

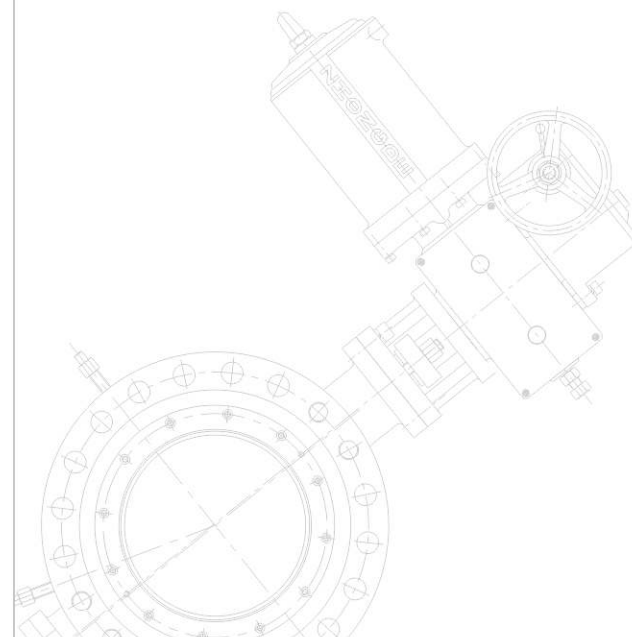
浙江中德自控科技股份有限公司

Zhejiang Zhongde Automatic Control Science And Technology Joint Stock Co., Ltd.

高性能密封保温夹套蝶阀

High Performance Sealing Heat
Insulation Jacket Butterfly Valve

通过了ISO9001质量体系认证
通过API6D/609产品认证
通过API6FA/607防火认证
通过国家特种设备制造许可“压力管道元件”TS认证
通过CE安全认证
通过HSE认证
通过SIL产品功能安全认证
通过ISO 15848逸散性认证
中国著名品牌



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企业概述

浙江中德自控科技股份有限公司(原中德机械集团有限公司)是集研发、生产、销售、服务于一体的专业控制阀制造商。自1992年创立以来,中德致力于发展切断阀专业领域技术,使我们始终处于国内切断阀领域的技术领先地位。在我们二十多年的发展历程中,中德人专业、聚焦、坚持不懈来打造切断阀品牌,其中气\电\液电动高性能蝶阀、高性能球阀、高温耐磨球阀、高温蝶阀、快速切断阀等产品广泛应用于石油、化工、天然气、煤化工等高端领域,并获得了众多用户朋友的高度信任。

中德集团现已拥有专业阀门研究中心和一流的生产平台,并通过了ISO9001:质量体系认证,美国石油学会API6D/609产品认证、API6FA/607防火认证,特种设备压力管道制造许可“TS认证”。是中国石化、中石油、中海油、中化、神华、煤化工等领域的一级供应商。先后被评为“中国著名品牌”,“省级星火示范企业”,“国家高新技术企业”,“省明星企业”,连续五年被工行评为“AAA信用企业”。

“客户的满意我们视之为生命”为此中德在国内建立了十二个直销和服务网络,在服务市场的广度和深度上都具有独创性。我们能满足您的需求,我们给您提供“安全、可靠、省心”产品的同时,我们的产品价值永远大于产品价格。无论您在那里,我们具有丰富经验和专业知识的团队,都能给您提供“认真、负责、快速”的优质服务。我们坚守“一个电话,一天内到达,一次性成功”的服务承诺。

“以人为本,以德兴业”是中德企业文化的核心,是中德人做人的标准,中德人将以“以诚会友,以德待友”来衬托我们过硬的产品质量和一流的服务。中德人厚积薄发,再立潮头,全力打造国家高端切断阀先进制造企业,致力于加快我国切断阀的国产化应用进程,以更好地实现顾客满意度的最大化,中德愿与您精诚合作,共创美好的明天!



BRIEF INTRODUCTION

Zhejiang Zhongde Automatic Control Technology Co., Ltd. (formerly known as Zhongde Machinery Group Co., Ltd.) is a professional control valve manufacturer integrating research, development, production, sale and service. Since its establishment in 1992, Zhongde has been devoted to developing specialized technologies of shut-off valves, keeping us always at the leading position in Chinese shut-off valve industry. During more than twenty years of development, Zhongde personnel are building the brand of shut-off valves with specialization, concentration and perseverance. The products such as high performance butterfly valves, high performance ball valves, high temperature anti-wear ball valves, high temperature butterfly valves and quick shut-off gate valves with pneumatic, electric and electro-hydraulic driving are widely applied in petroleum, chemical industry, natural gas, coal chemical industry and other high-end fields, receiving deep trust from users.

Now Zhongde Group has set up the professional valve research and development center and first-class production platforms. It has successively obtained the ISO9001: quality system certification, API6D/609 product certification, API6FA/607 fire safety certification and special equipment (pressure pipes) manufacturing license TS certification. It is a first-tier supplier of SINOPEC, CNPC, CNOOC, CHEMCHINA, Shenhua Group, coal chemical industry and other fields. It has been successively awarded such honors as “China Famous Brand”, “Spark Model Enterprise in Zhejiang Province”, “National High-tech Enterprise”, “Star Enterprise in Zhejiang Province”, and has been approved as a “Class AAA Creditable Enterprise” by the Industrial and Commercial Bank of China for five years in succession.

“Customer satisfaction is regarded as our life”. For this, Zhongde has established 12 sales and service networks, which are creative both in breadth and depth of serving the markets. We can meet your demands. We will provide you with safe, reliable and trustworthy products and the value of our products is much higher than their price. Wherever you are, our team will offer serious, responsible, fast and high quality services to you with their rich experience and professional knowledge. We always keep our service promise of “one telephone, arrival within one day and success in one step”.

“Human oriented, booming business by morals” is the core idea of Zhongde Enterprise, and the standard followed by Zhongde personnel in conducting themselves and handling affairs. Zhongde personnel will offer high product quality and top-ranking services with the attitude of “meeting friends with sincerity, treating friends with morals”. Accumulating profoundly and working ceaselessly and unremittingly, Zhongde personnel are making all efforts to create an advanced manufacturing enterprise of high-end shut-off valves in China, accelerate the process of localization of shut-off valves and realize maximized customer satisfaction. Zhongde hopes to cooperate with you faithfully and create a brilliant future together!

概要

WBy系列高性能密封保温夹套蝶阀具有优良的切断性能和调节性能。其阀板与密封组件采用了金属U形弹性阀座和三偏心阀板结构，阀板形状为椭圆形圆锥体，通过挤压U型弹性阀座使阀座变形，直到阀座与阀板椭圆形圆锥密封面紧密吻合而达到密封。夹套阀是在阀体外围留一定空间，加一层隔层，通过向隔层输送保温气体或液体使阀内介质温度实现保温。该结构减少了阀门的启闭力矩，使阀门间的摩擦力降到最低，延长了阀门的使用寿命。保温夹套蝶阀广泛应用于石油、化工、轻工、电力、冶金等工业部门在生产过程中介质需保温或加热的工艺管道上，可实现就地控制和远距离自动控制。本产品具有密封性能优良，使用寿命长、体积小、重量轻、流通能力大，结构简单合理，易于维修、保养等特点。执行机构是以与立推式气动执行机构的组合为标准产品（见图1），也可与电动式或液动式执行机构组合。

特点

- WBy高性能密封保温夹套蝶阀采用金属U型弹性阀座，阀座为浮动式，具有自动调整中心的功能，密封性能好。阀门启闭时阀座与阀板瞬时脱落，消除摩擦磨损。
- 阀板采用三偏心结构，密封面全部堆焊硬质合金，耐磨性好。
- 阀座具有自补偿结构，增加了阀门的使用寿命。
- 阀板与阀座的密封为金属对金属的线性密封，使阀门在运行过程中具有自动剪切的功能。
- 保温隔层设计为全包覆型，将整个阀体及轴套包覆在隔热层内，保温效果好。
- 轴套底部加有防尘装置，防止介质进入轴套使阀杆抱死的现象。
- 三蒸汽接口无死角设计，有效排放冷凝水，同时方便阀门任意安装。
- 阀门流量特性为近似等百分比曲线，可作为调节与切断。

Summary

The WBy series high performance sealing heat insulation jacket butterfly valve has excellent shut-off performance and control performance. Its disc and sealing assembly adopt the metal U type elastic seat and three-eccentric disc structure. The disc shape is oval cone. Through extruding the U type elastic seat, the seat is deformed until the seat and disc oval cone sealing face fit tightly with each other to realize sealing. The jacket valve reserves a certain space outside the valve body and an interlayer is added to realize heat insulation of media in the valve by conveying heat insulation gas or liquid to the interlayer. The structure lowers opening and closing torque of valve, reduces the friction between valves to the lowest and prolongs service life of valve. The heat insulation jacket butterfly valve is widely used to realize local control and remote automatic control on process pipes that require heat insulation or heating of media during production in petroleum, chemical industry, light industry, electric power, metallurgy and other industries. The product has such features as good sealing performance, long service life, small volume, light weight, high flow capacity, simple and reasonable structure, easy maintenance and servicing, etc. The product combined with the vertical push type pneumatic actuator is the standard product (see figure 1). The product can also be combined with electric or hydraulic actuator.

Features

- The WBy high performance sealing heat insulation jacket butterfly valve adopts metal U type elastic seat. The seat is floating type, with the automatic center adjusting function and good sealing performance. When the valve is opened or closed, the seat and disc drop instantly to eliminate friction and wear.
- The disc adopts three-eccentric structure, and the sealing face adopts hard alloy overlaying welding with good anti-wear performance.
- The seat has self-compensation structure, which enhances the service life of valve.
- The sealing of disc and seat adopts metal-to-metal linear sealing, so that the valve is provided with the automatic shearing function during the operation.
- The heat insulation interlayer is designed into full coating type, so as to cover the whole body and shaft sleeve inside the interlayer with good heat insulation effect. The shaft sleeve is additionally provided with the anti-dust device at its bottom to prevent media from entering the shaft sleeve and locking the valve stem.
- The three steam connections adopt dead-corner-free design to effectively discharge condensing water and facilitate free installation of the valve.
- The valve flow characteristic is approximate equal percentage curve. It can be used for control and shut-off.

