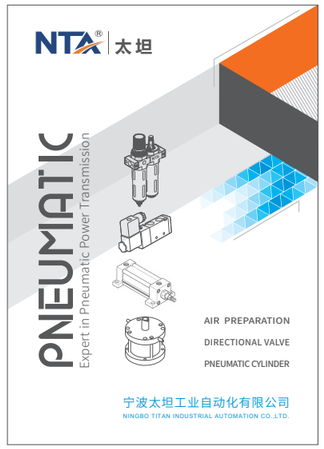

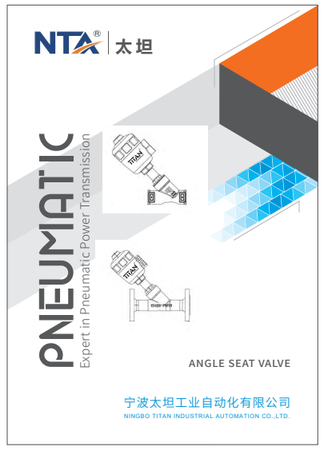

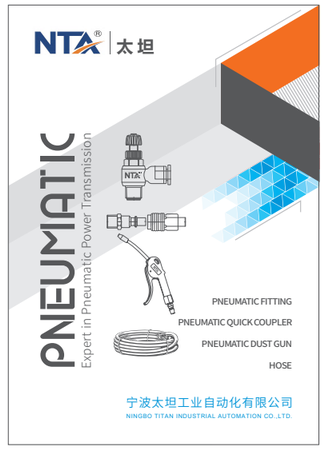

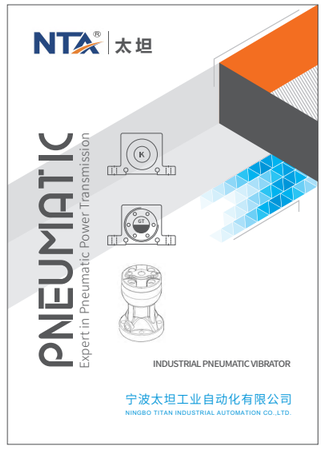

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选型手册/Selection Guide

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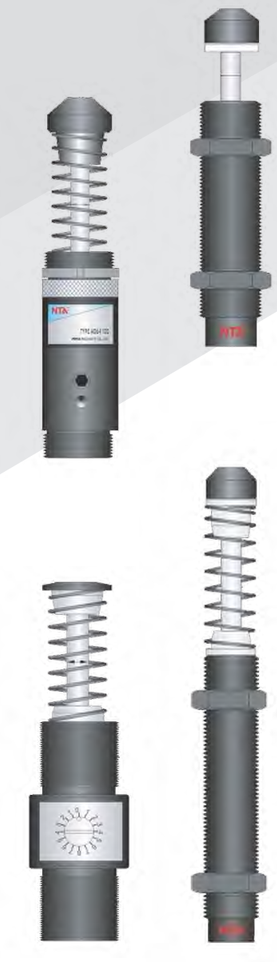


SHOCK ABSORBER

宁波太坦工业自动化有限公司

NINGBO TITAN INDUSTRIAL AUTOMATION CO.,LTD.

Company info——公司介绍

ABOUT NTA

Pneumatic Technology Made in China

Headquartered in Ningbo city China, N.T.A(TITAN) is one of a greatest pneumatic technology and engineering company providing innovative solutions for customers in industrial automation market, helping customers to realize maximize production, protect personnel and the environment while optimizing their energy and operating costs.

As a national leader in pneumatic technology, our 47 years of mechanical spare parts manufacturing and 26 years of pneumatic components manufacturing experience are an important basis for our flexibility, creativity and innovative skills to meet our customers' needs.

CONTENTS

油压缓冲器规格一览表 SPECIFICATION STABLE

AC系列-自动补偿式油压冲器 AC Series Shock Absorber

型号 MODEL	行程 Stroke (mm)	螺纹公称 Screw Thread	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	页次 page
AC-0604	4	M6×0.75	1. 8	6, 480	0.4-4	0.5-2.0	17
AC-0806	6	M8×1.0	2	7,200	0.5-6	0.5-2.0	17
AC-1005	5	M10×1.0	3	10,800	1-7	0.8-3.0	17
AC-1008	8	M10×1.0	4	14,400	2-9	0.8-3.0	17
AC-1210	10	M12×1.0	5	18,000	5-30	0.8-3.0	17
AC-1412	12	M14×1.5	15	36,000	8-100	0.8-3.0	19
AC-1416-C	16	M14×1.5	20	35,000	10-150	0.3-5.0	19
AC-1416	16	M14×1.5	20	40,000	10-150	0.8-3.0	19
AC-1425	25	M14×1.5	25	48,000	12-160	0.8-3.0	19
AC-2020	20	M20×1.5	40	48,000	30-700	1.0-3.5	19
AC-2030	30	M20×1.5	50	54,000	30-700	1.0-3.5	19
AC-2050	50	M20×1.5	60	66,000	60-1,200	1.0-3.5	19
AC-2525	25	M25×1.5	80	60,000	200-1,500	1.0-4.0	21
AC-2540	40	M25×1.5	120	84,000	300-2,000	1.0-4.0	21
AC-2550	50	M25×1.5	98	98,000	15-160	1.0-4.0	21
AC-2580	80	M25×1.5	150	127,500	20-200	1.0-4.0	21
AC-3660	60	M36×1.5	250	125,000	400-2,400	1.0-4.0	21
AC-0806-S	6	M8×1.0	3	7,000	6	0.3-2.5	23
AC-1007-S	7	M10×1.0	6	12,400	12	0.3-3.5	23
AC-1412-SC	12	M14×1.5	20	33,000	35	0.3-5.0	23
AC-1412-S	12	M14×1.5	20	33,000	40	0.3-5.0	23
AC-2015-S	15	M20×1.5	59	38,000	120	0.3-5.0	23
AC-2725-S	25	M27×1.5	147	72,000	120	0.3-5.0	23
ACD-2030	30	M20×1.5	45	54,000	40-900	1.0-3.5	25
ACD-2035	35	M20×1.5	52	62,400	40-650	1.0-3.5	25
ACD-2050	50	M20×1.5	60	150,000	400	4.0	25
ACD-2045-QY	45	M20×1.5	55	137, 500	350	4.0	25
ACD-2050-L	50	M20×1.5	60	150, 000	400	4.0	25

断路器专用缓冲器 Shock Absorber For Cutout Breaker

型号 MODEL	行程 Stroke (mm)	螺纹公称 Screw Thread	每次最大吸收能量 Max. Absorbing Energy Per Cycle	小时最大吸收能量 Max. Absorb. Energy/Hour	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	页次 page
AC2009	9	M20×1.5	75	85,000	150	3,0	35
AC3010	10	M30×1.5	98	115,000	180	2,5	35
AC3516	16	M35×1.5	80	90,000	200	3,5	35

阻挡缸缓冲器 Stopper Cylinder shock Absorber

型号 MODEL	行程 Stroke (mm)	螺纹公称 Screw Thread	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	页次 page
ZC-1408	8	-	16	9,600	25	3.6	37
ZC-2010	10	-	25	15,000	120	3.0	37
FC-2010	10	M20X1.5	25	15,000	120	3.0	37
ZD-1408	8	-	16	12,000	40	4.0	38
ZD-2210	10	-	35	20,000	250	3.5	38

NTA® Expert in pneumatic power transmission

油压缓冲器规格一览表 SPECIFICATION STABLE

AD系列-可调整式油压冲器 AD Series Adjustable Shock Absorber

型号 MODEL	行程 Stroke (mm)	螺纹公称 Screw Thread	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	页次 page
AD-1410	10	M14X1.5	20	24,000	80	3.2	28
AD-1415	15	M14X1.5	22	26,400	120	3.2	28
AD-2016	16	M20X1.5	25	32,000	200	3.6	28
AD-2025	25	M20X1.5	39	39,000	312	3.6	28
AD-2525	25	M25X1.5	85	51,000	400	3.6	30
AD-2530	30	M25X1.5	95	57,000	480	3.6	30
AD-2540	40	M25X1.5	100	84,000	700	3.6	30
AD-2550	50	M25X1.5	98	98,000	720	4.2	30
AD-2580	80	M25X1.5	150	127,500	800	4.2	30
AD-3625	25	M36X1.5	150	90,000	1,400	3.2	30
AD-3650	50	M36X1.5	300	108,000	1,400	3.2	30
AD-4225	25	M42X1.5	260	130,000	3,000	3.6	31
AD-4250	50	M42X1.5	500	155,000	4,000	4.8	31
AD-4275	75	M42X1.5	750	187,500	6,000	4.8	31
AD-64050	50	UNF21/2-12	12,000	1,560,000	12,727	1.6	32
AD-64100	100	UNF21/2-12	24,000	1,920,000	18,181	1.6	32
AD-64150	150	UNF21/2-12	36,000	2,520,000	23,636	1.6	32

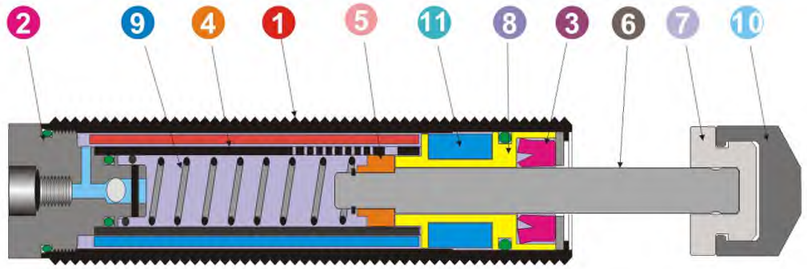
ADH系列-可调整式油压冲器 ADH Series Adjustable Shock Absorber

型号 MODEL	行程 Stroke (mm)	螺纹公称 Screw Thread	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	页次 page
ADH-4225	25	M42X1.5	380	115,000	3,500	2,5	34
ADH-4250	50	M42X1.5	800	150,000	5,500	2,5	34
ADH-4275	75	M42X1.5	1100	185,000	7,200	2,5	34
ADH-64050	50	M64X2	1900	250,000	13,000	2,0	34
ADH-64100	100	M64X2	2650	310,000	18,000	2,0	34
ADH-64150	150	M64X2	4000	380,000	23,000	2,0	34
ADH-85050	50	M85X2	2350	390,000	37,500	1,8	34
ADH-85100	100	M85X2	4200	665,000	40,500	1,8	34
ADH-85150	150	M85X2	6500	980,000	44,000	1,8	34

HR系列一液压速度控制器 HR Series Hydraulic Speed Controls

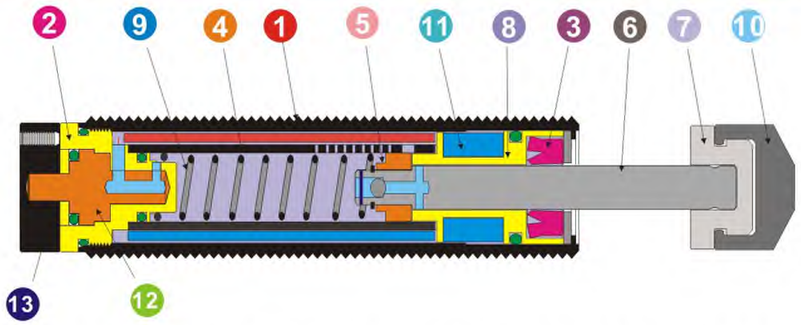
型号 MODEL	A	B	最大行程 Maximum Stroke	使用温度 Working Temperature	最大负荷 Maximum Load	页次 page
HR15	157	142	15mm	0-70°C	350kgf	42
HR30	208	178	30mm	0-70°C	350kgf	42
HR60	286	226	60mm	0-70°C	350kgf	42
HR80	342	262	80mm	0-70°C	350kgf	42
HR100	396	296	100mm	0-70°C	350kgf	43
HRT60	286	226	60mm	0-70°C	350kgf	43
HRT100	396	296	10mm	0-70°C	350kgf	43

AC系列固定式油压缓冲器内部结构 AC SERIES FIXED TYPE SHOCK ABSORBER STRUCTURE



固定式为不可调整式结构，是通过改变内部溢流孔孔径大小、溢流孔数量及位置来获得不同缓冲特性。根据冲击速度不同可分为高速（-1）、中速（-2）、低速（-3）三种。按溢流孔面积变化方式可分为单孔溢流孔及多孔溢流式二种。
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系列调整式油压缓冲器内部结构 AD SERIES ADJUSTABLE TYPE SHOCK ABSORBER STRUCTURE

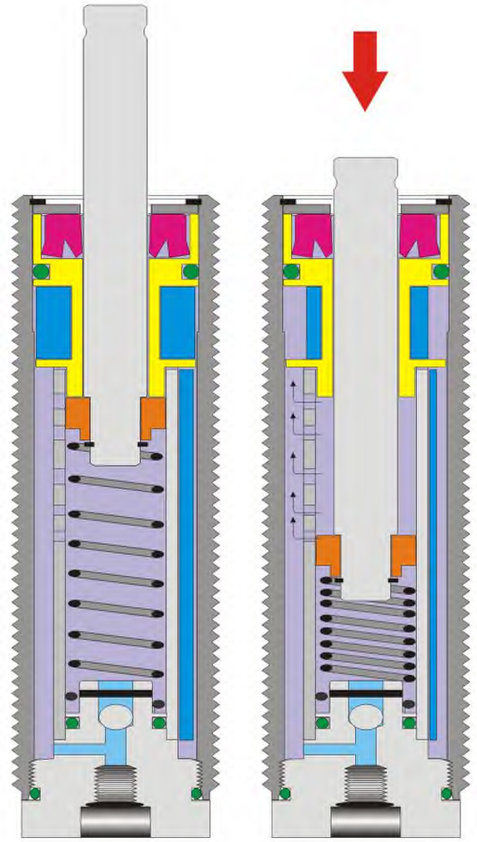


通过转动调整旋钮来改变产品内部液压油排量，从而达到调整缓冲器的吸收特性。一般调整范围为0-8刻度范围，冲击力从“0”至“8”刻度逐步增大。当产品结构为单孔溢流时，其冲击力调整变化最大。当结构为多孔溢流孔时，从“0”至“8”其冲击力变化较小。
Through rotating the adjustable rotary button, it changes internal hydraulic oil displacement. It thus adjusts the buffer absorption characteristics. Common adjustable range: 0-8 scale 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 外压缸	OUT TUBE	6 活塞杆	OPISTON ROD	11 蓄压海绵	ACCUMULATOR
2 后盖	END COVER	7 撞击头	HEAD	12 流量调整栓	ADJUSTMENT BLOT
3 油封	ROD COVER	8 轴承	BEARING	13 流量调整旋钮	ADJUSTMENT KNOB
4 内压缸	INNER TUBE	9 弹簧	SPRING		
5 活塞	PISTON	10 消音套	CAP		

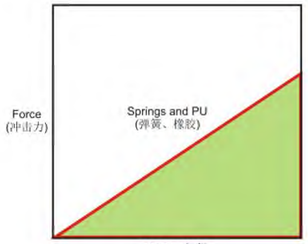
所有的PRTA油压缓冲器皆可由下图来说明其缓冲原理。当受到撞击时，活塞杆往内移，迫使液压油通过油孔流入蓄压器内，因而产生抵制力。经由设计及试验过的油孔大小及排列，在整个撞击的过程中，内压缸内的压力始终保持一定，如此便产生一固定大小之缓冲力，也就是所谓的线性减速。经由此线性减速过程，PRTA油压缓冲器能将运动工作件平稳且安静地以最小的力量将运动件停止下来。在冲击行程结束时，复归弹簧将活塞杆推回起始位置，以等待下一次冲击。

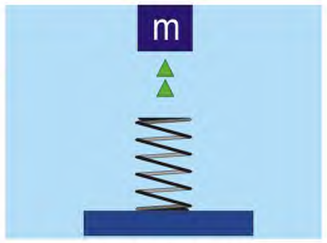
We describe the operation principle of all PRTA shock absorbers through below diagram. After being knocked, piston rod moves inward. It forces hydraulic oil to pour into pressure accumulator through oil hole. It thus produces resistance. After size arrangement of the designed and experimented oil holes, 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, PRTA 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.



