

Heavy Industrial Shock Absorbers



CA2 to CA4

Self-Compensating

Deceleration of heavy loads

Portal systems, Machines and plants, Conveyor systems, Crane systems

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A1½ to A3

Adjustable

Deceleration of heavy loads and progressive adjustment

Portal systems, Machines and plants, Conveyor systems, Crane systems

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Rugged and powerful

Gently stops heavy loads with high precision

Also ideal for emergency stop utilisation

Safe, reliable production

Maintenance-free and ready-to-install

Special versions available



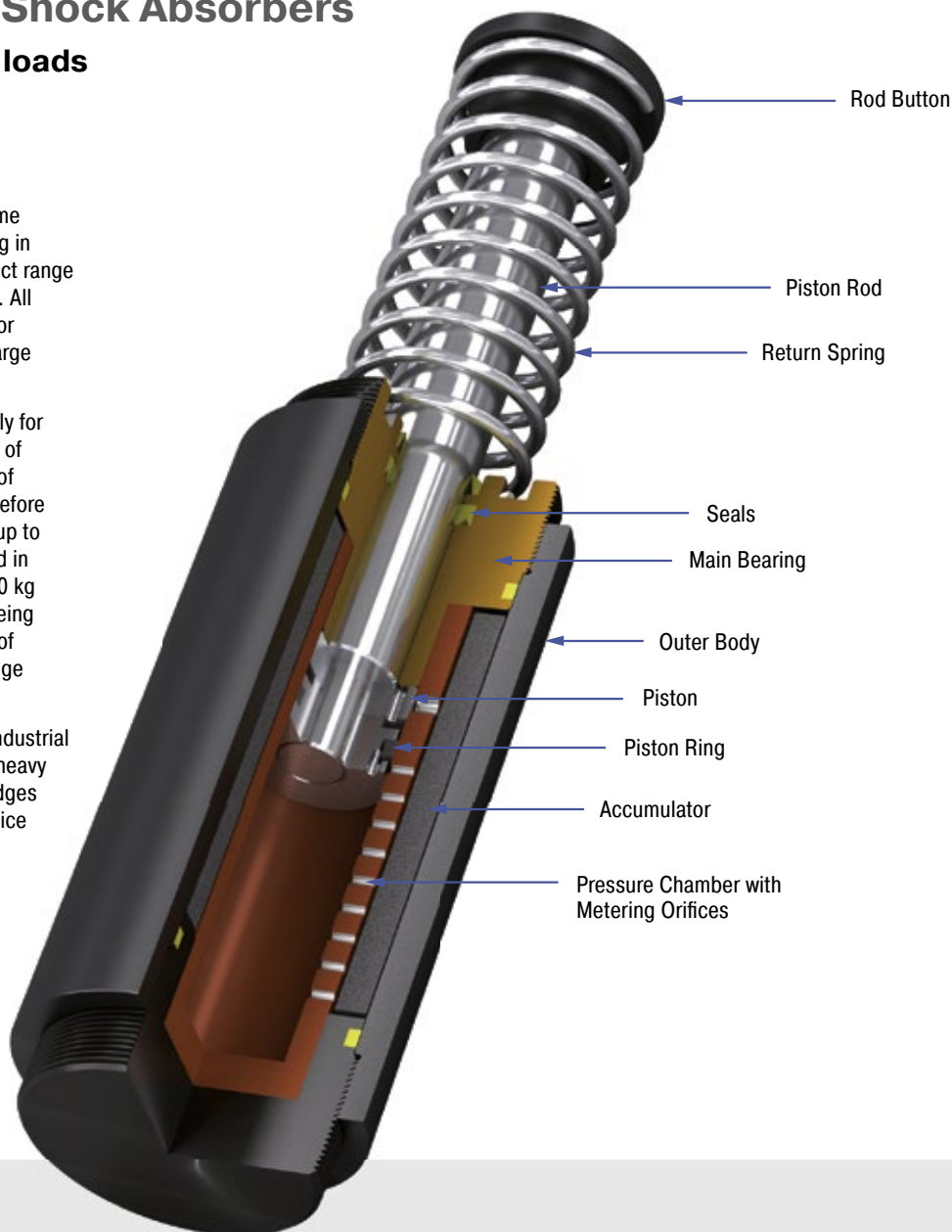
CA2 to CA4 Heavy Industrial Shock Absorbers

