1987

2003

2013

C-JAC INDUSTRIAL CO.,LTD.(TaiWan)

C-JAC INDUSTRIAL CO.,LTD.(ShangHai)

C-JAC INDUSTRIAL CO.,LTD.(SuZhou)

CJAC

C-JAC INDUSTRIAL CO.,LTD.

SHOCK ABSORBERS

SHOCK ABSORBERS

Outstanding Motion Controls

10	Shock absorber
39	Shock absorber for log cabin
40	Hydraulic speed controller
44	Pilot check valve
46	Heavy duty shock absorber

2016.08

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Our company are subject to change without prior notice

CJAC

C-JAC INDUSTRIAL CO.,LTD.

C-JAC Industrial Co., Ltd. (Taiwan) was founded in 1987. Presently, this group has three plants and five offices with more than 200 employees. Its major products include shock absorber, hydraulic speed controller and pilot check valve, etc. In addition to focusing on domestic market, starting from 1999, this company also extended its market to the overseas market, and DongGuan plant and Shanghai's Qingpu plant were also set up at that moment. In order to reinforce this company's R&D capability and to expand its capability to supply the international market, C-JAC has founded in 2005 its head-plant at Taichung Industrial Park so that it can keep up with the international trend and lead this company to get to the world plant scale.

C-JAC Technology Co., Ltd. (Suzhou) launched its production in the autumn of 2013. At the same time, the R&D and manufacturing capability was also reinforced to be used as index of other plants to enhance the depth and breadth of C-JAC group continuously.

It has been more than 30 years since the foundation of C-JAC Industrial Co., Ltd. (Taiwan), during this period of time, it not only improved itself continuously, but also set up its own brand, C-JAC, meanwhile, it continued to provide the industry with components of excellent quality and reasonable price, therefore, C-JAC has become an important ring of industry upgrading. Moreover, C-JAC has also played an important role in the international market, C-JAC's business operation concept was always based on "Rooting downwards, extending outwards and going step by step". C-JAC will always follow this spirit to step into the new era.

Sustaining business operation is usually the basis for an enterprise to survive, therefore, the development goal of this company can be reached only through continuous improvement of its product quality, continuous satisfaction of customer's need and continuous enhancement of the production capability of this company. Meanwhile, our development goals are: "Use technology to guide us towards perfection, take quality as number one priority to pursue excellence, use innovation as the power to drive our practical management strategy, and always bear our integrity spirit in mind to treat our customer to get a win-win situation between both sides".

"Customer is number one and quality is of first priority".

CJAC test equipment
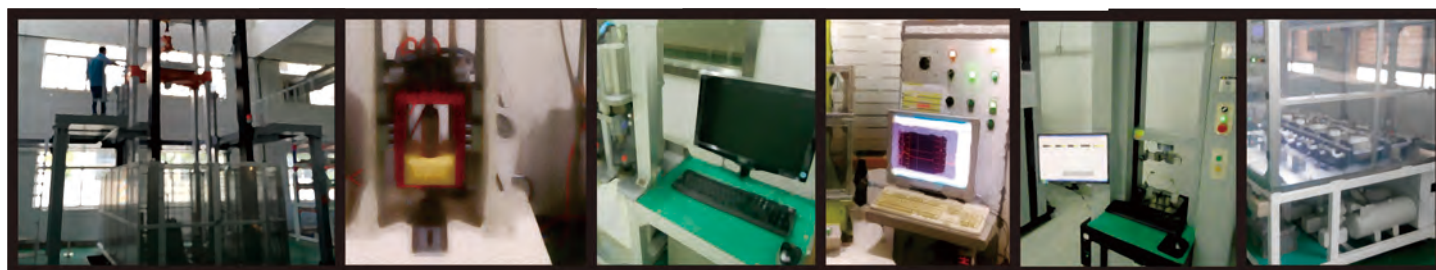
Why it is needed to use shock absorber?

Presently, the market competition becomes ever more than before, therefore, speed up of the production schedule is the basis for the survival of an enterprise. The simplest way to enhance the production capacity is to enhance the operation speed of the machine, however, this might easily create too much vibration and noise, and the machine could easily get damaged too, which in turn leads to nonconforming product certification result. Meanwhile, due to the speed up of the operation speed of the machine, too much impact force generated might also greatly reduce the machine's safety, which might lead to uncompensated loss.

The industrial shock absorber manufactured by CJAC can reduce vibration and noise generated in the automated machinery, meanwhile, the kinetic energy generated by object in motion can be converted into thermal energy and released into the atmosphere. Meanwhile, in its action, the object is balancedand effectively stopped, and the efficiency and production capacity of the machine is then enhanced. Moreover, the lifetime of the machine is lengthened and the maintenance cost is reduced, machine action is stabilized and product quality is then enhanced. Furthermore, machine operation can become safer and the occurrence probability of the accident can be reduced, meanwhile, work environment becomes more comfortable and personnel's efficiency is then enhanced, finally, the competitive advantage of the enterprise is then enhanced.

What is the effectiveness of industrial shock absorber?

It can reduce equipment damage and lengthen the lifetime of the machine; it can also reduce the maintenance cost. It can reduce the impact energy and reduce the vibration and noise so that the work environment becomes more comfortable. It can speed up the machinery frequency and enhance the manufacturing efficiency, and it can also enhance the production capacity and consequently enhance the competitive advantage of the enterprise.

What is the buffering effect of shock absorber?

It can resist the impact force without generating any bouncing force, meanwhile, during the impact, the noise is small and the vibration is weak, and the buffering process is very stable. All these advantages cannot be achieved by traditional buffering methods such as spring buffering and PU plastic buffering.

Contrast of buffering effect

Impact force

— Damper
— Spring or rubber
— Cylinder buffering
— Ideal shock absorber
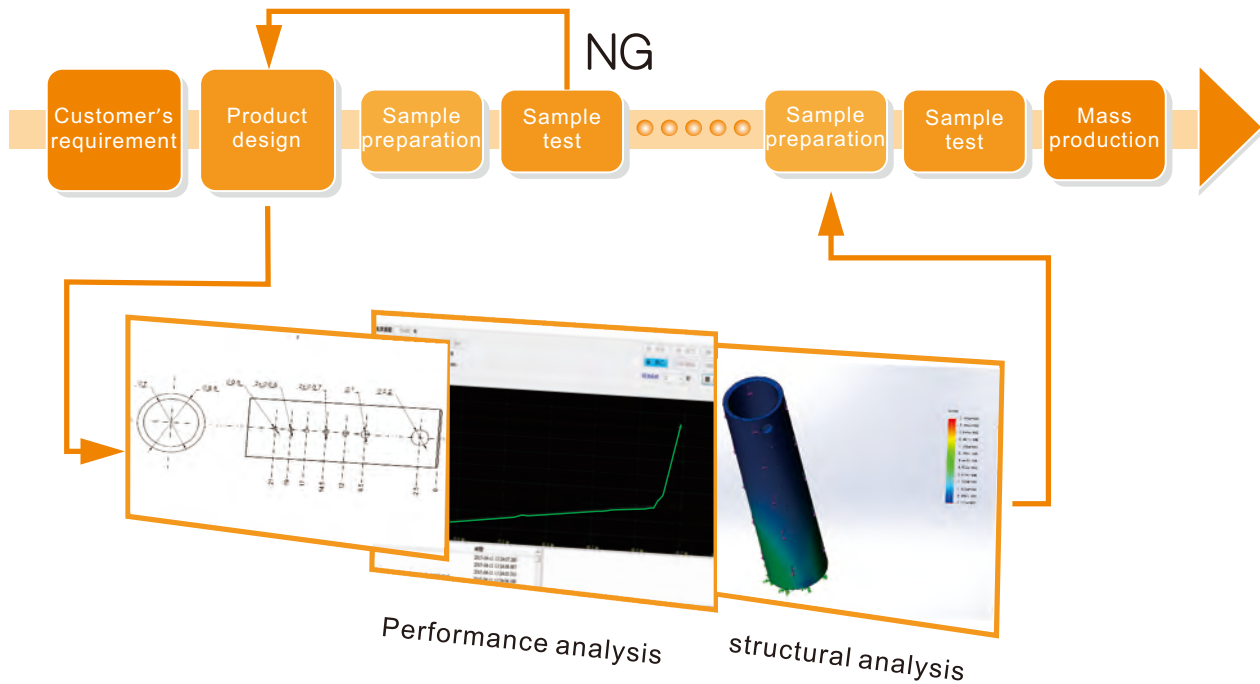
Stroke

CJAC test system
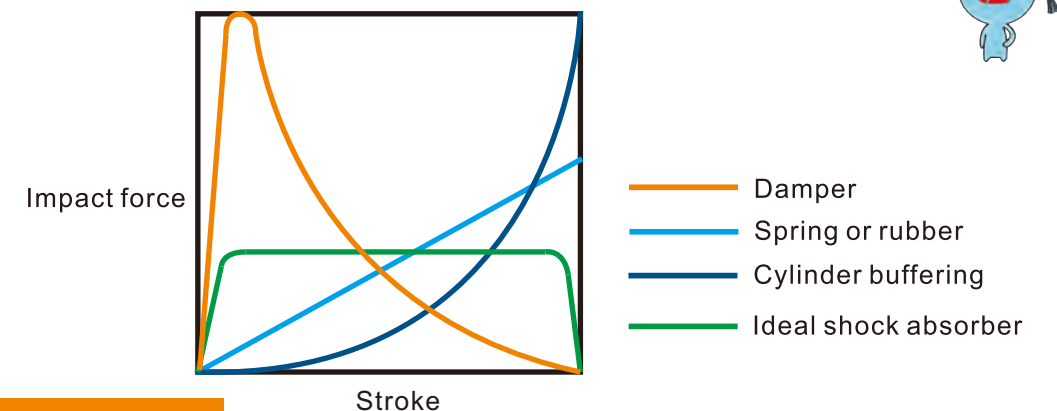
The quality of shock absorber is always the highest guideline of CJAC's business operation. Through continuous breakthrough through industry-school collaboration and the cooperation from professional test manufacturing companies, quality test system for shock absorber was co-developed to satisfy important needs such as operation function test, product lifetime test, new product R&D and safety confirmation of the shock absorbers of CJAC. Meanwhile, all the tests are checked in detail by QA (quality assurance) personnel, therefore, accurate and objective performance data for the shock absorber can be obtained, for example, the size of the impact force, the force-taking stroke of the shock absorber, the energy absorbed, impact speed and force-stroke correlation chart of the shock absorber, etc.
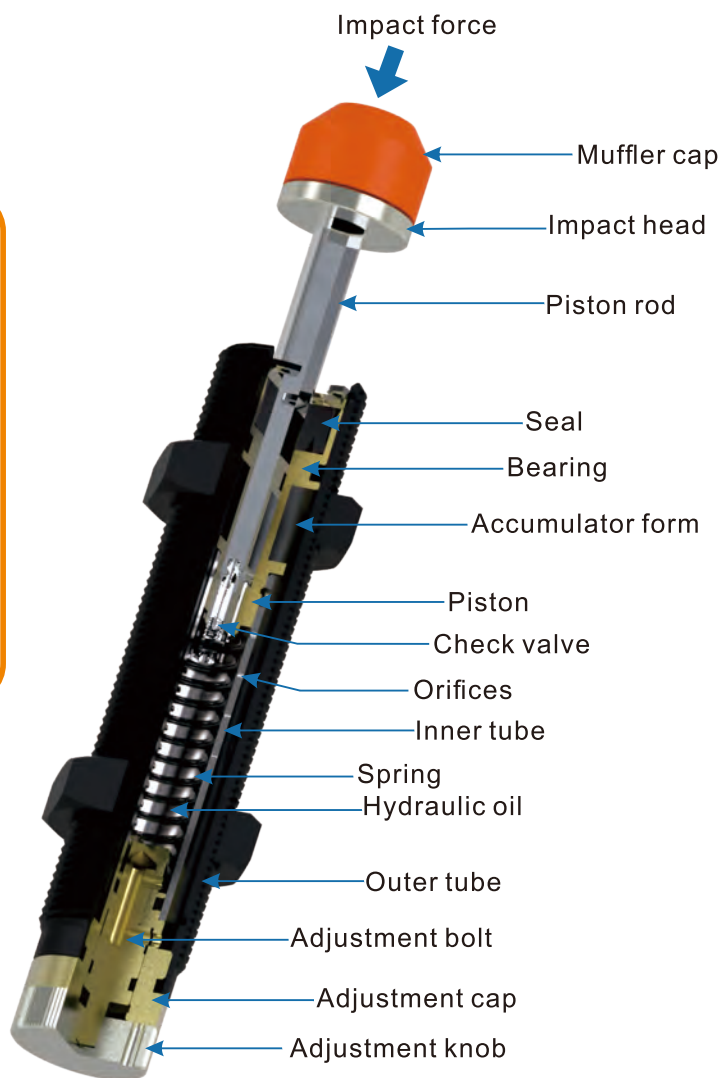
R&D analysis system for CJAC's shock absorber

NG

Customer's requirement → Product design → Sample preparation → Sample test → ⚬⚬⚬⚬⚬ → Sample preparation → Sample test → Mass production

Performance analysis

structural analysis

The right figure is a typical shock absorber structure. When the impact head is impacted by external force, it will drive the piston rod to push the piston to squeeze the hydraulic oil in the inner tube, when the hydraulic oil is pressurized, it will flow out from a specifically designed oil release hole on the inner tube, in the same time, it will flow into a pressure storage system. During the flowing process of the hydraulic oil, the shock absorber will generate curve damping effect, which can reduce the speed stably and linearly until it stops. At this moment, the external kinetic energy has been converted into thermal energy of the shock absorber, the thermal energy is then released into the air to realize energy circulation. When the external force disappears, reset spring will reset the piston rod to its starting position to wait for the next action. Based on this principle, shock absorber can stop the object in motion stably and effectively.

Impact force

- Muffler cap
- Impact head
- Piston rod
- Seal
- Bearing
- Accumulator form
- Piston
- Check valve
- Orifices
- Inner tube
- Spring
- Hydraulic oil
- Outer tube
- Adjustment bolt
- Adjustment cap
- Adjustment knob

CJAC

Shock absorber

Purchase example

AC   08   06 – 1 ☐

AC: Self-compensated type
AD: Adjustable type
ACD: Dual-side buffering type

External diameter (mm)   Stroke (mm)

None: with impact head
N: No impact head

-1: high speed
-2: medium speed
-3: low speed
-5: very low speed
-S: AC-S series
-K: AC-K series
(The larger the number, the larger the allowed impact speed)

AC series

AC-S series

ACD series

AC-K series

AD series

AD-W series

Hydraulic speed controller

Shock absorber for circuit breaker

Shock absorber for stopping the cylinder

Heavy duty shock absorber

Pilot check valve

Log cabin shock absorber

Rotational shock absorber

Air spring

Accessory

Model index

Automatic compensated type

Model number	Stroke (MM)	Max. Nm Per Cycle (Et)	Max. effective Mass(Me) (Kg)	Max. impact speed (v)m/s	Page
AC0805	5	1.8	0.5~5.0	0.5~2.0	12
AC0806	6	2	0.5~6.0	0.5~2.0	12
AC1005	5	3	1~7	0.8~3.0	12
AC1008	8	4	2~9	0.8~3.0	12
AC1210	10	5	5~30	0.8~3.0	12
AC1408	8	12	6~80	0.8~3.0	12
AC1412	12	15	8~100	0.8~3.0	12
AC1416	16	20	10~150	0.8~3.0	12
AC1416-C	16	20	10~150	0.8~3.0	14
AC1420	20	20	10~150	0.8~3.0	14
AC1425	25	20	20~250	0.8~3.0	14
AC1610	10	30	30~700	1.0~3.5	14
AC2020	20	40	30~700	1.0~3.5	14
AC2030	30	50	30~700	1.0~3.5	14
AC2050	50	60	60~1200	1.0~3.5	14
AC2525	25	80	200~1500	1.0~4.0	14
AC2530	30	90	230~1725	1.0~4.0	14
AC2540	40	120	300~2000	1.0~4.0	16
AC2550	50	98	200~1680	1.0~4.0	16
AC2580	80	150	150~1200	1.0~4.0	16
AC2725	25	80	20~1500	1.0~4.0	16
AC3010	10	90	143~1300	1.0~3.0	19
AC3012	12	65	143~1300	1.0~3.0	19
AC3025	25	180	300~1300	1.0~3.0	16
AC3613	13	78	240~800	1.0~4.0	19
AC3615	15	84	240~900	1.0~4.0	19
AC3660	60	250	400~2400	1.0~4.0	16
AC4213	13	155	300~1240	1.0~3.5	19
ACD2030	30	45	40~900	1.0~3.5	24
ACD2035	35	52	40-650	0.5-2.0	24

Model number	Stroke (MM)	Max. Nm Per Cycle (Et)	Max. effective Mass(Me) (Kg)	Max. impact velocity (M/S)	Page
ACD2050	50	60	60~480	1.0~3.5	24
ACD2050-2WY	50	70	60~530	1.0~3.5	24
AC1415-6K	15	9.8	30	1.0	21
AC1415-7K	15	9.8	15	1.5	21
AC2020-2K	20	36	27	2.0	21
AC2025-2K	25	40	35	2.0	21
AC2030-5K	30	44	60	1.2	21
AC2030-6K	30	44	30	1.7	21
AC2030-7K	30	44	15	2.4	21
AC2030-8K	30	44	8	2.8	21
AC2030-16K	30	44	5	4.2	21
AC2030-18K	30	44	3	6.0	21
AC2050-10K	50	59	30	2.0	21
AC2050-11K	50	59	30	2.0	21
AC2050-12K	50	59	15	2.8	21
AC2050-13K	50	59	8	3.8	21
AC2050-16K	50	59	5	5.0	21
AC2050-17K	50	59	3	6.8	21
AC2050D-13SK	50	59	32	2.5	21
AC2050D-14K	50	59	32	2.5	21
AC2065-2K	65	65	32	2.5	21
AC2065-2KW	65	65	28	3.0	21
AC0604-S	4	0.5	3	0.3-1.0	27
AC0806-S	6	3	6	0.3-2.5	27
AC1007-S	7	6	12	0.3-3.5	27
AC1210-S	10	12	22	0.3-4.0	27
AC1412-S	12	20	40	0.3-5.0	27
AC1412-SM	12	14	25	0.3-5.0	27
AC2015-S	15	59	120	0.3-5.0	27
AC2525-S	25	80	180	0.3-5.0	27

Model index

Adjustable type

Model number	Stroke (MM)	Max. Nm Per Cycle (Et)	Max. effective Mass(Me) (Kg)	Max. impact velocity (M/S)	Page
AC2725-S	25	147	270	0.3-5.0	27
AD1210	10	12	35	0.5-3.0	30
AD1410	10	20	80	3.0	30
AD1415	15	24	100	3.0	30
AD1425	25	28	140	3.0	30
AD1612	12	22	130	3.0	30
AD2016	16	25	200	3.5	30
AD2016-C	16	25	200	3.5	30
AD2020	20	34	298	3.5	30
AD2025	25	39	312	3.5	30
AD2050	50	69	420	3.5	30
AD2525	25	85	400	3.5	30
AD2530	30	95	480	3.5	30
AD2540	40	100	700	3.5	30
AD2550	50	120	720	4.0	30
AD2580	80	150	800	4.0	30
AD2725	25	85	400	3.5	30
AD3326	26	195	1400	0.3~3.3	30
AD3352	52	385	2400	0.3~3.3	30
AD3625	25	150	1400	3.0	32
AD3650	50	300	2400	3.0	32
AD4225	25	260	3000	3.5	32
AD4225(-B)-W	25	260	3000	3.5	32
AD4250	50	500	4000	4.5	32
AD4250(-B)-W	50	500	4000	4.5	32
AD4275	75	750	6000	4.5	32
AD4275(-B)-W	75	750	6000	4.5	32
AD64050(-B)	50	1200	12727	1.5	32
AD64050(-B)-W	50	1200	12727	1.5	32
AD64100(-B)	100	2400	18181	1.5	32

Model number	Stroke (MM)	Max. Nm Per Cycle (Et)	Max. effective Mass(Me) (Kg)	Max. impact velocity (M/S)	Page
AD64100(-B)-W	100	2400	18181	1.5	32
AD64150(-B)	150	3600	23636	1.5	32
AD64150(-B)-W	150	3600	23636	1.5	32
AD85050-W	50	2300	16800	4.3	32
AD85090-W	90	4000	30000	4.3	32
AD85125-W	125	5700	42000	4.3	32

Note: 1. The damping effects of all the specs can be prepared according to your need.
2. –C Main body modification to facilitate the installation.
3. –W Adjustment knob is designed at the side part to facilitate adjustment.
4. –B is British system thread, which can be adapted to more installed equipment.

