Industrial Shock Absorbers

Absorbers suited for all loads

ACE industrial shock absorbers work hard. Their application means moving loads are evenly decelerated over the full stroke. The result: the lowest braking force and shortest braking time. The MAGNUM series from ACE is viewed as the reference standard for medium-sized damping technology.

Many innovations such as diaphragm accumulators, long life seals, hardened inner pressure chambers and make a decisive contribution towards extension of the service life. This means that the effective load range can be increased considerably, providing users with more scope with respect to the absorber size and greater utilization of the machine's output. ACE offers a wide range of matching accessories for all absorber series. This eliminates internal production of assembly parts which involves high costs and loss of time.

- Innovative damping techniques
- Reference class for medium sizes
- Less stress on the machine
- Increase of production figures
- Long machine service lives

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Industrial Shock Absorbers

MC33 to MC64

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Self-Compensating
High energy absorption and robust design
Linear slides, Swivel units, Turntables, Portal systems

MC33-V4A to MC64-V4A

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Self-Compensating, Stainless Steel
Optimum corrosion protection
Linear slides, Swivel units, Turntables, Food industry

MC33-HT to MC64-HT

Page 64

Self-Compensating
Extreme temperature and high cycle applications
Linear slides, Swivel units, Turntables, Machines and plants

MC33-LT to MC64-LT

Page 68

Self-Compensating
Extreme temperature and high cycle applications
Linear slides, Swivel units, Turntables, Machines and plants

SC33 to SC45

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

MA/ML33 to MA/ML64

Page 76

Adjustable
High energy absorption and progressive adjustment
Linear slides, Swivel units, Turntables, Portal systems

SASL1 1/8

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Adjustable
Low velocity and high effective weight range
Linear slides, Pneumatic cylinders, Swivel units, Handling modules

SALD1/2 to SALD1 1/8

Page 82

Adjustable
High energy absorption and a wide effective weight range
Linear slides, Pneumatic cylinders, Swivel units, Handling modules

SALDN3/4

Page 86

Adjustable
High energy absorption and a wide effective weight range
Linear slides, Pneumatic cylinders, Swivel units, Handling modules

Issue 04.2018 – Specifications subject to change

Products for UNF and metric thread available

MC33 to MC64

High energy absorption and robust design

Self-Compensating

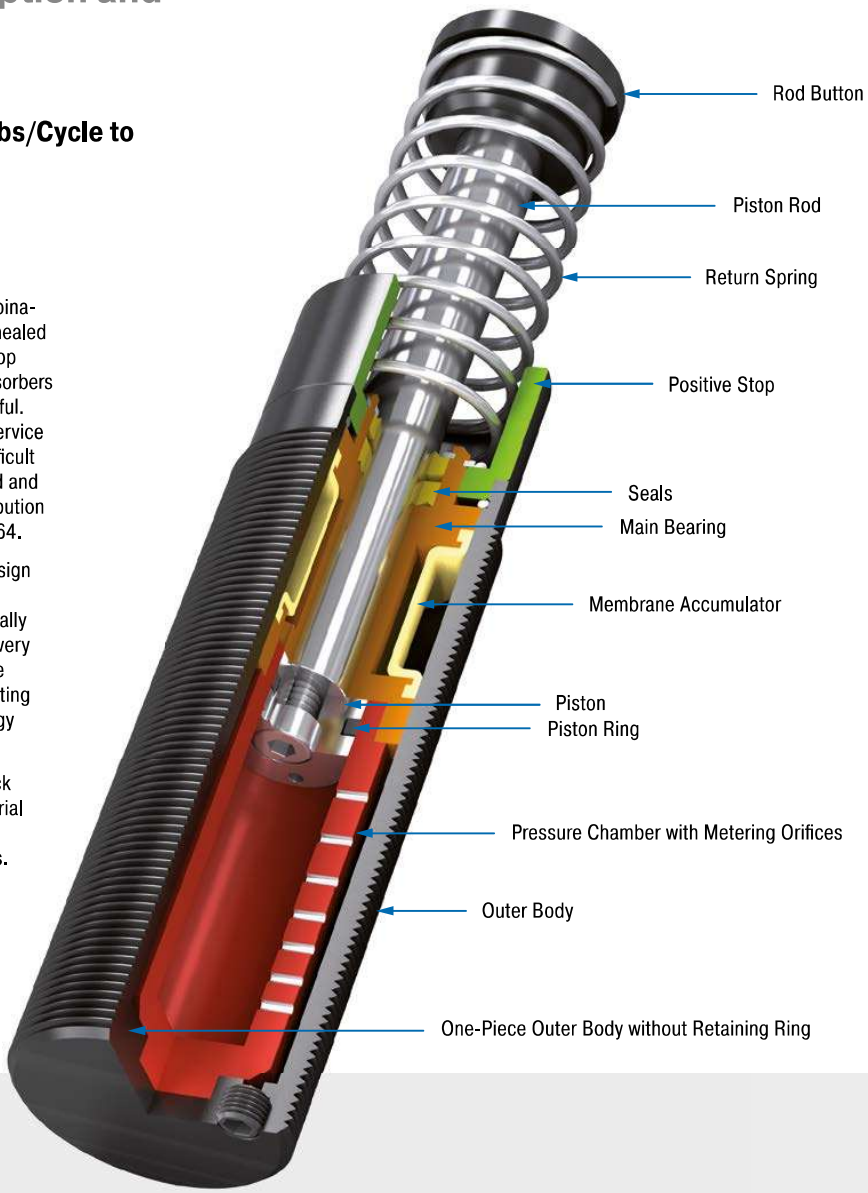
Energy capacity 1,505 in-lbs/Cycle to 50,000 in-lbs/Cycle

Stroke 0.91 in to 5.91 in

The latest damper technology: The combination of the latest sealing technology, annealed guide bearing and integrated positive stop make these self-compensating shock absorbers from ACE'S MAGNUM range so successful. After all, users benefit from the longer service life of the products, even in the most difficult environments. A continuous outer thread and extensive accessories make their contribution to the success story of the MC33 to MC64.

High energy absorption in a compact design and a wide damping range lead to huge advantages in practice. Alongside generally more compact designs, these small yet very powerful absorbers enable full use of the machine's performance. Self-compensating shock absorbers react to changing energy conditions, without adjustment.

These self-compensating industrial shock absorbers are used in all areas of industrial automation and machine engineering, especially in automation and for gantries.



Technical Data

Energy capacity: 1,505 in-lbs/Cycle to 50,000 in-lbs/Cycle

Impact velocity range: 0.5 ft/sec to 16.5 ft/sec. Other speeds on request.

Operating temperature range: 10 °F to 150 °F. Other temperatures on request.

Mounting: In any position

Positive stop: Integrated

Material: Outer body: Nitride hardened steel; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Return spring: Zinc plated or plastic-coated steel; Accessories: Steel with black oxide finish or nitride hardened

Damping medium: Automatic Transmission Fluid (ATF)

Application field: Linear slides, Swivel units, Turntables, Portal systems, Machines and plants, Tool machines, Machining centers, Z-axes, Impact panels, Handling modules

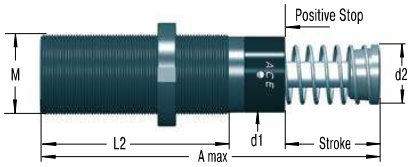
Note: A noise reduction of 3 dB to 7 dB is possible when using the special impact button. For emergency use only applications and for continous use (with additional cooling) it is sometimes possible to exceed the published max. capacity ratings. In this case, please consult ACE.

Safety information: 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: Special oils, nickel-plated, increased corrosion protection, mounting inside air cylinders or other special options are available on request.

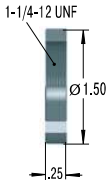
Issue 04.2018 – Specifications subject to change

MC33

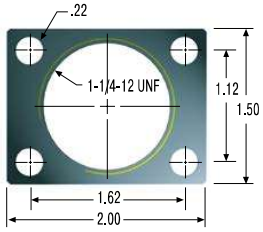


Product available for UNF and metric thread (for metric add suffix -M from part number)
M33x1.5, M36x1.5 and M42x1.5 also available to order

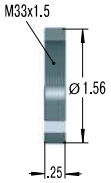
250-0038
Locking Ring



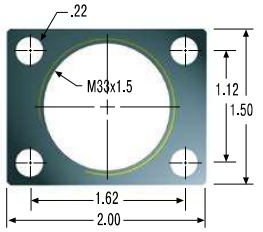
250-0016
Rectangular Flange



250-0292
Locking Ring



250-0293
Rectangular Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MC: Self-Contained with return spring, self-compensating
Special Models
MCA: Air/Oil return without return spring. Use only with external air/oil tank.
MCS: Air/Oil return with return spring. Use only with external air/oil tank.
MCN: Self-Contained without return spring

Ordering Example **MC3325M-1**

Self-Compensating
33 for 1-1/4-12 UNF or M33 threads
Stroke 0.98" (25 mm)
Metric Thread
(omitted when using thread UNF 1 1/4-12)
Effective Weight Range Version

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MC3325	0.91	5.44	1.15	1.00	3.25	1-1/4-12 UNF / M33x1.5
MC3350	1.91	7.44	1.15	1.00	4.25	1-1/4-12 UNF / M33x1.5

Performance

	Max. Energy Capacity				Effective Weight							
TYPES	[1] E_3 in-lbs/cycle	E_4 in-lbs/h	E_4 with Air/Oil Tank in-lbs/h	E_4 with Oil Recirculation in-lbs/h	[2] We min. lbs	[2] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	[3] Side Load Angle max. °	Weight lbs
MC3325-0	1,505	670,000	1,100,000	1,500,000	7	24	-0	10.3	19.8	0.03	4	1.12
MC3325-1	1,505	670,000	1,100,000	1,500,000	20	80	-1	10.3	19.8	0.03	4	1.12
MC3325-2	1,505	670,000	1,100,000	1,500,000	68	272	-2	10.3	19.8	0.03	4	1.12
MC3325-3	1,505	670,000	1,100,000	1,500,000	230	920	-3	10.3	19.8	0.03	4	1.12
MC3325-4	1,505	670,000	1,100,000	1,500,000	780	3,120	-4	10.3	19.8	0.03	4	1.12
MC3350-0	2,920	760,000	1,200,000	1,600,000	11	48	-0	9.9	10.3	0.06	3	1.39
MC3350-1	2,920	760,000	1,200,000	1,600,000	40	160	-1	9.9	10.3	0.06	3	1.39
MC3350-2	2,920	760,000	1,200,000	1,600,000	136	544	-2	9.9	10.3	0.06	3	1.39
MC3350-3	2,920	760,000	1,200,000	1,600,000	460	1,840	-3	9.9	10.3	0.06	3	1.39
MC3350-4	2,920	760,000	1,200,000	1,600,000	1,560	6,240	-4	9.9	10.3	0.06	3	1.39

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] The effective weight range limits can be raised or lowered to special order.
[3] For applications with higher side load angles please contact ACE.

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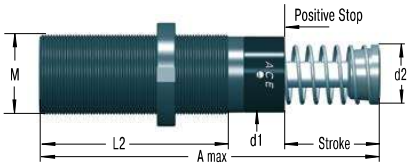
Industrial Shock Absorbers MC45

Products for UNF and metric thread available

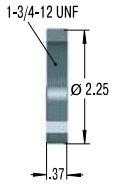
Self-Compensating

MC45

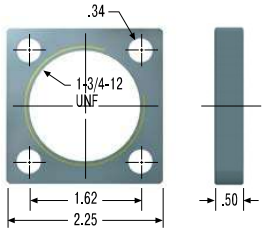


Product available for UNF and metric thread (for metric add suffix -M from part number)

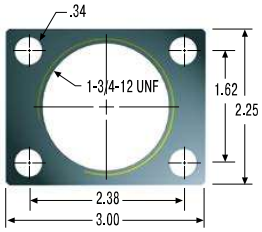
250-0041
Locking Ring



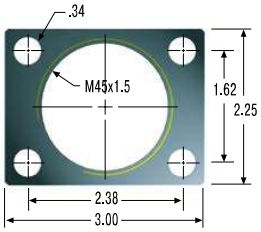
250-0023
Square Flange



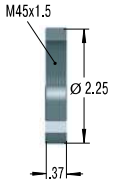
250-0024
Rectangular Flange



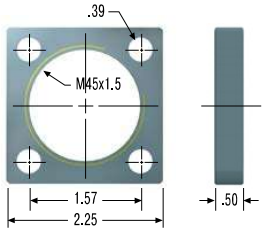
250-0299
Rectangular Flange



250-0297
Locking Ring



250-0298
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MC: Self-Contained with return spring, self-compensating
Special Models
MCA: Air/Oil return without return spring. Use only with external air/oil tank.
MCS: Air/Oil return with return spring. Use only with external air/oil tank.
MCN: Self-Contained without return spring

Ordering Example **MC4525M-1**

Self-Compensating
45 for 1-3/4-12 UNF or M45 threads
Stroke 0.98" (25 mm)
Metric Thread
(omitted when using thread UNF 1-3/4-12)
Effective Weight Range Version

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MC4525	0.91	5.69	1.65	1.38	3.72	1-3/4-12 UNF / M45x1.5
MC4550	1.91	7.69	1.00	1.15	4.72	1-3/4-12 UNF / M45x1.5
MC4575	2.91	9.69	1.65	1.38	5.72	1-3/4-12 UNF / M45x1.5

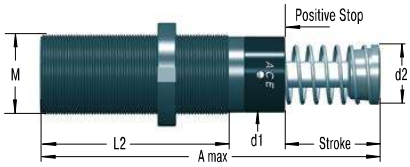
Performance

	Max. Energy Capacity				Effective Weight							
TYPES	[1] E_3 in-lbs/cycle	E_4 in-lbs/h	E_4 with Air/Oil Tank in-lbs/h	E_4 with Oil Recirculation in-lbs/h	[2] We min. lbs	[2] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	[3] Side Load Angle max. °	Weight lbs
MC4525-0	3,275	950,000	1,400,000	1,700,000	15	59	-0	15.1	22.8	0.03	4	2.49
MC4525-1	3,275	950,000	1,400,000	1,700,000	50	200	-1	15.1	22.8	0.03	4	2.49
MC4525-2	3,275	950,000	1,400,000	1,700,000	170	680	-2	15.1	22.8	0.03	4	2.49
MC4525-3	3,275	950,000	1,400,000	1,700,000	575	2,300	-3	15.1	22.8	0.03	4	2.49
MC4525-4	3,275	950,000	1,400,000	1,700,000	1,950	7,800	-4	15.1	22.8	0.03	4	2.49
MC4550-0	6,550	1,000,000	1,700,000	2,200,000	28	119	-0	15.1	32.2	0.08	3	3.00
MC4550-1	6,550	1,000,000	1,700,000	2,200,000	100	400	-1	15.1	32.2	0.08	3	3.00
MC4550-2	6,550	1,000,000	1,700,000	2,200,000	340	1,360	-2	15.1	32.2	0.08	3	3.00
MC4550-3	6,550	1,000,000	1,700,000	2,200,000	1,150	4,600	-3	15.1	32.2	0.08	3	3.00
MC4550-4	6,550	1,000,000	1,700,000	2,200,000	3,900	15,600	-4	15.1	32.2	0.08	3	3.00
MC4575-0	10,000	1,300,000	2,000,000	2,500,000	44	176	-0	11.7	40.3	0.11	2	3.51
MC4575-1	10,000	1,300,000	2,000,000	2,500,000	150	600	-1	11.7	40.3	0.11	2	3.51
MC4575-2	10,000	1,300,000	2,000,000	2,500,000	510	2,040	-2	11.7	40.3	0.11	2	3.51
MC4575-3	10,000	1,300,000	2,000,000	2,500,000	1,370	6,920	-3	11.7	40.3	0.11	2	3.51
MC4575-4	10,000	1,300,000	2,000,000	2,500,000	5,850	23,400	-4	11.7	40.3	0.11	2	3.51

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] The effective weight range limits can be raised or lowered to special order.
[3] For applications with higher side load angles please contact ACE.

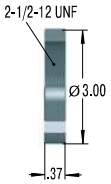
Issue 04.2018 – Specifications subject to change

MC64

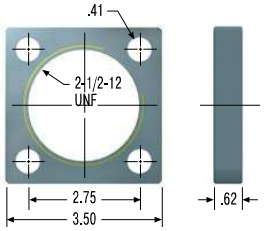


Product available for UNF and metric thread (for metric add suffix -M from part number)
5.91" stroke model does not include stop collar.
Positive stop is provided by the rod button (Ø 2.36") and a stop block.

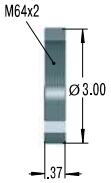
250-0042
Locking Ring



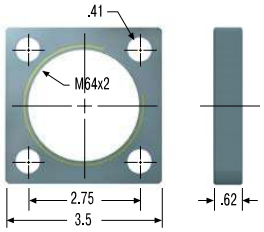
250-0028
Square Flange



250-0301
Locking Ring



250-0302
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MC: Self-Contained with return spring, self-compensating
Special Models
MCA: Air/Oil return without return spring. Use only with external air/oil tank.
MCS: Air/Oil return with return spring. Use only with external air/oil tank.
MCN: Self-Contained without return spring

Ordering Example **MC6450M-1**

Self-Compensating
64 for 2-1/2-12 UNF or M64 threads
Stroke 0.97" (50 mm)
Metric Thread
(omitted when using thread UNF 2-1/2-12)
Effective Weight Range Version

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MC6450	1.91	8.85	2.37	1.90	5.5	2-1/2-12 UNF / M64x2
MC64100	3.91	12.85	2.37	1.90	7.5	2-1/2-12 UNF / M64x2
MC64150	5.91	17.73	2.37	1.90	9.5	2-1/2-12 UNF / M64x2

Performance

	Max. Energy Capacity				Effective Weight							
TYPES	[1] E_3 in-lbs/cycle	E_4 in-lbs/h	E_4 with Air/Oil Tank in-lbs/h	E_4 with Oil Recirculation in-lbs/h	[2] We min. lbs	[2] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	[3] Side Load Angle max. °	Weight lbs
MC6450-0	16,550	1,300,000	2,600,000	3,400,000	308	1,190	-0	20.1	34.9	0.12	4	6.39
MC6450-1	16,550	1,300,000	2,600,000	3,400,000	300	1,200	-1	20.1	34.9	0.12	4	6.39
MC6450-2	16,550	1,300,000	2,600,000	3,400,000	1,020	4,080	-2	20.1	34.9	0.12	4	6.39
MC6450-3	16,550	1,300,000	2,600,000	3,400,000	3,460	13,480	-3	20.1	34.9	0.12	4	6.39
MC6450-4	16,550	1,300,000	2,600,000	3,400,000	11,700	46,800	-4	20.1	34.9	0.12	4	6.39
MC64100-0	33,000	1,700,000	3,400,000	4,400,000	154	617	-0	23.5	61.0	0.34	3	8.16
MC64100-1	33,000	1,700,000	3,400,000	4,400,000	600	2,400	-1	23.5	61.0	0.34	3	8.16
MC64100-2	33,000	1,700,000	3,400,000	4,400,000	2,040	8,160	-2	23.5	61.0	0.34	3	8.16
MC64100-3	33,000	1,700,000	3,400,000	4,400,000	6,920	27,680	-3	23.5	61.0	0.34	3	8.16
MC64100-4	33,000	1,700,000	3,400,000	4,400,000	23,400	93,600	-4	23.5	61.0	0.34	3	8.16
MC64150-0	50,000	2,200,000	4,400,000	5,700,000	220	1,014	-0	16.9	82.2	0.48	2	11.25
MC64150-1	50,000	2,200,000	4,400,000	5,700,000	900	3,600	-1	16.9	82.2	0.48	2	11.25
MC64150-2	50,000	2,200,000	4,400,000	5,700,000	3,060	12,240	-2	16.9	82.2	0.48	2	11.25
MC64150-3	50,000	2,200,000	4,400,000	5,700,000	10,380	41,520	-3	16.9	82.2	0.48	2	11.25
MC64150-4	50,000	2,200,000	4,400,000	5,700,000	35,100	140,400	-4	16.9	82.2	0.48	2	11.25

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] The effective weight range limits can be raised or lowered to special order.
[3] For applications with higher side load angles please contact ACE.

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MC33-V4A to MC64-V4A

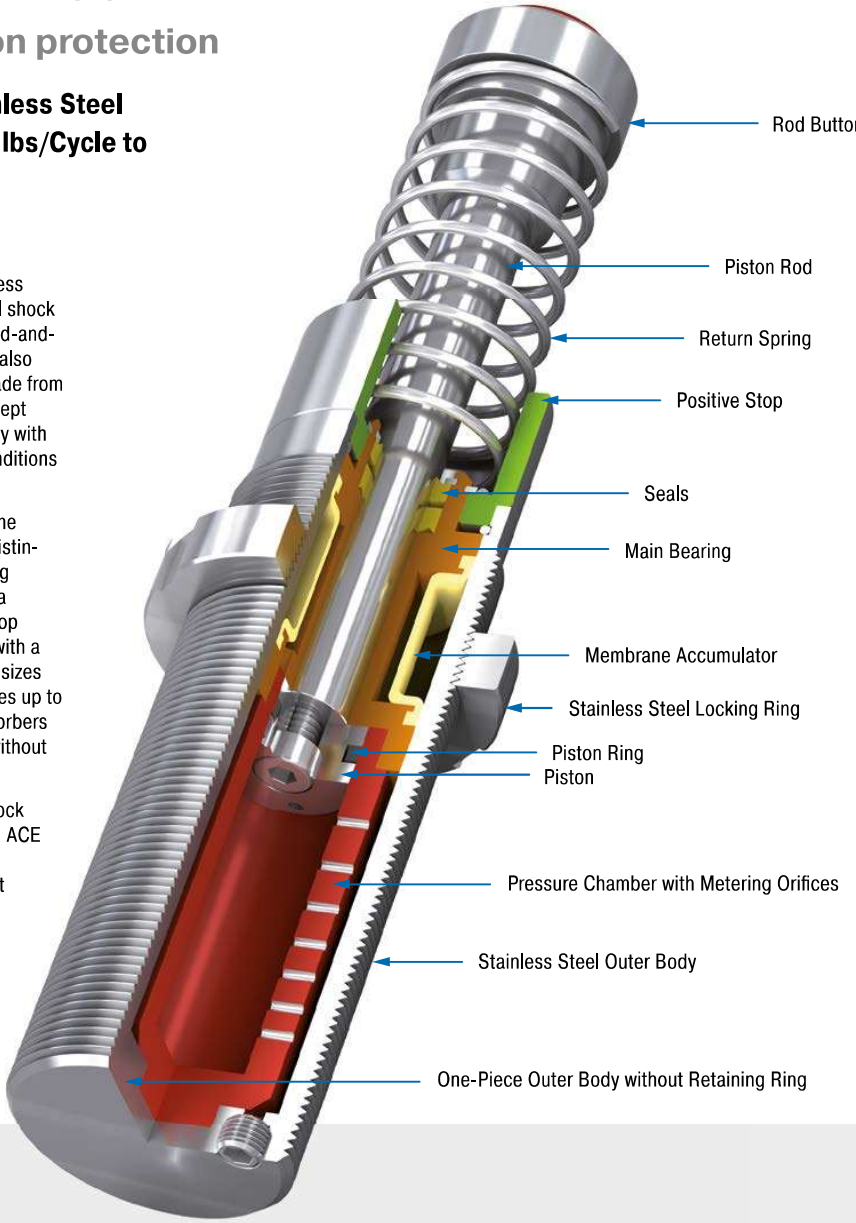
Optimum corrosion protection

Self-Compensating, Stainless Steel
Energy capacity 1,505 in-lbs/Cycle to 33,000 in-lbs/Cycle
Stroke 0.91 in to 3.91 in

The latest damper technology in stainless steel: The self-compensating industrial shock absorbers MC33 to MC64 from the tried-and-tested and popular MAGNUM range is also available with all outer components made from stainless steel, material AISI 316L (except piston rod). They are filled in the factory with special oil, which meets the permit conditions (NSF-H1) for the food industry.