Deceleration of heavy loads

Powerful: The mass of these high volume absorbers are between 12.8 and 146 kg in weight. They complement ACE's product range of self-compensating shock absorbers. All models from this series are designed for applications where robustness and a large energy absorption are important.

The absorbers are designed specifically for each customer application with the aid of the ACE calculation program. The risk of crashes and incorrect settings are therefore prevented. The CA models can absorb up to 126,500 Nm of energy and can be used in the area of effective loads between 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.

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



Technical Data

Energy capacity: 3,600 Nm/Cycle to 126,500 Nm/Cycle

Impact velocity range: 0.3 m/s to 5 m/s. Other speeds on request.

Operating temperature range: -12 °C to +66 °C. Other temperatures on request.

Mounting: In any position

Positive stop: External positive stops 2.5 mm to 3 mm 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

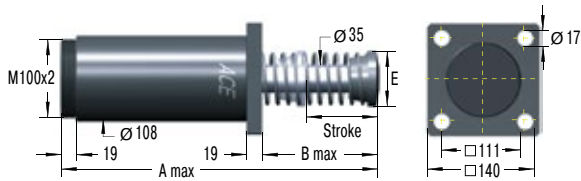
Note: For emergency use only applications and for continuous use it is possible to exceed the published max. capacity ratings. In this case, please consult ACE.

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

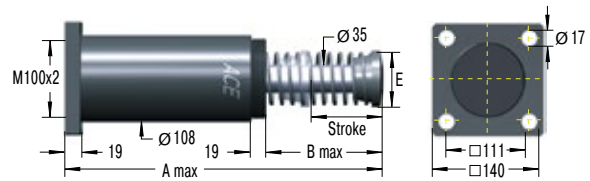
suggestions. Do not paint the shock absorbers due to heat emission.

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

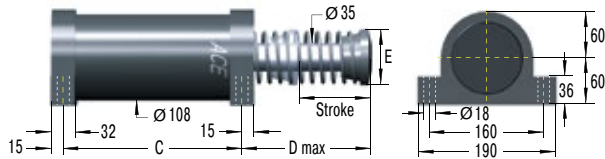
CA2EU-F Front Flange



CA2EU-R Rear Flange



CA2EU-SM Foot Mount



Clevis mounting available on request.

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

Self-Compensating CA2x4EU-3F
 Bore Size Ø 2" ↑
 Stroke Length 4" = 102 mm ↑
 EU Compliant ↑
 Effective Weight Range Version ↑
 Front Flange Mounting ↑

Dimensions

TYPES	Stroke mm	A max. mm	B max. mm	C mm	D max. mm	E mm
CA2X2EU	50	313	110	173	125	70
CA2X4EU	102	414	160	224	175	70
CA2X6EU	152	516	211	275	226	70
CA2X8EU	203	643	287	326	302	92
CA2X10EU	254	745	338	377	353	108