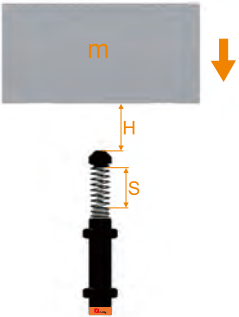# Model selection

Calculation example

Commonly used calculation formulae

Kinetic energy: $E_K = mv^2/2$

Driving energy: $E_D = F \cdot S$

Free fall velocity: $V = \sqrt{2g \cdot H}$

Pneumatic or hydraulic cylinder driving forces: $F = 0.00785 Pd^2$

Max. impact force (approximate): $F_m = 1.2 \cdot E_T/S$

Propulsive force generated by electric motor: $F = 3000kw/v$

The absorbed total energy per hour: $E_{TC} = E_T \cdot C$

Four parameters are required to precisely determine the dimension of CJAC shock absorbers:

1 The overall weight m (kg) to move the object.

2 Speed at the moment of impact V (m/s)

3 Propulsive force F (N)

4 Impact count C per hour (/hr)

Symbol	Unit	Description
μ		Frictional coefficient
α	(rad)	Slope tilting angle
θ	(rad)	Impact contact forwarding angle
ω	(rad/s)	Angular velocity
A	(m)	Width
B	(m)	Thickness
C	(/hr)	Impact count per hour
d	(mm)	Cylinder inner diameter
E_D	(Nm)	Driving energy
E_K	(Nm)	Kinetic energy
E_T	(Nm)	Overall energy
E_{TC}	(Nm)	Overall energy per hour
F	(N)	Propulsive force
F_m	(N)	Maximal impact force
g	(m/s²)	Gravitational acceleration
H	(m)	Height
HM		Arresting torque foctor fro motors (normally 2.5)
kW	(kW)	Electric motor power
m	(Kg)	Total weight of moving object
M_e	(Kg)	Effective weight
P	(bar)	Actuation pressure
R	(m)	Radius
Rs	(m)	The distance between shock absorber and rotational center
S	(m)	Stroke
T	(Nm)	Drive torque
t	(s)	Deceleration time
v	(m/s)	Velocity at the moment of impact

1 Horizontal impact

Usage condition

m = 300 Kg

v = 1.0m/s

S = 0.05m

C = 300/hr

Formula and calculation

$E_K = \dfrac{mv^2}{2} = \dfrac{300 \cdot 1.0^2}{2} = 150Nm$

$E_T = E_K = 150Nm$

$E_{TC} = E_T \cdot C = 150 \cdot 300 = 45000Nm/hr$

$M_e = \dfrac{2E_T}{v^2} = \dfrac{2 \cdot 150}{1.0^2} = 300Kg$

From the calculation result based on formula, it is recommended that one AD3650 shock absorber should be used.

2 Horizontal impact with propulsive force

Usage condition

m = 300 Kg

v = 1.2m/s

S = 0.05m

P = 4bar

d = 100mm

C = 300/hr

Formula and calculation

$E_K = \dfrac{mv^2}{2} = \dfrac{300 \cdot 1.2^2}{2} = 216Nm$

$E_D = F \cdot S = 0.0785 Pd^2 \cdot S = 0.0785 \cdot 4 \cdot 100^2 \cdot 0.05 = 157Nm$

$E_T = E_K + E_D = 216 + 157 = 373Nm$

$E_{TC} = E_T \cdot C = 373 \cdot 300 = 111900Nm/hr$

$M_e = \dfrac{2E_T}{v^2} = \dfrac{2 \cdot 373}{1.2^2} = 518Kg$

From the calculation result based on formula, it is recommended that one AD4250 shock absorber should be used.

3 Free fall impact
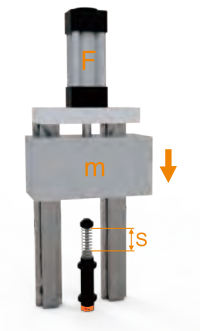
Usage condition

m = 40 Kg

H = 0.4m

S = 0.06m

C = 200/hr

Formula and calculation

$v = \sqrt{2g \cdot H} = \sqrt{2 \cdot 9.81 \cdot 0.4} = 2.8m/s$

$E_K = \dfrac{mv^2}{2} = \dfrac{40 \cdot 2.8^2}{2} = 157Nm$

$E_D = F \cdot S = mg \cdot S = 40 \cdot 9.81 \cdot 0.06 = 23.5Nm$

$E_T = E_K + E_D = 157 + 23.5 = 180.5Nm$

$E_{TC} = E_T \cdot C = 180.5 \cdot 200 = 36100Nm/hr$

$M_e = \dfrac{2E_T}{v^2} = \dfrac{2 \cdot 180.5}{2.8^2} = 46Kg$

From the calculation result based on formula, it is recommended that one AC3660 shock absorber should be used.

### 4. Free fall with propelling force

Usage condition

m = 40 Kg

S = 0.025m

P = 5bar

d = 50mm

C = 200/hr

v = 1.0m/s

Formula and calculation

$E_K = \dfrac{mv^2}{2} = \dfrac{40 \cdot 1.0^2}{2} = 20Nm$

$E_D = F \cdot S = (mg + 0.0785 Pd^2) \cdot S = (40 \cdot 9.81 + 0.0785 \cdot 5 \cdot 50^2) \cdot 0.025 = 33.5Nm$

$E_T = E_K + E_D = 20 + 33.5 = 55.5Nm$

$E_{TC} = E_T \cdot C = 55.5 \cdot 200 = 11100Nm/hr$

$M_e = \dfrac{2E_T}{v^2} = \dfrac{2 \cdot 55.5}{1.0^2} = 111Kg$

From the calculation result based on formula, it is recommended that one AD2525 shock absorber should be used.
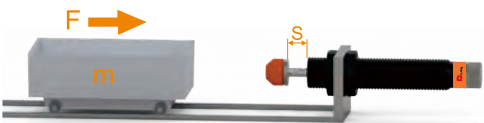
5 Horizontal impact with motor drive
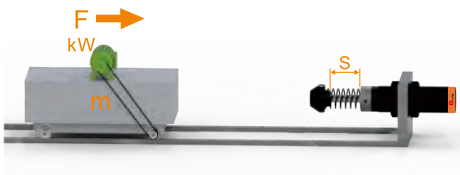
Usage condition

m = 400 Kg

v = 1.0m/s

kW = 1.5kW

HM = 2.5

S = 0.075m

C = 60/hr

Formula and calculation

$E_K = \dfrac{mv^2}{2} = \dfrac{400 \cdot 1.0^2}{2} = 200Nm$

$E_D = F \cdot S = \dfrac{kW \cdot HM}{v} \cdot S = \dfrac{1500 \cdot 2.5}{1.0} \cdot 0.075 = 281Nm$

$E_T = E_K + E_D = 200 + 281 = 481Nm$

$E_{TC} = E_T \cdot C = 481 \cdot 60 = 25860Nm/hr$

$M_e = \dfrac{2E_T}{v^2} = \dfrac{2 \cdot 481}{1.0^2} = 962Kg$

From the calculation result based on formula, it is recommended that one AD4275 shock absorber should be used.

6 Tilted impact
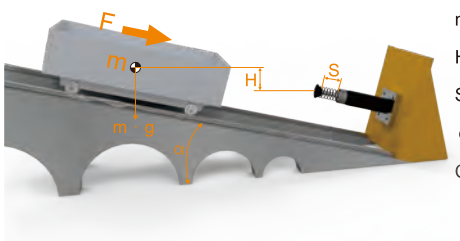
Usage condition

m = 150 Kg

H = 0.3m

S = 0.075m

α = 30°

C = 200/hr

Formula and calculation

$v = \sqrt{2g \cdot H} = \sqrt{2 \cdot 9.81 \cdot 0.3} = 2.43m/s$

$E_K = \dfrac{mv^2}{2} = \dfrac{150 \cdot 2.43^2}{2} = 443Nm$

$E_D = F \cdot S = m \cdot g \cdot S \cdot \sin\alpha = 150 \cdot 9.81 \cdot 0.075 \cdot \sin 30° = 55.2Nm$

$E_T = E_K + E_D = 443 + 55.2 = 498.2Nm$

$E_{TC} = E_T \cdot C = 498.2 \cdot 200 = 99640Nm/hr$

$M_e = \dfrac{2E_T}{v^2} = \dfrac{2 \cdot 498.2}{2.43^2} = 168.7Kg$

From the calculation result based on formula, it is recommended that one AD4275 shock absorber should be used.

Purchase example

Model index

Calculation example

AC series

Circuit breaker series

AC-K series

ACD series

AC-S series

AD series

Stop cylinder series

Accessory

Shock absorber for log cabin

HR series

PC series

HD series

HD series selection

HD series accessory

User manual

# 7 Horizontal rotational door
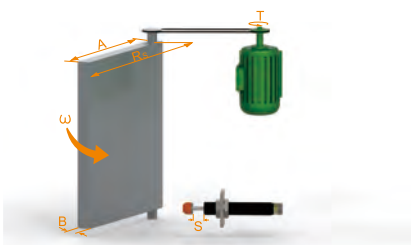
Usage condition

m = 20 Kg
ω = 2.0rad/s
T = 20Nm
Rs = 0.8m
A = 1.0m
B = 0.05m
S = 0.016m
C = 100/hr

Formula and calculation

$$I = \frac{m(4A^2+B^2)}{12} = \frac{20(4\cdot1.0^2+0.05^2)}{12} = 6.67 Kg\cdot m^2$$

$$E_K = \frac{I\omega^2}{2} = \frac{6.67\cdot2.0^2}{2} = 13.34Nm$$

$$\theta = \frac{s}{R_s} = \frac{0.04}{0.8} = 0.05rad$$

$$E_D = T\cdot\theta = 20\cdot0.05 = 1.0Nm$$

$$E_T = E_K+E_D = 13.34+1.0 = 14.34Nm$$

$$E_{TC} = E_T\cdot C = 14.34\cdot100 = 1434Nm/hr$$

$$v = \omega\cdot R_s = 2.0\cdot0.8 = 1.6m/s$$

$$M_e = \frac{2E_T}{v^2} = \frac{2\cdot14.34}{1.6^2} = 11.2Kg$$

From the calculation result based on formula, it is recommended that one AD2016 shock absorber should be used.

8 Rotational indexing plate with propulsive force
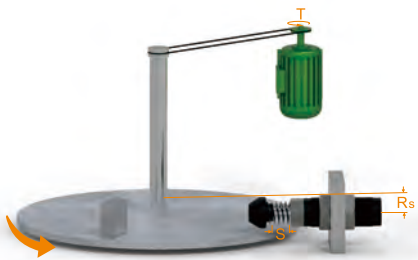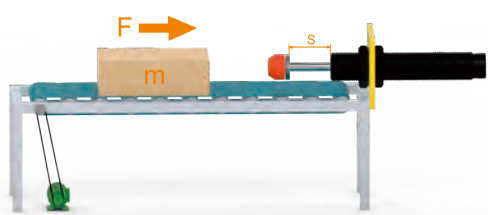
Usage condition

m = 200 Kg
ω = 1.0rad/s
T = 100Nm
R = 0.5m
Rs = 0.4m
S = 0.025m
C = 100/hr

Formula and calculation

$$I = \frac{mR^2}{2} = \frac{200\cdot0.5^2}{2} = 25Kg\cdot m^2$$

$$E_K = \frac{I\omega^2}{2} = \frac{25\cdot1.0^2}{2} = 12.5Nm$$

$$\theta = \frac{S}{R_s} = \frac{0.025}{0.4} = 0.0625rad$$

$$E_D = T\cdot\theta = 100\cdot0.0625 = 6.25Nm$$

$$E_T = E_K+E_D = 12.5+6.25 = 18.75Nm$$

$$E_{TC} = E_T\cdot C = 18.75\cdot100 = 1875Nm/hr$$

$$v = \omega\cdot R_s = 1.0\cdot0.4 = 0.4m/s$$

$$M_e = \frac{2E_T}{v^2} = \frac{2\cdot18.75}{0.4^2} = 234.4Kg$$

From the calculation result based on formula, it is recommended that one AD3625 shock absorber should be used.

# 9 Horizontal power conveyor

Usage condition

m = 150 Kg
v = 0.5m/s
μ = 0.25
S = 0.02m
C = 120/hr

Formula and calculation

$$E_K = \frac{mv^2}{2} = \frac{150\cdot0.5^2}{2} = 18.75Nm$$

$$E_D = F\cdot S = mg\mu\cdot S = 150\cdot9.81\cdot0.25\cdot0.02 = 7.35Nm$$

$$E_T = E_K+E_D = 18.73+7.35 = 26.1Nm$$

$$E_{TC} = E_T\cdot C = 26.1\cdot120 = 3132Nm/hr$$

$$M_e = \frac{2E_T}{v^2} = \frac{2\cdot26.1}{0.5^2} = 208.8Kg$$

From the calculation result based on formula, it is recommended that one AC2020-3 shock absorber should be used.

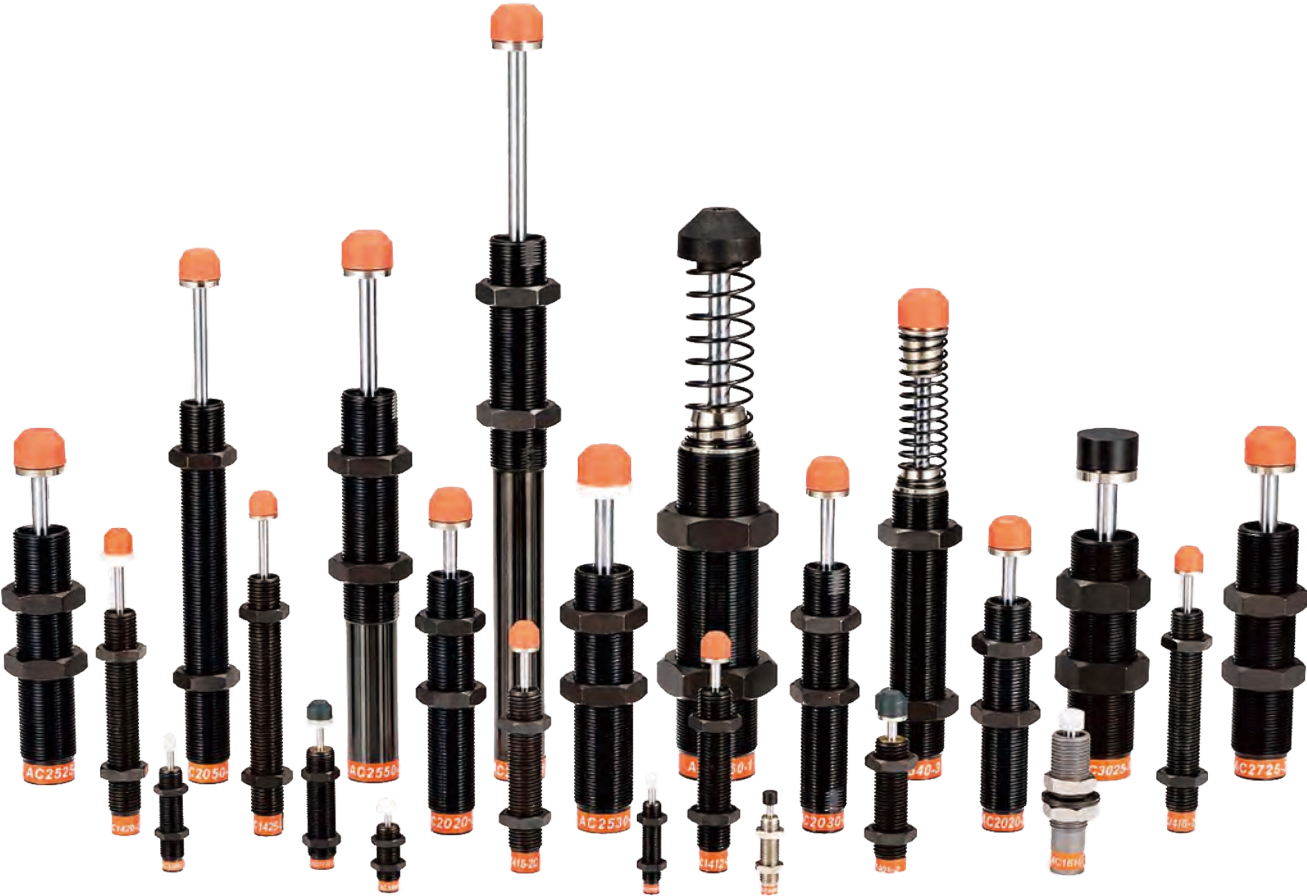# 10 Rotational arm with propulsive force
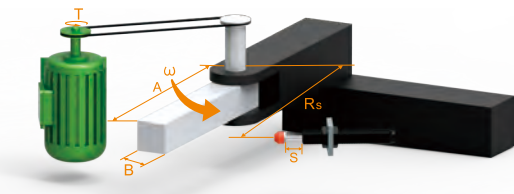
Usage condition

m = 40 Kg
ω = 2.0rad/s
T = 10Nm
Rs = 0.4m
A = 0.5m
B = 0.05m
S = 0.05m
C = 50/hr

Formula and calculation

$$I = \frac{m(4A^2+B^2)}{12} = \frac{40(4\cdot0.5^2+0.05^2)}{12} = 3.36Kg\cdot m^2$$

$$E_K = \frac{I\omega^2}{2} = \frac{3.36\cdot2.0^2}{2} = 6.8Nm$$

$$\theta = \frac{s}{R_s} = \frac{0.05}{0.4} = 0.125rad$$

$$E_D = T\cdot\theta = 10\cdot0.125 = 1.25Nm$$

$$E_T = E_K+E_D = 6.8+1.25 = 8.05Nm$$

$$E_{TC} = E_T\cdot C = 8.05\cdot50 = 402.5Nm/hr$$

$$v = \omega\cdot R_s = 2.0\cdot0.4 = 0.8m/s$$

$$M_e = \frac{2E_T}{v^2} = \frac{2\cdot8.05}{0.8^2} = 25.15Kg$$

From the calculation result based on formula, it is recommended that one AC1416-2 shock absorber should be used.

Cylinder application example
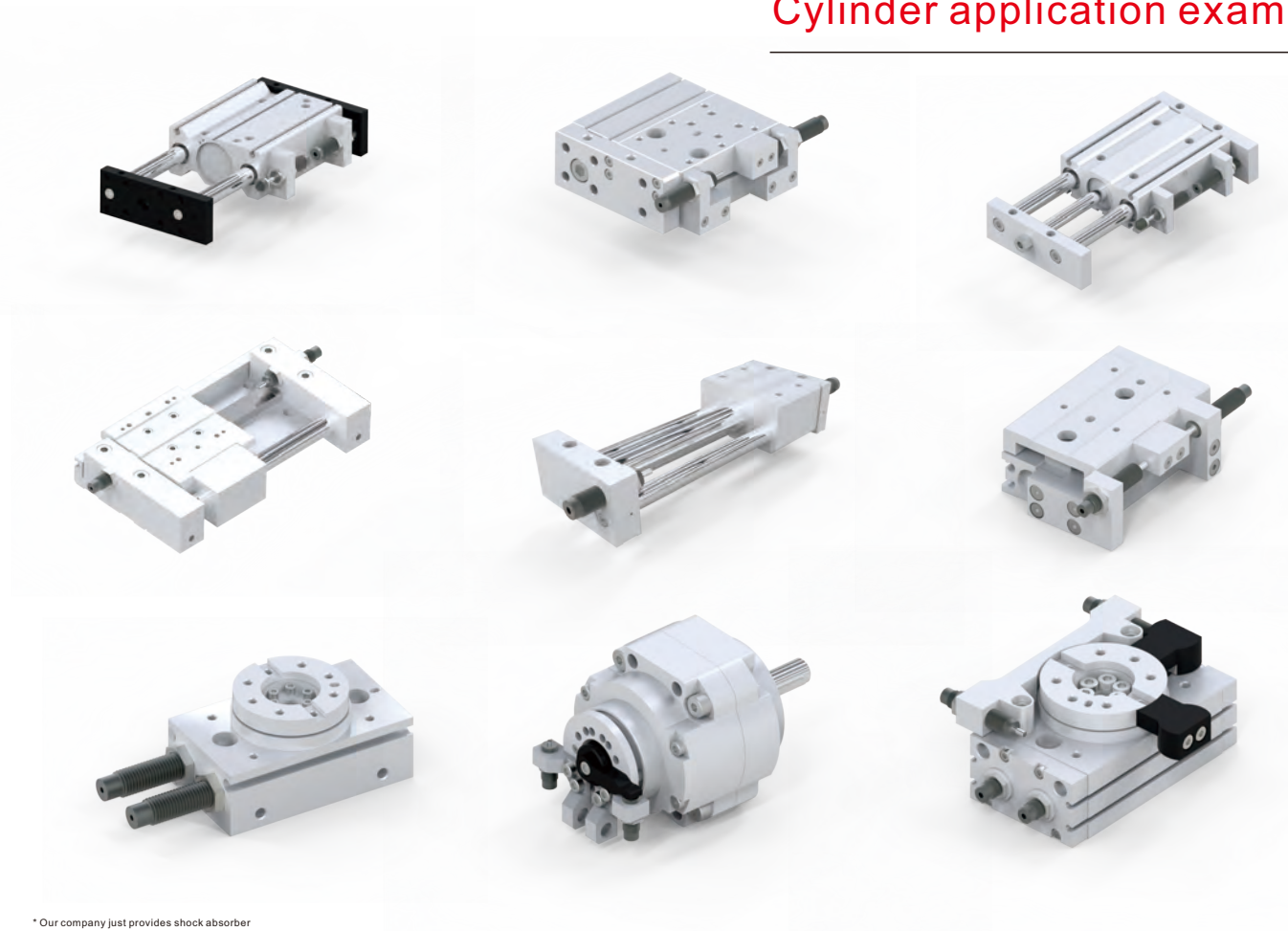
* Our company just provides shock absorber

CJAC shock absorber corresponding to cylinder application form

Cylinder I.D.	Ø6	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
5 Kg/cm2 Cylinder propulsive force Kgf	1.4	3.9	5.7	10	15.7	24.5	40	62.8	98	155	251	393	613
AC0604-S	●	●	●										
AC0806		●	●	●									
AC1005		●	●	●									
AC1008		●	●	●									
AC1210			●	●	●								
AC1412			●	●	●								
AC1416			●	●	●	●							
AC1420				●	●	●							
AC2020				●	●	●	●	●					
AC2030				●	●	●	●	●					
AC2050					●	●	●	●					
AC2525						●	●	●	●	●	●		
AC2540						●	●	●	●	●	●		
AC2580						●	●	●	●	●	●		
AC3660							●	●	●	●	●		

Cylinder I.D.	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø160	Ø200	Ø250
5 Kg/cm2 Cylinder propulsive force Kgf	10	15.7	24.5	40	62.8	98	155	251	393	613	1005	1570	2454
AD1410	●	●	●	●									
AD1425	●	●	●	●									
AD2016		●	●	●	●								
AD2025		●	●	●	●								
AD2525			●	●	●	●	●						
AD2530			●	●	●	●	●						
AD2540			●	●	●	●	●						
AD2550			●	●	●	●	●						
AD2580			●	●	●	●	●						
AD3625				●	●	●	●	●	●				
AD3650				●	●	●	●	●	●				
AD4225					●	●	●	●	●				
AD4250					●	●	●	●	●				
AD4275					●	●	●	●	●				
AD64050									●	●	●	●	
AD64100									●	●	●	●	
AD64140									●	●	●	●	
AD85050										●	●	●	●
AD85090										●	●	●	●
AD85125										●	●	●	●

Self-compensated type

AC series

Characteristics

AC series is of fixed structure. Through special design and experimented oil hole and arrange method, linear deceleration on the object in motion is achieved. From high speed light load to low speed heavy load, appropriate energy can be absorbed without any adjustment. After the load is removed, reset spring will push the axle center to its original location. For AC series, it has three models of high speed, medium speed and low speed to satisfy your different needs.

