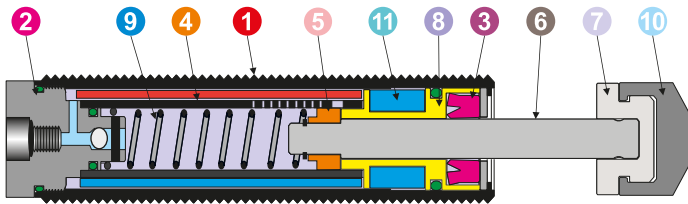


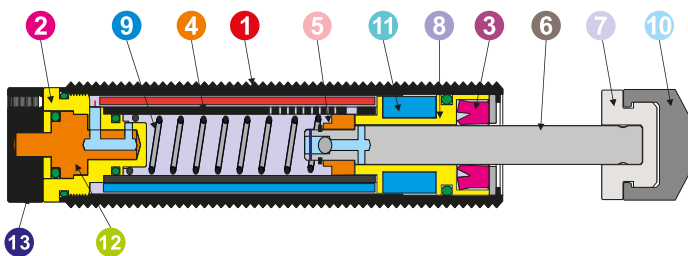
Principle and structure

AC Series Fixed type shock absorber structure



Fixed type is of none adjustable structure. It gets different buffer characteristics through changing internal overflow hole size, quantity and position. According to the different impact speed, it is divided into high speed(-1), medium speed(-2), low speed(-3). According to overflow hole area change, it can be divided into single overflow hole, multiple overflow holes.

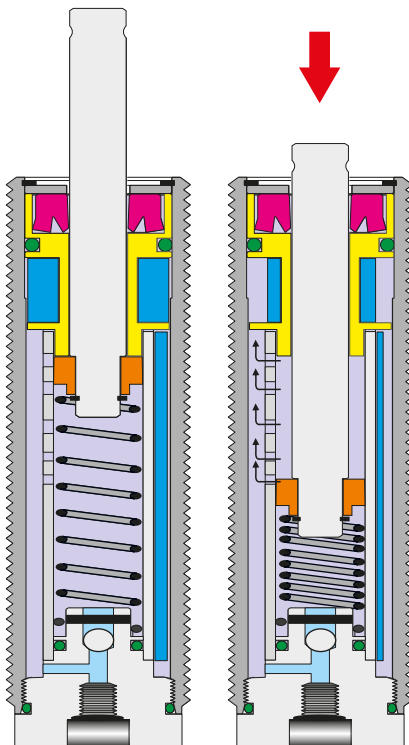
AD Series Adjustable type shock absorber structure



Through rotating the adjustable rotary button, it changes internal hydraulic oil displacement. It thus adjusts the buffer absorption characteristics. Common adjustable range: 0-8 scale range. Impact force gradually increases from "0" to "8". When the product structure is of single hole overflow, it gets maximum adjustable change of impact force. When the structure is of multi-hole overflow, it has small impact force change from "0" to "8".

- | | | |
|--------------|--------------|-------------------|
| ① Out tube | ⑥ Piston rod | ⑪ Accumulator |
| ② End cover | ⑦ Head | ⑫ Adjustment blot |
| ③ Rod cover | ⑧ Bearing | ⑬ Adjustment knob |
| ④ Inner tube | ⑨ Spring | |
| ⑤ Piston | ⑩ Cap | |

Shock absorber operation principle

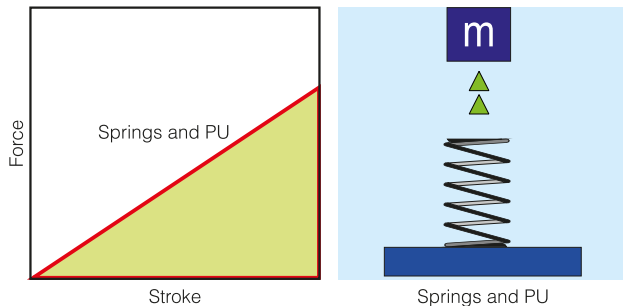


We describe the operation principle of all shock absorbers through below diagram. After being knocked, piston rod moves inward. It forces hydraulic oil to pour into pressure accumulator through oil hole. It thus produces resistance. After size arrangement of the designed and experimented oil holes, in the whole knocking process, pressure of internal cylinder keeps constant. It thus produces a fixed buffering power, i.e. So-called linear deceleration. Through the linear deceleration process, shock absorber smoothly and peacefully stops the moving part by minimum force. After the completion of impact stroke, resetting spring pushes the piston rod to the starting position and wait for the next impact.