Performance

TYPES	Max. Energy Capacity			Effective Weight			Return force min. N	Return force max. N	Return time s	Side Load Angle max. °	Weight kg
	¹ W ₃ Nm/cycle	² W ₄ Nm/h	² W ₄ with Air/Oil Tank Nm/h	³ me min. kg	³ me max. kg	Hardness					
CA2X2EU-1	3,600	1,100,000	1,350,000	700	2,200	-1	210	285	0.25	3	12.80
CA2X2EU-2	3,600	1,100,000	1,350,000	1,800	5,400	-2	210	285	0.25	3	14.29
CA2X2EU-3	3,600	1,100,000	1,350,000	4,500	13,000	-3	210	285	0.25	3	12.80
CA2X2EU-4	3,600	1,100,000	1,350,000	11,300	34,000	-4	210	285	0.25	3	14.29
CA2X4EU-1	7,200	1,350,000	1,700,000	1,400	4,400	-1	150	285	0.50	3	16.74
CA2X4EU-2	7,200	1,350,000	1,700,000	3,600	11,000	-2	150	285	0.50	3	16.74
CA2X4EU-3	7,200	1,350,000	1,700,000	9,100	27,200	-3	150	285	0.50	3	16.74
CA2X4EU-4	7,200	1,350,000	1,700,000	22,600	68,000	-4	150	285	0.50	3	16.74
CA2X6EU-1	10,800	1,600,000	2,000,000	2,200	6,500	-1	150	400	0.60	3	19.32
CA2X6EU-2	10,800	1,600,000	2,000,000	5,400	16,300	-2	150	400	0.60	3	19.32
CA2X6EU-3	10,800	1,600,000	2,000,000	13,600	40,800	-3	150	400	0.60	3	19.32
CA2X6EU-4	10,800	1,600,000	2,000,000	34,000	102,000	-4	150	400	0.60	3	19.32
CA2X8EU-1	14,500	1,900,000	2,400,000	2,900	8,700	-1	230	650	0.70	3	22.27
CA2X8EU-2	14,500	1,900,000	2,400,000	7,200	21,700	-2	230	650	0.70	3	22.27
CA2X8EU-3	14,500	1,900,000	2,400,000	18,100	54,400	-3	230	650	0.70	3	22.27
CA2X8EU-4	14,500	1,900,000	2,400,000	45,300	136,000	-4	230	650	0.70	3	22.27
CA2X10EU-1	18,000	2,200,000	2,700,000	3,600	11,000	-1	160	460	0.80	3	32.30
CA2X10EU-2	18,000	2,200,000	2,700,000	9,100	27,200	-2	160	460	0.80	3	32.30
CA2X10EU-3	18,000	2,200,000	2,700,000	22,600	68,000	-3	160	460	0.80	3	32.30
CA2X10EU-4	18,000	2,200,000	2,700,000	56,600	170,000	-4	160	460	0.80	3	32.30

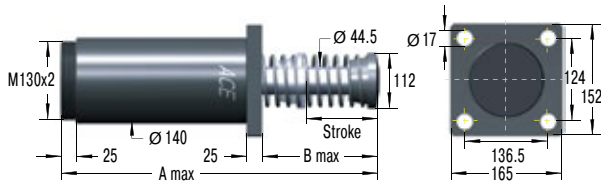
¹ For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.

² Figures for oil recirculation systems on request.

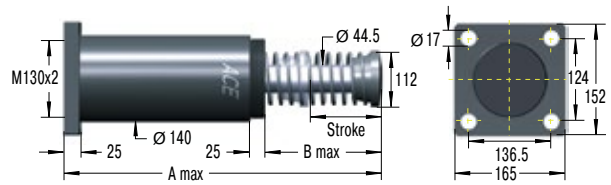
³ The effective weight range limits can be raised or lowered to special order.

Self-Compensating

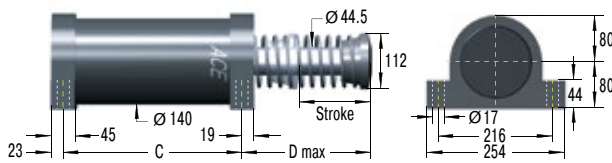
CA3EU-F Front Flange



CA3EU-R Rear Flange



CA3EU-S Foot Mount



Clevis mounting available on request.

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.