主要技术参数

阀体

型式：扁平偏置铸造体
阀门口径：2"~80"
公称压力：ANSI 150LB~300LB
连接：夹套法兰型
材质：A216 WCB、A351 CF8、A351 CF8M (按客户要求)
结构长度：见表5-1~8 (P11~15)
阀盖：标准型-40~+230℃
加长型+231~+450℃
但需注意各材料的使用温度、压力范围。见表1 (P4)
填料：PTFE，柔性石墨，钢丝增强柔性石墨（见图2）
本体涂层：银白色（环氧树脂）当本体为不锈钢时，不加涂层

阀内组件

阀板型式：三偏心旋转式
阀座型式：U型金属环
流量特性：近似等百分比
材质处理：本体、阀板、座环、阀杆等材质组合、处理请参见表2 (P4)
额定Cv值：请参见表3 (P5)
额定行程：0~70° 或0~90°
阀座泄露率：ANSI Class IV~VI
最大阀闭压力：请参见表4-1~4-5 (P9~10)
外型尺寸：请参见表5-1~8 (P11~15)
产品重量：请参见表5-1~8 (P11~15)

Main technical parameters

Body

Type: flat offset casting
Valve size: 2"~80"
Nominal pressure: ANSI 150LB~300LB
Connection: jacket flanged type
Material: A216 WCB, A351 CF8, A351 CF8M (according to customer requirements)
Face-to-face dimension: see tables 5-1~8 (P11~15)
Bonnet: standard type -40~+230℃
extended type +231~+450℃
Notice the range of working temperature and pressure for different materials. See table 1 (P4).
Packing: PTFE, flexible graphite, steel wire reinforced flexible graphite (see figure 2)
Body coating: silver grey (epoxy resin). No coating shall be added if the body material is stainless steel.

Trim

Disc type: three-eccentric rotary type
Seat type: U type metal ring
Flow characteristic: approximate equal percentage
Material treatment: Please refer to table 2 (P4) for the material combination and treatment for body, disc, seat ring and stem.
Rated Cv value: Please refer to table 3 (P5).
Rated travel: 0~70° or 0~90°
Seat leakage: ANSI Class IV~VI
Maximum valve closing pressure: Please refer to tables 4-1~4-5 (P9~10)
Outline dimensions: Please refer to tables 5-1~8 (P11~15).
Product weight: Please refer to tables 5-1~8 (P11~15).

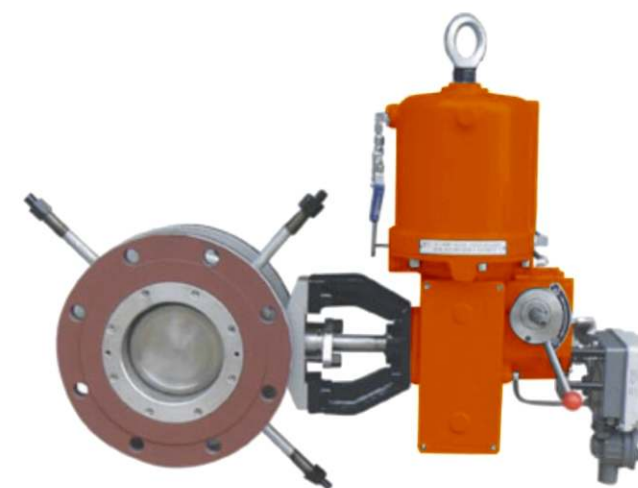


图1 气动高性能密封保温夹套蝶阀
Figure 1 Pneumatic high performance sealing heat insulation jacket butterfly valve

执行机构 Actuator

规格 Specification	型号 Model	气缸式 Cylinder type		电动式 Electric type	电液联动式 Electro-hydraulic type
		ZSS/ZSH	ZST	ZDJ	ZYJ
		双作用 Double acting	单作用 Single acting		
用途 Purpose		通断、调节 On-off, control		通断、调节 On-off, control	
操作源 Operating source		气压 Air pressure 0.35 ~ 0.7Mpa(G)		电源 Power supply 220VAC 50Hz, 380VAC 50Hz	
输入范围 Input range		通断 On-off: 24VDC, 48VDC, 220VAC 带定位器 With positioner: 4 ~ 20mA, 4 ~ 20mA+HART; 0.02 ~ 0.1MPa		4 ~ 20mA, 1 ~ 5VDC, 0 ~ 10VDC	
动作 Action		通断: 电磁阀通电阀开或阀闭 调节: 随定位器输入信号增加阀开或阀闭 On-off: The valve is opened or closed when the solenoid valve is powered on Control: The valve is opened or closed with the increase of positioner input signal		通断: 通电阀开或阀闭 调节: 随输入信号增加阀开或阀闭 On-off: The valve is opened or closed when powered on Control: The valve is opened or closed with the increase of input signal	
允许环境温度 Allowable ambient temperature		-40°C ~ +80°C		-40°C ~ +80°C	
执行器涂层色 Actuator coating color		橘红色 (环氧树脂) 或银灰色 Orange (epoxy resin) or silver grey		随外购执行器 Actuator	
选购设备 Optional equipment		手动操作机构、限位开关、E/F、P/P定位器空气过滤减压阀、电磁阀、速度调整器、锁止阀及其他 Manual operating mechanism, limit switch, E/F, P/P positioner, Airset, solenoid valve, speed adjuster, locking valve, etc.		手动操作机构、限位开关、输入/输出模拟信号浪涌保护器、阀位变送器、扭矩开关及其他 Manual operating mechanism, limit switch, input/output analogue signal, surge protector, valve position transducer, torque switch and others	

表1 本体材料的使用温度、压力范围

Table 1 Range of working temperature and pressure for body materials

表1 Table1 单位 Unit: bar(G)

温度 °C Temperature	150#		300#			
	WCB	CF8	WCB	WC5	CF8	CF8M
-29 ~ +38	19.6	19.2	19.2	51.1	49.6	49.6
+50	19.2	18.4	18.4	50.1	47.8	48.1
+100	17.7	15.8	15.8	46.4	40.9	42.2
+150	15.8	14.0	14.0	46.1	36.3	38.6
+200	14.0	12.6	12.6	44.7	32.8	35.7
+250	12.1	11.7	11.7	41.8	30.5	33.5
+300	10.2	10.2	10.2	38.7	29.1	31.6
+350	8.4	8.4	8.4	36.5	28.2	30.4
+375	7.4	7.4	7.4	34.5	27.8	29.7
+400	6.5	6.5	6.5	34.5	27.5	29.2
+425	5.5	4.5	5.6	28.8	27.2	28.7
+450	-	4.7	4.7	-	26.9	28.2

表2 本体、阀内件材质组合及使用温度范围、阀门检验与试验

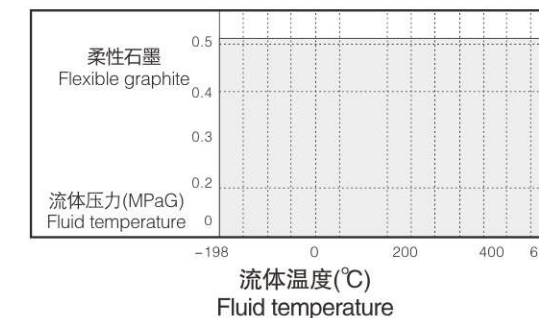
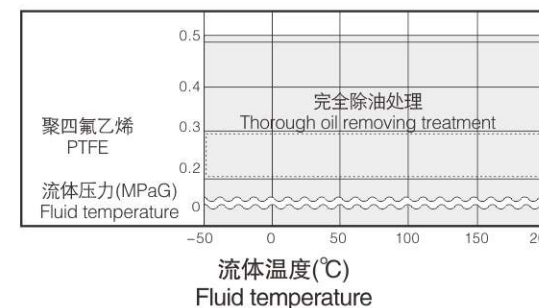
Table 2 Body and trim material combination and working temperature range, valve inspection and testing

表2 本体材质 Table2 Body material: (A216 WCB、A351 CF8、A351 CF8M)

阀体 Body	材质 Material	A216 WCB	A351 CF8	A351 CF8M
	处理 Treatment	阀座处堆焊不锈钢 Stainless steel overlaying welding at the seat		
阀板 Disc	材质 Material	A216 WCB/ A351 CF8	A351 CF8/ A351 CF8M	A351 CF8M
	处理 Treatment	密封面堆焊硬质合金或STL The sealing face is subject to hard alloy overlaying welding or quenching and STL		密封面堆焊硬质合金或STL The sealing face is subject to hard alloy overlaying welding or quenching and STL
阀座密封圈 Seat ring	材质 Material	420/ A705 17-4PH	A705 17-4PH/ INCONEL	A705 17-4PH/ INCONEL
	处理 Treatment	调质/固溶+时效处理 Tempering/solid solution + ageing treatment		
压板 Pressing plate	材质 Material	A216 WCB	A351 CF8	A351 CF8M
阀杆 Stem	材质 Material	A276 420/ A564 T630	A564 T630/ XM-19	A564 T630/ XM-19
	处理 Treatment	调质/固溶+时效处理 Tempering/solid solution + ageing treatment		
导向轴套 Guiding shaft sleeve	材质 Material	A182 F304	A182 F304	A182 F316
	处理 Treatment	渗氮/喷涂 Nitriding/spray coating		
使用温度范围 °C Working temperature range °C		-29 ~ 425	-40 ~ 450	-40 ~ 450
填料 Packing	PTFE, 柔性石墨, 钢丝增强柔性石墨 PTFE, Flexible graphite, steel wire reinforced flexible graphite			
阀门检验与试验 Valve inspection and testing	ANSI FCI 70.2/ API 598			

图2 填料 使用温度、压力范围

Figure 2 Packing Working temperature and pressure range



流量特性 Flow characteristic

流通能力 Flow capacity (Kv) (见表3)

表3

公称通径 Nominal diameter DN(mm)	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000
转角0~70° Rotation angle Kv值value	120	230	395	560	960	1550	2100	2810	3680	4650	5740	8260	11855	15500	19890	24280	34970	47600	62170	91500	136145
转角0~90° Rotation angle Kv值	225	460	708	1245	1695	2565	3915	5270	6888	8880	10780	15580	23060	27680	35820	45800	62500	89000	124000	170125	225600

流量特性曲线图: 近似百分比 (见图3)