所有运动物体都具有动能，能量大小取决于运动物体的重量及速度。让一个运动物体停下来，必须安装一个能够直接对物体产生反作用力的装置：如弹簧，橡胶，空气暂存器或阻尼器，这些虽然价格便宜，但都存在一个致命缺点，即当受到外力冲击时都会产生反弹。油压缓冲器采用液压原理，液压油通过特殊设计节流口被挤出生产热量，热量通过金属传递散发至空气中，实现动能转化为热能。关于油压缓冲器与弹簧、橡胶及空气暂存器等缓冲效果，可从从以下图示进行说明：
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.

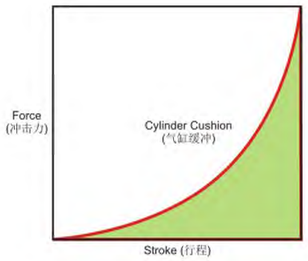
弹簧或橡胶 SPRING OR RUBBER

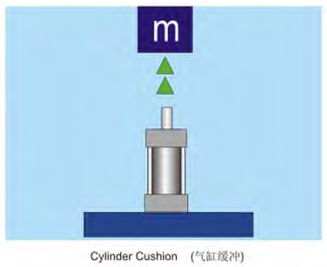




由于运动物体能量无法被吸收而被暂时储存，随着行程增加，反作用力也逐渐增强，至行程末端反作用力达到最高峰，最终不可避免的产生极大反弹，造成机械损坏。
As kinetic energy of moving object can not be absorbed, it has been stored temporarily, therefore following the increase of the stroke, counter-acting force is getting stronger and stronger. It reaches an summit when it comes to the stroke end. It finally and inevitably rebounds and causes the mechanical damage.

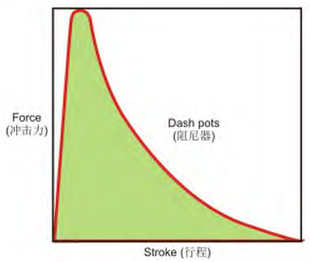
空气暂存器 AIR REGISTER

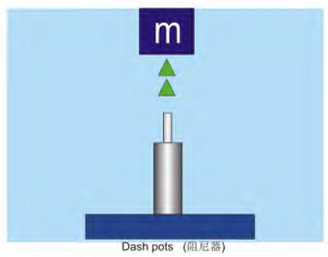




在运动物体行程初期以最低呈线性持续，产生较低能量储存，在接近行程末端时，反作用力成倍增加，最终不可避免的产生极大反弹，造成机械损坏。
It gives continuous linear display in the early stage of the moving object. It produces low energy storage. When the stroke goes to an end, counter-acting force gets doubled increase. It finally and inevitably rebounds and causes the mechanical damage.

阻尼器 DAMPER



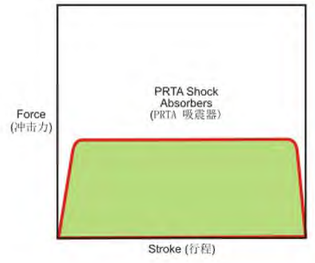


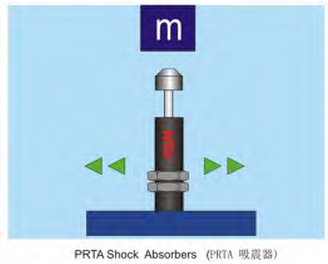
在行程初期会以高峰反作用力使运动物体瞬间停下，造成机械震动，然后再慢慢掌滑行到行程末端
In the early stage of moving object stroke, it instantly stops the moving object by peak counter-acting force. It causes the mechanical shock. It then slowly slides to the stroke end.

Expert in pneumatic power transmission

油压缓冲器缓冲效果 BUFFERING EFFECT

油压缓冲器 SHOCK ABSORBER





PRTA油压缓冲器能在最短时间内将运动物体能量吸收，并转化为热能散发至空气中，使物体在整个行程中呈现线性减速，最终顺滑平稳停下
PRTA 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.

油压缓冲器的功能 The functions of shock absorber

1.提高生产效率：由于油压缓冲器能使冲击物平稳停止下来，因此，机器设备可在高频及高速下作业，大大提高生产效率。
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.延长机械寿命：由于缓冲器能将冲击物能量吸收，使用缓冲器可大大减小运动物体对机器所造成的冲击和震动，避免机械因冲击震动造成的损坏。降低维修成本，延长机器使用寿命，减少售后服务。
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.提高产品质量：由于缓冲器消除了冲击物所造成的震动噪音及破坏性冲击，机器设备平稳运行，产品质量自然会得到提高。
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.

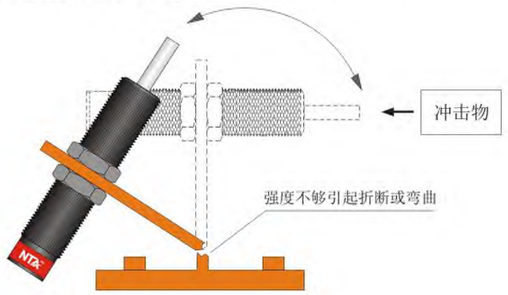
4.大幅减小噪音，提供安静工作环境。
It greatly reduces the noise, offers a peaceful operating environment.

5.提高机械运转的安全性。
It enhances the safety of mechanical operation.

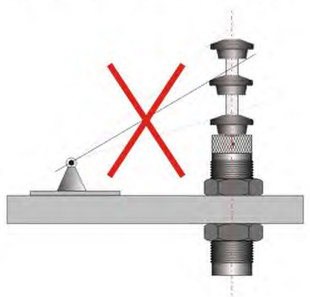
油压缓冲器运用范围：Application range of shock absorber

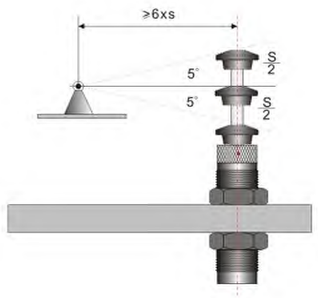
1.机械手、取出臂、送料设备、网印机、移印机、输送机、运搬机械、电子机械。
Mechanical arm, take-out arm, feeding equipment, screen printer, pad printer, conveyor, carrying machinery, electronic machinery
2.实验室、教学设备、工作母机、食品包装机械、橡塑胶机械。
Laboratory, teaching equipment, machine tool, food packaging machinery, rubber and plastic machinery
3.汽机车制造业、木工、建筑机械、航空交通机械。
Car and locomotive manufacture industry, carpentry, construction machinery, aviation and traffic machinery
4.国防军事、医辽设备、医疗卫生设备、环保设备。
Civil defense military, medical treatment equipment, medi-care sanitation and hygiene equipment, environment protection equipment

1、载体强度确认 Carrier strength confirmation
在使用前需确认载体强度，载体强度不充分状态下运作会导致机械破坏。
Before use, please firstly confirm the carrier strength. Under the conditions of insufficient carrier strength, it will cause the mechanical damage.

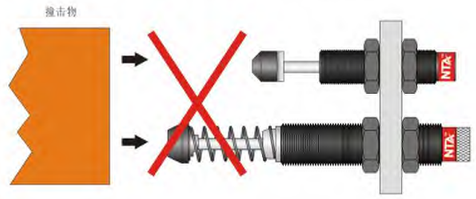


2、注意偏心及偏心角度 Please pay attention to eccentric and eccentric angle
负荷在超过+/-2.5度以上运作，会使活塞路线弯曲，导致活塞与内压缸壁产生单边摩擦，长期运行会使油压缓冲器性能下降或功能失效，最终会导致机器损坏。在安装时，冲击物对准轴的中心放置，要使运动方向和活塞运动方向一致。
为了防止缓冲器增加侧向负荷，缓冲器的安装位置距旋转支点的距离应等于或大于缓冲行程的6倍。
当侧向负荷与缓冲器中心线成5度角时吸收能量最大。在旋转负荷安装中，请不要使用消音帽。
When the load operates exceeding +/−2.5° , 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.





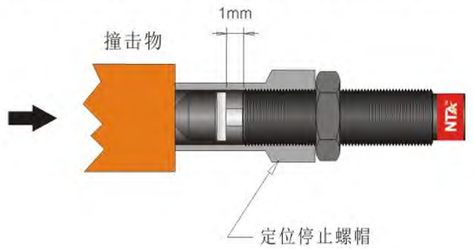
3、2支或2支以上产品并列使用时，必须用同一型号产品，使它们受到的压力均等，调整型产品在并列使用时，由于吸收特性的调整有一定的困难，所以在使用时要慎重考虑。
When 2PCS or 2PCS more products are of parallel use, same model of the product shall be used then. Therefore they get even pressure. When the adjustable products are of parallel use, as it is difficult in adjusting the absorption characteristics, therefore cautious use is strongly recommended!



Expert in pneumatic power transmission

使用缓冲器注意事项
POINTS FOR ATTENTION IN USING THE BUFFER

4、油压缓冲器本身不是作为安全装置使用，应把外部安全装置调整在行程前1mm处。（如用定位螺帽）。
shock absorber can not be used as safety device. External safety device shall be adjusted 1mm before the stroke. (If use positioning nut)



5、不得私自拆卸或分解缓冲器，如组装不当，会导致扣环脱落或后盖掉落，内部零件飞出而导致事故。使用扣环结构缓冲器在运作过程中，不要将脸部接近缓冲器前端，避免扣环脱落零件飞出造成危险。
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.

6、严禁对轴心敲打、碰撞，易导致轴心弯曲，轴心表面不要附有污水、污油，轴心必须在干净环境下运作。否则会增加产品泄漏机率，降低产品使用寿命。
It is strictly forbidden to knock, collide the axle center. It easily causes bent axle center. Axle center surface can not have sewage, dirt, grease. Axle center shall be operated in a clean environment. Otherwise it might increase the product leakage possibilities, reduces the products' service life.

7、严禁在管牙及轴心处喷漆，否则会影响散热效果及发生漏油。
It is strictly forbidden to paint the taper pipe threads, axle center. Otherwise it will badly affect heat dissipation effects and cause oil leakage.

8、严禁焚烧：由于产品内为液压油，放入火中焚烧后会导致火灾或引发事故。
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.

9、严禁在真空、高压环境下使用，否则会损坏机器。
It is strictly forbidden to use the product in vacuum, high pressure environment. Otherwise it will damage the machine.

AD系列缓冲器使用及注意事项 ATTENTION TO AD SERIES BUFFER

1.在使用时，先将调整旋钮刻度设置“4”，观察撞击效果后再调整到最适当的位置。（调整方法：如在“4”刻度行程终点留有“砰”的响声，则说明产品阻尼力太小，需往上调整。如在刚接触瞬间发生较大响声，说明阻尼力太大，应往下调整。）
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.)

2.在调整时需一步一步增大或减小，切勿跳跃式调整。在调整至适当位置时需用定位螺帽锁紧，防止在工作时因震动而松动。
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.

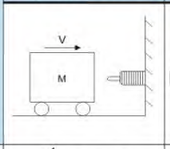
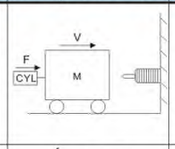
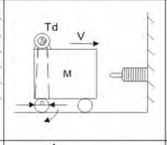
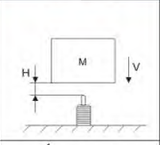
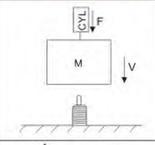
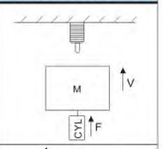
1 明确装置的冲撞模式 DEFINITUDE DEVICE COLLIDING MODEL

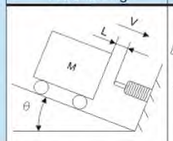
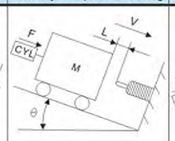
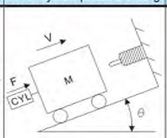
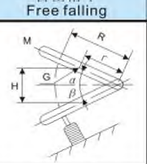
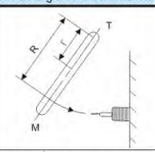
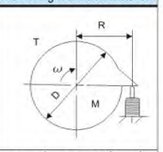
- 水平运动 Plane Motion
  - 单纯的水平冲撞 Simplex plane colliding
  - 伴随气缸推力的冲撞 Colliding with the thrust of cylinder
  - 伴随马达的驱动力的冲撞 Colliding with driving force of motor
- 垂直运动 Vertical Motion
  - 自由落下的冲撞 Colliding of the free fall power
  - 伴随着气缸推力的冲撞 (下降) Colliding with the thrust of cylinder(down)
  - 伴随着气缸推力的冲撞 (上升) Colliding with the thrust of cylinder(up)
- 倾斜运动 Slope Motion
  - 自由滑走而产生的冲撞 Colliding when sliding freely
  - 伴随气缸推力的冲撞 (下降) Colliding with cylinder' down thrust
  - 伴随气缸推力的冲撞 (上升) Colliding with cylinder' up thrust
- 回转Gyration 摇动Shake 运动Motion
  - 因自由摇动落下而产生的冲撞 Colliding by the free fall power
  - 伴随着马达等扭转的冲撞 (摇动) Colliding with motor's torsion etc. (Shake)
  - 伴随着马达等扭转的冲撞 (旋转) Colliding with motor's torsion etc. (Circumgyrate)

2 计算能量所必须明确的条件・项目 THE NECESSARY ITEMS IN ENERGY CALCULATING

E=总能量 (Nm) Total energy
E_1=动能 (Nm) Kinetic energy
E_2=做功能 (Nm) Work energy
M=冲撞质量 (kg) Colliding mass
V=冲撞速度 (m/s) Colliding speed
S=行程 (m) Stroke
F=推力 (N) force
g=重力加速度 9.8m/s² Acceleration of gravity
H=落下高度 (m) Falling height
T=扭矩 (N・m) Rosion
Td=马达起动扭矩 (N・m) Rosion when motor starts
K=减速比 Deceleration
θ、α、β=倾斜角 (deg) Slope angle
L=冲撞物移动距离 (m) Colliding matter moving distance 倾斜自由落下 Slope free fall
R=从旋转中心到冲撞点距离 (m) Distance from circumgyrating center to colliding point
r=从旋转中心到重心距离 (m) Distance from circumgyrating center to the center of gravity
G=重心位置 Center of gravity place colliding model
ω=角速度 (rad/s) Speed of angle
J=惯性力矩 kg・m² {N・m・sec²} Inertia moment
D=直径 (m) Diameter
N=回转数 (rpm) Circumgyrating number
Me=有效重量 (kg) Effective weight

