37 to see which shock absorber types the BP buttons are available for.

Issue 07.2017 – Specifications subject to change

BV





Formulae:

$$\alpha = \tan^{-1}\left(\frac{s}{R_s}\right) \qquad R_{s\,min} = \frac{s}{\tan \alpha\,max}$$

Example:

$s = 0.025$ m $\qquad \alpha\,max = 25^\circ$ (Type BV25)

$R_s = 0.1$ m

$$\alpha = \tan^{-1}\left(\frac{0.025}{0.1}\right) \qquad R_{s\,min} = \frac{0.025}{\tan 25}$$

$\alpha = 14.04^\circ$ $\qquad R_{s\,min} = 0.054$ m

α	= side load angle °	R_s	= mounting radius m
α max	= max. angle °	$R_{s\,min}$	= min. possible mounting radius m
s	= absorber stroke m		

Side Load Adaptor

Rotating impact motion causes high side load forces on the piston rod. This increases bearing wear and possibly results in rod breakage or bending. With side load impact angles of more than 3° the operation lifetime of the shock absorber reduces rapidly due to increased wear of the rod bearings. The optional BV side load adaptor provides long lasting solution.

Ordering information
The BV adaptor can only be installed onto a shock absorber without rod end button.

Part Number: MA, MC, SC...-880 (Models MC150EUM to MC600EUM and SC²25EUM to SC²190EUM5-7 are supplied as standard without buttons.)

Material
Threaded body and plunger: Hardened high tensile steel, hardened 610 HV1

Mounting information
Secure the side load adaptor with LOCTITE or locknut on the shock absorber.

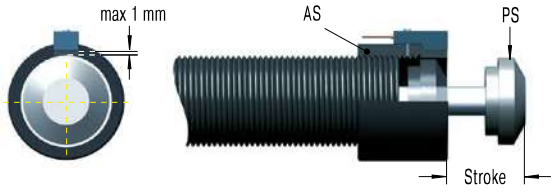
For material combination plunger/impact plate use similar hardness values. We recommend that you install the shock absorber/side load adaptor using the thread on the side load adaptor.

Installation with clamp mount MB... not possible. Use mounting block MB... SC²!

Safety instructions
Maximum angle:
BV8, BV10 and BV12 = 12.5°
BV14, BV20 and BV25 = 25°

By repositioning the centre of the stroke of the side load plunger to be at 90 degrees to the piston rod, the side load angle can be halved. The use of an external positive stop due to high forces encountered is required.

AS



Switch Stop Collar

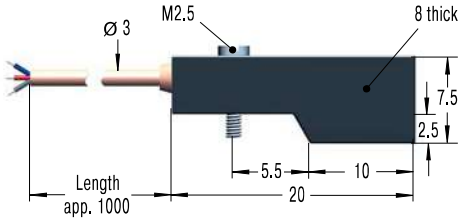
The ACE stop light switch stop collar combination AS, incl. proximity switch PNP, can be mounted on all popular shock absorber models. The use of the steel button PS is mandatory.

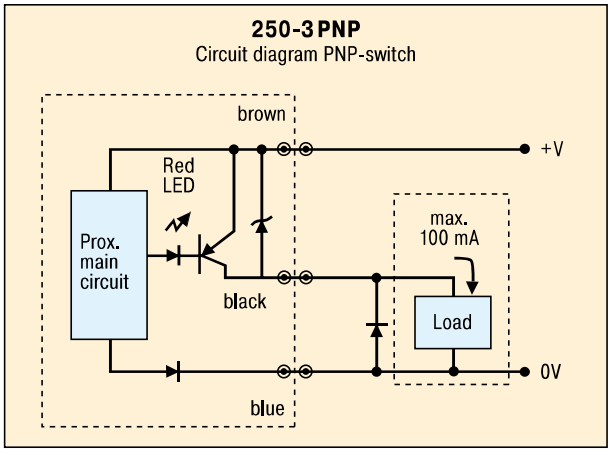
Advantages: Very short, compact mounting package, good price-performance ratio, retrofit possible for standard shock absorber models, fine adjustment of the stroke possible.

Ordering information
The steel button type PS is fitted as standard on the models: SC190EUM0-4, SC300EUM0-9, SC650EUM0-9, SC925EUM0-4, MA/MVC225EUM, MA/MVC600EUM and MA/MVC900EUM. With all other models you must order the PS button as an optional accessory.

Mounting information
We recommend to fix the steel button onto the end of the piston rod using LOCTITE 290. Attention! Take care not to leave any adhesive on the piston rod as this will cause seal damage. Thread the switch stop collar onto the front of the shock absorber and secure in position. Switch cable should not be routed close to power cables.

250-3 PNP





Proximity Switch

The proximity switch is part of the ACE stop light switch collar combination. The correct starting position can thus be checked electronically.

Ordering information
Part number: 250-3 PNP

PNP proximity switch data
Supply voltage: 10-27 VDC
Ripple: < 10 %
Load current max.: 100 mA
Operating temperature range: -10 °C to +60 °C
Residual voltage: max. 1 V
Protection: IP67 (IEC 144) with LED-indicator
Proximity switch N/Open when shock absorber extended.
When shock absorber is fully compressed switch closes and LED indicator lights.