Flow characteristic curve: approximate equal percentage

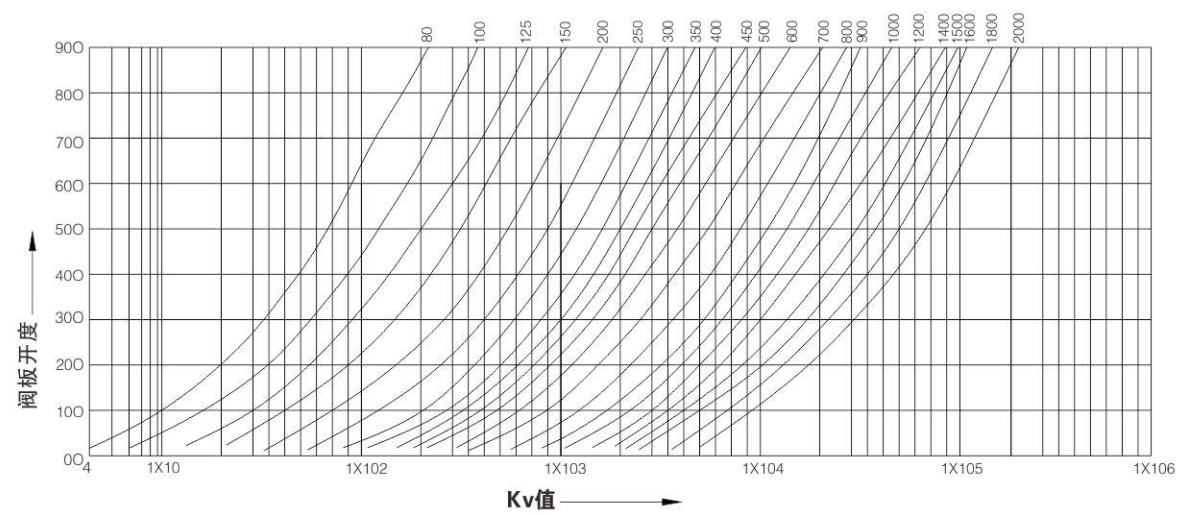
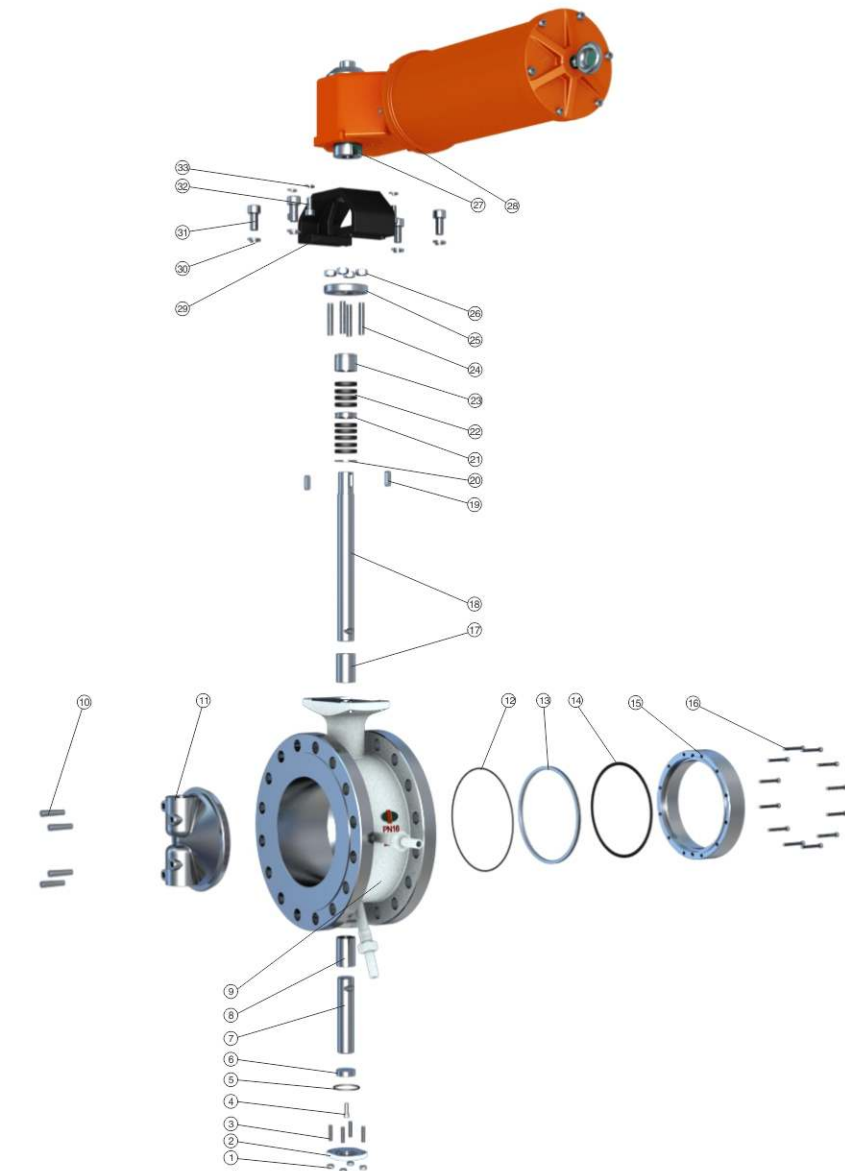


图3蝶阀流量特性曲线
Butterfly valve flow characteristic curve

图4 ZSSWB阀体、本体部构造、主要零部件分解图

Figure 4 Body construction and analysis figure of main parts



1	六角螺母 Hexagon nut	7	阀杆一 Stem 1	13	阀座 Seat	19	平键 Flat key	25	填料压板 Packing plate	31	阀体连接螺钉 Body connection screw
2	后盖 Back cover	8	下轴套 Lower shaft sleeve	14	阀座垫片 Seat gasket	20	填料垫片 Packing gasket	26	六角螺母 Hexagon nut	32	执行器连接螺钉 Actuator connection screw
3	全螺纹螺杆 Full thread screw	9	阀体 Body	15	压圈 Pressure ring	21	填料隔环 Packing spacer ring	27	连接轴 Connection shaft	33	弹垫 Spring washer
4	内六角螺钉 Inner hexagon screw	10	圆锥销 Conic pin	16	内六角螺钉 Inner hexagon screw	22	填料 Packing	28	ZSS执行机构 ZSS actuator		
5	密封垫 Sealing cushion	11	阀板 Disc	17	上轴套 Upper shaft sleeve	23	填料压套 Packing bushing	29	支架 Yoke		
6	调整块 Adjusting block	12	密封垫片 Sealing gasket	18	阀杆二 Stem 2	24	全螺纹螺杆 Full thread screw	30	弹垫 Spring washer		

图5 结构原理

Figure5 Structure and principle

高性能密封保温夹套蝶阀阀体采用整体铸造成型，连接法兰尺寸一般是在公称流道尺寸的基础上扩大一档或两档，使保温层有足够的空间。保温夹套隔层整体包覆阀体，实现阀门整体保温的目的，并在两端轴套处设置防尘装置，避免了介质进入轴套产生轴套与阀杆卡滞或抱死的现象；同时轴套也包覆在保温层内，消除了由于温度差引起的机械变形现象。三个蒸汽接口采用无死角设计，方便阀门在任意方向的管道上安装，均可方便排除保温层内的冷凝水。见图5

The high performance sealing heat insulation jacket butterfly valve is formed by integral casting. The connection flange size is generally expanded by one or two grades based on the size of nominal flow passage, so that there is sufficient space at the heat insulation layer. The heat insulation jacket interlayer integrally covers the body to realize the purpose of integral heat insulation of the valve. In addition, the anti-dust device is arranged at the shaft sleeves at both ends to prevent media from entering the shaft sleeve and causing blocking or locking of the shaft sleeve and stem. At the same time, the sleeve is also wrapped inside the heat insulation layer, eliminating mechanical deformation caused by temperature difference. The three steam connections adopt dead-corner-free design to facilitate the installation of valve on pipes of any directions, and conveniently discharge condensing water in the heat insulation layer. See figure 5.

- | | |
|----------|--------------------------------------|
| 1、阀体 | 1. Body |
| 2、蒸汽接口 | 2. Steam connection |
| 3、防尘装置 | 3. Anti-dust device |
| 4、轴套 | 4. Shaft sleeve |
| 5、保温夹套隔层 | 5. Heat insulation jacket interlayer |
| 6、填料 | 6. Packing |
| 7、阀杆 | 7. Stem |

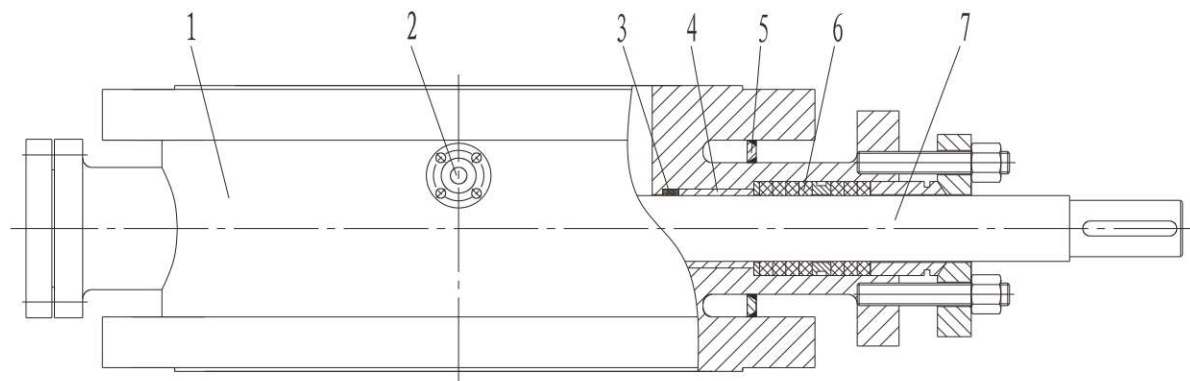


图5 高性能密封保温夹套蝶阀结构图
High performance sealing heat insulation jacket butterfly valve structure figure

图6 密封结构

Figure6 Sealing structure

高性能密封保温夹套蝶阀的三偏心阀板为椭圆形锥体（图6-1），阀座采用金属材料，具有较好弹性，同时设有补偿机构，阀座磨损时自动补偿，偏心结构图减少阀座磨损，提高使用寿命。

The three-eccentric disc of the high performance sealing heat insulation jacket butterfly valve is an oval cone (figure 6-1). The seat is made of metal material, which has good elasticity and compensation mechanism. Automatic compensation can be realized in case of seat wear. The eccentric structure reduces seat wear and enhances service life.