Hydraulic shock absorber buffering effect

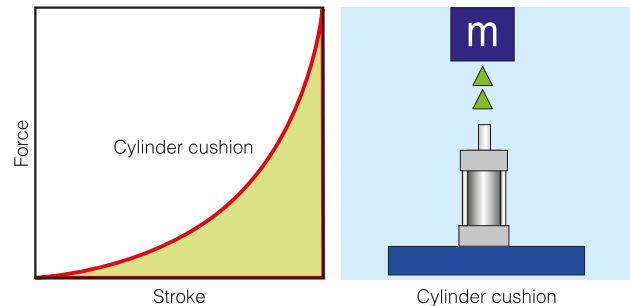
All moving objects have kinetic energy. Energy amount is decided by the weight and speed of moving object. If you want to stop a moving object, you shall install a device such as spring, rubber, air register or damper etc. that produces counter-acting force to the object. Though these things are cheap, they have a vital problem, i.e. it rebounds at any outer impact. shock absorber applies hydraulic principle. Hydraulic oil has been extruded the production heat through a specially designed choke. Heat is emitted to the air through metal transfer. Therefore kinetic energy is converted into heat energy. Regarding buffer effects of shock absorber, spring, rubber, air register etc., it will be described in the following diagrams.

Spring or rubber



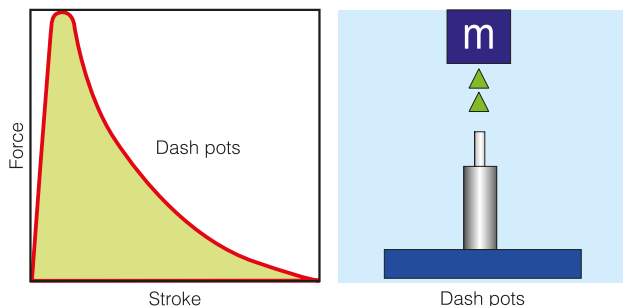
As kinetic energy of moving object can not be absorbed, it has been stored temporarily, therefore following the increase of the stroke, counter-acting force is getting stronger and stronger. It reaches an summit when it comes to the stroke end. It finally and inevitably rebounds and causes the mechanical damage.

Air register



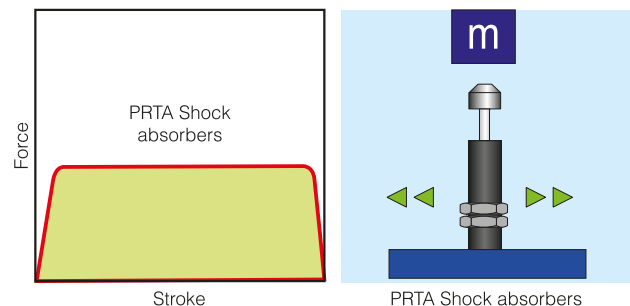
It gives continuous linear display in the early stage of the moving object. It produces low energy storage. When the stroke goes to an end, counter-acting force gets doubled increase. It finally and inevitably rebounds and causes the mechanical damage.

Damper



In the early stage of moving object stroke, it instantly stops the moving object by peak counter-acting force. It causes the mechanical shock. It then slowly slides to the stroke end.

Shock absorber



Shock absorber can absorb the kinetic object energy as soon as possible. It converts to heat energy and sends out to the air. Therefore the object shows linear deceleration in the whole stroke. It finally and smoothly slides and stops.