冲撞模式图例 COLLIDING MODE CUTLINE

使用例 Examples in using	水平冲撞 Plane colliding			垂直冲撞 Vertical colliding		
	单纯的水平冲撞 Simplex plane colliding	有气缸推力时 With cylinder's thrust	有马达推力时 With motor's thrust	自由落下 Free falling	气缸下限限位器 Cylinder lower limiter	气缸上限限位器 Cylinder upper limiter
						
Kinetic energy (动能) E_1(Nm)	$\frac{1}{2}\cdot M\cdot V^2$	$\frac{1}{2}\cdot M\cdot V^2$	$\frac{1}{2}\cdot M\cdot V^2$	$\frac{1}{2}\cdot M\cdot V^2$	$\frac{1}{2}\cdot M\cdot V^2$	$\frac{1}{2}\cdot M\cdot V^2$
Work energy (做功能)E_2(Nm)	———	$F\cdot S$	$2\cdot\frac{K}{D}\cdot Td\cdot S$	$M\cdot g\cdot S$	$(M\cdot g+F)\cdot S$	$(F-M\cdot g)\cdot S$
Total energy 总能量E(Nm)	$E=E_1$	$E=E_1+E_2$	$E=E_1+E_2$	$E=E_1+E_2$	$E=E_1+E_2$	$E=E_1+E_2$
Effective Weight 有效重量 Me(kg)	$Me=M$	$Me=\frac{2\cdot E}{V^2}$	$Me=\frac{2\cdot E}{V^2}$	$Me=\frac{2\cdot E}{V^2}$ $(V=\sqrt{2\cdot g\cdot H})$	$Me=\frac{2\cdot E}{V^2}$	$Me=\frac{2\cdot E}{V^2}$

使用例 Examples in using	倾斜冲撞 Slope colliding			摇动冲撞 Shake colliding		回转冲撞 Circumgyrate colliding
	自由落下 Free falling	气缸压力存在时 When cylinder pressure existing	气缸压力存在时 When cylinder pressure existing	自由落下 Free falling	马达等的扭矩存在 The existing of torsion of motor etc.	马达等的扭矩存在 The existing of torsion of motor etc.
						
Kinetic energy (动能) E_1(Nm)	$\frac{1}{2}\cdot M\cdot V^2$	$\frac{1}{2}\cdot M\cdot V^2$	$\frac{1}{2}\cdot M\cdot V^2$	$M\cdot g\cdot H$	$\frac{J\cdot\omega^2}{2}=\frac{1}{2}\cdot M\cdot V^2$	$\frac{J\cdot\omega^2}{2}=\frac{M\cdot D^2\cdot\omega^2}{2}$
Work energy (做功能)E_2(Nm)	$M\cdot g\cdot S\cdot\sin\theta$	$(M\cdot g\cdot\sin\theta+F)\cdot S$	$(F-M\cdot g\cdot\sin\theta)\cdot S$	$\frac{r}{R}\cdot M\cdot g\cdot S$	$\frac{T}{R}\cdot S$	$\frac{T}{R}\cdot S$
Total energy 总能量E(Nm)	$E=E_1+E_2$	$E=E_1+E_2$	$E=E_1+E_2$	$E=E_1+E_2$	$E=E_1+E_2$	$E=E_1+E_2$
Effective Weight 有效重量 Me(kg)	$Me=\frac{2\cdot E}{V^2}$ $(V=\sqrt{2\cdot g\cdot L\cdot\sin\theta})$	$Me=\frac{2\cdot E}{V^2}$	$Me=\frac{2\cdot E}{V^2}$	$Me=\frac{2\cdot E}{V^2}$ $(V=\frac{R}{r}\sqrt{\frac{3\cdot g\cdot H}{2}})$	$Me=\frac{2\cdot E}{V^2}$ $(V=\omega\cdot R)$	$Me=\frac{2\cdot E}{V^2}$ $(V=\omega\cdot R,\ \omega=\frac{2\pi\cdot N}{V^2})$

3 确认吸震器规格范围内的相关项目 CONFIRMATION THE RELATIVE ITEMS IN THE BOUND OF THE SPECIFICATION OF SHOCK ABSORBER

a. 每小时吸收能量 [Nm] Energy absorbing per hour
b. 最高冲撞速度 [m/s] Maximum colliding speed
c. 周围温度 [℃] Ambient temperature
d. 复归时间 [s] Reverting time

4 根据冲撞模式图例计算实际能量 TO CALCULATE THE FACT ENERGY BY COLLIDING MODEL CUTLINE

符号说明 Symbol explanation
E=总能量 {Nm} Total energy
E_1=动能 {Nm} Kinetic energy
E_2= 做功能 {Nm} Work energy

a. 动能. . . . . Kinetic energy
b. 做功能. . . . . Work energy
c. 总能量. . . . . Total energy

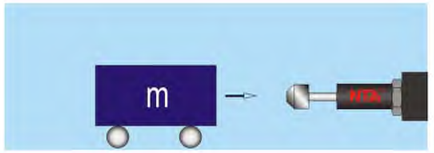
根据冲撞模式图例计算E_1的值 To calculate the value of E_1 by colliding model cutline.
根据冲撞模式图例计算E_2的值。（关于算式中的S行程选定最大吸收能力超过E_1的型号，代入那个型号中的S即可。） To calculate the value of E_2 by colliding model cutline.
之后，计算结果如超过Emax（最大吸收能力），选定比前面已选定的型号大一号的吸震器，再度计算。通过计算得出的E值，再次选定型号，如在Emax之下即OK。
Then, if the calculating result is more than Emax, selecting the other model that bigger than before and re-calculating. Getting E's value by calculating, re-selected model, if it is under Emax will be ok.

5 冲撞物有效重量的确认 CONFIRMATION ABOUT COLLIDING MATTER OF EFFECTIVE WEIGHT

Me=冲撞物有效重量 [kg]colliding matter effective weight
a. 根据冲撞模式图例计算Me的值。To calculate the Me's value by colliding model cutline.
b.从用4选定的型号所对应的Me（样本值）和a的计算结果中，可选出符合本条件的Me
如果Me在选定的型号的Me范围内（即Me计算值∠Me规格值）即可使用。
It can be used if the Me is in the bound of the selected Me(i.e. calculated value Me∠ specification value Me)
c. 如果超过通过b选定的型号中Me的范围，请选择大挡尺寸的吸震器，并请进行相同的确认。
Please use bigger shock absorber if it exceeds the bound of selected Me by b, and remember to confirm them before using.

6 4・5计算的概略流程如下所示 SUM FLOW CHART ABOUT CALCULATION4・5

计算例 一：水平撞击
COMPUTE EXAMPLE 1: horizontal impact



使用条件：use condition
- m = 300kg
- v = 1.0m/s
- s = 0.04m
- c = 300/hr

公式及计算结果 expressions and result

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

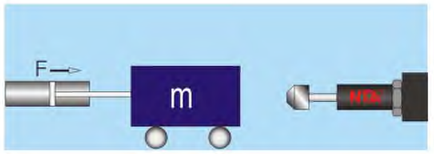
$E_T = E_K = 150Nm$

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

$Me = \frac{2E_T}{V^2} = \frac{2 \cdot 150}{1.0^2} = 300kg$

由有效重量－速度曲线图建议使用 **NTA**－AD3650 油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA**-AD3650

计算例 二：有推力之水平撞击
COMPUTE EXAMPLE 2: horizontal impact having thrust



使用條件：use condition
- m = 300kg
- v = 1.2m/s
- s = 0.05m
- p = 40N/cm²
- d = 100mm
- c = 300/hr

公式及计算结果 expressions and result

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

$E_D = F \cdot S = 0.00785Pd^2 \cdot S$

$= 0.00785 \cdot 40 \cdot 100^2 \cdot 0.05 = 157Nm$

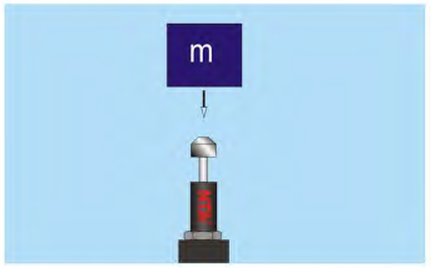
$E_T = E_K + E_D = 216+157 = 373Nm$

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

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 373}{1.2^2} = 518kg$

由有效重量－速度曲线图建议使用 **NTA**－AD4250油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA**-AD4250

计算例 三：自由落体
COMPUTE EXAMPLE 3: free whereabouts



使用條件：use condition
- m=40kg
- h=0.4m
- s=0.06m
- c=200/hr

公式及计算结果 expressions and result

$v = \sqrt{2g \cdot h} = \sqrt{2 \cdot 9.8 \cdot 0.4} = 2.8m/sec$

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

$E_D = FS = mg \cdot h = 40 \cdot 9.8 \cdot 0.06 = 23.5Nm$

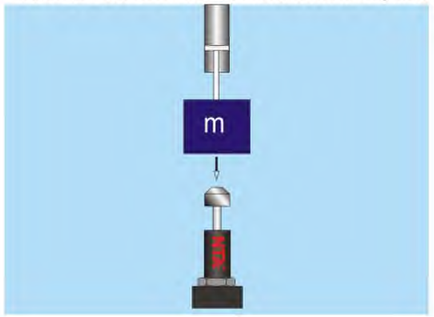
$E_T = E_K + E_D = 157+23.5 = 180.5Nm$

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

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 180.5}{2.8^2} = 46kg$

由有效重量－速度曲线图建议使用 **NTA**－AC3660油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA**-AC3660

计算例 四：有推进力之自由落体
COMPUTE EXAMPLE 3: free whereabouts having thrust



使用条件：use condition
- m = 40kg
- h = 0.3m
- s = 0.025m
- p = 5bar
- d = 50mm
- c = 200/hr
- v = 1.0m/sec

公式及计算结果 expressions and result

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

$E_D = F \cdot S = (mg + 0.0785Pd^2) \cdot s$

$= (40 \cdot 9.8 + 0.0785 \cdot 5 \cdot 50^2) \cdot 0.025 = 33.5Nm$

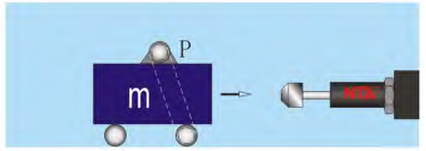
$E_T = E_K + E_D = 20+33.5 = 55.5Nm$

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

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 55.5}{1.0^2} = 111kg$

由有效重量－速度曲线图建议使用 **NTA**－AD2525油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA**-AD2525

计算例 五：马达驱动之水平撞击
COMPUTE EXAMPLE 5: horizontal impact of motor drive



使用条件：use condition
- m=400kg
- v=1.0m/s
- kW=1.5kW
- HM=2.5
- S=0.075m
- c=60/hr

公式及计算结果 expressions and result

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

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

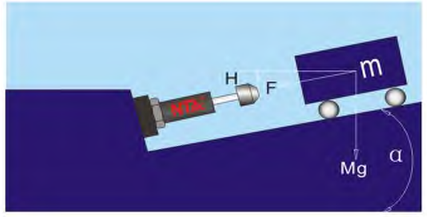
$E_T = E_K + E_D = 200 + 281 = 481Nm$

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

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 481}{1.0^2} = 962kg$

由有效重量－速度曲线图建议使用 **NTA**－AD4275油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA**-AD4275

计算例 六：倾斜撞击
COMPUTE EXAMPLE 6: gradient impact



使用条件：use condition
- m=150kg
- h=0.3m
- s=0.075m
- α=30°
- c=200/hr

公式及计算结果 expressions and result

$v = \sqrt{2g \cdot h} = \sqrt{2 \cdot 9.81 \cdot 0.3} = 2.43m/sec$

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

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

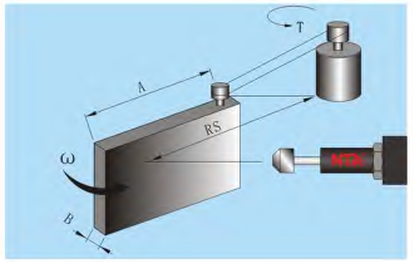
$E_T = E_K + E_D = 433+55.2 = 498.2Nm$

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

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 498.2}{2.43^2} = 168.7kg$

由有效重量－速度曲线图建议使用 **NTA**－AD4275油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA**-AD4275

计算例 七：水平旋转门
COMPUTE EXAMPLE 7: horizontal revolving door



使用条件：use condition
- m=20kg
- ω=2.0rad/s
- T=20Nm
- R_S=0.8m
- A=1.0m
- B=0.05m
- S=0.016m
- c=100/hr

公式及计算结果 expressions and result

$I = \frac{m(4A^2+B^2)}{12} = \frac{20 \cdot (4 \cdot 1.0^2 + 0.05^2)}{12} = 6.67kg \cdot m^2$

$E_K = \frac{I\omega^2}{2} = \frac{6.67 \cdot 2.0^2}{2} = 13.34Nm$

$\theta = \frac{S}{R_S} = \frac{0.04}{0.8} = 0.05rad$

$E_D = T \cdot \theta = 20 \cdot 0.05 = 1.0Nm$

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

$E_{TC} = E_T \cdot C = 14.34\,100 = 1434Nm/hr$

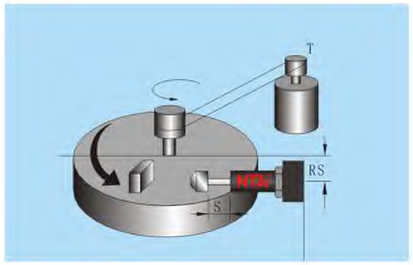
$v = \omega \cdot R_S = 2.0\,0.8 = 1.6m/s$

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 14.34}{1.6^2} = 11.20kg$

由有效重量－速度曲线图建议使用 **NTA**－AD2016油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA**-AD2016

计算例 八：有推力之旋转分度盘

COMPUTE EXAMPLE 8: revolving dial having thrust



使用条件：
use condition

m=200kg
ω=1.0rad/s
T=100Nm
R=0.5m
R_S=0.4m
S=0.04m
c=100/hr

公式及计算结果
expressions and result

$$I = \frac{mR^2}{2} = \frac{200 \cdot 0.5^2}{2} = 25kg \cdot m^2$$

$$E_K = \frac{I\omega^2}{2} = \frac{25 \cdot 1.0^2}{2} = 12.5Nm$$

$$\theta = \frac{S}{Rs} = \frac{0.04}{0.4} = 0.1rad$$

$$E_D = T \cdot \theta = 100 \cdot 0.1 = 10Nm$$

$$E_T = E_K + E_D = 12.5 + 10 = 22.5Nm$$

$$E_{TC} = E_T \cdot C = 22.5 \cdot 50 = 1125Nm/hr$$

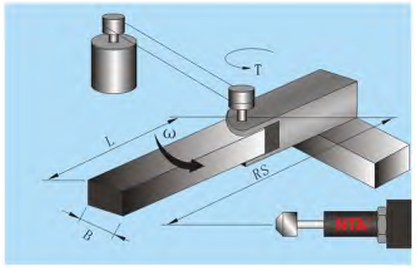
$$v = \omega \cdot R_S = 1.0 \cdot 0.4 = 0.4m/s$$

$$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 22.5}{0.4^2} = 281kg$$

由有效重量-速度曲线图建议使用 **NTA** – AD4250 油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA** – AD4250