高性能密封保温夹套蝶阀堪称顶尖过程控制阀门，具有不同于其他任何阀门的设计特点。三偏心设计使此阀成为高温，高压和防火应用中气泡级密封的理想硬密封阀门。由于阀座与阀板密封面间的“零摩擦”使其力矩降低，寿命增加。（见图6-2）

The high performance sealing heat insulation jacket butterfly valve is known as the advanced process control valve. It has design features different from other valves. The three-eccentric design makes the valve an ideal hard seal valve for bubble level sealing in high temperature, high pressure and fireproof applications. The “zero friction” between the seat and disc sealing faces reduces its torque and enhances its service life (see figure 6-2).

高性能密封保温夹套蝶阀的阀板与密封组件采用三偏心阀板结构和金属U型弹性阀座。阀板形状为椭圆形锥体，其表面堆焊硬质合金，耐磨性极好。浮动式U型不锈钢阀座具有自动调整中心的功能。当阀门打开时，椭圆形锥体阀板的密封面先脱离U形弹性阀座，然后再旋转，可大大降低摩擦阻力及表面磨损，减少了阀门开启力矩、延长阀门使用寿命。关闭时阀板旋转，在偏心轴的作用下，通过阀板密封面的轴向作用力，使弹性阀座进行自动调整中心，阀座随阀板的作用力而发生形变，直到阀座与阀板椭圆形圆锥密封面紧密吻合，从而保证了密封。阀门在关闭过程中，阀板密封面与阀座间形成线性闭合圆，具有自动剪切的功能。

The disc and sealing assembly of the high performance sealing heat insulation jacket butterfly valve adopts the three-eccentric disc structure and metal U type elastic seat. The disc shape is oval cone, its surface is subjected to hard alloy overlaying welding with excellent anti-wear performance. The floating type U stainless steel seat has the function of automatic center adjusting. When the valve is opened, the sealing face of the oval cone disc will first leave the U type elastic seat, and then it turns, so that the friction resistance and surface wear can be greatly reduced, valve opening torque is reduced, and valve service life is prolonged. During closing, the disc turns. Under the action of the eccentric shaft, through the axial force of the disc sealing face, the elastic seat carries out automatic center adjusting. The seat will produce shape change according to the disc force, until the seat and disc oval cone sealing face fit tightly with each other, so as to ensure sealing. During the closing of the valve, the disc sealing face and the seat form the linear closing circle, which has the automatic shearing function.

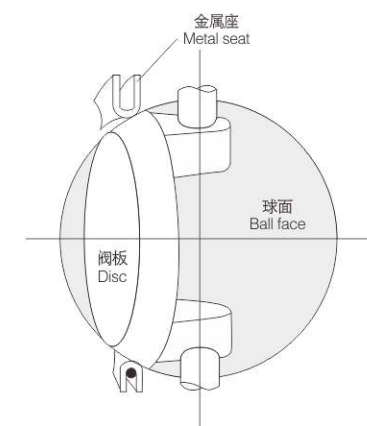


图6-1 阀板结构图
Disc structure figure

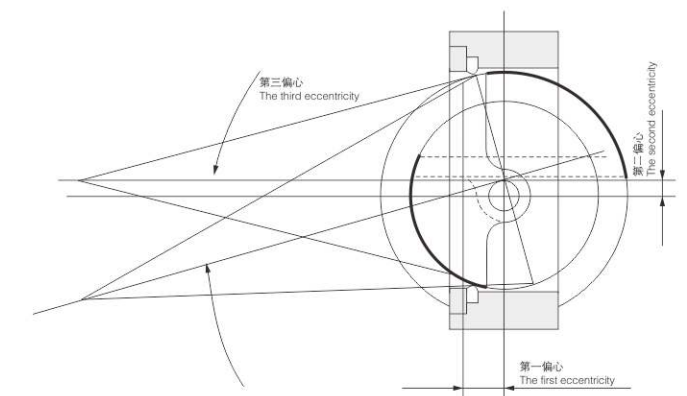


图6-2 三偏心金属硬密封结构图
Three-eccentric metal hard seal structure figure



最大关闭压差(bar) Maximum closing differential pressure(bar)

表4-1 执行机构：双动作型立推式执行器(ZSS) Table4-1 Actuator: Double acting vertical push type actuator(ZSS)

执行机构型号 Actuator model		ZSS1	ZSS2	ZSS3	ZSS4	ZSS5	ZSS6	ZSS7	ZSS8	ZSS9	ZSS10	ZSS11	ZSS12
阀门口径 Valve size	气源压力Bar G Air supply pressure												
2"	4	23.3											
3"	4	14.0	28.1										
4"	4	6.50	15.3	35.5									
5"	4		9.50	23.5	38.2								
6"	4		6.60	16.8	25.8	36.5							
8"	4		3.05	12.1	19.6	24.1							
10"	4			6.36	10.5	16.5	35.8						
12"	4			2.68	5.37	10.8	24.6						
14"	4				3.12	7.15	15.4	33.2					
16"	4					3.92	10.6	23.6	30.5				
18"	4					1.52	6.68	15.8	22.4	35.8			
20"	4						3.24	10.2	13.6	25.1	32.5		
24"	4						1.82	8.70	10.0	16.5	22.8		
28"	4							4.25	6.50	10.3	15.4		
32"	4							1.80	2.82	8.80	10.1		
36"	4								1.25	5.05	7.95		
40"	4									2.36	4.35	26.6	
44"	4									1.03	2.56	19.5	
48"	4										1.13	10.2	18.5
52"	4											6.25	10.5
56"	4											3.21	5.85
60"	4											1.03	2.58

表4-2 执行机构：双动作型横推式执行器(ZSH) Table4-2 Actuator: Double acting horizontal push type actuator(ZSH)

执行机构型号 Actuator model		DR00100	DR00150	DR00220	DR00300	DR00450	DR00600	DR00900	DR01200 /ZD-P180	DR02000 /ZD-P200	DR03000 /ZD-P250	DR05000 /ZD-P300	ZD-P350	ZD-P400	ZD-P450	ZD-P550	ZD-P600	ZD-P800	
阀门口径 Valve size	气源压力Bar G Air supply pressure																		
2"	4	16.8	26.5																
3"	4	9.50	14.6	22.6															
4"	4		8.65	13.3	23.5														
5"	4			7.66	15.2	28.8	32.5												
6"	4				8.23	16.5	19.8	26.3	30.5										
8"	4					10.6	11.2	14.5	16.5	28.6									
10"	4					6.33	5.66	9.55	11.6	15.3	28.5								
12"	4						2.53	4.35	6.35	9.33	19.2	26.8							
14"	4								3.52	4.25	12.5	16.5	30.8						
16"	4									2.34	7.66	9.80	22.5	31.5	35.6				
18"	4									1.25	4.58	4.03	14.3	23.8	26.3				
20"	4										2.68	2.05	8.35	15.6	19.8	32.5			
24"	4											1.03	3.75	9.02	12.8	26.4			
28"	4												1.25	4.33	8.25	19.5	35.4		
32"	4													1.50	5.44	14.2	27.5	32.8	
36"	4														2.85	9.82	20.5	26.5	
40"	4														1.30	6.65	16.6	19.4	
44"	4															4.89	10.5	14.5	
48"	4															3.05	6.75	9.88	
52"	4															2.03	4.55	5.36	
56"	4																2.23	3.53	
60"	4																1.05	2.05	

表4-3 执行机构：单动作型立推式执行器(ZSST) Table4-3 Actuator: Single acting vertical push type actuator(ZSST)

执行机构型号 Actuator model		ZST2	ZST3	ZST4	ZST5	ZST6	ZST7	ZST8	ZST10
阀门口径 Valve size	气源压力Bar G Air supply pressure								
2"	4	8.65	23.5						
3"	4	4.32	16.8						
4"	4		8.52	22.6					
5"	4		3.65	15.2					
6"	4		1.02	7.65	20.8				
8"	4			3.52	13.6				
10"	4				7.05	19.2			
12"	4				2.31	10.5	16.5	20.3	
14"	4					5.30	9.16	12.5	17.5
16"	4						4.68	6.53	9.22

表4-4 执行机构：单动作型横推式执行器(ZSHT) Table4-4 Actuator: Single acting horizontal push type actuator(ZSHT)

执行机构型号 Actuator model		SC00150	SC00220	SC00300	SC00450	SC00600	SC00900 /ZD-P180S	SC01200 /ZD-P200S	SC02000 /ZD-P250S	SC03000 /ZD-P300S	SC05000/ ZD-P350S	ZD-P400S
阀门口径 Valve size	气源压力Bar G Air supply pressure											
2"	4	10.2	16.5									
3"	4	5.34	9.87	18.5								
4"	4		3.02	10.2	17.3	25.8						
5"	4			4.78	11.0	15.5	24.3					
6"	4				6.51	9.88	12.5	18.5				
8"	4					3.75	5.42	10.1	24.3	28.6		
10"	4							4.38	12.5	19.5	25.3	
12"	4								6.30	9.75	12.4	30.6
14"	4									3.33	7.65	18.6
16"	4										2.30	8.77

表4-5 执行机构：双动作型立推式大力矩执行器(ZSD) Table4-5 Actuator: Double acting vertical push type large torque actuator(ZSD)

执行机构型号 Actuator model		ZSD1	ZSD2	ZSD3	ZSD4	ZSD5	ZSD6	ZSD7
阀门口径 Valve size	气源压力Bar G Air supply pressure							
40"	4	16.5	22.3					
44"	4	9.86	12.5					
48"	4	3.52	6.75	18.6				
52"	4		2.04	10.3				
56"	4			5.62	17.5			
60"	4				9.36	16.3		
64"	4				3.05	8.44	18.8	
72"	4						9.35	17.6
80"	4						3.72	9.21