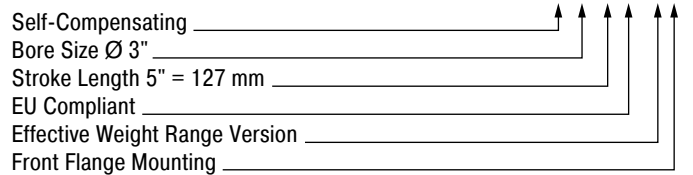
Use only with external air/oil tank.

CNA: Self-Contained without return spring

CSA: Air/Oil return with return spring.

Use only with external air/oil tank.

Ordering Example



Dimensions

TYPES	Stroke mm	A max. mm	B max. mm	C mm	D max. mm
CA3X5EU	127	490.5	211	254	224
CA3X8EU	203	641	286	330	300
CA3X12EU	305	890	434	432	447

Performance

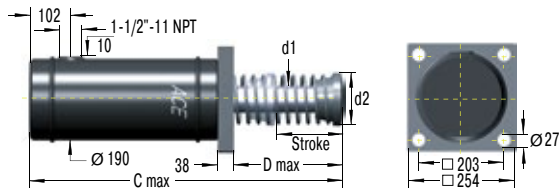
TYPES	Max. Energy Capacity			Effective Weight			Return force min. N	Return force max. N	Return time s	Side Load Angle max. °	Weight kg
	¹ W ₃ Nm/cycle	² W ₄ Nm/h	² W ₄ with Air/Oil Tank Nm/h	³ me min. kg	³ me max. kg	Hardness					
CA3X5EU-1	14,125	2,260,000	2,800,000	2,900	8,700	-1	270	710	0.6	3	32.70
CA3X5EU-2	14,125	2,260,000	2,800,000	7,250	21,700	-2	270	710	0.6	3	32.70
CA3X5EU-3	14,125	2,260,000	2,800,000	18,100	54,350	-3	270	710	0.6	3	32.70
CA3X5EU-4	14,125	2,260,000	2,800,000	45,300	135,900	-4	270	710	0.6	3	32.70
CA3X8EU-1	22,600	3,600,000	4,520,000	4,650	13,900	-1	280	740	0.8	3	38.51
CA3X8EU-2	22,600	3,600,000	4,520,000	11,600	34,800	-2	280	740	0.8	3	38.51
CA3X8EU-3	22,600	3,600,000	4,520,000	29,000	87,000	-3	280	740	0.8	3	33.40
CA3X8EU-4	22,600	3,600,000	4,520,000	72,500	217,000	-4	280	740	0.8	3	38.51
CA3X12EU-1	33,900	5,400,000	6,780,000	6,950	20,900	-1	270	730	1.2	3	47.63
CA3X12EU-2	33,900	5,400,000	6,780,000	17,400	52,200	-2	270	730	1.2	3	47.63
CA3X12EU-3	33,900	5,400,000	6,780,000	43,500	130,450	-3	270	730	1.2	3	47.63
CA3X12EU-4	33,900	5,400,000	6,780,000	108,700	326,000	-4	270	730	1.2	3	47.63

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

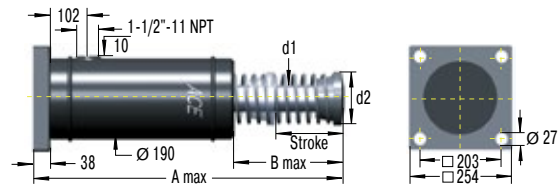
² Figures for oil recirculation systems on request.

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

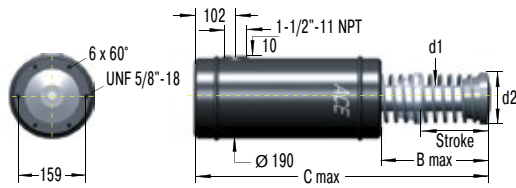
CA4EU-F Front Flange



CA4EU-R Rear Flange

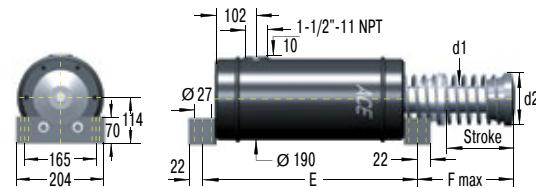


CA4EU-FRP 6 Tapped Holes



Clevis mounting available on request.

