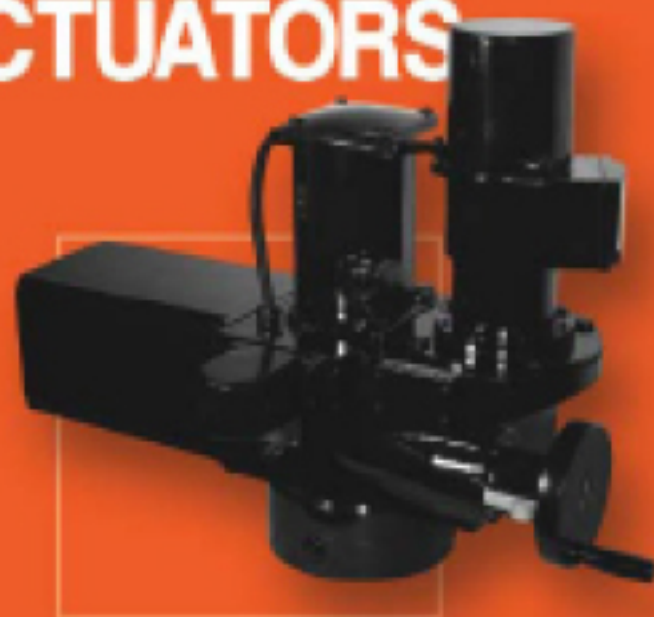


ABB INSTRUMENTATION



RHA/RS SERIES ELECTRICAL ACTUATORS

A B B 公 司



RHA/RS 系列电动执行机构

重庆川仪总厂有限公司执行器记录仪分公司
CHONGQING SICHUAN INSTRUMENT COMPLEX CO., LTD. ACTUATOR & RECORDER FILIAL



BROADBAND CONN

SINCERELY COOPERATE

精诚合作

创造

未来

来

SINCERELY COOPERATE

GLOBAL COMMUNICATION

WIRED TRA



SURVEY



重庆川仪与国际最有影响力的仪器仪表集团——ABB自动化有限公司就仪器仪表的全面合作签署了战略联盟协议。我们将在业已存在的合作基础上，加深和扩大合作领域，继续为客户提供世界上最新，最优质的产品和最好的服务。相信我们的合作，在广大客户的关心和支持下将迎来新的辉煌！

RHA/RS系列数字式电动执行机构是集高效率，高精度，高可靠性为一体的伺服定位装置，也是一种具有先进电机技术和先进控制技术的节能产品。广泛应用于电力，冶金，石油，化工，轻工等部门的生产过程检测与控制系统。接受标准直流信号，伺服线性输出相应的角位移或直线位移，操纵各类调节机构。

RHA系列执行机构输出角位移和转矩，RS系列执行机构输出直线位移和推力。RHA与各类调节阀或其他调节机构的连接通过杠杆系统实现。应用RHA/RS系列电动执行机构和RFD电动操作器配套可实现对执行机构的手动操作，自动/手动工况切换和调节信号及位置反馈信号的监视。

A strategical alliance agreement about all-sided cooperation of instrument had been signed between Chongqing Sichuan Instrument Complex Co.,Ltd. and ABB automatic company-an instrument group well known in all world. We will strengthen and extend the field of cooperation based on the exist cooperation; supply the most new and most high quality products and most high-grade service to our consumers. We believe our cooperation will have new resplendence because of our consumers' concern and support!

RHA/RS series digital electrical actuators are high efficiency, high precision, high reliability servo-positioning devices, they are also economized electric power products with high advanced motor technology and advanced control technology. They are widely applied to industrial-process measurement and control system for light industry, oil industry, chemical industry, mechanism industry, electric power, metallurgy etc. They receive standard direct current (d.c.) signal, servo linear system output corresponding angle displacement or linear displacement, and operate multifarious control devices

RHA series actuators output angle displacement and positioning torque, RS series actuators output linear displacement and positioning force, they connect with multifarious control valves or others control devices via lever system. By fit together RHA/RS series electrical actuators and RFD electrical station, you can operate actuators manually, switch AUTO/MAN operation condition, monitor control signal and position feedback signal.

信心实力为您创造更多的效益

**Our confidence and strength should create
more benefit for you without fail**

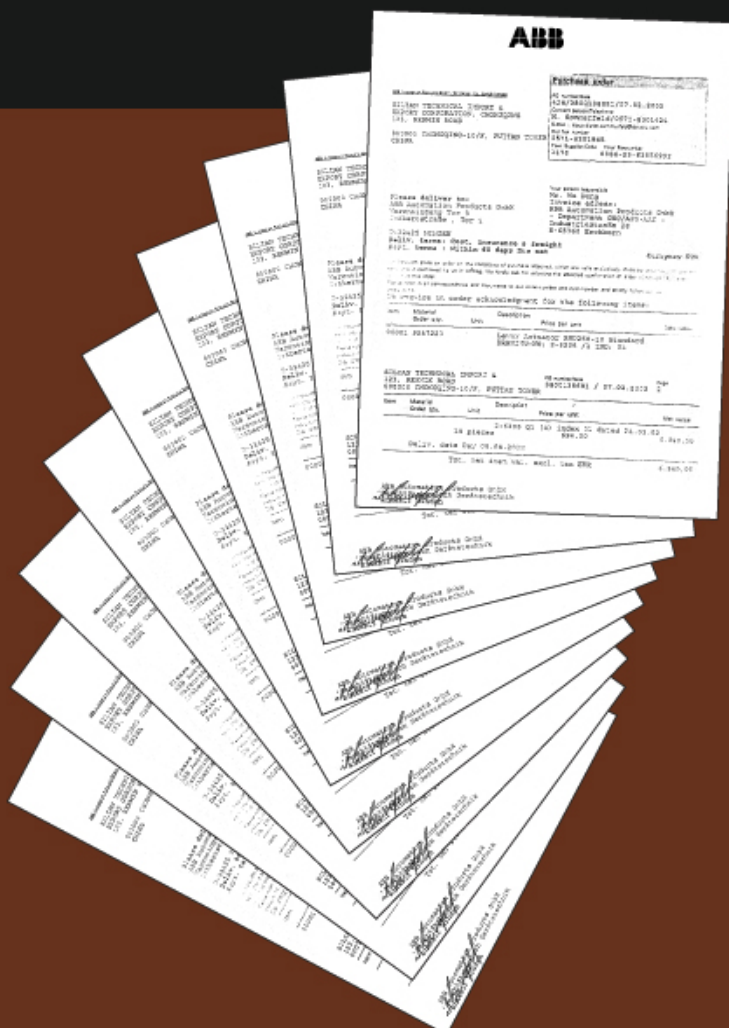
GERMANY





大量 返 销 ABB

SELL RETURN ABB LARGELY

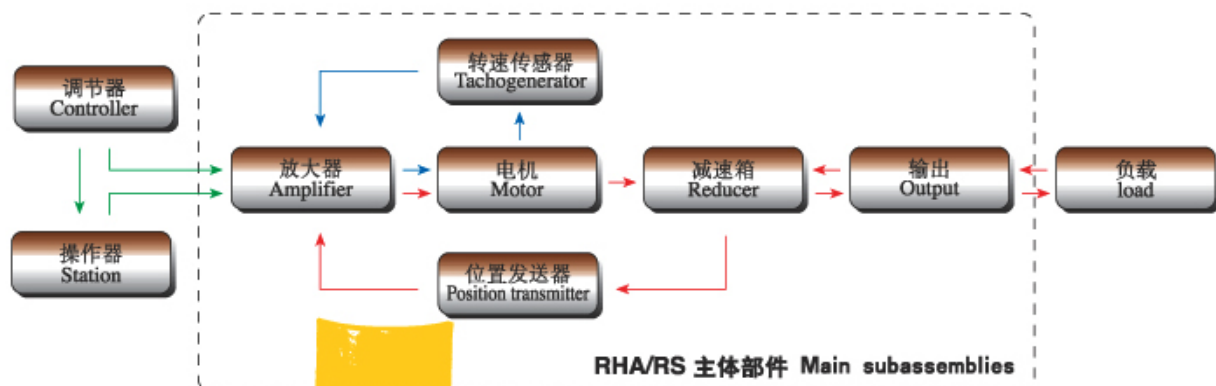


中德双方订货合同
Order contract between
China and Germany



RHA/RS 执行机构使用卓越成熟的动态负载伺服偏差控制系统，多点采集反馈检测信号，使输出轴精确快速平稳动作，全面高效满足您的控制需求。

RHA/RS actuators make use of excellent and mature dynamic load servo deviation control system, multi-collect feedback testing signal, the movement of outshaft is accurate, rapid and smooth, so can meet your control needs roundly and effectively.