● Material ——————— Outer tube: AISI 1215, STKM 11A blackening oxidation, Ni-plating and nitridation sandblasting treatment to enhance the rust-prevention capability.
Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
Piston: Highly wearing-resistant material is adopted to guarantee long and stable bufferingeffect.

● Speed range ————— 0.5 ~ 4.0 m/s

● Temperature range——— -10 ~ + 80 ℃

● Installation method——— CJAC can provide you many installation methods such as NUT, FLANGE, positioning stop nut (SC) and angle adaptor (SLA). Meanwhile, it can also be prepared according to your need.

● Special need————— CJAC can make customized design according to your usage condition.

Blow molding machine

Robotic arm

Guide rail for machine bed

Robotic arm

Non-standard equipment

Blow molding machine

Sewing machine

Numerical control machine bed

Rubber molding machine

Tire molding machine

Non-standard equipment

Breaker switch

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AC0805	5	1.8	7800	0.5	2.0	o	o	—	o	-10~+80	10
AC0806-1	6	2	8800	0.5	2.0	o	o	—	o	-10~+80	11
AC0806-2	6	2	8800	2.0	1.0	o	o	—	o	-10~+80	11
AC0806-3	6	2	8800	6.0	0.5	o	o	—	o	-10~+80	11
AC1005-1	5	3	10800	1.0	3.0	o	o	—	o	-10~+80	14
AC1005-2	5	3	10800	3.0	1.5	o	o	—	o	-10~+80	14
AC1005-3	5	3	10800	7.0	0.8	o	o	—	o	-10~+80	14
AC1008-1	8	4	15200	2.0	3.0	o	o	—	o	-10~+80	20
AC1008-2	8	4	15200	4.0	1.5	o	o	—	o	-10~+80	20
AC1008-3	8	4	15200	9.0	0.8	o	o	—	o	-10~+80	20
AC1210-1	10	5	17640	5.0	3.0	o	o	—	o	-10~+80	31.5
AC1210-2	10	5	17640	10.0	1.5	o	o	—	o	-10~+80	31.5
AC1210-3	10	5	17640	30.0	0.8	o	o	—	o	-10~+80	31.5
AC1408	8	12	22000	6	3.0	o	o	—	o	-10~+80	65
AC1412-1	12	15	30000	8	3.0	o	o	—	o	-10~+80	80
AC1412-2	12	15	30000	50	1.5	o	o	—	o	-10~+80	80
AC1412-3	12	15	30000	100	0.8	o	o	—	o	-10~+80	80
AC1416-1	16	20	35000	10	3.0	o	o	—	o	-10~+80	85
AC1416-2	16	20	35000	70	1.5	o	o	—	o	-10~+80	85
AC1416-3	16	20	35000	150	0.8	o	o	—	o	-10~+80	85
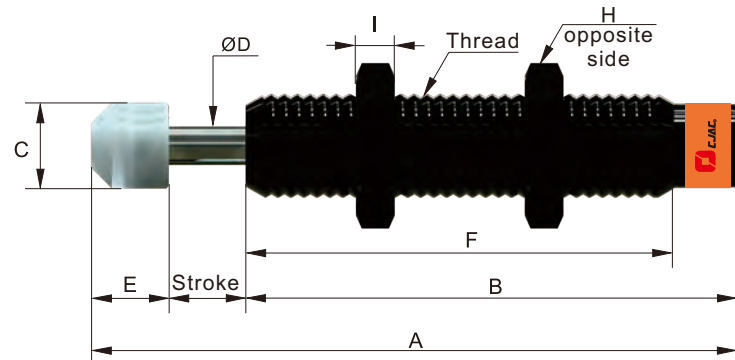
Model number	Thread	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	H mm	I mm	Figure
AC0805	M8x1.0 M8x0.75	5	42	32	6	2.8	5	27.3	11	3	1
AC0806-1	M8x1.0 M8x0.75	6	50	38	6.6	3	6	33	11	3	1
AC0806-2	M8x1.0 M8x0.75	6	50	38	6.6	3	6	33	11	3	1
AC0806-3	M8x1.0	6	50	38	6.6	3	6	33	11	3	1
AC1005-1	M10x1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3	1
AC1005-2	M10x1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3	1
AC1005-3	M10x1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3	1
AC1008-1	M10x1.0	8	57	43	8.6	3	6	38	12.7	3	1
AC1008-2	M10x1.0	8	57	43	8.6	3	6	38	12.7	3	1
AC1008-3	M10x1.0	8	57	43	8.6	3	6	38	12.7	3	1
AC1210-1	M12x1.0	10	69.5	50	10.3	3	9.5	45.5	14	4	2
AC1210-2	M12x1.0	10	69.5	50	10.3	3	9.5	45.5	14	4	2
AC1210-3	M12x1.0	10	69.5	50	10.3	3	9.5	45.5	14	4	2
AC1408	M14x1.5	8	73.5	55	12	4	11.2	50.5	19	5	2
AC1412-1	M14x1.0 M14x1.5	12	99.2	76	12	4	11.2	67	19	5	2
AC1412-2	M14x1.0 M14x1.5	12	99.2	76	12	4	11.2	67	19	5	2
AC1412-3	M14x1.0 M14x1.5	12	99.2	76	12	4	11.2	67	19	5	2
AC1416-1	M14x1.0 M14x1.5	16	122.2	95	12	4	11.2	86	19	5	2
AC1416-2	M14x1.0 M14x1.5	16	122.2	95	12	4	11.2	86	19	5	2
AC1416-3	M14x1.0 M14x1.5	16	122.2	95	12	4	11.2	86	19	5	2

Figure 1
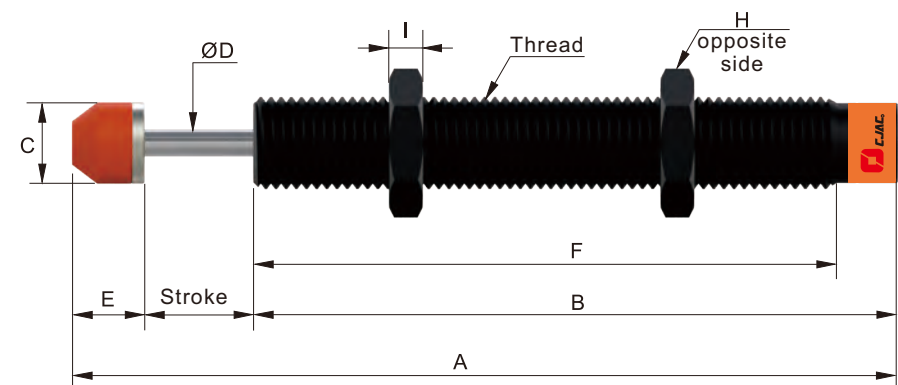
Figure 2

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AC1416-1C	16	20	35,000	10	3.0	o	o	—	o	-10~+80	80
AC1416-2C	16	20	35,000	70	1.5	o	o	—	o	-10~+80	80
AC1416-3C	16	20	35,000	150	0.8	o	o	—	o	-10~+80	80
AC1420-1	20	20	35,000	10	3.0	o	o	—	o	-10~+80	95
AC1420-2	20	20	35,000	70	1.5	o	o	—	o	-10~+80	95
AC1420-3	20	20	35,000	150	0.8	o	o	—	o	-10~+80	95
AC1425-1	25	28	37,000	20	3.0	o	o	—	o	-10~+80	105
AC1425-2	25	28	37,000	150	1.5	o	o	—	o	-10~+80	105
AC1425-3	25	28	37,000	250	0.8	o	o	—	o	-10~+80	105
AC1610	10	16	42,000	30	3.5	o	o	—	o	-10~+80	165
AC2020-1	20	40	40,000	30	3.5	o	o	—	o	-10~+80	215
AC2020-2	20	40	40,000	200	2.0	o	o	—	o	-10~+80	215
AC2020-3	20	40	40,000	700	1.0	o	o	—	o	-10~+80	215
AC2030-1	30	50	48,000	30	3.5	o	o	—	o	-10~+80	220
AC2030-2	30	50	48,000	200	2.0	o	o	—	o	-10~+80	220
AC2030-3	30	50	48,000	700	1.0	o	o	—	o	-10~+80	220
AC2050-1	50	60	60,000	60	3.5	o	o	—	o	-10~+80	300
AC2050-2	50	60	60,000	400	2.0	o	o	—	o	-10~+80	300
AC2050-3	50	60	60,000	1200	1.0	o	o	—	o	-10~+80	300
AC2525-1	25	80	54,000	200	4.0	o	o	—	o	-10~+80	330
AC2525-2	25	80	54,000	800	2.5	o	o	—	o	-10~+80	330
AC2525-3	25	80	54,000	1,500	1.0	o	o	—	o	-10~+80	330
AC2530-2	30	92	62,100	900	2.0	o	o	—	o	-10~+80	350

Figure 1
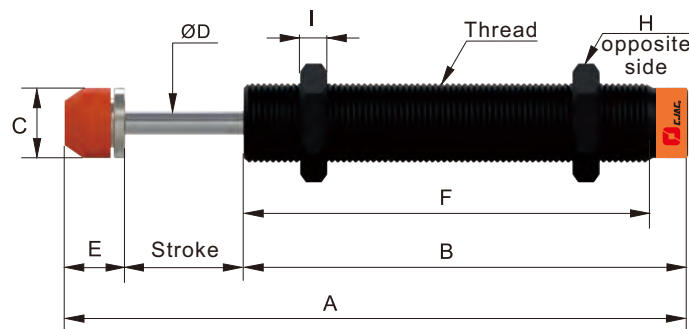
Model number	Thread	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	H mm	I mm	Figure
AC1416-1C	M14x1.0 M14x1.5	16	103.2	76	12	4	11.2	67	19	5	1
AC1416-2C	M14x1.0 M14x1.5	16	103.2	76	12	4	11.2	67	19	5	1
AC1416-3C	M14x1.0 M14x1.5	16	103.2	76	12	4	11.2	67	19	5	1
AC1420-1	M14x1.5	20	126.2	95	12	4	11.2	86	19	5	1
AC1420-2	M14x1.5	20	126.2	95	12	4	11.2	86	19	5	1
AC1420-3	M14x1.5	20	126.2	95	12	4	11.2	86	19	5	1
AC1425-1	M14x1.0 M14x1.5	25	146.2	110	12	4	11.2	101	19	5	1
AC1425-2	M14x1.0 M14x1.5	25	146.2	110	12	4	11.2	101	19	5	1
AC1425-3	M14x1.0 M14x1.5	25	146.2	110	12	4	11.2	101	19	5	1
AC1610	M16x1.5	10	68	58	10	5	8	40	19	6	1
AC2020-1	M20x1.5 M20x2.0	20	145.3	110	17.8	6	15.3	101	26	7	1
AC2020-2	M20x1.5	20	145.3	110	17.8	6	15.3	101	26	7	1
AC2020-3	M20x1.5	20	145.3	110	17.8	6	15.3	101	26	7	1
AC2030-1	M20x1.5 M20x2.0	30	158.3	113	17.8	6	15.3	104	26	7	1
AC2030-2	M20x1.5 M20x2.0	30	158.3	113	17.8	6	15.3	104	26	7	1
AC2030-3	M20x1.5	30	158.3	113	17.8	6	15.3	104	26	7	1
AC2050-1	M20x1.5 M20x2.0	50	232.8	167	17.8	6	15.8	158	26	7	1
AC2050-2	M20x1.5	50	232.8	167	17.8	6	15.8	158	26	7	1
AC2050-3	M20x1.5	50	232.8	167	17.8	6	15.8	158	26	7	1
AC2525-1	M25x1.5 M25x2.0	25	155	111	22	8	19	101	32	9	2
AC2525-2	M25x1.5 M25x2.0	25	155	111	22	8	19	101	32	9	2
AC2525-3	M25x1.5 M25x2.0	25	155	111	22	8	19	101	32	9	2
AC2530-2	M25x1.5	30	160	111	22	8	19	101	32	9	2

Figure 2
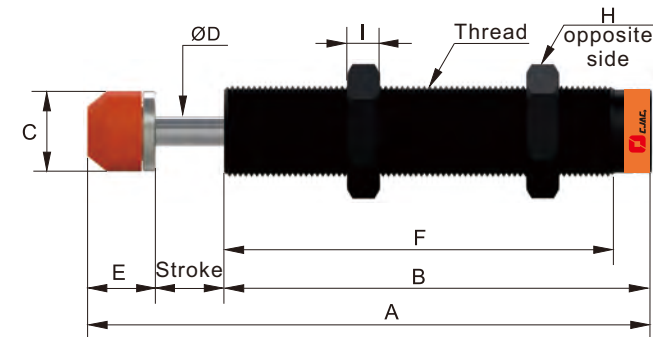
Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AC2540-1	40	120	75,000	300	4.0	—	o	—	o	-10~+80	430
AC2540-2	40	120	75,000	1,200	2.5	—	o	—	o	-10~+80	430
AC2540-3	40	120	75,000	2,000	1.0	—	o	—	o	-10~+80	430
AC2550-1	50	135	90,000	200	4.0	o	o	—	o	-10~+80	435
AC2550-2	50	135	90,000	900	2.5	o	o	—	o	-10~+80	435
AC2550-3	50	135	90,000	1,680	1.0	o	o	—	o	-10~+80	435
AC2580-1	80	150	120,000	150	4.0	o	o	—	o	-10~+80	535
AC2580-2	80	150	120,000	600	2.5	o	o	—	o	-10~+80	535
AC2580-3	80	150	120,000	1,200	1.0	o	o	—	o	-10~+80	535
AC2725-1	25	80	54,000	200	4.0	o	o	—	o	-10~+80	380
AC2725-2	25	80	54,000	800	2.5	o	o	—	o	-10~+80	380
AC2725-3	25	80	54,000	1,500	1.0	o	o	—	o	-10~+80	380
AC3025-1	25	180	60,000	300	3.0	—	o	—	o	-10~+80	950
AC3025-2	25	180	60,000	700	2.0	—	o	—	o	-10~+80	950
AC3025-3	25	180	60,000	1,300	1.0	—	o	—	o	-10~+80	950
AC3660-1	60	250	120,000	400	4.0	—	o	—	o	-10~+80	1,030
AC3660-2	60	250	120,000	1,500	2.5	—	o	—	o	-10~+80	1,030
AC3660-3	60	250	120,000	2,400	1.0	—	o	—	o	-10~+80	1,030
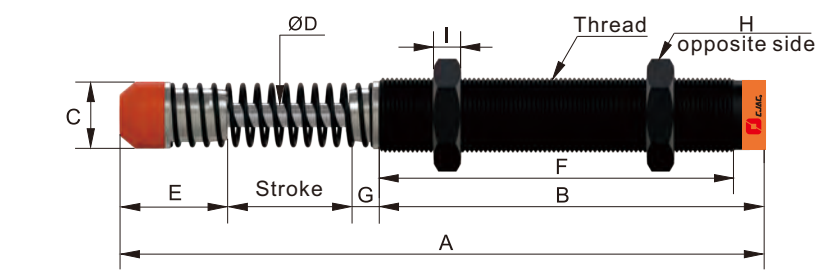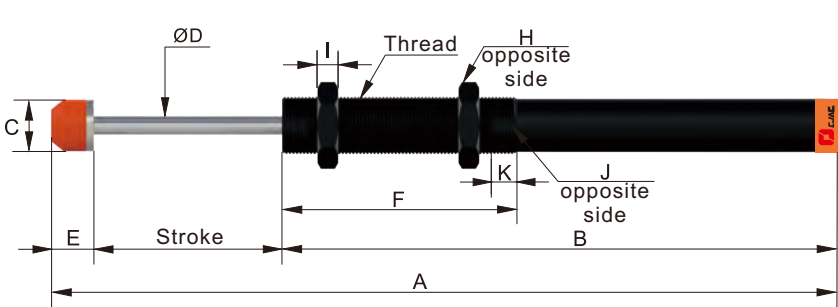
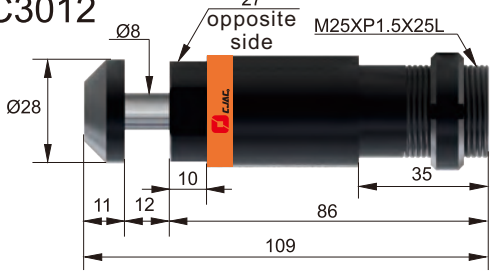| Model number	Thread	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	Figure
AC2540-1	M25x1.5 M25x2.0	40	214	127	22	8	37	117	10	32	9	—	—	1
AC2540-2	M25x1.5 M25x2.0	40	214	127	22	8	37	117	10	32	9	—	—	1
AC2540-3	M25x1.5 M25x2.0	40	214	127	22	8	37	117	10	32	9	—	—	1
AC2550-1	M25x1.5 M25x2.0	50	239.5	170.5	22	8	19	100	—	32	9	22.8	11	2
AC2550-2	M25x1.5 M25x2.0	50	239.5	170.5	22	8	19	100	—	32	9	22.8	11	2
AC2550-3	M25x1.5 M25x2.0	50	239.5	170.5	22	8	19	100	—	32	9	22.8	11	2
AC2580-1	M25x1.5 M25x2.0	80	336	237	22	8	19	100	—	32	9	22.8	11	2
AC2580-2	M25x1.5 M25x2.0	80	336	237	22	8	19	100	—	32	9	22.8	11	2
AC2580-3	M25x1.5 M25x2.0	80	336	237	22	8	19	100	—	32	9	22.8	11	2
AC2725-1	M27x1.5 M27x3.0	25	155	111	22	8	19	101	—	32	9	—	—	3
AC2725-2	M27x1.5 M27x3.0	25	155	111	22	8	19	101	—	32	9	—	—	3
AC2725-3	M27x1.5 M27x3.0	25	155	111	22	8	19	101	—	32	9	—	—	3
AC3025-1	M30x1.5	25	151	106.5	27	10	19.5	96.5	—	36	14	—	—	3
AC3025-2	M30x1.5	25	151	106.5	27	10	19.5	96.5	—	36	14	—	—	3
AC3025-3	M30x1.5	25	151	106.5	27	10	19.5	96.5	—	36	14	—	—	3
AC3660-1	M36x1.5	60	248	162	35.5	10	26	134	17	46	15	—	—	4
AC3660-2	M36x1.5	60	248	162	35.5	10	26	134	17	46	15	—	—	4
AC3660-3	M36x1.5	60	248	162	35.5	10	26	134	17	46	15	—	—	4

Figure 1
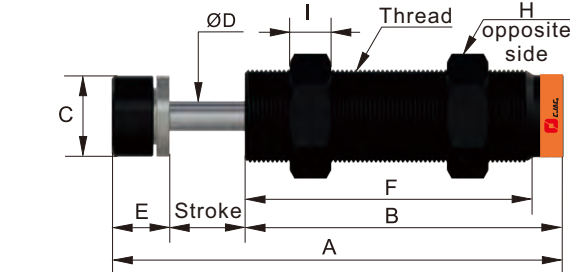
Figure 2

Figure 3

Figure 4
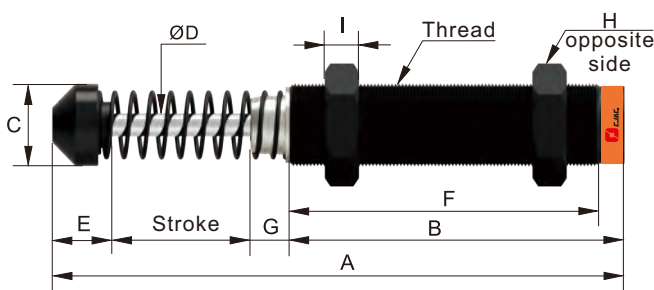
Characteristics

In the circuit breaker, shock absorber plays very important role. First, when circuit breaker is breaking, mechanism action will pull the moving end of arc-extinguishing room to the limiting position. Meanwhile, movement to limiting position is a mechanical collision process, and any metallic collision will generate bouncing force. The bouncing force will reduce the opening of the breaking end, and the pressure resistance of the breaking end will be reduced. In serious case, it will result in breaking failure.