CA4EU-S Foot Mount



Clevis mounting available on request.

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

CA4x8EU-5R

Self-Compensating _____
 Bore Size \varnothing 4" _____
 Stroke Length 8" = 203 mm _____
 EU Compliant _____
 Effective Weight Range Version _____
 Rear Flange Mounting _____

Dimensions

TYPES	Stroke mm	A max. mm	B max. mm	C max. mm	D max. mm	d1 mm	d2 mm	E mm	F mm
CA4X6EU	152	716	278	678	240	54	114	444	256
CA4X8EU	203	818	329	780	291	54	114	495	307
CA4X16EU	406	1,300	608.5	1,262.6	569	63.5	127	698	585

Performance

TYPES	Max. Energy Capacity				Effective Weight			Return force min. N	Return force max. N	Return time s	Weight kg
	¹ W ₃ Nm/cycle	W ₄ Nm/h	W ₄ with Air/Oil Tank Nm/h	W ₄ with Oil Recirculation Nm/h	² me min. kg	² me max. kg	Hardness				
CA4X6EU-3	47,500	3,000,000	5,100,000	6,600,000	3,500	8,600	-3	480	1,000	1.8	60.00
CA4X6EU-5	47,500	3,000,000	5,100,000	6,600,000	8,600	18,600	-5	480	1,000	1.8	60.00
CA4X6EU-7	47,500	3,000,000	5,100,000	6,600,000	18,600	42,700	-7	480	1,000	1.8	60.00
CA4X8EU-3	63,300	3,400,000	5,600,000	7,300,000	5,000	11,400	-3	310	1,000	2.3	68.00
CA4X8EU-5	63,300	3,400,000	5,600,000	7,300,000	11,400	25,000	-5	310	1,000	2.3	68.00
CA4X8EU-7	63,300	3,400,000	5,600,000	7,300,000	25,000	57,000	-7	310	1,000	2.3	68.00
CA4X16EU-3	126,500	5,600,000	9,600,000	12,400,000	10,000	23,000	-3	310	1,000	ask	146.00
CA4X16EU-5	126,500	5,600,000	9,600,000	12,400,000	23,000	50,000	-5	310	1,000	ask	146.00
CA4X16EU-7	126,500	5,600,000	9,600,000	12,400,000	50,000	115,000	-7	310	1,000	ask	146.00

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.