→ 速度控制回路: Speed control loop

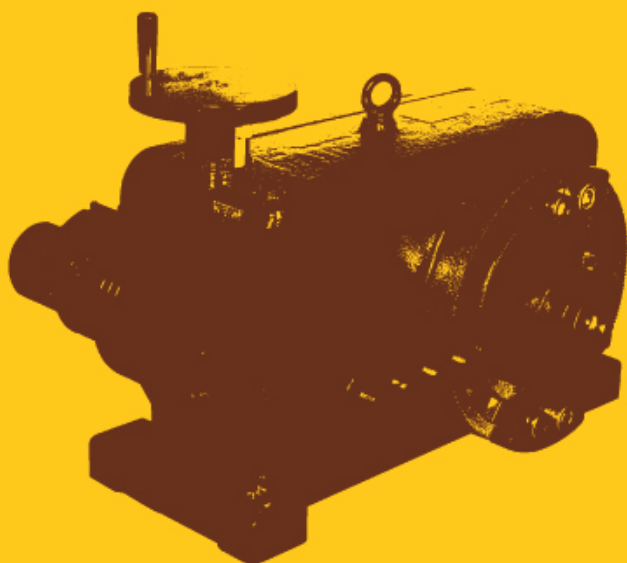
→ 位移和力或力矩控制回路: Displacement and force/torque control loop

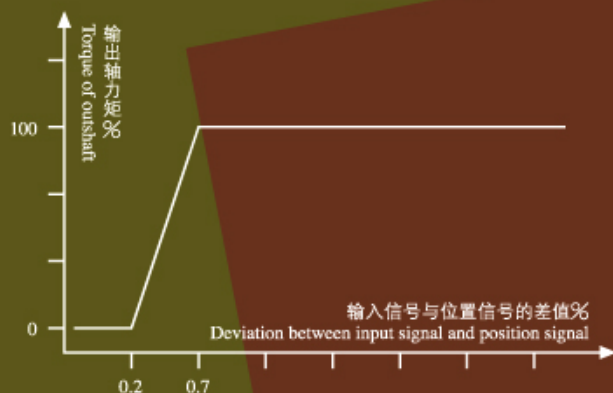
成熟精确的位移和力(或力矩)控制回路

Mature and accurate displacement and force/torque control loop

一旦检测到控制信号变化或因负载抖动引起的位置偏差超过0.2%时，RHA/RS控制回路就能根据偏差的大小，驱动输出轴柔性启动。而在这个偏差值大于0.7%时，其输出力矩将维持以100%的满负荷运行。

When the changing of control signal is tested or position deviation is more than 0.2% because of load dithering, the displacement and force/torque control loop of RHA/RS drive outshaft moving with different torque according to deviation at once, and there is no oscillation and stagnancy during entire moving process. When this deviation is more than 0.7%, it drive outshaft moving with 100% load torque and maintaining.



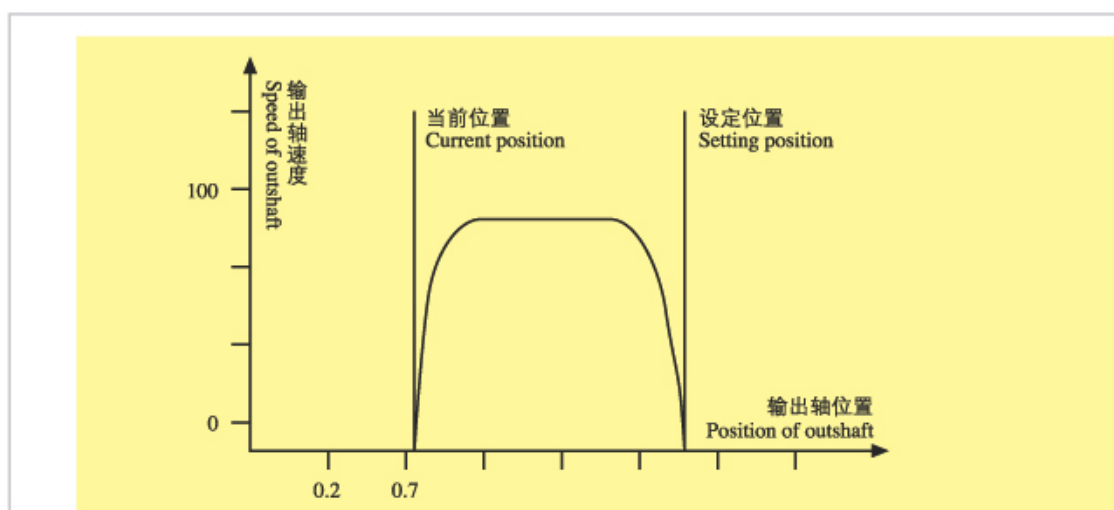


卓越的速度控制回路

Excellent speed control loop

RHA/RS具有良好的速度控制回路，它随时都能比较出当前输出轴反馈信号同控制系统输入信号的差值。当差值小于0.7%时，输出轴的速度同差值的大小成比例变化，而当差值大于0.7%时，输出轴的速度达到最大，而在将要达到设定位置时，差值信号小于0.7%时，输出轴的速度又将逐渐减小。这种先进的控制方式使输出轴的整个动作过程平稳可靠而无过冲现象。

RHA/RS have excellent speed control loop, they can compare the deviation between current position and setting position in your control system at any moment, when the deviation is less than 0.7%, the speed of outshaft is proportional to this deviation, when the deviation is more than 0.7%, the speed of outshaft is most, when will be on the setting position point, because deviation signal is minished, the speed of outshaft will be changed according to deviation again, this advanced control mode can make the entire moving process of outshaft smooth and reliable.



RHA/RS优越的动态负载伺服偏差控制系统，使输出轴的力（或力矩）和速度的控制都能够在系统的调节下，精确快速平稳的实现。

Because RHA/RS have predominant dynamic load servo deviation control system, so the control of force/torque and speed of outshaft can realize accurate, rapid and smooth under the control of system.

Main technical indexes of RHA/RS

RHA/RS 主要技术指标

RHA/RS优越的动态负载伺服偏差控制系统，其技术指标表现得尤其明显：

The predominant dynamic load servo deviation control system of RHA/RS has predominant technical indexes:

基本误差限 Base error limit	$\pm 0.75\%$ F.S
回差 Hysteresis	$\leq 0.25\%$ F.S
死区 Dead band	$\leq 0.2\%$ F.S
阻尼特性 Damping characteristic	无阻尼 No damping
环境温度 Ambient temperature	$-20^{\circ}\text{C} \sim +75^{\circ}\text{C}$
相对湿度 Relative humidity	$\leq 95\%$ (年平均值 annual mean)
防护等级 Degree of protection	IP66
供电电源 Power supply	$(1 \pm \frac{10}{-15}\%) 220\text{V a.c.}$ 单相 Single-phase
输入信号 Input signal	模拟连续信号 $0/4 \sim 20\text{mA d.c.}$ 或开关信号 (24V d.c. 或 220V a.c.) Analogue continuous signal $0/4 \sim 20\text{mA d.c.}$ or on/off signal ($\pm 24\text{V d.c.}$ or 220V a.c.)
反馈输出信号 Feedback output signal	$0/4 \sim 20\text{mA d.c.}$ 模拟信号、四组开关信号 $0/4 \sim 20\text{mA d.c.}$ analogue signal, four groups of on/off signal

采用高可靠性厚膜集成电路制造技术，增强了系统长期运行的稳定性。

Using high reliable HIC manufacture technology, the stability of long-term running of system is enhanced.