图7 ZSS/ZSSTWB气动立推式蝶阀
Figure7 ZSSTWB Pneumatic vertical push type butterfly valve

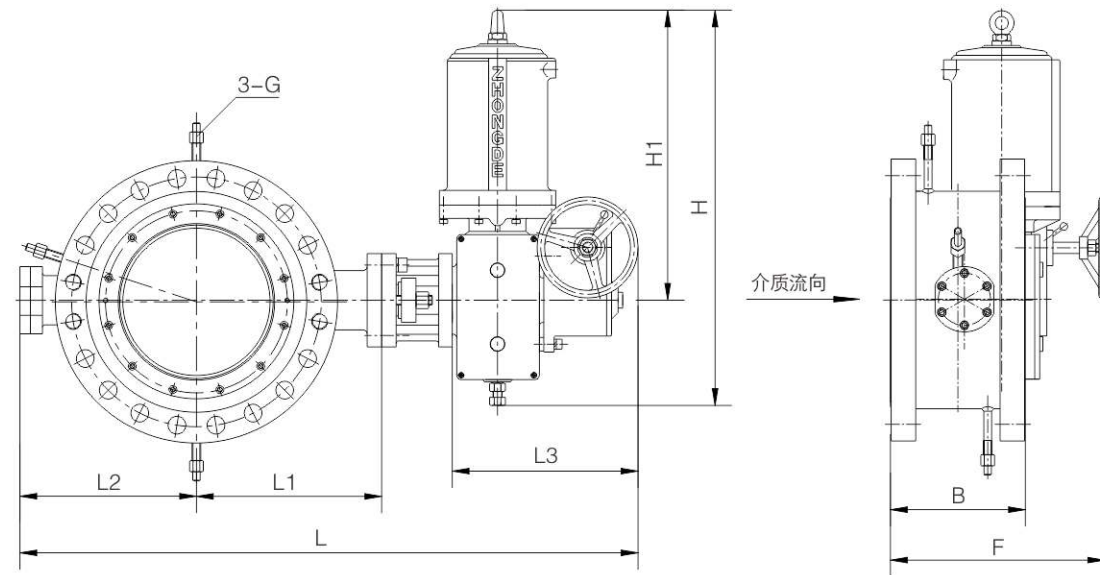


表5-1 ZSSWB气动蝶阀外型尺寸—双作用 Table5-1 ZSSWB Pneumatic butterfly valve outline dimensions—double acting

阀门口径in Valve size	150LB										300LB									
	B	L	L1	L2	L3	F	H	H1	G	重量(kg) Weight	B	L	L1	L2	L3	F	H	H1	G	重量(kg) Weight
2"	114	610	135	125	250	334	540	385	G1/2"	39	180	635	150	135	250	355	540	385	G1/2"	46
3"	140	680	170	160	250	337	540	385	G1/2"	46	200	730	180	170	280	420	670	545	G1/2"	82
4"	140	725	190	185	250	344	540	385	G1/2"	58	210	795	210	205	280	425	670	545	G1/2"	93
5"	152	845	225	220	280	400	670	545	G1/2"	96	230	875	240	235	280	430	670	545	G1/2"	108
6"	152	845	225	220	280	400	670	545	G1/2"	105	230	925	240	235	330	445	960	710	G1/2"	165
8"	165	915	265	250	280	418	670	545	G1/2"	148	250	1015	285	280	330	455	960	710	G1/2"	210
10"	178	1070	305	295	330	422	960	710	G1/2"	215	270	1150	320	310	380	515	970	720	G1/2"	305
12"	190	1120	330	320	330	429	960	710	G1"	266	290	1365	360	345	520	630	960	720	G1"	430
14"	216	1240	370	350	380	485	970	720	G1"	380	310	1430	395	375	520	640	960	720	G1"	530
16"	222	1300	390	380	380	498	970	720	G1"	460	330	1510	425	415	520	650	995	750	G1"	650
18"	229	1510	430	410	520	606	960	720	G1"	540	350	1600	480	450	520	660	995	750	G1"	742
20"	267	1630	490	470	520	610	960	720	G1"	624	390	1820	540	520	610	685	1335	990	G1"	935
24"	292	1830	520	640	520	620	995	750	G1 1/2"	895	430	2000	560	680	610	705	1335	990	G1 1/2"	1260
28"	318	1990	560	730	520	640	995	750	G1 1/2"	1120	470	2195	610	795	610	725	1335	990	G1 1/2"	1605
32"	330	2195	615	790	610	669	1335	990	G1 1/2"	1490	510	2690	670	860	980	885	1500	1050	G1 1/2"	2010
36"	410	2320	690	840	610	675	1335	990	G1 1/2"	1840	550	2800	740	900	980	905	1500	1050	G1 1/2"	2890
40"	410	2470	760	920	610	710	1335	990	G2"	2254	550	2945	815	970	980	925	1510	1060	G2"	3472
44"	410	2995	815	1020	980	855	1500	1050	G2"	2710	550	3210	880	1050	1100	1100	1900	1380	G2"	4290
48"	470	3150	880	1070	980	885	1500	1050	G2"	3256	630	3350	930	1100	1100	1140	1900	1380	G2"	4980
52"	470	3285	940	1145	980	885	1510	1060	G2"	3980	-	-	-	-	-	-	-	-	-	-
56"	530	3525	1005	1200	1100	1090	1900	1380	G2"	4760	-	-	-	-	-	-	-	-	-	-
60"	530	3660	1080	1260	1100	1090	1900	1380	G2"	5640	-	-	-	-	-	-	-	-	-	-

表5-2 ZSSTWB气动蝶阀外型尺寸—单作用 Table5-2 ZSSTWB Pneumatic butterfly valve outline dimensions—single acting

阀门口径in Valve size	150LB										300LB									
	B	L	L1	L2	L3	F	H	H1	G	重量(kg) Weight	B	L	L1	L2	L3	F	H	H1	G	重量(kg) Weight
2"	114	610	135	125	250	334	740	595	G1/2"	68	180	640	150	135	250	355	740	595	G1/2"	79
3"	140	680	170	160	250	337	740	595	G1/2"	80	200	700	180	170	250	370	740	595	G1/2"	122
4"	140	725	190	185	250	344	740	595	G1/2"	92	210	795	210	205	280	415	1250	950	G1/2"	141
5"	152	845	225	220	280	350	740	595	G1/2"	138	230	875	240	235	280	420	1250	950	G1/2"	253
6"	152	845	225	220	280	390	1250	950	G1/2"	172	230	875	240	235	280	425	1250	950	G1/2"	315
8"	165	915	265	250	280	396	1250	950	G1/2"	280	250	1205	285	280	520	610	1332	1060	G1/2"	433
10"	178	1070	305	295	330	402	1250	950	G1/2"	362	270	1290	320	310	520	620	1332	1060	G1/2"	584
12"	190	1310	330	320	520	585	1332	1060	G1"	520	290	1365	360	345	520	630	1420	1125	G1"	742
14"	216	1380	370	350	520	590	1332	1060	G1"	690	-	-	-	-	-	-	-	-	-	-
16"	222	1450	390	380	520	605	1336	1040	G1"	846	-	-	-	-	-	-	-	-	-	-

图8 ZSH/ZSHTWB气动横推式蝶阀 Figure8 ZSH/ZSHTWB Pneumatic horizontal push type butterfly valve

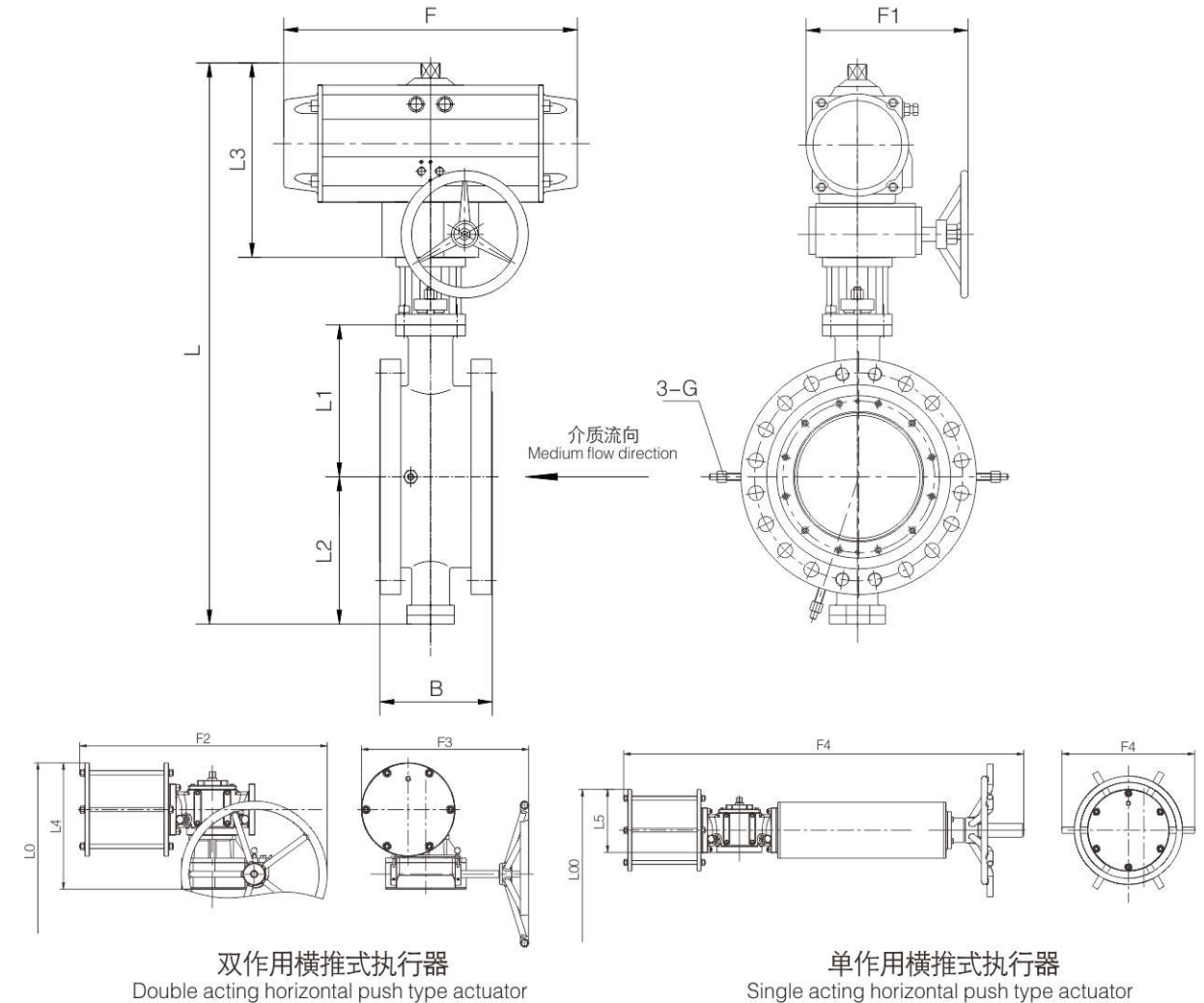


表6-1 ZSH/ZSHTWB气动蝶阀外型尺寸 Table6-1 ZSH/ZSHTWB Pneumatic butterfly valve outline dimensions