Adjustable

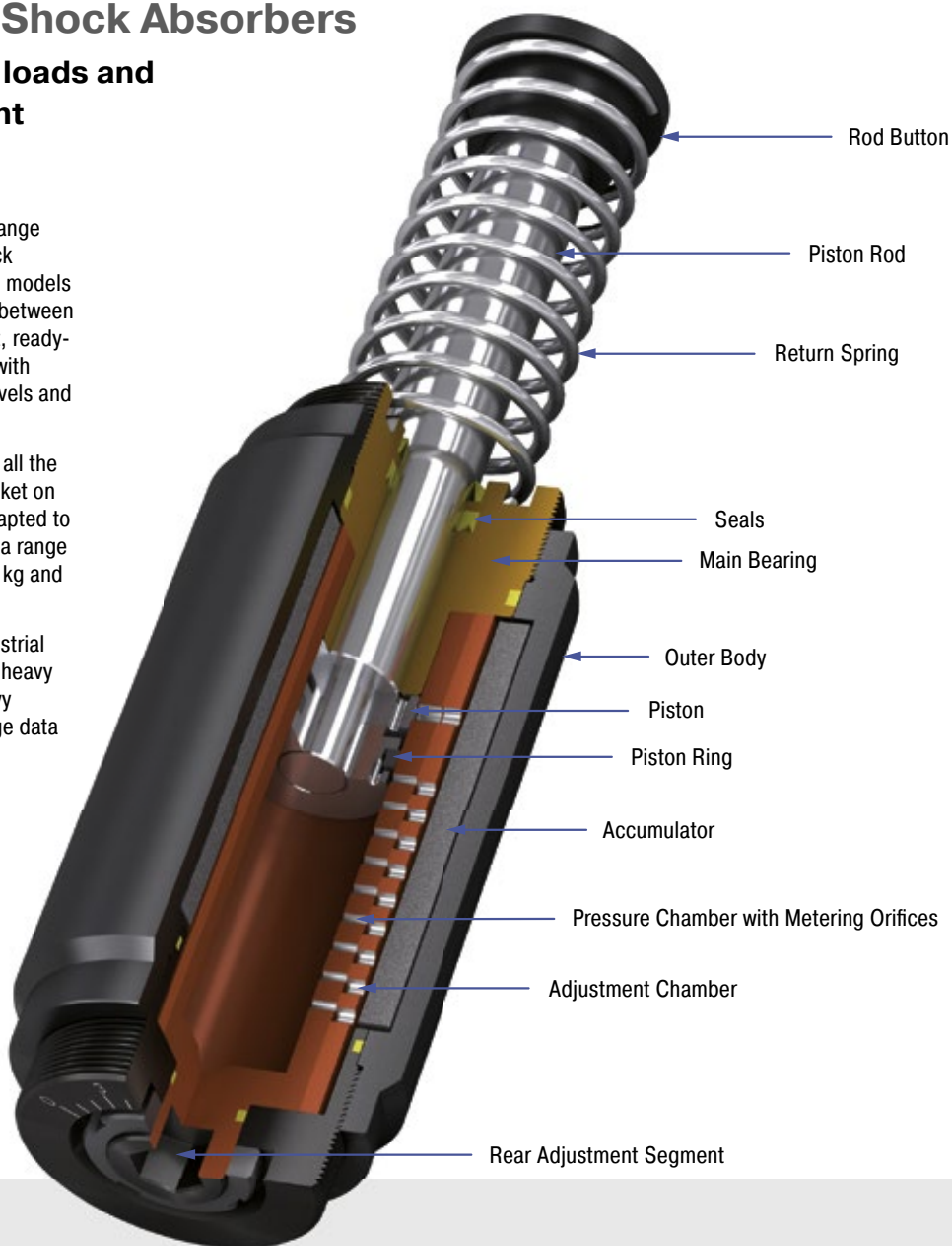
A1½ to A3 Heavy Industrial Shock Absorbers

Deceleration of heavy loads and progressive adjustment

Strong and adjustable: Also in ACE's range of units are heavy duty industrial shock absorbers, which can be adjusted. The models from the A1½ to 3 range, which weigh between 7.55 and 35.5 kg, are extremely robust, ready-to-install hydraulic machine elements 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 required data. The A models cover a range of effective loads from 195 to 204,000 kg and can absorb up to 44,000 Nm energy.

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



Technical Data

Energy capacity: 2,350 Nm/Cycle to 44,000 Nm/Cycle

Impact velocity range: 0.1 m/s to 5 m/s. Other speeds on request.

Operating temperature range: -12 °C to +66 °C. Other temperatures on request.

