TANA®

WENZHOU TOPNOTCH MACHINE CO.,LTD.

Add:Heyi Industrial Zone, Oubei Town,Yongjia,Wenzhou,Zhejiang,China 325105
Tel:+86-577-67318591
Fax:+86-577-67328591
Mobile:+86-18906638592
E-mail:market@tanamachine.com
Website:www.tanamachine.com

为了产品的进步和发展，我公司保留对产品外形和尺寸的修改权
In order to improve and develop the product, our company reserves the right to revise outline and dimensions.

TANA®

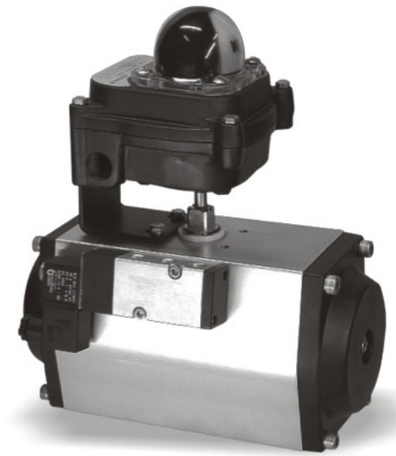
WENZHOU TOPNOTCH MACHINE CO.,LTD.

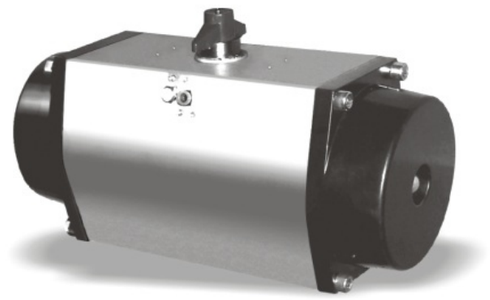
阀门气动执行器

VALVES PNEUMATIC ACTUATOR

双作用式GTD　　单作用式GTE

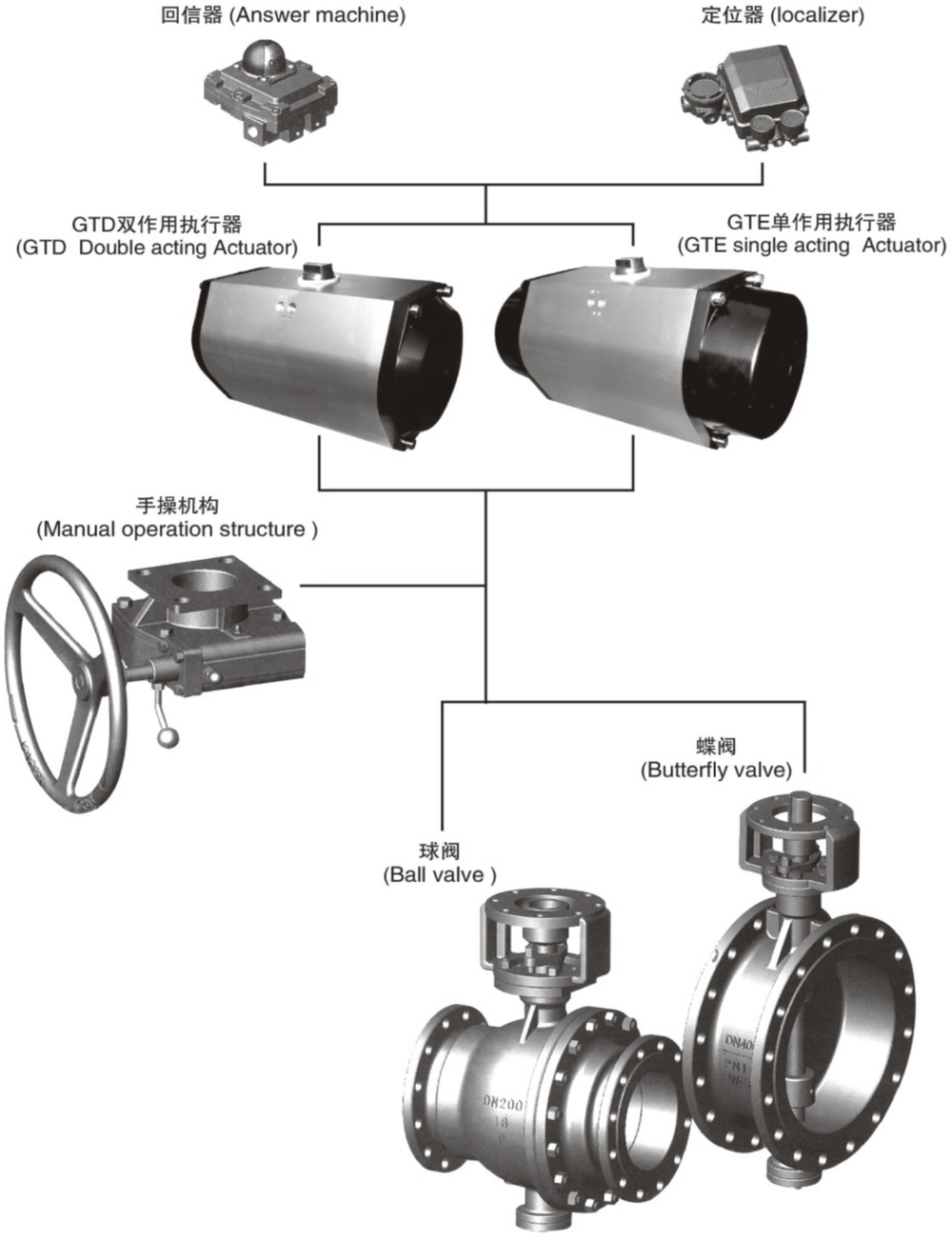
DOUBLE ACTING OR SPRING RETURN





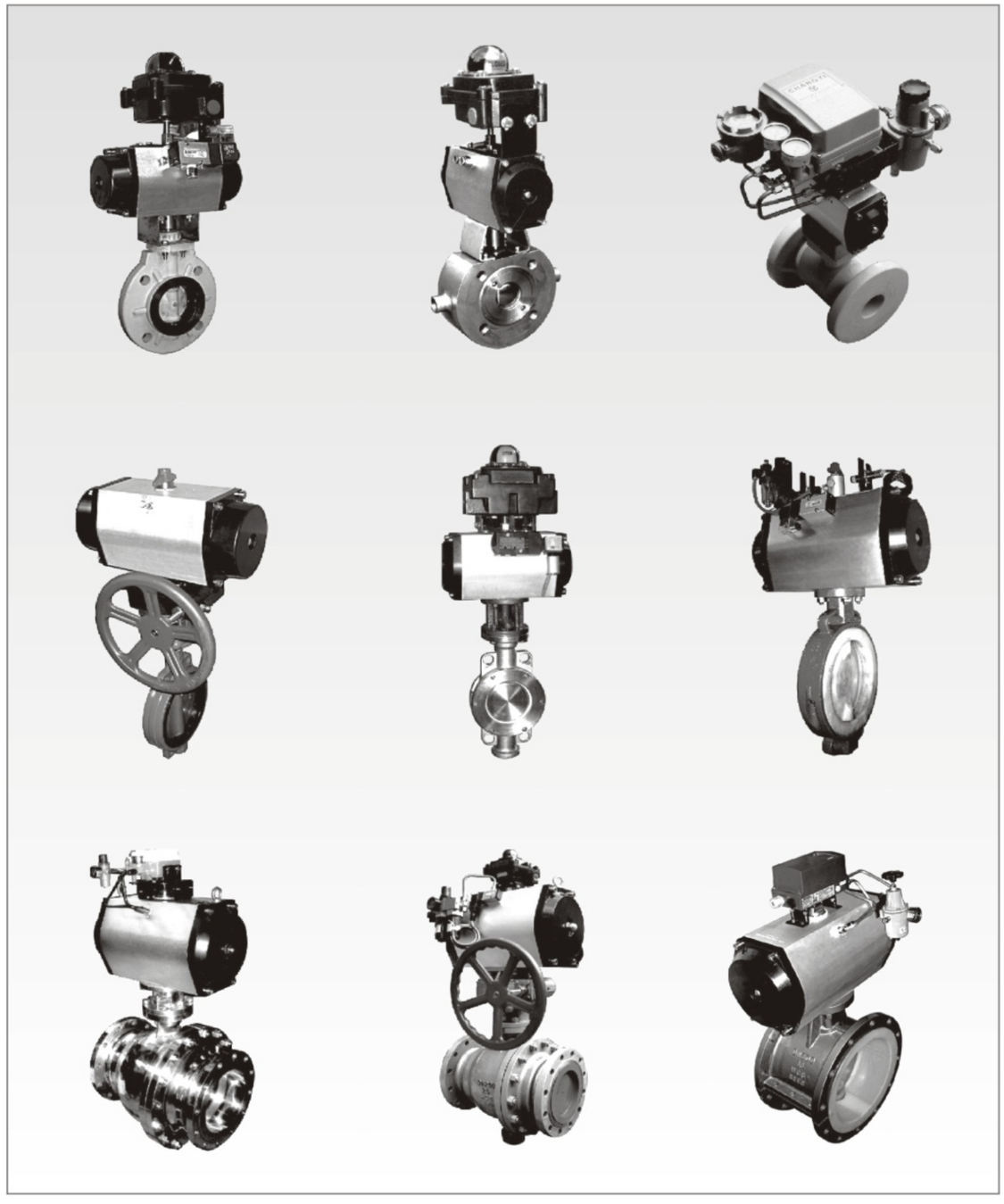
WENZHOU TOPNOTCH MACHINE CO.,LTD.

