

Heavy Industrial Shock Absorbers

Effective shock absorption for heavy loads

The heavy industrial shock absorbers from ACE round off the top of the company's offers in damping technology. Designers also have the choice between self-compensating and adjustable machine elements in this category from ACE.

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

The CA4 models can absorb up to 126,500 Nm of energy. The series of heavy duty, self-compensating CA types are equally suitable for use as an emergency stop as the adjustable types with the designations A1 to A3. The range of effective loads covered is increased considerably for this purpose.



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

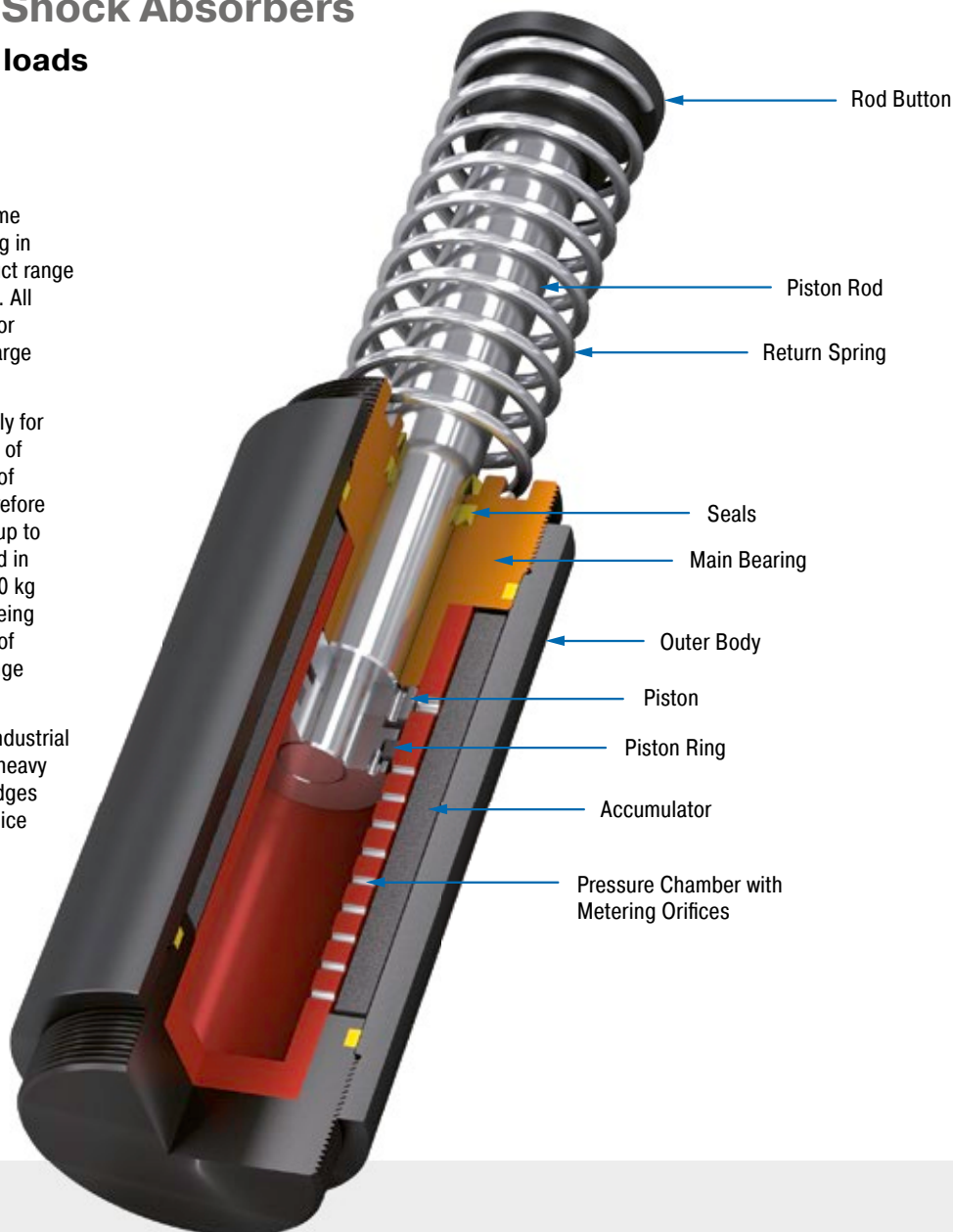
Heavy Industrial Shock Absorbers

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

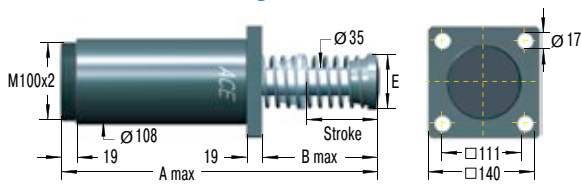
Note: For emergency use only applications and for continuous use it is possible to exceed the published max. capacity ratings. In this case, please consult ACE.

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