采用光电耦合器隔离技术，使系统抗干扰能力大大增强。

Using phototube isolation technology, the interference resistance of system is enhanced greatly.

采用非接触式差动变压器技术，S2位置发送器输出4mA~20mA恒流源位置反馈信号，实时跟踪监控阀位位置，控制精度极高。

S2 position transmitter which using non-contact differential transformer technology output 4mA~20mA constant current position feedback signal, monitor position of valve real time, control precision is very high.

采用电磁隔离控制双向可控硅技术，驱动电机运转，抗干扰能力增强。

Using Triac isolation control technology, drive motor running, the interference resistance is enhanced.

S9(连续运转)工作模式，耐堵转。

S9 (continuous running) operation mode, the motor is "stallproof".

作为整个控制过程大脑的一体化内置式伺服放大器具有先进的输入信号调制、数字逻辑控制技术，能实现位置反馈和电机转速反馈的双回路多参数闭环控制。

Incorporate built-in servo-amplifier which acts as brain of entire control process has advanced technology of input signal modulating and digital logic controlling, can realize double closed loops (position feedback loop and motor rotate speed feedback loop) and multi-parameters control.



RHA/RS的各个零部件的设计、制造，都经过设计师们精心的研究策划。它们为完成您的控制过程彰显优良品质。

Design, manufacture of each part and subassembly of RHA/RS has been studied and planned by engineers as best they may. Their unparalleled characters will be come into view during your control process.

S&F单相伺服电机。其鼠笼式转子具有阻尼特性，使整个速度范围内的功耗近似恒定，电机在启动、运转或堵转时不会产生过热。是世界唯一的抗堵转电机。
电机采用动态平衡控制技术：电磁力矩动态平衡电机，平衡状态时电机两控制绕组带电，产生与负载相抗衡的平衡磁场力，因此当输入电流有微小变化时，能在0.05s内迅速启动。
The S&F single-phase servomotors, its low-inertia squirrel-cage rotor has resistance behavior. Due to this, current consumption of these motors is nearly constant over the entire speed range. This behavior renders possible to operate the motors under starting-up, running even when standing still without occurring of inadmissible heat. It is world unique stallproof motor.
Motor is electromagnetism torque balance motor, its two control windings have current under balance state, so appear balance magnetic force to counteract load. When input current has small change, it can start-up within 0.05s.

安全省力的滑差手轮系统
Secure and laborsaving
handwheel system.

机械限位止挡在360°范围内
任意调整90°转角的位置。
Mechanical limit stop can
adjust 90° position
optionally within 360°
range.

转速传感器是一个直流发电机，其所产生的电压与电机的转速成比例关系，在RHA/RS定位过程中起到动态阻尼作用。
Tachogenerator is a direct current dynamotor; its voltage is proportional to speed of motor, it acts as dynamic damping during positioning process of RHA/RS actuator.

电磁制动器在电源断电时起到保持定位的作用，在三位控制中还起到动态制动的作用。
The electromagnetism brake can hold position in case of power failure, and it also acts as dynamic braking during three-step control.

RHA采用全齿轮传动结构，高精度的硬齿面齿轮，耐磨损，机械效率高。
RS通过滚珠丝杆将旋转转换成直线运动。丝杆上装有保护装置，工作可靠，机械效率为同类产品的2~2.5倍。
RHA/RS采用封闭式油池润滑，摩擦小，可靠性高。
行星差动结构可方便地实现手动与自动切换。
齿轮盘限位档，安全可靠，多种运行速度，满足多种控制系统的需要。
RHA electrical actuators use complete gearing transmission, they are all high precision hard flank gears, against abrasion and have high mechanical efficiency.
RS electrical actuators convert rotary motion into linear motion by ball-bearing screws, there is a protection device against turning on the ball-bearing screws, so it has high stabilization and high reliability, its mechanical efficiency is 2~2.5 times than congener product.
RHA/RS use close oil-lubricate, low friction, high reliability.
Planetary differential gear train can realize MAN/AUTO switching easily.
Toothed disk limit stops are secure and reliable. Multiple-running speeds can meet control requirements of multiple control systems.

RHA/RS箱体采用三防漆（防酸碱，防盐雾，防湿）表面喷漆工艺，即使在极恶劣的环境下，也具有极佳的抗腐蚀性性能。
The housing of RHA/RS has spray-painted three resist paint (resist acid-alkali, salt-mist and humidity), its corrosion resistance is very good even under execrable environment.

型号规格

MODEL AND SPECIFICATION

RHA角行程电动执行机构

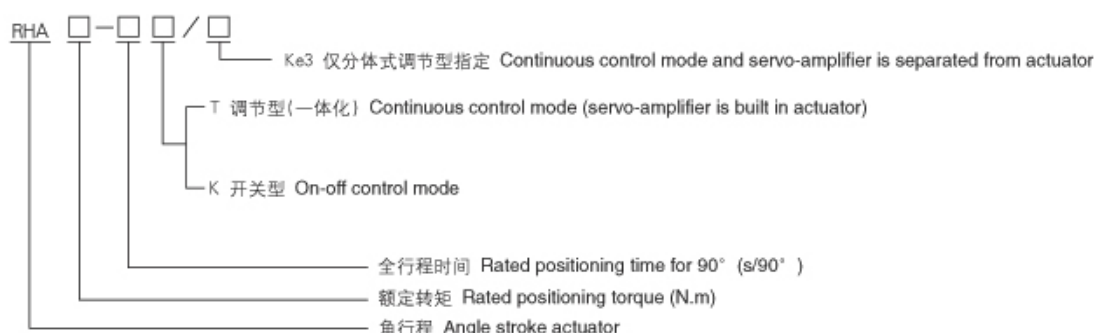
RHA lever actuators

型号规格 Model and Specification	额定转矩(N.m) Rated positioning torque(N.m)	全行程时间(S/90度) Rated positioning time for 90°	停止转矩(N.m) Standstill torque(N.m)	重量(kg) Weight (Kg)	耗用功率(W) Rated power (W)
RHA40—60K	40	60	65	8.3	30
RHA125—40	125	40	180	37	57
RHA250—10	250	10	361	45	150
RHA250—30	250	30	344	39	128
RHA250—80	250	80	368	37	57
RHA500—10	500	10	733	90	325
RHA500—60	500	60	729	78	128
RHA800—15	800	15	1096	90	325
RHA800—35	800	35	1112	82	150
RHA1250—35	1250	35	1700	128	285
RHA1250—60	1250	60	1700	128	285
RHA1800—45	1800	45	2400	128	285
RHA2500—25	2500	25	3400	250	325
RHA2500—45	2500	45	2400	240	325
RHA2500—70	2500	70	3400	240	325
*RHA4000—30	4000	30	5800	270	750
RHA4000—70	4000	70	5750	256	325
*RHA6000—40	6000	40	8500	445	800
*RHA6000—60	6000	60	8500	445	750
*RHA8000—60	8000	60	10400	445	800