图 形 Sample

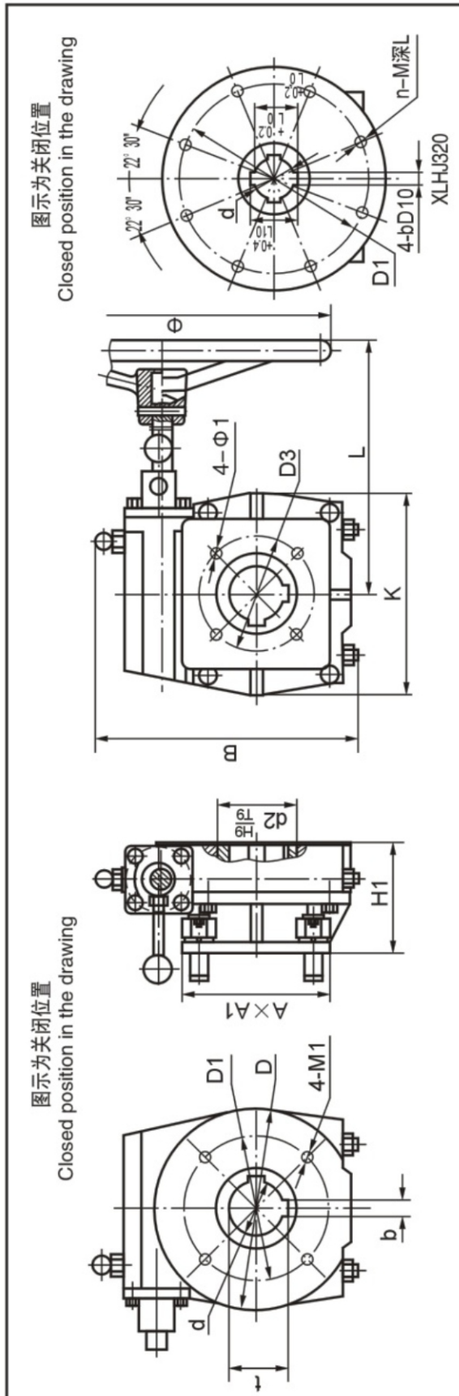


TANA®
WENZHOU TOPNOTCH MACHINE CO.,LTD.
valve pneumatic actuator

图 形 Sample



外形及连接尺寸图 Appearance and connection size chart



型号 size	蜗轮孔参数 Worm gear hole parameter					壳体与阀连接尺寸 Connection size for shell and valve		支架面连接尺寸(与气缸) Connection size of bracket area (to cylinder)			气缸方孔 Cylinder square hole HXH	气缸型号 cylinder size	L	B	K
	d	b	f	d2	D	D1	4-M1	AXA1	D3	4-Φ1					
XLHJ26	22.2	8	25.5	36	90	70	4-M8	64X64	70	4-9	17X17	63-83	192	166	104
XLHJ38	22.2	8	25.5	45	125	70	4-M8	100X100	102	4-12	17X17	83-160	195	191	125
XLHJ38	32	10	35.3	45	125	102	4-M10	100X100	102	4-12	22X22	83-160	195	191	125
XLHJ38	38	10	41.3	60	125	102	4-M10	110X110	125	4-14	27X27	83-160	195	191	125
XLHJ54	36	10	39.3	70	175	125	4-M12	110X110	125	4-14	27X27	160-120	233	234	175
XLHJ54	48	14	51.8	70	175	140	4-M16	130X130	140	4-18	36X36	160-120	233	234	175
XLHJ80A	48	14	51.8	85	210	140	4-M16	156X135	140	4-18	36X36	210-254	277	311	234
XLHJ80A	60	18	64.4	85	210	165	4-M20	156X156	165	4-22	46X46	210-254	277	311	234
XLHJ78	76.2	20	81.1	110		165	4-M20	162X162	165	4-22		210-254	323	350	276
XLHJ320	75.0	20	79.9	120	300	254	8-M16x25	Φ300	254	8-18		280-HAW28	463	435	300

手轮 handwheel Φ
200
250
250
250
300
300
400
400
600
500

主要特点 Main characteristics

1、相同规格有双作用式、单作用式(弹簧复位)。
2、标准旋转轴角度可调节-5° ~+5° 范围。
3、所有滑动部件采用塑料轴承衬套、导向，保持最小摩擦力，并有效地抵抗磨损。
4、外壳表面阳极化电镀，防腐蚀保护；旋转轴镀硬质镍磷合金；螺丝、螺母为不锈钢。
5、单作用式弹簧预装在弹簧座内，很容易装配或增补弹簧数量。
6、连接、安装接口标准化模块设计，方便配装球阀、蝶阀、信号盒及控制附件。
7、可选择旋转方向顺时针旋转或逆时针旋转；两端调节螺丝可调节小于标定角度调整。
8、特殊的腐蚀环境可采用不锈钢外壳(请于我们联系)。

1 .For the same specification, there are double acting and single acting actuators (spring restore).
2.The angle of the rotary axis can be adjusted within the range of-5° ~+5° .
3.Plastic bearing bushing and pilot are adopted in all sliding parts, which can obtain minimum fraction and have a good effect on abrasion resistant.
4.The cover surface is anodized to protect it from corrosion, the rotary axis is hard nickel phosphorus plated; and the screws and nuts are stainless steel.
5.The single acting spring is prefixed in the spring holder, and it is easy to fix or add new springs.
6.The installation and connection interface is designed of normalized modular structure, which makes it easy to install ball valve, butterfly valve, signal block and control accessories.
7.The rotating direction can be in clockwise or counter clockwise alternatively, and the adjusting screw on either side can adjust the angle to be smaller than the standard.
8.In special corrosive environment, a stainless steel cover can be used. (Please contact us)

	标准参数 Standard Parameters	特殊参数 Special Parameters
基本设计 Basic design	气动双活塞执行器。 Pneumatic double piston actuator 型号GTD=双作用式。 Type GTD=double acting 型号CTE=单作用式(有弹簧返回)。 Type GTE=single acting	三个位置执行器有两个特殊活塞。 Three position actuators and two special pistons.
制造特点 Manufacture Characteristics	超宽面齿条(活塞)小齿轮传动技术。 活塞及齿轮和壳体接触面有低磨擦材料制成的滑动轴承衬套、导向。 单作用式有保险弹簧座。 Super broad rack(piston) with small gear drive The contact surface of piston and gear with the cover is made of sliding bearing liner and pilot of small abrasion material. The single acting actuator has safety spring holder.	
采用标准 Standard adopted	执行器与阀门连接： 四个或八个螺栓孔符合标准DIN/IS0 5211，轴装配孔符合标准DIN 3337。 执行器与控制阀连接： GTD/GTE100+350符合标准NAMUR或VDI/VDE 3845， GTD/GTE040+090通过转接板连接。执行器与信号盒连接，符合VDI/VDE 3845 Connection between actuator and valve: Four or eight fbolts meets standard DIN/ISO5211, and the axis fitting hole meets standard DIN3337 Connection between actuatorfand control vavle: GTD/GTE 100+350 meets standard NAMUR or VDI/VDE 3845 GTD/GTE040+090 is connected by connection plate Connection between actuator and signal-block: Meets VDI/VDE 3845	可供选择的装配轴孔有多种形状尺寸选择。 With many optional fitting axis hole of different shapes and sizes.
零件材料 Component Material	壳体：铝合金表面阳极化处理。 Cover: anodized alum alloy 端盖：铝合金表面喷塑处理。 Terminal cover: plastic sprayed alum alloy 活塞/齿条：铝合金。 Piston/rack: alum alloy 密封O型圈：丁晴橡胶=NBR70。 O gasket: nitrile-rubber 轴承垫圈/导环：塑料。 Bearing washer/pilot ring: plastic	可外壳与端盖：喷塑处理。 特殊放腐蚀环境：可选不锈钢材料(请与我们联系) O型圈：氟橡胶 Cover and terminal caover: plastic svraved Special corrosive environment: optional stainless steel (Please contact us) O gasket: fluorine rubber
工作环境温度 Operation ambient temperature	-20 ~ 80℃	-40 ~ +160℃
回转角度 Rotating angle	双作用式=90° Double acting=90° 单作用式=90° Single acting=90° 标准执行器旋转轴角度从两端可调节-4° ~+4° 。 Rotary axis angle of the actuator can be adjusted -4° ~+4° from either side	根据需要选择顺时针方向旋转或逆时针方向旋转。 三个位置执行器有0—45—90° ，0—60—120° ，0—90—180° ，0—120—240° 。 Select the rotary direction of clockwise or counter clockwise, the three position actuator has 0-45-90° 0-60-120° , 0-90-180°
输出扭矩 Output torque	3 ~ 9000Nm	
空气压力 Air pressure	2 ~ 8bar，最大10bar。 2~8bar, max 10bar	
附 件 Accessories	电磁阀、电气定位器、限位开关(有机械式、接近式)、气源处理三联件(有减压器、过滤器、油雾器)、手操机构。 Solenoid vavlc, electrical locator, spacing switch (mechanical and proximity switch), three fittings for air source treatment(pressure reducer, filter, oil mister) and manual manipulation mechanism.	调节角度和两位切断联锁装置。 Adjustment angle and two-position cut-off interlock

工作原理 Operation principle

双作用式 Double acting

压缩空气从气口(B)进入气缸两活塞(c)之间中腔时，使两活塞分离向气缸两端方向移动，两端气腔的空气通过气口(A)排出，同时使两活塞(C)的齿条同步带动输出轴(D)(齿轮)逆时针方向旋转90度。可以从两端调整微量角度，松动螺母(E)用内六角扳子拧动调节螺栓(F)调整所需角度，锁紧螺母(E)。反之压缩空气则从气口(A)进入气缸两端气腔时，使两活塞向气缸中间方向移动，中间气腔的空气通过气门(B)排出，同时使两活塞(C)的齿条同步带动输出轴(D)(齿轮)顺时针方向旋转90度。

When compressed air goes into the middle cavity, which is between the two pistons in the cylinder through port (B), it separates the pistons and make it move towards either end, while the air in air cavity on either end will be released from port (A), and at the same time, the racks of two pistons simultaneously drive the output axis (D) (gear) to rotate counter–clockwise of 90° . The micro–angle can be adjusted from either end by loosing the nut (E) and screw the adjusting bolt (F)by a socket screw wrench, and then tighten the nut. Contrarily, when compressed air goes into the air cavity on either end of the cyclinder through port (A), the two pistons will move towards the center of the cyclinder, and the air in the middle cavity willbe released from the port (B), and at the same time, the racks of two pistons syncronously drive the output axis (D) (gear) to rotate clockwise of 90° .

单作用式(弹簧复位) Single acting(spring restore)

压缩空气从气口(B)进入气缸两活塞(c)之间中腔时,使两活塞分离向气缸两端方向移动,迫使两端的弹簧压缩,两端气腔的空气通过气口(A)排出,同时使两活塞(c)的齿条同步带动输出轴(D)(齿轮)逆时针方向旋转90度。在压缩空经过电磁阀换向后,气缸的两活塞在弹簧的弹力下向中间方向移动，中间气腔的空气从气口(B)排出,同时使两活塞(C)的齿条同步带动输出轴(D)(齿轮)顺时针方向旋转90度,可以从两端调整微量角度,松动螺母(E)用内六角扳手拧动调节螺栓(F)调整所需角度,锁紧螺母(E)。

When compressed air goes into the middle cavity, which is between the two pistons in the cylinder through port (B), it separates the pistons and make it move towards either end, thus make the spring compressed, while the air in air cavity on either end will be released from port (A), and at the same time, the racks of two pistons simultaneously drive the output axis (D) (gear) to rotate counter–clockwise of 90~ After the compressed air is reversed by the solenoid valve, the two pistons in the cylinder will move towards the center by the elastic force of the spring, the air in the middle cavity will be released from the port (B), and at the same time, the racks of two pistons simultaneously drive the output axis (D) (gear) to rotate clockwise of 90~ . The micro–angle can be adjusted from either end by loosing the nut (E) and screw the adjusting bolt (F)by a socket screw wrench, and then tighten the nut.