CJAC has specifically designed shock absorber for circuit breaker. Shock absorber for circuit breaker can absorb very well the collisional energy generated due to breaking action so that the bouncing force will be a minimum.

In order to reduce arcing time, the breaking speed of the circuit breaker should be as fast as possible. Therefore, at the early time of breaking, in order reduce the influence of the breaking speed of circuit breaker, we have specifically designed a front section with smaller damping.

● Material ——————— Outer tube:AISI 1215, STKM 11A blackening oxidation and Ni-plating treatment to enhance the rust-prevention capability.
Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
Piston: Highly wearing-resistant material is adopted to guarantee long and stable buffering effect.

● Speed range ——————— 1.0 ~ 4.0 m/s

● Temperature range — 10 ~ +80℃

● Installation method — CJAC has provided several installation methods such as NUT and FLANGE. Besides, customized can be made based on your need.

● Special need ——————— CJAC can make customized spec according to your usage situation.

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AC3010	10	90	100,000	201	3.0	—	o	—	—	-10~+80	337
AC3012	12	65	54,000	143	3.0	o	o	—	—	-10~+80	640
AC3613	13	78	70,200	240	4.0	—	o	—	—	-10~+80	940
AC3615	15	84	75,600	240	4.0	—	o	—	—	-10~+80	960
AC4213	13	155	186,000	1,240	1.0	—	o	—	—	-10~+80	1,100

AC3010
Ø10 7 M30X1.5 Ø40
Ø16
10 10 6 59
85

AC3012
27
opposite side M25XP1.5X25L
Ø8
Ø28
10
11 12 86 35
109

AC3613
Ø10 Ø36
Ø24
Ø58
10 13 76.5 8
99.5
33
33
46
4-M5XP0.8

AC3615
Ø10 Ø36
Ø24
Ø58
17.6 15 86.5 8
119.1
41.7
4-M5XP0.8

AC4213
Ø12 Ø42
Ø25
38
13 13 92.5 15 8
118.5
48 60
4-R5 24 4-M5XP0.8
37.5
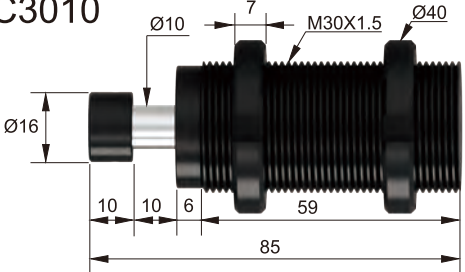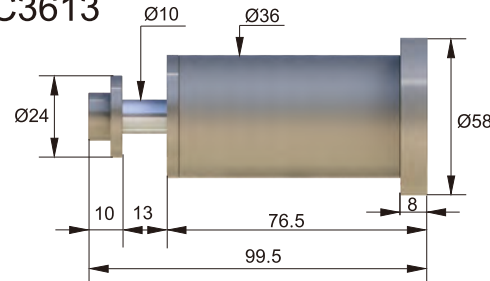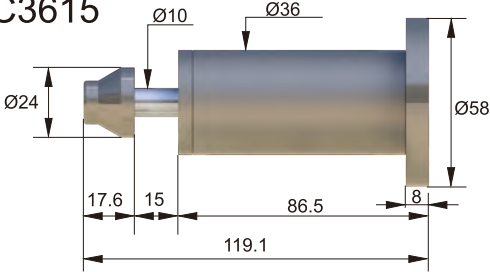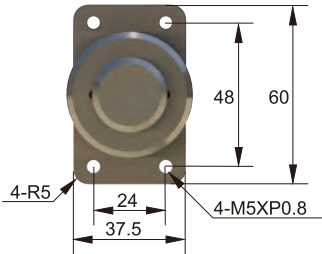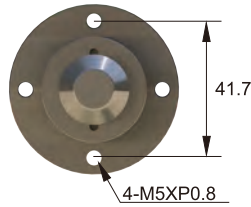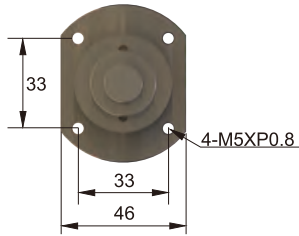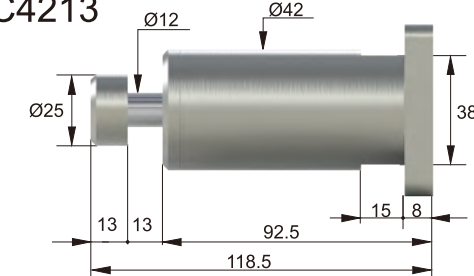
Characteristics

AC-K series can effectively absorb the vibration and noise generated from high speed motion and can turn the kinetic energy into thermal energy and release it into the air. Therefore, in each action, it can stop the object stably and effectively. In the past, many companies have used PU plastic and spring for the buffering to save the cost. However, the result is usually bad, noise is still there, efficiency cannot be enhanced, and the equipment decay in early stage. When CJAC shock absorber is selected, disadvantage caused by bad shock absorber can be effectively solved, consequently, the machine efficiency can be enhanced, the production capacity can be increased, and the usage lifetime of the machine can be lengthened. AC-K and ACD are all appropriate for high speed impact sites, the ends of long stroke moving device, and most of them are used for robot arms.

- Material —————— Outer tube: AISI 1215, STKM11A blackening oxidation treatment to enhance the rust-prevention capability.
  Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
  Piston: Highly wearing-resistant material is adopted to guarantee long and stable buffering effect.
- Speed range ————— 1.0 ~ 6.8 m/s
- Temperature range —— -10 ~ +80℃
- Installation method —— CJAC has provided several installation methods such as NUT and positioning stop nut (SC). Besides, customized can be made based on your need.
- Special need————— CJAC can make customized spec according to your usage situation.

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AC1415−6K	15	9.8	35,280	30	1.0	—	o	—	o	−10~+80	80
AC1415−7K	15	9.8	35,280	15	1.5	—	o	—	o	−10~+80	80
AC2020−2K	20	36	22,000	27	2.0	—	o	—	o	−10~+80	170
AC2025−2K	25	40	24,200	35	2.0	—	o	—	o	−10~+80	180
AC2030−5K	30	44	26,460	60	1.2	—	o	—	o	−10~+80	185
AC2030−6K	30	44	26,460	30	1.7	—	o	—	o	−10~+80	185
AC2030−7K	30	44	26,460	15	2.4	—	o	—	o	−10~+80	185
AC2030−8K	30	44	26,460	8	2.8	—	o	—	o	−10~+80	185
AC2030−16K	30	44	26,460	5	4.2	—	o	—	o	−10~+80	205
AC2030−18K	30	44	26,460	3	6.0	—	o	—	o	−10~+80	205
AC2050−10K	50	59	35,280	30	2.0	—	o	—	o	−10~+80	250
AC2050−11K	50	59	35,280	30	2.0	—	o	—	o	−10~+80	250
AC2050−12K	50	59	35,280	15	2.8	—	o	—	o	−10~+80	250
AC2050−13K	50	59	35,280	8	3.8	—	o	—	o	−10~+80	250
AC2050−16K	50	59	35,280	5	5.0	—	o	—	o	−10~+80	250
AC2050−17K	50	59	35,280	3	6.8	—	o	—	o	−10~+80	250
AC2050D−13SK	50	59	35,280	8	3.8	—	o	—	o	−10~+80	275
AC2050D−14K	50	59	35,280	8	3.8	—	o	—	o	−10~+80	275
AC2065−2K	65	65	38,300	32	2.5	—	o	—	o	−10~+80	275
AC2065−2KW	65	65	38,300	28	3.0	—	o	—	o	−10~+80	275

Figure 1
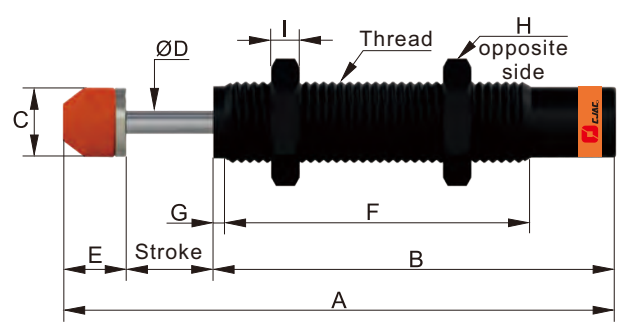
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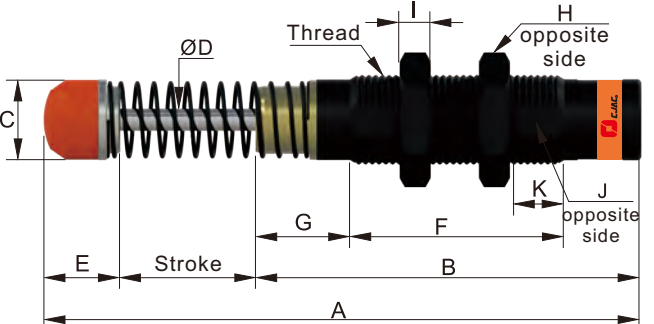
Model number	Thread	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	Figure
AC1415-6K	M14x1.5	15	95.6	69.4	12	4	11.2	52.7	2	19	5	—	—	1
AC1415-7K	M14x1.0 M14x1.5	15	95.6	69.4	12	4	11.2	52.7	2	19	5	—	—	1
AC2020-2K	M20x1.5	20	128.8	93	17.8	5	15.8	74.5	3.8	26	7	—	—	1
AC2025-2K	M20x1.5	25	140.4	100	17.8	5	15.8	81	2.8	26	7	—	—	1
AC2030-5K	M20x1.5	30	133.7	86	17.8	5	17.7	48	21	26	7	18.2	10	2
AC2030-6K	M20x1.5	30	133.7	86	17.8	5	17.7	48	21	26	7	18.2	10	2
AC2030-7K	M20x1.5	30	133.7	86	17.8	5	17.7	48	21	26	7	18.2	10	2
AC2030-8K	M20x1.5	30	133.7	86	17.8	5	17.7	48	21	26	7	18.2	10	2
AC2030-16K	M20x1.5	30	146.5	97.8	17.8	5	18	48	32.8	26	7	18.2	10	2
AC2030-18K	M20x1.5	30	146.5	97.8	17.8	5	18	48	32.8	26	7	18.2	10	2
AC2050-10K	M20x1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	3
AC2050-11K	M20x1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	3
AC2050-12K	M20x1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	3
AC2050-13K	M20x1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	3
AC2050-16K	M20x1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	3
AC2050-17K	M20x1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	3
AC2050D-13SK	M20x1.5	50	195	120.7	17.8	5	17.7	70.6	23.7	26	7	18.2	10	2
AC2050D-14K	M20x1.5	50	244	178.2	17.8	5	15.8	136.5	25.3	26	7	18.2	10	2
AC2065-2K	M20x1.5	65	267.3	186.5	17.8	6	15.8	145	3.5	26	7	—	—	3
AC2065-2KW	M20x1.5	65	267.3	186.5	17.8	6	15.8	64.5	3.5	26	7	18.2	10	3

Figure 3
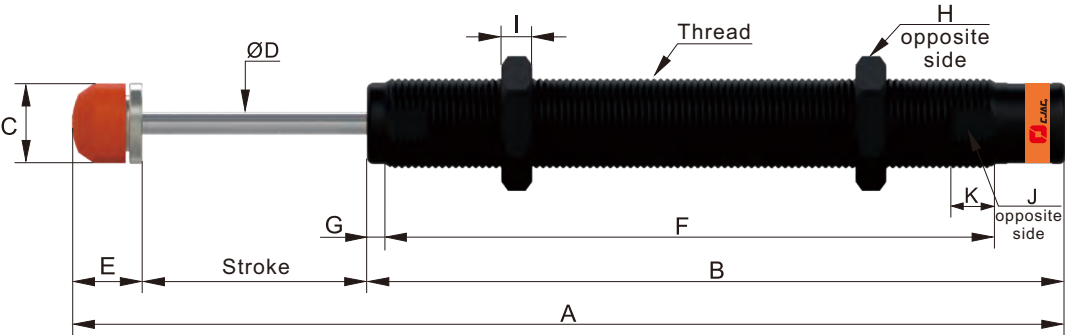
Characteristics

ACD series has adopted dual-buffering structure, and different buffering effects are installed at both ends. It is applicable to high speed site and commonly used for robot arm. It can reduce the noise and vibration of the equipment to increase greatly the operation speed of the robot arm.

● Material —— Outer tube: AISI 1215, STKM11A blackening oxidation treatment to enhance the rust-prevention capability.
Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
Piston: Highly wearing-resistant material is adopted to guarantee long and stable buffering effect.

● Speed range —— 1.0 ~ 3.5 m/s

● Temperature range —— －10 ~ +80℃

● Installation method —— CJAC has provided several installation methods such as NUT and positioning stop nut (SC). Besides, customized can be made based on your need.

● Special need —— CJAC can make customized spec according to your usage situation.

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
ACD2030-1	30	45	55,000	40	3.5	—	o	—	o	-10~+80	320
ACD2030-2	30	45	55,000	80	2.0	—	o	—	o	-10~+80	320
ACD2030-3	30	45	55,000	450	1.0	—	o	—	o	-10~+80	320
ACD2035-1	35	52	63,000	40	3.5	—	o	—	o	-10~+80	350
ACD2035-2	35	52	63,000	200	2.0	—	o	—	o	-10~+80	350
ACD2035-3	35	52	63,000	450	1.0	—	o	—	o	-10~+80	350
ACD2050-1	50	60	68,000	60	3.5	—	o	—	o	-10~+80	470
ACD2050-2	50	60	68,000	210	2.0	—	o	—	o	-10~+80	470
ACD2050-3	50	60	68,000	480	1.0	—	o	—	o	-10~+80	470
ACD2050-2WY	50	70	72,000	530	3.5	—	o	—	o	-10~+80	480
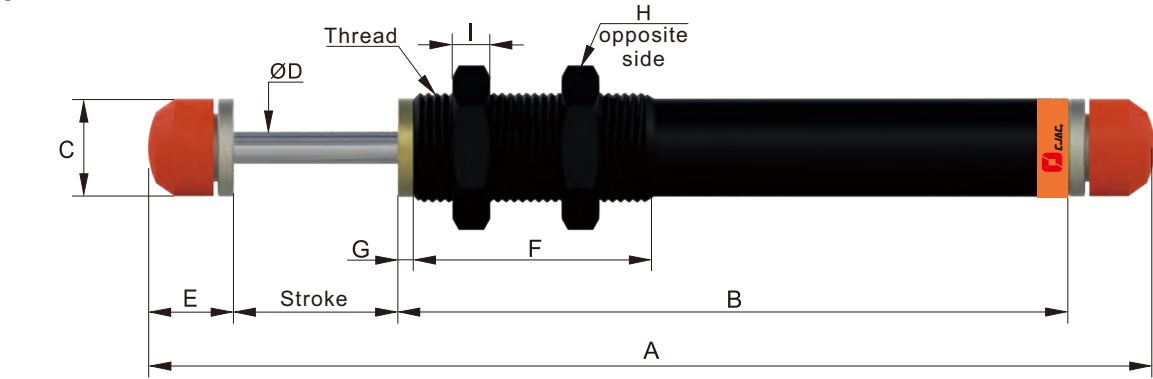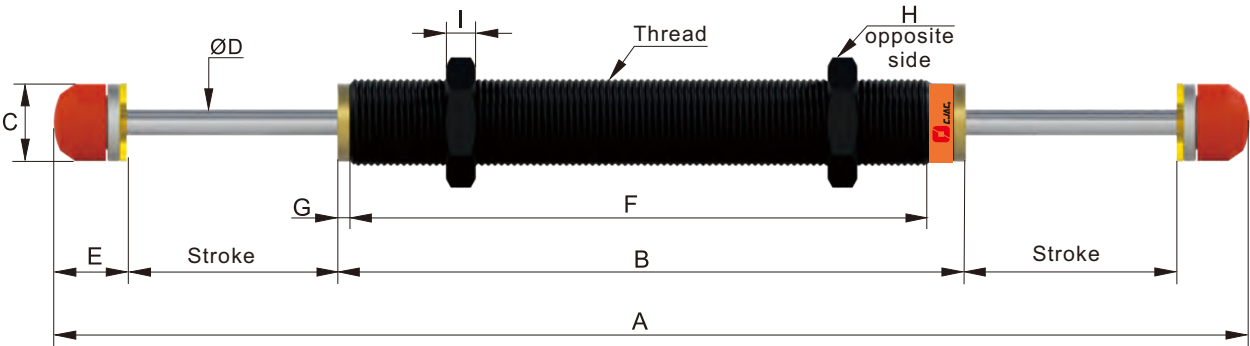
Model number	Thread	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	Figure
ACD2030-1	M20x1.5	30	184.6	123	17.8	6	15.8	44	3	26	7	—	—	1
ACD2030-2	M20x1.5	30	184.6	123	17.8	6	15.8	44	3	26	7	—	—	1
ACD2030-3	M20x1.5	30	184.6	123	17.8	6	15.8	44	3	26	7	—	—	1
ACD2035-1	M20x1.5	35	224.6	123	17.8	5	15.8	42	5	26	7	—	—	2
ACD2035-2	M20x1.5	35	224.6	123	17.8	5	15.8	42	5	26	7	—	—	2
ACD2035-3	M20x1.5	35	224.6	123	17.8	5	15.8	42	5	26	7	—	—	2
ACD2050-1	M20x1.5	50	276.6	145	17.8	6	15.8	134	3	26	7	—	—	2
ACD2050-2	M20x1.5	50	276.6	145	17.8	6	15.8	134	3	26	7	—	—	2
ACD2050-3	M20x1.5	50	276.6	145	17.8	6	15.8	134	3	26	7	—	—	2
ACD2050-2WY	M20x1.5	50	313.8	172.8	17.8	6	20.5	11	16	26	7	—	—	3

Figure 1

Figure 2

Figure 3
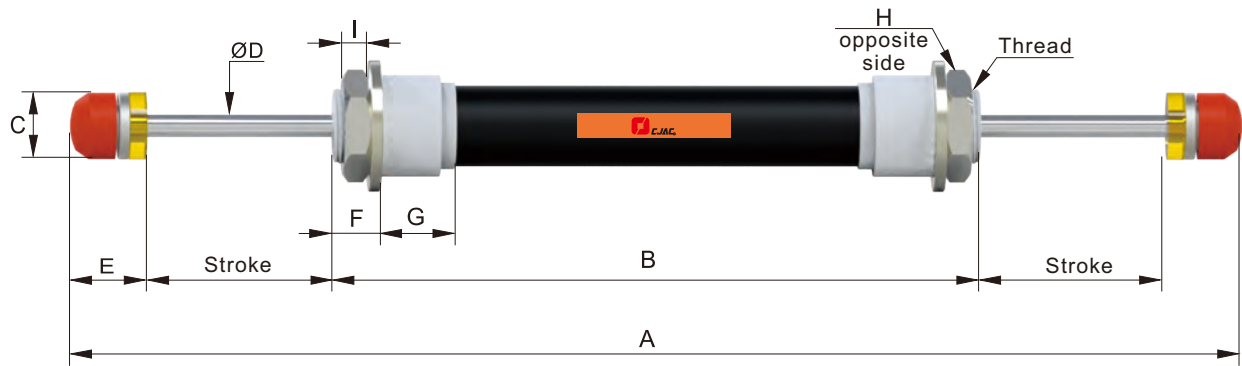
Characteristics

AC-S series, as compared to AC series, has smaller installation length, higher usage frequency, larger energy absorption, more secure product structure, and higher safety. It is applicable to equipment of compact size or of small space, and there is straight slot or milled edge to facilitate the installation.

● Material——Outer tube: AISI 1215, STKM11A nitridationsandblasting treatment to enhance the rust-prevention capability.
　　　　　Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
　　　　　Piston: Highly wearing-resistant material is adopted to guarantee long and stable buffering effect.

● Speed range——0.3 ~ 5.0 m/s

● Temperature range—— －10 ~ +80℃

● Installation method——CJAC has provided several installation methods such as NUT and positioningstop nut (SC) and angle adaptor (SLA). Besides, customized can be made based on your need.

● Special need——CJAC can make customized spec according to your usage situation.