注：* 无分体式。No model of RHA□—□□/KE3

RHA电动执行机构的型谱

Specification of RHA lever actuators



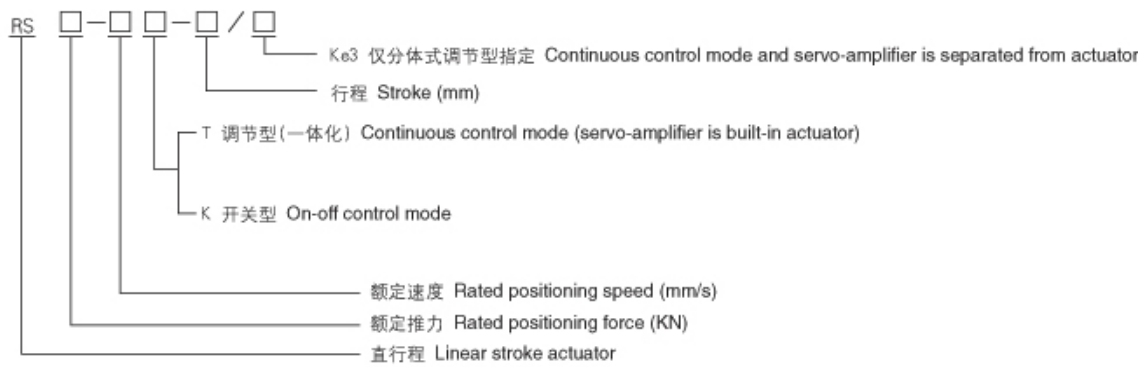
RS直行程电动执行机构

RS linear actuators

型号规格 Model and Specification	额定推力 (KN) Rated positioning force (KN)	额定速度 (mm/s) Rated positioning speed (mm/s)	行程 (mm) Stroke (mm)	重量 (kg) Weight (Kg)	耗用功率 (W) Rated power (W)
RS4-1.0	4	1.0	Min0~15/max0~30 Min0~30/max0~60	14	57
RS10-1.3	10	1.3	Min0~25/max0~50	57	150
RS10-5.0	10	5.0	Min0~50/max0~100	65	285
RS20-1.5	20	1.5	Min0~100/max0~300	61	150
RS20-4.0	20	4.0		69	325
RS50-1.5	50	1.5	Min0~30/max0~60 Min0~60/max0~120 Min0~120/max0~300	130	325