计算例 九：有推动力之旋转臂

COMPUTE EXAMPLE 9: revolving arm having thrust



使用条件：
use condition

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

公式及计算结果
expressions and result

$$I = \frac{m(4A^2+B^2)}{12} = \frac{40\,(4 \cdot 0.5^2+0.05^2)}{12} = 3.36kg \cdot m^2$$

$$E_K = \frac{I\omega^2}{2} = \frac{3.36 \cdot 2.0^2}{2} = 6.8Nm$$

$$\theta = \frac{S}{Rs} = \frac{0.05}{0.4} = 0.125rad$$

$$E_D = T \cdot \theta = 10 \cdot 0.125 = 1.25Nm$$

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

$$E_{TC} = E_T \cdot C = 8.05 \cdot 50 = 402.5Nm/hr$$

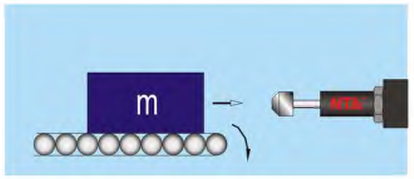
$$v = \omega \cdot R_S = 2.0\,0.4 = 0.8m/s$$

$$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 8.05}{0.8^2} = 25.15kg$$

由有效重量-速度曲线图建议使用 **NTA** -AC1416-2油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA** -AC1416-2

计算例 十：水平动力输送带

COMPUTE EXAMPLE 10: horizontal dynamical conveyer belt



使用条件：
use condition

m=150kg
v=0.5m/s
μ=0.25
s=0.02m
c=120/hr

公式及计算结果
expressions and result

$$E_K = \frac{mv^2}{2} = \frac{150 \cdot 0.5^2}{2} = 18.75Nm$$

$$E_D = F \cdot S = mg\mu \cdot s = 150 \cdot 9.81 \cdot 0.25 \cdot 0.02 = 7.35Nm$$

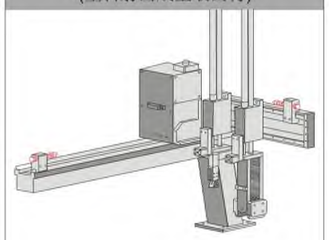
$$E_T = E_K + E_D = 18.73 + 7.35 = 26.1Nm$$

$$E_{TC} = E_T \cdot C = 26.1 \cdot 120 = 3132Nm/hr$$

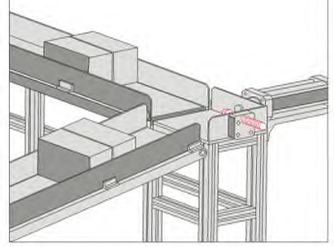
$$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 26.1}{0.5^2} = 208.8kg$$

由有效重量-速度曲线图建议使用 **NTA** -AC2020-3油压缓冲器一支
effective w-v graph you can use the shock absorber **NTA** -AC2020-3

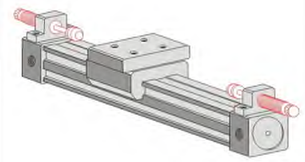
Plastic ejection forming extraction arm (塑料射出成型取出臂)



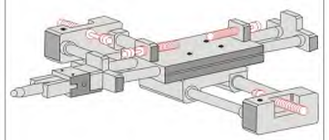
Moving and carrying transportation devices (移载输送装置)



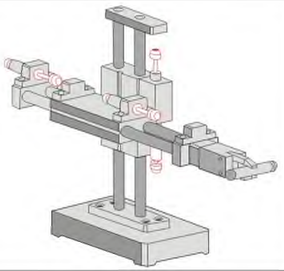
Cylinder without leader (无杆气缸)



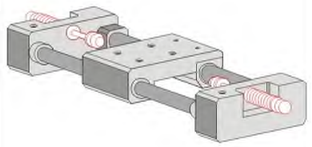
Combined leader cylinder (导杆气缸组合)



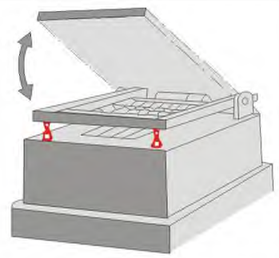
Pneumatic mechanical extraction arm (气动式机械取出臂)



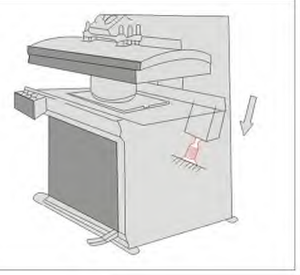
Leader cylinder (导杆汽缸)



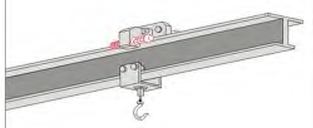
The on-off position of lid etc. (盖等的开关部)



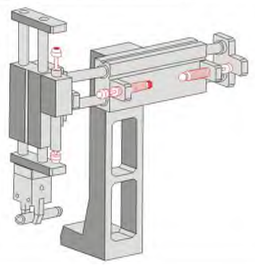
Washing press machine (洗涤压力机)



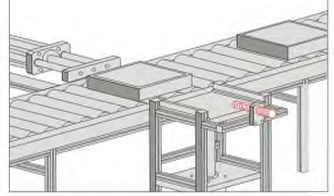
Overhead traveling crane (移载天车)



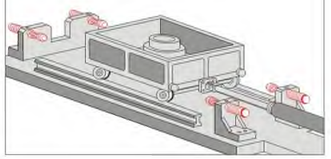
Combined air pressure manipulator (气压机械手组合)



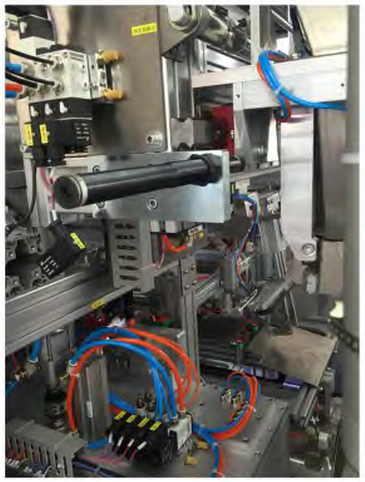
Conveyor (输送机)



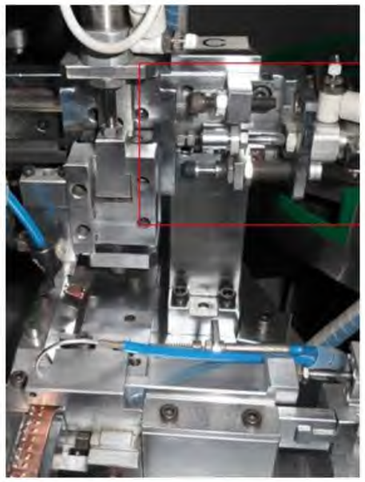
Trolley moving (台车移载)



应用实例 APPLICATIONS









NTA® Expert in pneumatic power transmission

AC SERIES SHOCK ABSORBERS (油压缓冲器)

特征 FEATURES

- 随着撞击速度和撞击物重量变化，具有自我调节压力功能，始终形成柔和的缓冲效果。
- 完备的逆止阀动作，弹簧能够使活塞杆迅速复位。
- 采用硬质镀铬活塞杆和专用密封件，可保存长期稳定的效能。
- 可采用定位停止螺帽　安装螺母　固定板多种附件进行固定.
- 非标的也可生产

- It is of self-regulation function pressuer and keep a soft shock adsorbing effect with the variety of the impact velovity and weight of object
- The spring can make the piston diaplasis fastly with the perfect movement of the clapped valve
- Adapting horniness chromeplated piston rod and special sealing element it can have long and stable effciency
- It can be fixed adopting orientation stop screw cap, setting unt,retaining plate etc
- The unstandardized component can be also manufactured

订购码 ORDERING CODE

AC - 2525 - 2 - □

AD: Adjustable Mode (可调整式)

AC: Multi-hole Non-Adjustable Mode (多孔固定式)

ACD: Double Direction Cushion Mode (双向缓冲式)

Blank: With Cap(有撞击头)
N: Without Cap(无撞击头)

-1: High Impact Speed(高速)
-2: Medium Impact Speed(中速)
-3: Low Impact Speed(低速)

Stroke(行程)(mm)

Outside Diameter(外径)(mm)

AC06/08/10/12小型系列 自动补偿缓冲器 self-compensation series

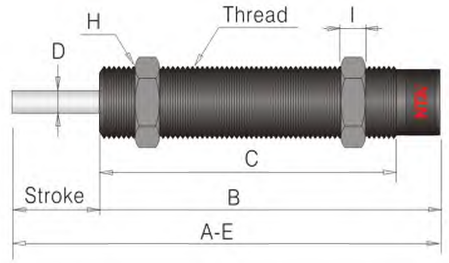
AC 0604、0806、1005、1008、1210
1、体积小、结构紧凑，适合狭窄空间
2、不可拆卸，安全性能高
3、外压缸全螺纹，可灵活安装调整
4、负载不可直接作用于端面，易致端面变形影响行程复归
1. Small bulk, compact structure suit the narrow space.
2. It can not be disassembled with high safety properties.
3. Full thread of outer pressure cylinder is of flexible installation and adjustment.
4. Load can not be directly acted on end face. Otherwise deformed end face will badly affect the stroke resetting.

技术参数 PARAMETER

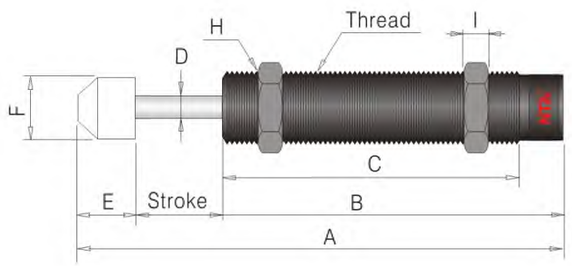
型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AC-0604-1	4	1.8	6,480	0.4	2.0	-10~+85
AC-0604-2	4	1.8	6,480	1.8	1.0	-10~+85
AC-0604-3	4	1.8	6,480	4	0.5	-10~+85
AC-0806-1	6	2	7,200	0.5	2.0	-10~+85
AC-0806-2	6	2	7,200	2.0	1.0	-10~+85
AC-0806-3	6	2	7,200	6.0	0.5	-10~+85
AC-1005-1	5	3	10,800	1	3.0	-10~+85
AC-1005-2	5	3	10,800	3	1.5	-10~+85
AC-1005-3	5	3	10,800	7	0.8	-10~+85
AC-1008-1	8	4	14,400	2	3.0	-10~+85
AC-1008-2	8	4	14,400	4	1.5	-10~+85
AC-1008-3	8	4	14,400	9	0.8	-10~+85
AC-1210-1	10	5	18,000	5	3.0	-10~+85
AC-1210-2	10	5	18,000	10	1.5	-10~+85
AC-1210-3	10	5	18,000	30	0.8	-10~+85

外形尺寸图 Dimensions

AC-0604
AC-0806
AC-1005
AC-1008
AC-1210



（无撞击头）
without cap



（有撞击头）
with cap

外形尺寸 DIMENSIONS

型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	H	I
AC-0604-1	M6×0.75	4	33.7	25.8	20.6	1.8	4	4.6	8	2
AC-0604-2	M6×0.75	4	33.7	25.8	20.6	1.8	4	4.6	8	2
AC-0604-3	M6×0.75	4	33.7	25.8	20.6	1.8	4	4.6	8	2
AC-0806-1	M 8×1.0	6	50	38	33	2.8	6	6.6	11	3
AC-0806-2	M 8×1.0	6	50	38	33	2.8	6	6.6	11	3
AC-0806-3	M 8×1.0	6	50	38	33	2.8	6	6.6	11	3
AC-1005-1	M10×1.0	5	38.7	27.7	22.9	2.8	6	8.6	12.7	3
AC-1005-2	M10×1.0	5	38.7	27.7	22.9	2.8	6	8.6	12.7	3
AC-1005-3	M10×1.0	5	38.7	27.7	22.9	2.8	6	8.6	12.7	3
AC-1008-1	M10×1.0	8	57	43	38	3	6	8.6	12.7	3
AC-1008-2	M10×1.0	8	57	43	38	3	6	8.6	12.7	3
AC-1008-3	M10×1.0	8	57	43	38	3	6	8.6	12.7	3
AC-1210-1	M12×1.0	10	69.2	50	45.5	3	9.2	10.3	14	4
AC-1210-2	M12×1.0	10	69.2	50	45.5	3	9.2	10.3	14	4
AC-1210-3	M12×1.0	10	69.2	50	45.5	3	9.2	10.3	14	4

AC14/20 中小型系列 自动补偿缓冲器 SELF-COMPENSATION SERIES

AC14XX、AC20XX、AC25XX

1、自动补偿式结构，满足不同条件下能量吸收要求　　2、AC-2/3系列行程末端1-2mm左右设计有较强缓冲区，防直接触底损坏产品

3、专用密封装置及特殊液压油组合，提高缓冲性能及使用寿命　　4、外压缸全螺纹，可灵活安装调整

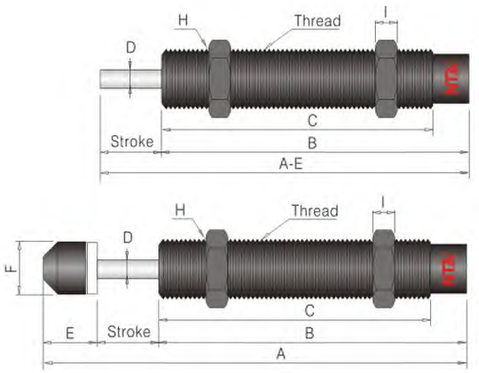
1. Automatic compensation structure satisfy the energy absorption requirements under different conditions.
2. AC-2/3 Series About 1-2mm of stroke end has strong buffer area. It prevents from directly touching the bottom and damaging the product.
3. Combination of special-purpose sealing device and special hydraulic oil enhances the buffering performance and service life.
4. Full thread of outer pressure cylinder is of flexible installation and adjustment.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AC-1412-1	12	15	36,000	8	3.0	-10~+85
AC-1412-2	12	15	36,000	50	1.5	-10~+85
AC-1412-3	12	15	36,000	100	0.8	-10~+85
AC-1416-1	16	20	40,000	10	3.0	-10~+85
AC-1416-2	16	20	40,000	70	1.5	-10~+85
AC-1416-3	16	20	40,000	150	0.8	-10~+85
AC-1416-1C	16	20	35,000	10	3.0	-10~+85
AC-1416-2C	16	20	35,000	70	1.5	-10~+85
AC-1416-3C	16	20	35,000	150	0.8	-10~+85
AC-1425-1	25	25	48,000	12	3.0	-10~+85
AC-1425-2	25	25	48,000	80	1.5	-10~+85
AC-1425-3	25	25	48,000	160	0.8	-10~+85
AC-2020-1	20	40	48,000	30	3.5	-10~+85
AC-2020-2	20	40	48,000	200	2.0	-10~+85
AC-2020-3	20	40	48,000	700	1.0	-10~+85
AC-2030-1	30	50	54,000	30	3.5	-10~+85
AC-2030-2	30	50	54,000	200	2.0	-10~+85
AC-2030-3	30	50	54,000	700	1.0	-10~+85
AC-2050-1	50	60	66,000	60	3.5	-10~+85
AC-2050-2	50	60	66,000	400	2.0	-10~+85
AC-2050-3	50	60	66,000	1,200	1.0	-10~+85