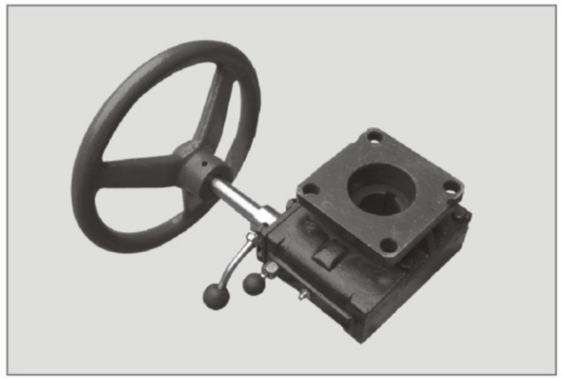
装配型式(选择交货状态) Assembly forms (optional delivery form)

基本位置 Basic position 从顶部透视旋转轴及活塞位置 look through the position of rotary axis and piston from the top	底部装配轴孔 botton fitting hole	轴旋转方向 俯视顶部槽位置 axis rotating direction overlook the position of the top slot	开关位置 从顶部透视旋转轴及活塞位置 position of the switch look through the position of rotary axis and piston from the top	底部装配轴孔 botton fitting hole	编号 serial number
	P			P	A
	D			D	B
	O			O	C
	P			P	D
	D			D	E
	O			O	F
	P			P	G
	D			D	H
	O			O	I
	P			P	K
	D			D	L
	O			O	M

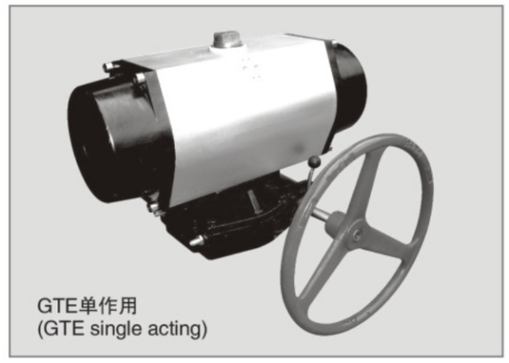
TANA®
WENZHOU TOPNOTCH MACHINE CO.,LTD.
valve pneumatic actuator

XLHJ系列离合式手动机构 XLHJ series clutch type manual mechanism

离合式手动机构
Clutch type manual mechanism



GTD双作用
(GTD Double acting)



GTE单作用
(GTE single acting)

手动机构 Manual mechanism

手动机构与气动执行器的组合装置，用于角行程0–90度开启的阀门，气源正常情况下，用气动驱动阀门，气源压力暂停，需要阀门开启时，启用手动机构进行人工驱动。

Manual mechanism combined with air actuator,suitable for the valves angle 0–90° ,on the condition of common air source,when air powered,pressure temperatorily stopped.It need manual mechanism to start before opening the valve.

手动机构的操纵方法 Operation working method

启用手动机构时，提起限位销，逆时针将手柄旋转180° 至上部，限位销自动限位，实现手驱动，反之，实现气驱动。

手驱动时，顺时针转动手轮，阀门开启，反之，阀门关闭。

Before starting the manual mechanism,pull the spacer pin,turn the handle 180° up to top anti–clockwise,the pin will automatically spaced so as to realize the manual operation.Whereas,air opeartion.

When manual operated,turn handwheel clockwise,the valve will open.Whereas,valve closed.

手动机构的注意事项 Manual mechanism instructions

1、人工手驱动与气压驱动不得同时使用，否则，会导致驱动装置损坏。

2、手驱动机构只能在气源压力停止状态下使用。

3、使用或恢复气动驱动前，必须检查手动机构是否处于气动驱动状态，即手柄处在下方位置。

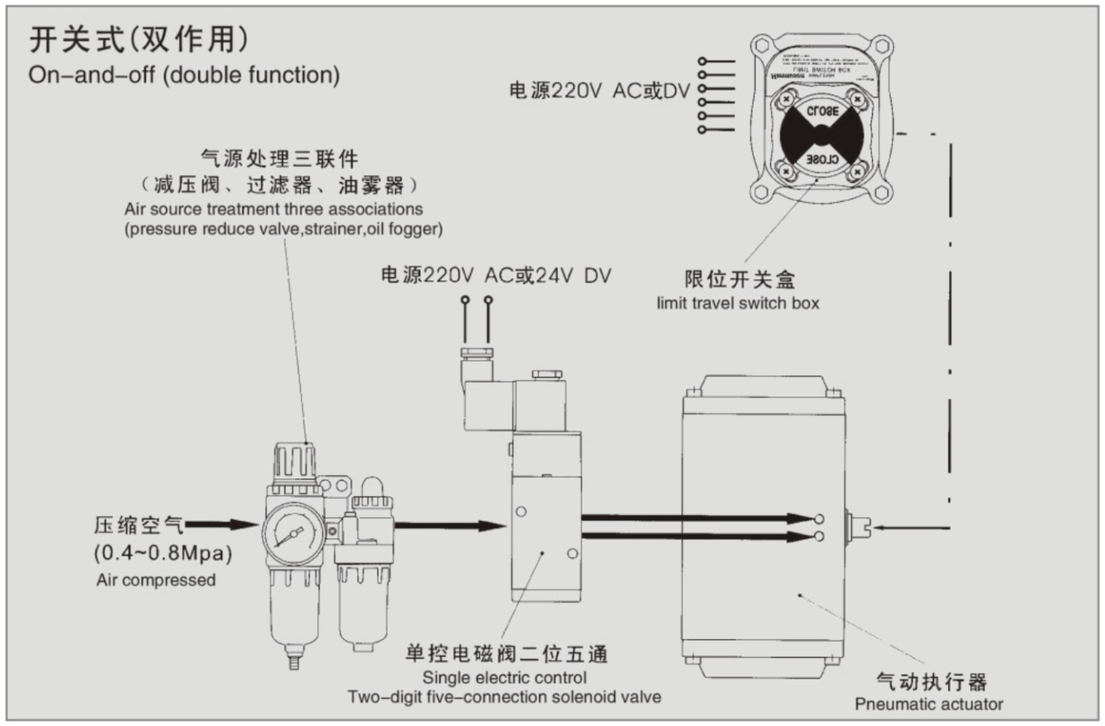
1. Manual operation cannot together work with air operation at the same time.Otherwise, the operating system will be broken.

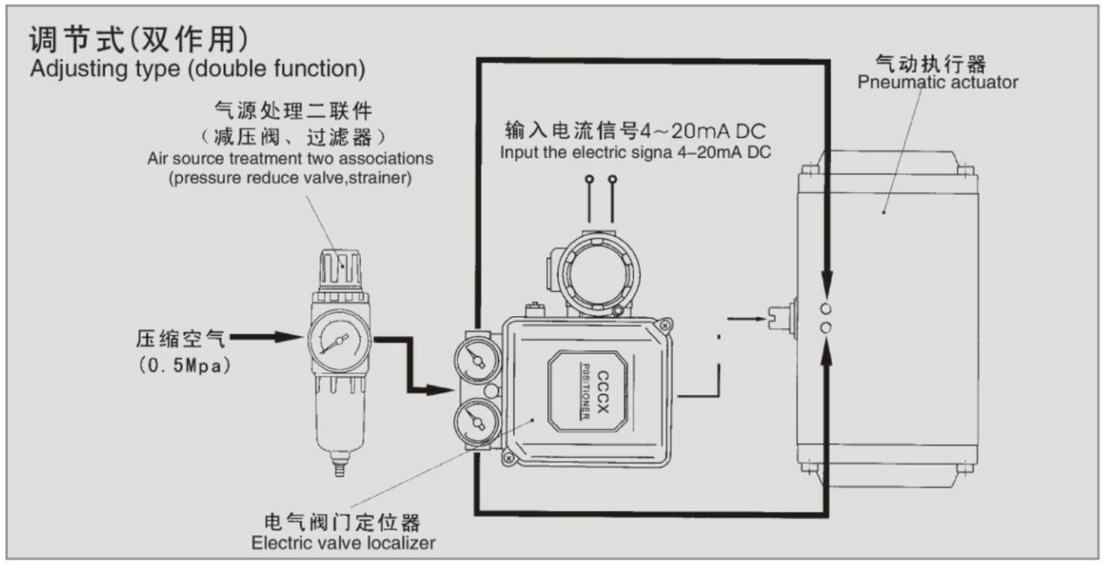
2.Only the air source pressure stopped,the manual operation can be used.

3.Before use or recover air operation,the manual operation should be checked if air operated,ie.if the handle situated beneath.

GT执行器标准附件 GT Actuator accessories

控制系统接线图 Control system wire map





TANA®
WENZHOU TOPNOTCH MACHINE CO.,LTD.
valve pneumatic actuator

执行器的选用 Funcion of the actuator

双作用式GTD Double acting GTD

使用双作用式执行器，先确定阀门的扭矩，水蒸气或非润滑的介质增加25%安全值；非润滑的干气介质增加60%安全值；非润滑用气体输送的颗粒粉料介质增加100%安全值；对于清洁、无摩擦的润滑介质增加20%安全值，然后根据气源工作压力，查找双作用式扭矩表，可得到准确的GTD型号，例如：气源压力只有5bar，控制一个需要扭矩200N.m球阀，介质为非润滑的水蒸气，考虑到安全因素，增加25%等于250N.m，首先按表查找气源压力5bar，然后沿该列垂直查找等于或相近的扭矩数据，选294.8N.m，再沿该行向左查找其型号，选择GTD127型。

Before using double acting actuator, you should first set the torque of the valve, vapor or non–lubricatng medium should increase 25% safety value, non–lubricating dry gas medium should increase 60% safety value, non–lubricating gas delivered powder and grain should increase 100% safety value. The clean and non–abrasion lubricaing medium should increase 20% safety value, ans then look up the table of double acting torque according to operation pressure of air source so that you can get an accurate GTD code. For example, the air source is only 5bar, then you should look up along the line for the same or approximate torque data, which is 272N.m, and then look for the code from right to left and choose GTD 125.