Just like the standard product family, the MAGNUM stainless steel models are distinguished by their robust, modern sealing technology, high energy absorption in a compact design, integrated positive stop and a wide damping range. Equipped with a PUR head, they are available in thread sizes M33x1.5 to M64x2 with damping strokes up to 3.94 in. Self-compensating shock absorbers react to changing energy conditions, without adjustment.

These self-compensating industrial shock absorbers made of stainless steel from ACE are mainly used in the food, medical, electronics and offshore industries, but also in many other markets.



Technical Data

Energy capacity: 1,505 in-lbs/Cycle to 33,000 in-lbs/Cycle

Impact velocity range: 0.5 ft/sec to 16.5 ft/sec. Other speeds on request.

Operating temperature range: 10 °F to 150 °F. Other temperatures on request.

Mounting: In any position

Positive stop: Integrated

Material: Outer body, Main bearing, Accessories, Locking ring: Stainless steel (1.4404, AISI 316L); Piston rod: Hard chrome plated steel; Rod end button: Stainless steel (1.4404, AISI 316L) with elastomer insert; Return spring: Stainless steel

Damping medium: Special oil NSF-H1 approved

Application field: Linear slides, Swivel units, Turntables, Food industry, Medical technology, Portal systems, Machines and plants, Tool machines, Machining centers, Z-axes

Note: Impact button for noise reduction included. For emergency use only applications and for continous use (with additional cooling) it is sometimes possible to exceed the published max. capacity ratings. In this case, please consult ACE.

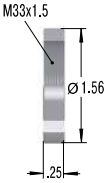
Safety information: External materials in the surrounding area can attack the seal components and lead to a shorter service life. Please contact ACE for appropriate solution suggestions. Do not paint the shock absorbers due to heat emission.

On request: Special oils, other special options and special accessories are available on request.

Issue 04.2018 – Specifications subject to change

MC33M-V4A

250-0048
Locking Ring



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MC: Self-Contained with return spring, self-compensating
Special Models
MCA: Air/Oil return without return spring. Use only with external air/oil tank.
MCS: Air/Oil return with return spring. Use only with external air/oil tank.
MCN: Self-Contained without return spring

Ordering Example **MC3325M-2-V4A**

Self-Compensating
Thread Size M33
Stroke 0.98" (25 mm)
Effective Weight Range Version
Stainless Steel 1.4404/AISI 316L

Dimensions

TYPES	Stroke mm	A max. mm	d1 mm	d2 mm	L1 mm	L2 mm	M
MC3325M-V4A	0.91	5.95	1.18	1.15	0.52	3.25	M33x1.5
MC3350M-V4A	1.91	7.96	1.18	1.15	0.52	4.25	M33x1.5

Performance

TYPES	Max. Energy Capacity E_3 in-lbs/cycle	Max. Energy Capacity E_4 in-lbs/h	Effective Weight [1] We min. lbs	Effective Weight [1] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	[2] Side Load Angle max. °	Weight lbs
MC3325M-0-V4A	1,505	670,000	7	24	-0	10.12	20.23	0.03	4	1.12
MC3325M-1-V4A	1,505	670,000	20	80	-1	10.12	20.23	0.03	4	1.12
MC3325M-2-V4A	1,505	670,000	68	272	-2	10.12	20.23	0.03	4	1.12
MC3325M-3-V4A	1,505	670,000	230	920	-3	10.12	20.23	0.03	4	1.12
MC3325M-4-V4A	1,505	670,000	780	3,120	-4	10.12	20.23	0.03	4	1.12
MC3350M-0-V4A	2,920	760,000	11	48	-0	10.12	30.35	0.06	3	1.39
MC3350M-1-V4A	2,920	760,000	40	160	-1	10.12	30.35	0.06	3	1.39
MC3350M-2-V4A	2,920	760,000	136	544	-2	10.12	30.35	0.06	3	1.39
MC3350M-3-V4A	2,920	760,000	460	1,840	-3	10.12	30.35	0.06	3	1.39
MC3350M-4-V4A	2,920	760,000	1,560	6,240	-4	10.12	30.35	0.06	3	1.39

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] For applications with higher side load angles please contact ACE.

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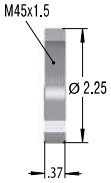
Industrial Shock Absorbers MC45M-V4A

Self-Compensating, Stainless Steel

MC45M-V4A

250-0049
Locking Ring



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MC: Self-Contained with return spring, self-compensating
Special Models
MCA: Air/Oil return without return spring. Use only with external air/oil tank.
MCS: Air/Oil return with return spring. Use only with external air/oil tank.
MCN: Self-Contained without return spring

Ordering Example **MC4525M-2-V4A**

Self-Compensating
Thread Size M45
Stroke 0.98" (25 mm)
Effective Weight Range Version
Stainless Steel 1.4404/AISI 316L

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L1 inch	L2 inch	M
MC4525M-V4A	0.91	6.48	1.65	1.65	0.76	3.72	M45x1.5
MC4550M-V4A	1.91	8.44	1.65	1.65	0.76	4.72	M45x1.5
MC4575M-V4A	2.91	10.45	1.65	1.65	0.76	5.72	M45x1.5

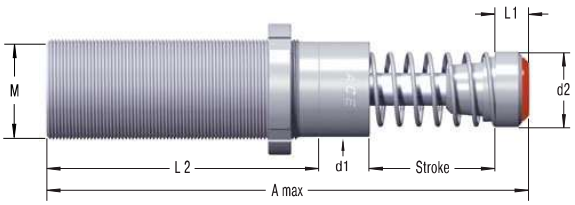
Performance

	Max. Energy Capacity		Effective Weight							
TYPES	E_3 in-lbs/cycle	E_4 in-lbs/h	[1] We min. lbs	[1] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	[2] Side Load Angle max. °	Weight lbs
MC4525M-0-V4A	3,275	950,000	15	59	-0	15.1	22.8	0.03	4	2.51
MC4525M-1-V4A	3,275	950,000	50	200	-1	15.1	22.8	0.03	4	2.51
MC4525M-2-V4A	3,275	950,000	170	680	-2	15.1	22.8	0.03	4	2.51
MC4525M-3-V4A	3,275	950,000	575	2,315	-3	15.1	22.8	0.03	4	2.51
MC4525M-4-V4A	3,275	950,000	1,950	7,804	-4	15.1	22.8	0.03	4	2.51
MC4550M-0-V4A	6,550	1,000,000	28	119	-0	15.1	32.2	0.08	3	3.00
MC4550M-1-V4A	6,550	1,000,000	100	400	-1	15.1	32.2	0.08	3	3.00
MC4550M-2-V4A	6,550	1,000,000	340	1,360	-2	15.1	32.2	0.08	3	3.00
MC4550M-3-V4A	6,550	1,000,000	1,150	4,600	-3	15.1	32.2	0.08	3	3.00
MC4550M-4-V4A	6,550	1,000,000	3,900	15,600	-4	11.7	40.3	0.08	3	3.00
MC4575M-0-V4A	10,000	1,300,000	44	176	-0	11.7	40.3	0.11	2	3.51
MC4575M-1-V4A	10,000	1,300,000	150	600	-1	11.7	40.3	0.11	2	3.51
MC4575M-2-V4A	10,000	1,300,000	510	2,040	-2	11.7	40.3	0.11	2	3.51
MC4575M-3-V4A	10,000	1,300,000	1,370	6,920	-3	11.7	40.3	0.11	2	3.51
MC4575M-4-V4A	10,000	1,300,000	5,850	23,400	-4	11.7	40.3	0.11	2	3.51

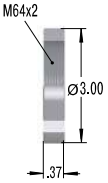
[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] For applications with higher side load angles please contact ACE.

Issue 04.2018 – Specifications subject to change

MC64M-V4A



250-0179
Locking Ring



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MC: Self-Contained with return spring, self-compensating
Special Models
MCA: Air/Oil return without return spring. Use only with external air/oil tank.
MCS: Air/Oil return with return spring. Use only with external air/oil tank.
MCN: Self-Contained without return spring

Ordering Example **MC6450M-2-V4A**

Self-Compensating
Thread Size M64
Stroke 0.97" (50 mm)
Effective Weight Range Version
Stainless Steel 1.4404/AISI 316L

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L1 inch	L2 inch	M
MC6450M-0-V4A	1.91	9.61	2.36	2.36	0.75	5.5	M64x2
MC64100M-0-V4A	3.91	13.59	2.36	2.36	0.75	7.5	M64x2

Performance

TYPES	Max. Energy Capacity E_3 in-lbs/cycle	Max. Energy Capacity E_4 in-lbs/h	Effective Weight [1] We min. lbs	Effective Weight [1] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	[2] Side Load Angle max. °	Weight lbs
MC6450M-0-V4A	16,550	1,300,000	308	1,190	-0	20.1	34.9	0.12	4	6.39
MC6450M-1-V4A	16,550	1,300,000	300	1,200	-1	20.1	34.9	0.12	4	6.39
MC6450M-2-V4A	16,550	1,300,000	1,020	4,080	-2	20.1	34.9	0.12	4	6.39
MC6450M-3-V4A	16,550	1,300,000	3,460	13,480	-3	20.1	34.9	0.12	4	6.39
MC6450M-4-V4A	16,550	1,300,000	11,700	46,800	-4	20.1	34.9	0.12	4	6.39
MC64100M-0-V4A	33,000	1,700,000	154	617	-0	23.5	61.0	0.34	3	8.16
MC64100M-1-V4A	33,000	1,700,000	600	2,400	-1	23.5	61.0	0.34	3	8.16
MC64100M-2-V4A	33,000	1,700,000	2,040	8,160	-2	23.5	61.0	0.34	3	8.16
MC64100M-3-V4A	33,000	1,700,000	6,920	27,680	-3	23.5	61.0	0.34	3	8.16
MC64100M-4-V4A	33,000	1,700,000	23,400	93,600	-4	23.5	61.0	0.34	3	8.16

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] For applications with higher side load angles please contact ACE.

Products for UNF and metric thread available

MC33-HT to MC64-HT

Extreme temperature and high cycle applications

Self-Compensating

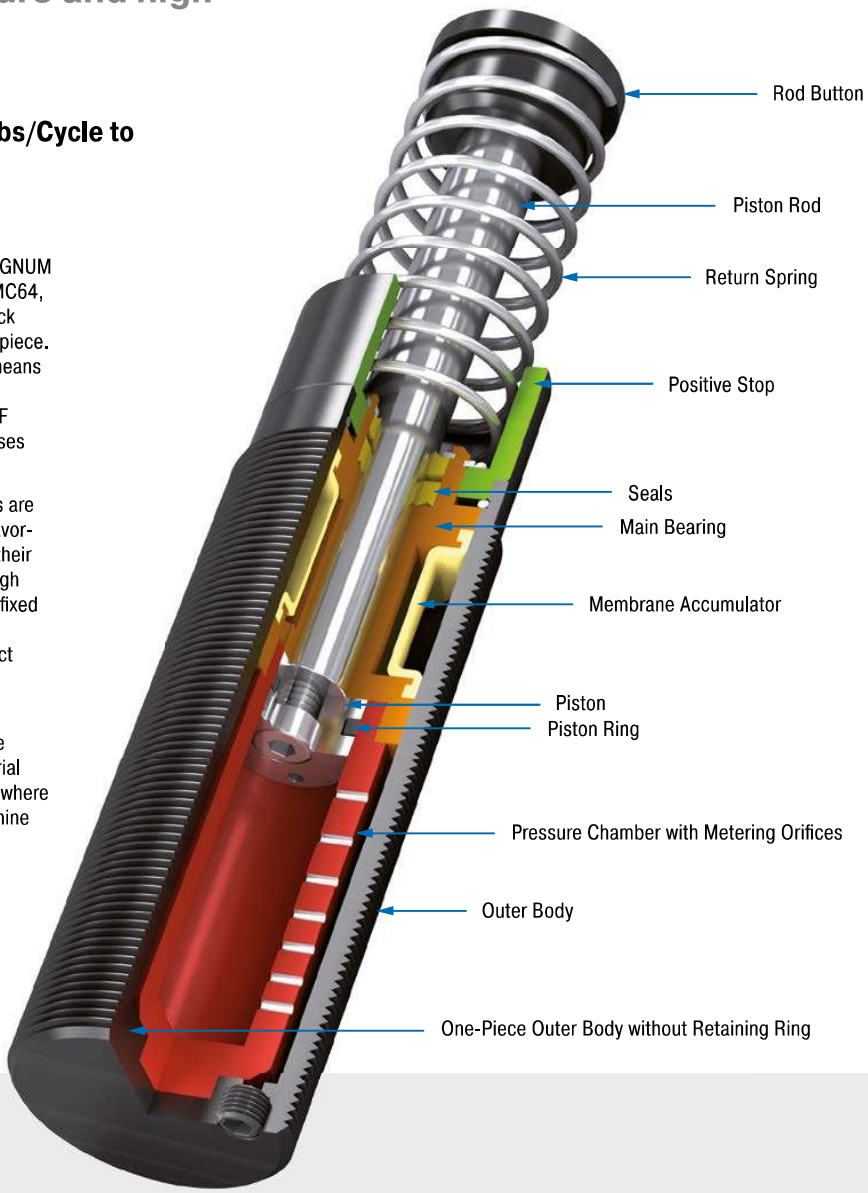
Energy capacity 1,505 in-lbs/Cycle to 33,000 in-lbs/Cycle

Stroke 0.91 in to 3.91 in

Greater application range: just like all MAGNUM types from the product family MC33 to MC64, the HT (high temperature) industrial shock absorbers are also made from one solid piece. They use special seals and fluids. This means that these versions can even be used at extreme temperatures of 32 °F to +302 °F in order to safely and reliably damp masses and absorb 100 % of the kinetic energy.

These ready-to-install machine elements are recommended even under the most unfavorable conditions. Additional benefits are their robust, innovative sealing technology, high energy absorption in a compact design, fixed positive stop and a wide damping range. Self-compensating shock absorbers react to changing energy conditions, without adjustment.

Designed for use in extreme temperature ranges, these self-compensating industrial shock absorbers are suitable almost anywhere in plant, industrial, automation and machine engineering.



Technical Data

Energy capacity: 1,505 in-lbs/Cycle to 33,000 in-lbs/Cycle

Impact velocity range: 0.5 ft/sec to 16.5 ft/sec. Other speeds on request.

Operating temperature range: 32 °F to 302 °F

Mounting: In any position

Positive stop: Integrated

Material: Outer body: Nitride hardened steel; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Return spring: Zinc plated or plastic-coated steel; Accessories: Steel with black oxide finish or nitride hardened

Damping medium: Synthetic high temperature oil

Application field: Linear slides, Swivel units, Turntables, Machines and plants, Tool machines, Machining centers, Z-axes

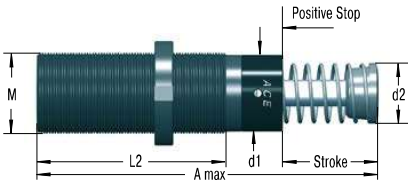
Note: A noise reduction of 3 dB to 7 dB is possible when using the special impact button.

Safety information: 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, increased corrosion protection, mounting inside air cylinders or other special options are available on request. Adjustable HT and LT shock absorbers.

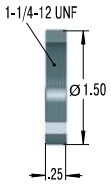
Issue 04.2018 – Specifications subject to change

MC33-HT

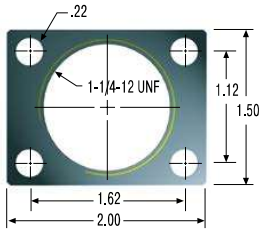


Product available for UNF and metric thread (for metric add suffix -M from part number)
M33x1.5, M36x1.5 and M42x1.5 also available to order

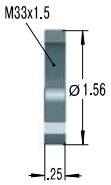
250-0038
Locking Ring



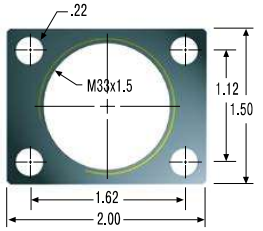
250-0016
Rectangular Flange



250-0292
Locking Ring



250-0293
Rectangular Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Complete details required when ordering

Load to be decelerated: W (lbs)
Impact velocity: v (ft/s)
Propelling force: F (lbs)
Operating cycles per hour: c (/hr)
Number of absorbers in parallel: n
Ambient temperature: °F

Ordering Example **MC3350M-2-HT**

Self-Compensating
33 for 1-1/4-12 UNF or M33 threads
Stroke 1.97" (50 mm)
Metric Thread
(omitted when using thread UNF 1-1/4-12)
Effective Weight Range Version
HT = Version for High Temperature Use

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MC3325-HT	0.91	5.44	1.15	1.00	3.25	1-1/4-12 UNF / M33x1.5
MC3350-HT	1.91	7.44	1.15	1.00	4.25	1-1/4-12 UNF / M33x1.5

Performance

	Max. Energy Capacity			Effective Weight				
TYPES	E_s in-lbs/cycle	E_4 at 68 °F in-lbs/h	E_4 at 212 °F in-lbs/h	[1] We min. lbs	[1] We max. lbs	Hardness	[2] Side Load Angle max. °	Weight lbs
MC3325-0-HT	1,505	1,902,909	725,760	6	24	-0	4	1.12
MC3325-1-HT	1,505	1,902,909	725,760	20	80	-1	4	1.12
MC3325-2-HT	1,505	1,902,909	725,760	68	272	-2	4	1.12
MC3325-3-HT	1,505	1,902,909	725,760	230	920	-3	4	1.12
MC3325-4-HT	1,505	1,902,909	725,760	780	3,120	-4	4	1.12
MC3350-0-HT	2,920	2,159,580	823,118	11	48	-0	3	1.39
MC3350-1-HT	2,920	2,159,580	823,118	40	160	-1	3	1.39
MC3350-2-HT	2,920	2,159,580	823,118	136	544	-2	3	1.39
MC3350-3-HT	2,920	2,159,580	823,118	460	1,840	-3	3	1.39
MC3350-4-HT	2,920	2,159,580	823,118	1,560	6,240	-4	3	1.39

[1] The effective weight range limits can be raised or lowered to special order.
[2] For applications with higher side load angles please contact ACE.

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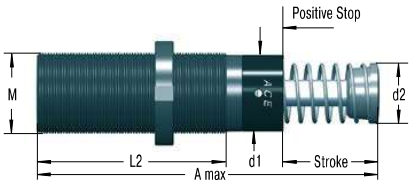
Industrial Shock Absorbers MC45-HT

Products for UNF and metric thread available

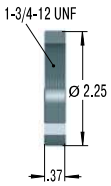
Self-Compensating

MC45-HT

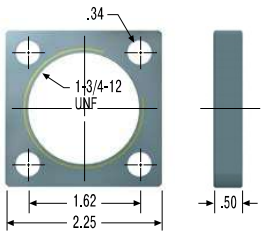


Product available for UNF and metric thread (for metric add suffix -M from part number)

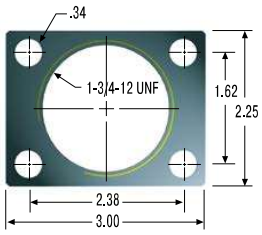
250-0041
Locking Ring



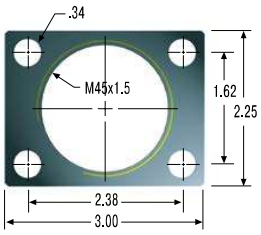
250-0023
Square Flange



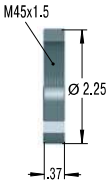
250-0024
Rectangular Flange



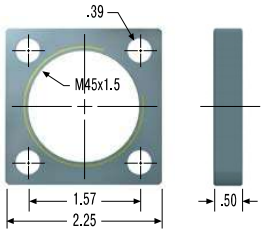
250-0299
Rectangular Flange



250-0297
Locking Ring



250-0298
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Complete details required when ordering

Load to be decelerated: W (lbs)
Impact velocity: v (ft/s)
Propelling force: F (lbs)
Operating cycles per hour: c (/hr)
Number of absorbers in parallel: n
Ambient temperature: °F

Ordering Example **MC4525M-2-HT**

- Self-Compensating
- 45 for 1-3/4-12 UNF or M45 threads
- Stroke 0.91" (25 mm)
- Metric Thread
- (omitted when using thread UNF 1-3/4-12)
- Effective Weight Range Version
- HT = Version for High Temperature Use

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MC4525-HT	0.91	5.69	1.65	1.38	3.72	1-3/4-12 UNF / M45x1.5
MC4550-HT	1.91	7.69	1.65	1.38	4.72	1-3/4-12 UNF / M45x1.5

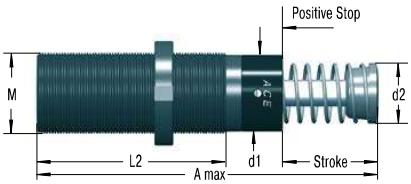
Performance

	Max. Energy Capacity			Effective Weight				
TYPES	E_3 in-lbs/cycle	E_4 at 68 °F in-lbs/h	E_4 at 212 °F in-lbs/h	[1] We min. lbs	[1] We max. lbs	Hardness	[2] Side Load Angle max. °	Weight lbs
MC4525-0-HT	3,275	2,717,177	1,035,536	15	59	-0	4	2.49
MC4525-1-HT	3,275	2,717,177	1,035,536	50	200	-1	4	2.49
MC4525-2-HT	3,275	2,717,177	1,035,536	170	680	-2	4	2.49
MC4525-3-HT	3,275	2,717,177	1,035,536	575	2,300	-3	4	2.49
MC4525-4-HT	3,275	2,717,177	1,035,536	1,950	7,800	-4	4	2.49
MC4550-0-HT	6,550	2,841,087	1,079,790	28	119	-0	3	3.00
MC4550-1-HT	6,550	2,841,087	1,079,790	100	400	-1	3	3.00
MC4550-2-HT	6,550	2,841,087	1,079,790	340	1,360	-2	3	3.00
MC4550-3-HT	6,550	2,841,087	1,079,790	1,150	4,600	-3	3	3.00
MC4550-4-HT	6,550	2,841,087	1,079,790	3,900	15,600	-4	3	3.00

[1] The effective weight range limits can be raised or lowered to special order.
[2] For applications with higher side load angles please contact ACE.