Mounting: In any position

Positive stop: External positive stops 2.5 mm to 3 mm 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)

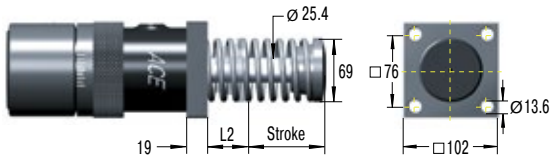
Application field: Portal systems, Machines and plants, Conveyor systems, Crane systems

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

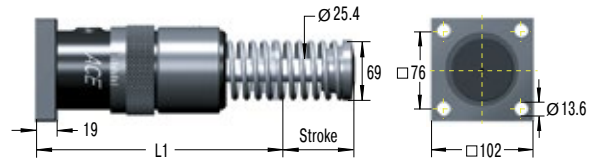
Safety instructions: External materials in the surrounding area can attack the seal components and lead to a shorter service life. Please contact ACE for appropriate solution suggestions. Do not paint the shock absorbers due to heat emission.

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

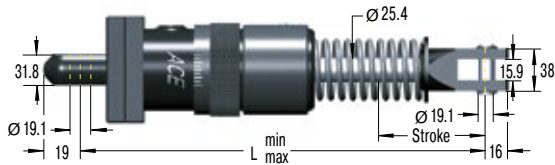
A1½EU-F Front Flange



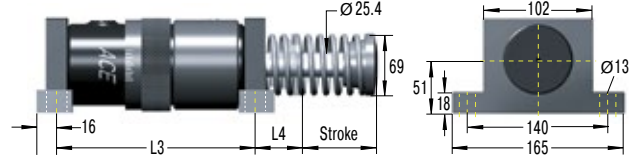
A1½EU-R Rear Flange



A1½EU-C Clevis Mount



A1½EU-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

Adjustable _____ **A1½x2EUR**
 Bore Size Ø 1½" _____
 Stroke Length 2" = 50.8 mm _____
 EU Compliant _____
 Rear Flange Mounting _____

Dimensions

TYPES	Stroke mm	L min. mm	L max. mm	L1 mm	L2 mm	L3 mm	L4 mm
A1½X2EU	50	277.8	328.6	195.2	54.2	-	-
A1½X3½EU	89	316.6	405.6	233	54.2	170	58.6
A1½X5EU	127	354.8	481.8	271.5	54.2	208	58.6
A1½X6½EU	165	412	577	329	73	246	78

Performance

TYPES	Max. Energy Capacity			Effective Weight		Return force min. N	Return force max. N	Return time s	Side Load Angle max. °	Weight kg
	¹ W _s Nm/cycle	² W _h Nm/h	² W _h with Air/Oil Tank Nm/h	³ me min. kg	³ me max. kg					
A1½X2EU	2,350	362,000	452,000	195	32,000	160	210	0.10	5	7.55
A1½X3½EU	4,150	633,000	791,000	218	36,000	110	210	0.25	4	8.90
A1½X5EU	5,900	904,000	1,130,000	227	41,000	90	230	0.40	3	9.35
A1½X6½EU	7,700	1,180,000	1,469,000	308	45,000	90	430	0.40	2	11.95

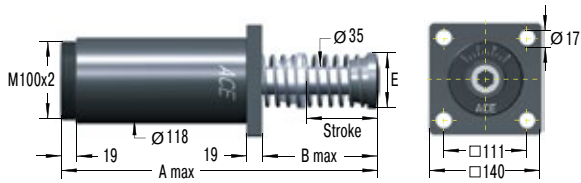
¹ For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.

² Figures for oil recirculation systems on request.

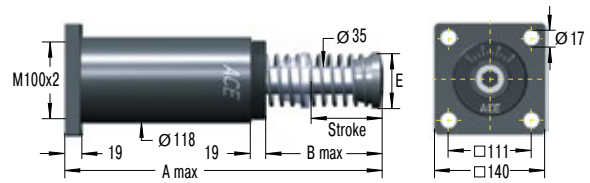
³ The effective weight range limits can be raised or lowered to special order.