单作用式(弹簧复位)GTE GTE single acting (spring restore)

使用单作用式执行器，先确定阀门的扭矩，水蒸气或非润滑的介质增加25%安全值；非润滑的干气介质增加60%安全值；非润滑用气体输送的颗粒粉料介质增加100%安全值；对于清洁、无摩擦的润滑介质增加20%安全值，然后查找单作用式扭矩表，先查得弹簧复位终点，再查气源工作压力终点，气源压力扭矩应该大于弹簧复位扭矩，可得到准确的GTE型号，例如：气源压力只有4bar，控制一个需要扭矩100N.m蝶阀，介质为非润滑的干燥气体，考虑到安全因素，增加60%等于160N.m，首先按表查找弹簧复位终点得到相近扭矩266N.m，然后沿该行向左查找气源压力4bar的终点扭矩221.2N.m，说明气源压力扭矩大于弹簧复位扭矩，再沿该行向左查找其型号，选择GTE190型。

Before using single acting actuator, you should first set the torque of the valve, vapor or non–lubricatng medium should increase 25% safety value, non–lubricating dry gas medium should increase 60% safety value, non–lubricating gas delivered powder and grain should increase 100% safety value. The clean and non–abrasion lubricaing medium should increase 20% safety value, ans then look up the table of single acting torque, you should first get the finishing point of the spring restored, and them get the finishing point of the air source pressure. Air source pressure should be larger than spring restored torque, and then you can get an accurateGTE code. For example, the air source is only 4bar, and controls a butterfly valve that needs a 100N.m torque, then you should look up along the line to the left for ending point torque of 196N.m of this air source pressure and the air source pressure is larger than the spring restores torque, and later, you should look for the code to left and choose GTE 160.

GTD双作用式输出扭矩表 Table of GTD double acting output torque

单位 Unit：N.m

型号 Code	空气压力(MPa) Pressure of air source						
	0.2	0.3	0.4	0.5	0.6	0.7	0.8
GTD40	2.7	5.6	7.4	9.3	11.2	13.0	14.9
GTD52	8.2	12.4	16.5	20.6	24.7	28.8	32.9
GTD63	14.5	21.8	29.0	36.3	43.5	50.8	58.0
GTD83	29.4	44.1	58.8	73.4	88.0	102.8	117.5
GTD110	73.7	147.5	184.3	221.2	258.1	294.9	153.6
GTD127	117.9	176.9	235.8	294.8	353.7	412.7	471.6
GTD160	233.9	350.9	467.8	584.8	701.8	818.7	935.7
GTD190	384.8	577.3	569.7	962.1	1154.5	1346.9	1539.3
GTD210	626.8	705.2	940.2	1175.3	1410.4	1645.4	1880.5
GTD250	801.1	1272.3	1743.6	2214.8	2686.0	3157.3	3628.5
GTD280	1130.0	1794.6	2459.3	3124.0	3788.6	4453.3	5118.0
GTD300	1441.3	2289.1	3136.9	3984.7	4832.5	5086.3	6528.1
GTD350	2239.8	3359.7	4479.6	5599.5	6194.4	7839.3	8959.2

执行器的重量/容量/开或闭的时间 Weight/capacity/time of open or close

单位 Unit：N.m

双作用 Double acting	容量L Capcacity L	重量kg Weight KG	单作用 Single acting	容量L Capcacity L	重量kg Weight KG	开或闭时间S S time of open or close
GTD40	0.12	0.50	GTE40			≤0.5
GTD52	0.23	0.80	GTE52	0.15		≤0.5
GTD63	0.46	1.35	GTE63	0.39	1.55	≤0.5
GTD83	0.85	2.53	GTE83	0.74	2.98	≤1.0
GTD110	2.30	4.95	GTE110	1.55	5.94	≤1.0
GTD127	3.33	8.85	GTE127	3.10	10.55	≤2.0
GTD160	6.10	16.10	GTE160	6.50	30.00	≤2.5
GTD190	11.0	26.00	GTE190	5.90	41.60	≤3.5
GTD210	15.4	31.20	GTE210	18.00	52.80	≤4.0
GTD250	31.1	72.0	GTE250	21.40	86.50	≤7.0
GTD280	36.0	82.0	GTE280	25.00	100.00	≤7.5
GTD300	45.9	92.0	GTE300	30.00	153.00	≤10.0
GTD350	68.5	113.0	GTE350		222.00	≤10.0

GTE单作用式输出扭矩表 Table of GTE single acting output torque

单位 Unit：N.m

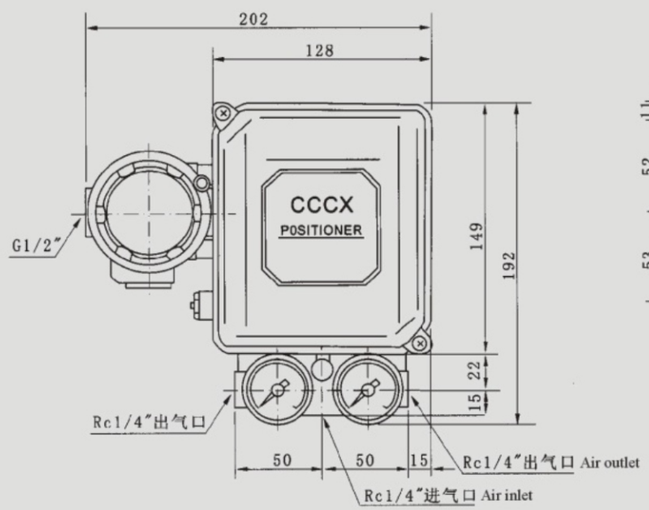
型号 Code	弹簧数量 Number of spring	空气压力(MPa) Pressure of air source												弹簧复位 Spring restore	
		0.3		0.4		0.5		0.6		0.7		0.8			
		开始 Starting point	终点 Ending point	开始 Starting point	终点 Ending point	开始 Starting point	终点 Ending point	开始 Starting point	终点 Ending point	开始 Starting point	终点 Ending point	开始 Starting point	终点 Ending point	开始 Starting point	终点 Ending point
GTE52	8														
	10														
	12														
GTE63	8	13.9	5.8	21.2	12.2	28.5	19.5	35.7	26.7	43.0	34.0	50.2	41.2	16.8	7.9
	10			19.2	8.0	26.5	15.3	33.7	22.5	41.0	29.8	48.2	37.0	21.0	9.8
	12			17.2	3.8	24.5	11.1	31.7	18.3	39.0	25.6	46.2	32.8	25.2	11.8
GTE83	8	24.2	6.0	38.9	20.0	53.5	35.3	68.1	59.9	82.9	64.7	97.6	79.4	38.1	19.9
	10			33.9	11.2	48.5	25.8	63.1	40.4	77.9	55.2	92.6	69.9	47.6	24.9
	12					43.5	16.3	58.1	30.9	72.9	45.7	87.6	60.4	57.1	29.9
GTE110	8	62.6	8.2	99.5	45.1	136.4	82.0	173.2	118.8	210.1	155.7	247.0	192.6	102.4	48.0
	10			87.5	19.5	124.4	56.4	161.2	93.2	198.1	130.1	235.0	167.0	128.0	60.0
	12					112.4	30.8	149.2	67.6	186.1	104.5	223.0	141.4	153.6	72.0
GTE127	8	100.1	17.5	159.0	76.5	218.0	135.5	276.9	194.3	335.9	253.3	394.8	312.2	159.3	76.8
	10			139.8	36.6	198.8	95.7	257.7	154.5	316.7	213.5	375.6	272.4	199.2	96.0
	12					179.6	55.9	238.5	114.7	297.5	173.7	356.4	232.6	239.0	115.2
GTE160	8	204.7	65.5	321.7	182.5	438.7	299.5	555.7	416.5	672.7	533.5	789.7	650.5	285.6	146.4
	10			285.1	111.1	402.1	228.1	519.1	345.1	636.4	462.1	753.1	579.1	357.0	183.0
	12			248.5	39.7	365.5	156.7	482.5	273.7	599.5	390.7	716.5	507.7	428.4	219.6
GTE190	8	311.5	28.7	504.0	221.2	696.5	413.7	889.0	606.2	1081.5	798.7	991.2	1274.0	548.8	266.0
	10			437.5	84.0	630.0	276.5	822.5	469.0	1015.0	661.5	924.7	1136.8	686.0	332.5
	12					563.5	193.2	756.0	331.8	948.5	524.3	858.2	999.6	823.2	399.0
GTE210	8	344.0	5.2	579.0	240.2	814.1	475.3	1049.2	710.4	1284.2	945.4	1519.3	1180.5	700.0	361.2
	10			488.7	65.2	723.8	300.3	958.9	535.4	1193.9	770.4	1429.0	1005.5	875.0	451.5
	12					633.5	125.3	868.6	360.4	1103.6	595.4	1338.7	830.5	1050	541.8
GTE250	8			1113.8	514.8	1585.0	986.0	2056.2	1457.2	2524.5	1928.5	2998.7	2399.7	1228.8	629.8
	10			956.4	207.6	1427.6	678.8	1898.8	1150.0	2367.1	1621.3	2841.3	2092.5	1536.0	787.2
	12					1207.2	371.6	1741.4	842.8	2212.7	1314.1	2683.9	1785.3	1843.2	944.6
GTE280	8			1463	515.3	2017.0	964	2681.6	1628.6	3346.3	2293.3	4221.6	2747.4	1728.0	885.6
	10			1352.3	299.3	1906.3	748.0	2570.9	1412.6	3235.6	2077.3	4005.6	2636.7	2160.0	1107.0
	12					1795.6	532.0	2460.2	1196.6	3124.9	1861.3	3789.6	2526.0	2592.0	1328.4
GTE300	8			1917.7	883.3	2765.5	1731.1	3613.3	2578.9	3867.1	2832.8	5308.9	4274.5	2253.6	1219.2
	10			1612.9	319.9	2460.7	1167.3	3308.5	2015.5	3562.3	2269.4	5004.1	3711.1	2817.0	1524.0
	12					2155.9	604.3	3003.7	1452.1	3257.5	1706.4	4699.3	3147.7	3380.4	1828.8
GTE350	8			2924.4	1316.4	4044.3	2436.3	5164.2	3556.2	6284.1	4676.1	7404.0	5796.0	3163.2	1555.2
	10			2535.6	525.6	3655.6	1645.5	4775.4	2765.4	5859.3	3885.3	7015.2	5005.2	3954.0	1944.0
	12					3266.7	854.7	4386.6	1974.6	5506.5	3094.5	6626.4	4214.4	4744.8	2332.8