Issue 07.2017 – Specifications subject to change

High Performance

for PET Stretch Blow Machines

PET 20 and PET 27

20 million cycles – up to 107 °C – aluminium outer body
hardened pressure chamber – corrosion protection

=

extended service life – low-wear – faster
reduced downtime – improved system performance
increased production volume – high cost efficiency

For all information see our Website www.ace-ace.com

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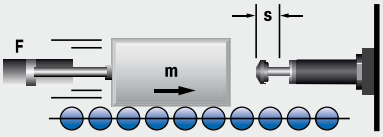
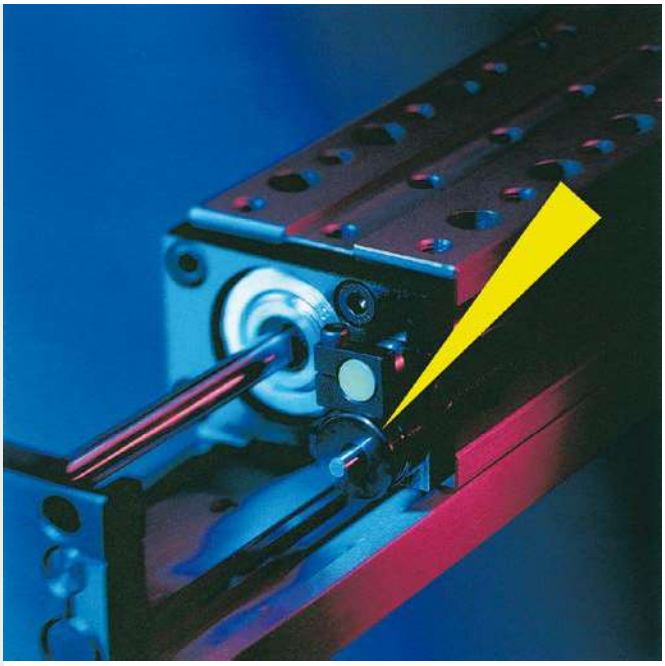
Application Examples

MC25EUM

Constant deceleration force

ACE miniature shock absorbers are the right alternative. This pneumatic module for high precision, high speed motion intentionally abandoned pneumatic end-of-travel damping. The compact miniature shock absorbers of the type MC25EUMH-NB decelerate the linear motion safer and faster when reaching the end-of-travel position. They accept the moving load gently and decelerate it smoothly throughout the entire stroke length. Additional advantages: simpler construction, smaller pneumatic valves, lower maintenance costs as well as reduced compressed air consumption.



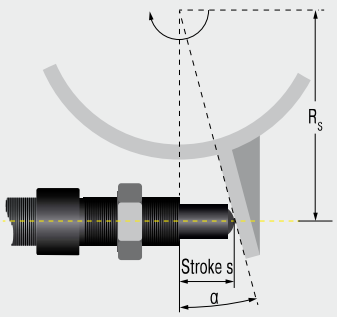


Miniature Shock Absorber in compact pneumatic module

MC225EUM

Obstacle end positions secured

In the case of driving safety training, swinging flags are used to simulate the sudden appearance of obstacles. If the driver reacts too slowly, the flags are swung just as quickly away to avoid damage to the vehicle. In order to protect the end positions of this safety system during to and fro motion, ACE miniature shock absorbers of the type MC225EUMH2 are installed. They come with a special side load adapter for use in this situation. Among other things, this improves the ability of the shock absorber to absorb lateral forces during to and fro motion.



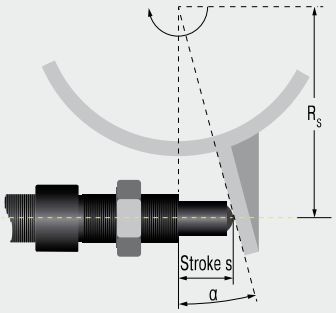
Miniature shock absorbers protect the end positions during driving safety training
Dorninger Hytronics GmbH, 4210 Unterweitersdorf, Austria

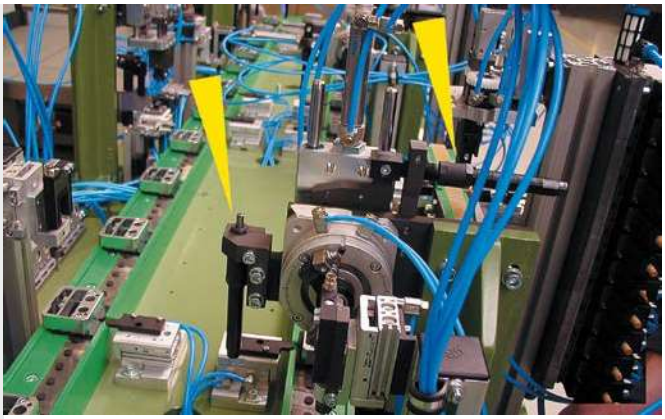
Issue 07.2017 – Specifications subject to change

SC190EUM

Soft end-of-travel damping on rotary movements

ACE miniature shock absorbers optimize production with minimum expenditure. The cycle rate for an assembly line producing electronic components was increased to 3,600 units/hr. Miniature shock absorbers type SC190EUM-1 decelerate the rapid transfer movements on the production line and using soft damping methods optimize the pick up and set down of components. This soft deceleration technique has increased production and reduced maintenance on the portal and rotary actuator modules. The optional side load adaptor protects the shock absorber from high side load forces and increases the operating lifetime. Using ACE shock absorbers reduces maintenance costs by 50 % and running costs by 20 %, diminishing energy consumption.





Optimised production in the electronics industry
Stebie Maschinenbau GmbH, Germany

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