RS电动执行机构的型谱

Specification of RS lever actuators



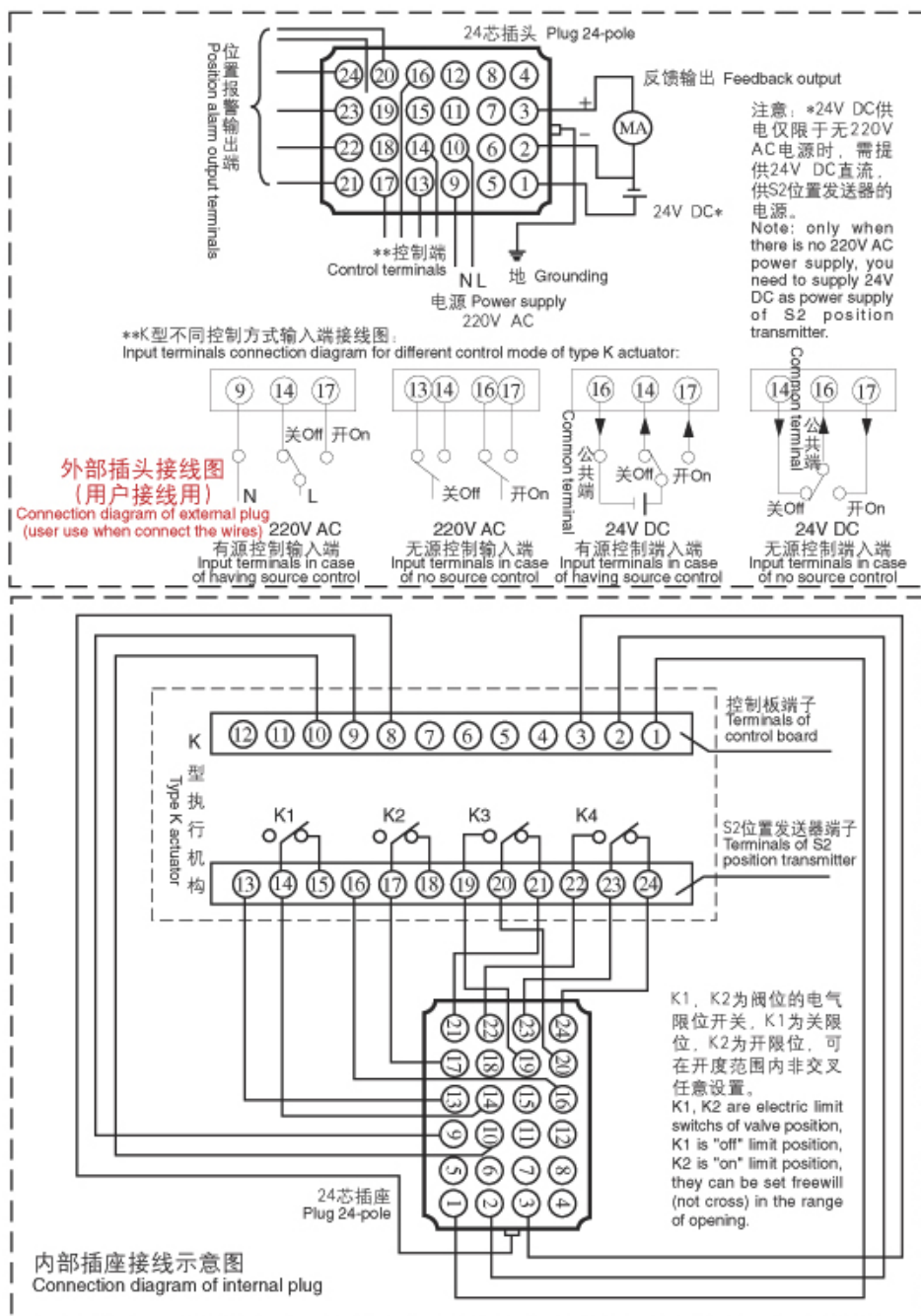


ELECTRICAL CONNECTION FOR ON-OFF CONTROL MODE(K) OF RHA/RS ACTUATOR

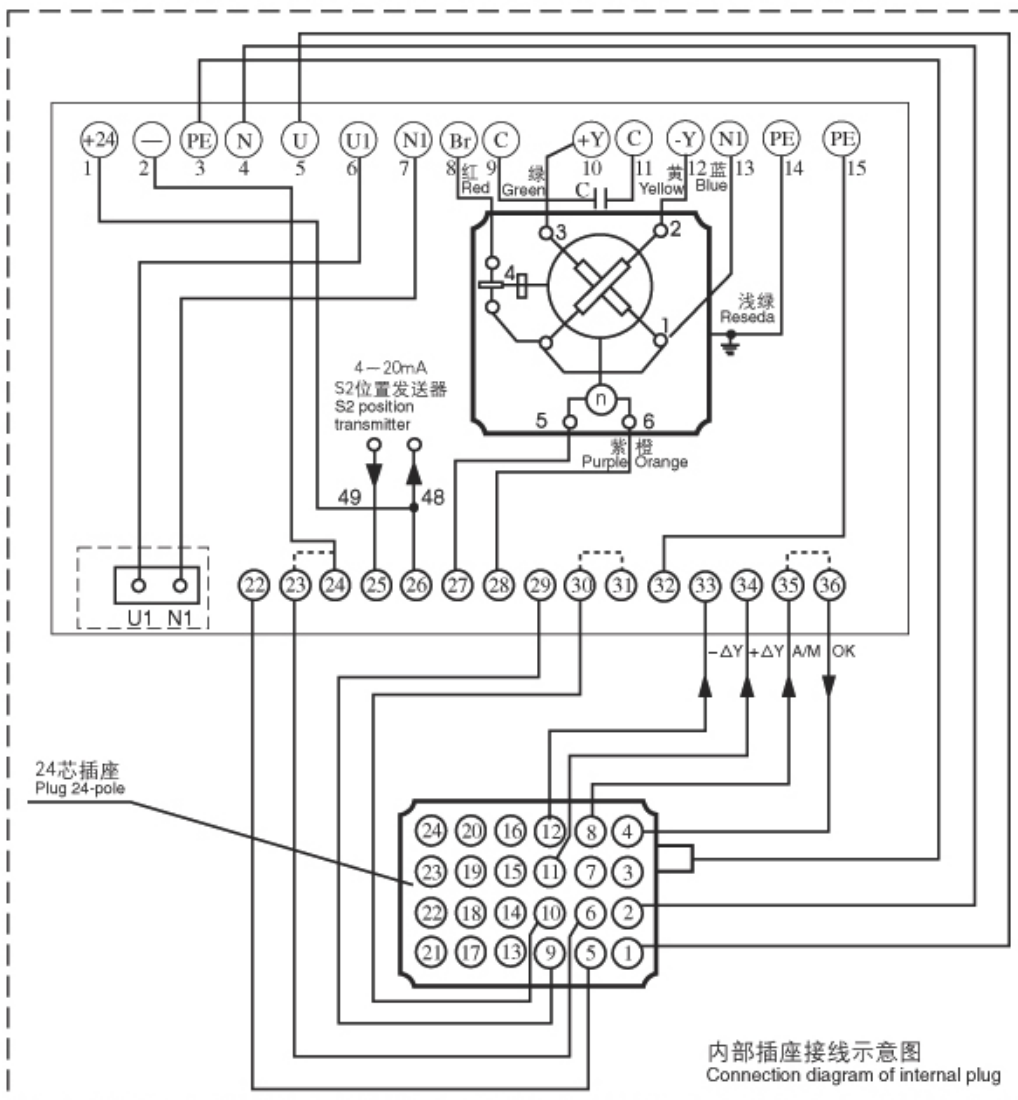
RHA/RS开关型(K) 电动执行机构接线图

(可根据不同控制方式连接不同的输入端子)

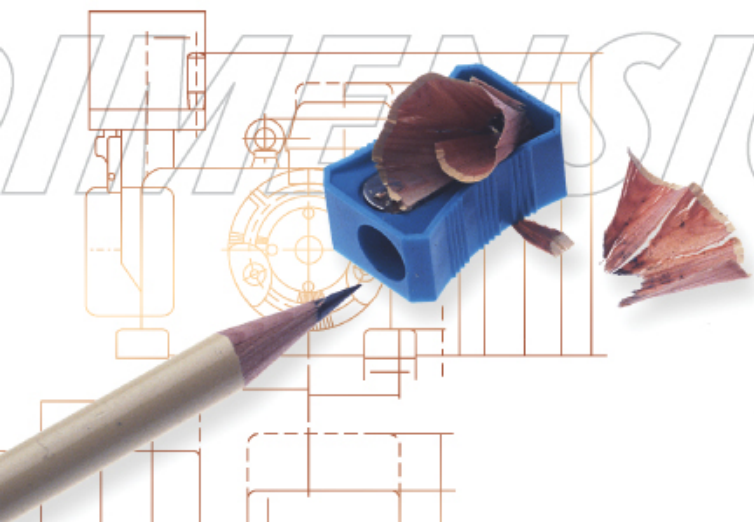
You can connect to different input terminals according to different control mode



机构接线图



DIMENSIONAL



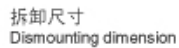
外形

DIMENSIONAL DRAWING

尺寸

DRAWING

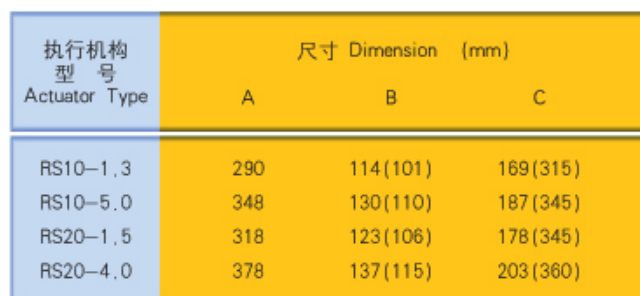


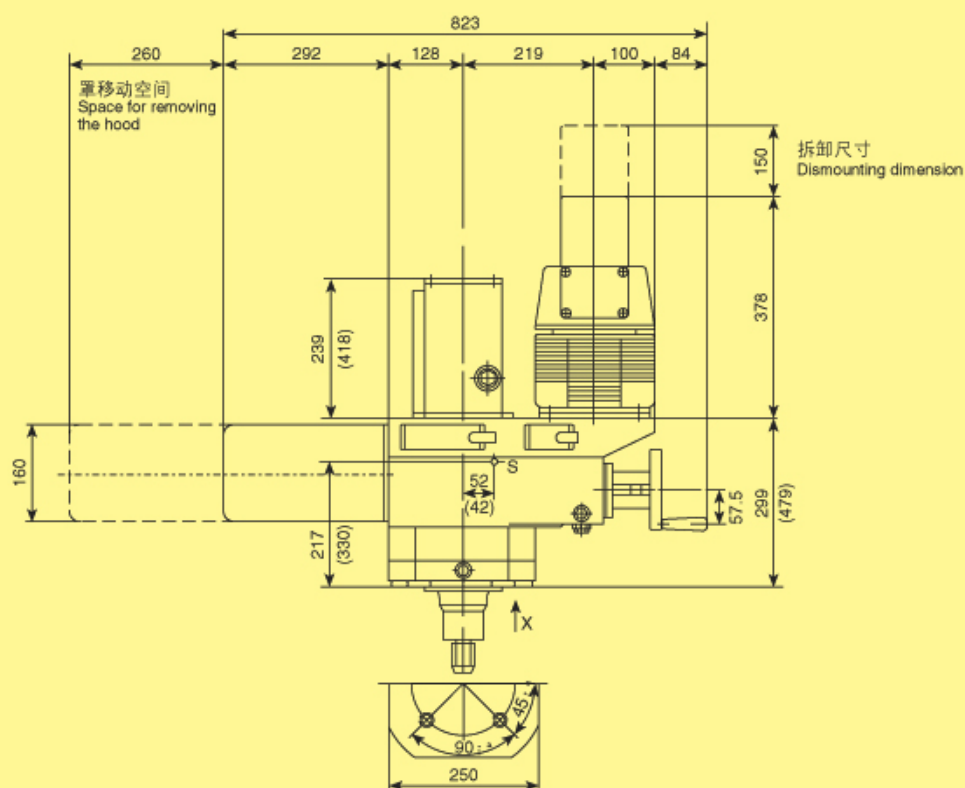


DIMENSIONAL DRAWING



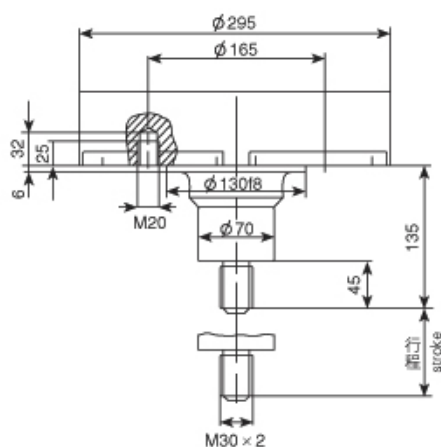
行程 Stroke	范围 Range
30mm	最小0...15mm/最大0...30mm min. 0...15mm/max. 0...30mm
60mm	最小0...30mm/最大0...60mm min. 0...30mm/max. 0...60mm