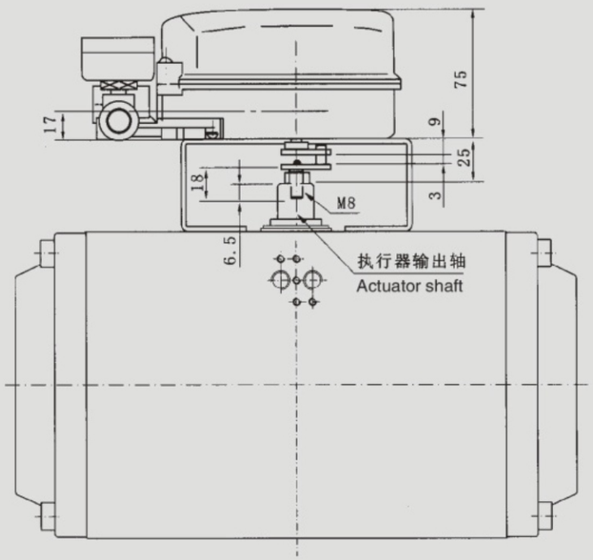
TANA®
WENZHOU TOPNOTCH MACHINE CO.,LTD.
valve pneumatic actuator

GT执行器标准附件 GT Actuator accessories

电气阀门定位器 Electric valve localizer

外形尺寸 Outside dimension





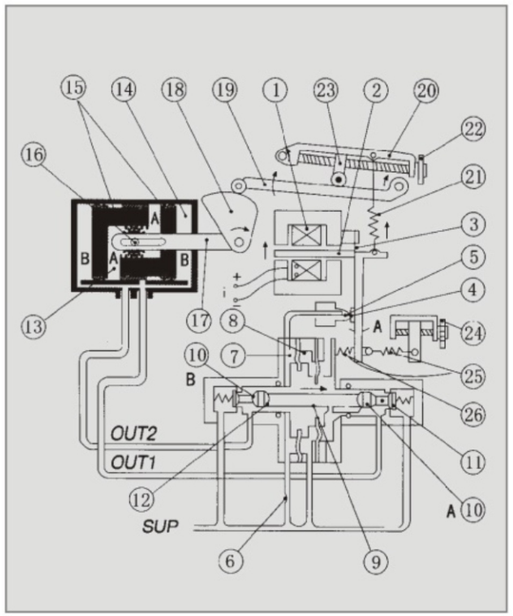
GT执行器标准附件 GT Actuator accessories

电气阀门定位器 Electric valve localizer

双作用式 Double action type

来自气源SUP的一部分压力空气经过固定节流口(6)进入喷嘴的背压室(7)，并通过喷嘴(5)与挡板(4)的间隙排出。力矩马达的线圈(1)得到电信号(i)后，在磁场作用下衔铁(2)以支点板弹簧(3)为中心。按图中A所示方向回转，使挡板(4)与喷嘴(5)的间隙减小、喷嘴的背压随之升高，控制阀的阀蕊(9)由供气压力室(8)的作用下向右移动。阀孔A(10)的气门(11)及阀孔B(10)阀的气门(12)被打开，即压力空气通过气管OUT1进入气缸的A室(13)气缸B室(14)的空气通过气管OUT2向外排气，此时由于气缸活塞(15)向两端方向移动通过齿条带动输出轴旋转，输出轴的旋转运动带动反馈连杆(17)与凸轮(18)并带动凸轮随动杆(19)及反馈弹簧连杆(20)，增加了反馈弹簧(21)的张力。使挡板(4)与喷嘴(5)之间的间隙增大。在反馈弹簧(21)的张力与输入电信号(i)对衔铁的吸力达到平衡之前，活塞是运动的，输出轴的位移与输入信号成正比。另外，旋钮(22)可调节滑块(23)的行程，旋钮(24)可调节调零弹簧(25)的张力。而且改换负载弹簧(26)可获得相应的弹簧特性系数，以适应各种容量的定位器。

上述为活塞向两端方向移动工作状态，如进出气管位置互换或将凸轮反装，即呈向中间方向移动工作状态。

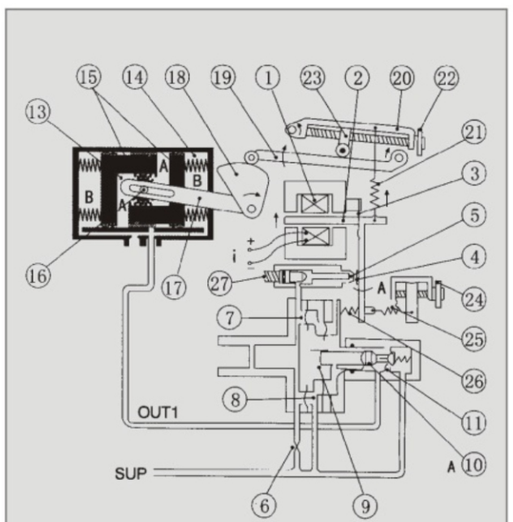


The pressure air sourced from SUP will enter into the backpressure room (7)through fixed throttle (6), and discharged from the clearance between nozzle(5)and baffle (4). After the loop (1)of moment motor received electric signal (i), the gag bit (2) will take the spring (3)of point plate as center. Rotary according to the direction showed in the diagram A to make the clearance between nozzle(5)and baffle (4) reduce, the back pressure of nozzle will be increased, the pistil of valve (9) of control valve will move right under the action of air supplying pressure room (8). The valve(11)of hole A (10) and valve(12)of hole B (10) will be opened, the pressure air will enter into A room of cylinder through OUT1, the air of B room(14) of cylinder will be discharged through pipe OUT2. At this time for the piston (15) of cylinder will move to the direction of two end and drive the output axle revolve through rack, the revolving action of output axle will drive the feedback connecting rod (17) and cam (18), at the mean while drive the cam accessory pole (19) and feedback spring connecting rod (20) increase the tension of feedback spring (21). Make the clearance between nozzle(5)and baffle (4)increase. Before the tension of feedback spring(21) and suction of input signal (i) to gag bit reach balance, the piston is running, the displacement of output axle is form direct ratio to input signal. In addition, the button (22) can adjust the journey of slide block (23), the button (24) can adjust the tension of zero spring(25). Replace the loading spring (26) can gain correspond special modulus of spring so as to applied to localizers with various volume.

Above all is the work state of piston move to directions of both ends, if the location of input and output is replaced or the cam is converted, it will move to middle direction.

单作用式 Single action type

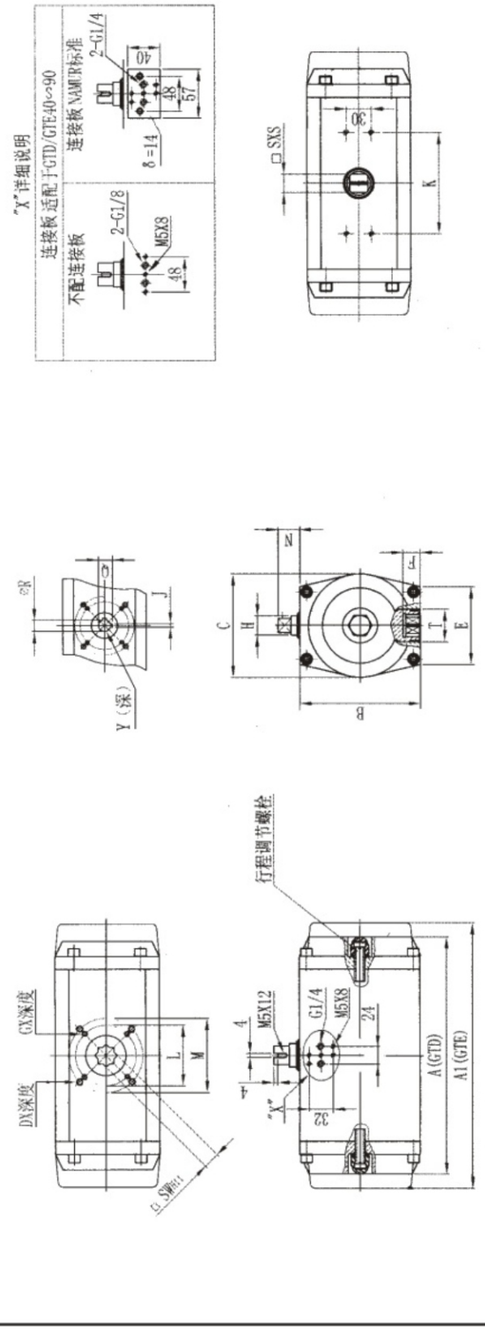
来自气源SUP的一部分压力空气经过固定节流口(6)进入喷嘴的背压室(7)，并通过喷嘴(5)与挡板(4)间隙排出。力矩马达线圈(1)得到电信号(i)后，在磁场作用下衔铁(2)以支点板弹簧(3)为中心按图中A所示方向回转，使得挡板(4)与喷嘴(5)的间隙减小，喷嘴的背压随之升高，控制阀阀蕊(9)在供气压力室(8)的作用下向右移动，阀孔A(10)的气门(11)被打开而气门(12)被关闭，与气管OUTl连通的气缸(13)内的气压增加，活塞(15)向两端方向移动弹簧(14)被逐渐压缩通过齿条带动输出轴旋转，该输出轴(16)的旋转通过反馈杆(17)， 凸轮(18)， 凸轮随动杆(19)，反馈弹簧连杆(20)使反馈弹簧(21)的张力增加，挡板与喷嘴的间隙增大。输出轴(16)的位置在与输入信号达到平衡前输出轴是运动的。另外，旋钮(24)可调节调零弹簧(25)的张力。若将A-M手动自动转换器(27)置于全封闭状态时，喷嘴背压室(7)内的压力就上升，供气阀(11)呈全开状态，气源压力就直接经气管OUT1，进入气缸(13)，即换负载弹簧(26)获得相应的弹簧特性系数，以适应各种容量的定位器。上述为活塞向两端方向移动工作状态，如进出气管互换将凸轮翻面安装， 即呈向中间方向移动工作状态。



The pressure air sourced from SUP will enter into the backpressure room (7)through fixed throttle (6), and discharged from the clearance between nozzle(5)and baffle (4). After the loop (1)of moment motor received electric signal (i), the gag bit (2) will take the spring (3)of point plate as center. Rotary according to the direction showed in the diagram A to make the clearance between nozzle(5)and baffle (4) reduce, the back pressure of nozzle will be increased, the pistil of valve (9) of control valve will move right under the action of air supplying pressure room (8). The valve(11)of hole A (10) and valve(12)of hole B (10) will be closed, the pressure in the cylinder(13) which connect to OUT will be increased. At this time for the piston (15) of cylinder will move to the direction of both ends and the spring (14)will be contracted through rack to drive the output axle revolving, the revolving action of output axle will drive the feedback connecting rod (17) and cam (18), cam accessory pole (19) and feedback spring connecting rod (20) increase the tension of feedback spring (21). Make the clearance between nozzle(5)and baffle (4)increase. Before the location of output axle (16) reached balance with input signal, the output axle is running. In addition, the button (24) can adjust the tension of zero spring(25). If make the A-M manual and automatic transformer (27) to completed close state, the pressure in nozzle back pressure room (7) will be increased, the air supplying valve (11) is on completed open state, the pressure of air source will enter into the cylinder (13) directly through air pipe OUT1, the loading spring (26) can gain correspond special modulus of spring so as to applied to localizers with various volume. Above all are the work state of piston move to directions of both ends, if the location of input and output is replaced or the cam is converted, it will move to middle direction.