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AC0604-S	4	0.5	720	3	0.3-1.0	o	o	—	o	-10~+80	4.0
AC0806-S	6	3	7,000	6	0.3-2.5	o	o	—	o	-10~+80	17
AC1007-S	7	6	12,400	12	0.3-3.5	o	o	—	o	-10~+80	28
AC1210-S	10	12	22,500	22	0.3-4.0	o	o	—	o	-10~+80	32
AC1412-S	12	20	33,000	40	0.3-5.0	o	o	—	o	-10~+80	70
AC1412-SM	12	14	24,000	25	0.3-5.0	o	o	—	o	-10~+80	70
AC2015-S	15	59	38,000	120	0.3-5.0	o	o	—	o	-10~+80	160
AC2525-S	25	80	60,000	180	0.3-5.0	o	o	—	o	-10~+80	295
AC2725-S	25	147	72,000	270	0.3-5.0	o	o	—	o	-10~+80	375

Model number	Thread	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	Figure
AC0604-S	M6x0.75	4	36.5	28.5	4.5	1.8	4	22.5	1	8	3	—	—	1
AC0806-S	M8x1.0	6	55.2	40.6	6.6	2.9	8.6	33.6	2	11	3	—	—	2
AC1007-S	M10x1.0	7	62.6	47	8.6	3	8.6	39	3	12.7	3	—	—	2
AC1210-S	M12x1.0	10	71.3	52.5	10.3	3	8.8	44	3	14	4	—	—	2
AC1412-S	M14x1.5	12	90.2	67	12	4	11.2	58	4	19	5	12.1	—	3
AC1412-SM	M14x1.5	12	78.2	55	12	4	11.2	46.5	3.5	19	5	12	—	3
AC2015-S	M20x1.5	15	103.3	73	17.8	6	15.3	62	4	26	7	18	—	3
AC2525-S	M25x1.5	25	136	92	22	8	19	82	—	32	9	23	—	3
AC2725-S	M27x1.5	25	143	99	22	8	19	86	5	32	6	25	—	3

Figure 1
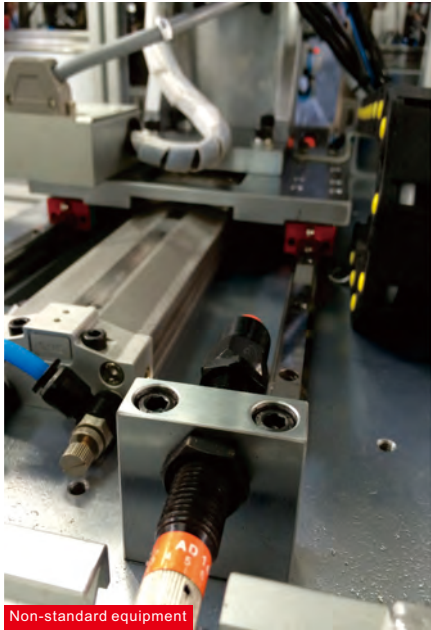
Figure 2

Figure 3
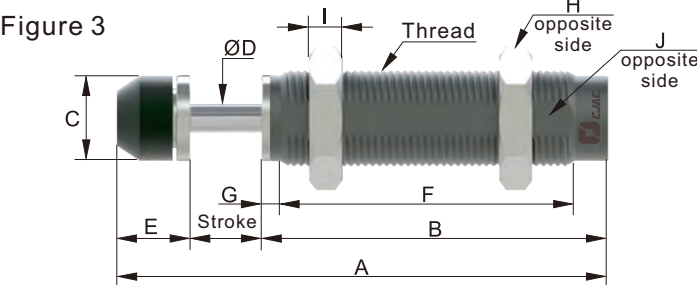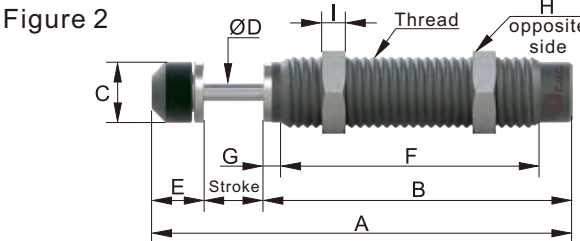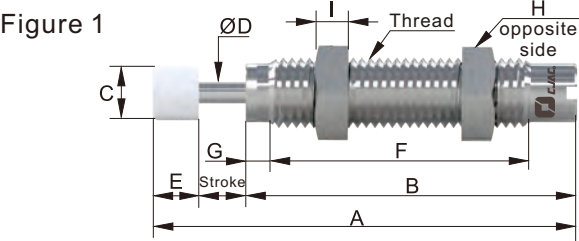
Adjustable type

AD series

Characteristics

AD series is of adjustable structure. When facing with different loads and different impact speeds, the adjustment knobs can be adjusted to appropriate scale to absorb perfectly the energy generated by the object. As compared to AC series, AD series has higher energy absorption and wider applicable scope.

- Material——Outer tube: AISI 1215, STKM11A blackening oxidation and Ni-plating treatment to enhance the rust-prevention capability.
  Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
  Piston: Highly wearing-resistant material is adopted to guarantee long and stable buffering effect.

- Speed range——0.3 ~ 4.5m/s

- Temperature range ——－10 ~ +80℃

- Installation method—— CJAC has provided several installation methods such as NUT and positioning stop nut (SC) and angle adaptor (SLA). Besides, customized can be made based on your need.

- RoHS certification —— AD1410、AD1425、AD2016、AD2025、AD2525、AD2540、AD2550、AD2580、AD3625、AD3650，All the above products have been passed RoHS certification

- Special need—— CJAC can make customized spec according to your usage situation.

Non-standard equipment

Tire machinery

Work bench

Non-standard equipment

Circuit breaker

Tire machinery

Tire machinery

Circuit breaker

Non-standard equipment
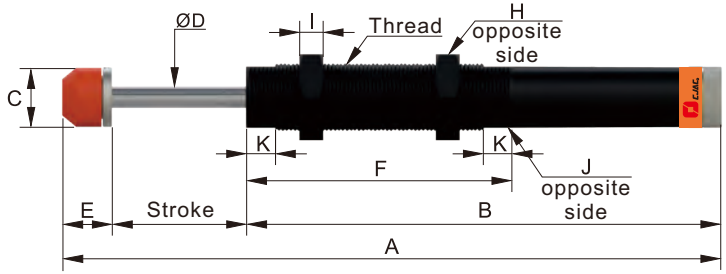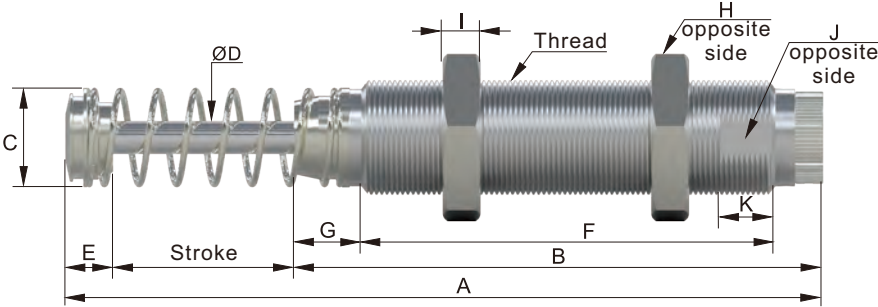
Circuit breaker

Crane

Circuit breaker

Blow molding machine

Performance parameter

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AD1210	10	12	22,000	35	3.0	o	o	—	o	-10~+80	66
AD1410	10	20	25,000	80	3.0	o	o	—	o	-10~+80	90
AD1415	15	24	26,000	100	3.0	o	o	—	o	-10~+80	120
AD1425	25	28	27,500	140	3.0	o	o	—	o	-10~+80	194
AD1612	12	22	27,500	130	3.0	o	o	—	o	-10~+80	200
AD2016	16	28	27,500	200	3.0	o	o	—	o	-10~+80	230
AD2016-C	16	28	28,500	200	3.5	o	o	—	o	-10~+80	230
AD2020	20	34	29,000	298	3.5	o	o	—	o	-10~+80	235
AD2025	25	39	30,000	312	3.5	o	o	—	o	-10~+80	240
AD2050	50	69	52,000	420	3.5	o	o	—	o	-10~+80	330
AD2525	25	85	54,000	400	3.5	o	o	—	o	-10~+80	350
AD2530	30	95	60,000	480	3.5	o	o	—	o	-10~+80	365
AD2540	40	100	80,000	700	3.5	—	o	—	o	-10~+80	455
AD2550	50	120	90,000	720	4.0	o	o	—	o	-10~+80	455
AD2580	80	150	120,000	800	4.0	o	o	—	o	-10~+80	585
AD2725	25	85	54,000	400	3.5	o	o	—	o	-10~+80	403
AD3326	25	195	75,700	1400	3.3	—	o	—	—	-10~+80	482
AD3352	52	385	98,962	2400	3.3	—	o	—	—	-10~+80	708

Figure 1

Figure 2

Form parameters
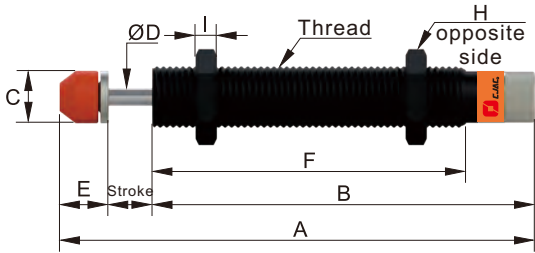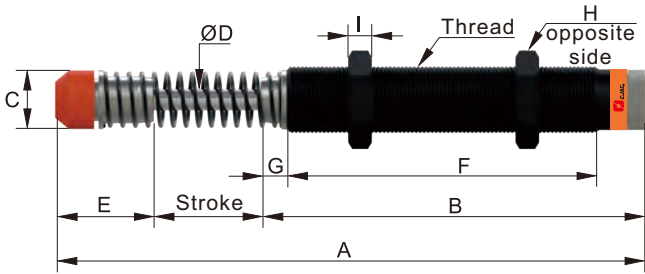
Model number	Thread	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	Figure
AD1210	M12x1.0	10	90.3	71.7	10.3	3	8.6	57.3	—	14	4	—	—	1
AD1410	M14x1.0 M14x1.5	10	109.7	88.5	12	4	11.2	72.5	—	19	5	—	—	1
AD1415	M14x1.0 M14x1.5	15	128.2	102	12	4	11.2	86	—	19	5	—	—	1
AD1425	M14x1.0 M14x1.5	25	153.2	117	12	4	11.2	101	—	19	5	—	—	1
AD1612	M16x1.0 M16x1.5	12	99	76.5	14	4	11.2	54.9	—	19	6	—	—	1
AD2016	M20x1.5 M20x2.0	16	148.3	117	17.8	6	15.3	101	—	26	7	—	—	1
AD2016-C	M20x1.5	16	127.3	96	17.8	6	15.3	80	—	26	7	—	—	1
AD2020	M20x1.5	20	152.3	117	17.8	6	15.3	101	—	26	7	—	—	1
AD2025	M20x1.5	25	157.3	117	17.8	6	15.3	101	—	26	7	—	—	1
AD2050	M20x1.5	50	239.3	174	17.8	6	15.3	158	—	26	7	—	—	1
AD2525	M25x1.5 M25x2.0	25	162.5	118.5	22	8	19	101	—	32	9	—	—	1
AD2530	M25x1.5 M25x2.0	30	167.5	118.5	22	8	19	101	—	32	9	—	—	1
AD2540	M25x1.5 M25x2.0	40	221.5	144.5	22	8	37	117	10	32	9	—	—	2
AD2550	M25x1.5 M25x2.0	50	247	178	22	8	19	100	—	32	9	22.8	11	3
AD2580	M25x1.5 M25x2.0	80	343.5	244.5	22	8	19	100	—	32	9	22.8	11	3
AD2725	M27x1.5 M27x3.0	25	162.5	118.5	22	8	19	101	—	32	9	—	—	1
AD3326	M33x1.5	26	150.3	110.5	28.5	10	13.8	77.9	19.1	45	11	29.7	16	4
AD3352	M33x1.5	52	217.3	151.5	28.5	10	13.8	118.7	19.1	45	11	29.7	16	4

Figure 3

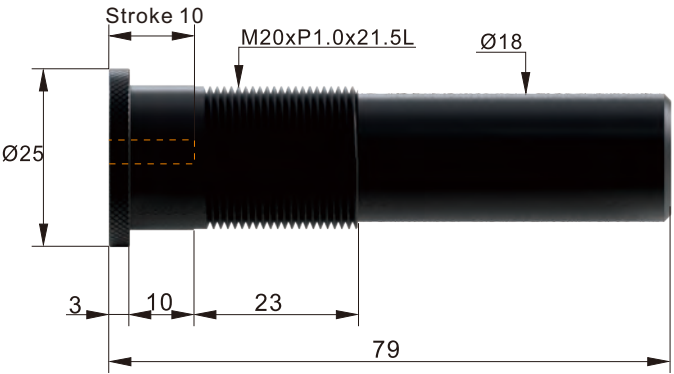Figure 4

Performance parameter

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AD3625	25	150	81,000	1400	3.0	—	o	o	o	-10~+80	955
AD3650	50	300	100,000	2400	3.0	—	o	o	o	-10~+80	1,100
AD4225	25	260	125,000	3,000	3.5	—	o	o	—	-10~+80	1,280
AD4225-W	25	260	125,000	3,000	3.5	—	o	o	—	-10~+80	1,280
AD4250	50	500	150,000	4,000	4.5	—	o	o	—	-10~+80	1,490
AD4250-W	50	500	150,000	4,000	4.5	—	o	o	—	-10~+80	1,490
AD4275	75	750	180,000	6,000	4.5	—	o	o	—	-10~+80	1,710
AD4275-W	75	750	180,000	6,000	4.5	—	o	o	—	-10~+80	1,710
AD64050	50	1,200	150,500	12,727	1.5	—	o	o	—	-10~+80	4,115
AD64050-W	50	1,200	150,000	12,727	1.5	—	o	o	—	-10~+80	4,115
AD64100	100	2,400	200,000	18,181	1.5	—	o	o	—	-10~+80	5,280
AD64100-W	100	2,400	200,000	18,181	1.5	—	o	o	—	-10~+80	5,280
AD64150	150	3,600	250,000	23,636	1.5	—	o	o	—	-10~+80	6,785
AD64150-W	150	3,600	250,000	23,636	1.5	—	o	o	—	-10~+80	6,785
AD85050-W	50	2,300	372,000	16,800	4.3	—	o	o	—	-10~+80	6,370
AD85090-W	90	4,000	652,000	30,000	4.3	—	o	o	—	-10~+80	7,510
AD85125-W	125	5,700	933,000	42,000	4.3	—	o	o	—	-10~+80	8,000

Figure 1
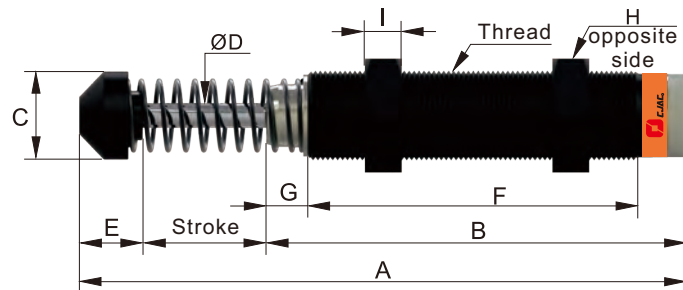
Figure 2
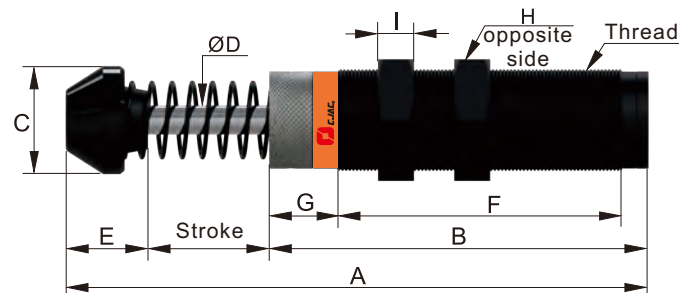
Form parameters

Model number	Thread	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Figure
AD3625	M36x1.5	25	184	133	35.5	10	26	103	10	46	15	1
AD3650	M36x1.5	50	247	171	35.5	10	26	134	17	46	15	1
AD4225	M42x1.5	25	186.5	127.5	44.5	12	34	99	28.5	50	15	2
AD4225(-B)-W	M42x1.5 (-B)UNF13/4-12	25	166.3	95.3	44.5	12	34	29.3	37.9	—	—	4
AD4250	M42x1.5	50	241	157	44.5	12	34	117.5	28.5	50	15	2
AD4250(-B)-W	M42x1.5 (-B)UNF13/4-12	50	219.6	123.6	44.5	12	34	47	48.2	—	—	4
AD4275	M42x1.5	75	301.5	187.5	44.5	12	39	148	28.5	50	15	2
AD4275(-B)-W	M42x1.5 (-B)UNF13/4-12	75	284.1	158.1	44.5	12	39	63	67.2	—	—	4
AD64050(-B)	M64x2.0 (-B)UNF21/2-12	50	247.8	146	59	20	51.8	26	24	76.2	9.4	3
AD64050(-B)-W	M64x2.0 (-B)UNF21/2-12	50	243.8	140	59	20	51.8	50	50	—	—	4
AD64100(-B)	M64x2.0 (-B)UNF21/2-12	100	347.8	196	59	20	51.8	26	24	76.2	9.4	3
AD64100(-B)-W	M64x2.0 (-B)UNF21/2-12	100	345.8	192	59	20	51.8	76	76	—	—	4
AD64150(-B)	M64x2.0 (-B)UNF21/2-12	150	467.8	256	59	20	61.8	26	24	76.2	9.4	3
AD64150(-B)-W	M64x2.0 (-B)UNF21/2-12	150	465.8	242	59	20	61.8	76	76	—	—	4
AD85050-W	M85x2.0	50	245	140	76	22	47	51	51	—	—	4
AD85090-W	M85x2.0	90	322.5	179	76	22	47	71	71	—	—	4
AD85125-W	M85x2.0	125	397.6	217	76	22	47	71	71	—	—	4

Figure 3
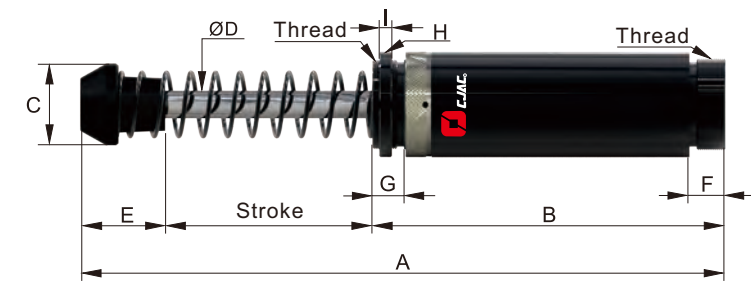
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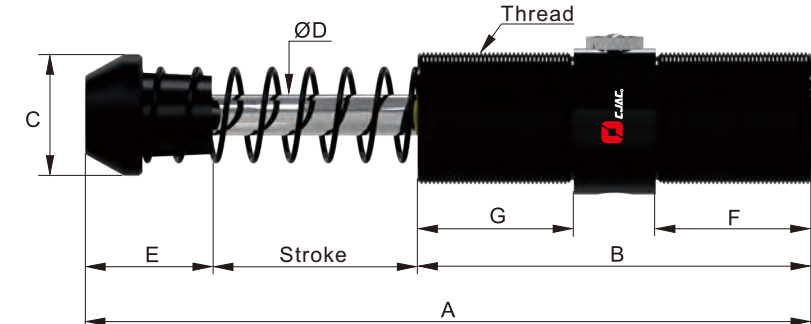
Characteristics

It is placed at the inside of the stopper cylinder to generate smooth stopping, and it can be divided into automatic compensated type and adjustable type.

Automatic compensated type:External cylinder is formed in one-body structure, therefore, it is compact and safe. It can prevent distortion of the piston due to offset impact. In order to reduce the contact frictional force with the end face of the piston rod, it is suggested that the contact face should be of rolling friction.

Adjustable type: In order to reduce the bad influence caused by offset impact, the piston rod is of two-stage structure, 0°~270° single-offset adjustment to enhance effectively the adjustment range.

● Material —— Outer tube: AISI 1215, STKM11A blackening oxidation and Ni-plating treatment to enhance the rust-prevention capability.
　　　　　　 Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
　　　　　　 Piston: Highly wearing-resistant material is adopted to guarantee long and stable buffering effect.

● Temperature range —— -10 ~ +85℃

● Installation method —— It can be of screw installation or placed directly within the cylinder.

● Special need —— CJAC can make customized spec according to your usage situation.