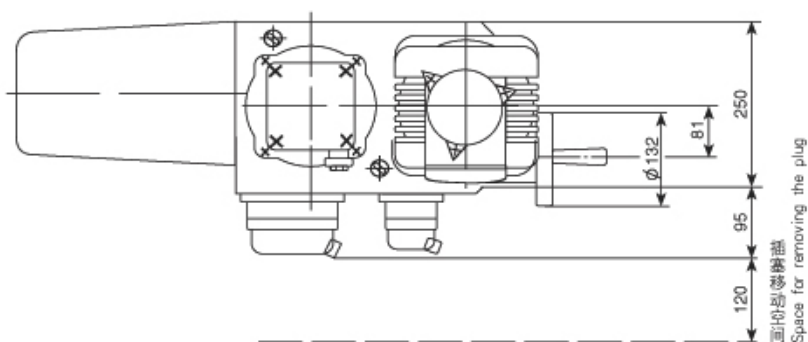
19

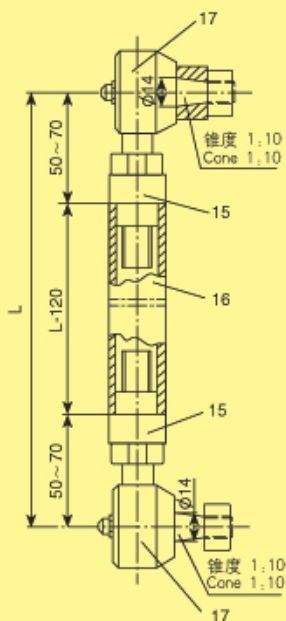
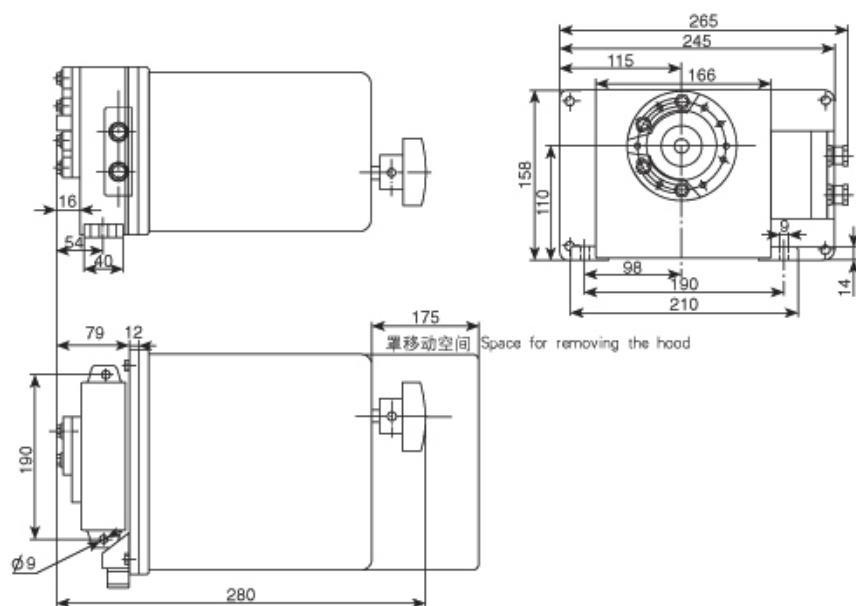
DIMENSIONAL DRAWING



行程 Stroke	范围 Range
60mm	最小0...30mm/最大0...60mm min. 0...30mm/max. 0...60mm
120mm	最小0...60mm/最大0...120mm min. 0...60mm/max. 0...120mm
300mm	最小0...120mm/最大0...300mm min. 0...120mm/max. 0...300mm

注：() 内为300行程的尺寸
Note: () is dimension for 300 stroke





15. 3/4 英寸管道的焊套。

Welding bushes for 3/4" pipe

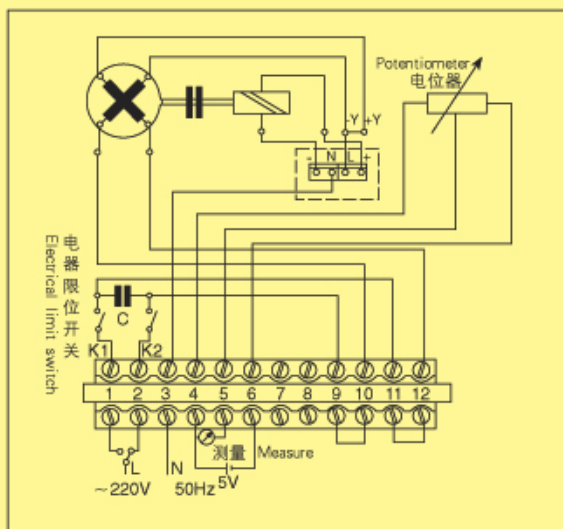
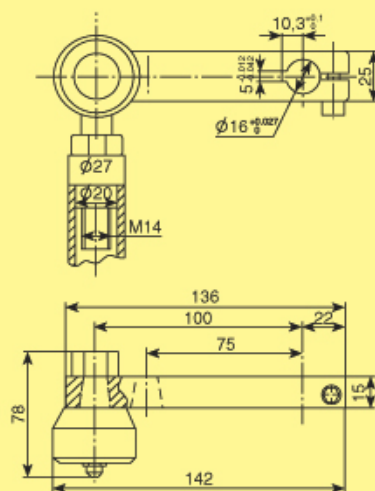
16. 3/4 英寸的空心管具体长度尺寸L根据现场需要定, 连接管外径×壁厚: $\phi 27 \times 3.5$ 。

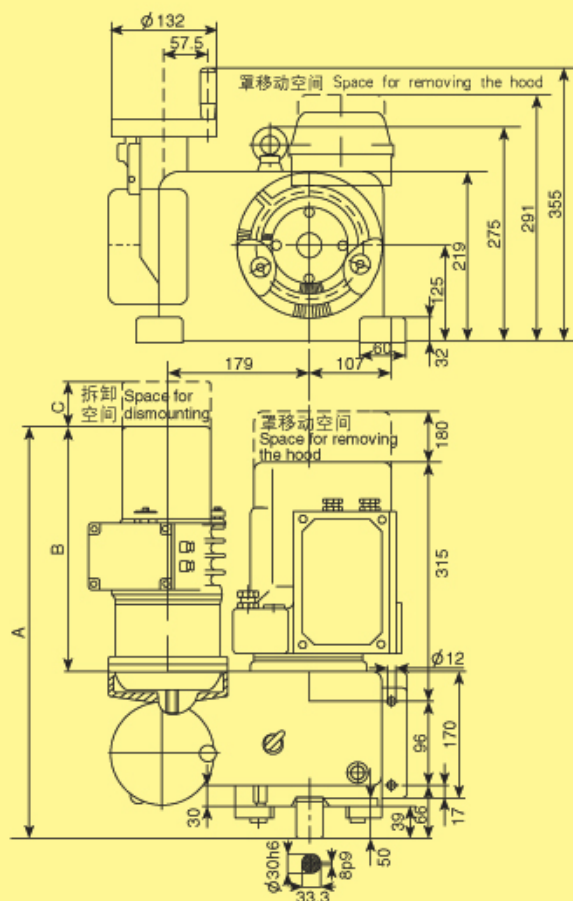
Spacing tube 3/4"; dimension L must be determined on site, outer diameter and thickness of connective pipe is $\phi 27 \times 3.5$.