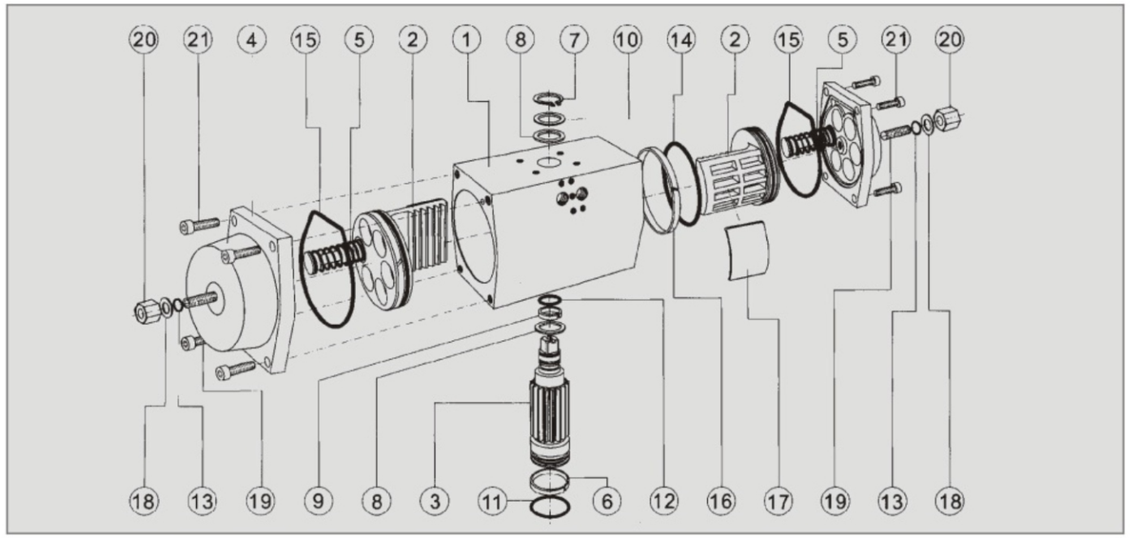
TANA®
WENZHOU TOPNOTCH MACHINE CO.,LTD.
valve pneumatic actuator

外形及连接尺寸图



执行器型号 actuator size	A	A1	B	C	DX深度 DX depth	E	F	GX深度 GX depth	H	J	K	L	M	N	Q	RH11	□SXS	□SWH11	TH9	Y深
40	104		60	50	M6×9	45	14		12		80		F04 ϕ42	22	13.4		9×9	11×11	ϕ20	
52	140		73	61	M6×9	50	14	M5×8	12	3	80	F03 ϕ36	F05 ϕ50	22	13.4	ϕ12	10×10	11×11	ϕ24	15
63	168	188	88	70	M8×13	60	18	M6×10	16	5	80	F05 ϕ50	F07 ϕ70	22	15.3	ϕ13	13×13	14×14	ϕ30	18
83	200	260	110	91	M8×13	67	19	M6×10	18	5	80	F05 ϕ50	F07 ϕ70	22	18.3	ϕ16	14×14	17×17	ϕ33	18
110	255	338	140	120	M10×16	90	23	M8×13	24	6	80	F07 ϕ70	F10 ϕ102	22	23.8	ϕ22	16×16	22×22	ϕ47	25
127	310	375	160	141	M10×16	102	26	M8×13	30	8	80	F07 ϕ70	F10 ϕ102	30	33.3	ϕ25	20×20	22×22	ϕ55	30
160	380	435	198	175	M12×20	128	31	M10×16	40	8	130	F10 ϕ102	F12 ϕ125	30	33.4	ϕ30	28×28	27×27	ϕ70	45
190	450	556	232	207	M16×24	130	31	M12×16	50	12	130	F10 ϕ102	F14 ϕ140	30	39.3	ϕ36	36×36	36×36	ϕ80	45
210	468	568	245	225	M16×24	134	42	M16×22	50	12	130	F14 ϕ140	160×100	30	39.3	ϕ36	36×36	36×36	ϕ80	45
250	556	678	302	270	M20×24	159	50	M20×22	60	12	150	F16 ϕ165	200×115	30	42.3	ϕ38	46×46	46×46	ϕ110	50
280	602	770	330	300	M20×24	170	60	M20×24	75	14	150	F16 ϕ165	200×120	30	53.8	ϕ50	46×46	46×46	ϕ120	60
300	700	805	352	324	M20×28	194	65	M20×28	70	14	150	F16 ϕ165	F16 ϕ165	30	53.8	ϕ50	46×46	46×46	ϕ135	80
350	768	875	440	380	M20×28	256	70		70		150		F16 ϕ165	30	64.4	ϕ60	60×60	60×60	ϕ145	100

解剖图 Dissect diagram



零配件表 Table of parts and components

序号 Serial Number	名称 Name		数量 Quantity
1	壳体	Case	1
2	活塞	Piston	2
3	旋转轴	Rotary axis	1
4	端盖	Terminafcover	2
5	弹簧／弹簧座	Spring/holder	8–12
6	下轴承	Lower bearing	1
7	弹性挡圈	Elastic baffle	1
8	轴中垫圈	In–axis washer	2
9	上轴承	Upper bearing	1
10	轴上平垫圈	Over axis plain washer	1
11	轴下O形圈	Below axis 0 gasket	1

序号 Serial Number	名称 Name		数量 Quantity
12	轴上O型圈	Over axis O ring	1
13	螺栓密封O型圈	Bolt O gasket	1
14	活塞O型圈	Piston O ring	1
15	端盖密封圈	Terminal cover gasket	2
16	活塞导向环	Piston Pilot ring	2
17	活塞轴瓦	Piston bearing insert	2
18	端盖平垫圈	Terminal cover plain washer	2
19	调节螺栓	Adjusting bolt	2
20	六角螺母	Hex nut	2
21	内六角螺栓	Socket bolt	8
22			

型号编制说明 Coding explanation

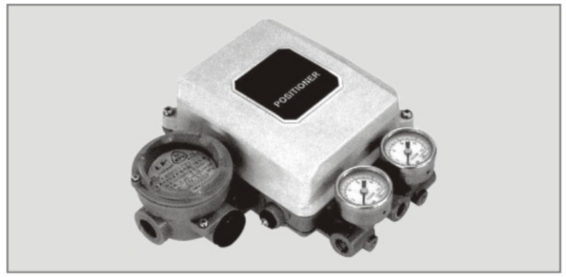
GTD-110/090-P22-A-08

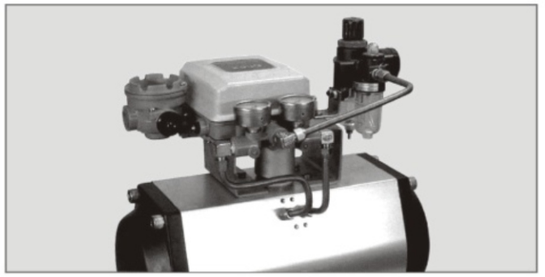
1. 气动执行器
1. pneumatic actuator
2. 作用型式D=双作用式E=单作用式(弹簧复位式)
2. acting form: D=double acting E=single acting (spring restore)
3. 气缸内径尺寸40/52/63/83/110/127/160/190/210/250/280/300/350
3. cyclinder internal diameter 40/52/63/83/110/127/160/190/210/250/280/300/350
4. 旋转行程角度90° /120° /180°
4. rotary angle 90° /120° /180°
5. 轴装配孔型式 P= ● D= ▮ O= ◆
5.forms of axis fitting hole P=● D=▮ O=◆
6. 轴装配孔尺寸–见尺寸表
6. size of axis fitting hole–––––see size table
7. 活塞安装形式–旋转方向A–L
7. piston installation––––rotary direction A–L
8. 弹簧数量–两端总数
8. number of springs––––total springs number in both

TANA®
WENZHOU TOPNOTCH MACHINE CO.,LTD.
valve pneumatic actuator

GT执行器标准附件 GT Actuator accessories

电气阀门定位器 Electric valve localizer





概 述 General

CHX系列电气阀门定位器与气动执行器配套使用，输入4～20DC mA的直流电流信号转换成输出气压力，控制执行机构的动作。同时根据执行机构的位移行程进行反馈，使阀门的位置能够按调节器输出的控制信号进气正确定位。

CHX用于单作用式(弹簧复位)气动执行器和双作用式气动执行器。

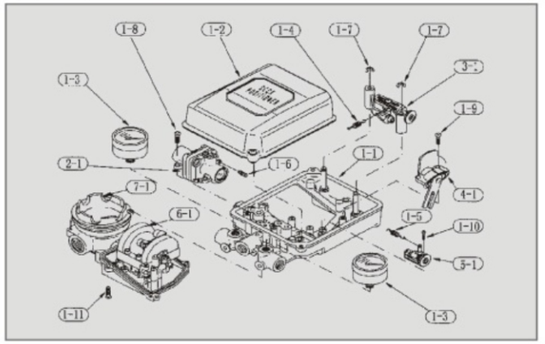
CHX series electric valve localizer is matched with pneumatic actuator, input 4-20DC mA DC current signal will be converted into output of air pressure, to control the action of actuating system. Also it can feedback according to the displacement travel of actuating system, making the location of valve to correctly localized according to the control signal output by adjuster.