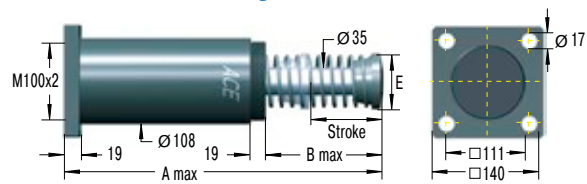
suggestions. Do not paint the shock absorbers due to heat emission.

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

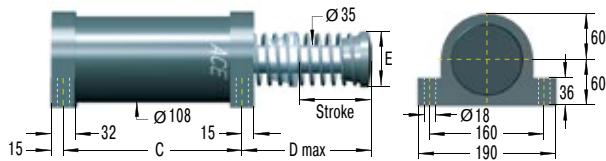
CA2EU-F Front Flange



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.

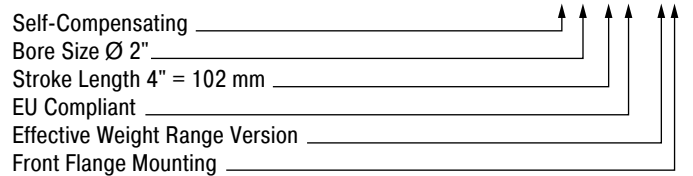
Use only with external air/oil tank.

CNA: Self-Contained without return spring

CSA: Air/Oil return with return spring.

Use only with external air/oil tank.

Ordering Example



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 |

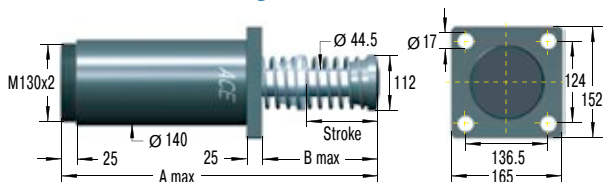
¹ For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.

² Figures for oil recirculation systems on request.

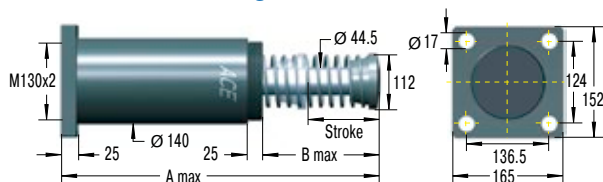
³ The effective weight range limits can be raised or lowered to special order.

Self-Compensating

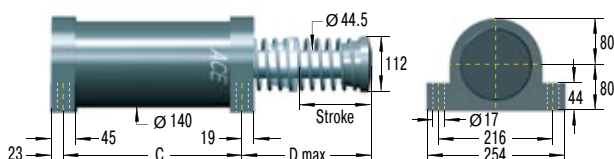
CA3EU-F Front Flange



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.

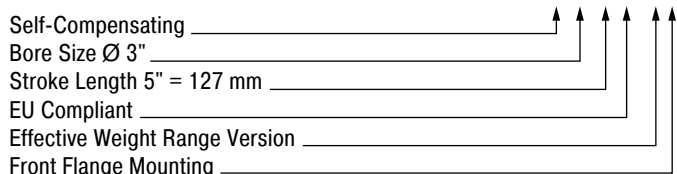
Use only with external air/oil tank.