外形尺寸图 Dimensions

AC-1412
AC-1416
AC-1416-C
AC-1425
AC-2020
AC-2030
AC-2050



（无撞击头）without cap

（有撞击头）with cap

外形尺寸 DIMENSIONS

型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	H	I
AC-1412-1	M14×1.5	12	100.2	76.2	67	4	12	12	19	6
AC-1412-2	M14×1.5	12	100.2	76.2	67	4	12	12	19	6
AC-1412-3	M14×1.5	12	100.2	76.2	67	4	12	12	19	6
AC-1416-1	M14×1.5	16	123	95	86	4	12	12	19	6
AC-1416-2	M14×1.5	16	123	95	86	4	12	12	19	6
AC-1416-3	M14×1.5	16	123	95	86	4	12	12	19	6
AC-1416-1C	M14×1.5	16	104	76	67	4	12	12	19	6
AC-1416-2C	M14×1.5	16	104	76	67	4	12	12	19	6
AC-1416-3C	M14×1.5	16	104	76	67	4	12	12	19	6
AC-1425-1	M14×1.5	25	147	110	100	4	12	12	19	6
AC-1425-2	M14×1.5	25	147	110	100	4	12	12	19	6
AC-1425-3	M14×1.5	25	147	110	100	4	12	12	19	6
AC-2020-1	M20×1.5	20	145.8	110	101	6	15.8	18	26	8
AC-2020-2	M20×1.5	20	145.8	110	101	6	15.8	18	26	8
AC-2020-3	M20×1.5	20	145.8	110	101	6	15.8	18	26	8
AC-2030-1	M20×1.5	30	155.8	110	101	6	15.8	18	26	8
AC-2030-2	M20×1.5	30	155.8	110	101	6	15.8	18	26	8
AC-2030-3	M20×1.5	30	155.8	110	101	6	15.8	18	26	8
AC-2050-1	M20×1.5	50	232.8	167	158	6	15.8	18	26	8
AC-2050-2	M20×1.5	50	232.8	167	158	6	15.8	18	26	8
AC-2050-3	M20×1.5	50	232.8	167	158	6	15.8	18	26	8

AC25/36中型系列 自动补偿缓冲器 SELF-COMPENSATION SERIES

AC14XX、AC20XX、AC25XX、AC3660

1、自动补偿式结构，满足不同条件下能量吸收要求
2、行程末端1-2mm左右设有较强缓冲区，防直接触底损坏产品
3、专用密封装置及特殊液压油组合，提高缓冲性能及使用寿命
4、外压缸全螺纹，可灵活安装调整

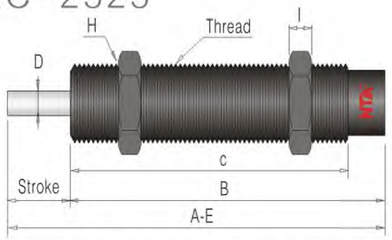
1. Automatic compensation structure satisfy the energy absorption requirements under different conditions.
2. About 1-2mm of stroke end has strong buffer area. It prevents from directly touching the bottom and damaging the product.
3. Combination of special-purpose sealing device and special hydraulic oil enhances the buffering performance and service life.
4. Full thread of outer pressure cylinder is of flexible installation and adjustment.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AC-2525-1	25	80	60,000	200	4.0	-10~+85
AC-2525-2	25	80	60,000	600	2.5	-10~+85
AC-2525-3	25	80	60,000	1,000	1.0	-10~+85
AC-2540-1	40	120	84,000	300	4.0	-10~+85
AC-2540-2	40	120	84,000	800	2.5	-10~+85
AC-2540-3	40	120	84,000	1,200	1.0	-10~+85
AC-2550-1	50	98	98,000	15	4.0	-10~+85
AC-2550-2	50	98	98,000	40	2.5	-10~+85
AC-2550-3	50	98	98,000	160	1.0	-10~+85
AC-2580-1	80	150	127,500	20	4.0	-10~+85
AC-2580-2	80	150	127,500	50	2.5	-10~+85
AC-2580-3	80	150	127,500	200	1.0	-10~+85
AC-3660-1	60	250	125,000	400	4.0	-10~+85
AC-3660-2	60	250	125,000	1,500	2.5	-10~+85
AC-3660-3	60	250	125,000	2,400	1.0	-10~+85

外形尺寸图 Dimensions

AC-2525



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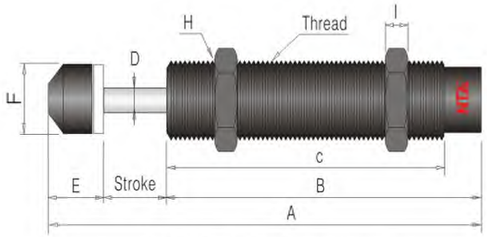
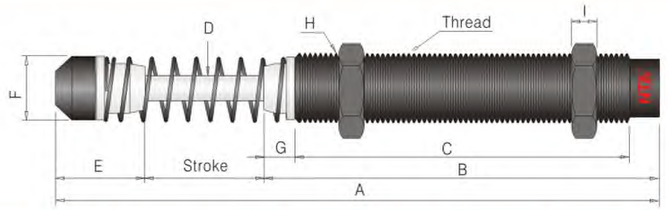


（有撞击头） with cap

MODEL (型号)	Thread (螺纹公称)	Stroke (行程) (mm)	A	B	C	D	E	F	G	H	I
AC-2525-1	M25×1.5	25	154.5	111	101	8	18.5	22	-	32	10
AC-2525-2	M25×1.5	25	154.5	111	101	8	18.5	22	-	32	10
AC-2525-3	M25×1.5	25	154.5	111	101	8	18.5	22	-	32	10

外形尺寸图 Dimensions

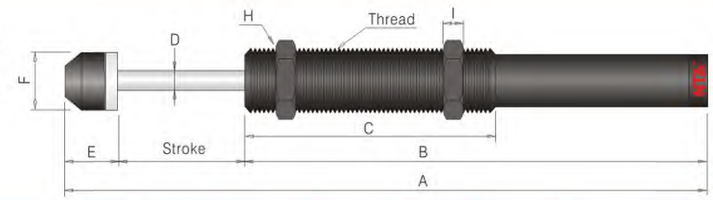
AC-2540
AC-3660



型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	G	H	I
AC-2540-1	M25×1.5	40	214	137	117	8	37	22	10	32	10
AC-2540-2	M25×1.5	40	214	137	117	8	37	22	10	32	10
AC-2540-3	M25×1.5	40	214	137	117	8	37	22	10	32	10
AC-3660-1	M36×1.5	60	247	162	134	10	25	35	17	46	15
AC-3660-2	M36×1.5	60	247	162	134	10	25	35	17	46	15
AC-3660-3	M36×1.5	60	247	162	134	10	25	35	17	46	15

外形尺寸图 Dimensions

AC-2550
AC-2580



MODEL (型号)	Thread (螺纹公称)	Stroke (行程) (mm)	A	B	C	D	E	F	G	H	I
AC-2550-1	M25×1.5	50	239	170.5	100	8	18.5	22	-	32	10
AC-2550-2	M25×1.5	50	239	170.5	100	8	18.5	22	-	32	10
AC-2550-3	M25×1.5	50	239	170.5	100	8	18.5	22	-	32	10
AC-2580-1	M25×1.5	80	335.5	237	100	8	18.5	22	-	32	10
AC-2580-2	M25×1.5	80	335.5	237	100	8	18.5	22	-	32	10
AC-2580-3	M25×1.5	80	335.5	237	100	8	18.5	22	-	32	10

AC-S 中小型系列 自动补偿式系列 SELF-COMPENSATION SERIES

-S系列

1、外压缸本体氮化工艺，防锈能力强　2、行程末端1-2mm左右设有较强缓冲区，防直接触底损坏产品

3、结构紧凑，满足安装不足要求　4、不可拆卸，安全性能高　5、适用于高频操作，广泛用于印刷行业

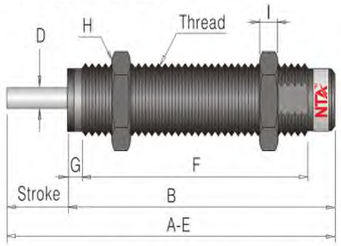
1. Nitriding craft of outer pressure cylinder is strong in anti-rusting capability.
2. About 1-2mm of stroke end has strong buffer area. It prevents from directly touching the bottom and damaging the product.
3. Compact structure satisfies insufficient installation requirements. 4. It can not be disassembled with high safety properties.
5. It is applicable for HF operation. It is widely used in the printing industry.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AC-0806-S	6	3	7,000	6	2.5	-10~+85
AC-1007-S	7	6	12,400	12	3·5	-10~+85
AC-1412-S	12	20	33,000	40	5·0	-10~+85
AC-2015-S	15	59	38,000	120	5·0	-10~+85
AC-2725-S	25	147	72,000	270	3·5	-10~+85
AC-1412-SC	12	20	33,000	35	5·0	-10~+85

外形尺寸图 Dimensions

AC1412-SC



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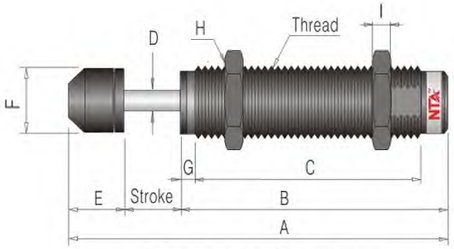


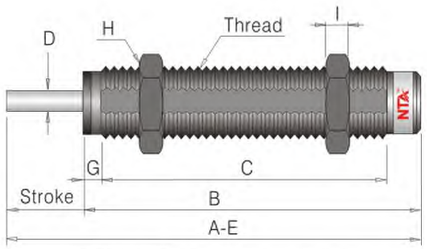
（有撞击头）with cap

外形尺寸 DIMENSIONS

型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	H	I
AC-0806-SN	M8×1.0	6	-	39.6	33.6	2.8	-	-	11	3
AC-0806-S	M8×1.0	6	51.6	39.6	33.6	2.8	6	6.7	11	3
AC-1007-SN	M10×1.0	7	-	47.5	39	3	-	-	12.7	3
AC-1007-S	M10×1.0	7	63	47.5	39	3	8.5	8.5	12.7	3
AC-1412-SN	M14×1.5	12	-	67.5	59	4	-	-	19	6
AC-1412-S	M14×1.5	12	91.5	67.5	59	4	12	11.9	19	6
AC-2015-SN	M20×1.5	15	-	74	62.5	6	-	-	26	6
AC-2015-S	M20×1.5	15	105.2	74	62.5	6	16.2	17.9	26	6
AC-2725-SN	M27×1.5	25	-	99	85.5	8	-	-	36	6
AC-2725-S	M27×1.5	25	142.5	99	85.5	8	18.5	22	36	6

外形尺寸图 Dimensions

AC0806-S/AC1007-S/AC1412-S
AC2015-S/AC2725-S



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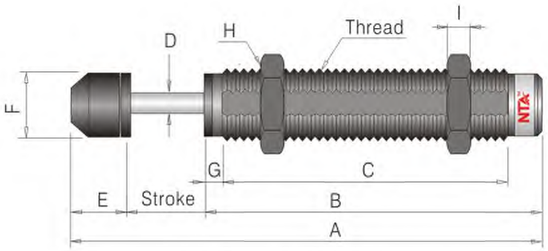


（有撞击头）with cap

外形尺寸 DIMENSIONS

型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	H	I
AC-1412-SCN	M14×1.5	12	-	55	46.5	4	-	-	19	6
AC-1412-SC	M14×1.5	12	79	55	46.5	4	12	12	19	6

ACD双向缓冲系列 自动补偿缓冲器 SELF-COMPENSATION SERIES

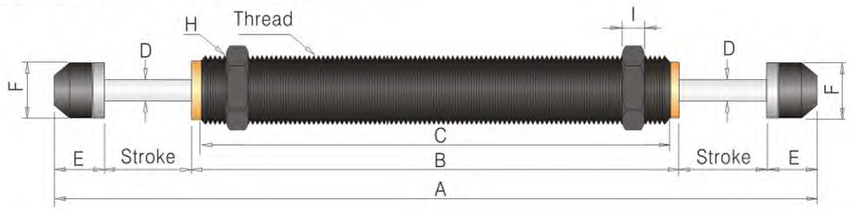
ACD2030、ACD2035、ACD2050
1、适用于高速冲击场合，机械手专用
2、专用密封装置及特殊液压油组合，提高缓冲性能及使用寿命
3、两端冲击力量有异，安装时需注意方向
4、两端不可同时冲击，避免内部零件损坏
1. It is applicable for mechanical arm special purpose in high speed impact occasions.
2. Combination of special purpose sealing device and special hydraulic oil enhances the buffering performance and service life.
3. Impact force is different in two ends. Please pay attention to direction in installation.
4. Two ends can not be impacted at the same time to prevent from damage of internal parts.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
ACD-2030-1	30	45	54,000	40	3.5	-10~+85
ACD-2030-2	30	45	54,000	300	2.0	-10~+85
ACD-2030-3	30	45	54,000	900	1.0	-10~+85
ACD-2035-1	35	52	62,000	40	3.5	-10~+85
ACD-2035-2	35	52	62,000	200	2.0	-10~+85
ACD-2035-3	35	52	62,000	650	1.0	-10~+85
ACD-2050-2	50	60	150,000	400	4.0	-10~+85
ACD2045-QY	45	55	137,500	350	4.0	-10~+85
ACD250-L	50	60	150,000	400	4.0	-10~+85

外形尺寸图 Dimensions

ACD2045-QY ACD2050-L

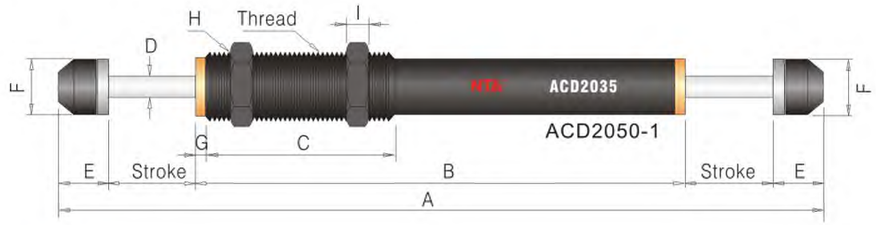


外形尺寸 DIMENSIONS

MODEL (型号)	Thread (螺纹公称)	Stroke (行程) (mm)	A	B	C	D	E	F	H	I
ACD2045-QY	M20×1.5	45	276. 6	155	149	6	15. 8	18	26	8
ACD2050-L	M20×1.5	50	320. 6	189	183	6	15. 8	18	26	8

外形尺寸图 Dimensions

ACD-2030 ACD-2035

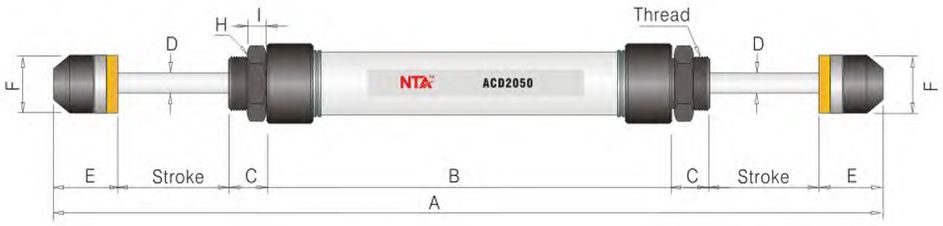


外形尺寸 DIMENSIONS

型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	G	H	I
ACD-2030-1	M20×1.5	30	189	123	46	5	15.8	18	3	26	8
ACD-2030-2	M20×1.5	30	189	123	46	5	15.8	18	3	26	8
ACD-2030-3	M20×1.5	30	189	123	46	5	15.8	18	3	26	8
ACD-2035-1	M20×1.5	35	223	123	46	5	15.8	18	3	26	8
ACD-2035-2	M20×1.5	35	223	123	46	5	15.8	18	3	26	8
ACD-2035-3	M20×1.5	35	223	123	46	5	15.8	18	3	26	8
ACD-2050-2	M20×1.5	50	323	148	12.5	6	21	18	-	26	8

外形尺寸图 Dimensions

ACD-2050-2



AD SERIES

ADJUSTABLE SHOCK ABSORBERS (可调式油压缓冲器)

特征 FEATURES

- 针对运动物体速度变化,可用调节器调整与之对应的最恰当的缓冲吸收能力.
- 采用锁定装置以确保调节器的准确有效.
- 完备的逆止阀动作,弹簧能够使活塞杆迅速复位.
- 采用硬质镀铬活塞杆和专用的密封件,可保持长期稳定的效能.
- 采用定位停止螺帽、安装螺母、固定板等多种附件进行固定.
- 非标的也可制造.