阀门口径in Valve size	150LB																重量(kg) Weight
	B	L	L0	L00	L1	L2	L3	L4	L5	F	F1	F2	F3	F4	F5	G	
2"	114	577	-	-	135	125	217	-	-	248	242	-	-	-	-	G1/2"	24
3"	140	647	-	-	170	160	217	-	-	248	242	-	-	-	-	G1/2"	32
4"	140	719	-	-	190	185	244	-	-	268	248	-	-	-	-	G1/2"	40
5"	152	827	-	-	225	220	262	-	-	315	256	-	-	-	-	G1/2"	52
6"	152	839	-	-	225	220	274	-	-	345	262	-	-	-	-	G1/2"	68
8"	165	929	965	-	265	250	294	330	-	409	305	627	300	-	-	G1/2"	101
10"	178	1053	1070	1066	305	295	313	330	326	438	313	627	300	1495	350	G1/2"	134
12"	190	1148	1120	1116	330	320	358	330	326	487	324	627	300	1495	350	G1"	195
14"	216	1257	1262	1186	370	350	397	402	326	543	343	850	362	1495	350	G1"	282
16"	222	1396	1322	1246	390	380	476	402	326	633	407	850	362	1630	375	G1"	435
18"	229	1498	1444	1316	430	410	508	454	326	728	487	1158	440	1630	375	G1"	530
20"	267	1702	1564	1506	490	470	592	454	396	876	551	1158	440	1955	460	G1"	687
24"	292	1900	1764	1706	520	640	592	454	396	876	551	1158	440	1955	460	G1 1/2"	816
28"	318	-	2040	-	560	730	-	570	-	-	-	1158	440	-	-	G1 1/2"	1015
32"	330	-	2155	-	615	790	-	570	-	-	-	1158	440	-	-	G1 1/2"	1320
36"	410	-	2384	-	690	840	-	674	-	-	-	1448	622	-	-	G1 1/2"	1765
40"	410	-	2534	-	760	920	-	674	-	-	-	1448	622	-	-	G2"	2440
44"	410	-	2455	-	815	1020	-	440	-	-	-	1880	845	-	-	G2"	2950
48"	470	-	2610	-	880	1070	-	440	-	-	-	1880	845	-	-	G2"	3480
52"	470	-	2795	-	940	1145	-	490	-	-	-	1880	870	-	-	G2"	3962
56"	530	-	2915	-	1005	1200	-	490	-	-	-	1880	870	-	-	G2"	4765
60"	530	-	3160	-	1080	1260	-	600	-	-	-	2350	980	-	-	G2"	5854

表6-2 ZSH/ZSHTWB气动蝶阀外型尺寸 Table6-2 ZSH/ZSHTWB Pneumatic butterfly valve outline dimensions

阀门口径in Valve size	300LB																重量(kg) Weight
	B	L	L0	L00	L1	L2	L3	L4	L5	F	F1	F2	F3	F4	F5	G	
2"	180	629	-	-	150	135	244	-	-	268	248	627	300	-	-	G1/2"	30
3"	200	712	-	-	180	170	262	-	-	315	256	627	300	-	-	G1/2"	45
4"	210	789	845	-	210	205	274	330	-	345	262	627	300	-	-	G1/2"	61
5"	230	889	925	-	240	235	294	330	-	409	305	850	362	-	-	G1/2"	89
6"	230	908	925	-	240	235	313	330	-	438	313	850	362	-	-	G1/2"	114
8"	250	1043	1087	1011	285	280	358	402	326	487	324	850	362	1495	350	G1/2"	170
10"	270	1167	1172	1096	320	310	397	402	326	543	343	1158	440	1495	350	G1/2"	206
12"	290	1321	1247	1171	360	345	476	402	326	633	407	1158	440	1630	375	G1"	348
14"	310	1418	1364	1236	395	375	508	454	326	728	487	1158	440	1630	375	G1"	480
16"	330	1582	1560	1386	425	415	592	570	396	876	551	1448	622	1955	460	G1"	645
18"	350	1672	1650	-	480	450	592	570	-	876	551	1448	622	-	-	G1"	775
20"	390	-	1884	-	540	520	-	674	-	-	-	1448	622	-	-	G1"	1112
24"	430	-	2064	-	560	680	-	674	-	-	-	1880	845	-	-	G1 1/2"	1430
28"	470	-	2259	-	610	795	-	674	-	-	-	1880	845	-	-	G1 1/2"	1680
32"	510	-	2150	-	670	860	-	440	-	-	-	1880	870	-	-	G1 1/2"	2540
36"	550	-	2260	-	740	900	-	440	-	-	-	1880	870	-	-	G1 1/2"	3186
40"	550	-	2455	-	815	970	-	490	-	-	-	2350	980	-	-	G2"	4035
44"	550	-	2600	-	880	1050	-	490	-	-	-	-	-	-	-	G2"	4610
48"	630	-	2850	-	930	1100	-	600	-	-	-	-	-	-	-	G2"	5430

图9 ZSDWB大口径气动立推式蝶阀 Figure9 ZSDWB Large size pneumatic vertical push type butterfly valve

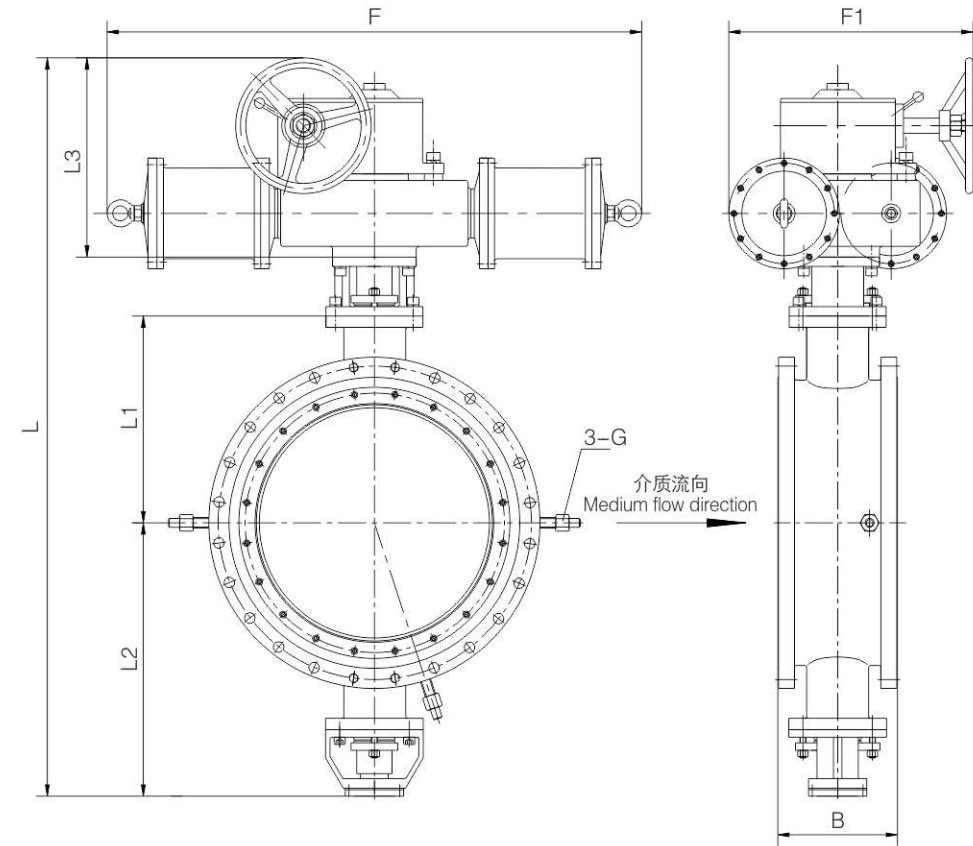


表7 ZSDWB气动蝶阀外型尺寸 Table7 ZSDWB Pneumatic butterfly valve outline dimensions

阀门口径in Valve size	150LB									300LB								
	B	L	L1	L2	L3	F	F1	G	重量(kg) Weight	B	L	L1	L2	L3	F	F1	G	重量(kg) Weight
40"	410	2470	760	920	610	1980	1100	G2"	2590	550	2575	815	970	610	1980	1100	G2"	3180
44"	410	2625	815	1020	610	1980	1100	G2"	2940	550	2720	880	1050	610	2060	1240	G2"	3876
48"	470	2780	880	1070	610	2060	1240	G2"	3812	630	3230	930	1100	980	2280	1355	G2"	4740
52"	470	3285	940	1145	980	2280	1355	G2"	4263	630	3410	1025	1185	980	2280	1355	G2"	5346
56"	530	3405	1005	1200	980	2280	1355	G2"	4995	710	3640	1080	1240	1100	2500	1420	G2"	6236
60"	530	3540	1080	1260	980	2500	1420	G2"	5584	710	3780	1150	1310	1100	2725	1580	G2"	7054
64"	600	3920	1230	1370	1100	2725	1580	G2"	6654	790	4220	1280	1420	1300	3020	1620	G2"	8120
72"	670	4150	1330	1470	1100	2725	1580	G2"	7665	870	4705	1510	1645	1300	3020	1620	G2"	9712
80"	760	4580	1450	1580	1300	3020	1620	G2"	9012	-	-	-	-	-	-	-	-	-

注：以上阀门重量为保温夹套蝶阀标准配置双作用执行器带手操的重量，具体配置时需重新核算。
Note: The weight of the above valve is the weight of heat insulation jacket butterfly valve with standard configuration of double acting actuator and manual operating mechanism. The weight shall be recalculated when detailed configuration is made.