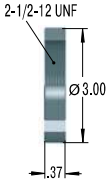
Issue 04.2018 – Specifications subject to change

MC64-HT

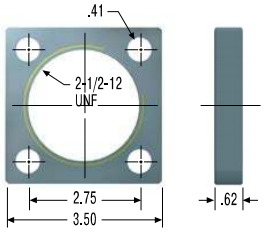


Product available for UNF and metric thread (for metric add suffix -M from part number)

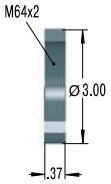
250-0042
Locking Ring



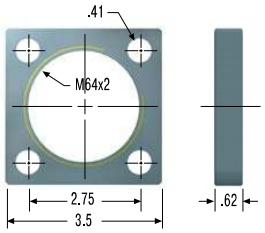
250-0028
Square Flange



250-0301
Locking Ring



250-0302
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Complete details required when ordering

Load to be decelerated: W (lbs)
Impact velocity: v (ft/s)
Propelling force: F (lbs)
Operating cycles per hour: c (/hr)
Number of absorbers in parallel: n
Ambient temperature: °F

Ordering Example **MC6450M-2-HT**

- Self-Compensating
- 64 for 2-1/2-12 UNF or M64 threads
- Stroke 1.91" (50 mm)
- Metric Thread
- (omitted when using thread UNF 2-1/2-12)
- Effective Weight Range Version
- HT = Version for High Temperature Use

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MC6450-HT	1.91	8.85	2.37	1.90	5.5	2-1/2-12 UNF / M64x2
MC64100-HT	3.91	12.85	2.37	1.90	7.5	2-1/2-12 UNF / M64x2

Performance

	Max. Energy Capacity			Effective Weight				
TYPES	E_s in-lbs/cycle	E_4 at 68 °F in-lbs/h	E_1 at 212 °F in-lbs/h	[1] We min. lbs	[1] We max. lbs	Hardness	[2] Side Load Angle max. °	Weight lbs
MC6450-0-HT	16,550	3,708,460	1,407,267	308	1,190	-0	4	6.39
MC6450-1-HT	16,550	3,708,460	1,407,267	300	1,200	-1	4	6.39
MC6450-2-HT	16,550	3,708,460	1,407,267	1,020	4,080	-2	4	6.39
MC6450-3-HT	16,550	3,708,460	1,407,267	3,460	13,480	-3	4	6.39
MC6450-4-HT	16,550	3,708,460	1,407,267	11,700	46,800	-4	4	6.39
MC64100-0-HT	33,000	4,867,907	1,770,148	154	617	-0	3	8.16
MC64100-1-HT	33,000	4,867,907	1,770,148	600	2,400	-1	3	8.16
MC64100-2-HT	33,000	4,867,907	1,770,148	2,040	8,160	-2	3	8.16
MC64100-3-HT	33,000	4,867,907	1,770,148	6,920	27,680	-3	3	8.16
MC64100-4-HT	33,000	4,867,907	1,770,148	23,400	93,600	-4	3	8.16

[1] The effective weight range limits can be raised or lowered to special order.
[2] For applications with higher side load angles please contact ACE.

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Products for UNF and metric thread available

MC33-LT to MC64-LT

Extreme temperature and high cycle applications

Self-Compensating

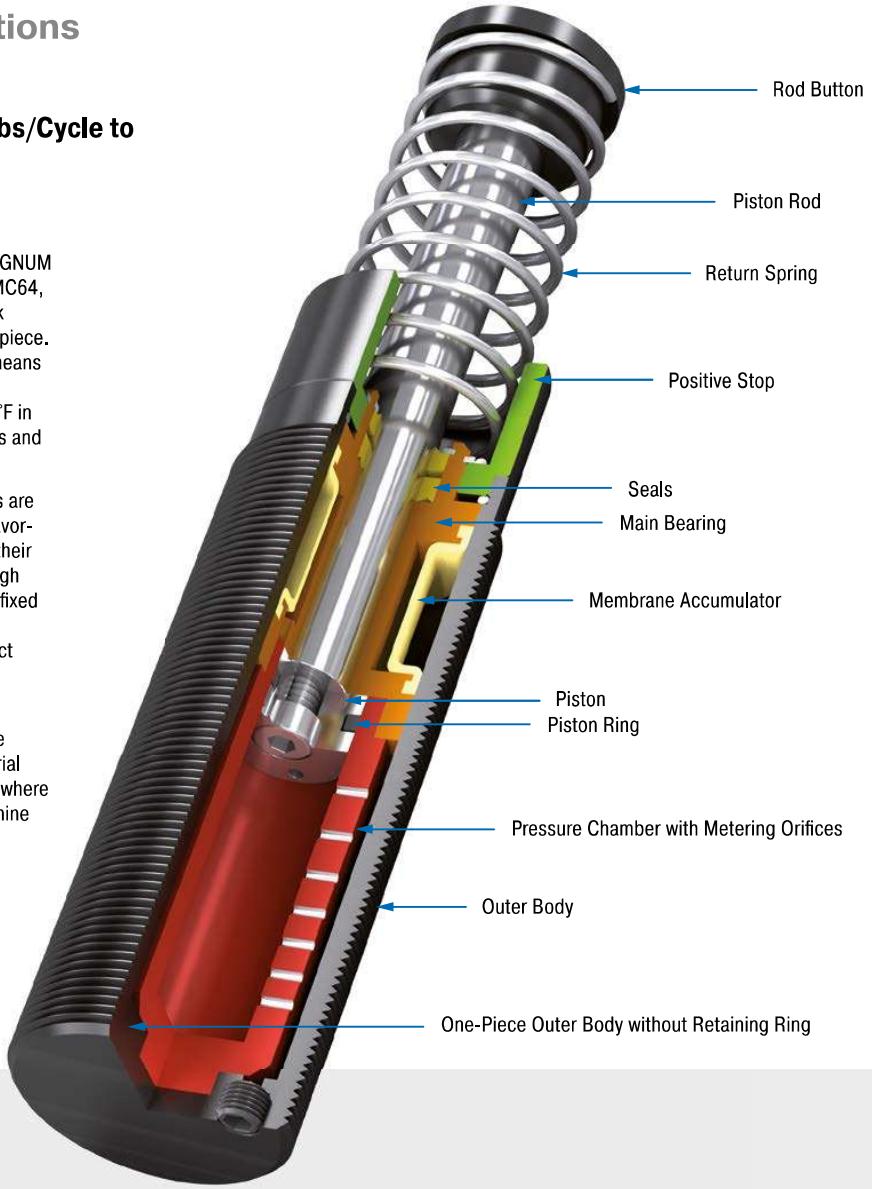
Energy capacity 1,505 in-lbs/Cycle to 50,000 in-lbs/Cycle

Stroke 0.91 in to 5.91 in

Greater application range: just like all MAGNUM types from the product family MC33 to MC64, the LT (low temperature) industrial shock absorbers are also made from one solid piece. They use special seals and fluids. This means that these versions can even be used at extreme temperatures of -58 °F to +151 °F in order to safely and reliable damp masses and absorb 100 % of the kinetic energy.

These ready-to-install machine elements are recommended even under the most unfavorable conditions. Additional benefits are their robust, innovative sealing technology, high energy absorption in a compact design, fixed positive stop and a wide damping range. Self-compensating shock absorbers react to changing energy conditions, without adjustment.

Designed for use in extreme temperature ranges, these self-compensating industrial shock absorbers are suitable almost anywhere in plant, industrial, automation and machine engineering.



Technical Data

Energy capacity: 1,505 in-lbs/Cycle to 50,000 in-lbs/Cycle

Impact velocity range: 0.5 ft/sec to 16.5 ft/sec. Other speeds on request.

Operating temperature range: -58 °F to 150 °F

Mounting: In any position

Positive stop: Integrated

Material: Outer body: Nitride hardened steel; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Return spring: Zinc plated or plastic-coated steel; Accessories: Steel with black oxide finish or nitride hardened

Damping medium: Low temperature hydraulic oil

Application field: Linear slides, Swivel units, Turntables, Machines and plants, Tool machines, Machining centers, Z-axes

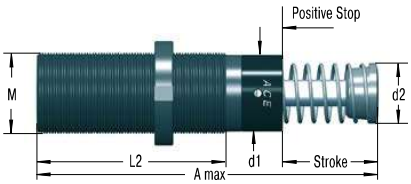
Note: A noise reduction of 3 dB to 7 dB is possible when using the special impact button.

Safety information: 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, increased corrosion protection, mounting inside air cylinders or other special options are available on request. Adjustable HT and LT shock absorbers.

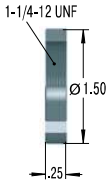
Issue 04.2018 – Specifications subject to change

MC33-LT

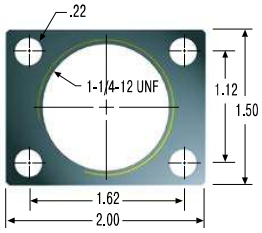


Product available for UNF and metric thread (for metric add suffix -M from part number)
M33x1.5, M36x1.5 and M42x1.5 also available to order

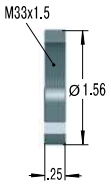
250-0038
Locking Ring



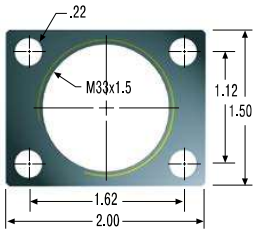
250-0016
Rectangular Flange



250-0292
Locking Ring



250-0293
Rectangular Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Complete details required when ordering

Load to be decelerated: W (lbs)
Impact velocity: v (ft/s)
Propelling force: F (lbs)
Operating cycles per hour: c (/hr)
Number of absorbers in parallel: n
Ambient temperature: °F

Ordering Example **MC3325M-3-LT**

Self-Compensating
33 for 1-1/4-12 UNF or M33 threads
Stroke 0.91" (25 mm)
Metric Thread
(omitted when using thread UNF 1-1/4-12)
Effective Weight Range Version
LT = Version for High Temperature Use

Dimensions

TYPES	Stroke **inch**	A max. **inch**	d1 **inch**	d2 **inch**	L2 **inch**	M
MC3325-LT	0.91	5.44	1.15	1.00	3.25	1-1/4-12 UNF / M33x1.5
MC3350-LT	1.91	7.44	1.15	1.00	4.25	1-1/4-12 UNF / M33x1.5

Performance

	Max. Energy Capacity		Effective Weight					
TYPES	E_3 **in-lbs/cycle**	E_4 **in-lbs/h**	[1] We min. **lbs**	[1] We max. **lbs**	Hardness	[2] Return Time **s**	[3] Side Load Angle max. **°**	Weight **lbs**
MC3325-0-LT	1,505	670,000	6	24	-0	0.08	4	1.12
MC3325-1-LT	1,505	670,000	20	80	-1	0.08	4	1.12
MC3325-2-LT	1,505	670,000	68	272	-2	0.08	4	1.12
MC3325-3-LT	1,505	670,000	230	920	-3	0.08	4	1.12
MC3325-4-LT	1,505	670,000	780	3,120	-4	0.08	4	1.12
MC3350-0-LT	2,920	760,000	11	48	-0	0.16	3	1.39
MC3350-1-LT	2,920	760,000	40	160	-1	0.16	3	1.39
MC3350-2-LT	2,920	760,000	136	544	-2	0.16	3	1.39
MC3350-3-LT	2,920	760,000	460	1,840	-3	0.16	3	1.39
MC3350-4-LT	2,920	760,000	1,560	6,240	-4	0.16	3	1.39

[1] The effective weight range limits can be raised or lowered to special order.
[2] at -58 °F
[3] For applications with higher side load angles please contact ACE.

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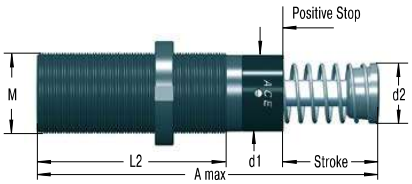
Industrial Shock Absorbers MC45-LT

Products for UNF and metric thread available

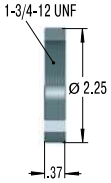
Self-Compensating

MC45-LT

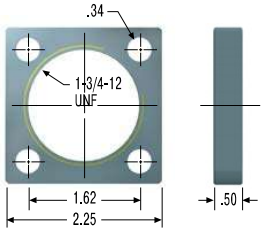


Product available for UNF and metric thread (for metric add suffix -M from part number)

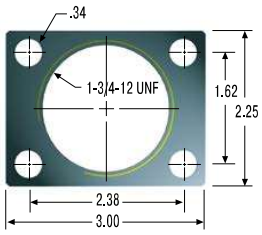
250-0041
Locking Ring



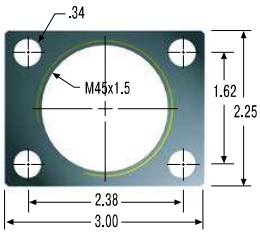
250-0023
Square Flange



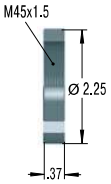
250-0024
Rectangular Flange



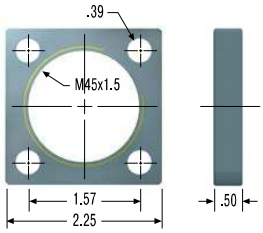
250-0299
Rectangular Flange



250-0297
Locking Ring



250-0298
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Complete details required when ordering

Load to be decelerated: W (lbs)
Impact velocity: v (ft/s)
Propelling force: F (lbs)
Operating cycles per hour: c (/hr)
Number of absorbers in parallel: n
Ambient temperature: °F

Ordering Example **MC4525M-3-LT**

Self-Compensating
45 for 1-3/4-12 UNF or M45 threads
Stroke 0.91" (25 mm)
Metric Thread
(omitted when using thread UNF 1-3/4-12)
Effective Weight Range Version
LT = Version for High Temperature Use

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MC4525-LT	0.91	5.69	1.65	1.38	3.72	1-3/4-12 UNF / M45x1.5
MC4550-LT	1.91	7.69	1.65	1.38	4.72	1-3/4-12 UNF / M45x1.5
MC4575-LT	2.91	9.69	1.65	1.38	5.72	1-3/4-12 UNF / M45x1.5

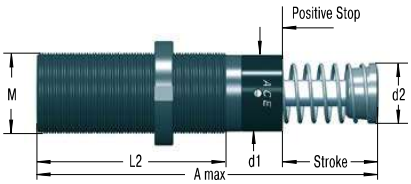
Performance

	Max. Energy Capacity		Effective Weight					
TYPES	E_3 in-lbs/cycle	E_4 in-lbs/h	[1] We min. lbs	[1] We max. lbs	Hardness	[2] Return Time s	[3] Side Load Angle max. °	Weight lbs
MC4525-0-LT	3,275	950,000	15	59	-0	0.08	4	2.49
MC4525-1-LT	3,275	950,000	50	200	-1	0.08	4	2.49
MC4525-2-LT	3,275	950,000	170	680	-2	0.08	4	2.49
MC4525-3-LT	3,275	950,000	575	2,300	-3	0.08	4	2.49
MC4525-4-LT	3,275	950,000	1,950	7,800	-4	0.08	4	2.49
MC4550-0-LT	6,550	1,000,000	28	119	-0	0.16	3	3.00
MC4550-1-LT	6,550	1,000,000	100	400	-1	0.16	3	3.00
MC4550-2-LT	6,550	1,000,000	340	1,360	-2	0.16	3	3.00
MC4550-3-LT	6,550	1,000,000	1,150	4,600	-3	0.16	3	3.00
MC4550-4-LT	6,550	1,000,000	3,900	15,600	-4	0.16	3	3.00
MC4575-0-LT	10,000	1,300,000	44	176	-0	0.24	2	3.51
MC4575-1-LT	10,000	1,300,000	150	600	-1	0.24	2	3.51
MC4575-2-LT	10,000	1,300,000	510	2,040	-2	0.24	2	3.51
MC4575-3-LT	10,000	1,300,000	1,370	6,920	-3	0.24	2	3.51
MC4575-4-LT	10,000	1,300,000	5,850	23,400	-4	0.24	2	3.51

[1] The effective weight range limits can be raised or lowered to special order.
[2] at -58 °F
[3] For applications with higher side load angles please contact ACE.

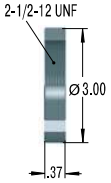
Issue 04.2018 – Specifications subject to change

MC64-LT

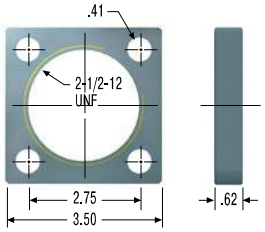


Product available for UNF and metric thread (for metric add suffix -M from part number)
5.91" stroke model does not include stop collar.
Positive stop is provided by the rod button (Ø 2.36") and a stop block.

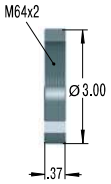
250-0042
Locking Ring



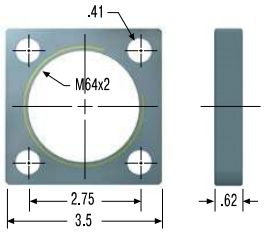
250-0028
Square Flange



250-0301
Locking Ring



250-0302
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Complete details required when ordering

Load to be decelerated: W (lbs)
Impact velocity: v (ft/s)
Propelling force: F (lbs)
Operating cycles per hour: c (/hr)
Number of absorbers in parallel: n
Ambient temperature: °F

Ordering Example **MC6450M-3-LT**

Self-Compensating
64 for 2-1/2-12 UNF or M64 threads
Stroke 1.91" (50 mm)
Metric Thread
(omitted when using thread UNF 2-1/2-12)
Effective Weight Range Version
LT = Version for High Temperature Use

Dimensions

TYPES	Stroke **inch**	A max. **inch**	d1 **inch**	d2 **inch**	L2 **inch**	M
MC6450-LT	1.91	8.85	2.37	1.90	5.5	2-1/2-12 UNF / M64x2
MC64100-LT	3.91	12.85	2.37	1.90	7.5	2-1/2-12 UNF / M64x2
MC64150-LT	5.91	17.73	2.37	1.90	9.5	2-1/2-12 UNF / M64x2

Performance

	Max. Energy Capacity		Effective Weight					
	E_2	E_4	[1] We min.	[1] We max.	Hardness	[2] Return Time	[3] Side Load Angle max.	Weight
TYPES	**in-lbs/cycle**	**in-lbs/h**	**lbs**	**lbs**		**s**	°	**lbs**
MC6450-0-LT	16,551	1,300,000	308	1,190	-0	0.24	4	6.39
MC6450-1-LT	16,551	1,300,000	300	1,200	-1	0.24	4	6.39
MC6450-2-LT	16,551	1,300,000	1,020	4,080	-2	0.24	4	6.39
MC6450-3-LT	16,551	1,300,000	3,460	13,480	-3	0.24	4	6.39
MC6450-4-LT	16,551	1,300,000	11,700	46,800	-4	0.24	4	6.39
MC64100-0-LT	33,013	1,700,000	154	617	-0	0.68	3	8.16
MC64100-1-LT	33,013	1,700,000	600	2,400	-1	0.60	3	8.16
MC64100-2-LT	33,013	1,700,000	2,040	8,160	-2	0.68	3	8.16
MC64100-3-LT	33,013	1,700,000	6,920	27,680	-3	0.68	3	8.16
MC64100-4-LT	33,013	1,700,000	23,400	93,600	-4	0.68	3	8.16
MC64150-0-LT	50,007	2,200,000	220	1,014	-0	0.96	2	11.25
MC64150-1-LT	50,007	2,200,000	900	3,600	-1	0.96	2	11.25
MC64150-2-LT	50,007	2,200,000	3,060	12,240	-2	0.96	2	11.25
MC64150-3-LT	50,007	2,200,000	10,380	41,520	-3	0.96	2	11.25
MC64150-4-LT	50,007	2,200,000	35,100	140,400	-4	0.96	2	11.25

[1] The effective weight range limits can be raised or lowered to special order.
[2] at -58 °F
[3] For applications with higher side load angles please contact ACE.

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Products for UNF and metric thread available

SC33 to SC45

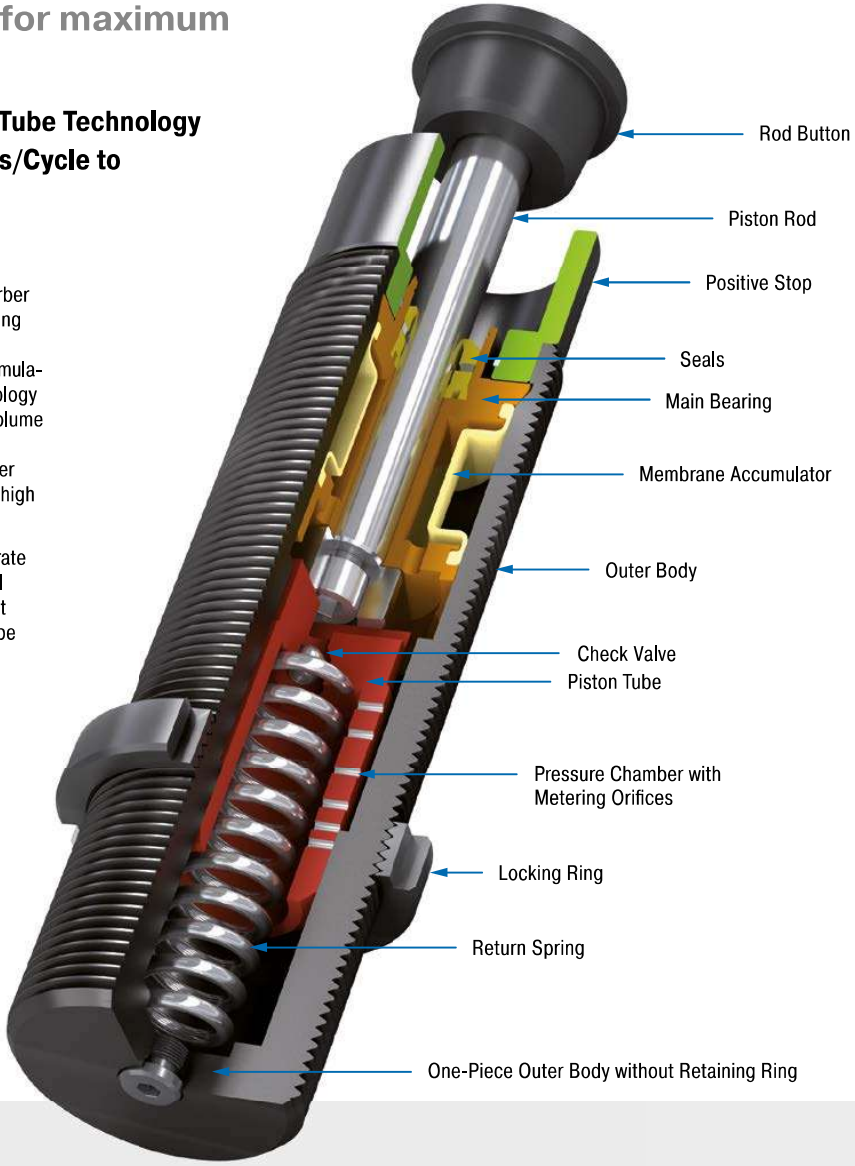
Piston tube design for maximum energy absorption

Self-Compensating, Piston Tube Technology
Energy capacity 1,372 In-lbs/Cycle to 6,019 in-lbs/Cycle
Stroke 0.91 in to 1.91 in

True performers: The SC33 to SC45 absorber models are strong and durable by combining the proven sealing technology from the MAGNUM range including membrane accumulator with the well-known piston tube technology from the SC² family. We increase the oil volume to ensure the maximum effective weights. Short stroke lengths of .98" to 1.96" deliver shorter braking times in combination with high energy absorption.

These dampers safely and reliably decelerate rotary movements without unwanted recoil effects. Installation close to the pivot point is possible. ACE's generation of piston tube manage low impact speeds with ease. Self-compensating shock absorbers react to changing energy conditions, without adjustment.

These self-compensating industrial shock absorbers can be relied on in industrial, automation and machine engineering. They are used in pivot units, rotary tables, robot arms or integrated wherever decleration is needed.



Technical Data

Energy capacity: 1,372 In-lbs/Cycle to 6,019 in-lbs/Cycle

Impact velocity range: 0.66 ft/sec to 1.51 ft/sec. Other speeds on request.

Operating temperature range: 10 °F to 150 °F. Other temperatures on request.

Mounting: In any position

Positive stop: Integrated

Material: Outer body: Nitride hardened steel; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Accessories: Steel with black oxide finish or nitride hardened

Damping medium: Low temperature hydraulic oil

Application field: Turntables, Swivel units, Robot arms, Linear slides, Pneumatic cylinders, Handling modules, Machines and plants, Finishing and processing centers

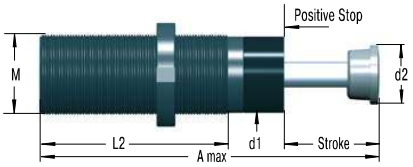
Note: A noise reduction of 3 dB to 7 dB is possible when using the special impact button.