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

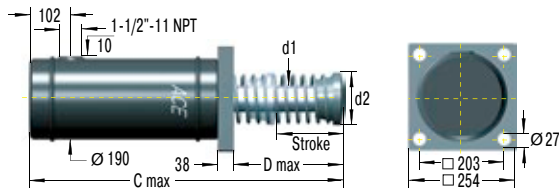
| TYPES | Max. Energy Capacity | | | Effective Weight | | | Return force min. N | Return force max. N | Return time s | Side Load Angle max. ° | Weight kg |
|------------|---|-------------------------------------|--|----------------------------|----------------------------|----------|---------------------------|---------------------------|------------------|------------------------------|--------------|
| | 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.

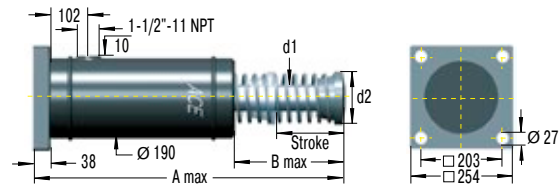
² Figures for oil recirculation systems on request.

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

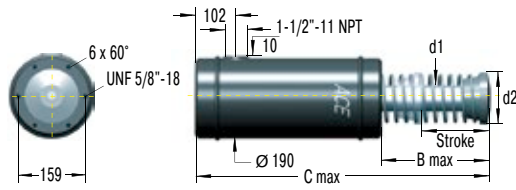
CA4EU-F Front Flange



CA4EU-R Rear Flange

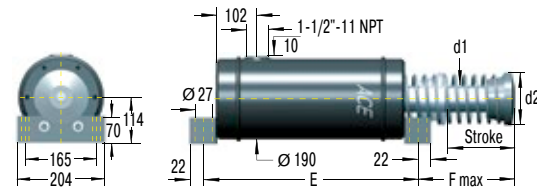


CA4EU-FRP 6 Tapped Holes



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

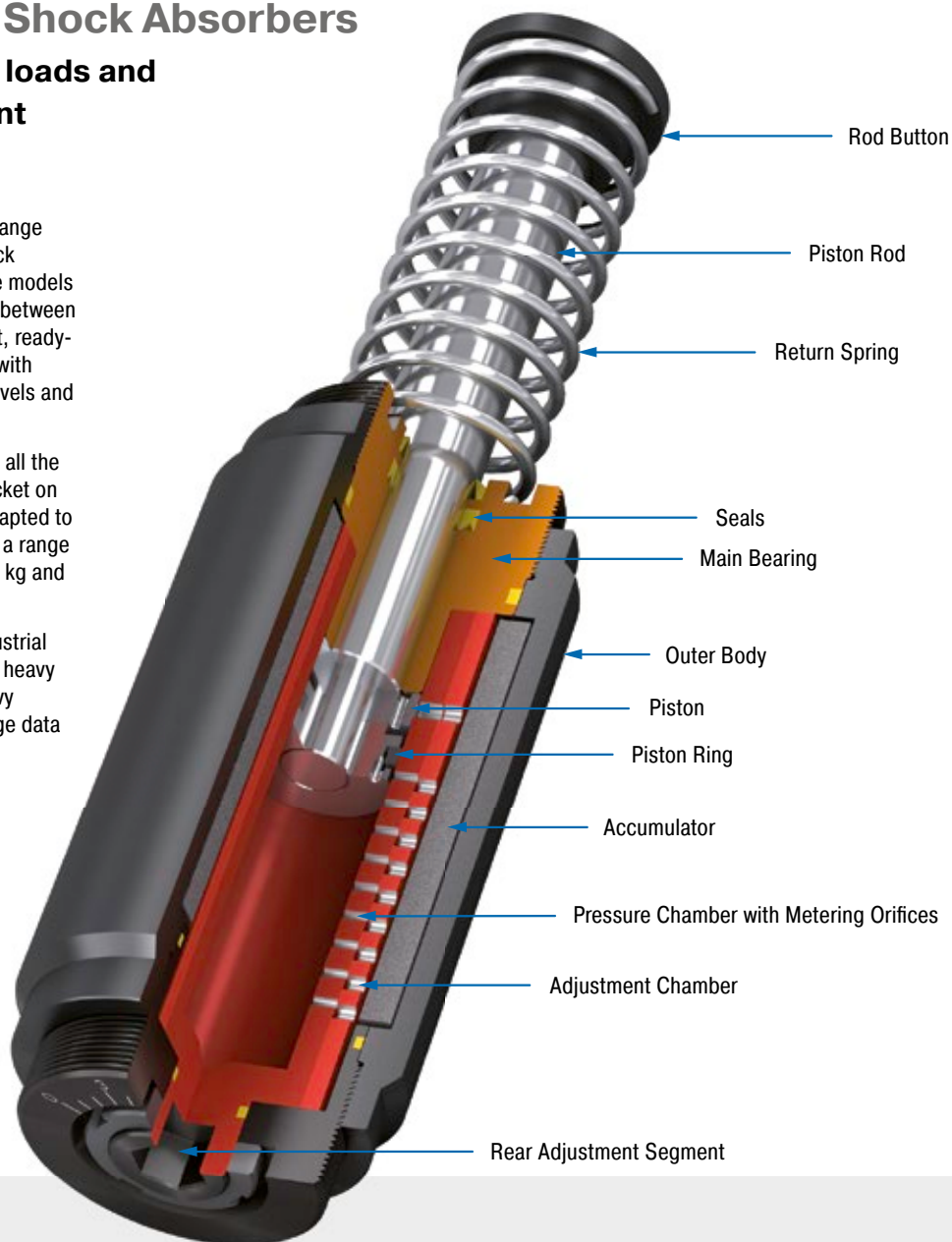
A1½ to A3 Heavy Industrial Shock Absorbers