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
AC2010-N	10	25	15,000	120	3.0	o	—	—	—	-10~+80	123.5
HC2010-N	10	25	15,000	120	3.0	o	—	—	—	-10~+80	123.5
SFC2010-N	10	25	15,000	120	3.0	o	—	—	—	-10~+80	118

AC2010-N
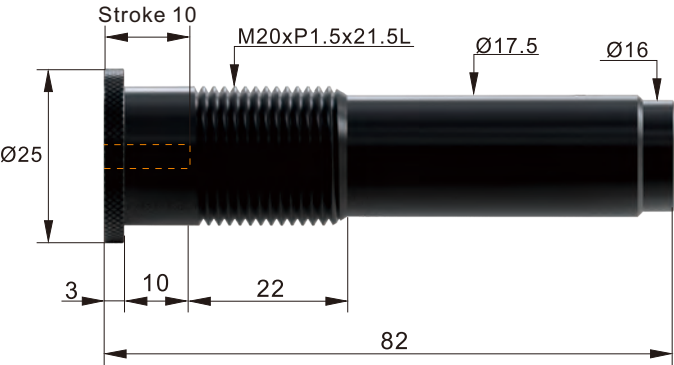
HC2010-N

SFC2010-N
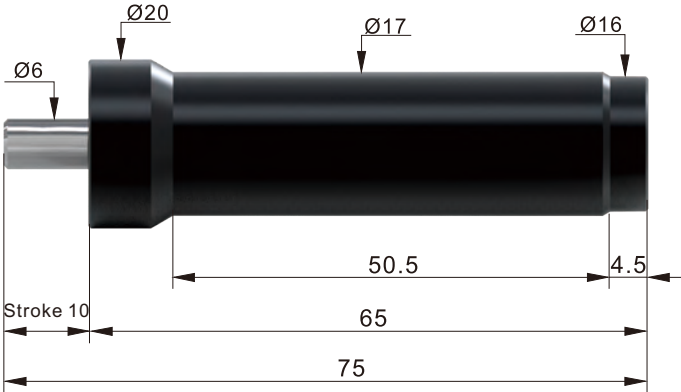
Adjustable type

Performance and form parameters

Model number	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. effective Mass (Me) Kg	Max. impact speed (v)m/s	Without impact head	With impact head	Flange (F)	Stop collar (SC)	Operating temperature (℃)	Weight (g)
YAD1408-N	8	16	12,000	40	4.0	o	—	—	—	-10~+85	56.5
AD2207-N	7	28	18,000	230	3.5	o	—	—	—	-10~+85	170.5
AD2208-N	8	30	19,000	240	3.5	o	—	—	—	-10~+85	178.5
AD2911-N	11	40	35,000	300	3.0	o	—	—	—	-10~+85	373
AD3615-N	15	50	45,000	450	3.0	o	—	—	—	-10~+85	812.5

Model number	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	L mm	Figure
YAD1408-N	8	70.9	53.5	15.6	4	8	4.4	—	4.6	14	13.5	—	1
AD2207-N	7	102.1	72.3	25	8	15.5	5	3.3	8	22	21.6	14	2
AD2208-N	8	102	73	24	8	12.2	4.8	—	8	22	21.6	—	1
AD2911-N	11	129.5	93.5	34	8	13.5	14.4	—	8	28.9	—	—	1
AD3615-N	15	161	116.5	42	10	17.5	19	—	10	35.9	—	—	1

Figure 1
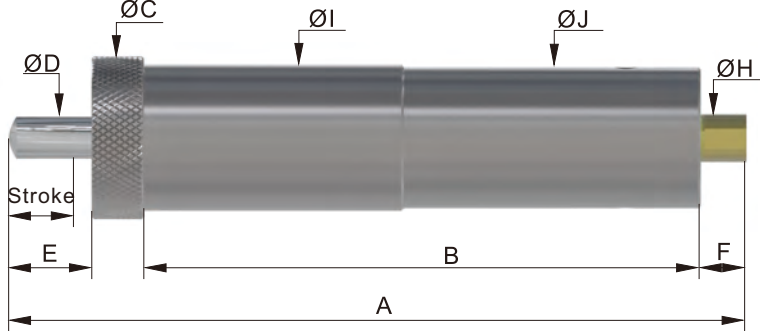
Figure 2
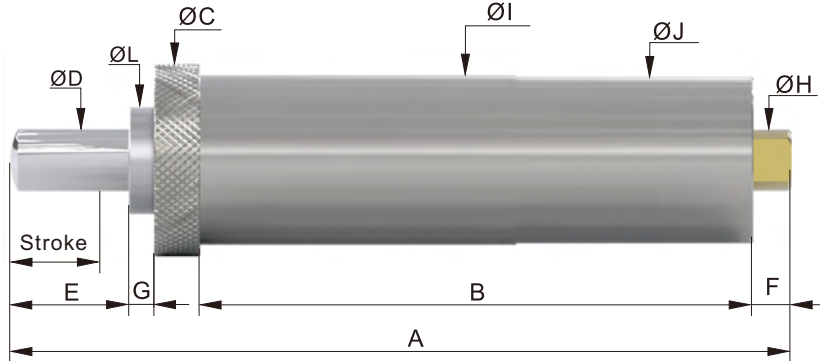
SLA side load adaptor

In the operation condition of normal shock absorber, the range of allowed eccentric load is within ±3°, however, if this range is exceeded, the torque received by piston rod will be greatly increased to lead to the curving and distortion of the piston rod of the shock absorber. Our accessory CJAC SLA Side load adaptor is applicable to the situation of large eccentric angle, in this case, the receiving range is effectively expanded to achieve the soft damping at the end of the nonlinear impact stroke, therefore, the stability of the product in operation can be greatly enhanced.
Eg., SLA (8, 10, 12) can receive offset impact of 12.5°, SLA (14, 20, 25) can receive offset impact of 25°.

Model number	A mm	B mm	C mm	D mm	E mm	M mm	P mm	S mm	Figure
SLA0806	11	11	—	4	10	M8x1.0	M8x1.0	6	1
SLA1005	13	10.6	11	5	11	M10x1.0	M10x1.0	5	1
SLA1007-S	13	12.6	11	5	11	M10x1.0	M10x1.0	7	1
SLA1008	13	13.6	11	5	11	M10x1.0	M10x1.0	8	1
SLA1210	16	18	13	6	14	M12x1.0	M12x1.0	10	1
SLA1408	18	16	15	8	16	M14x1.5	M14x1.5	8	1
SLA1410	18	18	15	8	16	M14x1.5	M14x1.5	10	1
SLA1412	18	20	15	8	16	M14x1.5	M14x1.5	12	1
SLA1415	18	23	15	8	16	M14x1.5	M14x1.5	15	1
SLA1416	18	24	15	8	16	M14x1.5	M14x1.5	16	1
SLA1420	18	28	15	8	16	M14x1.5	M14x1.5	20	1
SLA1425	18	33	15	8	16	M14x1.5	M14x1.5	25	1
SLA1612	20	20	17	8	16	M16x1.5	M16x1.5	12	1
SLA2015-S	25	26.3	22	11	20	M20x1.5	M20x1.5	15	1
SLA2016	25	27.3	22	11	20	M20x1.5	M20x1.5	16	1
SLA2020	25	31.3	22	11	20	M20x1.5	M20x1.5	20	1
SLA2025	25	36.3	22	11	20	M20x1.5	M20x1.5	25	1
SLA2030	25	41.3	22	11	20	M20x1.5	M20x1.5	30	1
SLA2525	36	38	32	15	30	M25x1.5	M25x1.5	25	1
SLA2530	36	43	32	15	30	M25x1.5	M25x1.5	30	1
SLA2725	36	38	32	15	30	M27x1.5	M27x1.5	25	1
SLA3625	45	87	40	20	5	M45x1.5	M36x1.5	25	2
SLA4250-NH	64	139.5	61	31	—	M64x2.0	M42x1.5	50	3
SLA4275-W	52	148	50	32	15	M52x1.5	M42x1.5	75	2
SLA4525-N	64	92.5	61	31	—	M64x2.0	M45x1.5	25	3

Impact force

25°
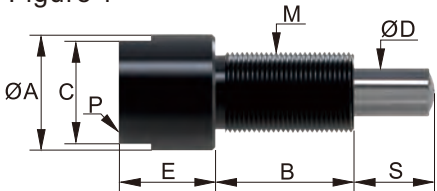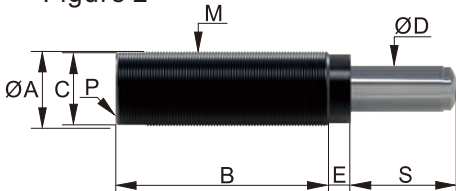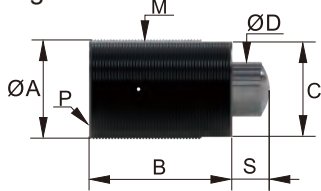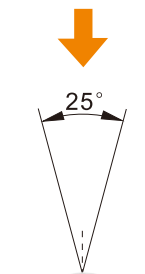
Illustration of installation

Figure 1   Figure 2   Figure 3

Positioning stop nut

Model number	W mm	L mm	D mm	M	Figure
SC08	11	14	—	M8xP1.0	1
SC10	12.7	16	—	M10xP1.0	1
SC12	14	20	—	M12xP1.0	1
SC14	19	27	18	M14xP1.5	2
SC20	26	35	25	M20xP1.5	2
SC25	32	45	31.3	M25xP1.5	2
SC25x25L	32	25	31.3	M25xP1.5	2
SC25x65L	32	65	31.3	M25xP1.5	2
SC27	32	45	31.3	M27xP1.5	2
SC36	46	80	45	M36xP1.5	2

Figure 1
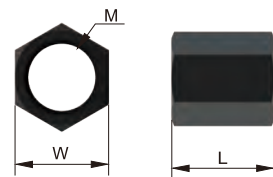
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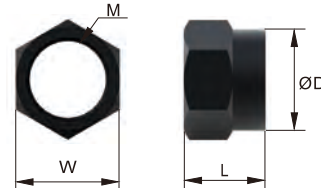
Application illustration of positioning stop nut

Setup stroke

Positioning stop collar

Impact object

Positioning stop collar
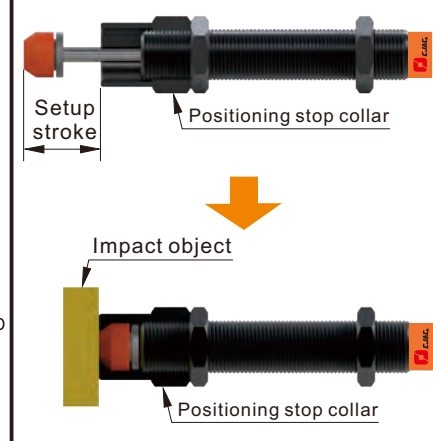
Flange
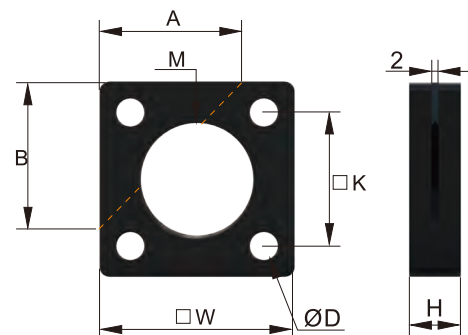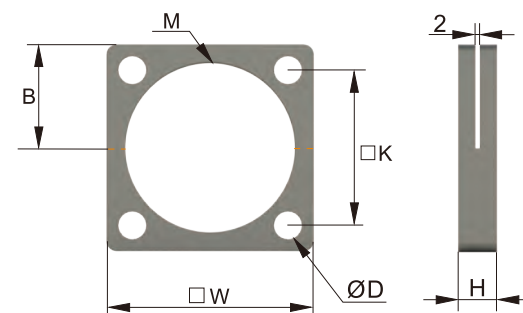
Figure 1

Figure 2

Model number	A mm	B mm	H mm	W mm	K mm	D mm	M	Weight (g)	Figure
F36	45	45	16	60	41	8.5	M36xP1.5	282	1
F42	45	45	16	60	41	8.5	M42xP1.5	236	1
F64	55	55	16	89	70	10.5	M64xP2.0 2 1/2-12UNF	540	1
F85	—	50.8	19	101.6	76.2	13.5	M85xP2.0	590	2

Characteristics

As compared to the vibration-resistant method available presently, it can absorb and reduce 1/3 of the shaking generated by earthquake (Through the impact absorption characteristic of the shock absorber, the safety of the residence can be increased).
It has excellent decaying effect and continuous shock absorption effect (Not only applicable to the moment of the occurrence of principal earthquake, but also is quite useful for the subsequent secondary earthquake).
It is applicable to all the wooden architecture (It can be corresponded to traditional three-layer wooden traditional axis construction method, and it is also applicable to heat-isolated architecture).
It is small, smart and low cost. (It is of compact size, light weight, and as compared to other method, only low cost is needed to change it into shock absorbing residence)
It is highly durable, there is no need of maintenance (It is highly durable, its effect is continuous to almost permanent, and there is no maintenance need after the construction).

General architecture

With installation of shock absorber

Great Hanshin Awaji earthquake (EW wave)

Relative shift (cm)

General architecture
With installation of shock absorber

Continuing time (s)

No shock absorber, the maximal shift is about 13 cm.

The maximal shift is about 8 cm. The maximal shift is reduced by about 38%.
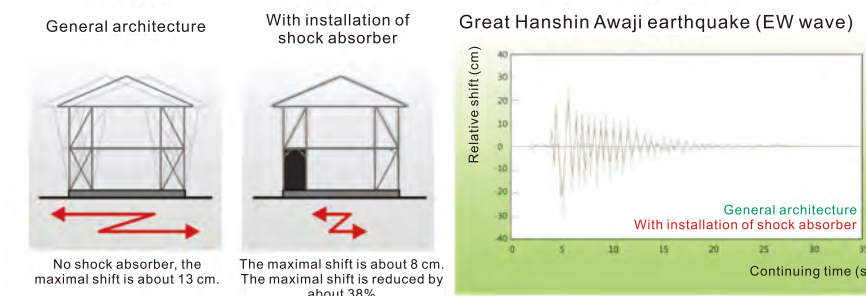
Model number	Stroke (mm)	Max. load (N)	Operating temperature (℃)	Weight (g)
ACD3831	± 15	350—590	0~60	350

215
110
105
80
25
28
110
105
80
25
Ø38
193.4

51
5
18
48
23
26
51
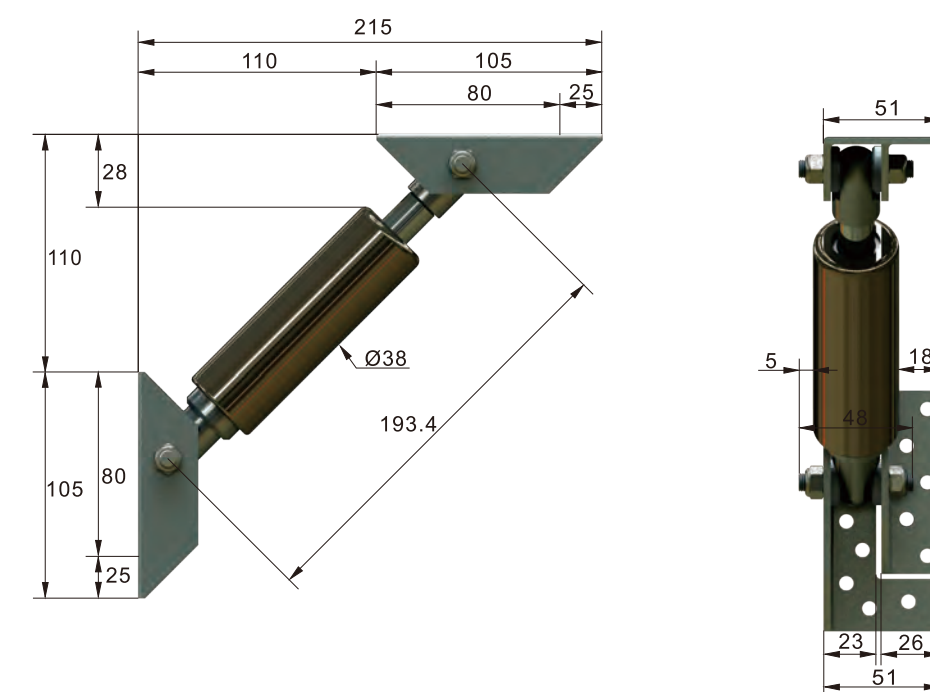
Characteristics

HR hydraulic speed controller can control the movement speed of the object continuously and stably in very long time. Spring and pneumatic method is adopted respectively for reset action, meanwhile, in order to adapt to the use in different environments, in addition to installing dust-prevention device internally, dust-prevention mask is also installed externally so as to guarantee the usage lifetime and speed stabilizing effect. HR hydraulic
speed controller has adopted special hydraulic oil, therefore, there will be no difference in the propulsive speed due to the temperature rise generated by moving load. It is of small volume, easy to install, meanwhile, it is installed with 30 scales to facilitate the control and adjustment of the movement speed of the object.

● Material —— Outer tube: AISI 1215, STKM11A blackening oxidation and Ni-plating treatment to enhance the rust-prevention capability.
Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
Piston: Highly wearing-resistant material is adopted to guarantee long and stable buffering effect.

● Temperature range —— 0 ~ 60℃

● Special need —— CJAC can make customized spec according to your usage situation.

Model number	Stroke (mm)	A mm	B mm	C mm	D mm	E mm	F mm	G mm	Operating temperature (℃)	Max.load (Kgf)	Weight (g)
HR15	15	152	137	24	8	27.3	21	24	0~60	15—350	470
HR30	30	203	173	24	8	27.3	21	24	0~60	15—350	495
HR60	60	283.5	223.5	24	8	27.3	21	24	0~60	15—350	615
HR80	80	350.7	270.7	24	8	27.3	21	24	0~60	15—350	690
HR100	100	396.5	296.5	24	8	27.3	21	24	0~60	15—350	765
HR3160	60	331	271	30.8	12	36	37.2	43.5	0~60	30—420	1,000
HRT60	60	317.5	257	24	8	27.3	21	24	0~60	15—350	1,555
HRT100	100	389.5	289.5	24	8	27.3	21	24	0~60	15—350	1,635

HR

ØC
ØD
ØE
F G
Stroke
B
A

HRT

155.5
PT1/8"-28 air tube Ø6 60 12
ØD
ØC
ØE
F G
60.5
Stroke
B
A
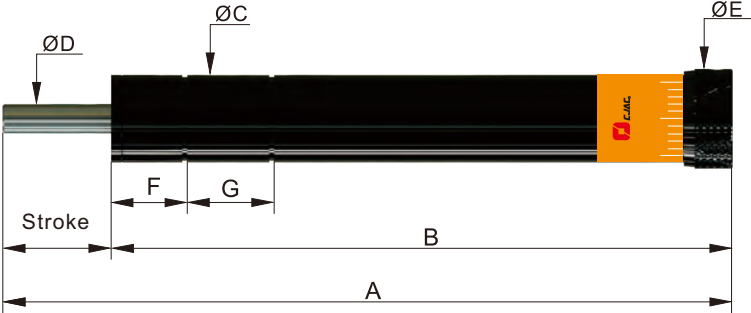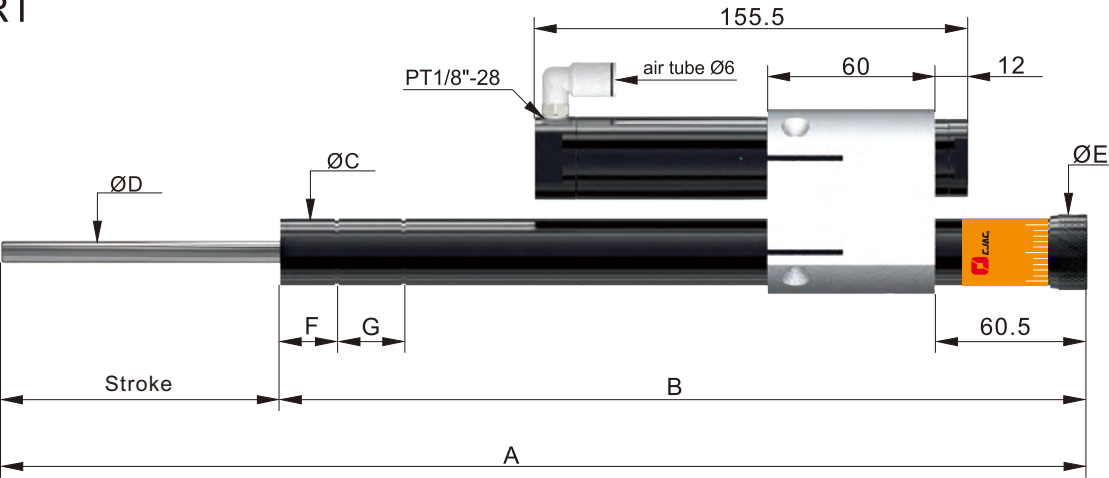
New product

HR25-K is a brand new product, and it is totally different than the structural design of traditional sealing part. Due to the precise space design and protection in the oil bellow action location, it can be free from breaking due to its swelling in the pressure storing process. Folded type oil bellow design structure is used to link the piston rod, and retracting action is used to adjust the storage and pressure-storing of oil and then convert it into pressure release and resetting of piston rod. It does not have sealing part (oil seal), and both ends of oil bellow are fixed, therefore, there is no oil leak and contamination trouble. Meanwhile, special oil product is adopted, there is no difference in propulsive speed due to temperature rise generated by the load. Meanwhile, the tuning of the load of propulsive force can be from 0 (the lightest load) to 30 (the heaviest load) according to the labeling. Moreover, in the non-segmented tuning, each scale can clearly reflect the tuning effect. Meanwhile, due to its delicate form design, it is applicable to food-grade equipment, medical equipment, optical equipment, and the pneumatic and hydraulic speed controlling equipment in related automatic manufacturing field.

- Safe usage stroke is 24.6 mm.
- Please do not rotate the piston rod.
- Do not move the load in offset angle.

Dust-prevention mask

- Lengthen the usage lifetime of hydraulic speed controller
- It is durable because polymer material is adopted.
- Special design makes it easy to be disassembled and exchanged.
- Dust-prevention protection is provided for hydraulic speed controller to provide safety for complicated environment.