Safety information: 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: Special oils, mounting inside air cylinders or other special options are available on request.

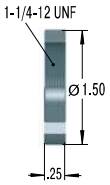
Issue 04.2018 – Specifications subject to change

SC33

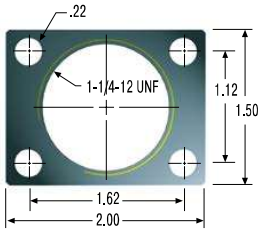


Product available for UNF and metric thread (for metric add suffix -M from part number)

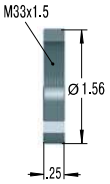
250-0038
Locking Ring



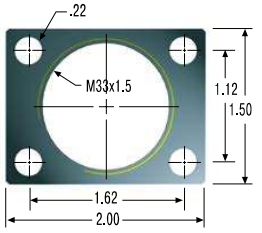
250-0016
Rectangular Flange



250-0292
Locking Ring



250-0293
Rectangular Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Ordering Example **SC3325M-5**

- Self-Compensating
- 33 for 1-1/4-12 UNF or M33 threads
- Stroke 0.98" (25 mm)
- Metric Thread
- (omitted when using thread UNF 1 1/4-12)
- Effective Weight Range Version

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
SC3325	0.91	7.01	1.18	1.00	4.80	1-1/4-12 UNF / M33x1.5
SC3350	1.91	10.00	1.18	1.00	6.81	1-1/4-12 UNF / M33x1.5

Performance

	Max. Energy Capacity		Effective Weight							
TYPES	E_3 in-lbs/cycle	E_4 in-lbs/h	[1] We min. lbs	[1] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	[2] Side Load Angle max. °	Weight lbs
SC3325-5	1,372	663,806	2,998	5,999	-5	9.89	20.01	0.75	4	1.50
SC3325-6	1,372	663,806	5,512	12,000	-6	9.89	20.01	0.75	4	1.50
SC3325-7	1,372	663,806	10,999	19,698	-7	9.89	20.01	0.75	4	1.50
SC3325-8	1,372	663,806	18,999	29,998	-8	9.89	20.01	0.75	4	1.50
SC3350-5	2,744	752,313	5,999	11,001	-5	11.47	28.10	0.90	3	2.03
SC3350-6	2,744	752,313	10,000	22,002	-6	11.47	28.10	0.90	3	2.03

[1] The effective weight range limits can be raised or lowered to special order.
[2] For applications with higher side load angles please contact ACE.

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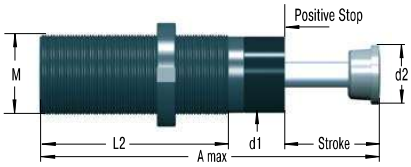
Industrial Shock Absorbers SC45

Self-Compensating, Piston Tube Technology

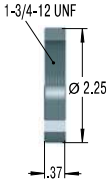
Products for UNF and metric thread available

SC45

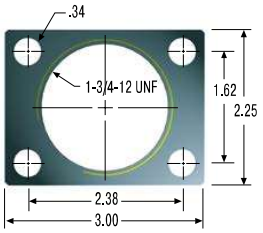


Product available for UNF and metric thread
(for metric add suffix -M from part number)

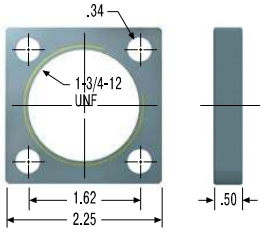
250-0041
Locking Ring



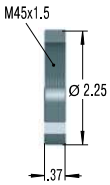
250-0024
Rectangular Flange



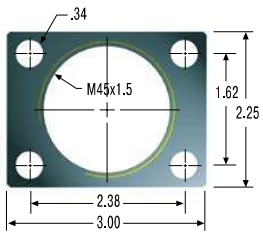
250-0023
Square Flange



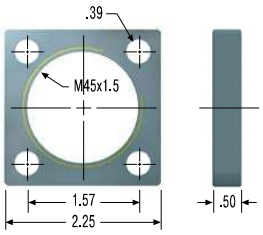
250-0297
Locking Ring



250-0299
Rectangular Flange



250-0298
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Ordering Example **SC4525M-5**

- Self-Compensating
- 45 for 1 3/4-12 UNF or M45 threads
- Stroke 0.98" (25 mm)
- Metric Thread
- (omitted when using thread UNF 1 3/4-12)
- Effective Weight Range Version

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
SC4525	0.91	7.44	1.65	1.38	5.47	1-3/4-12 UNF / M45x1.5
SC4550	1.91	10.43	1.65	1.38	7.48	1-3/4-12 UNF / M45x1.5

Performance

	Max. Energy Capacity		Effective Weight							
TYPES	E_3 in-lbs/cycle	E_4 in-lbs/h	[1] We min. lbs	[1] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	[2] Side Load Angle max. °	Weight lbs
SC4525-5	3,009	947,029	7,496	14,991	-5	15.06	23.38	0.8	4	3.15
SC4525-6	3,009	947,029	13,999	29,983	-6	15.06	23.38	0.8	4	3.15
SC4525-7	3,009	947,029	27,999	49,999	-7	15.06	23.38	0.8	4	3.15
SC4525-8	3,009	947,029	44,998	85,980	-8	15.06	23.38	0.8	4	3.15
SC4550-5	6,019	991,283	14,991	26,998	-5	10.57	54.40	1.0	3	4.19
SC4550-6	6,019	991,283	25,992	59,498	-6	10.57	54.40	1.0	3	4.19
SC4550-7	6,019	991,283	56,998	97,499	-7	10.57	54.40	1.0	3	4.19

[1] The effective weight range limits can be raised or lowered to special order.
[2] For applications with higher side load angles please contact ACE.

Issue 04.2018 – Specifications subject to change

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MA/ML33 to MA/ML64

High energy absorption and progressive adjustment

Adjustable

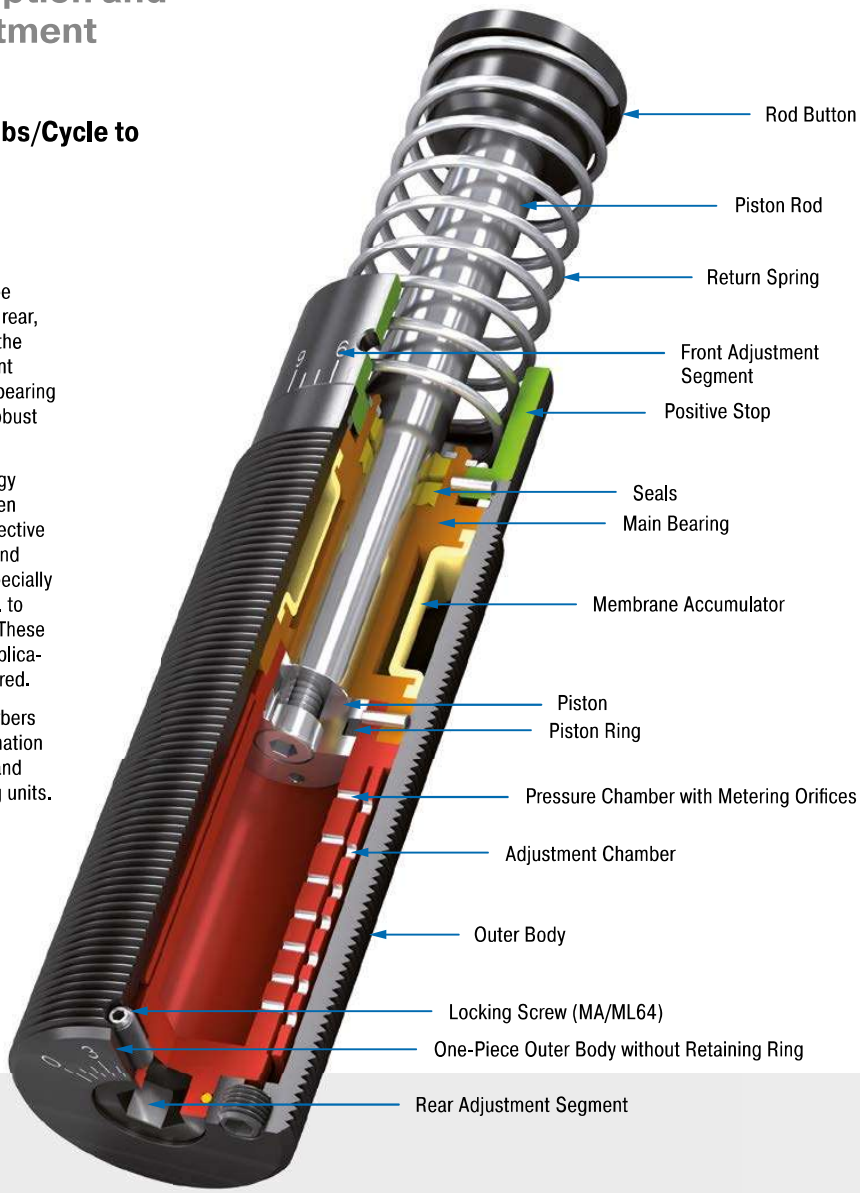
Energy capacity 1,505 in-lbs/Cycle to 60,008 in-lbs/Cycle

Stroke 0.91 in to 5.91 in

Adjustable and unique: These industrial shock absorbers from ACE, which can be precisely adjusted both at the front and rear, also contribute towards the success of the MAGNUM range. Equipped with excellent sealing technology, an annealed guide bearing and integrated positive stop, they are robust and durable.

These dampers absorb 50 % more energy than their predecessors but are built even more compactly. The larger range of effective loads also opens up options in design and assembly. This makes the ML range especially suitable for effective weights of 661 lbs. to 1,102,311 lbs. (300 kg to 500,000 kg). These shocks are the best option wherever application data changes and flexibility is required.

These adjustable industrial shock absorbers are used in all areas of industrial, automation and machine engineering, for gantries and integrated in linear carriages or pivoting units.



Technical Data

Energy capacity: 1,505 in-lbs/Cycle to 60,008 in-lbs/Cycle

Impact velocity range: MA: 0.5 ft/sec to 16.5 ft/sec. ML: 0.06 ft/sec to 1.5 ft/sec. Other speeds on request.

Operating temperature range: 10 °F to 150 °F. Other temperatures on request.

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: Nitride hardened steel; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Return spring: Zinc plated or plastic-coated steel; Accessories: Steel with black oxide finish or nitride hardened

Damping medium: Automatic Transmission Fluid (ATF)

Application field: Linear slides, Swivel units, Turntables, Portal systems, Machines and plants, Tool machines, Machining centers, Z-axes, Impact panels, Handling modules

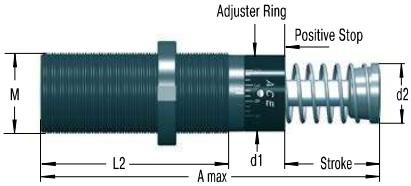
Note: A noise reduction of 3 dB to 7 dB is possible when using the special impact button. For emergency use only applications and for continous use (with additional cooling) it is sometimes possible to exceed the published max. capacity ratings. In this case, please consult ACE.

Safety information: 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: Special oils, nickel-plated, increased corrosion protection, mounting inside air cylinders or other special options are available on request.

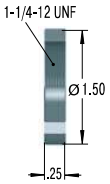
Issue 04.2018 – Specifications subject to change

MA/ML33

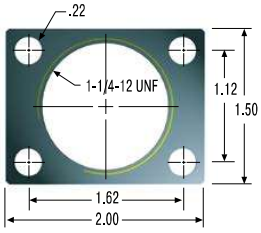


Product available for UNF and metric thread (for metric add suffix -M from part number)

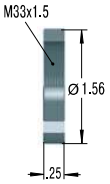
250-0038
Locking Ring



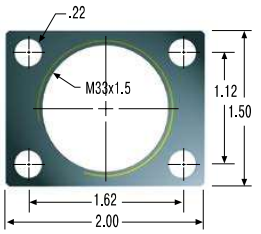
250-0016
Rectangular Flange



250-0292
Locking Ring



250-0293
Rectangular Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MA: Self-Contained with return spring, adjustable
ML: Self-Contained with return spring, adjustable, for lower impact velocity

Special Models
MAA, MLA: Air/Oil return without return spring. Use only with external air/oil tank.
MAS, MLS: Air/Oil Return with return spring. Use only with external air/oil tank.
MAN, MLN: Self-Contained without return spring

Ordering Example **MA/ML3325M**

Adjustable
33 for 1-1/4-12 UNF or M33 threads
Stroke 0.98" (25 mm)
Metric Thread
(omitted when using thread UNF 1 1/4-12)

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MA3325	0.91	5.44	1.15	1.00	3.25	1-1/4-12 UNF / M33x1.5
ML3325	0.91	5.44	1.15	1.00	3.25	1-1/4-12 UNF / M33x1.5
MA3350	1.91	7.44	1.15	1.00	4.25	1-1/4-12 UNF / M33x1.5
ML3350	1.91	7.44	1.15	1.00	4.25	1-1/4-12 UNF / M33x1.5

Performance

	Max. Energy Capacity				Effective Weight						
TYPES	[1] E_3 in-lbs/cycle	E_4 in-lbs/h	E_4 with Air/Oil Tank in-lbs/h	E_4 with Oil Recirculation in-lbs/h	[2] We min. lbs	[2] We max. lbs	Return Force min. lbs	Return Force max. lbs	Return Time s	[3] Side Load Angle max. °	Weight lbs
MA3325	1,900	670,000	1,100,000	1,500,000	20	3,800	10.3	19.8	0.03	4	0.99
ML3325	1,900	670,000	1,100,000	1,500,000	661	110,231	10.3	19.8	0.03	4	0.99
MA3350	3,800	760,000	1,200,000	1,600,000	28	5,400	9.9	30.3	0.06	3	1.19
ML3350	3,800	760,000	1,200,000	1,600,000	1,102	176,370	9.9	30.3	0.06	3	1.19

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] The effective weight range limits can be raised or lowered to special order.
[3] For applications with higher side load angles please contact ACE.

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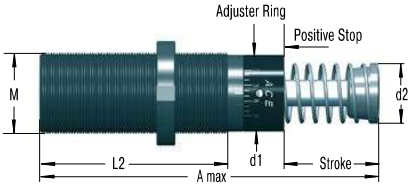
Industrial Shock Absorbers MA/ML45

Products for UNF and metric thread available

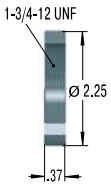
Adjustable

MA/ML45

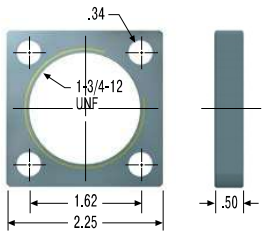


Product available for UNF and metric thread (for metric add suffix -M from part number)

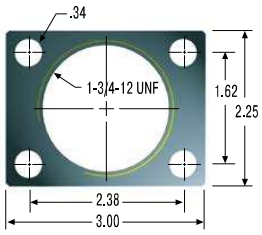
250-0041
Locking Ring



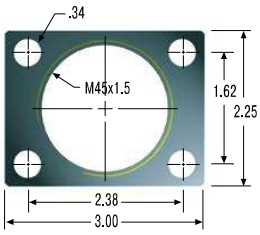
250-0023
Square Flange



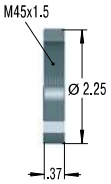
250-0024
Rectangular Flange



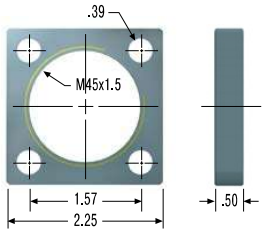
250-0299
Rectangular Flange



250-0297
Locking Ring



250-0298
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MA: Self-Contained with return spring, adjustable
ML: Self-Contained with return spring, adjustable, for lower impact velocity
Special Models
MAA, MLA: Air/Oil return without return spring. Use only with external air/oil tank.
MAS, MLS: Air/Oil Return with return spring. Use only with external air/oil tank.
MAN, MLN: Self-Contained without return spring

Ordering Example **MA/ML4525M**

Adjustable
45 for 1-3/4-12 UNF or M45 threads
Stroke 0.98" (25 mm)
Metric Thread
(omitted when using thread UNF 1-3/4-12)

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
MA4525	0.91	5.69	1.65	1.38	3.72	1-3/4-12 UNF / M45x1.5
ML4525	0.91	5.69	1.65	1.38	3.72	1-3/4-12 UNF / M45x1.5
MA4550	1.91	7.69	1.65	1.38	4.72	1-3/4-12 UNF / M45x1.5
ML4550	1.91	7.69	1.65	1.38	4.72	1-3/4-12 UNF / M45x1.5
MA4575	2.91	9.69	1.65	1.38	5.72	1-3/4-12 UNF / M45x1.5

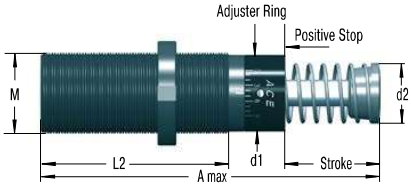
Performance

	Max. Energy Capacity				Effective Weight						
TYPES	[1] E_3 in-lbs/cycle	E_4 in-lbs/h	E_4 with Air/Oil Tank in-lbs/h	E_4 with Oil Recirculation in-lbs/h	[2] We min. lbs	[2] We max. lbs	Return Force min. lbs	Return Force max. lbs	Return Time s	[3] Side Load Angle max. °	Weight lbs
MA4525	3,762	950,000	1,400,000	1,700,000	95	22,000	15.1	22.8	0.03	4	2.49
ML4525	3,762	950,000	1,400,000	1,700,000	6,614	242,508	15.1	32.2	0.03	4	2.49
MA4550	7,523	1,000,000	1,700,000	2,200,000	150	32,000	15.1	32.2	0.08	3	3.00
ML4550	7,523	1,000,000	1,700,000	2,200,000	11,023	396,832	15.1	32.2	0.08	3	3.00
MA4575	11,506	1,300,000	2,000,000	2,500,000	155	33,000	11.7	40.3	0.11	2	3.51

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] The effective weight range limits can be raised or lowered to special order.
[3] For applications with higher side load angles please contact ACE.

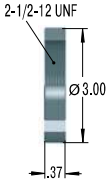
Issue 04.2018 – Specifications subject to change

MA/ML64

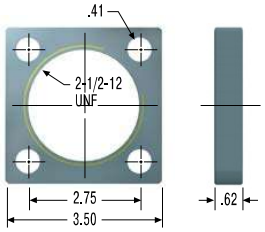


Product available for UNF and metric thread (for metric add suffix -M from part number)
5.91" stroke model does not include stop collar.
Positive stop is provided by the rod button (Ø 2.36") and a stop block.

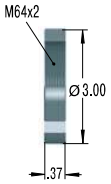
250-0042
Locking Ring



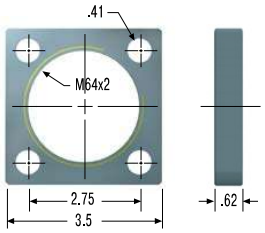
250-0028
Square Flange



250-0301
Locking Ring



250-0302
Square Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
MA: Self-Contained with return spring, adjustable
ML: Self-Contained with return spring, adjustable, for lower impact velocity
Special Models
MAA, MLA: Air/Oil return without return spring. Use only with external air/oil tank.
MAS, MLS: Air/Oil Return with return spring. Use only with external air/oil tank.
MAN, MLN: Self-Contained without return spring

Ordering Example **MA/ML6450M**

Adjustable
64 for 2-1/2-12 UNF or M64 threads
Stroke 1.97" (50 mm)
Metric Thread
(omitted when using thread UNF 2-1/2-12)

Dimensions

TYPES	Stroke inch	A max. inch	d1 inch	d2 inch	L2 inch	M
ML6425	0.91	6.85	2.37	1.90	4.5	2-1/2-12 UNF / M64x2
MA6450	1.91	8.85	2.37	1.90	5.5	2-1/2-12 UNF / M64x2
ML6450	1.91	8.85	2.37	1.90	5.5	2-1/2-12 UNF / M64x2
MA64100	3.91	12.85	2.37	1.90	7.5	2-1/2-12 UNF / M64x2
MA64150	5.91	17.73	2.37	1.90	9.5	2-1/2-12 UNF / M64x2

Performance

	Max. Energy Capacity				Effective Weight						
TYPES	[1] E_3 in-lbs/cycle	E_4 in-lbs/h	E_4 with Air/Oil Tank in-lbs/h	E_4 with Oil Recirculation in-lbs/h	[2] We min. lbs	[2] We max. lbs	Return Force min. lbs	Return Force max. lbs	Return Time s	[3] Side Load Angle max. °	Weight lbs
ML6425	10,046	1,100,000	2,200,000	2,900,000	15,432	661,386	26.7	34.9	0.06	5	5.51
MA6450	20,135	1,300,000	2,600,000	3,400,000	480	110,000	20.1	34.9	0.12	4	6.39
ML6450	20,135	1,300,000	2,600,000	3,400,000	24,250	1,102,310	20.1	34.9	0.12	4	6.39
MA64100	40,005	1,700,000	3,400,000	4,400,000	600	115,000	23.5	61.0	0.34	3	8.16
MA64150	60,008	2,200,000	4,400,000	5,700,000	730	175,000	16.9	82.0	0.48	2	11.25

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] The effective weight range limits can be raised or lowered to special order.
[3] For applications with higher side load angles please contact ACE.

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SASL1 1/8

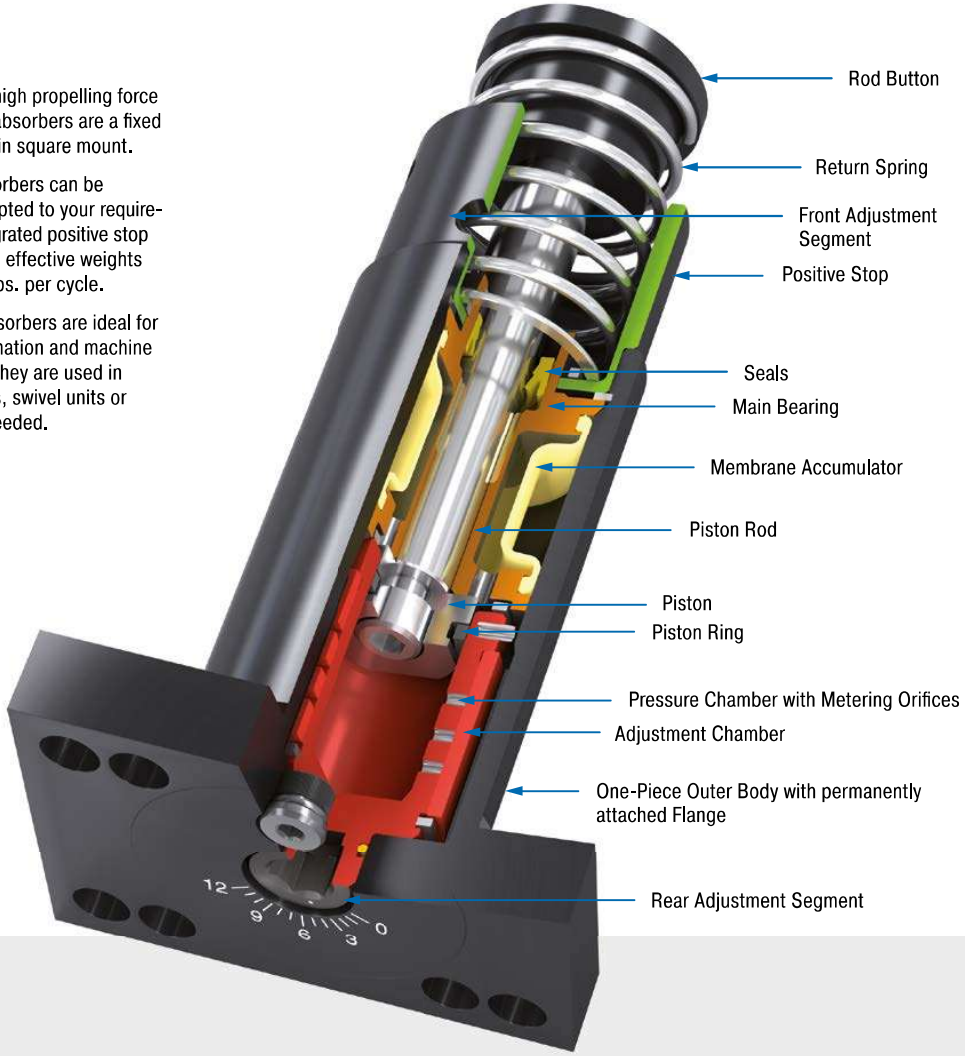
Low velocity and high effective weight range

Adjustable
Energy capacity 8,000 in-lbs/Cycle to 16,000 in-lbs/Cycle
Stroke 1 in to 2 in

Designed for low velocity, high propelling force applications, SASL shock absorbers are a fixed flange product with a built-in square mount.