The functions of shock absorber

1. It enhances the productivity: As shock absorber can smoothly stop the impaction, therefore it greatly enhances the production efficiency of the machine and equipment in HF and high speed operation.
2. It prolongs the mechanical life: As the buffer absorbs the impaction energy, it greatly reduces the impact and shock of kinetic object to the machine. It avoids the mechanical damage due to any impact/shock. It reduces the repair cost, prolongs the service life of the machine, brings about less after sale services.
3. It enhances the product quality: As the buffer removes the shocking noise and destructive impact by the impaction, it brings about the smooth machine/equipment operation. Therefore it naturally enhances the product quality.
4. It greatly reduces the noise, offers a peaceful operating environment.
5. It enhances the safety of mechanical operation.

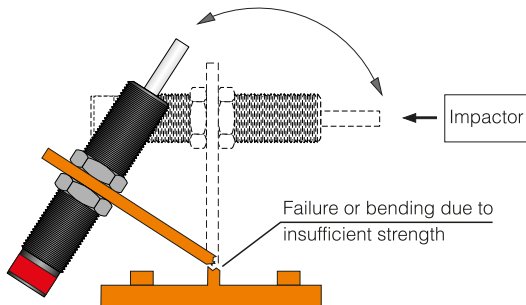
Application range of shock absorber

1. Mechanical arm, take-out arm, feeding equipment, screen printer, pad printer, conveyor, carrying machinery, electronic machinery.
2. Laboratory, teaching equipment, machine tool, food packaging machinery, rubber and plastic machinery.
3. Car and locomotive manufacture industry, carpentry, construction machinery, aviation and traffic machinery.
4. Civil defense military, medical treatment equipment, medi-care sanitation and hygiene equipment, environment protection equipment.

Considerations for operating shock absorber

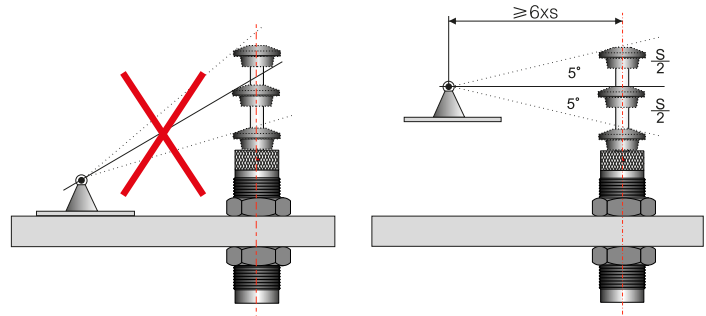
1. Carrier strength confirmation

Before use, please firstly confirm the carrier strength. Under the conditions of insufficient carrier strength, it will cause the mechanical damage.

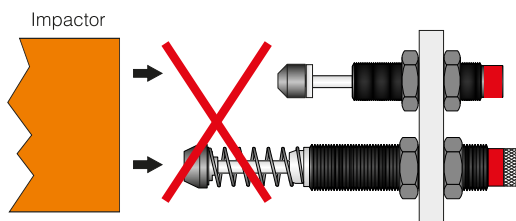


2. Please pay attention to eccentric and eccentric angle

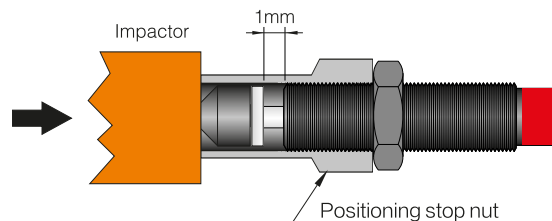
When the load operates exceeding $\pm 2.5^\circ$, it bends the piston line, and the piston has one-side friction with internal cylinder wall. Long-time operation decreases the properties or losses the functions of shock absorber. It finally damages the machine. In installation, target the impaction object to central axle position, and direction of motion coincides with the piston movement direction. In order to prevent the buffer from increasing the side load, distance between buffer installation position and rotary pivot shall ≥ 6 times of buffer stroke. When side load forms 5° angle with the buffer center line, it gets maximum absorbed energy. In installing the rotary load, please do not use the silencing cap.