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)

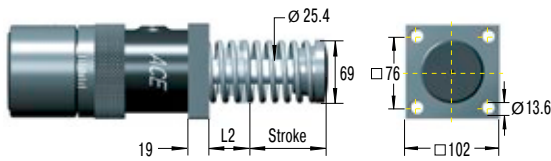
Application field: Portal systems, Machines and plants, Conveyor systems, Crane systems

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.

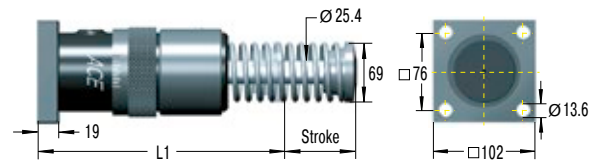
Safety instructions: External materials in the surrounding area can attack the seal components and lead to a shorter service life. Please contact ACE for appropriate solution suggestions. Do not paint the shock absorbers due to heat emission.

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

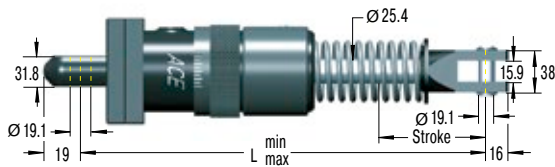
A1½EU-F Front Flange



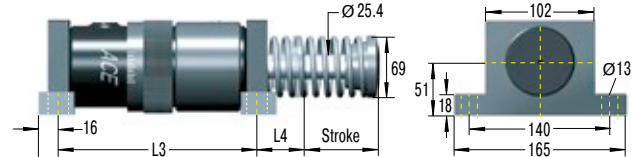
A1½EU-R Rear Flange



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 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 | | | | | |
| 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 |

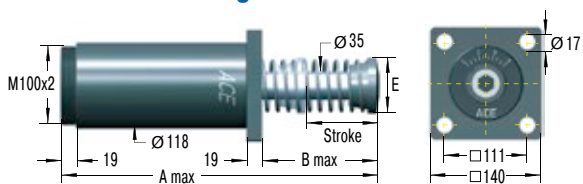
¹ For emergency use only applications it is sometimes possible to exceed the above ratings. Please consult ACE for further details.

² Figures for oil recirculation systems on request.

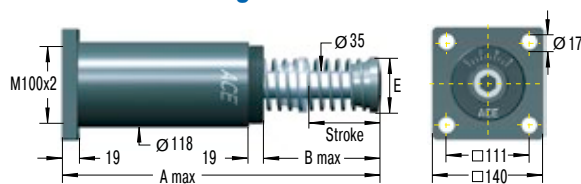
³ The effective weight range limits can be raised or lowered to special order.