SASL industrial shock absorbers can be adjusted and precisely adapted to your requirements; they feature an integrated positive stop and are designed to handle effective weights from 16,000 to 48,000 in-lbs. per cycle.

These adjustable shock absorbers are ideal for all areas of industrial automation and machine engineering applications. They are used in linear slides, tool machines, swivel units or wherever deceleration is needed.



Technical Data

Energy capacity: 8,000 in-lbs/Cycle to 16,000 in-lbs/Cycle

Impact velocity range: 0.25 ft/sec to 2 ft/sec

Operating temperature range: 10 °F to 150 °F

Positive stop: Integrated

Material: Outer body: Nitride hardened steel; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Return spring: Zinc plated or plastic-coated steel

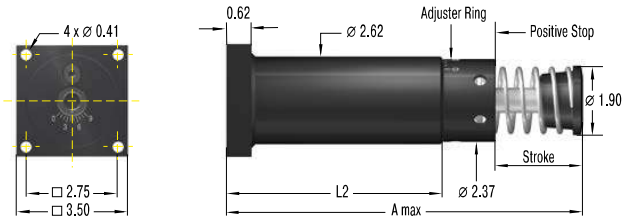
Damping medium: Automatic Transmission Fluid (ATF)

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

Safety information: 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.

Issue 04.2018 – Specifications subject to change

SASL1 1/8-R Rear Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

SASL: Internal accumulator, spring return
ASLA: Internal accumulator, mechanical return
ASLS: External accumulator, spring return
ASL: External accumulator, air or mechanical return

Ordering Example

SASL11/8x1-R

Adjustable
Bore 1 1/8" (28.5 mm)
Stroke 1" (25 mm)
Rear Flange

Dimensions

TYPES	Stroke **inch**	A max. **inch**	L2 **inch**
SASL11/8X1-R	0.91	6.88	3.94
SASL11/8X2-R	1.91	8.85	4.88

Performance

	Max. Energy Capacity			Effective Weight		
TYPES	E_3 **in-lbs/cycle**	E_4 **in-lbs/h**	E_4 with Air/Oil Tank **in-lbs/h**	[1] We min. **lbs**	[1] We max. **lbs**	Weight **lbs**
SASL11/8X1-R	8,000	1,250,000	2,500,000	700	700,000	8.10
SASL11/8X2-R	16,000	1,500,000	3,000,000	850	1,300,000	9.20

[1] The effective weight range limits can be raised or lowered to special order.

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SALD1/2 to SALD1 1/8

High energy absorption and a wide effective weight range

Adjustable

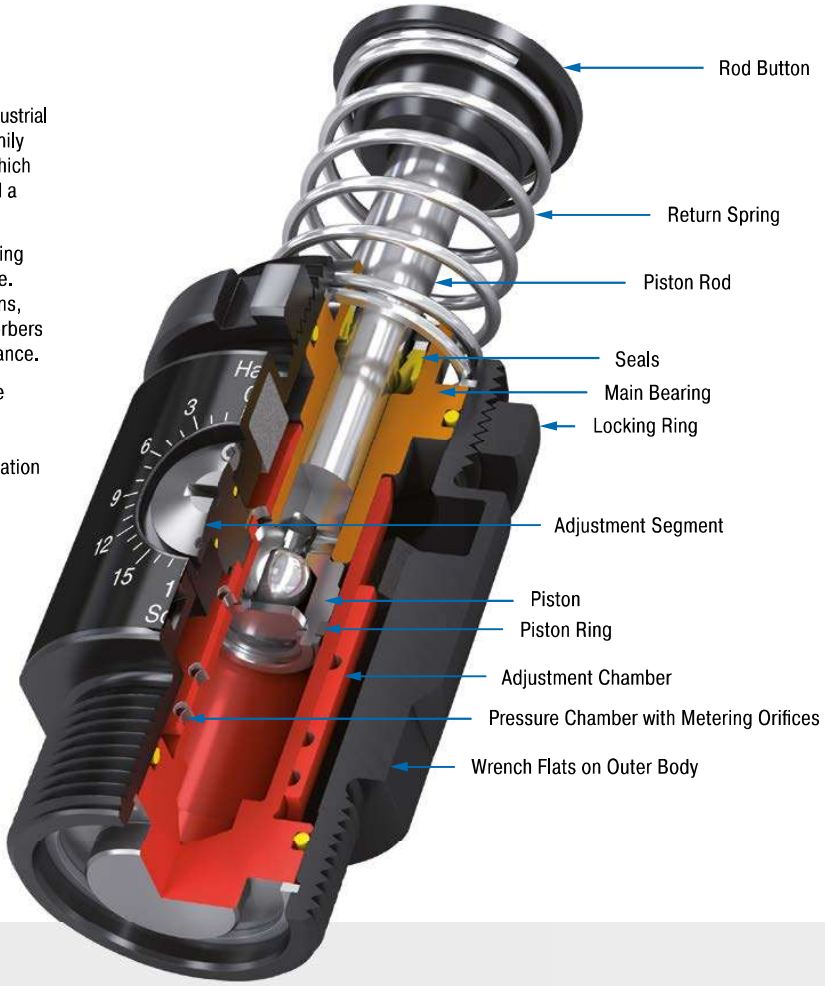
Energy capacity 1,350 in-lbs/Cycle to 48,000 in-lbs/Cycle

Stroke 1 in to 6 in

Ideal for high-speed moving machines, industrial shock absorbers of the SALD product family feature a built-in external positive stop which prevents damage from bottoming out and a positive work-positioning point.

High energy absorption and a wide damping range lead to huge advantages in practice. Alongside generally more compact designs, these small yet very powerful shock absorbers enable full use of the machine's performance.

These adjustable shock absorbers can be adjusted and precisely adapted to your requirements, making them suitable for a variety of applications in industrial automation and machine engineering applications, especially in automation and gantries.



Technical Data

Energy capacity: 1,350 in-lbs/Cycle to 48,000 in-lbs/Cycle

Impact velocity range: 1 ft/sec to 15 ft/sec

Operating temperature range: 10 °F to 150 °F

Mounting: In any position

Positive stop: External

Material: Outer body: Nitride hardened steel; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Return spring: Zinc plated or plastic-coated steel

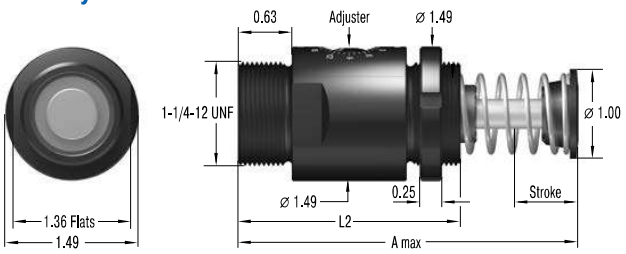
Damping medium: Automatic Transmission Fluid (ATF)

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

Safety information: 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.

Issue 04.2018 – Specifications subject to change

SALD1/2-P Primary



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

SALD: Internal accumulator, spring return
ALDA: Internal accumulator, mechanical return
ALDS: External accumulator, spring return
ALD: External accumulator, air or mechanical return

Ordering Example **SALD1/2x1-P**

Adjustable
Bore 1/2" (12.7 mm)
Stroke 1" (25 mm)
Primary

Dimensions

TYPES	Stroke **inch**	A max. **inch**	L2 **inch**
SALD1/2X1-P	0.91	5.44	3.25
SALD1/2X2-P	1.91	7.44	4.25

Performance

	Max. Energy Capacity			Effective Weight		
TYPES	E_3 **in-lbs/cycle**	E_4 **in-lbs/h**	E_4 with Air/Oil Tank **in-lbs/h**	[1] We min. **lbs**	[1] We max. **lbs**	Weight **lbs**
SALD1/2X1-P	1,350	750,000	1,300,000	10	2,700	1.50
SALD1/2X2-P	2,700	870,000	1,400,000	21	5,700	1.83

[1] The effective weight range limits can be raised or lowered to special order.

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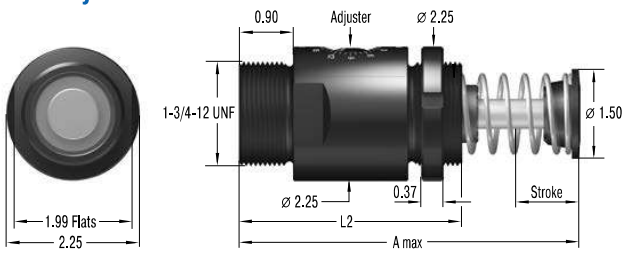
SALD3/4-P Primary



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

SALD: Internal accumulator, spring return
ALDA: Internal accumulator, mechanical return
ALDS: External accumulator, spring return
ALD: External accumulator, air or mechanical return

Ordering Example **SALD3/4x1-P**

Adjustable
Bore 3/4" (19 mm)
Stroke 1" (25 mm)
Primary

Dimensions

TYPES	Stroke **inch**	A max. **inch**	L2 **inch**
SALD3/4X1-P	0.91	5.94	3.97
SALD3/4X2-P	1.91	7.94	4.97
SALD3/4X3-P	2.91	9.94	5.97

Performance

	Max. Energy Capacity			Effective Weight		
TYPES	E_3 **in-lbs/cycle**	E_4 **in-lbs/h**	E_4 with Air/Oil Tank **in-lbs/h**	[1] We min. **lbs**	[1] We max. **lbs**	Weight **lbs**
SALD3/4X1-P	3,000	1,100,000	1,600,000	20	18,000	3.24
SALD3/4X2-P	6,000	1,300,000	2,000,000	35	32,000	3.99
SALD3/4X3-P	9,000	1,600,000	2,400,000	50	46,000	4.94

[1] The effective weight range limits can be raised or lowered to special order.

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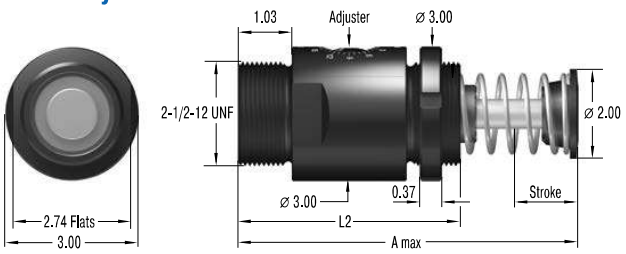
SALD1 1/8-P Primary



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

SALD: Internal accumulator, spring return
ALDA: Internal accumulator, mechanical return
ALDS: External accumulator, spring return
ALD: External accumulator, air or mechanical return

Ordering Example **SALD3/4x1-P**

Adjustable
Bore 1 1/8" (28.5 mm)
Stroke 1" (25 mm)
Primary

Dimensions

TYPES	Stroke **inch**	A max. **inch**	L2 **inch**
SALD11/8X2-P	1.91	8.88	5.50
SALD11/8X4-P	3.91	12.88	7.50
SALD11/8X6-P	5.91	17.75	9.50

Performance

	Max. Energy Capacity			Effective Weight		
TYPES	E_3 **in-lbs/cycle**	E_4 **in-lbs/h**	E_4 with Air/Oil Tank **in-lbs/h**	[1] We min. **lbs**	[1] We max. **lbs**	Weight **lbs**
SALD11/8X2-P	16,000	1,500,000	3,000,000	120	50,000	8.75
SALD11/8X4-P	32,000	2,000,000	4,000,000	160	100,000	11.51
SALD11/8X6-P	48,000	2,500,000	5,000,000	200	150,000	15.52

[1] The effective weight range limits can be raised or lowered to special order.

SALDN3/4

High energy absorption and a wide effective weight range

Adjustable

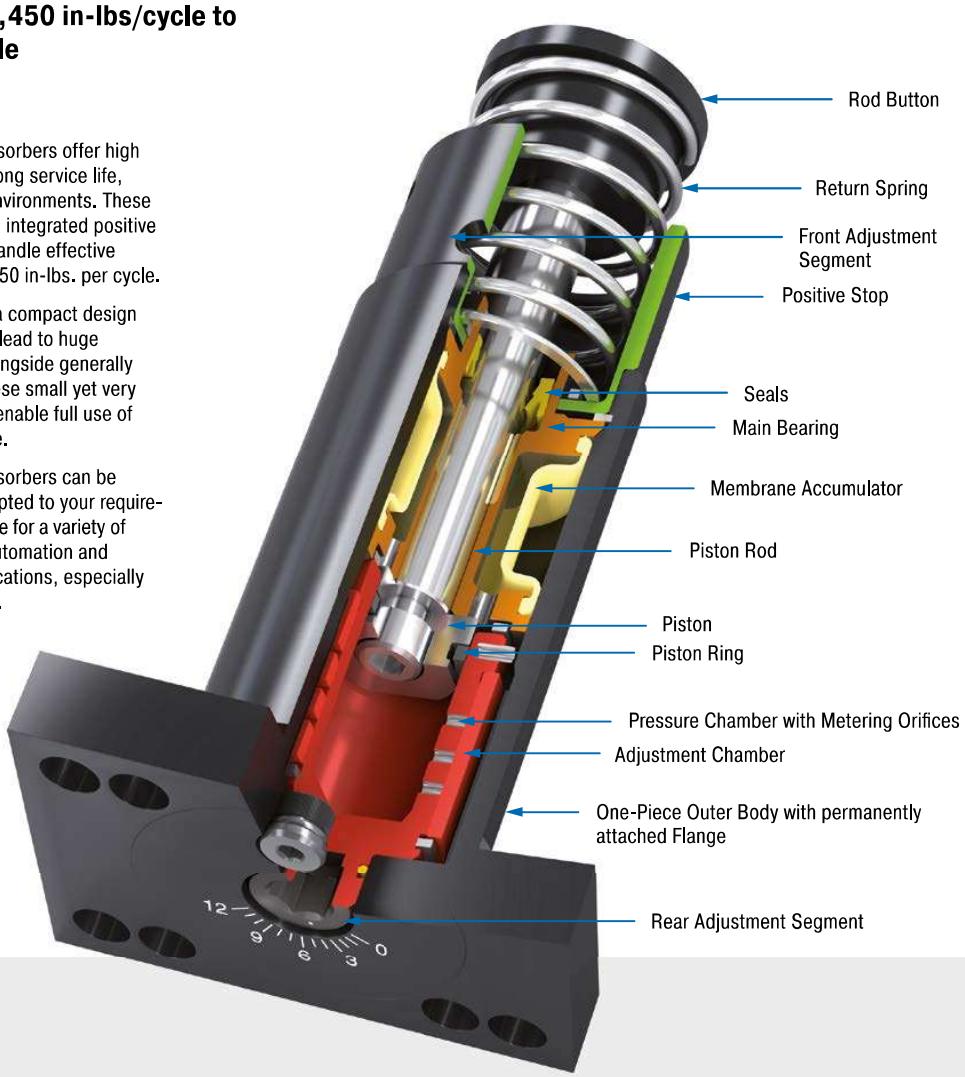
Energy capacity 3,450 in-lbs/cycle to 10,350 in-lbs/cycle

Stroke 1 in to 3 in

SALDN industrial shock absorbers offer high performance levels and a long service life, even in the most difficult environments. These shock absorbers feature an integrated positive stop and are designed to handle effective weights from 3,450 to 10,350 in-lbs. per cycle.

High energy absorption in a compact design and a wide damping range lead to huge advantages in practice. Alongside generally more compact designs, these small yet very powerful shock absorbers enable full use of the machine's performance.

These adjustable shock absorbers can be adjusted and precisely adapted to your requirements, making them suitable for a variety of applications in industrial automation and machine engineering applications, especially in automation and gantries.



Technical Data

Energy capacity: 3,450 in-lbs/cycle to 10,350 in-lbs/cycle

Impact velocity range: 0.5 ft/sec to 16.5 ft/sec

Operating temperature range: 10 °F to 150 °F

Mounting: In any position

Positive stop: Integrated

Adjustment: Rear of shock

Damping medium: Automatic Transmission Fluid (ATF)

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

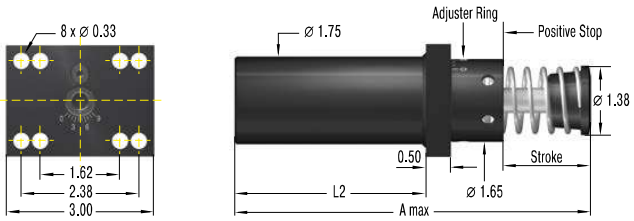
Note: ACE recommends selecting a model with 20 % more capacity than your calculations indicate necessary. This extra capacity allows for changes in weight, velocity or cycle rates increase in the future.

Safety information: 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: Special oils, nickel-plated, increased corrosion protection, mounting inside air cylinders, additional impact velocity ranges or other special options are available on request.

Issue 04.2018 – Specifications subject to change

SALDN3/4-RF Front Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

SALDN: Internal accumulator, spring return
ALDAN: Internal accumulator, mechanical return
ALDSN: External accumulator, spring return
ALDN: External accumulator, air or mechanical return

Ordering Example **SALDN3/4x1-RF**

Adjustable
Bore 3/4" (19 mm)
Stroke 1" (25 mm)
Series (RF = Front Flange)

Dimensions

TYPES	Stroke **inch**	A max. **inch**	L2 **inch**
SALDN3/4X1-RF	0.98	5.69	3.22
SALDN3/4X2-RF	1.97	7.69	4.22
SALDN3/4X3-RF	2.95	9.69	5.22

Performance

	Max. Energy Capacity			Effective Weight						
TYPES	E_3 **in-lbs/cycle**	E_4 **in-lbs/h**	E_4 with Air/Oil Tank **in-lbs/h**	[1] We min. **lbs**	[1] We max. **lbs**	Return Force min. **lbs**	Return Force max. **lbs**	Return Time **s**	Side Load Angle max. **°**	Weight **lbs**
SALDN3/4X1-RF	3,450	950,000	1,400,000	95	22,000	15.1	22.8	0.03	4	2.49
SALDN3/4X2-RF	6,900	1,000,000	1,700,000	150	32,000	15.1	32.2	0.08	3	3.02
SALDN3/4X3-RF	10,350	1,300,000	2,000,000	155	33,000	11.7	40.3	0.11	2	3.51

[1] The effective weight range limits can be raised or lowered to special order.

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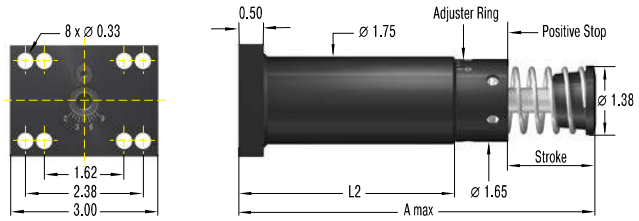
SALDN3/4-RR Rear Flange



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

SALDN: Internal accumulator, spring return
ALDAN: Internal accumulator, mechanical return
ALDSN: External accumulator, spring return
ALDN: External accumulator, air or mechanical return

Ordering Example **SALDN3/4x1-RR**

Adjustable
Bore 3/4" (19 mm)
Stroke 1" (25 mm)
Series (RR = Rear Flange)

Dimensions

TYPES	Stroke **inch**	A max. **inch**	L2 **inch**
SALDN3/4X1-RR	0.98	5.69	3.22
SALDN3/4X2-RR	1.97	7.69	4.22
SALDN3/4X3-RR	2.95	9.69	5.22

Performance

	Max. Energy Capacity			Effective Weight						
TYPES	E_3 **in-lbs/cycle**	E_4 **in-lbs/h**	E_4 with Air/Oil Tank **in-lbs/h**	[1] We min. **lbs**	[1] We max. **lbs**	Return Force min. **lbs**	Return Force max. **lbs**	Return Time **s**	Side Load Angle max. **°**	Weight **lbs**
SALDN3/4X1-RR	3,450	950,000	1,400,000	95	22,000	15.1	22.8	0.03	4	2.49
SALDN3/4X2-RR	6,900	1,000,000	1,700,000	150	32,000	15.1	32.2	0.08	3	3.02
SALDN3/4X3-RR	10,350	1,300,000	2,000,000	155	33,000	11.7	40.3	0.11	2	3.51

[1] The effective weight range limits can be raised or lowered to special order.

High Performance

for PET Stretch Blow Machines

PET 20 and PET 27

20 million cycles – up to 225 °F – 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.acecontrols.com

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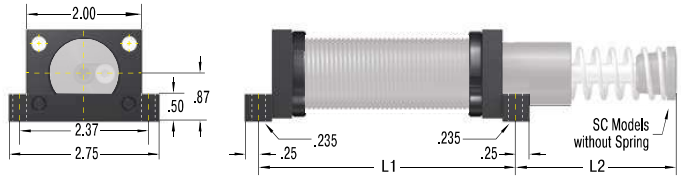
M33x1.5

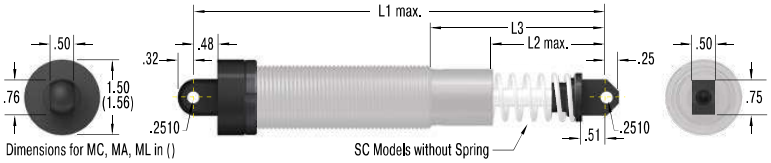
250-0294
Side Foot Mounting Kit



Dimensions		
TYPES	L1 inch	L2 inch
MC, MA, ML3325	3.75	1.94
MC, MA, ML3350	4.75	2.94
SC3325	5.31	1.94
SC3350	7.31	2.94
SCS33-25	3.75	1.94
SCS33-50	4.75	2.94

250-0294 = 1 locknut, 2 flanges, 2 bars, 4 screws M6x40, DIN 912
Torque max.: 97 in-lbs
Clamping torque: 797 in-lbs
Bolts to mount assembled shock & mount not included.

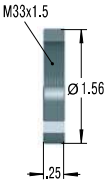
250-0323
Clevis Mount Assembly



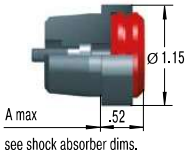
Dimensions			
TYPES	L1 max. inch	L2 max. inch	L3 inch
MC, MA, ML3325	6.58	1.36	2.64
MC, MA, ML3350	8.58	2.36	3.64
SC3325	8.14	1.37	2.65
SC3350	11.14	2.37	3.65

Use positive stop at both ends of travel.