17. 球形铰链的连接及转角朝执行机构方向最大 3° ，背离执行机构方向最大 10° 。

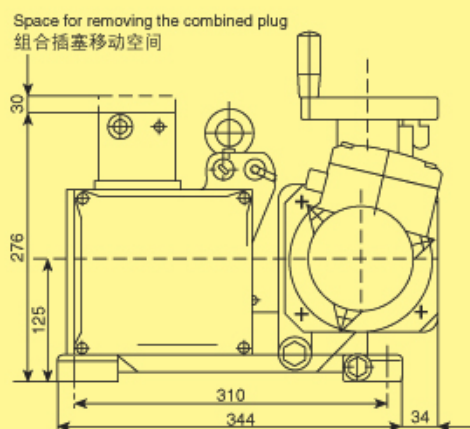
Ball and socket joint, angular deflection:

Pointing towards actuator: max 3°

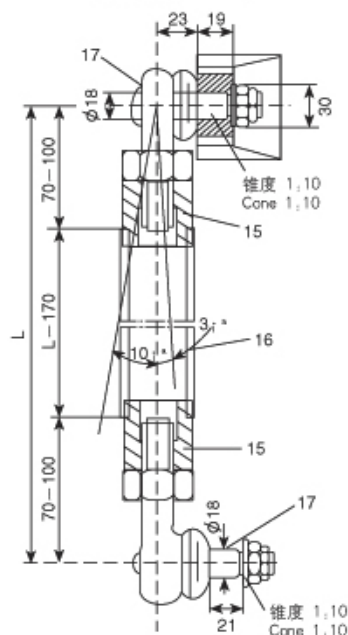




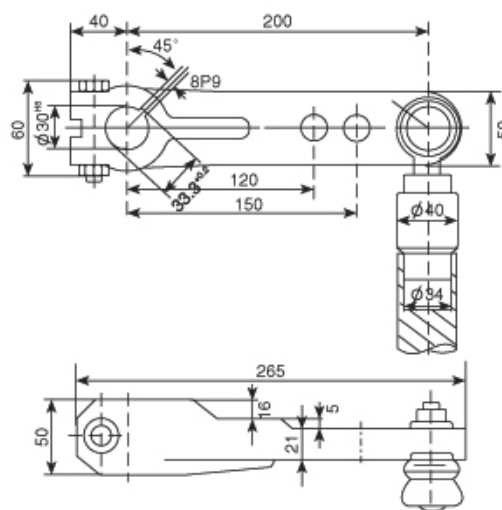
执行机构 型号 Actuator Type	尺寸 Dimension (mm)			重量 (kg) (包括杠杆) Weight (lever incl.)
	A	B	C	
RHA125-40	515	291	120	37
RHA250-10	537	319	120	45
RHA250-30	515	291	120	39
RHA250-80	515	291	120	37



驱动杠杆 Driving lever



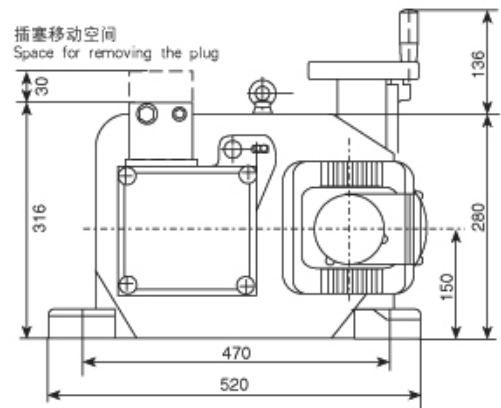
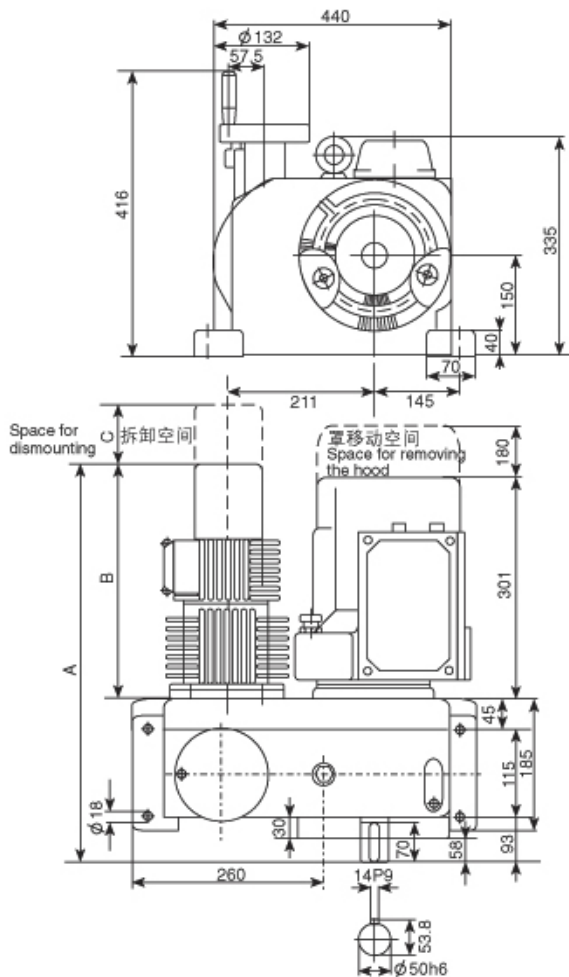
15. 1 1/4 英寸管道的焊套。
Welding bushes for 1 1/4" pipe
16. 1 1/4 英寸的空心管具体长度尺寸 L 根据现场需要定, 连接管外径 × 壁厚: φ40 × 3 或 φ42 × 4。
Spacing tube 1 1/4"; dimension L must be determined on site, outer diameter and thickness of connective pipe is φ40 × 3 or φ42 × 4.
17. 球形铰链的连接及转角朝执行机构方向最大 3°, 背离执行机构方向最大 10°。
Ball and socket joint, angular deflection:
Pointing towards actuator: max 3°
Pointing away from actuator: max 10°



DIMENSIONAL DRAWING

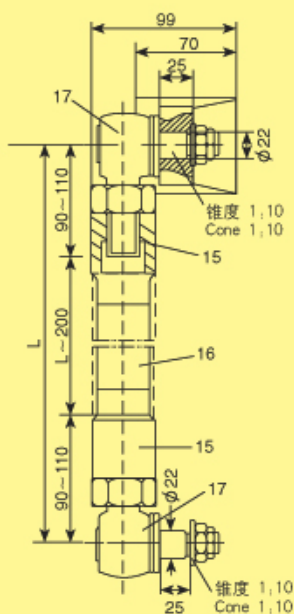


RHA500 RHA800



执行机构 型号 Actuator Type	尺寸 Dimension (mm)			重量 (kg) (包括杠杆) Weight (lever incl.)
	A	B	C	
RHA500-10	635	378	120	90
RHA500-60	576	319	120	78
RHA800-15	635	378	120	90
RHA800-35	576	319	120	82

驱动杠杆 Driving lever



15. 1 1/4 英寸管道的焊套。

Welding bushes for 1 1/4" pipe

16. 1 1/4 英寸的空心管具体长度尺寸 L 根据现场需要定, 连接管外径 × 壁厚: $\phi 40 \times 3$ 或 $\phi 42 \times 4$ 。

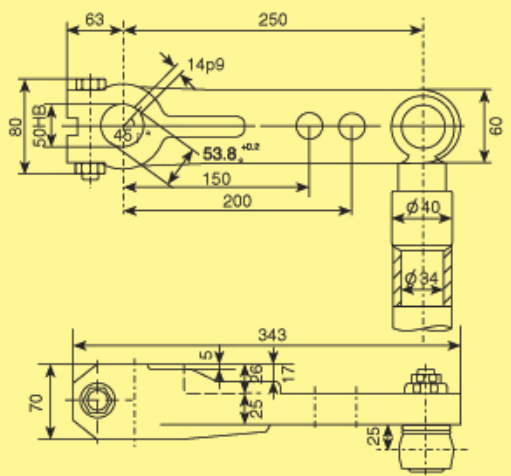
Spacing tube 1 1/4"; dimension L must be determined on site, outer diameter and thickness of connective pipe is $\phi 40 \times 3$ or $\phi 42 \times 4$ 。