型 號	A (mm)	B (mm)	最大行程 (mm)	使用溫度 (℃)	最大負荷 (Kgf)	重量 (g)
HR15-FCZ	178	138	15	0~60	15-350	490
HR30-FCZ	248	173	30	0~60	15-350	525
HR60-FCZ	344	223.5	60	0~60	15-350	655

Model number	Stroke (mm)	Minimum force that will operate plunger full stroke (N)	Plunger return spring force (N)	Load that will push plunger 25.4mm per second at fastest adjustment (N)	Load that will push plunger 101mm per second at fastest adjustment (N)	Piston reset time (S)	Stroke finishing time under special force value			Operating temperature (℃)	Weight (g)
							4,400 (N)	2,200 (N)	440 (N)		
HR25-K	25.4	22.7	18	50	150	0.063	15	35	300	5~50	350
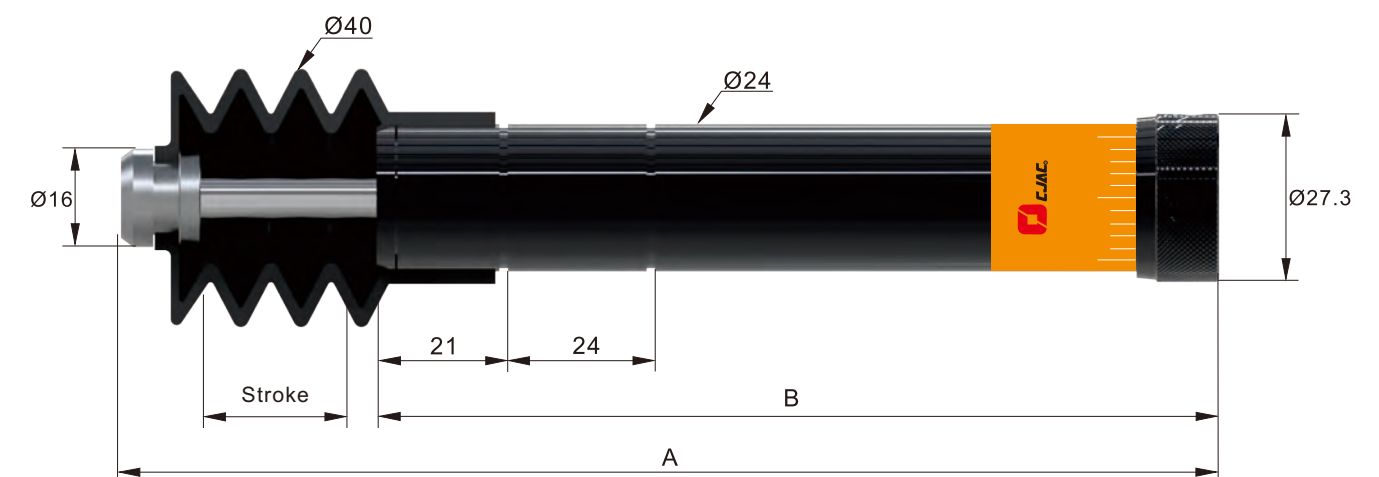
Mounting
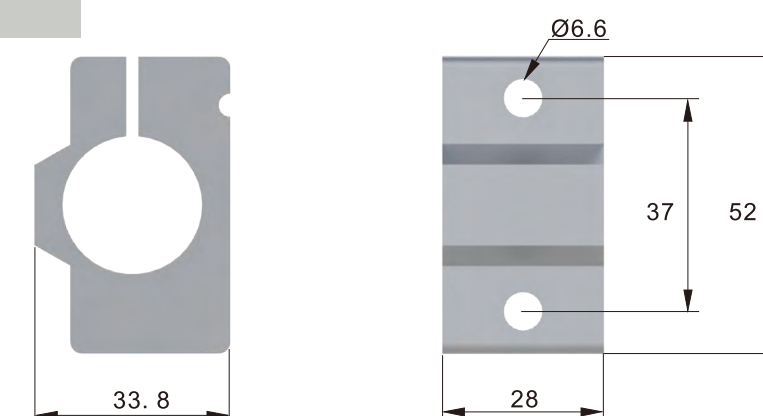
Characteristics

Safety loop for pressure keeping

Prevent self-walking phenomenon after the cylinder is stopped

Precise positioning after cylinder is suddenly stopped

Application of special loop design

● Material —— Main body: JIS C3604 Ni-plating to enhance rust-prevention capability.
Main body sleeve: Aluminum alloy and anodic oxidation of original color

● Pressure range —— 0.5 ~ 9.5 Kg/cm^2

● Temperature range —— -10~ +70℃

● Usage frequency —— 40 ~ 60/minute

● Special need —— CJAC can make customized spec based on your usage need.

Model number	Use pressure range(Kg/cm^2)	Operating temperature (℃)	Orifice (mm2)	Operation frequency (times/minute)	Weight (g)	Suggested cylinder to be used
PC02	0.5~9.5	-10~+70	24	60	100	Below 50 (including 50)
PC03(PC04L)	0.5~9.5	-10~+70	79	40	340	100~125
PC04	0.5~9.5	-10~+70	79	40	340	63~80

PC02

PC03(PC04L)

PC04

Gas line usage example
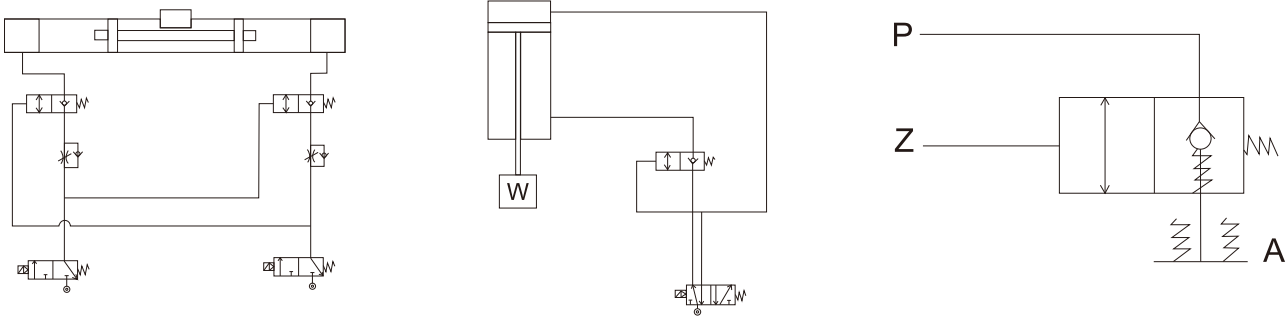
Heavy duty shock absorber

New product

Characteristics

HD heavy duty shock absorber can provide a safe operation environment for large machine and equipment. Under the premise of meeting the industrial safety standard, CJAC has designed a large cylinder diameter, long stroke and high absorption energy heavy shock absorber to be applied in operation environments of different conditions, therefore, it can realize stable linear deceleration of large machine and equipment.

- ● Material —— Outer tube: Zinc-plating treatment to enhance the rust-prevention capability.
  Piston rod: Hardened chromium-plating treatment and special sealing part to lengthen its lifetime.
  Piston: Highly wearing-resistant material is adopted to guarantee long and stable buffering effect.

- ● Applicable scope —— Automatic warehouse system, transport system, Gantry Crane System, cement machinery system, paper-making machinery system, large manufacturing streamline, large robot arm, rubber and plastic machinery, vehicle manufacturing industry, ship manufacturing plant, petrochemical plant, steel heavy industry, traffic and transportation, freight vehicle, excavator, transport machinery, crane, mine well, mine vehicle, gate, machinery for port and facility for environmental protection, etc.

- ● Temperature range —— -10~ +80℃

- ● Installation method —— CJAC can provide flange and leg type installation methods

- ● Special need —— CJAC can make customized spec based on your usage need

Model number description

HD – 75 – 100 – R – A – 00001

| Model number | Piston diameter (mm) | Stroke (mm) | Mounting method | Accessory | Manufacturing serial no. |
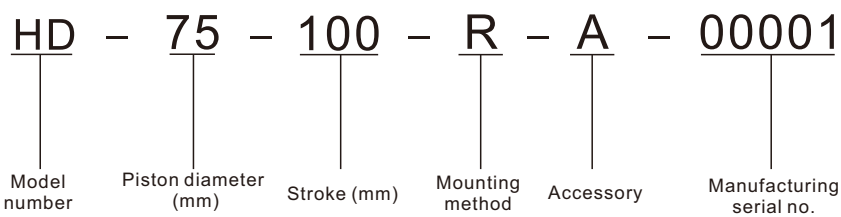
Model number	Piston diameter (mm)	Stroke (mm)	Mounting method		Accessory	
HD	40	50、100、250、500、650	F	Front flange	A	Safety chain
	50	50、100、250、500、1000	R	Rear flange	C	Muffler sleeve
	75	50、100、250、500、1000	FR	Front and rear flange	E	Amplified impact head
			S	front foot mount		
			SS	Front and rear foot mount		
			M	Clevis mount		

- ● HD can make customized product for customer. Please provide to us all the related information to satisfy your need.

Impact head

Piston rod

nitrogen filling valve

Sealing bushing

Piston

Inner tube

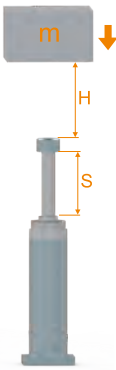Throttle orifice

Hydraulic oil

Outer tube

End cover
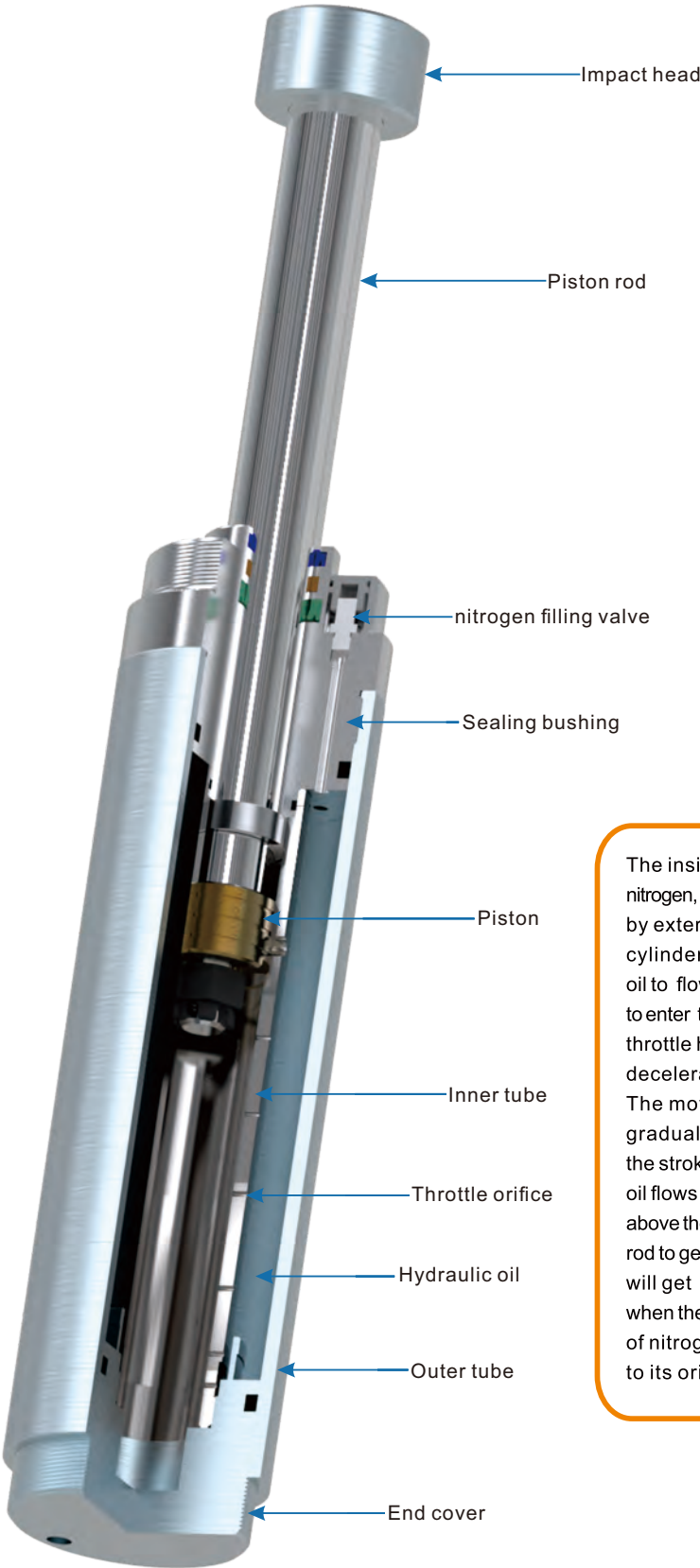
The inside of HD is filled with hydraulic oil and nitrogen, therefore, when the impact head is impacted by external force, piston rod is pushed into the cylinder body, and the piston forces hydraulic oil to flow out from throttle holes of different sizes to enter the oil storage room, as the stroke reduces, throttle holes are gradually closed, finally, linear deceleration of the object in motion is realized. The moving speed of object in motion will get gradually reduced along with the reduction of the stroke of shock absorber. When the hydraulic oil flows into the storage room, nitrogen originally above the hydraulic oil will be squeezed by the piston rod to get its volume reduced, therefore, pressure will get increased continuously, consequently, when the load is removed, piston, under the action of nitrogen pressure, will restore the piston rod to its original position.

1. Free fall impact

Usage condition

m = 1500 Kg
H = 0.5m
S = 0.25m
C=1/hr

Formula and calculation

$E_K = m \cdot g \cdot H = 7350$Nm
$E_D = m \cdot g \cdot S = 3675$Nm
$E_T = E_K + E_D = 11025$Nm

$E_{TC} = E_T \cdot C = 11025$Nm/hr

Model selection
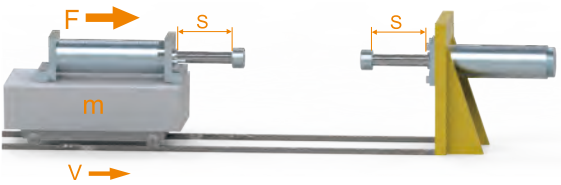HD40-250

2. Horizontal impact with motor driving

Usage condition

m = 15000 Kg
v = 2.0m/s
F = 4000N
S = 0.25m
C = 5/hr

Formula and calculation

$E_K = \frac{mv^2}{2} = 30000$Nm
$E_D = F \cdot S = 1000$Nm
$E_T = E_K + E_D = 31000$Nm

$E_{TC} = E_T \cdot C = 155000$Nm/hr

Model selection
HD75-250

3. Object in horizontal motion with shock absorber

Usage condition

m = 12000 Kg
v = 2.8m/s
F = 5000N
S = 0.5m
C = 8/hr

Formula and calculation

$E_K = \frac{mv^2}{2} \cdot \frac{1}{2} = 23520$Nm
$E_D = F \cdot S = 2500$Nm
$E_T = E_K + E_D = 26020$Nm

$E_{TC} = E_T \cdot C = 208160$Nm/hr

Model selection
HD50-500

4. Slope motion
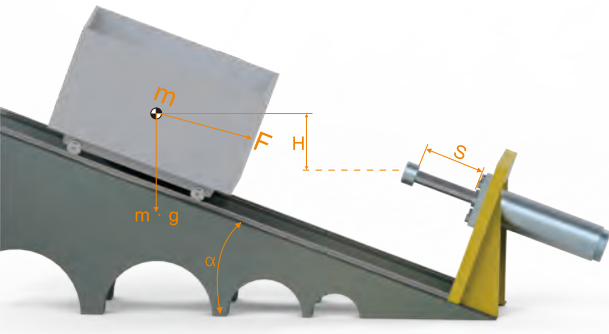
Usage condition

m = 10000 Kg
H = 0.5m
α = 20°
S = 0.5m
C = 4/hr

Formula and calculation

$E_K = m \cdot g \cdot H = 49000$Nm
$E_D = m \cdot g \cdot \sin\alpha \cdot S = 16759$Nm
$E_T = E_K + E_D = 65795$Nm

$E_{TC} = E_T \cdot C = 263036$Nm/hr

Model selection
HD75-500

5. Collision between two objects in horizontal motion
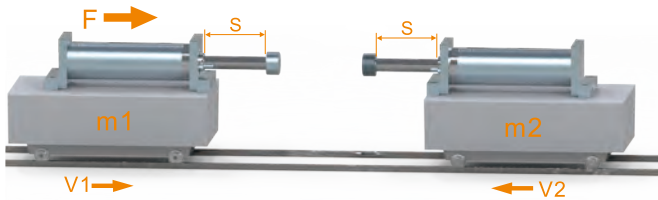
Usage condition
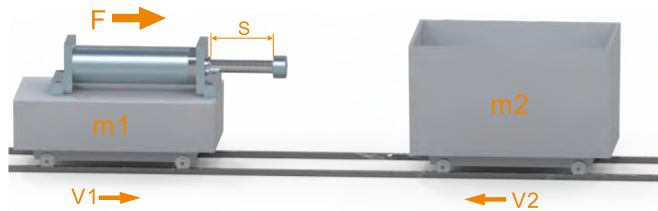
m1 = 18000 Kg
m2 = 16000 Kg
v1 = 2.0m/s
v2 = 1.8m/s
F = 5000N
S = 0.5m
C = 10/hr

Formula and calculation

$E_K = \frac{(m1 \cdot m2) \cdot (v1+v2)^2}{4(m1+m2)} = 30579$Nm
$E_D = F \cdot S = 2500$Nm
$E_T = E_K + E_D = 33079$Nm

$E_{TC} = E_T \cdot C = 330790$Nm/hr

Model selection
HD50-500

6. Collision between two objects in horizontal motion

Usage condition

m1 = 10000 Kg
m2 = 20000 Kg
v1 = 1.5m/s
v2 = 1.5m/s
F = 6000N
S = 0.5m
C = 8/hr

Formula and calculation

$E_K = \frac{(m1 \cdot m2) \cdot (v1+v2)^2}{2(m1+m2)} = 30000$Nm
$E_D = F \cdot S = 3000$Nm
$E_T = E_K + E_D = 33000$Nm

$E_{TC} = E_T \cdot C = 264000$Nm/hr

Model selection
HD50-500

Symbol	Unit	Description
E_D	(Nm)	Propelling force energy
E_K	(Nm)	Kinetic energy
E_T	(Nm)	Total energy
E_{TC}	(Nm)	Total energy per hour
F	(N)	Propelling force
g	(m/s^2)	Acceleration due to gravity
H	(m)	Height
m	(Kg)	Weight
M_e	(Kg)	Effective weight
S	(m)	Stroke
C	(/h)	Number of cycles per hour
v	(m/s)	Impact speed
V_e	(m/s)	Effective impact speed
F_N	(N)	Counter force
a	(m/s^2)	Deceleration
t	(s)	Deceleration time