- In allusion to the variational speed it use adjustor of adjusting to corresponding proper shock absorbing capability.
- In order to keep the accurate and effective it adopt lock equipment.
- the sping can make the piston diaplasis fastly with the perfect movement of the clapped valve.
- Adapting horniness chromeplated piston rod and special sealing element it can have a long and stable efficiency.
- it can be fixed adopting orientation stop screw cap,setting nut,retaining plate etc.
- the unstandardized component can be also manufactured.

AD14 AD20 系列 可调整式缓冲器 ADJUSTABLE SERIES

AD14、AD20、AD36
1、0-270度单边偏心调整，有效增大调整范围
2、有单孔阻尼式结构（-5系列）及多孔缓冲式结构，可根据要求选择
3、外压缸全螺纹，可灵活安装调整
4、专用密封装置及特殊液压油组合，提高缓冲性能及使用寿命

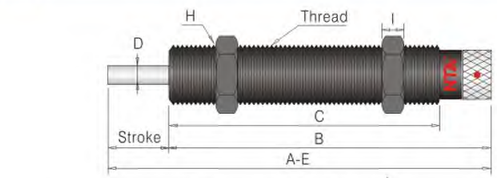
1. 0~270° one-side eccentric adjustment effectively enlarges the adjustment range.
2. One-hole damping structure (-5 series) and multi-hole buffering structure are available for your selection according to your specific requirements.
3. Full thread of outer pressure cylinder is of flexible installation and adjustment.
4. Combination of special purpose sealing device and special hydraulic oil enhances the buffering properties and service life.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AD-1410-N	10	20	24,000	80	3.2	-10~+85
AD-1410	10	20	24,000	80	3.2	-10~+85
AD-1415-N	15	22	26,400	120	3.2	-10~+85
AD-1415	15	22	26,400	120	3.2	-10~+85
AD-2016N	16	25	32,000	200	3.6	-10~+85
AD-2016	16	25	32,000	200	3.6	-10~+85
AD-2025-N	25	39	39,000	312	3.6	-10~+85
AD-2025	25	39	39,000	312	3.6	-10~+85

外形尺寸图 Dimensions

AD-1410
AD-1415
AD-2016
AD-2025



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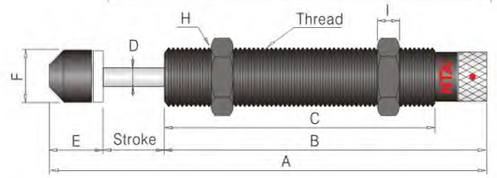
without cap



（有撞击头）
with cap

外形尺寸 DIMENSIONS

型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	H	I
AD-1410-N	M14×1.5	10	-	83.2	65.7	4	-	-	19	6
AD-1410	M14×1.5	10	105.2	83.2	65.7	4	12	12	19	6
AD-1415-N	M14×1.5	15	-	102	85	4	-	-	19	6
AD-1415	M14×1.5	15	129	102	85	4	12	12	19	6
AD-2016N	M20×1.5	16	-	117	101	6	-	-	26	8
AD-2016	M20×1.5	16	148.8	117	101	6	15.8	18	26	8
AD-2025-N	M20×1.5	25	-	117	101	6	-	-	26	8
AD-2025	M20×1.5	25	157.8	117	101	6	15.8	18	26	8

AD25 AD36 系列 可调整式缓冲器 ADJUSTABLE SERIES

AD14、AD20、AD36

1、0-270度单边偏心调整，有效增大调整范围
2、有单孔阻尼式结构（-5系列）及多孔缓冲式结构，
可根据要求选择
3、外压缸全螺纹，可灵活安装调整
4、专用密封装置及特殊液压油组合，提高缓冲性能及使用寿命

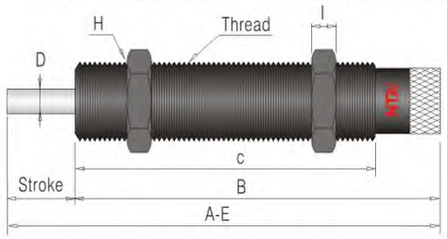
1. 0~270° one-side eccentric adjustment effectively enlarges the adjustment range.
2. One-hole damping structure (-5 series) and multi-hole buffering structure are available for your selection according to your specific requirements.
3. Full thread of outer pressure cylinder is of flexible installation and adjustment.
4. Combination of special purpose sealing device and special hydraulic oil enhances the buffering properties and service life.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AD-2525-N	25	85	51,000	400	3.6	-10~+85
AD-2525	25	85	51,000	400	3.6	-10~+85
AD-2530-N	30	95	57,000	480	3.6	-10~+85
AD-2530	30	95	57,000	480	3.6	-10~+85
AD-2540	40	100	84,000	700	3.6	-10~+85
AD-2550	50	98	98,000	720	4.2	-10~+85
AD-2580	80	150	127,000	800	4.2	-10~+85
AD-3625	25	150	90,000	1,400	3.2	-10~+85
AD-3650	50	300	108,000	1,400	3.2	-10~+85

外形尺寸图 Dimensions

AD-2525 AD-2530



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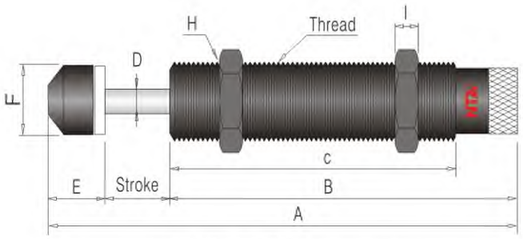
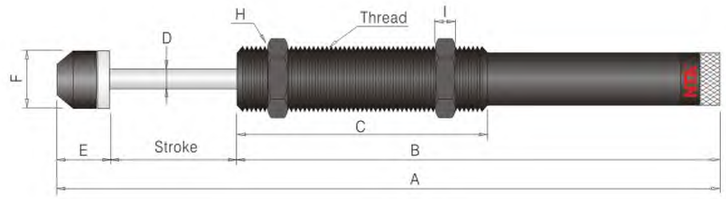


（有撞击头） with cap

外形尺寸图 Dimensions

AD-2550
AD-2580

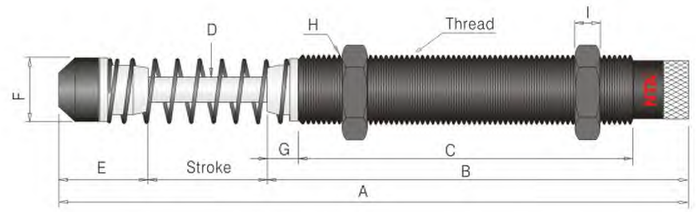


外形尺寸 DIMENSIONS

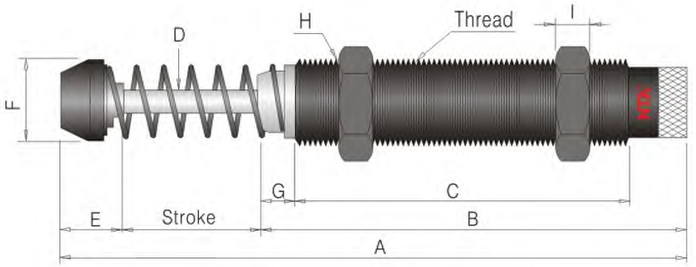
型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	G	H	I
AD-2525-N	M25×1.5	25	-	118.5	101	8	-	-	-	32	10
AD-2525	M25×1.5	25	162	118.5	101	8	18.5	22	-	32	10
AD-2530-N	M25×1.5	30	-	118.5	101	8	-	-	-	32	10
AD-2530	M25×1.5	30	167	118.5	101	8	18.5	22	-	32	10
AD-2540	M25×1.5	40	221.5	144.5	117	8	37	22	10	32	10
AD-2550	M25×1.5	50	246.5	178	100	8	18.5	22	-	32	10
AD-2580	M25×1.5	80	343	244.5	100	8	18.5	22	12.5	32	10
AD-3625	M36×1.5	25	183	133	103	10	25	35.5	10	46	10
AD-3650	M36×1.5	50	246	171	134	10	25	35.5	17	46	15

外形尺寸图 Dimensions

AD-2540



AD-3625
AD-3650



AD42重型系列 可调整式缓冲器 ADJUSTABLE SERIES

AD42、AD64
1、特殊的内压缸组合调整结构，承受较强冲击力
2、行程末端2-3mm有较强缓冲区，防直接触底损坏产品
3、为确保使用安全，在使用前务必确定载体承受重量
4、固定方式可分为螺帽固定或法兰固定二种
5、务必在行程前2-3mm停止，避免负荷过大触底损坏内部零件

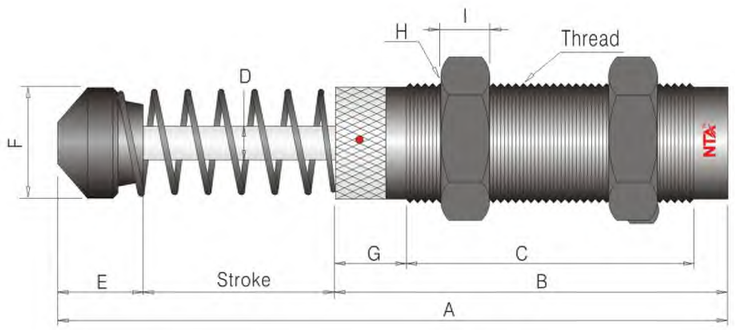
1. Special inner pressure cylinder combination and adjustment structure can bear strong impact force.
2. 2~3mm of the stroke end has strong buffering area. It prevents from directly touching the bottom and damaging the product.
3. In order to ensure the use safety, be sure to confirm the bearing weight of the carrier before use.
4. Fixing modes are divided into nut fixing and flange fixing.
5. Be sure to stop at 2~3mm before the stroke. It prevents overload from touching the bottom and damaging internal parts.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AD-4225	25	260	130,000	3,000	3.6	-10~+85
AD-4250	50	500	155,000	4,000	4.8	-10~+85
AD-4275	75	750	187,000	6,000	4.8	-10~+85

外形尺寸图 Dimensions

AD-4225
AD-4250
AD-4275



外形尺寸 DIMENSIONS

型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	G	H	I
AD-4225	M42X1.5	25	186	127.5	88	12	33.5	44.5	28.5	50	15
AD-4250	M42X1.5	50	245.5	157	117.5	12	38.5	44.5	28.5	50	15
AD-4275	M42X1.5	75	301	187.5	148	12	38.5	44.5	28.5	50	15

AD64重型系列 可调整式缓冲器 ADJUSTABLE SERIES

AD42、AD64
1、特殊的内压缸组合调整结构，承受较强冲击力
2、行程末端2-3mm有较强缓冲区，防直接触底损坏产品
3、为确保使用安全，在使用前务必确定载体承受重量
4、固定方式可分为螺帽固定或法兰固定二种
5、务必在行程前2-3mm停止，避免负荷过大触底损坏内部零件

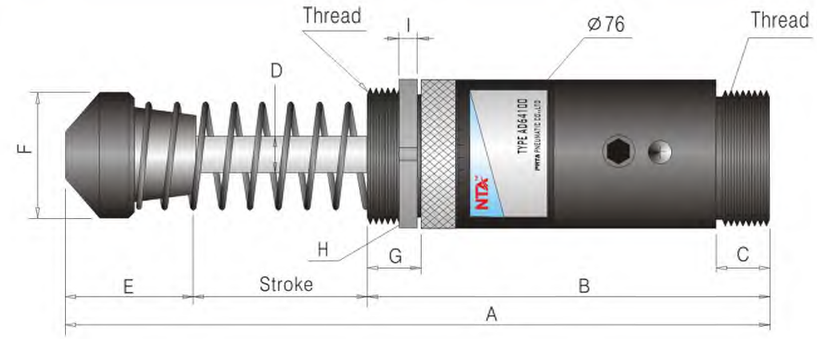
1. Special inner pressure cylinder combination and adjustment structure can bear strong impact force.
2. 2~3mm of the stroke end has strong buffering area. It prevents from directly touching the bottom and damaging the product.
3. In order to ensure the use safety, be sure to confirm the bearing weight of the carrier before use.
4. Fixing modes are divided into nut fixing and flange fixing.
5. Be sure to stop at 2~3mm before the stroke. It prevents overload from touching the bottom and damaging internal parts.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AD-64050	50	12,000	1,560,000	12,727	1.6	-10~+85
AD-64100	100	24,000	1,920,000	18,181	1.6	-10~+85
AD-64150	150	36,000	2,520,000	23,636	1.6	-10~+85

外形尺寸图 Dimensions

AD-64050
AD-64100
AD-64150



外形尺寸 DIMENSIONS

型号 MODEL	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	G	H	I
AD-64050	UNF21/2-12	50	247	146	26	20	51	59	23	76.2	9.4
AD-64100	UNF21/2-12	100	347	196	26	20	51	59	23	76.2	9.4
AD-64150	UNF21/2-12	150	467	256	26	20	61	59	23	76.2	9.4

ADH SERIES

ADJUSTABLE SHOCK ABSORBERS (可调式油压缓冲器)

特征 FEATURES

- 针对运动物体速度变化,可用调节器调整与之对应的最恰当的缓冲吸收能力.
- 采用锁定装置以确保调节器的准确有效.
- 完备的逆止阀动作,弹簧能够使活塞杆迅速复位.
- 采用硬质镀铬活塞杆和专用的密封件,可保持长期稳定的效能.
- 采用定位停止螺帽、安装螺母、固定板等多种附件进行固定.
- 非标的也可制造.