3. When 2PCS or 2PCS more products are of parallel use, same model of the product shall be used then. Therefore they get even pressure. When the adjustable products are of parallel use, as it is difficult in adjusting the absorption characteristics, therefore cautious use is strongly recommended!



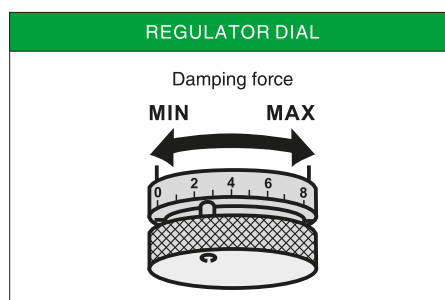
4. Lock absorber can not be used as safety device. External safety device shall be adjusted 1mm before the stroke. (If use positioning nut)



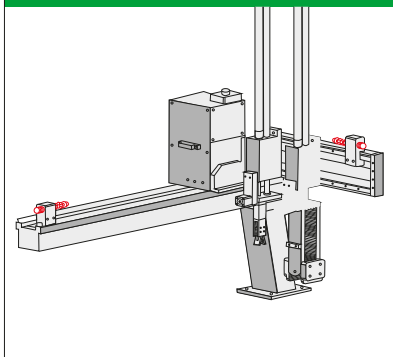
- It is strictly forbidden to disassemble or separate the buffer by your own. Improper assembly will cause the retaining ring or rear cover to fall down. Internal parts might fly off and cause accident. In the operation process of retaining ring structure buffer, do not close your face to the buffer front. Otherwise retaining ring might fall down, or the part flies off. It is very dangerous to you.
- It is strictly forbidden to knock, collide the axle center. It easily causes bent axle center. Axle center shall be operated in a clean environment. Otherwise it might increase the product leakage possibilities, reduces the products' service life.
- It is strictly forbidden to paint the taper pipe threads, axle center. Otherwise it will badly affect heat dissipation effects and cause oil leakage.
- It is strictly forbidden to burn the product. As the product has hydraulic oil inside, burning the product will cause fire disaster or dangerous accident.
- It is strictly forbidden to use the product in vacuum, high pressure environment. Otherwise it will damage the machine.

Attention to ad series buffer

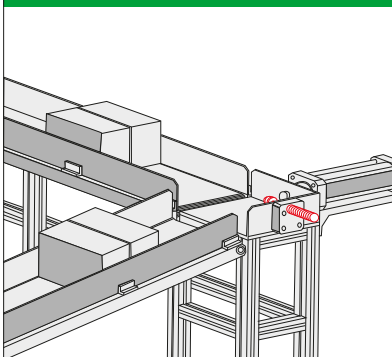
- In use, firstly adjust rotary button scale and set "4", after observing the knocking effect, then adjust the most proper position. (Adjusting method: If "4" scale stroke end has "BANG" sound, it shows that the product damping force is far from enough. Therefore it adjusts upward. If in contact, it instantly gives a big sound, it shows that the damping force is too big. It shall be adjusted downward.)
- Be sure to make step-by-step adjustment, it is strictly forbidden to make skipped adjustment! When it adjusts the proper position, it shall be locked by positioning nut. It thus prevents from loose product in operation due to any shakes.



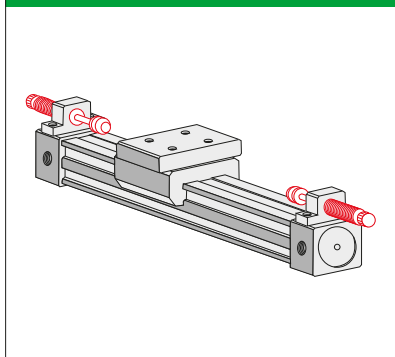
Plastic ejection forming extraction arm



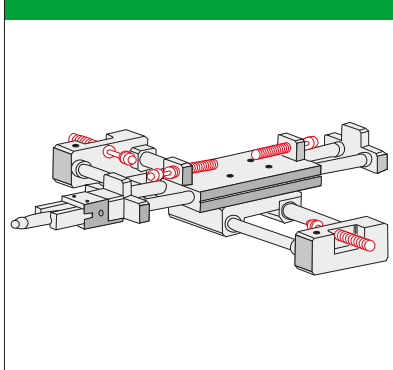
Moving and carrying transportation devices