Adjustable

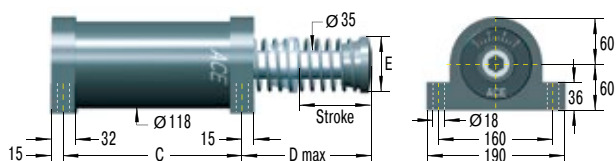
A2EU-F Front Flange



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 _____ **A2x6EU-R**
 Bore Size Ø 2" _____
 Stroke Length 6" = 152 mm _____
 EU Compliant _____
 Rear Flange Mounting _____

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

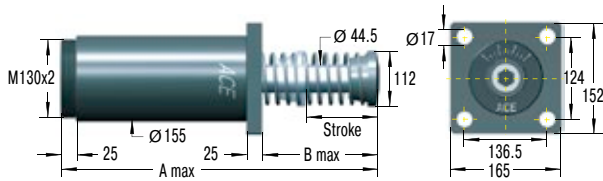
| TYPES | Max. Energy Capacity | | | Effective Weight | | Return force min. N | Return force max. N | Return time s | Side Load Angle max. ° | Weight kg |
|---------|---|-------------------------------------|--|----------------------------|----------------------------|---------------------------|---------------------------|------------------|------------------------------|--------------|
| | 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.

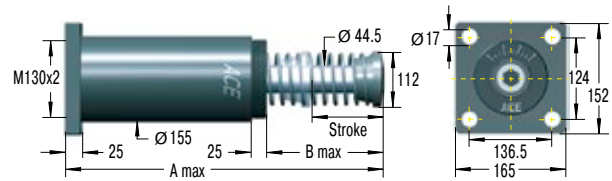
² Figures for oil recirculation systems on request.

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

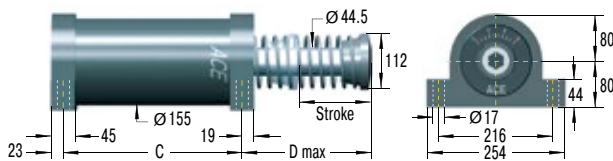
A3EU-F Front Flange



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.

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 the use of an air-oil tank is just the right thing.

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

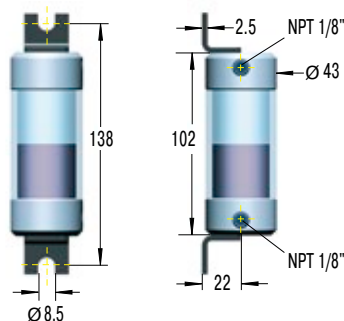
Another characteristic of the air-oil tank is the opportunity for controlled piston return if no permanent return force through an integrated spring in the shock absorber is desired.

Air/Oil Tanks AO

A01

Oil capacity 20 cm³

Material: Aluminium caps

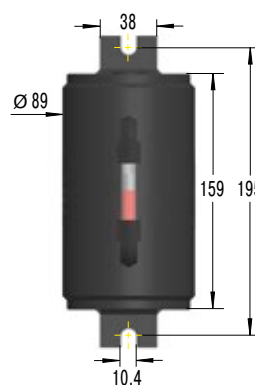


Detail drawings on request

A03

Oil capacity 370 cm³

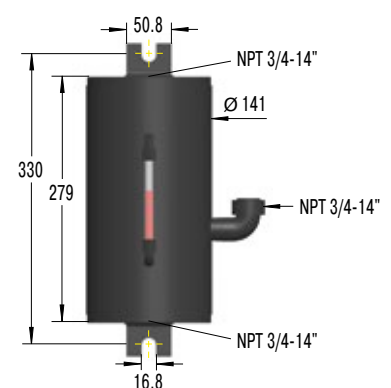
Material: Steel



A06

Oil capacity 2,600 cm³

Material: Steel



Technical Data

Operating pressure: Max. 8 bar

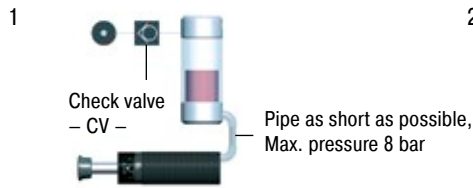
Operating temperature range: 80 °C

Damping medium: ATF-Oil 42 cSt at 40 °C
Mount air/oil tank higher than shock absorber.
Bleed all air from system before operating.