250-0292
Locking Ring



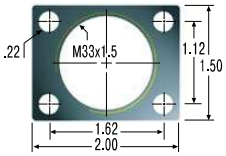
250-0091
Poly Button



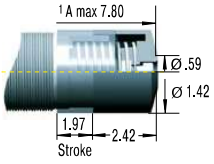
see shock absorber dims.

Supplied ready mounted onto the shock absorber.

250-0293
Rectangular Flange

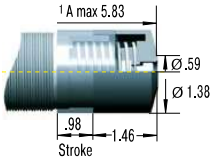


250-0130
Steel Shroud



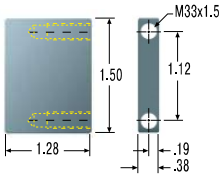
[1] Total installation length of the shock absorber inc. steel shroud

250-0730
Steel Shroud

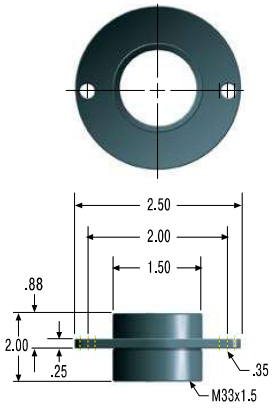


[1] Total installation length of the shock absorber inc. steel shroud

250-0427
Stop Bar



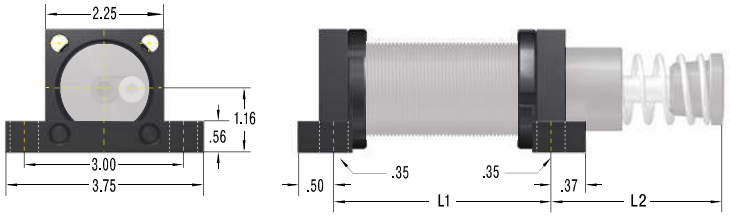
250-0071
Flanged Stop Collar



Mounting, installation, ... see page 96.

M45x1.5

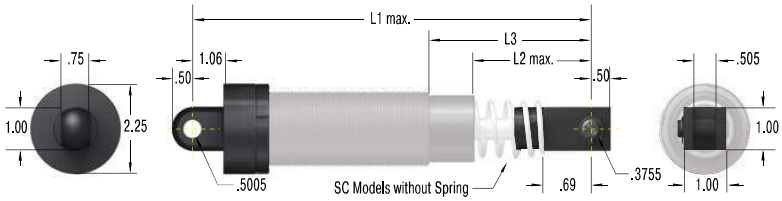
250-0300
Side Foot Mounting Kit



Dimensions		
TYPES	L1 inch	L2 inch
MC, MA, ML4525	3.50	1.94
MC, MA, ML4550	4.38	3.06
MC, MA4575	5.38	4.06
SC4525	5.10	2.09
SC4550	7.10	3.09
SCS45-25	3.50	1.94
SCS45-50	4.38	3.06
SCS45-75	5.38	4.06

250-0300 = 1 locknut, 2 flanges, 2 bars, 4 screws M8x50, DIN 912
Torque max.: 239 in-lbs
Clamping torque: 3,098 in-lbs
Bolts to mount assembled shock & mount not included.

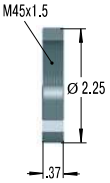
250-0325
Clevis Mount Assembly



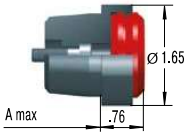
Dimensions			
TYPES	L1 max. inch	L2 max. inch	L3 inch
MC, MA, ML4525	7.85	1.51	2.57
MC, MA, ML4550	9.85	2.51	3.57
MC, MA4575	11.85	3.51	4.57
SC4525	9.60	1.51	2.57
SC4550	12.60	2.51	3.57

Use positive stop at both ends of travel.

250-0297
Locking Ring



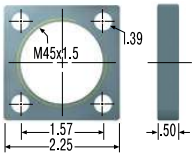
250-0092
Poly Button



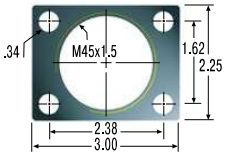
see shock absorber dims.

Supplied ready mounted onto the shock absorber.

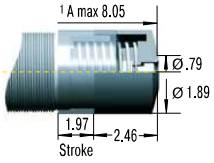
250-0298
Square Flange



250-0299
Rectangular Flange

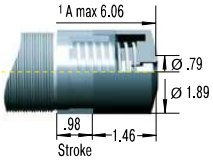


250-0778
Steel Shroud



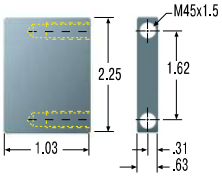
[1] Total installation length of the shock absorber inc. steel shroud

250-0731
Steel Shroud

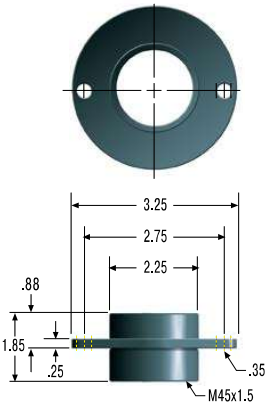


[1] Total installation length of the shock absorber inc. steel shroud

250-0639
Stop Bar



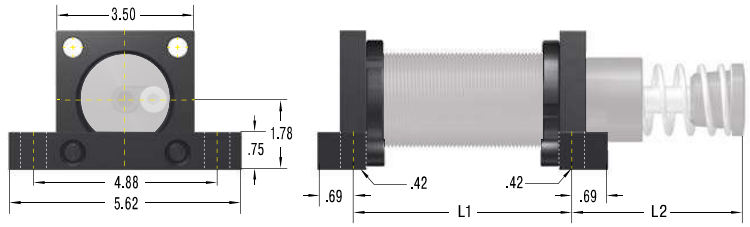
250-0073
Flanged Stop Collar



Mounting, installation, ... see page 96.

M64x2

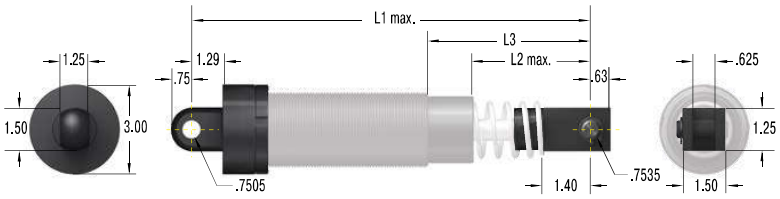
250-0304
Side Foot Mounting Kit



Dimensions	L1	L2
TYPES	inch	inch
ML6425	4.00	2.54
MC, MA, ML6450	5.00	3.54
MC, MA64100	7.00	5.54
MC, MA64150	9.00	8.42
SCS64-50	5.00	3.54
SCS64-100	7.00	5.54
SCS64-150	9.00	8.42

250-0304 = 1 locknut, 2 flanges, 2 bars, 4 screws M10x80, DIN 912
Torque max.: 443 in-lbs
Clamping torque: 3,098 in-lbs
Bolts to mount assembled shock & mount not included.

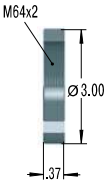
250-0626
Clevis Mount Assembly



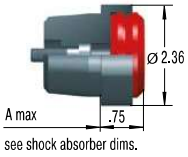
Dimensions	L1 max.	L2 max.	L3
TYPES	inch	inch	inch
ML6425	10.12	2.31	3.75
MC, MA, ML6450	12.12	3.31	4.75
MC, MA64100	16.12	5.31	6.75
MC, MA64150	20.87	8.06	9.50

Use positive stop at both ends of travel.

250-0301
Locking Ring



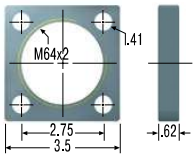
250-0093
Poly Button



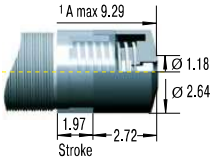
see shock absorber dims.

Supplied ready mounted onto the shock absorber.

250-0302
Square Flange

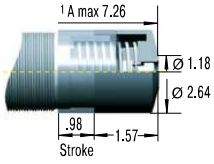


250-0787
Steel Shroud



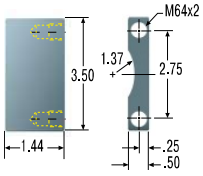
[1] Total installation length of the shock absorber inc. steel shroud

250-0839
Steel Shroud



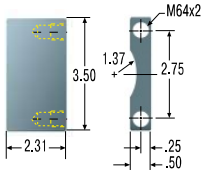
[1] Total installation length of the shock absorber inc. steel shroud

250-0640
Stop Bar



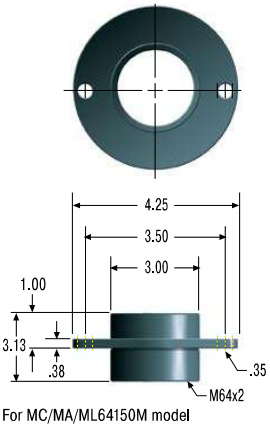
For MC/MA/ML6425M to 64100M models

250-0641
Stop Bar



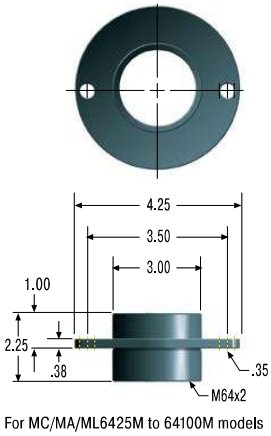
For MC/MA/ML64150M model

250-0077
Flanged Stop Collar



For MC/MA/ML64150M model

250-0075
Flanged Stop Collar

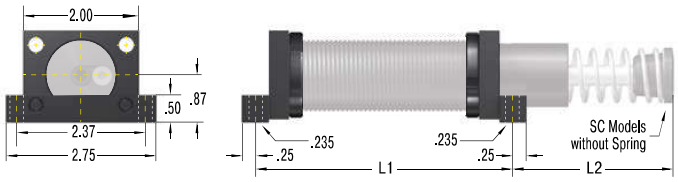


For MC/MA/ML6425M to 64100M models

Mounting, installation, ... see page 96.

1-1/4-12 UNF

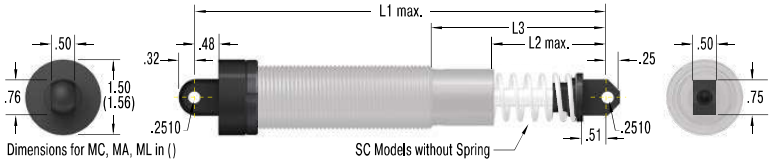
250-0015
Side Foot Mounting Kit



Dimensions	L1	L2
TYPES	inch	inch
MC, MA, ML3325	3.75	1.94
MC, MA, ML3350	4.75	2.94
SC3325	5.31	1.94
SC3350	7.31	2.94
SCS33-25	3.75	1.94
SCS33-50	4.75	2.94

250-0015 = 1 locknut, 2 flanges, 2 bars, 4 screws 1-1/4-12 UNF, DIN 912
Torque max.: 97 in-lbs
Clamping torque: 797 in-lbs
Bolts to mount assembled shock & mount not included.

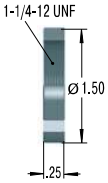
250-0225
Clevis Mount Assembly



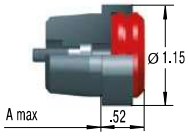
Dimensions	L1 max.	L2 max.	L3
TYPES	inch	inch	inch
MC, MA, ML3325	6.58	1.36	2.64
MC, MA, ML3350	8.58	2.36	3.64
SC3325	8.14	1.37	2.65
SC3350	11.14	2.37	3.65

Use positive stop at both ends of travel.

250-0038
Locking Ring



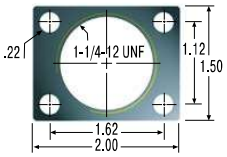
250-0091
Poly Button



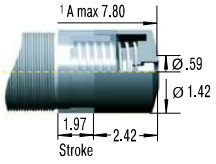
see shock absorber dims.

Supplied ready mounted onto the shock absorber.

250-0016
Rectangular Flange

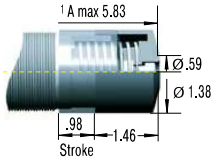


250-0130
Steel Shroud



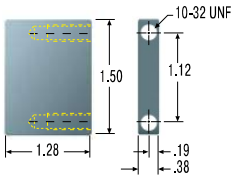
[1] Total installation length of the shock absorber inc. steel shroud

250-0730
Steel Shroud

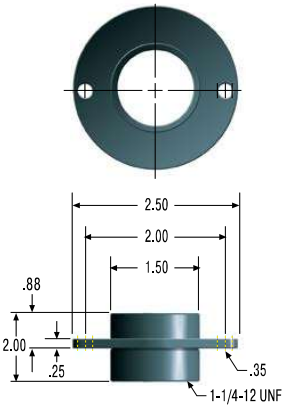


[1] Total installation length of the shock absorber inc. steel shroud

250-0426
Stop Bar



250-0070
Flanged Stop Collar

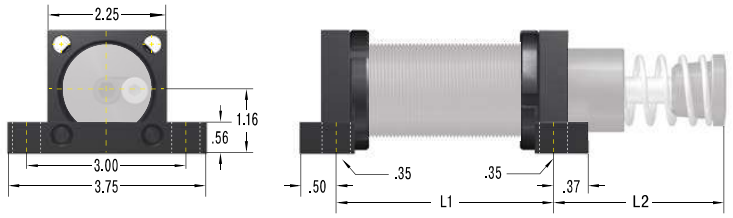


Mounting, installation, ... see page 96.

ACE Controls Inc. · 23425 Industrial Park Dr. Farmington · US-48335 Michigan · T +1 800-521-3320 · F +1 248-476-2470 · shocks@acecontrols.com · www.acecontrols.com

1-3/4-12 UNF

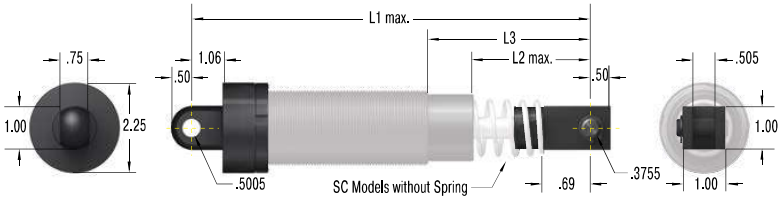
250-0025
Side Foot Mounting Kit



Dimensions		
TYPES	L1 inch	L2 inch
MC, MA, ML4525	3.50	1.94
MC, MA, ML4550	4.38	3.06
MC, MA4575	5.38	4.06
SC4525	5.10	2.09
SC4550	7.10	3.09
SCS45-25	3.50	1.94
SCS45-50	4.38	3.06
SCS45-75	5.38	4.06

250-0025 = 1 locknut, 2 flanges, 2 bars, 4 screws 1-3/4-12 UNF, DIN 912
Torque max.: 239 in-lbs
Clamping torque: 3,098 in-lbs
Bolts to mount assembled shock & mount not included.

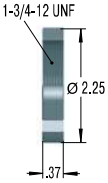
250-0324
Clevis Mount Assembly



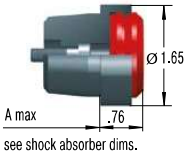
Dimensions			
TYPES	L1 max. inch	L2 max. inch	L3 inch
MC, MA, ML4525	7.85	1.51	2.57
MC, MA, ML4550	9.85	2.51	3.57
MC, MA4575	11.85	3.51	4.57
SC4525	9.60	1.51	2.57
SC4550	12.60	2.51	3.57

Use positive stop at both ends of travel.

250-0041
Locking Ring



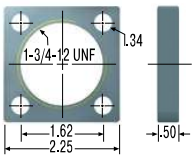
250-0092
Poly Button



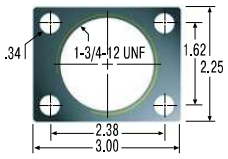
see shock absorber dims.

Supplied ready mounted onto the shock absorber.

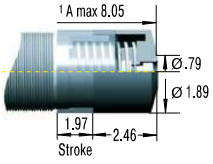
250-0023
Square Flange



250-0024
Rectangular Flange

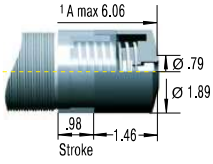


250-0778
Steel Shroud



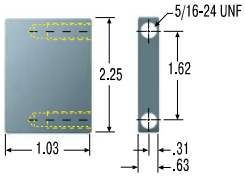
[1] Total installation length of the shock absorber inc. steel shroud

250-0731
Steel Shroud

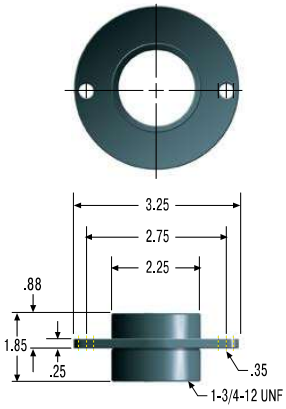


[1] Total installation length of the shock absorber inc. steel shroud

250-0428
Stop Bar



250-0072
Flanged Stop Collar

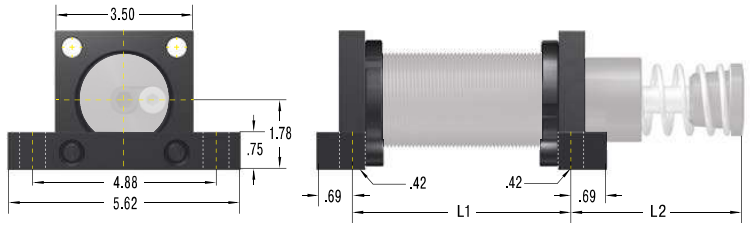


Mounting, installation, ... see page 96.

Issue 04.2018 – Specifications subject to change

2-1/2-12 UNF

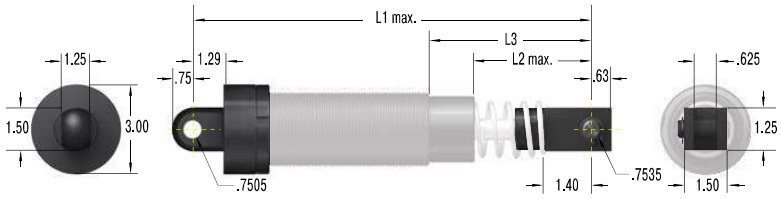
250-0030
Side Foot Mounting Kit



Dimensions		
TYPES	L1 inch	L2 inch
ML6425	4.00	2.54
MC, MA, ML6450	5.00	3.54
MC, MA64100	7.00	5.54
MC, MA64150	9.00	8.42
SCS64-50	5.00	3.54
SCS64-100	7.00	5.54
SCS64-150	9.00	8.42

250-0030 = 1 locknut, 2 flanges, 2 bars, 4 screws 2-1/2-12 UNF, DIN 912
Torque max.: 442.5 in-lbs
Clamping torque: 3,098 in-lbs
Bolts to mount assembled shock & mount not included.

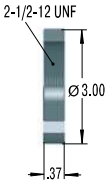
250-0625
Clevis Mount Assembly



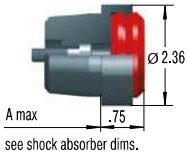
Dimensions			
TYPES	L1 max. inch	L2 max. inch	L3 inch
ML6425	10.12	2.31	3.75
MC, MA, ML6450	12.12	3.31	4.75
MC, MA64100	16.12	5.31	6.75
MC, MA64150	20.87	8.06	9.50

Use positive stop at both ends of travel.

250-0042
Locking Ring



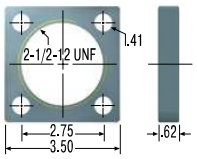
250-0093
Poly Button



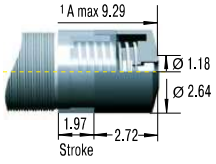
see shock absorber dims.

Supplied ready mounted onto the shock absorber.

250-0028
Square Flange

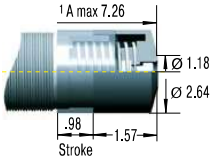


250-0787
Steel Shroud



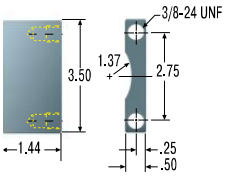
[1] Total installation length of the shock absorber inc. steel shroud

250-0839
Steel Shroud



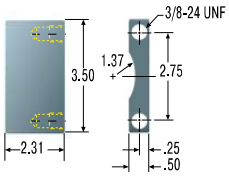
[1] Total installation length of the shock absorber inc. steel shroud

250-0430
Stop Bar



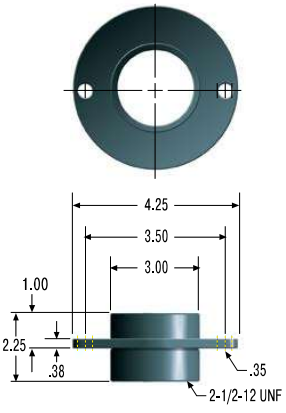
For MC/MA/ML6425 to 64100 models

250-0432
Stop Bar



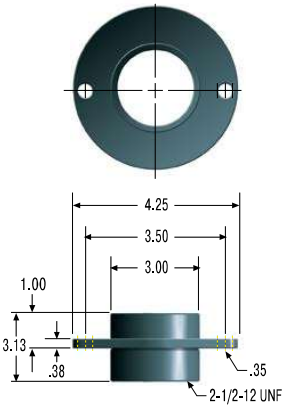
For MC/MA/ML64150 models

250-0074
Flanged Stop Collar



For MC/MA/ML 6425 to 64100 models

250-0076
Flanged Stop Collar



For MC/MA/ML64150M model

Mounting, installation, ... see page 96.

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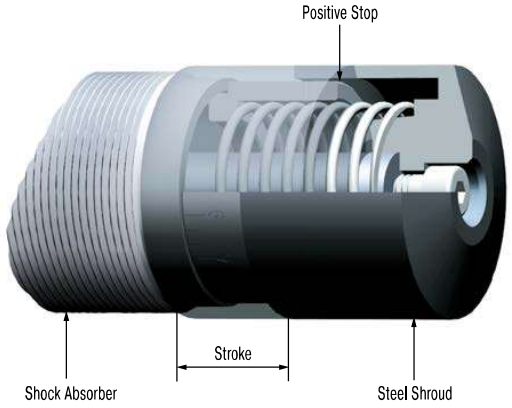


Steel Shroud

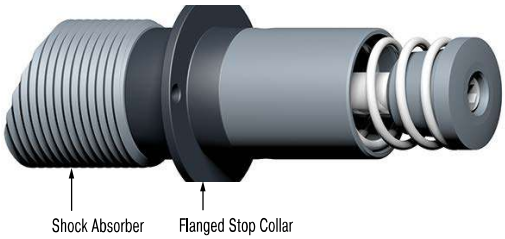
For industrial shock absorbers with a 1 or 2 in stroke.

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.

Material
Hardened high tensile steel

Mounting information
To mount the steel shroud it's necessary to remove the rod end button of the shock absorber.

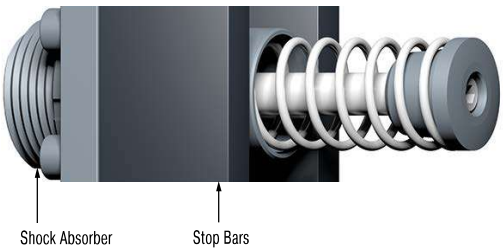
Safety information
When installing don't forget to allow operating space for the shroud to move as the shock absorber is cycled.



Flanged Stop Collar

Flanged stop collars provide industrial shock absorbers with a secure front mount and a positive mechanical stop. No specific mounting panel thickness is required.

Material
Hardened high tensile steel



Stop Bar

Stop bars are used in pairs and come two per package for assembly. Hard metric stop bars are aviailable upon request.