图10 ZDJWB电动蝶阀 Figure10 ZDJWB Electric butterfly valve

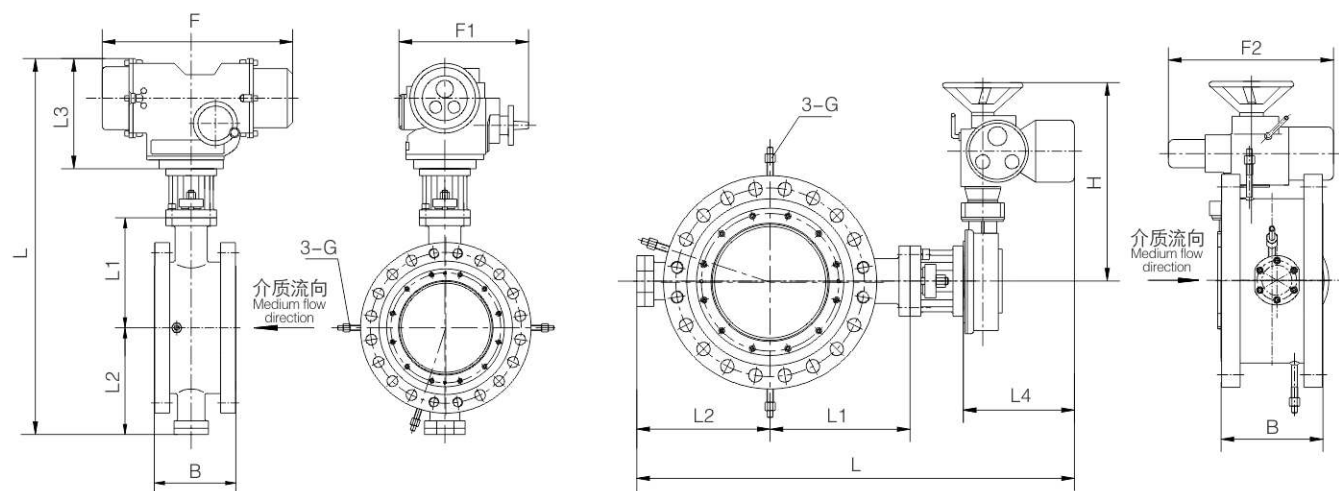


表8-1 电动蝶阀外型尺寸 Table8-1 Electric butterfly valve outline dimensions

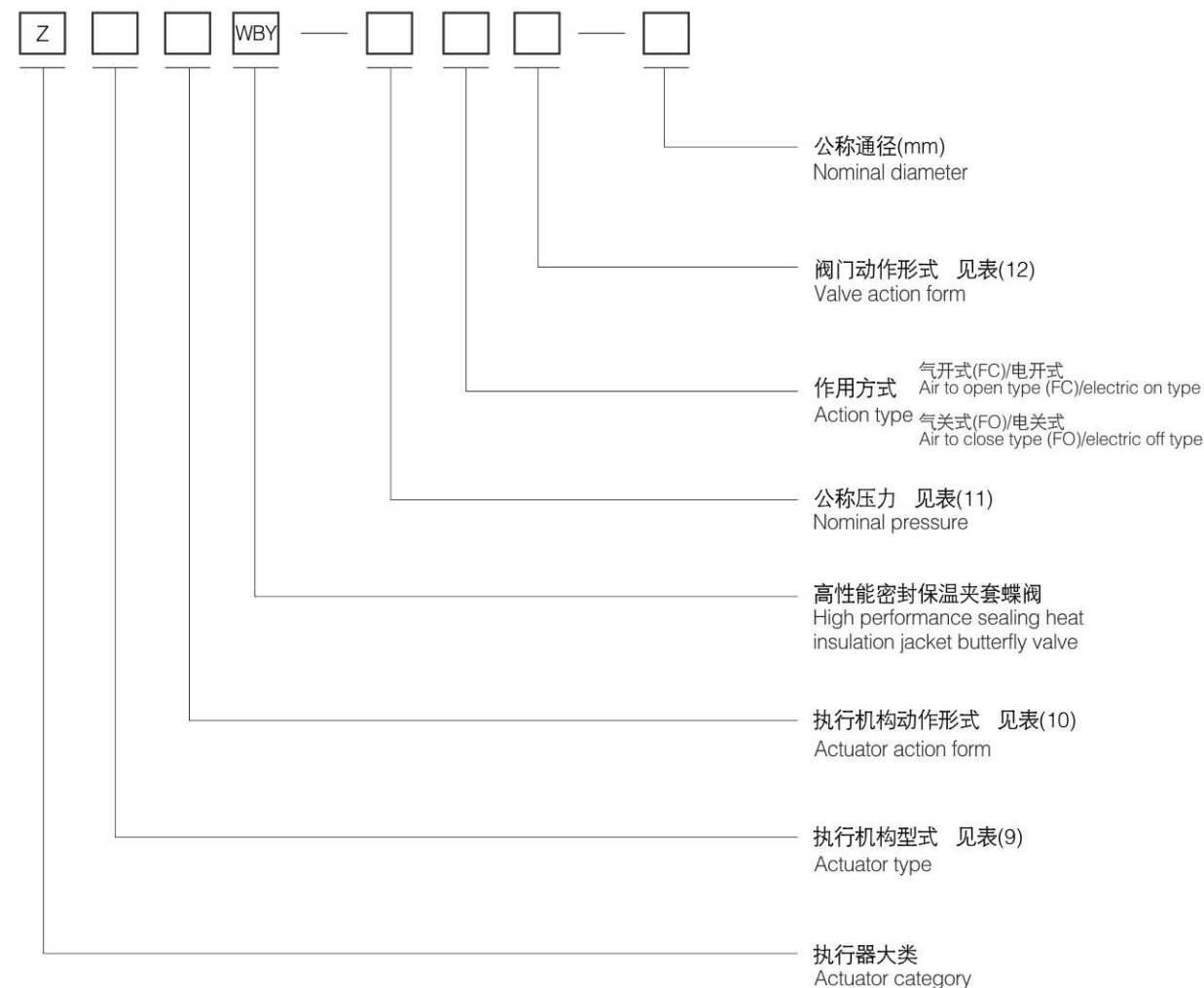
阀门口径in Valve size	150LB											300LB												
	B	L	L1	L2	L3	L4	F	F1	F2	H	G	重量(kg) Weight	B	L	L1	L2	L3	L4	F	F1	F2	H	G	重量(kg) Weight
2"	114	637	135	125	277	-	440	338	-	-	G1/2"	42	180	662	150	135	277	-	440	338	-	-	G1/2"	49
3"	140	707	170	160	277	-	440	338	-	-	G1/2"	50	200	727	180	170	277	-	440	338	-	-	G1/2"	68
4"	140	752	190	185	277	-	440	338	-	-	G1/2"	82	210	792	210	205	277	-	440	338	-	-	G1/2"	102
5"	152	842	225	220	277	-	440	338	-	-	G1/2"	98	230	872	240	235	277	-	440	338	-	-	G1/2"	135
6"	152	842	225	220	277	-	440	338	-	-	G1/2"	102	230	934	240	235	339	-	440	368	-	-	G1/2"	170
8"	165	912	265	250	277	-	440	338	-	-	G1/2"	164	250	1024	285	280	339	-	440	368	-	-	G1/2"	210
10"	178	1079	305	295	339	-	440	368	-	-	G1/2"	206	270	1100	320	310	-	-	-	-	-	-	G1/2"	284
12"	190	1129	330	320	339	-	440	368	-	-	G1"	295	290	1175	360	345	-	330	-	-	626	619	G1"	361
14"	216	1199	370	350	339	-	440	368	-	-	G1"	356	310	1240	395	375	-	330	-	-	626	619	G1"	442
16"	222	1259	390	380	339	-	440	368	-	-	G1"	421	330	1325	425	415	-	330	-	-	626	619	G1"	630
18"	229	1320	430	410	-	330	-	-	626	619	G1"	536	350	1415	480	450	-	335	-	-	626	648	G1"	776
20"	267	1440	490	470	-	330	-	-	626	619	G1"	625	390	1572	540	520	-	335	-	-	626	648	G1"	990
24"	292	1640	520	640	-	330	-	-	626	619	G1 1/2"	804	430	1755	560	680	-	362	-	-	626	648	G1 1/2"	1280
28"	318	1805	560	730	-	335	-	-	626	648	G1 1/2"	1104	470	1950	610	795	-	365	-	-	733	669	G1 1/2"	1662
32"	330	1920	615	790	-	335	-	-	626	648	G1 1/2"	1387	510	2092	670	860	-	365	-	-	733	669	G1 1/2"	2134
36"	410	2092	690	840	-	382	-	-	733	669	G1 1/2"	1865	550	2202	740	900	-	382	-	-	733	669	G1 1/2"	2663
40"	410	2242	760	920	-	382	-	-	733	669	G2"	2430	550	2360	815	970	-	382	-	-	733	669	G2"	3142
44"	410	2397	815	1020	-	382	-	-	733	669	G2"	2950	550	2505	880	1050	-	395	-	-	733	721	G2"	3765
48"	470	2565	880	1070	-	395	-	-	733	721	G2"	3530	630	2652	930	1100	-	395	-	-	733	721	G2"	4495
52"	470	2707	940	1145	-	402	-	-	733	755	G2"	4027	630	2847	1025	1185	-	402	-	-	733	755	G2"	5276
56"	530	2842	1005	1200	-	417	-	-	770	755	G2"	4845	710	2957	1080	1240	-	417	-	-	770	755	G2"	6145
60"	530	2977	1080	1260	-	417	-	-	770	803	G2"	5740	710	3104	1150	1310	-	417	-	-	770	755	G2"	6867
64"	600	3244	1230	1370	-	424	-	-	770	803	G2"	6607	790	3377	1280	1420	-	424	-	-	770	803	G2"	7398
72"	670	3474	1330	1470	-	424	-	-	770	803	G2"	7762	870	3862	1510	1645	-	457	-	-	770	829	G2"	8980
80"	760	3737	1450	1580	-	457	-	-	770	829	G2"	9015	-	-	-	-	-	457	-	-	770	829	-	-

注：1、以上为参考尺寸，根据阀门实际所配执行机构形式、型号或品牌的不同，阀门整体外形尺寸不同，具体可咨询我公司。
2、蒸汽接口尺寸可按用户要求制作。

Note: 1. The above size is only for reference. The outline dimensions of the valve may vary according to different actuator types, models or brands for the valve. Please contact our company for more details.