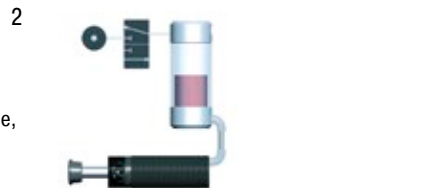
Safety instructions: Exhaust tank before carrying out service. Check valve holds pressure!

Suggested air/oil tanks in accordance with W₄ ratings

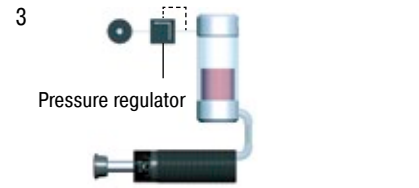
Connection Examples



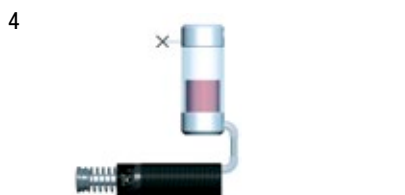
Piston rod returns immediately to extended position when load moves away. Operation without main air supply possible for short periods.



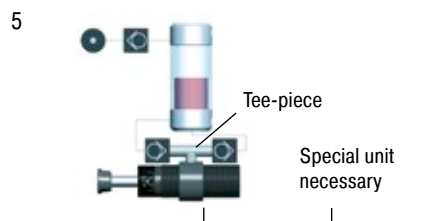
Return stroke may be sequenced by pneumatic valve at any desired time. No return force until valve energised.



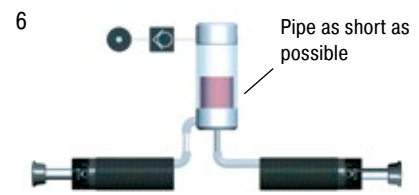
Return force can be adjusted by pressure regulator. Ensure safe minimum pressure to return shock absorber.



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



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



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

Selection Chart Air/Oil Tanks

| Shock Absorber Type | With Tank Example 1 to 4 | | With Recirc. Circuits Example 5 to 6 | | Min. Conn. Pipe Ø mm | Thread Sizes for Connection to Air/Oil Tank | |
|---------------------|-----------------------------|-------------|---|-------------|-------------------------|--|-----------------------------|
| | Tank | Check Valve | Tank | Check Valve | | Thread Bottom | ² Thread Side |
| MCA, MAA, MLA33... | A01 | CV1/8 | A03 | CV1/4 | 4 | ¹ 1/8-27 NPTF inside | 1/8-27 NPTF inside |
| MCA, MAA, MLA45... | A01 | CV1/8 | A03 | CV3/8 | 6 | 1/8-27 NPTF inside | 1/8-27 NPTF inside |
| MCA, MAA, MLA64... | A03 | CV1/4 | A06 | CV1/2 | 8 | 1/4-18 NPTF inside | 1/4-18 NPTF inside |
| CAA, AA2... | A06 | CV1/2 | A082 | CV3/4 | 15 | - | - |
| CAA, AA3... | A06 | CV1/2 | A082 | CV3/4 | 19 | - | - |
| CAA4... | A082 | CV3/4 | A082 | CV3/4 | 38 | - | - |

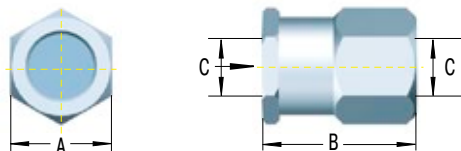
A082 and connection accessories: Details on request

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

Operating temperature range: 95 °C

Suitable for: Oil, air, water

Material: Aluminium

Check Valves – Dimensions

| Type Part Number | A mm | B mm | C mm |
|---------------------|---------|---------|------------|
| CV1/8 | 19 | 24 | 1/8-27 NPT |
| CV1/4 | 29 | 33 | 1/4-18 NPT |
| CV3/8 | 29 | 33 | 3/8-18 NPT |
| CV1/2 | 41 | 40 | 1/2-14 NPT |
| CV3/4 | 48 | 59 | 3/4-14 NPT |