- In allusion to the variational speed it use adjustor of adjusting to corresponding proper shock absorbing capability.
- In order to keep the accurate and effective it adopt lock equipment.
- the sping can make the piston diaplasis fastly with the perfect movement of the clapped valve.
- Adapting horniness chromeplated piston rod and special sealing element it can have a long and stable efficiency.
- it can be fixed adopting orientation stop screw cap,setting nut,retaining plate etc.
- the unstandardized component can be also manufactured.

ADH42 ADH64 ADH85系列可调整式缓冲器 ADJUSTABLE SERIES

ADH42 ADH64 ADH85

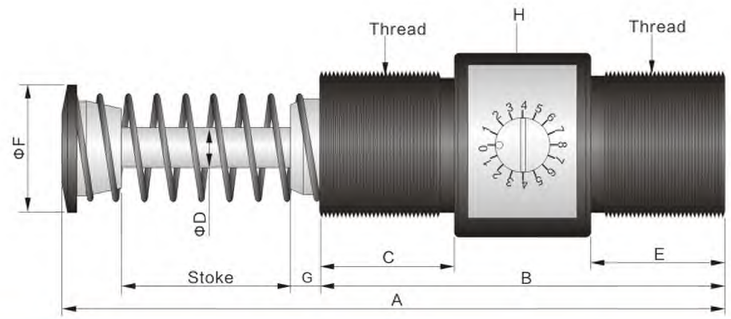
1、特殊内压缸组合调整结构，承受较强冲击力
2、0-180度中间调节，便于前后螺纹固定安装
3、固定方式可分为螺帽固定或法兰固定二种
4、用于包装机械、机床、轮胎制造设备、铸造设备、汽车制造设备等行业

1. Special structure of cylinder,can bear bigger impact force.
2. 0-180 adjustable,the thread fix easy.
3. fix can be nut fix and flange fix.
4. it can be used in packaging machinery, machine tool,tyre manufacturing equipment, foundry equipment and manufactruing equipment ofautomobile,etc.

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
ADH-4225	25	380	115,000	3,500	2.5	-10~+80
ADH-4250	50	800	150,000	5,500	2.5	-10~+80
ADH-4275	75	1100	185,000	7,200	2.5	-10~+80
ADH-64050	50	1900	250,000	13,000	2.0	-10~+80
ADH-64100	100	2650	310,000	18,000	2.0	-10~+80
ADH-64150	150	4000	380,000	23,000	2.0	-10~+80
ADH-85050	50	2350	390,000	37,500	1.8	-10~+80
ADH-85100	100	4200	665,000	40,500	1.8	-10~+80
ADH-85150	150	6500	980,000	44,000	1.8	-10~+80

外形尺寸 DIMENSIONS



型号 Model	螺纹公称 Thread	行程 Stroke (mm)	A	B	C	D	E	F	G	H
ADH-4225	M42×1.5	25	143	93	33	12	30	37.5	8	54
ADH-4250	M42×1.5	50	195	120	40	12	40	37.5	8	54
ADH-4275	M42×1.5	75	250	145	50	12	52	52.5	8	54
ADH-64050	M64×2	50	221	138	49	20	49	52.5	-	76
ADH-64100	M64×2	100	321	188	69	20	69	52.5	-	76
ADH-64150	M64×2	150	441	248	69	20	69	76	-	76
ADH-85050	M85×2	50	250	143	52	22	49	76	10	98
ADH-85100	M85×2	100	346	189	70	22	70	76	10	98
ADH-85150	M85×2	150	476	249	95	22	95	76	20	98

断路器专用油压缓冲器 SHOCK ABSORBER FOR BREAKER

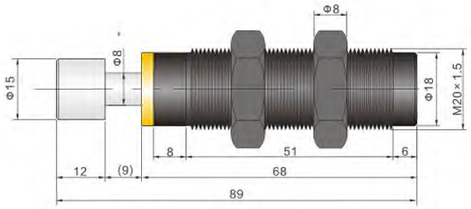
断路器专用油压缓冲器 SHOCK ABSORBER FOR BREAKER

断路器在分闸时，通过分闸弹簧释放能量，当运动至限位时产生机械碰撞，必然会产生反弹，易造成危害；而断路器专用油压缓冲器在断路器分闸时将弹簧的剩余能量全部吸收，保护机械避免受到太大冲击，使分闸曲线过程平缓。

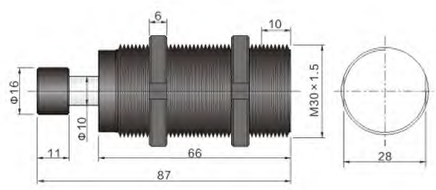
备注：可根据顾客需求定制。

when the breaker separating brake,it will release energy by the spring,if it sport in the limit,will make mechanical collision,and rebound,it is danger,however if use our shock absorber for breaker , the spring will release balance energy,the process will be gently.
Remaek:this product can produce demand on customer request.

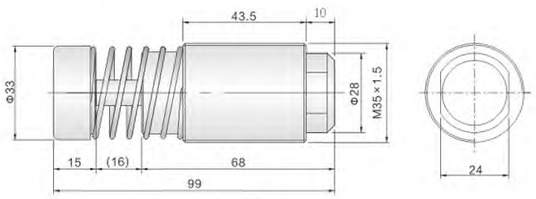
外形尺寸图 Dimensions



AC2009



AC3010



AC3516

技术参数 PARAMETER

型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
AC2009	9	75	85,000	150	3.0	−10~+80
AC3010	10	98	115,000	180	2.5	−10~+80
AC3516	16	80	90,000	200	3.5	−10~+80

ZC/D SERIES

STOPPER CYLINDER SHOCK ABSORBERS (阻挡缸用缓冲器)

特征 FEATURES

- 置于阻挡气缸内部，对运动物体产生顺滑阻挡及停止
- 可分自动不尝试及可调整式结构
- 完备的逆止阀动作,弹簧能够使活塞杆迅速复位
- 采用硬质镀铬活塞杆和专用的密封件,可保持长期稳定的效能
- 非标的也可生产

- Puts it inside the stopper cylinder,it can produce sliding the impediment and stop to the object
- lit be divided into the automatic compensation and adjustable structure
- The sping can make the piston diaplasis fastly with the perfect movement of the clapped valve
- Adapting horniness chromeplated piston rod and special sealing element it can have a long and stable efficiency
- The unstandardized component can be also manufactured

订购码 ORDERING CODE

ZC - 2010

ZD: Adjustable Mode (可调整式)

ZC/FC: Multi-hole Non-Adjustable Mode (双向缓冲式)

Stroke(行程)(mm)

Outside Diameter(外径)(mm)

阻挡缸用固定式缓冲器 Fixed shock absorbers of stopper cylinder

ZC/FC
1、外压缸一体式结构，紧凑、安全
2、坚硬不锈钢轴，可避免角度冲击轴心变形
3、为减小与轴端面接触间摩擦力，建议接触面间为滚动摩擦
4、可采用螺纹安装或直接置于缸内

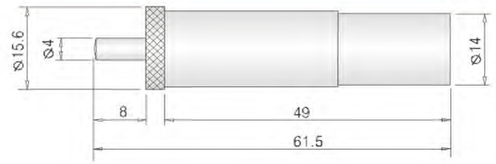
1. Integrated structure of outer pressure cylinder is safe and compact.
2. Hard and firm stainless steel axle can prevent the angle from impacting the axle center and causing deformation.
3. In order to reduce frictional force in contacting the axle end face, rolling friction is suggested between the contact surfaces.
4. We recommend you to apply threaded mounting or it can be directly put in the cylinder.

技术参数 PARAMETER

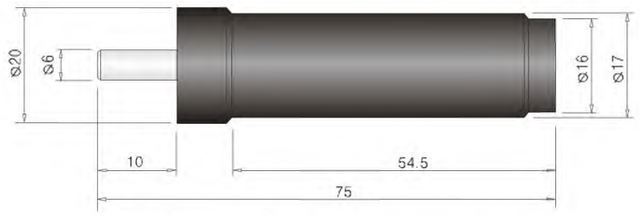
型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
ZC-1408	8	16	9,600	25	3.6	-10~+85
ZC-2010	10	25	15,000	120	3.0	-10~+85
FC-2010	10	25	15,000	120	3.0	-10~+85

外形尺寸图 Dimensions

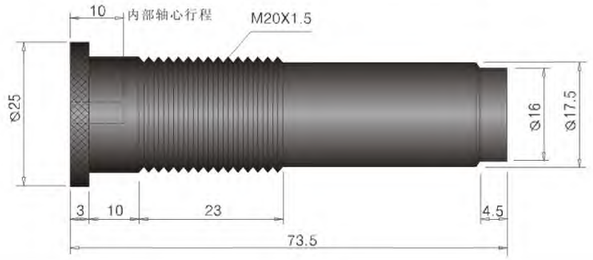
ZC-1408



ZC-2010



FC-2010



阻挡缸用可调式缓冲器 adjustable shock absorbers of stopper cylinder

ZDXX
1、内外双轴分开式结构，可避免角度冲击带来的不良影响
2、0-270度单边偏心调整，有效增大调整范围
3、特殊的表面电镀处理，防锈能力强
4、结构紧凑，置于阻挡缸内部

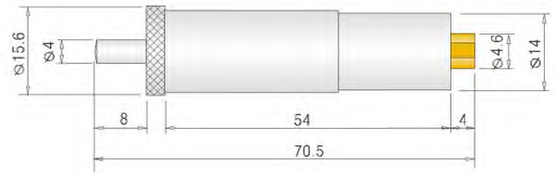
1. Inner and outer double-axle separated structure can avoid bad influence by angle impact.
2. 0~270° one-side eccentric adjustment effectively enlarges the adjustment range.
3. Special surface electro-plating treatment is strong in anti-rusting.
4. It is compact in structure. It can be put inside the blocking cylinder.

技术参数 PARAMETER

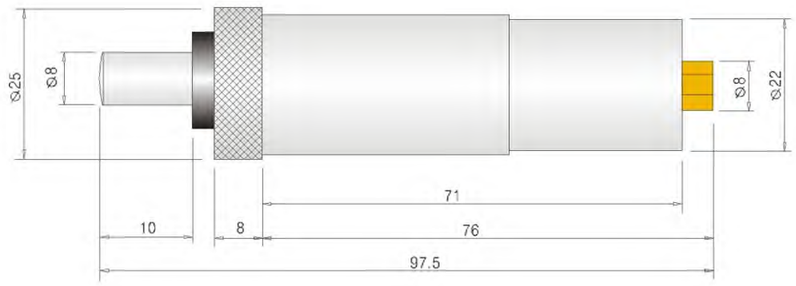
型号 MODEL	行程 Stroke (mm)	每次最大吸收能量 Max. Absorbing Energy Per Cycle E(Nm)	小时最大吸收能量 Max. Absorb. Energy/Hour Ec(Nm/hr)	最大有效重量 Max. Effective Mass Me(kg)	最高撞击速度 Max. Impact Speed (m/s)	工作温度 Operating Temperature (°C)
ZD-1408	8	16	12,000	40	4.0	-10~+85
ZD-2210	10	35	20,000	250	3.5	-10~+85

外形尺寸图 Dimensions

ZD-1408



ZD-2210



偏心角度转换器 ANGLE CONVERTER

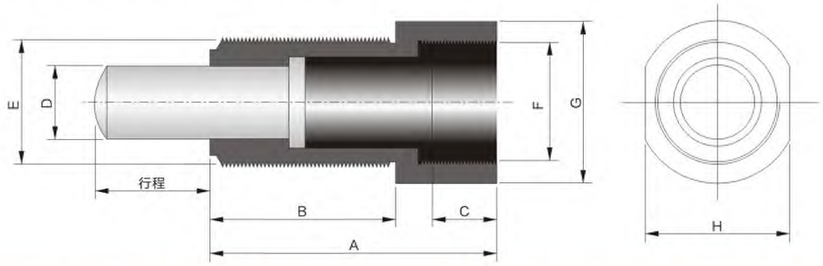
在旋转冲击运动时如果偏心角度超过3°，会对活塞杆造成很高的偏心冲击力，使轴承磨损加剧，易导致活塞杆受损变形弯曲，缓冲器寿命快速减少。

PRTA偏心角度转换器提供了使缓冲器可以长久持续使用的解决方案；实践证明，使用偏心角度转换器最大偏心角度达25°

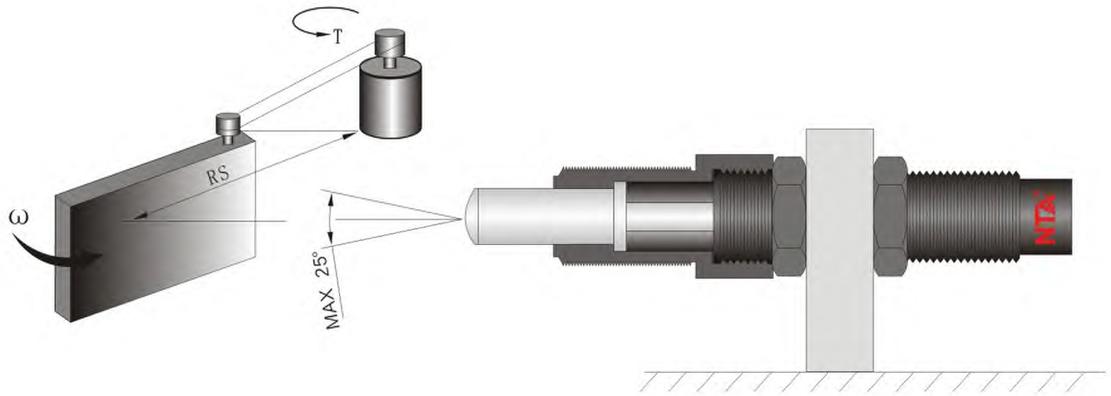
注：偏心角度转换器只能装到没有冲击头的活塞杆上面。

when it sport with rotary percussive,if the eccentric angle more than 3° ,It has big shock to piston rod,the bearing will wear serious.piston rod easy to be out of shape and curved,the lifetime of absorber will short.PRTA switcher can make the absorber lifetime much longer in long time. practice has proved that if use our switch,the max eccentric angle can be 25° .

Remark: this switch only can fix in piston rod which without shock head.