Formula

Counter force

$F_N = \frac{E_T \cdot 1.5^*}{S}$

Deceleration time

$t = \frac{2 \cdot S}{V_e} \cdot 1.2^*$

Deceleration rate

$a = \frac{V_e^2}{2 \cdot S} \cdot 1.2^*$

Stroke

$S = \frac{V_e^2}{2 \cdot a} \cdot 1.2^*$
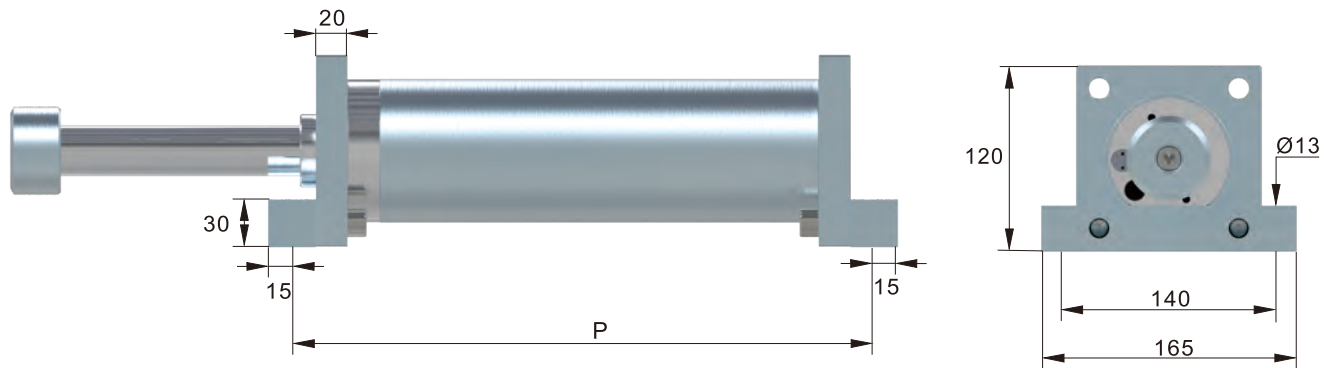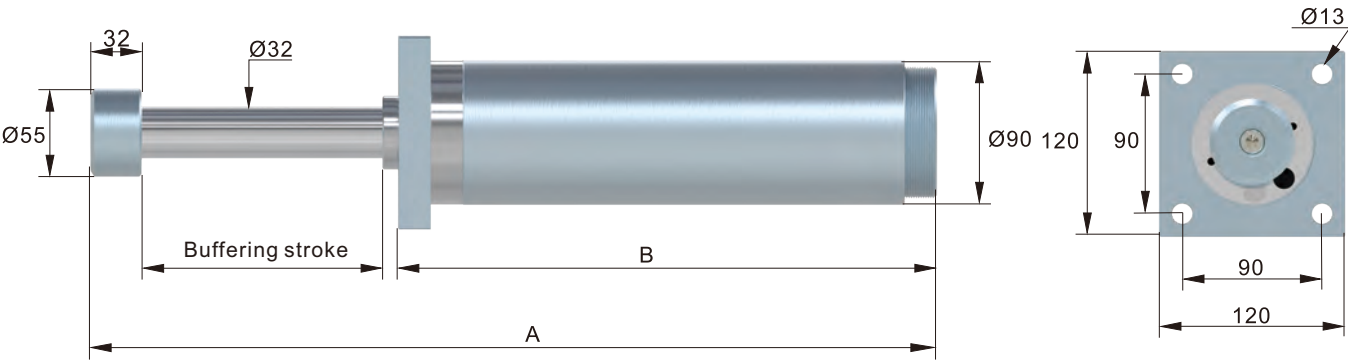
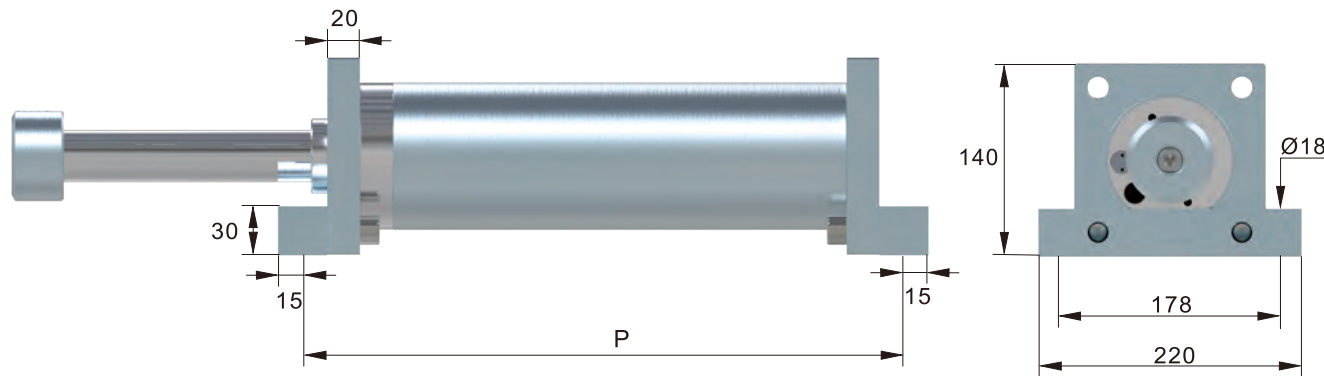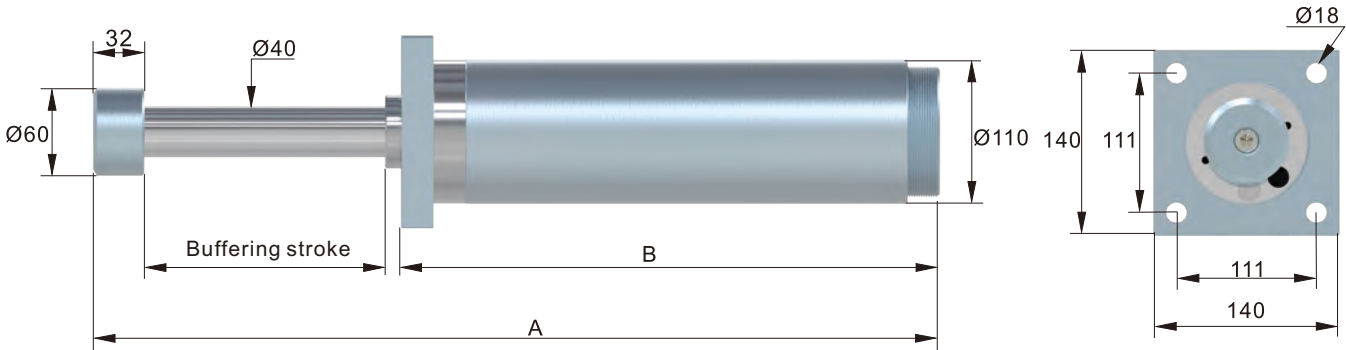＊Calculation for optimum setting. Allow a safety margin!

| Model number	Stroke (mm)	Piston diamete	Max. Nm Per Cycle (Et)	Max. counter force (N)	Max. Nm Per Hour (Etc)	A mm	B mm	P mm	Maximum offset angle	
									Emergency site	Constant load
HD40-050	50	40	3,000	80,000	45,500	298	206	236	2.5°	2.5°
HD40-100	100	40	6,000	80,000	91,000	398	256	286	2.5°	2.0°
HD40-250	250	40	16,000	80,000	241,000	698	406	436	2.5°	1.0°
HD40-500	500	40	32,000	80,000	475,000	1228	686	716	1.5°	0.5°
HD40-650	650	40	41,000	80,000	619,000	1558	866	896	1.0°	0.5°

Model number	Stroke (mm)	Piston diamete	Max. Nm Per Cycle (Et)	Max. counter force (N)	Max. Nm Per Hour (Etc)	A mm	B mm	P mm	Maximum offset angle	
									Emergency site	Constant load
HD50-050	50	50	4,000	120,000	59,500	310	218	248	2.5°	2.5°
HD50-100	100	50	9,000	120,000	136,000	409	267	297	2.5°	2.0°
HD50-250	250	50	24,000	120,000	356,000	709	417	447	2.5°	1.0°
HD50-500	500	50	48,000	120,000	721,000	1229	687	717	1.5°	0.5°
HD50-1000	1000	50	72,000	90,000	108,7000	2329	1287	1317	1.0°	0.5°

HD 75 series

Performance and form parameters

Model number	Stroke (mm)	Piston diamete	Max. Nm Per Cycle (Et)	Max. counter force (N)	Max. Nm Per Hour (Etc)	A mm	B mm	P mm	Maximum offset angle	
									Emergency site	Constant load
HD75-050	50	75	9,600	240,000	144,000	318	226	258	2.0°	2.0°
HD75-100	100	75	19,200	240,000	285, 700	418	276	308	2.0°	1.5°
HD75-250	250	75	48,000	240,000	722, 500	718	426	458	1.5°	0.5°
HD75-500	500	75	94,000	235,000	142, 0000	1272	729	761	1.5°	0.5°
HD75-1000	1000	75	134,000	170,000	202, 7000	2324	1282	1314	1.0°	0.5°
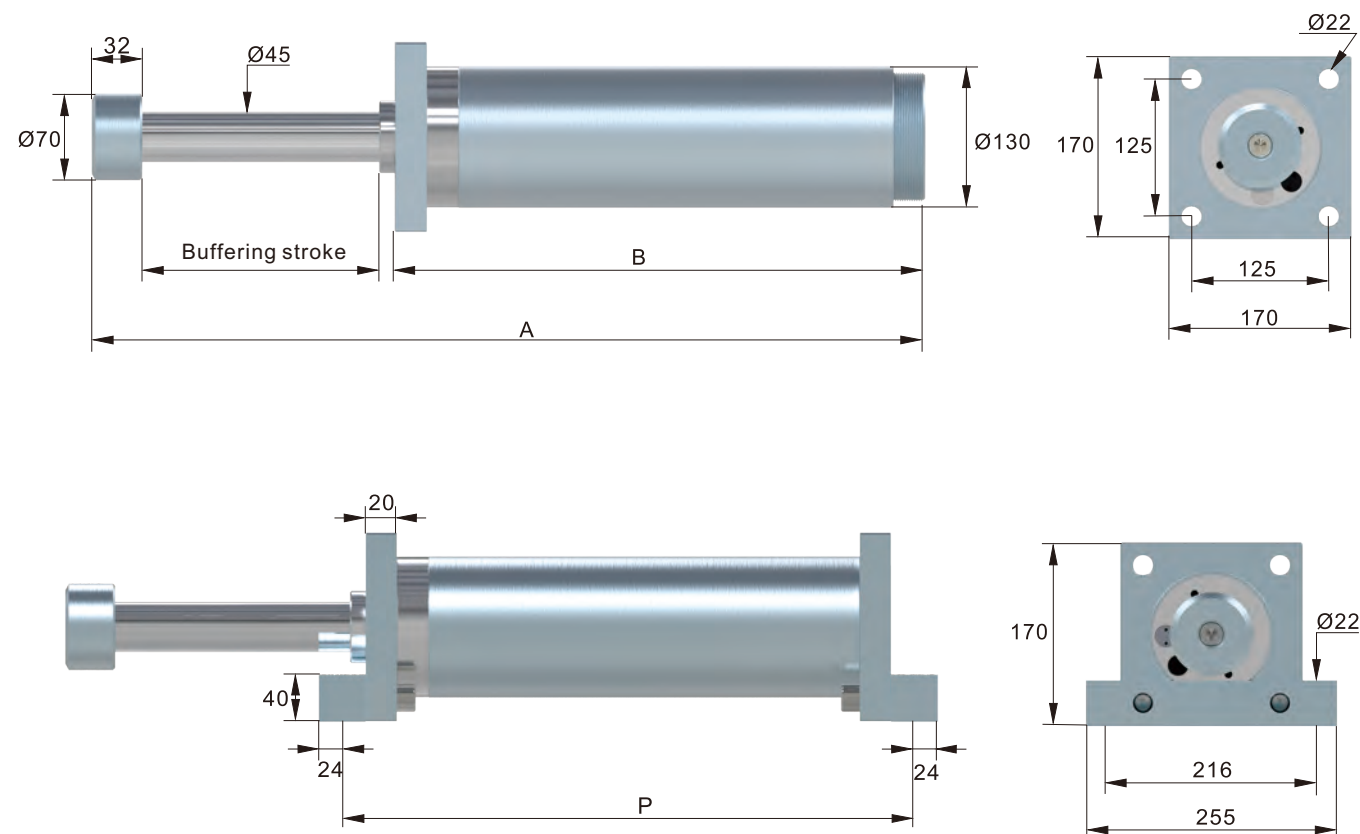
HD series

Accessory

Installation method

F: Front flange

FR: Front and rear flange
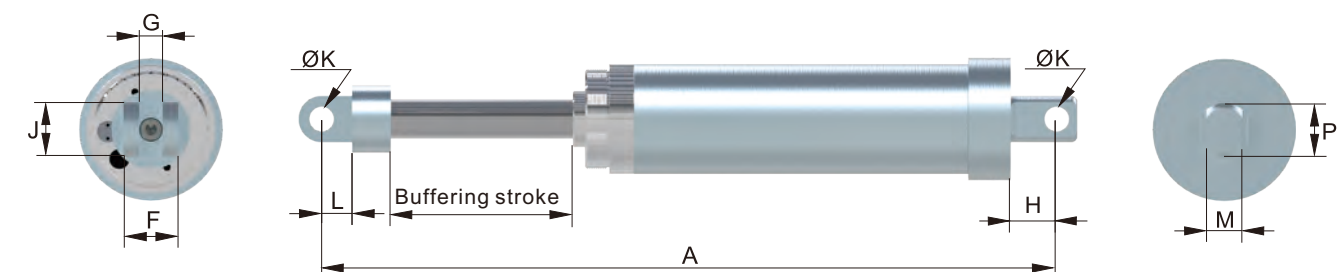
S: Front foot mount

R: Rear flange

M: Clevis mount

SS: Front and rear foot mount

- When the buffering stroke is larger than 300 mm, it is not recommended to use flange
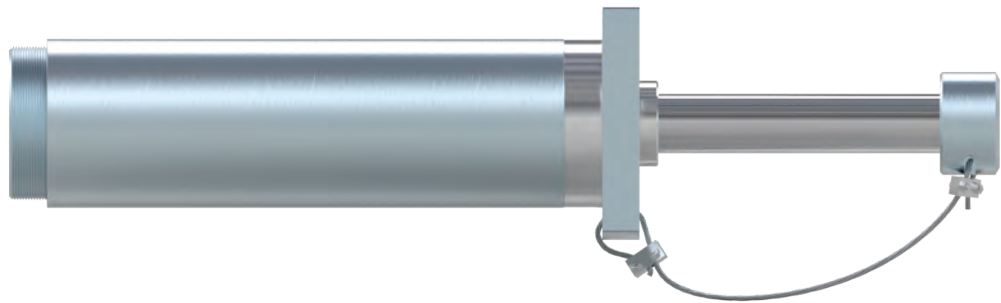- We also provide necessary items for special installation

Clevis mount

Model number	A mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	P mm
HD40-050	382	38.1	16.3	35	38.1	20	38	25	38
HD40-100	482	38.1	16.3	35	38.1	20	38	25	38
HD40-250	782	38.1	16.3	35	38.1	20	38	25	38
HD50-050	398	55	25	34	40	20	40	25	40
HD50-100	497	55	25	34	40	20	40	25	40
HD50-250	797	55	25	34	40	20	40	25	40
HD75-050	432	90	38	32	60	25	45	38	60
HD75-100	520	90	38	32	60	25	45	38	60
HD75-250	838	90	38	32	60	25	45	38	60

Purchase example
Model index
Calculation example
AC series
Circuit breaker series
AC-K series
ACD series
AC-S series
AD series
Stop cylinder series
Accessory
Shock absorber for log cabin
HR series
PC series
HD series
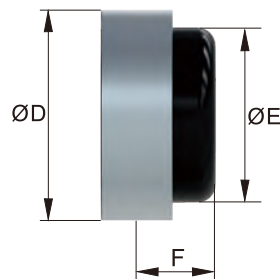HD series selection
HD series accessory
User manual

Safety chain

❗ For safety concern, when the installation height of HD series heavy shock absorber
is larger than 2m, it is recommended to install fall-prevention safety chain.

Impact cap

ØD   ØE

F

Model number	D mm	F mm	E mm
HD40	59	25	49
HD50	59	25	49
HD75	80	25	66

Enlarged impact head

❗ Application: Shock absorber impacts shock absorber.

❗ When the product is delivered, HD has included all the accessories selected by customer, therefore, when you receive the product, please check if all the accessories are complete. Before using it, please make sure the product message is consistent with the message in the packing list.

Precaution

1.During the installation, please make sure the impact face is vertical to the piston rod.
2.During the installation, the fixing bolt of flange should not be more than 2 mm smaller than the installation hole.
3.In order to protect the piston rod, when the shock absorber stroke is 500 mm or larger, installation methods recommended are leg or front and rear flange type.
4.Please do not use it in temperature exceeding the acceptable range, otherwise, it might lead to early decay or damage of the shock absorber, which might lead to system damage and machinery accident.
5.Do not let corrosive liquid to get in contact with the shock absorber, please make sure the motional area of the piston rod is clean.
6.High pressure gas is filled inside the shock absorber, therefore, please do not open it to avoid injury.

Check in the first operating

Before the shock absorber is used for the first time, please check in advance if it is installed correctly. Please use smaller shock-absorbing speed and impact energy. Make sure the practical operation in the early stage remains constant difference to the theoretical value to prevent the system damage.

Check after large load impact

HD should, after full load impact (for example, for use in emergency situation), make again deceleration or weight reduction verification. Check if the piston rod is fully restored, check if there is oil leak, check if the installed accessory is secure or not.

Maintenance

HD is a sealed system, the shock absorber does not need special maintenance, when the shock absorber is not frequently used (for example, pure preparation for emergency stop of the system), safety check should be conducted at fixed time, and the check frequency should not be lower than once a year. During the check, please make sure the piston rod can be fully extended without damage. If the shock absorber is frequently used, it is recommended that the check should be made in three month basis.

Product user manual

Read before using it

The labeling meaning is as follows, please understand it and read the following context

⚠ **Attention** Product must be used under normal condition, otherwise, product might get damaged

☠ **Warning** Please follow strictly the operation procedures and repair method, otherwise, it might lead to personal injury and machine damage.

☠ Warning

Warning items

❗ **Burning is strictly prohibited**

● Since oil is sealed, when it is placed into fire, it might cause fire accident

● Waste oil should be treated according to regulation

⚠ Attention

Precautions

❗ The strength of the carrier is not sufficient to lead to the operation stop of shock absorber

● When operation is carried under insufficient overall strength, it might damage the machine and cause personnel injury

● Prior confirmation of overall strength: Max. resistant force※safety coefficient
(For max. resistant force, please refer to product catalogue or consult to CJAC)

❗ Torque situation

● Abnormal situation caused by operation under too much torque might lead to the damage of machine and shock absorber

● Please watch the size of torque

❗ Watch the dropping of the locking ring

● Under inappropriate condition, inner pressure will rise abnormally to lead to the dropping of locking ring, and the inner components will fly out

● Please do not let your face get close to locking-ring shock absorber that is in use

❗ Product dipped with oil stain should not be thrown away arbitrarily

● Product containing oil stain should not be thrown away arbitrarily, please protect the environment

● Please follow the regulation to treat the waste oil

❗ Please watch the accident caused by the damage of product

● Accident caused by product damage or fly-out due to non-standardized operation

● Please install exterior mask or device for protection purpose

❗ Please watch the offset eccentric and offset eccentric angle

● When a load collides at an eccentric angle of ±2.5° or larger, recovery failure due to a bent piston rod and performance degradation due to eccentric friction on the sliding part may occur, causing damage to the main machine

● Please ensure that it collides along the midline of the piston rod. (The eccentric angle can't exceed ±2.5°)

F
m
Lack of strength leads to fracture

Piston rod
Retaining ring

F
5°
m
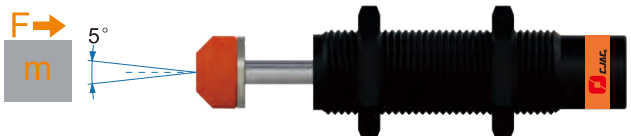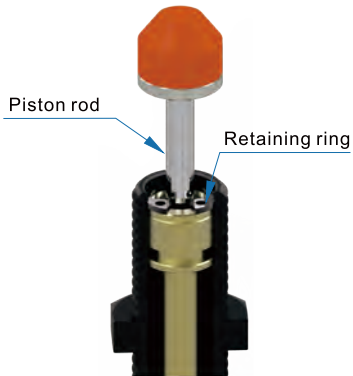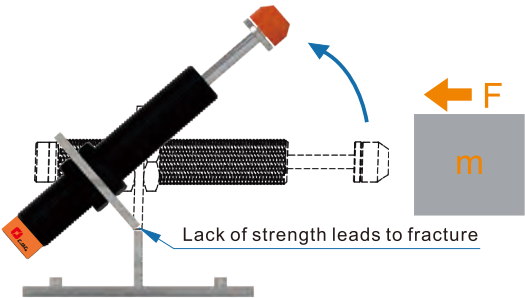
❗ Precautions for operating range

● Shock absorber should be operated under appropriate condition

❗ Watch the operating environment

● It is strongly prohibited to use it in vacuum and high pressure environment, otherwise, it will damage the product

● Do not have dirty water or oil attached to the piston rod, it should be operated under clean condition.
If the work environment is severe, please install dust-prevention cover or protection mask
(Please watch the size and precautions for usage of this product)

Usage method

● When more than two products are used together, it is needed to use product of the same model number so that they will receive the same pressure. When adjustable type products are used in parallel, since there is certain difficulty in the adjustment of absorption characteristics, therefore, cautious consideration should be conducted during the usage

● It is not suggested to use shock absorber itself as safety positioning device, please adjust the external safety device at 1mm before the stroke

● The positioning stop nut of shock absorber is as shown in the right figure

F ➡
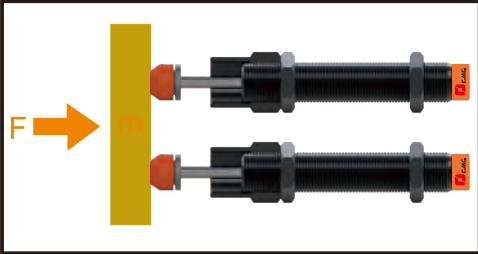
❗ Adjustment method of adjustable type shock absorber

● Simulate the adjustment scale: In the beginning, set up the adjustment scale to "4", observe the impact result, then adjust it to the most appropriate location

● Precautions: During the adjustment process, it is needed to use safety device, positioning stop bolt, to lock tight the shock absorber, otherwise, the adjustment knob will get loose to be unable to absorb normal impact

❗ Operating environment

● Working temperature -10 ℃~ +80 ℃

● Used under atmospheric pressure

● The usage lifetime will be shortened when used in corrosive site

● Used under humidity range of 0~80%

● If there is any special need, please consult CJAC

Adjustment knob   Positioning bolt
Adjustment scale
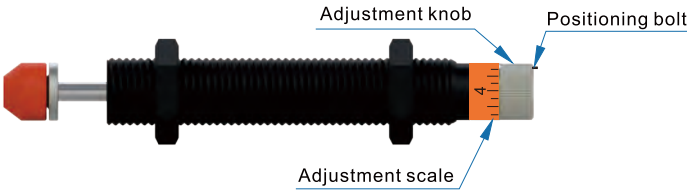
❗ Product performance

● If the axle center is damaged, it will lead to shortening of the durability of the product and unsmooth positioning returning

● If the sealing part is damaged, it will lead to oil leak and shortening of the durability of the product. It is prohibited to rotate the bolt at the oil injection hole at the bottom of the shock absorber, otherwise, it will lead to oil leak

● Durability is different depending on different operating condition, for details, please consult CJAC

❗ Maintenance and repair

● This shock absorber cannot be decomposed, please preserve it completely (If you want to disassemble the shock absorber, please watch your safety, since it is installed with spring, safety device might flow out to lead to the hazard of injury.)

❗ Selection of shock absorber

● Please check the calculation method for selection of shock absorber shown in the product catalogue or consult CJAC

❗ Accessory list

● Wrench for installation

● Drying protection product