2. The steam connection size can be made according to user requirements.

型号编制 Model establishment



表(9) Table9

执行机构型式 Actuator type	薄膜式 Diaphragm type	活塞式 Piston type	电动式 Electric type	电液联动式 Electro-hydraulic type
代号 Code	M	S	D	Y

表(10) Table10

执行机构动作形式 Actuator action form	气动双作用横推式 Pneumatic double acting horizontal push type	气动双作用立推式 Pneumatic double acting vertical push type	气动单作用弹簧复位式 Pneumatic single acting spring return type	电动/电液动转角式 Electric/electro-hydraulic rotary angle type
代号 Code	H	S	T	J

表(11) Table11

公称压力 Nominal pressure	CL150LB	CL300LB
代号 Code	20	50

表(12) Table12

阀门动作形式 Valve action form	调节型 Control type	二位切断型 Two-position shut-off type	快速切断调节型 Fast shut-off control type
代号 Code	I	II	III

示例：
ZSSWBY-20K III -500 气动高性能密封保温夹套蝶阀，公称压力150LB，气开式，快速切断调节型，配气动双作用立推式执行器，公称通径为20"(500mm)。
ZDJWBY-50BI-200 电动高性能密封保温夹套蝶阀，公称压力300LB，电关式，调节型，配电动执行器，公称通径为8"(200mm)。

For example:
Pneumatic high performance sealing heat insulation jacket butterfly valve, nominal pressure 150LB, air to open type, fast shut-off control type, equipped with double acting vertical push type actuator, nominal diameter 20"(500mm)
Electric high performance sealing heat insulation jacket butterfly valve, nominal pressure 300LB, electric off type, control type, equipped with electric actuator, nominal diameter 8"(200mm)

配管安装位置

- 1、蝶阀可在水平或垂直管道上安装，但气动立推式执行机构一般正立安装（除特殊说明外）见图11。使用前应对管道及压缩空气管路进行吹扫，彻底清洗管路和阀内腔污物、焊渣、润滑油脂等异物。
- 2、对于公称通径DN≥500的阀门，建议将执行机构增加弹性支撑或悬吊装置，以免执行机构过重，影响阀门正常操作。
- 3、保温夹套蝶阀为单流向结构，请在订货时一定要注明安装位置。

正确操作

- 1、阀门在出厂时已经过必要性的性能测试，且按订单要求进行了整定，用户一般可直接安装使用。
- 2、使用手轮操作时，先将气缸内的残余气体通过电磁阀（或控制元件）排空（在气缸内有残余气体的情况下）。
- 3、双作用气缸先将执行器的平衡阀打开，然后将转换手柄置于“手动”位置，使蜗杆与蜗轮处于完全吻合状态。用手轮操作时请勿用力过大（不可借用其他的外力工具）。

特别提示：

- 带手动操作机构的阀门在弹簧复位(关闭阀门)或是气动开启(关闭)阀门过程中，任何一个开度都不能使用“自动手动”切换。**
- 4、操作时，请参照执行器上铭牌指示。
 - 5、对于单作用执行机构，在拆卸气缸时，一定要使用专用工具。

Pipe installation position

1. The butterfly valve can be installed on horizontal or vertical pipe, but the pneumatic vertical push type actuator shall be generally installed vertically (except those specially noted). See figure 11. Before the use, please scavenge the pipe and compressed air pipe to thoroughly clean away foreign matters such as dirty things, welding slag, lubricating grease, etc. in the pipes and valve cavity.
2. For valves with nominal diameter DN≥500, it is recommended that the actuator should be additionally provided with elastic supporting or hoisting device. Otherwise, too heavy actuator may influence normal operation of the valve.
3. The heat insulation jacket butterfly valve is of single flow direction structure. Please make sure to specify the installation position when placing orders.

Correct operation

1. The valve has undergone necessary performance tests before leaving the factory, and setting has been made according to order requirements, so users can install and use it directly.
2. When using the operating mechanism for operation, first empty the residual gas in the cylinder through the solenoid valve (or control element) (in case there is residual gas in the cylinder).
3. For the double acting cylinder, first open the balancing valve of the actuator, turn the change-over handle to the "manual" position to make the worm and worm gear fully fit with each other. Do not use excessive force when operating the handwheel (other tools shall not be used).

Special hint:

- For the valve with manual operating mechanism, during spring return (closing the valve) or pneumatic valve opening (closing), any opening cannot be switched through using "automatic-manual" .**
4. During operation, please refer to the indication on the nameplate of the actuator.
 5. For single acting actuators, please use special tools when removing the cylinder.

维护与保养

1. 正常检查：每年进行一次，检查各管接着部分有无漏气，应换O型密封圈或有关螺钉，检查空气的净化情况，排除过滤器中冷凝水，检查各螺纹连接部有无松动。
2. 输出轴上的轴承、手操机构切换轴上的轴承等转动部位每三个月或半年加一次足够的润滑油脂。
3. 检修时应检查并清洗缸套及活塞，如发现O型密封圈有损坏或老化时应及时更换，装配时应在气缸壁和密封圈沟槽内涂润滑油，并注意缓慢将活塞推入气缸，以免损坏O型密封圈。
4. 当装置较长时间停止后，再次开启时请先确保阀门保温层内的冷凝水排净。
5. 气源压力应在0.35~0.7MPa(G)范围内，气源应经除尘、脱水等净化处理。

Maintenance and servicing

1. Normal check: Carry out normal check once every year to check if there is any gas leakage at the connecting parts, and replace the O rings or relevant bolts if there is any. Check the air cleanliness. Eliminate condensate in the filter. Check if the connecting parts of all threads are loose.
2. The bearings on the output shaft and the bearings on the change-over shaft of the manual operating mechanism and other moving parts shall be added with sufficient lubricating grease once every three or six months.
3. During maintenance, please check and clean the cylinder cover and piston. If it is found that the O rings are damaged or age, please replace them in time. During assembly, please spread lubricating grease on the cylinder wall and inside the groove of seal rings. Notice that the piston shall be slowly pushed into the cylinder. Otherwise, the O rings may be damaged.
4. When the device is reopened after having been stopped for a long time, please first ensure that the condensing water in the heat insulation layer of the valve is thoroughly removed.
5. The air supply pressure shall be within the range of 0.35 ~ 0.7MPa(G). The air supply shall be subjected to dust removing and dehydrating treatment.

订货须知

当您订货时，请明确注明以下各项内容：

1. 阀门口径及阀内孔径
2. 阀体规格及连接形式
3. 阀体材质及阀内件材质
4. 阀门特性及阀芯形式
5. 阀盖形式
6. 执行机构型号是否配手操及气源压力
7. 阀门动作(气源故障要求)
8. 是否要带定位器、电磁阀、空气过滤减压阀等
9. 是否要除油、除水、无铜等特殊规格
10. 配管尺寸、管壁厚(入口侧、出口侧)
11. 流体的名称、状态(液、气、蒸汽等)
12. 常用流量及最大、最小流量
13. 流体压力及压差(全开、全闭时)
14. 流体的温度、比重或密度
15. 流体的粘度、有无浆料、闪蒸
16. 是否用于高压、高温场合
17. 其他特殊要求

Ordering notes

When placing orders, please specify the following items:

1. Valve size and valve bore
2. Body specification and type of connection
3. Body material and trim material
4. Valve characteristic and valve plug form
5. Bonnet form
6. Actuator model and shall it be provided with manual operating mechanism and air supply pressure
7. Valve action (air supply failure requirement)
8. Shall it be provided with positioner, solenoid valve, Air set, etc.
9. Are products of special specifications such as oil removing, water removing and copper-free needed
10. Tube size, tube wall thickness (inlet side, outlet side)
11. Fluid name and status (liquid, gas, steam, etc.)
12. Common flow and maximum and minimum flow
13. Fluid pressure and differential pressure (during full opening and full closing)
14. Fluid temperature, specific gravity or density
15. Fluid viscosity, containing slurry or not, flash evaporation
16. Is it used for high pressure and high temperature applications
17. Other special requirements

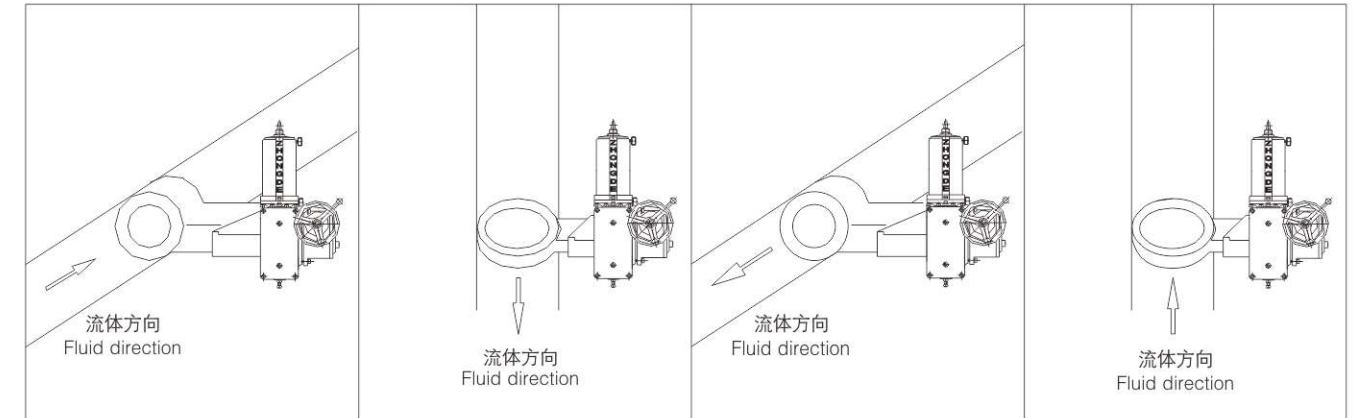


图11 保温夹套蝶阀安装示意图
Heat insulation jacket butterfly valve installation schematic figure