CHX is used for single action type (spring replacement) pneumaticperformer and double action type pneumatic actuator.

技术参数 Main technical parameter

内容Content	单作用式Single action type	双作用式Double action type
输入信号Input signal	4~20mADC	
输入阻抗Input resistance	250Ω ± 5%	
输出特性Output character	百分比 Percent	
气源压力Air source pressure	0.14~0.7Mpa(140~700Kpa)	
输出压力Output pressure	0~0.7Mpa(0~700Kpa)	
角行程Angular travel	0~90°	
耗气量Air consumption	输出气压50%时耗气量 Consumption when output air pressure 50% 单作用式：140kpa气压=5NI／mim Single action type: 140Kpa pressure=5NI/mim 双作用式：400kpa气压=15NI／mim Double action type: 400Kpa pressure =15NI/mim	
最大处理容量Max. Capacity	输出侧气源放空气时 Side air source output and air exhaust 单作用式：140kpa气压=175NI／mim Single action type: 140Kpa pressure =175NI/mim 双作用式：400kpa气压=400NI／mim Double action type: 400Kpa pressure =400NI/mim	
线性度Linearity	± 2%	
滞后度Delay degree	1%	
灵敏度Flexibility	± 0.5%	
重复性Repeat degree	± 0.5%	
环境温度 Environmental temperature	-20℃~+80℃	
防爆等级Anti-explode class	ExdⅡBT4,ExdⅡBT6	
气源接口Air source joint	G1/4	
电气接口Electricity joint	G1/2	
压力表接口Pressure meter joint	G1/8	
外壳材料Enclosure material	铸铝合金(表面喷塑) Cast aluminum alloy (plastic spraying on surface)	
重 量Weight	3 Kg	

结构图 Structure figure



部件表 Spare parts table

No	名称 Name	数量	No	名称 Name	数量
1-1	底座 Base	1	1-10	圆头小螺钉 Round headed screw	1
1-2	罩壳 Enclosure	1	1-11	圆头小螺钉 Round headed screw	1
1-3	压力表 Pressure meter	1(2)	2-1	调节装置 Adjusting device	1(2)
1-4	反馈弹簧 Feedback spring	1	3-1	杆组件 Stem component	1
1-5	负载控制弹簧 Load control spring	1	4-1	凸轮部件 Cam part	1
1-7	E形止动圈 E shaped lock ring	2	5-1	调零部件 Adjust spare part	2
1-8	圆头小螺钉 Round headed screw	4	6-1	扭力矩马达组件 Torque motor component	4
1-9	圆头小螺钉 Round headed screw	2	7-1	电源接线盒 Power connection box	2

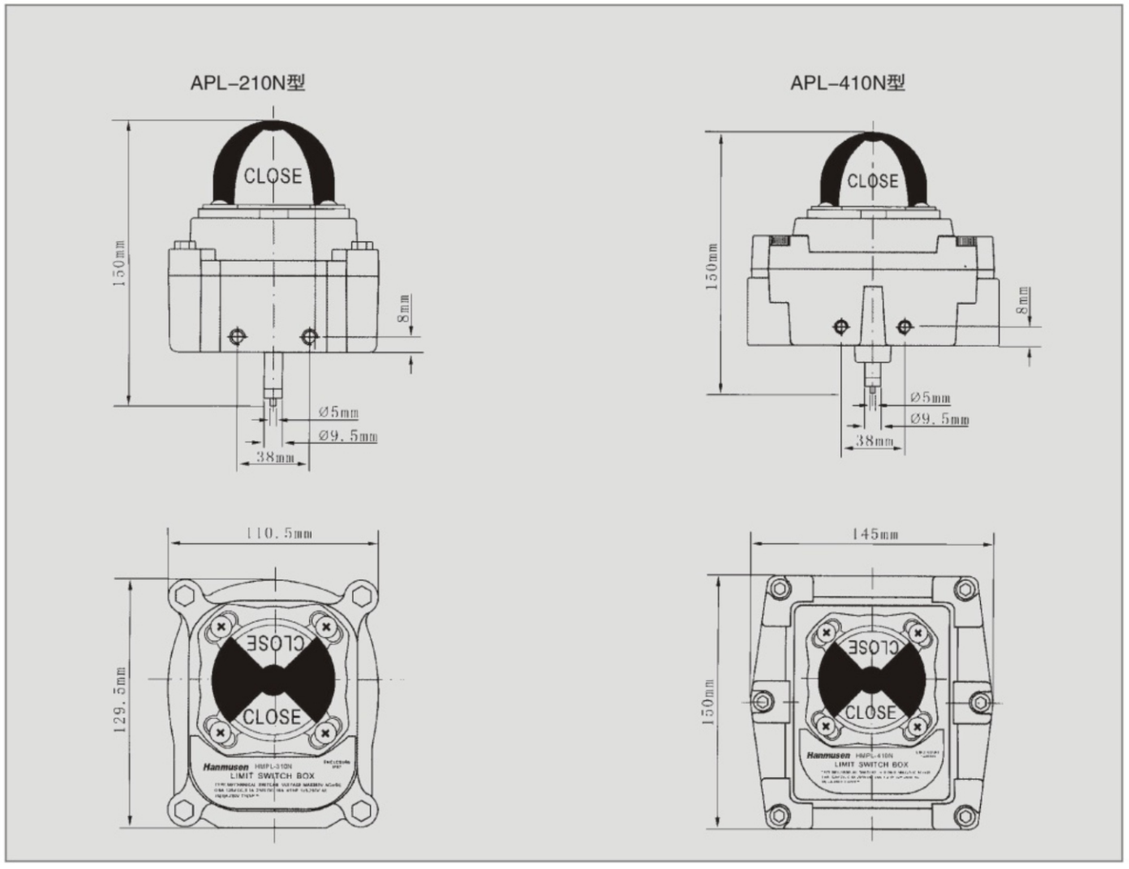
维护 Maintenance

1、定位器的气源处理装置应使用精度超过5μ的空气过滤器。
2、内部的节流部位如有尘埃，会引起零点漂移等现象，因此在定期保养时应使用清洗装置，保持喷嘴畅通。
3、阀座的调整与定位器灵敏及泄气量直接有关，在出厂检验时调好，在使用中尽量不要再调。

1. The air source treatment device of the localizer should adopt the air filter with precisionhigher than 5 .
2. If there is dust in the inner throttle part, it will cause zero drift. So clean device should be used regularly in regular maintenance, keep the smooth of nozzle.
3. Adjustment of valve base is directly related with flexibility of localizer and air leakage amount. Adjust it in the inspection of leaving factory; do not adjust again during usage.

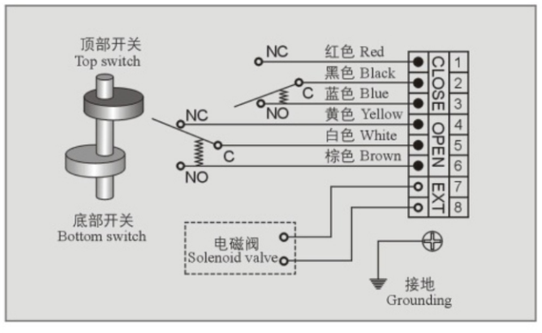
GT执行器标准附件 GT Actuator accessories

限位行程开关盒 limit travel switch box

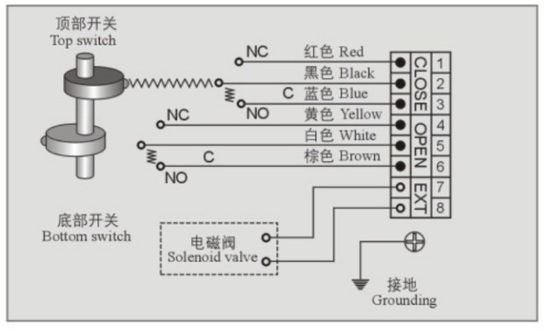


接线图 Wiring figure

机械式开关(2 SPDT) Mechanical switch (2 SPDT)



接近式开关(2 SPDT) Proximity switch (2 SPDT)