Adjustable

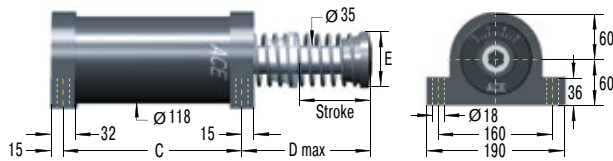
A2EU-F Front Flange



A2EU-R Rear Flange



A2EU-SM 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

Adjustable _____
 Bore Size Ø 2" _____
 Stroke Length 6" = 152 mm _____
 EU Compliant _____
 Rear Flange Mounting _____

A2x6EU-R

Dimensions

TYPES	Stroke mm	A max. mm	B max. mm	C mm	D max. mm	E mm
A2X2EU	50	313	110	173	125	70
A2X4EU	102	414	160	224	175	70
A2X6EU	152	516	211	275	226	70
A2X8EU	203	643	287	326	302	92
A2X10EU	254	745	338	377	353	108

Performance

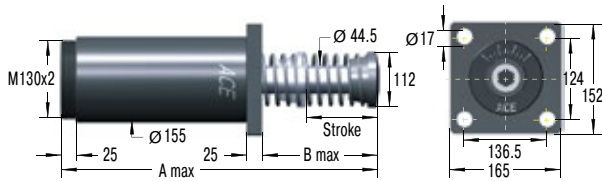
TYPES	Max. Energy Capacity			Effective Weight		Return force min. N	Return force max. N	Return time s	Side Load Angle max. °	Weight kg
	¹ W ₃ Nm/cycle	² W ₄ Nm/h	² W ₄ with Air/Oil Tank Nm/h	³ me min. kg	³ me max. kg					
A2X2EU	3,600	1,100,000	1,350,000	250	77,000	210	285	0.25	3	13.50
A2X4EU	9,000	1,350,000	1,700,000	250	82,000	150	285	0.50	3	19.85
A2X6EU	13,500	1,600,000	2,000,000	260	86,000	150	400	0.60	3	19.30
A2X8EU	19,200	1,900,000	2,400,000	260	90,000	230	650	0.70	3	19.85
A2X10EU	23,700	2,200,000	2,700,000	320	113,000	160	460	0.80	3	19.85

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

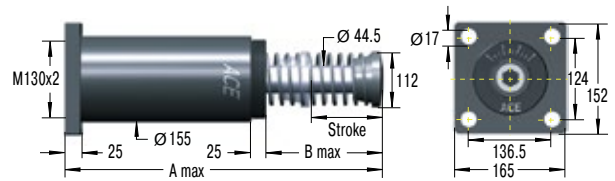
² Figures for oil recirculation systems on request.

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

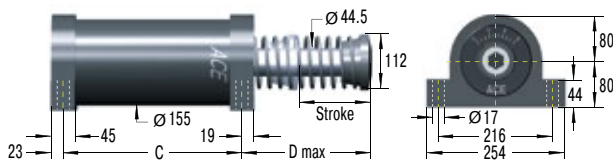
A3EU-F Front Flange



A3EU-R Rear Flange



A3EU-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

Adjustable _____ **A3x8EU**
 Bore Size Ø 3" _____
 Stroke Length 8" = 203 mm _____
 EU Compliant _____
 Rear Flange Mounting _____

Dimensions

TYPES	Stroke mm	A max. mm	B max. mm	C mm	D max. mm
A3X5EU	127	490.5	211	254	224
A3X8EU	203	641	286	330	300
A3X12EU	305	890	434	432	447

Performance

TYPES	Max. Energy Capacity			Effective Weight		Return force min. N	Return force max. N	Return time s	Side Load Angle max. °	Weight kg
	¹ W ₃ Nm/cycle	² W ₄ Nm/h	² W ₄ with Air/Oil Tank Nm/h	³ me min. kg	³ me max. kg					
A3X5EU	15,800	2,260,000	2,800,000	480	154,000	270	710	0.6	3	35.50
A3X8EU	28,200	3,600,000	4,520,000	540	181,500	280	740	0.8	3	46.20
A3X12EU	44,000	5,400,000	6,780,000	610	204,000	270	730	1.2	3	48.00

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.