17. 球形铰链的连接及转角朝执行机构方向最大 3°。背离执行机构方向最大 10°。

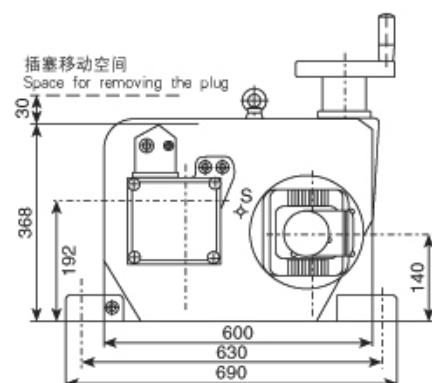
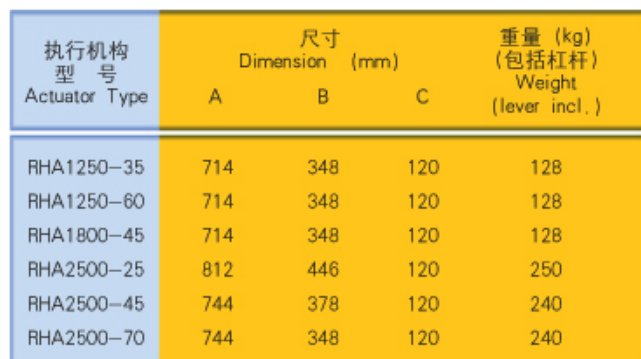
Ball and socket joint, angular deflection:

Pointing towards actuator: max 3°

Pointing away from actuator: max 10°

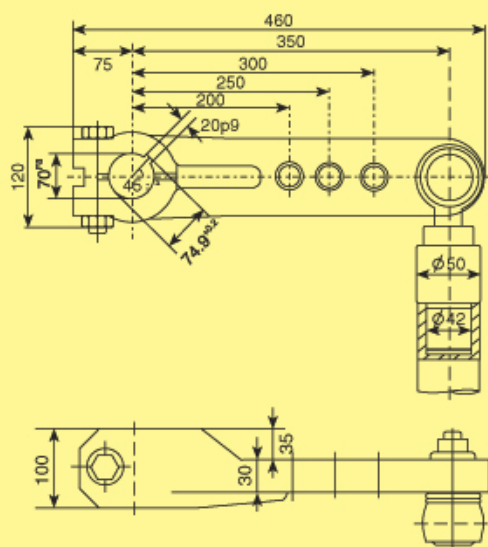


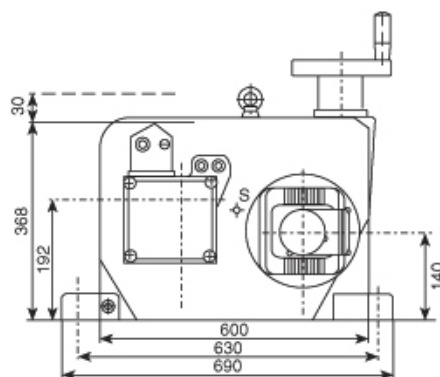
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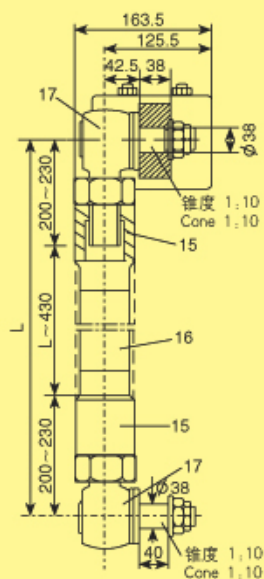
Technical drawing of a mechanical assembly (Fig. 1) showing a side view and a cross-section. The side view shows a shaft with a central section of length $L-300$ and two end sections of length $135-165$. The shaft has a diameter of 10 mm in the central section and 16 mm in the end sections. The end sections are secured with nuts and washers. The cross-section shows a shaft with a diameter of 26 mm and a conical part with a $1:10$ taper. The total length of the assembly is 120 mm, with a central section of 100 mm and end sections of 30 mm each. The drawing is labeled with dimensions and part numbers 15, 16, 17, and 18.

15. $1\frac{1}{2}$ 英寸管道的焊套。
Welding bushes for $1\frac{1}{2}$ " pipe
16. $1\frac{1}{2}$ 英寸的空心管具体长度尺寸 L 根据现场需要定, 连接管外径 $\times$ 壁厚: $\phi 50 \times 4$ 。
Spacing tube $1\frac{1}{2}$ "; dimension L must be determined on site, outer diameter and thickness of connective pipe is $\phi 50 \times 4$ 。
17. 球形铰链的连接及转角朝执行机构方向最大 3° , 背离执行机构方向最大 10° 。
Ball and socket joint, angular deflection: Pointing towards actuator: max 3°
Pointing away from actuator: max 10°





执行机构 型 号 Actuator Type	尺寸 Dimension (mm)			重量 (kg) (包括杠杆) Weight (lever incl.)
	A	B	C	
RHA4000—30	875	446	65	270
RHA4000—70	808	378	120	256



15. 2英寸管道的焊套。

Welding bushes for 2" pipe

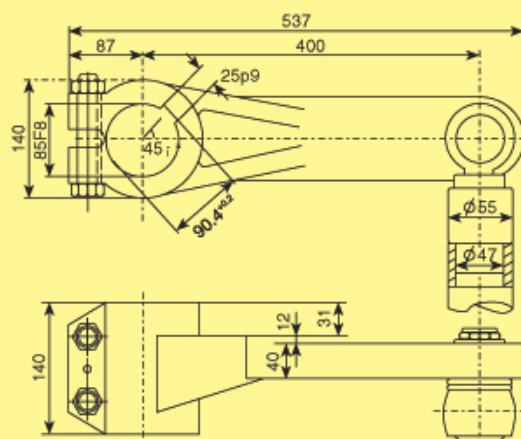
16. 2英寸的空心管具体长度尺寸L根据现场需要定。连接管外径×壁厚： $\phi 56 \times 4$ 或 $\phi 56 \times 4.5$ 。

Spacing tube 2"; dimension L must be determined on site, outer diameter and thickness of connective pipe is $\phi 56 \times 4$ or $\phi 56 \times 4.5$.

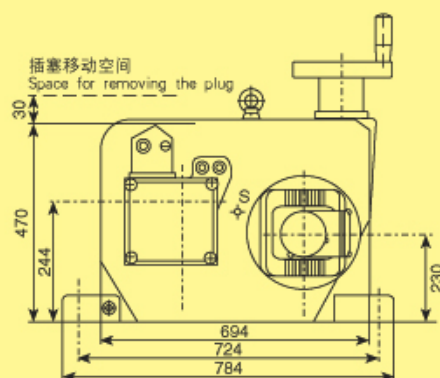
17. 球形铰链的连接及转角朝执行机构方向最大 3° ，背离执行机构方向最大 10° 。

Ball and socket joint, angular deflection:
 Rotating towards actuator: max 2°

Pointing towards actuator: max 3°
Pointing away from actuator: max 10°



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执行机构 型 号 Actuator Type	尺寸 Dimension (mm)			重量 (kg) (包括杠杆) Weight (lever incl.)
	A	B	C	
RHA6000-40	1000	446	120	445
RHA6000-60	1000	446	120	445
RHA8000-60	1000	446	120	445

[illegible]

15. 2英寸管道的焊套。
Welding bushes for 2" pipe
16. 2英寸的空心管具体长度尺寸L根据现场需要定。连接管外径×壁厚：φ56×4或φ56×4.5。
Spacing tube 2"; dimension L must be determined on site, outer diameter and thickness of connective pipe is φ56×4 or φ56×4.5.
17. 球形铰链的连接及转角朝执行机构方向最大3°，背离执行机构方向最大10°。
Ball and socket joint, angular deflection: Pointing towards actuator: max 3°
Pointing away from actuator: max 10°