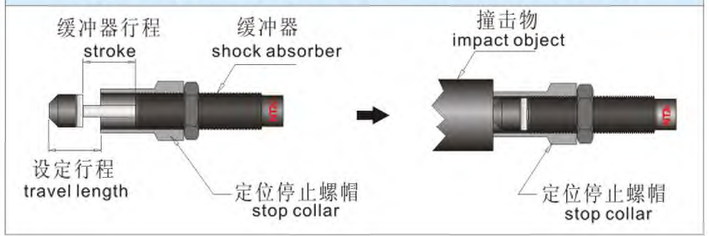
型号 Model	行程 Stroke (mm)	A	B	C	D	E	F	G	H
SCL1410	10	34	18	9	8	M14×1.5	M14×1.5	19	17
SCL1415	15	39	23	12	8	M14×1.5	M14×1.5	19	17
SCL2016	16	48	28	12	12	M20×1.5	M20×1.5	25	22
SCL2020	20	51	31	15	12	M20×1.5	M20×1.5	25	22
SCL2525	25	62	40	14	16	M25×1.5	M25×1.5	35	31
SCL2725	25	62	40	14	16	M27×1.5	M27×1.5	35	31
SCL2725B	25	62	40	14	16	M27×3.0	M27×3.0	35	31
SCL3325	25	69	47	15	20	M33×1.5	M33×1.5	45	40
SCL3625	25	69	47	15	20	M36×1.5	M36×1.5	45	40



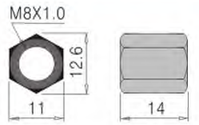
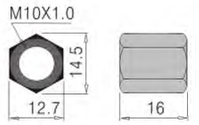
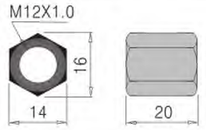
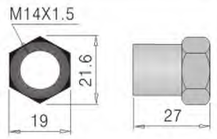
可配合有头或无头缓冲器使用，起到微调及设定缓冲器行程，提高缓冲器使用寿命

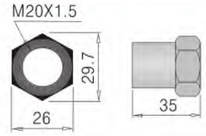
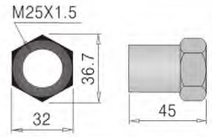
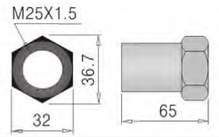
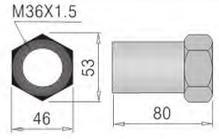
With a impact head or without head product use,you can small adjust or set uo travel, improve product life

定位停止螺帽应用图示 EXAMPLE OF APPLICATION

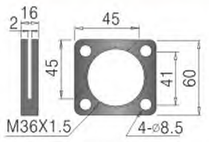


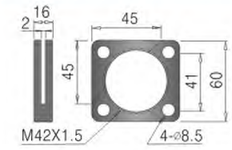
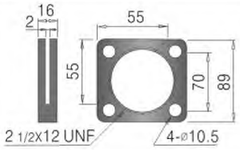
定位螺母 STOP COLLARS

规格 specification	尺寸 dimemsions	可配合缓冲器规格 applicable for shock absorber model
SC 08		AC0806
SC 10		AC1005 AC1007 AC1008
SC12		AC1210
SC14		AC1412 AD1410 AC1416 AD1415 AC1420 AD1425 AC1425

规格 specification	尺寸 dimemsions	可配合缓冲器规格 applicable for shock absorber model
SC 20		AC2015 AD2016 AC2020 AD2020 AC2030 AD2025 AC2050
SC 25		AC2525 AD2525 AC2550 AD2530 AC2580 AD2550 AD2580
SC 40		AC2540 AD2540
SC 50		AC3660 AD3625 AD3650

安装法兰 MOUNTING FLANGE

规格 specification	尺寸 dimemsions	可配合缓冲器规格 applicable for shock absorber model
F 36		AC3660 AD3650

规格 specification	尺寸 dimemsions	可配合缓冲器规格 applicable for shock absorber model
F 42		AD4225 AD4250 AD4275
F 64		AD64050 AD64100 AD64150

HR SERIES

HYDRAULIC SPEED CONTROLS (液压速度控制器)

特征 FEATURES

- 精确均匀动作，实行长时间连续稳定控制，能提高加工的精确度.
- 完备的逆止阀动作,弹簧能够使活塞杆迅速复位.
- 可用调节刻度盘精密调节速度.
- 适用于机械手、气压缸自动化机械、调速钻孔机、研磨机、切屑机等.
- 非标的也可制造.

- It can improve the machining precision and have a continuous and steady control by precise and even movement.
- The sping can make the piston diaplasis fastly with the perfect movement of the clapped valve.
- The speed can be adjusted precisely by adjustable dial.
- It can be applies to manipulator,cylinder, robotized machine,timing drill,muller, trimming machine,etc.
- The unstandardized component can be also manufactured.

订购码 ORDERING CODE

HR – 30 – □

空格：固定座固定 Module Fixed
N：螺纹固定 Threaded Fixed

行程 Stroke(mm)

HR：弹簧复归型 Spring diaplasis
HRT：气动复归型 Pneumatic revert type

HR系列 HR SERIES | 弹簧复归型 spring diaplasis

当HR精密油压稳速器轴心上的负荷卸载后,弹簧将轴心自动返回原位
When the load of axes in HR shock absorbers uninstall,the spring will self-fighing

安装方式：铝座固定

特性：

1、采用不需要补充工作油的全封闭结构，可以保存长期稳定的控制功能
2、急剧的负荷变动所引起控制速度化极小，能够获得稳定的进给速度
3、进给速度可由调整旋钮简易调节
4、能够长时间连续稳定的控制，回程采用弹簧复位
5、使用之液压油粘度在温度变化下仍具有相当安定，故稳速功能特强

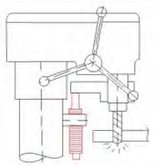
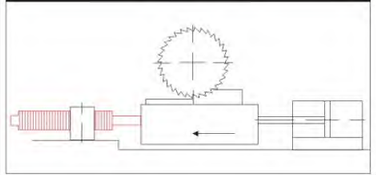
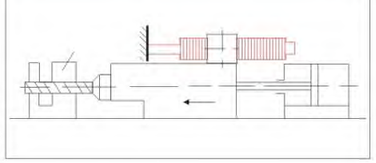
CHARACTERISTIC:

1、It can keep a long and stable control function adopting whole close structure of having no use for working oil.
2、The rapid change of load can bring teeny change of control speed and get stable feed speed .
3、Feed speed can be adjusted simply with adjustable knob.
4、Keeping a long and stable control and making regress diaplasis with spring.
5、Because the viscosity of oil is very stable along with the temperature change,so the function of steady speed is very good.

外形尺寸图 Dimensions

型号 MODEL	A	B	最大行程 Maximum stroke	工作温度 Working temperature	最大负荷 Maximum load
HR15	157	142	15 mm	-10-70°C	350kgf
HR30	207	178	30 mm	-10-70°C	350kgf
HR60	287	225	60 mm	-10-70°C	350kgf
HR80	342	262	80 mm	-10-70°C	350kgf
HR100	396	296	100mm	-10-70°C	350kgf

EXAMPLES OF APPLICATION(应用范例)

Drill press, drill hole (钻床钻孔)	Circular saw cutting (圆锯机切削)	Platform drill hole (平台钻孔)
		

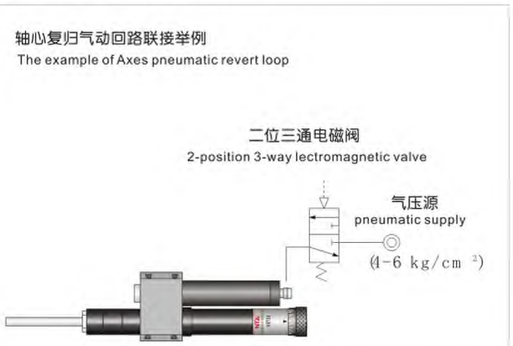
HRT系列 HRT SERIES 气动复归型(可进行分段进给控制) pneumatic revert type (having subsection feed control)

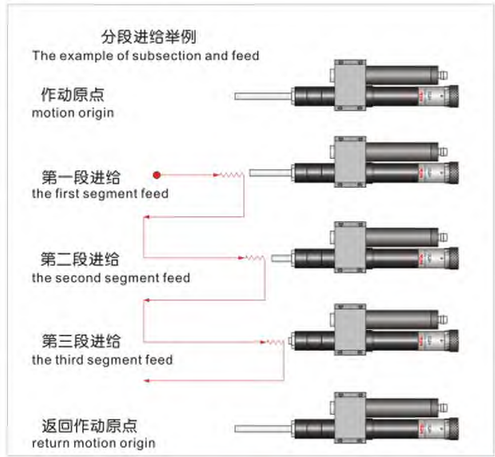
安装方式：铝座固定

即使除去HRT油压稳速器轴心上的负荷，轴心仍停止在原位，只有有提供压缩空气后才能使轴心复归

特性：
轴心可在行程任意位置停止，可实现高效的分段进给功能

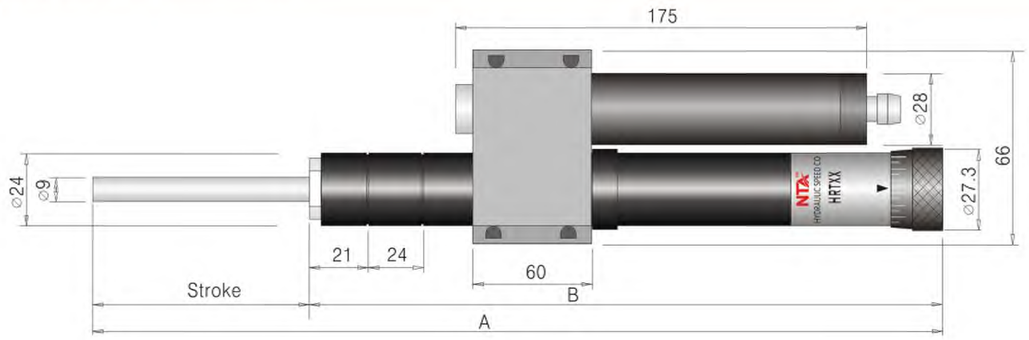
Even though get rid of the load of axes in HRT shock absorbers, the axes stop at primary position, only constringent air can make the axes diaplasis
Characteristic:
The axes can stop at any position and stroke and having the high-effective function of subsection



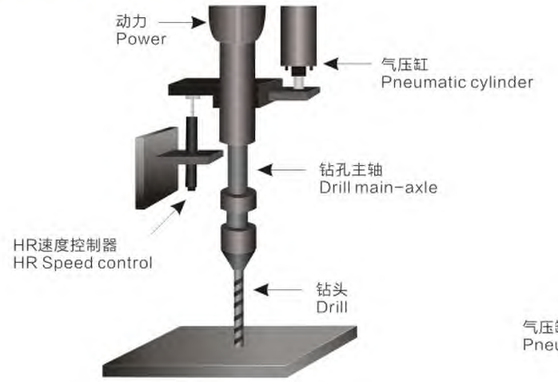


型号 MODEL	A	B	最大行程 Maximum stroke	工作温度 Working temperature	最大负荷 Maximum load
HRT60	286	226	60 mm	-10-70°C	350kgf
HRT100	396	296	100mm	-10-70°C	350kgf

外形尺寸图 Dimensions



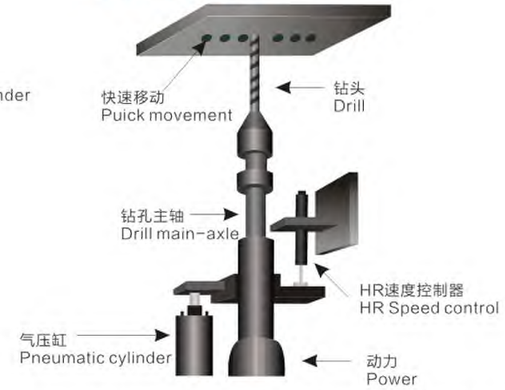
薄钢板钻孔 Steel sheet drill



当钻头接触到底板开始钻孔时,将会高力道的加压,这高力道会使钻头穿透底板,产生锯齿状的孔而不是平滑干净的圆孔,瞬间的穿透容易造成钻头工具的损坏.安装HR速度控制器,可以更精确地控制钻孔的加压速度比例,所钻的孔都是干净而平滑的,钻头工具也增长了寿命.

When the drill contacts base plate and starts to drill, it presses hard. Therefore the drill penetrates through base plate, it produces zigzag round hole. This very hole is not smooth, nor clean. Instant penetration easily damages the drill. While HR Speed control speed regulator can more precisely control compression speed proportion of drill hole. All the drill holes are clean and smooth. It also increases service life of the drill.

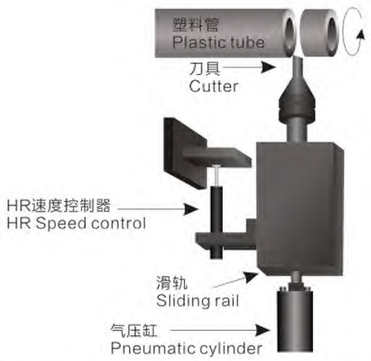
PC板钻孔 PC sheet drill



利用-气压缸在最初快速时的推进,然后藉由复杂的调整设置来减弱切速度,尽管如此,这样的复杂控制盒调整要达到末端速度的稳定是不容易满足的.安装HR速度控制器,能精确稳定的控制气压缸钻孔的速度，钻头的寿命将会更长，不再需要复杂的控制调整设置，简单有效的选择降低成本支出.

It utilizes pneumatic cylinder to primarily push quickly, then it cuts down the cutting speed by the complex adjustment and setting. Even so, it is not easy to stabilize the tip speed through such complex control and adjustment.HR Speed control speed regulation can accurately and stably control the speed of pneumatic cylinder drill. It brings about the longer drill life. It needs no complex control and adjustment device. It thus simply and effectively reduces the cost.

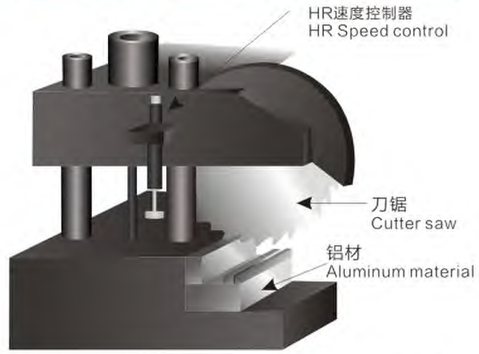
切割塑料管 Plastic tube cutting



处理特殊材料时，应用气动进刀精密加工是必要的，HR速度控制器能 提供非常稳定的速度进刀切割，所加工的零件能够确保有优良的加工精度和品质，更让精密的气动推动设备增长寿命.

In treating special materials, it is necessary to apply pneumatic feed and precision machining. HR Speed control speed regulator offers very stable speed for feed and cutting. The machining parts are superior in machining precision and quality. Furthermore, it increases service life of pneumatic driving device.

锯铝及塑料 Aluminum and plastic sawing



在高转速锯片切割设备，因转速很容易造成刀锯的高破坏,和所切割的工物过高的不良品。HR速度控制器能提供精密的稳定速度进行，让告诉运转的锯片能有一致性和保持一定的切割速度，让切割物更优良的割光滑面，并且增长了锯片的寿命.

High rotating speed saw blade cutter easily damages cutter saw because of high rotating speed. It causes inferior quality. HR Speed control speed regulator offers precise and stable speed. It grants the operating saw blades coincide with each other and keep certain cutting speed. Therefore cut materials have smooth and superior cut surfaces. It also prolongs the service life of saw blades.