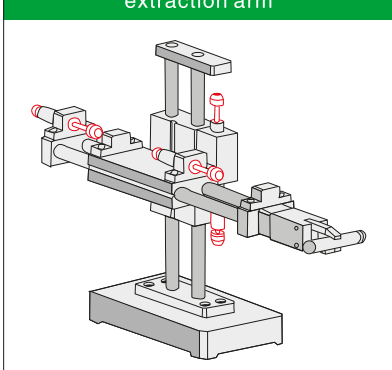
Cylinder without leader



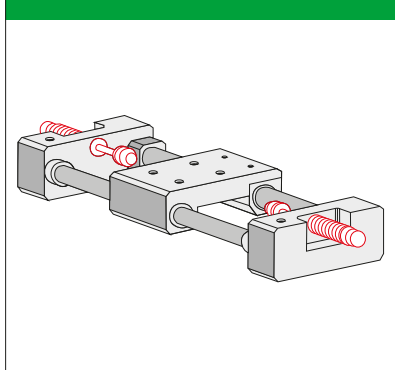
Combined leader cylinder



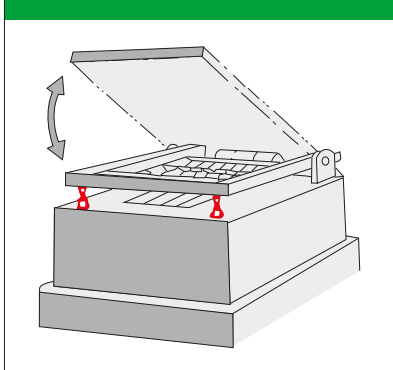
Pneumatic mechanical extraction arm



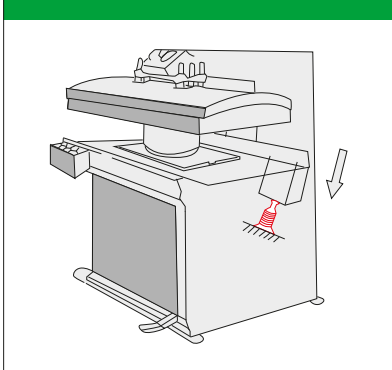
Leader cylinder



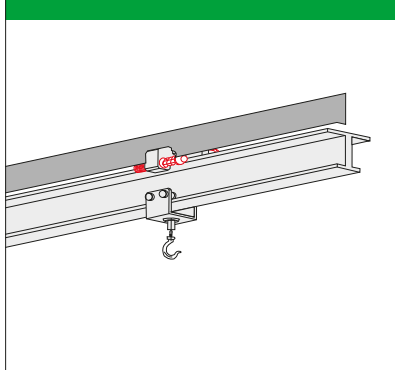
The on-off position of lid etc.



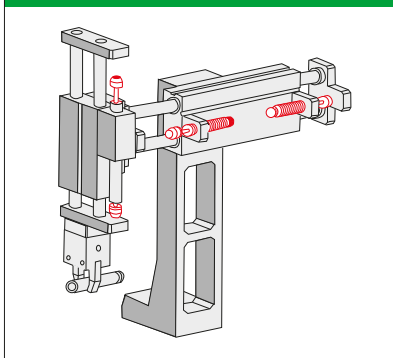
Washing press machine



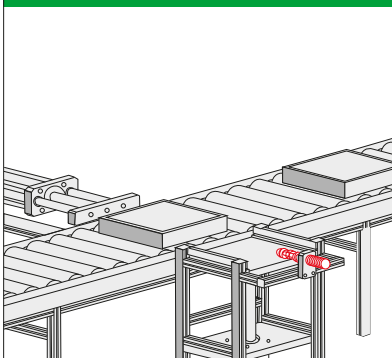
Overhead traveling crane



Combined air pressure manipulator



Conveyor



Trolley moving