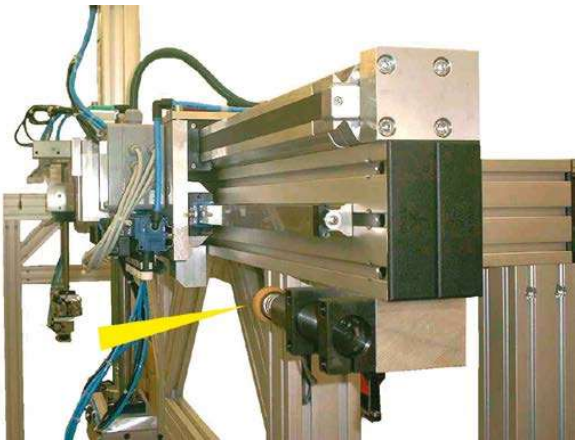
Material
Hardened high tensile steel

Application Examples

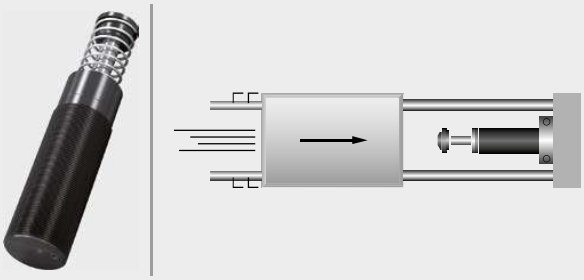
MC33

Quicker, gentle positioning

ACE industrial shock absorbers optimize portals for machine loading and increase productivity. This device is driven by piston rodless pneumatic cylinders, where two gripper slides are moving independently of each other at speeds of 6.56 ft/sec to 8.20 ft/sec, is equipped with industrial shock absorbers as brake systems. Their function is to stop a mass of 55 lbs up to 540 times per hour. The MC3350-1-S model was chosen for this application, allowing easy and extremely accurate adjustment of the end positions of the adjustable limit stops. In comparison to brake systems with other function principles, shock absorbers allow higher travel speeds and shorter cycle sequences.



Industrial shock absorbers optimize portal operation

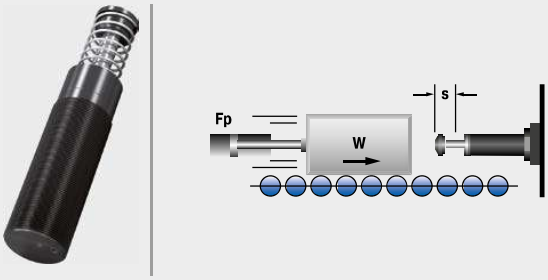


MC45

MAGNUM protection of carriage construction

Serving a similar purpose, several ACE dampers are installed in Jada, the triple-axis, free-moving badminton robot. In order for the badminton robot to be capable of playing, it must be able to change direction in the shortest time possible. Jada is designed therefore to brake at a maximum of 30 m/s². For this task, linear modules are limited by the use of industrial shock absorbers of the type MC4575-0. Miniature shock absorbers and profile dampers are also installed at the location of the „racket hand“. In all cases, the modern ACE machine elements serve to protect the end positions of the construction.

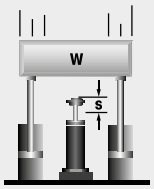
A variety of different dampers are used to slow the rapid movements of a badminton robot
FMTC vzw, 3001 Leuven, Belgium



MC64-VA

MAGNUM damper for safety under water

A pipeline from the rig to the well head that is as flexible as possible is considered to be a quick-disconnect connection in an emergency. Nevertheless, this connection made at the oil source on the sea floor is an Achilles heel. If the connection snaps or if it cannot be separated quickly enough during hazards such as storms, unpredictable, often serious consequences can hardly be prevented. With the so-called XR connector, the safety at this critical point is significantly increased. In the innovative design 10 industrial shock absorbers per connection from the MAGNUM series from ACE master this important task.

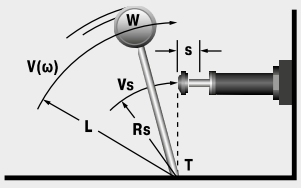


MAGNUMS allow for emergency quick disconnection of the pipelines from the oil rigs
Subsea Technologies Ltd, Aberdeen, AB12 3AY, UK

MC64M

Emergency exits made safer with MAGNUM shock absorbers

MAGNUM 64150 industrial shock absorbers are integrated into the overall safety design for the Amsterdam metro system. In contrast to previous solutions, ACE shocks ensure rapid opening and stopping for a five-ton barrier located at the end of an emergency escape route. In this application, over 45,000 in-lbs of energy are able to be absorbed per stroke. Through installing shock absorbers in end positions of the design, over 140,000 lbs of effective weight are able to be absorbed. ACE provided an excellent solution, even with an impact speed of approximately 6 feet per second and the barrier exit grille at an unusual impact angle.



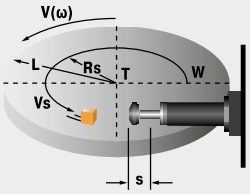
A heavy, five-ton barrier safely stopped by MAGNUM shock absorbers
J.P. van Eesteren B.V., 1006 BD Amsterdam, Netherlands

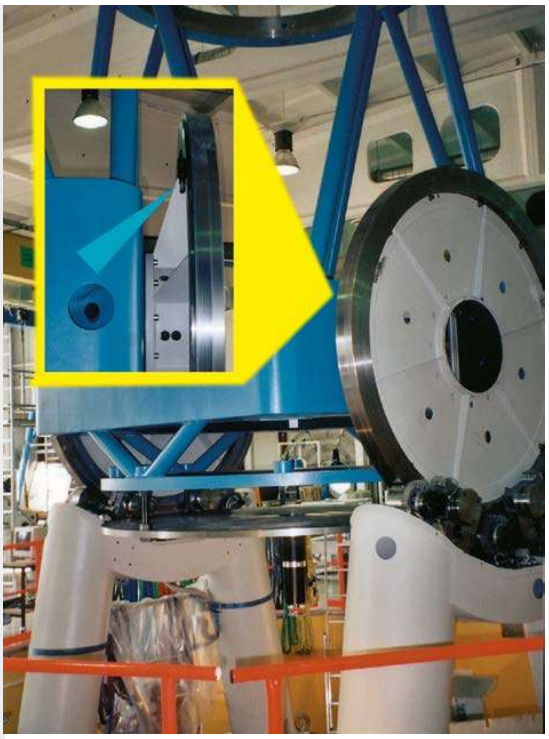
Issue 04.2018 – Specifications subject to change

MA/ML33

Safe swiveling

ACE industrial shock absorbers offer safety to spare for rotation or braking of a large telescope. The optical system of this telescope for special observations is moveable in two space coordinates. The structure in which the telescope is mounted weighs 33,069 lbs and consists of a turntable with drives and two wheel disks rotating on bearings. It enables a rotation by ±90° from horizon to horizon. To safeguard the telescope in case of overshooting the respective swiveling limits, ML3325 industrial shock absorbers are used as braking elements. Should the telescope inadvertently overshoot the permissible swivel range, they will safely damp the travel of the valuable telescope.



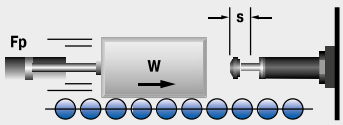


Perfect overshoot protection for precision telescope

MA/ML64

MAGNUM helps in the fight against people not buckling up

The Central-Hessian police department has developed an accident simulator with the help of ACE Stoßdämpfer GmbH aimed at significantly increasing the number of road traffic seatbelt wearers. The mobile simulator demonstrates strikingly that the smallest impact velocities lead to enormous forces, even when wearing seat belts, and can cause serious injuries when not. Adjustable MAGNUM type MA64150 dampers are installed to protect the simulator passengers and the end points of the construction at various speeds and moving masses. These are the largest adjustable dampers of the ACE product range; stronger special constructions are possible at any time.



MAGNUM dampers ensure the reliable braking of moving masses on the seat and the protection of the entire carriage construction
Central Hessian Police Department, Karl-Glöckner-Straße 2, 35394 Gießen, Germany

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Heavy Industrial Shock Absorbers

Effective shock absorption for heavy loads

The heavy industrial shock absorbers from ACE top off the company's offerings in damping technology. This ACE category gives Designers a choice between self-compensating and adjustable machine elements.

Whichever design is chosen, this type of shock absorber impresses with its robustness and operational readiness wherever heavy loads need to be reliably stopped on-the-spot and at a precise point.

The CA4 models can absorb up to 1,120,000 in/lbf (126,500 Nm) of energy. The series of heavy duty, self-compensating "CA" types are equally suitable for use as an emergency stop as are the adjustable types with the designations "A". The range of effective loads covered is increased considerably for this purpose.

Heavy Industrial Shock Absorbers

CA2 to CA4

Page 102

Self-Compensating
Deceleration of heavy loads
Portal systems, Machines and plants, Conveyor systems, Crane systems,

A1 1/2 to A3

Page 106

Adjustable
Deceleration of heavy loads and progressive adjustment
Portal systems, Machines and plants, Conveyor systems, Crane systems

Rugged and powerful

Gently stops heavy loads with high precision

Also ideal for emergency stop utilization

Safe, reliable production

Maintenance-free and ready-to-install

Special versions available

CA2 to CA4

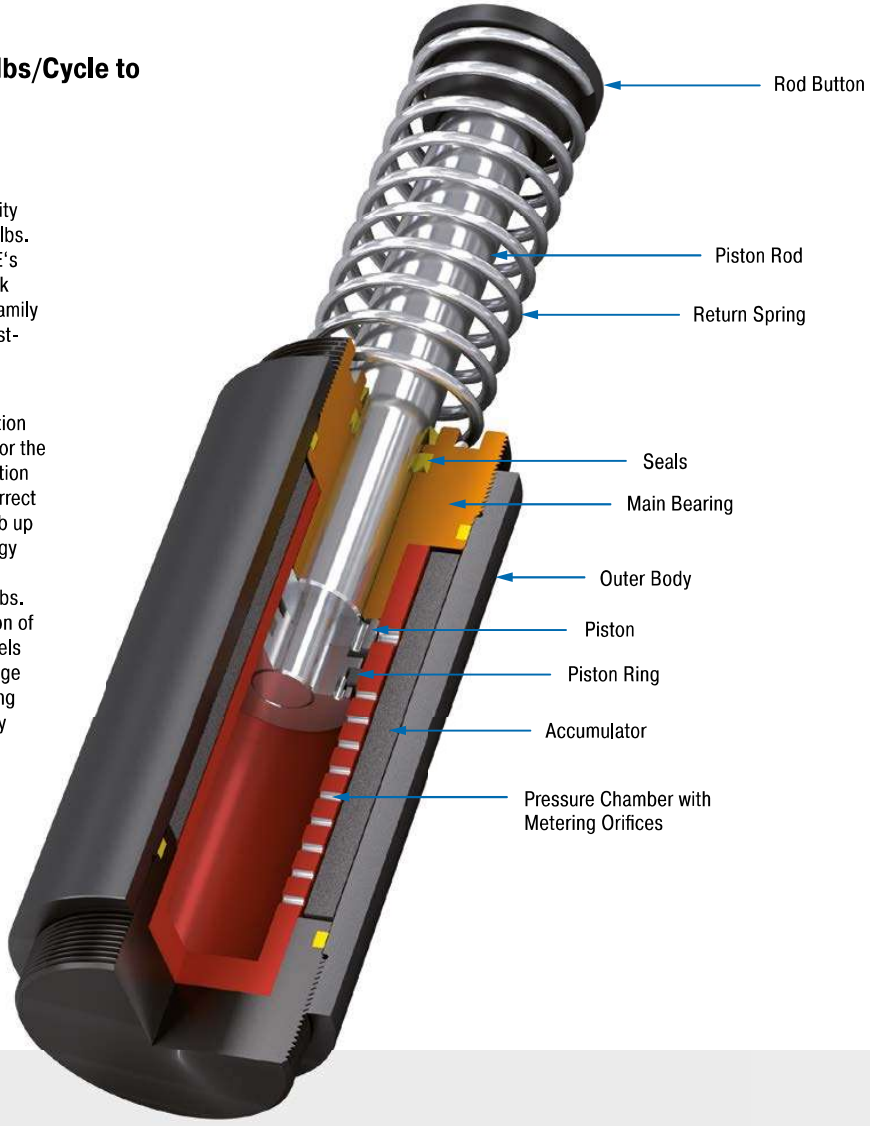
Deceleration of heavy loads

Self-Compensating
Energy capacity 21,000 in-lbs/Cycle to 1,120,000 in-lbs/Cycle
Stroke 2 in to 16 in

Powerful: The weight of these high capacity absorbers are between 28.2 lbs and 322 lbs. (12.8 and 146 kg). They complement ACE's product range of self-compensating shock absorbers. All models from this product family are designed for applications where robustness and large energy absorption are important.

ACE uses our proprietary custom calculation program to design each shock absorber for the specific customer application. Customization helps reduce the risk of crashes and incorrect product sizing. The CA models can absorb up to 1,119,620 in-lbs (126,500 Nm) of energy and can be used in the area of effective weights between 1,543 lbs and 718,707 lbs. (700 kg and 326,000 kg). The combination of being extremely solid, absorbing high levels of energy and having a large damping range makes them invaluable. Self-compensating shock absorbers react to changing energy conditions, without adjustment.

These heavy duty self-compensating industrial shock absorbers are primarily used in heavy industrial engineering e.g. on lift bridges and steel structures or for damping sluice systems.



Technical Data

Energy capacity: 21,000 in-lbs/Cycle to 1,120,000 in-lbs/Cycle

Impact velocity range: 1 ft/sec to 16.5 ft/sec. Other speeds on request.

Operating temperature range: 10 °F to 150 °F. Other temperatures on request.

Mounting: In any position

Positive stop: External positive stops 0.10" to 0.12" before the end of stroke provided by the customer.

Material: Outer body: Steel corrosion-resistant coating; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Return spring: Zinc plated steel

Damping medium: Automatic Transmission Fluid (ATF)

Application field: Portal systems, Machines and plants, Conveyor systems, Crane systems, Loading and lifting equipment, Shelf storage systems, Heavy load applications, Swivel units

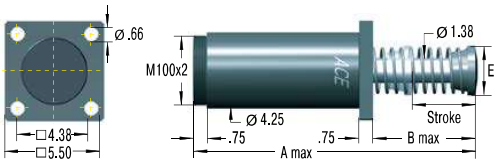
Note: For emergency use only applications and for continous use it is possible to exceed the published max. capacity ratings. In this case, please consult ACE.

Safety information: 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.

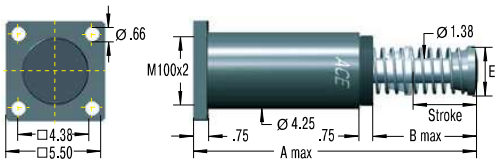
On request: Special oils, nickel-plated, increased corrosion protection or other special options are available on request.

Issue 04.2018 – Specifications subject to change

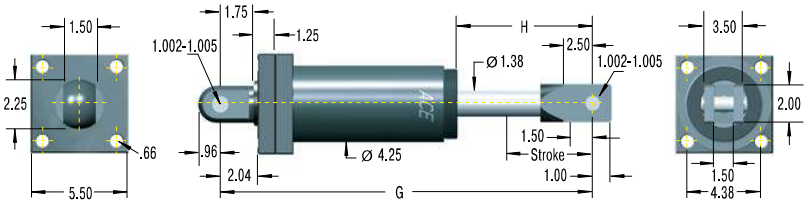
CA2-F Front Flange



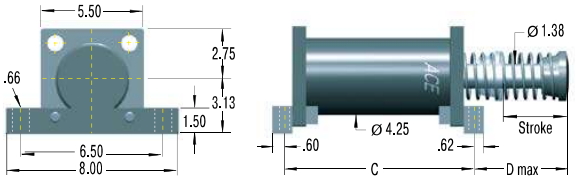
CA2-R Rear Flange



CA2-C Clevis Mount



CA2-S 2" Bore Foot Mount



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models

CA: Self-contained with return spring, self-compensating

Special Models

CAA: Air/Oil return without return spring. Use only with external air/oil tank.

CNA: Self-Contained without return spring

CSA: Air/Oil return with return spring. Use only with external air/oil tank.

Ordering Example **CA2x4F-3**

- Self-Compensating
- Bore Size ⌀ 2"
- Stroke Length 4" (102 mm)
- Front Flange Mounting
- Effective Weight Range Version

Dimensions

TYPES	Stroke inch	A max. inch	B max. inch	C inch	D max. inch	E inch
CA2X2	2.00	12.37	4.37	9.28	3.74	2.73
CA2X4	4.00	16.37	6.31	11.28	5.74	2.73
CA2X6	6.00	20.37	8.37	13.28	7.74	2.73
CA2X8	8.00	25.37	11.37	15.28	10.74	3.63
CA2X10	10.00	29.37	13.37	17.28	12.74	4.25

Performance

	Max. Energy Capacity			Effective Weight							
TYPES	[1] E_3 in-lbs/cycle	[2] E_4 in-lbs/h	[2] E_4 with Air/Oil Tank in-lbs/h	[3] We min. lbs	[3] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	Side Load Angle max. °	Weight lbs
CA2X2-1	32,000	9,600,000	12,000,000	1,600	4,800	-1	48	63	0.25	3	28.2
CA2X2-2	32,000	9,600,000	12,000,000	4,000	12,000	-2	48	63	0.25	3	28.2
CA2X2-3	32,000	9,600,000	12,000,000	10,000	30,000	-3	48	63	0.25	3	28.2
CA2X2-4	32,000	9,600,000	12,000,000	25,000	75,000	-4	48	63	0.25	3	28.2
CA2X4-1	64,000	12,000,000	15,000,000	3,200	9,600	-1	34	63	0.50	3	32.6
CA2X4-2	64,000	12,000,000	15,000,000	8,000	24,000	-2	34	63	0.50	3	32.6
CA2X4-3	64,000	12,000,000	15,000,000	20,000	80,000	-3	34	63	0.50	3	32.6
CA2X4-4	64,000	12,000,000	15,000,000	50,000	150,000	-4	34	63	0.50	3	32.6
CA2X6-1	96,000	14,400,000	18,000,000	4,800	14,400	-1	34	90	0.60	3	37.3
CA2X6-2	96,000	14,400,000	18,000,000	12,000	36,000	-2	34	90	0.60	3	37.3
CA2X6-3	96,000	14,400,000	18,000,000	30,000	90,000	-3	34	90	0.60	3	37.3
CA2X6-4	96,000	14,400,000	18,000,000	75,000	225,000	-4	34	90	0.60	3	37.3
CA2X8-1	128,000	16,800,000	21,000,000	6,400	19,200	-1	51	144	0.70	3	42.6
CA2X8-2	128,000	16,800,000	21,000,000	16,000	48,000	-2	51	144	0.70	3	42.6
CA2X8-3	128,000	16,800,000	21,000,000	40,000	120,000	-3	51	144	0.70	3	42.6
CA2X8-4	128,000	16,800,000	21,000,000	100,000	300,000	-4	51	144	0.70	3	42.6
CA2X10-1	160,000	19,200,000	24,000,000	8,000	24,000	-1	35	101	0.80	3	50.3
CA2X10-2	160,000	19,200,000	24,000,000	20,000	60,000	-2	35	101	0.80	3	50.3
CA2X10-3	160,000	19,200,000	24,000,000	50,000	150,000	-3	35	101	0.80	3	50.3
CA2X10-4	160,000	19,200,000	24,000,000	125,000	375,000	-4	35	101	0.80	3	50.3

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] Figures for oil recirculation systems on request.
[3] The effective weight range limits can be raised or lowered to special order.

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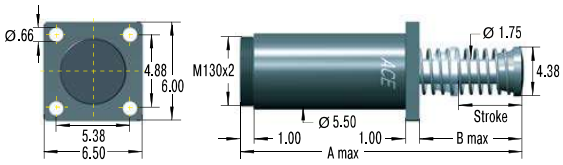
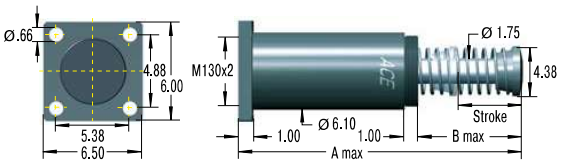
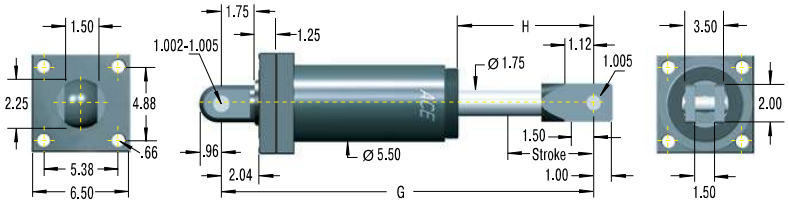
CA3-F Front Flange



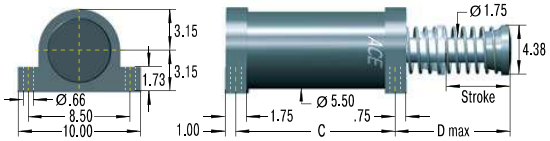
CA3-R Rear Flange



CA3-C Clevis Mount



CA3-S Foot Mount



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CNA: Self-Contained without return spring

CSA: Air/Oil return with return spring. Use only with external air/oil tank.

Ordering Example **CA3x5-3F**

- Self-Compensating
- Bore Size Ø 3"
- Stroke Length 5" = 127 mm
- Effective Weight Range Version
- Front Flange Mounting

Dimensions

TYPES	Stroke inch	A max. inch	B max. inch	C inch	D max. inch
CA3X5	5.00	19.31	8.31	9.95	8.81
CA3X8	8.00	25.31	11.31	12.95	11.81
CA3X12	12.00	35.09	17.09	16.95	17.59

Performance

	Max. Energy Capacity			Effective Weight							
TYPES	[1] E_3 in-lbs/cycle	[2] E_4 in-lbs/h	[2] E_4 with Air/Oil Tank in-lbs/h	[3] We min. lbs	[3] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	Side Load Angle max. °	Weight lbs
CA3X5-1	125,000	20,000,000	25,000,000	6,400	19,200	-1	59	156	0.6	3	63.7
CA3X5-2	125,000	20,000,000	25,000,000	16,000	48,000	-2	59	156	0.6	3	63.7
CA3X5-3	125,000	20,000,000	25,000,000	40,000	120,000	-3	59	156	0.6	3	63.7
CA3X5-4	125,000	20,000,000	25,000,000	100,000	300,000	-4	59	156	0.6	3	63.7
CA3X8-1	200,000	32,000,000	40,000,000	10,240	30,720	-1	62	162	0.8	3	73.6
CA3X8-2	200,000	32,000,000	40,000,000	25,600	76,800	-2	62	162	0.8	3	73.6
CA3X8-3	200,000	32,000,000	40,000,000	64,000	192,000	-3	62	162	0.8	3	73.6
CA3X8-4	200,000	32,000,000	40,000,000	160,000	480,000	-4	62	162	0.8	3	73.6
CA3X12-1	300,000	48,000,000	60,000,000	15,360	46,080	-1	60	160	1.2	3	89.5
CA3X12-2	300,000	48,000,000	60,000,000	38,400	15,200	-2	60	160	1.2	3	89.5
CA3X12-3	300,000	48,000,000	60,000,000	96,000	288,000	-3	60	160	1.2	3	89.5
CA3X12-4	300,000	48,000,000	60,000,000	240,000	720,000	-4	60	160	1.2	3	89.5

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.

[2] Figures for oil recirculation systems on request.

[3] The effective weight range limits can be raised or lowered to special order.