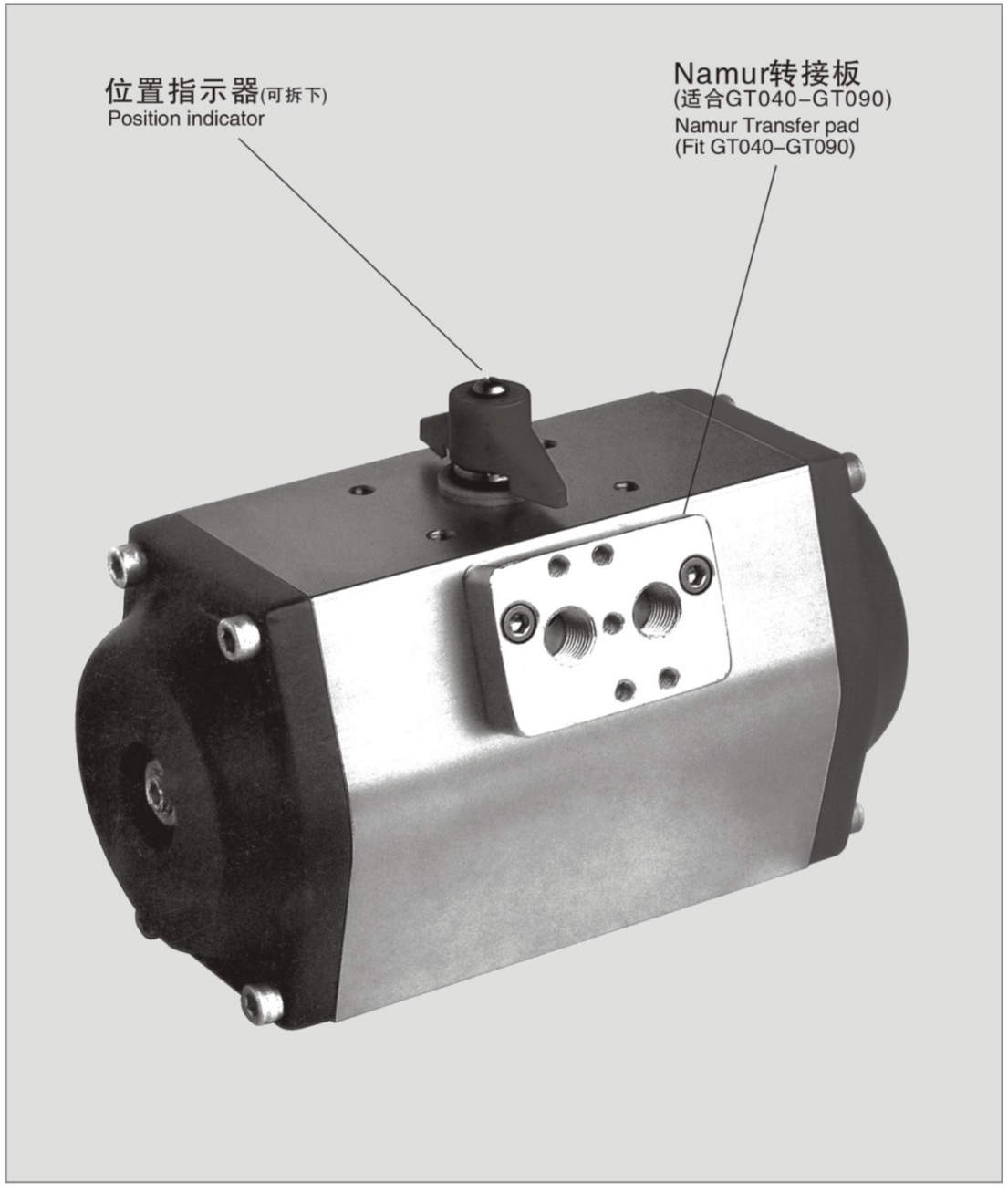


TANA®
WENZHOU TOPNOTCH MACHINE CO.,LTD.
valve pneumatic actuator

GT执行器标准附件 GT Actuator accessories

位置指示器 Position indicator

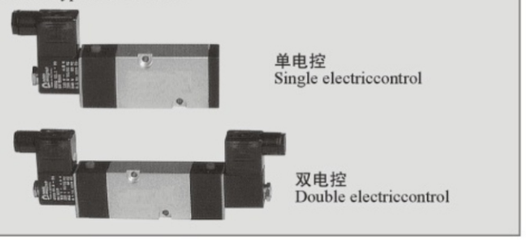
转接板 Transfer pad



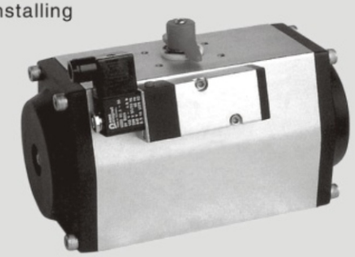
GT执行器标准附件 GT Actuator accessories

电磁阀 Accessory: solenoid valve

4V-210型系列电磁阀
4CV-210 type solenoid valve



安装 installing



概 述 General

4V–210型电磁阀用于气动阀门“开启”或“关闭”的电控操作。符合NAMUR连接标准，直接按装在气动执行器侧面，无需管子连接。根据仪表控制系统需要选择单电控或双电控；二位五通电磁阀配双作用式执行器，二位三通电磁阀配单作用式执行器，整机简单、紧凑，体积小、寿命长。该产品有基本型(IP67)和防爆型，防爆级别EXm Ⅱ Bt4，其防爆级别适用于工厂的易爆环境场所。

4CV-210 type solenoid valve is used for electric control operation of opening or closing of pneumatic valve. It complies with NAMUR connection standard, directly installed on the side pneumatic actuator, no need of pipe connection. The two-digit five-connection solenoid valve matches the double action type actuator, and two-digit three-connection solenoid valve matches the single action type actuator. The whole machine is simple, compact, small-sized and with long service life. The product has basic type (IP67) and anti-explode type, the class of anti-explode is Exm II Bt4, and the class of anti-explode is applicable for the explosive circumstance such as factory.

型号编制 Organization of model

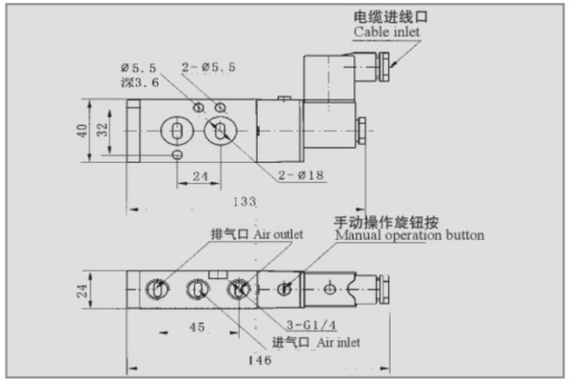
4V 210 - 2 1 1 D

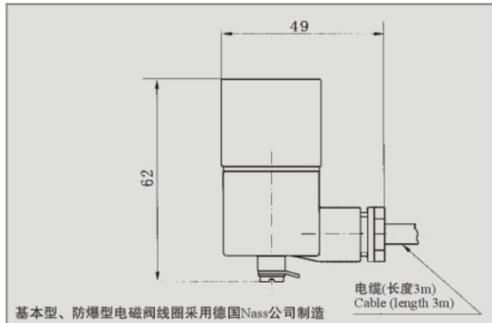
1、电磁阀。
1.Solenoid valve
2、二位五通。
2.Two-digit five-connection
3、接管方式：1=管接式，2=板接式。
3.Pipe connection method: 1=single connection, 2=plate connection
4、控制方式：1=单电控，2=双电控。
4.Control method: 1=single electric control, 2=double electric control
5、电压：1=AC220V，2=DC24V。
5.Voltage: 1=AC220V, 2=DC24V
6、接线型式：D=DIN基本型，R=直接引线式。
6.Wiring mode: D=DIN basic type, R=direct wire leading type

主要技术参数 Main technical parameter

工作介质 Working medium	空气(经40微米滤网过滤) Air (filtered by filter net of 40 micron)
接口 Joint	进气口G1 / 4 排气口G1 / 4 Air inlet G1/4 r outlet G1/4
有效截面积(mm^2) Valid sectional area	35
润滑 Lubrication	不需要(也可供油) No need (also can add oil)
工作压力(MPa) Working pressure	0.15 ~ 0.8
工作温度℃ Working temperature	0 ~ 50(在不冻结条件下使用) 0-50 (use under the condition of non-frozen)
电压范围 Range of voltage	15%
耗电量 Electricity consumption	AC220V：3.9VA，6.0VA，8.5VA DC24V：2.5W，4.8W
换向时间(S) Turing time (s)	0.05
手动方式 Manual mode	按下换向(按下-旋转可自锁) Press turning (press rotate can self locking)
基本型 Basic type	IP65
防爆型 Anti-explode type	Exd Ⅱ BT4

电磁阀外形尺寸 Dimension of appearance of Solenoid valve





基本型、防爆型电磁阀线圈采用德国Nass公司制造
用户根据需要可自由选择其他
The basic and anti-explode type loop are manufactured by NASS Company of Germany.
The user can choose others.

TANA®
WENZHOU TOPNOTCH MACHINE CO.,LTD.
valve pneumatic actuator

GT执行器标准附件 GT Actuator accessories

限位行程开关盒 limit travel switch box

APL-210N外壳防护型(IP67)
APL-210N enclosure protection type (IP67)

APL-410N防水防爆型(Exd Ⅱ BT4)
APL-410N waterproof and anti-explode type (Exd II BT4)

概 述 General

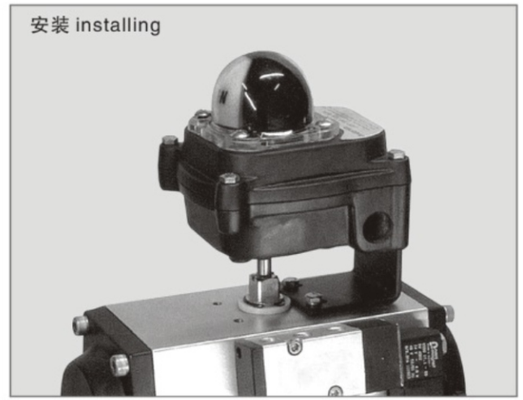
APL—210N和APL—410N型限位行程开关盒是传送执行器和阀门的位置讯号到现场和遥控操作站。它能直接安装在执行器上部，符合标准VDI / VDE 3845。特点有现场可视位置指示器，快速调整位置凸轮；可调式凸轮通过花键和弹簧安装，只要开关凸轮脱离花键便可旋转调整所需的位置，防掉外壳螺钉和两个电缆进口G1 / 2″ 管接口。内部行程开关预先连接接线终端，8个接线端子，并可用于电磁阀的连接。

APL-210N and APL-410N type limit travel switch box is to transport the location signal of performer and valve to the site and remote control site. It can be directly installed on upper part of performer according to standard VDI/VDE3845. It has site view location indicator, adjusting the location cam fast; the adjustable cam installed through spline and spring. The required location can be obtained by turning the switch owing to deviation of switch cam from spline. The inner travel switch have pre-installed 8 terminal posts, which can be used for connection of solenoid valve.

APL-210N	APL-410N
外壳防护型(Ⅱ P67) Enclosure protection type (IP67)	防爆型(Exd Ⅱ BT4) Anti-explode type (Exd II BT4)
机械式微动开关 Mechanical micro switch	
电压：最高交流250V AC或直流DC Voltage: maximum AC250V or DC	
电流（Current）：0.6A 125VDC, 0.3A 250VDC, 16A 1/2HP125, 250V AC 16(3)A 250V-T105 μ	

选项：传送电流输出信号。接近式开关，电阻性电位计输出信号。
Alternation: Transporting current input signal
Proximity switch, resistive potentiometer input signal

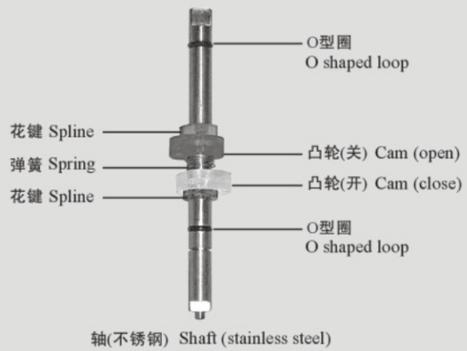
安装 installing



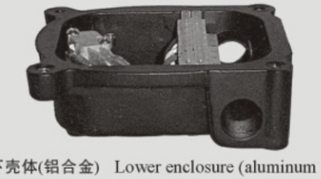
APL–210N结构图 Structure figure

位置指示器 Location indicator

上壳体(铝合金) Upper enclosure (aluminum alloy)



轴(不锈钢) Shaft (stainless steel)



下壳体(铝合金) Lower enclosure (aluminum alloy)