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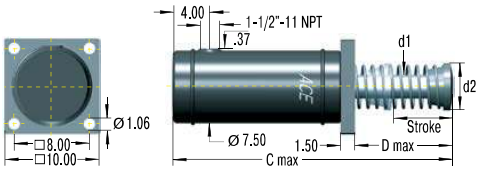
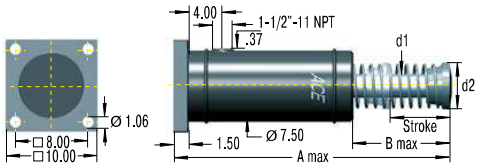
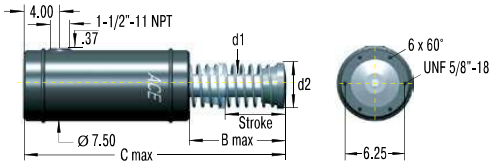
CA4-F Front Flange



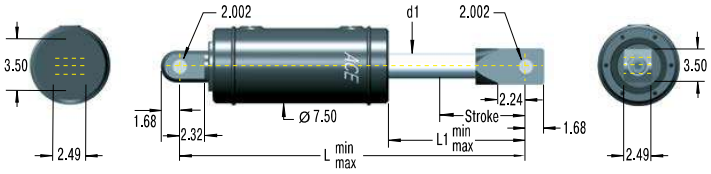
CA4-R Rear Flange



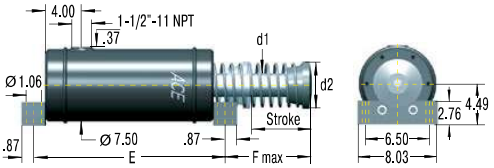
CA4-FRP 6 Tapped Holes Primary Mounting



CA4-C Clevis Mount



CA4-S Foot Mount



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models

CA: Self-contained with return spring, self-compensating

Special Models

CAA: Air/Oil return without return spring. Use only with external air/oil tank.

CNA: Self-Contained without return spring

CSA: Air/Oil return with return spring. Use only with external air/oil tank.

Ordering Example **CA4x8R-5**

- Self-Compensating
- Bore Size ⌀ 4"
- Stroke Length 8" (203 mm)
- Rear Flange Mounting
- Effective Weight Range Version

Dimensions

TYPES	Stroke inch	A max. inch	B max. inch	C max. inch	D max. inch	d1 inch	d2 inch	E inch	F inch
CA4X6	6.00	28.21	10.96	26.71	9.46	2.12	4.50	17.50	10.09
CA4X8	8.00	32.21	12.96	30.71	11.46	2.12	4.50	19.50	12.09
CA4X16	16.00	51.21	23.96	49.71	22.46	2.50	5.00	27.50	23.09

Performance

	Max. Energy Capacity				Effective Weight						
TYPES	[1] E_3 in-lbs/cycle	E_4 in-lbs/h	E_4 with Air/Oil Tank in-lbs/h	E_4 with Oil Recirculation in-lbs/h	[2] We min. lbs	[2] We max. lbs	Hardness	Return Force min. lbs	Return Force max. lbs	Return Time s	Weight lbs
CA4X6-3	420,000	27,000,000	45,000,000	58,400,000	8,000	19,000	-3	108	222	1.8	132.3
CA4X6-5	420,000	27,000,000	45,000,000	58,400,000	19,000	41,000	-5	108	222	1.8	132.3
CA4X6-7	420,000	27,000,000	45,000,000	58,400,000	41,000	94,000	-7	108	222	1.8	132.3
CA4X8-3	560,000	30,000,000	50,000,000	64,600,000	11,000	25,000	-3	71	222	2.3	149.9
CA4X8-5	560,000	30,000,000	50,000,000	64,600,000	25,000	55,000	-5	71	222	2.3	149.9
CA4X8-7	560,000	30,000,000	50,000,000	64,600,000	55,000	125,000	-7	71	222	2.3	149.9
CA4X16-3	1,120,000	50,000,000	85,000,000	109,800,000	22,000	50,000	-3	71	222	ask	321.9
CA4X16-5	1,120,000	50,000,000	85,000,000	109,800,000	50,000	110,000	-5	71	222	ask	321.9
CA4X16-7	1,120,000	50,000,000	85,000,000	109,800,000	110,000	250,000	-7	71	222	ask	321.9

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.

[2] The effective weight range limits can be raised or lowered to special order.

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A1 1/2 to A3

Deceleration of heavy loads and progressive adjustment

Adjustable

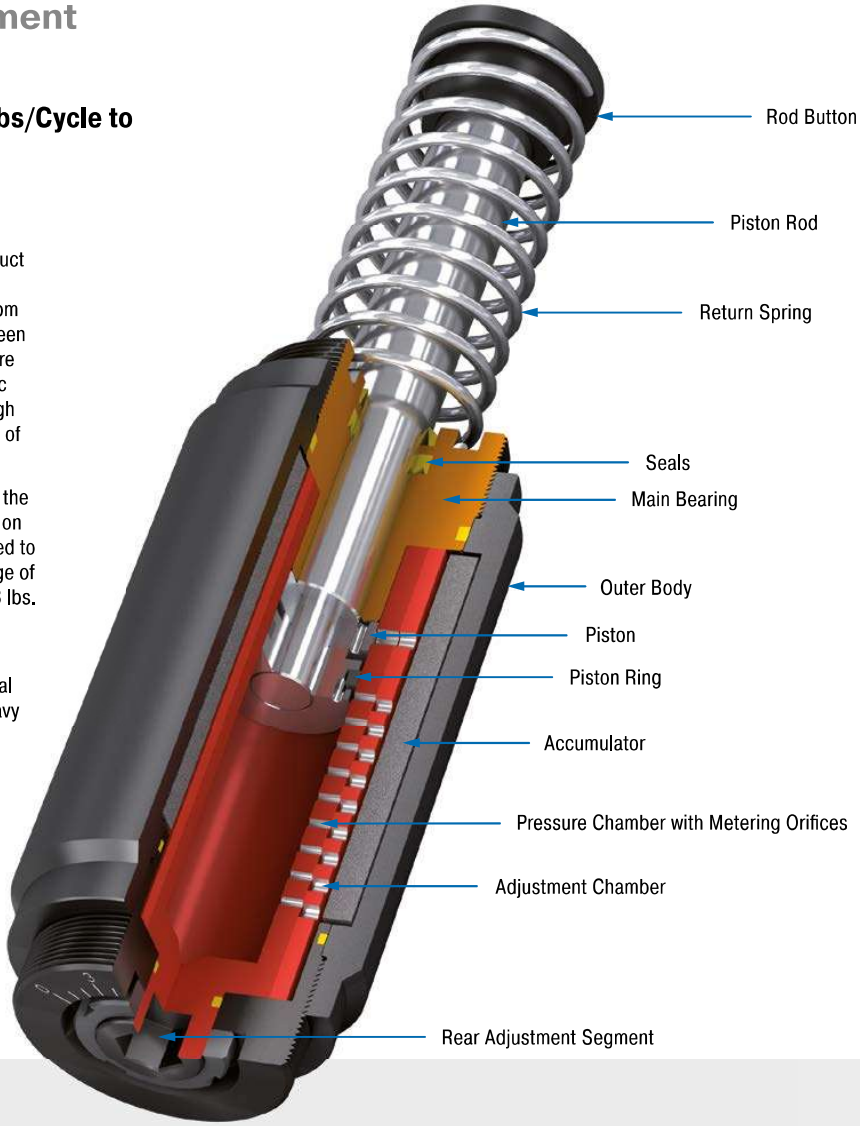
Energy capacity 21,000 in-lbs/Cycle to 390,000 in-lbs/Cycle

Stroke 2.00 in to 12.00 in

Strong and adjustable: Also in ACE's product range of units are adjustable heavy duty industrial shock absorbers. The models from the A1 1/2 to A3 range, which weigh between 16.6 lbs and 105.8 lbs (7.55 and 48 kg), are extremely robust, ready-to-install hydraulic machine components with impressively high energy absorption levels and a wide range of damping rates.

Their special aspect is the flexibility, as all the absorbers can be adjusted using a socket on the absorber base and be perfectly adapted to the application. The A models cover a range of effective weights from 0.66 lbs to 449,743 lbs. (0.3 to 204,000 kg) and can absorb up to 389,433 in-lbs. (44,000 Nm) energy.

These heavy duty, adjustable ACE industrial shock absorbers are the first choice in heavy duty applications and generally in heavy industrial maching design when the usage data has not been exactly determined.



Technical Data

Energy capacity: 21,000 in-lbs/Cycle to 390,000 in-lbs/Cycle

Impact velocity range: 0.5 ft/sec to 15 ft/sec. Other speeds on request.

Operating temperature range: 10 °F to 150 °F. Other temperatures on request.

Mounting: In any position

Positive stop: External positive stops 0.10" to 0.12" before the end of stroke provided by the customer.

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

Material: Outer body: Steel corrosion-resistant coating; Piston rod: Hard chrome plated steel; Rod end button: Hardened steel and corrosion-resistant coating; Return spring: Zinc plated steel

Damping medium: Automatic Transmission Fluid (ATF)

Application field: Portal systems, Machines and plants, Conveyor systems, Crane systems, Loading and lifting equipment, Impact panels, Heavy load applications, Swivel units, Shelf storage systems

Note: For emergency use only applications and for continous use it is possible to exceed the published max. capacity ratings. In this case, please consult ACE.

Safety information: 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.

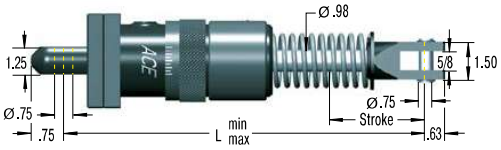
On request: Special oils, nickel-plated, increased corrosion protection or other special options are available on request.

Issue 04.2018 – Specifications subject to change

A1 1/2-F Front Flange

A1 1/2-R Rear Flange

A1 1/2-C Clevis Mount



A1 1/2-S Foot Mount

The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models
A: Self-contained with return spring, adjustable
Special Models
AA: Air/Oil return without return spring. Use only with external air/oil tank.
NA: Self-contained without return spring
SA: Air/Oil return with return spring. Use only with external air/oil tank.

Ordering Example **A1½x2R**

Adjustable
Bore Size ⌀ 1½"
Stroke Length 2" (50.8 mm)
Rear Flange Mounting

Dimensions

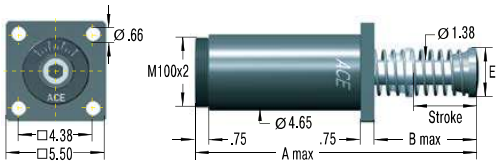
TYPES	Stroke inch	L min. inch	L max. inch	L1 inch	L2 inch	L3 inch	L4 inch
A11/2X2	2.00	10.94	12.94	7.69	2.13	-	-
A11/2X31/2	3.50	12.46	15.97	9.19	2.13	6.69	2.31
A11/2X5	5.00	13.97	18.97	10.69	2.13	8.19	2.31
A11/2X61/2	6.50	16.22	22.72	12.94	2.88	9.69	3.06

Performance

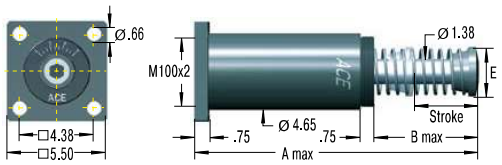
	Max. Energy Capacity			Effective Weight						
TYPES	[1] E_3 in-lbs/cycle	[2] E_4 in-lbs/h	[2] E_4 with Air/Oil Tank in-lbs/h	[3] We min. lbs	[3] We max. lbs	Return Force min. lbs	Return Force max. lbs	Return Time s	Side Load Angle max. °	Weight lbs
A11/2X2	21,000	3,200,000	4,000,000	430	70,000	34.9	47.6	0.10	5	16.6
A11/2X31/2	36,750	5,600,000	7,000,000	480	80,000	25.4	47.6	0.25	4	19.6
A11/2X5	52,500	8,000,000	10,000,000	500	90,000	20.7	52.5	0.40	3	20.6
A11/2X61/2	68,250	10,400,000	13,000,000	680	100,000	20.7	97.4	0.40	2	26.3

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] Figures for oil recirculation systems on request.
[3] The effective weight range limits can be raised or lowered to special order.

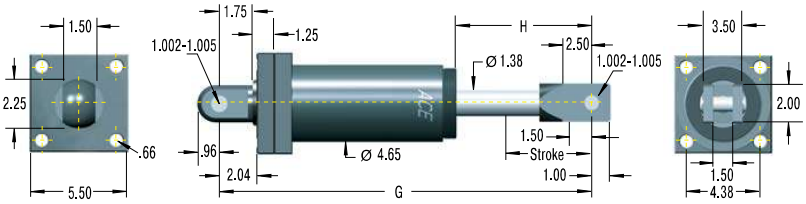
A2-F Front Flange



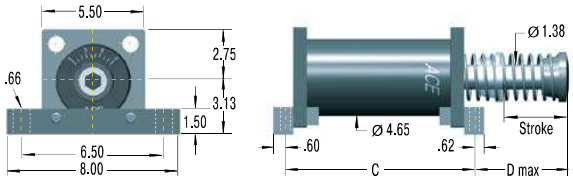
A2-R Rear Flange



A2-C Clevis Mount



A2-S 2" Bore Foot Mount



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models

A: Self-contained with return spring, adjustable

Special Models

AA: Air/Oil return without return spring. Use only with external air/oil tank.

NA: Self-contained without return spring

SA: Air/Oil return with return spring. Use only with external air/oil tank.

Ordering Example **A2x6-R**

Adjustable

Bore Size Ø 2"

Stroke Length 6" = 152 mm

Rear Flange Mounting

Dimensions

TYPES	Stroke inch	A max. inch	B max. inch	C inch	D max. inch	E inch
A2X2	2.00	12.37	4.37	9.28	3.74	2.73
A2X4	4.00	16.37	6.31	11.28	5.74	2.73
A2X6	6.00	20.37	8.37	13.28	7.74	2.73
A2X8	8.00	25.37	11.37	15.28	10.74	3.63
A2X10	10.00	29.37	13.37	17.28	12.74	4.25

Performance

	Max. Energy Capacity			Effective Weight						
TYPES	[1] E_3 in-lbs/cycle	[2] E_4 in-lbs/h	[2] E_4 with Air/Oil Tank in-lbs/h	[3] We min. lbs	[3] We max. lbs	Return Force min. lbs	Return Force max. lbs	Return Time s	Side Load Angle max. °	Weight lbs
A2X2	32,000	9,600,000	12,000,000	560	170,000	48	63	0.25	3	31.5
A2X4	80,000	12,000,000	15,000,000	560	180,000	34	63	0.50	3	36.9
A2X6	120,000	14,400,000	18,000,000	570	190,000	34	90	0.60	3	42.6
A2X8	170,000	16,800,000	21,000,000	580	200,000	51	144	0.70	3	49.2
A2X10	210,000	19,200,000	24,000,000	720	250,000	35	101	0.80	3	57.8

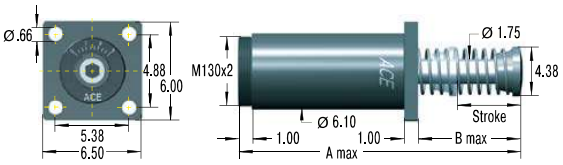
[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.

[2] Figures for oil recirculation systems on request.

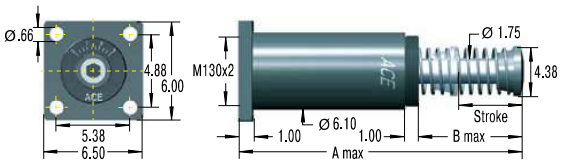
[3] The effective weight range limits can be raised or lowered to special order.

Issue 04.2018 – Specifications subject to change

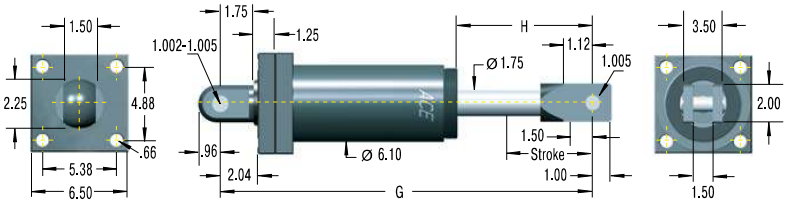
A3-F Front Flange



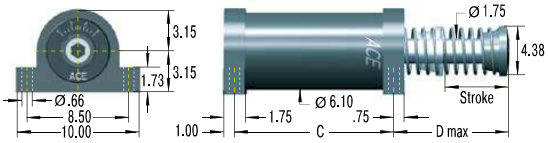
A3-R Rear Flange



A3-C Clevis Mount



A3-S Foot Mount



The calculation and selection of the most suitable damper should be carried out or be approved by ACE.

Model Type Prefix

Standard Models

A: Self-contained with return spring, adjustable

Special Models

AA: Air/Oil return without return spring. Use only with external air/oil tank.
NA: Self-contained without return spring
SA: Air/Oil return with return spring. Use only with external air/oil tank.

Ordering Example **A3x8R**

Adjustable
Bore Size Ø 3"
Stroke Length **8"** (203 mm)
Rear Flange Mounting

Dimensions

TYPES	Stroke **inch**	A max. **inch**	B max. **inch**	C **inch**	D max. **inch**
A3X5	5.00	19.31	8.31	9.95	8.81
A3X8	8.00	25.31	11.31	12.95	11.81
A3X12	12.00	35.09	17.09	16.95	17.59

Performance

	Max. Energy Capacity			Effective Weight						
TYPES	[1] E_3 **in-lbs/cycle**	[2] E_4 **in-lbs/h**	[2] E_4 with Air/Oil Tank **in-lbs/h**	[3] We min. **lbs**	[3] We max. **lbs**	Return Force min. **lbs**	Return Force max. **lbs**	Return Time **s**	Side Load Angle max. °	Weight **lbs**
A3X5	140,000	20,000,000	25,000,000	1,050	340,000	59	156	0.6	3	72.1
A3X8	250,000	32,000,000	40,000,000	1,200	400,000	62	162	0.8	3	84.9
A3X12	390,000	48,000,000	60,000,000	1,350	450,000	60	160	1.2	3	105.8

[1] For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.
[2] Figures for oil recirculation systems on request.
[3] The effective weight range limits can be raised or lowered to special order.

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Air/Oil Tanks
for industrial shock absorbers

For high cycle rates and extreme temperatures with limited mounting space

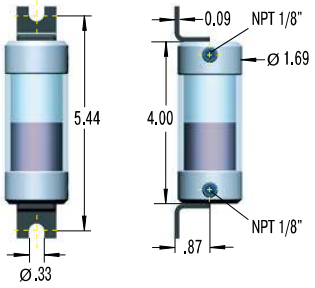
Shock absorbers convert the introduced energy into heat. The more frequently a shock absorber is stressed per hour, the hotter the oil volume becomes over time. If the requirements placed on the impact frequency of a shock absorber are especially high, use of an air-oil tank is the solution.

Thanks to increased oil volume and resulting heat dissipation, the upper limit of the possible hourly energy capacity of the shock absorber increases significantly.

In addition, the air-oil tank provides an opportunity for controlled piston return if no permanent return force through an integrated spring in the shock absorber is desired.

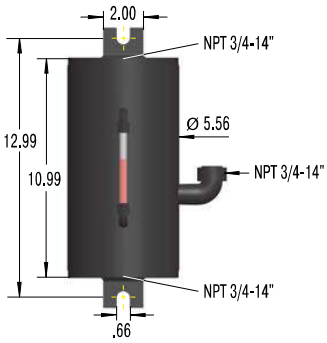
Air/Oil Tanks AO

AO1
Oil capacity 0.6 oz.
Material: Aluminium caps



AO3
Oil capacity 12.5 oz.
Material: Steel

AO6
Oil capacity 88 oz.
Material: Steel



Detail drawings on request

Technical Data

Operating pressure: Max. 8 bar (116 psi)
Operating temperature range: 176 °F
Damping medium: ATF-Oil 42 cSt at 104 °F
Mount air/oil tank higher than shock absorber. Bleed all air from system before operating.

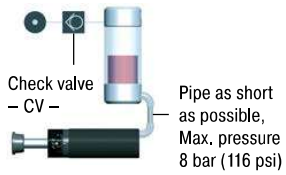
Safety instructions: Exhaust tank before carrying out service. Check valve holds pressure!

Suggested air/oil tanks in accordance with E_4 ratings

Issue 04.2018 – Specifications subject to change

Connection Examples

1

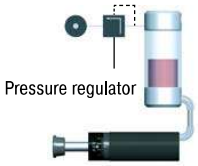


Piston rod returns immediately to extended position when load moves away. Operation without main air supply possible for short periods.

2

Return stroke may be sequenced by pneumatic valve at any desired time. No return force until valve energised.

3

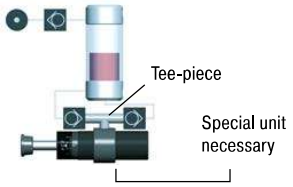


Return force can be adjusted by pressure regulator. Ensure safe minimum pressure to return shock absorber.

4

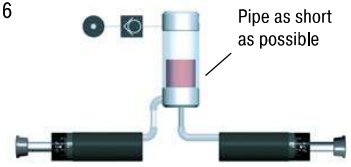
Spring return with air/oil tank. No air supply connected. Note: Will extend return time.

5



Oil recirculation circuit for extreme high cycle rates. Warm oil is positively circulated through air/oil tank for increased heat dissipation.

6



Connection of two shock absorbers to one air/oil tank is possible. Use next larger size tank. Combination with examples 2, 3 and 5 possible.

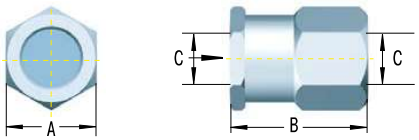
Selection Chart Air/Oil Tanks

	With Tank Example 1 to 4		With Recirc. Circuits Example 5 to 6		Min. Conn. Pipe Ø	Thread Sizes for Connection to Air/Oil Tank	
Shock Absorber Type	Tank	Check Valve	Tank	Check Valve	inch	Thread Bottom	[2] Thread Side
MCA, MAA, MLA33...	AO1	CV1/8	AO3	CV1/4	0.16	[1] 1/8-27 NPTF inside	1/8-27 NPTF inside
MCA, MAA, MLA45...	AO1	CV1/8	AO3	CV3/8	0.24	1/8-27 NPTF inside	1/8-27 NPTF inside
MCA, MAA, MLA64...	AO3	CV1/4	AO6	CV3/4	0.31	1/4-18 NPTF inside	1/4-18 NPTF inside
CAA, AA2...	AO6	CV3/4	AO82	CV3/4	0.59	–	–
CAA, AA3...	AO6	CV3/4	AO82	CV3/4	0.75	–	–
CAA4...	AO82	CV3/4	AO82	CV3/4	1.50	–	–

AO82 and connection accessories: Details on request
[1] adapted
[2] on request (add suffix -PG/-P)

Check Valves CV

Through an oil circuit fresh oil is drawn in from the industrial shock absorber and warm oil is pumped off (see example 5). To obtain this function, ACE offers suitable check valves of the CV series.



Technical Data

Operating pressure: 20 bar (290 psi)
Operating temperature range: 203 °F
Suitable for: Oil, air, water
Material: Aluminium

Check Valves – Dimensions

TYPES	A inch	B inch	C
CV1/8	0.75	0.94	1/8-27 NPT
CV1/4	1.14	1.30	1/4-18 NPT
CV3/8	1.14	1.30	3/8-18 NPT
CV1/2	1.61	1.57	1/2-14 NPT
CV3/4	1.89	2.32	3/4-14 NPT