

D643H 气动硬密封蝶阀系列

D643H Series Pneumatic Metal-Seated Butterfly Valves

使
用
说
明
书

Operating instructions



开 维 喜 阀 门 集 团 有 限 公 司
Kaiweixi Valve Group Co., LTD.

D643H 气动硬密封蝶阀

D643H Pneumatic Metal-Sealed Butterfly Valve

型号: D643H	规格: DN50-DN1200
公称压力: PN10~PN25	适用介质: 水、油品及类似液体、气体
适用温度: $\leq 425^{\circ}\text{C}$	阀体材质: 铸铁、球铁、不锈钢
连接方式: 法兰	驱动方式: 气动
Model: D643H	
Size: DN50-DN1200	
Nominal Pressure: PN10-PN25	
Applicable Medium: Water, oil, similar liquids, and gas	
Applicable Temperature: $\leq 425^{\circ}\text{C}$	
Body Material: Cast iron, ductile iron, stainless steel	
Connection Type: Flange	
Actuation Type: Pneumatic	

概述

D643H 气动硬密封蝶阀是一种采用金属硬密封结构，并以压缩空气为动力驱动蝶板作 90° 回转运动，实现管道介质启闭或调节的阀门。该阀门采用三维偏心或多偏心设计原理，在启闭过程中蝶板密封面与阀座密封面能迅速脱离与贴合，大幅减小摩擦磨损。其传动机构通过气动执行器输出扭矩，驱动阀杆带动蝶板在阀体内精密旋转。阀座与蝶板密封副均采用金属材料（如不锈钢、硬质合金等），通过特殊工艺加工成型，形成高硬度的金属对金属密封。D643H 气动硬密封蝶阀特别适用于高温、高压、腐蚀性及含有微小固体颗粒的苛刻工况，在电力、冶金、石化、城市供热等工业领域的关键管路中得到广泛应用。

Overview

The D643H Pneumatic Hard-Sealed Butterfly Valve is a type of valve that utilizes a metal hard-sealed structure and is driven by compressed air to actuate the disc in a 90° rotary motion, enabling the opening, closing, or regulation of pipeline media. This valve employs a three-dimensional eccentric or multi-eccentric design principle, allowing the disc sealing surface and the valve seat sealing surface to quickly separate and engage during operation, significantly reducing friction and wear. Its transmission mechanism uses the torque output from the pneumatic actuator to drive the valve stem, which precisely rotates the disc within the valve body. Both the valve seat and the disc sealing pair are made of metal materials (such as stainless steel, hard alloys, etc.), processed through specialized techniques to form a high-hardness metal-to-metal seal. The D643H Pneumatic Hard-Sealed Butterfly Valve is particularly suitable for demanding applications involving high temperatures, high pressures, corrosive media, and fluids containing fine solid particles. It is widely used in critical pipelines across industries such as power generation, metallurgy, petrochemicals, and urban heating systems.



D643H 气动硬密封蝶阀产品图

Product Illustration of D643H Pneumatic Hard-Seal Butterfly Valve

特点

- 1、金属硬密封结构：阀座与蝶板密封面采用堆焊不锈钢、司太立合金或喷涂硬质材料等工艺，形成高硬度金属密封副，耐磨损、耐冲刷，使用寿命远超软密封蝶阀。
- 2、多偏心设计：采用单偏心、双偏心或三偏心结构设计，在阀门启闭时蝶板与阀座能瞬间脱离接触，实现无摩擦开启与关闭，操作扭矩小，密封面磨损极低。
- 3、高温高压性能：金属硬密封结构使其能适应更高的工作温度（通常可达 425℃ 以上）和更高的工作压力，适用于蒸汽、导热油、高温烟气等高温高压介质。
- 4、气动快速控制：配备高性能气动执行器（活塞式或叶片式），启闭速度快，可实现远程自动控制或与 DCS/PLC 系统集成，满足自动化流程控制要求。
- 5、优良的密封性能：依靠偏心结构产生的楔形挤压作用，在关闭时能实现金属密封面的紧密贴合，具备良好的双向密封性能，泄漏等级可达 ANSI Class VI 或更高标准。
- 6、耐腐蚀与耐磨粒：金属密封面硬度高，且阀体内腔与关键部件可采用耐腐蚀合金材料或表面硬化处理，能有效抵抗介质腐蚀和固体颗粒的冲刷磨损，适用于含粉尘、颗粒的浆液或烟气管道。
- 7、防火安全设计：部分型号具备防火功能，当发生火灾时，软密封材料烧毁后，金属密封副仍能保持一定的密封性能，防止介质大量泄漏，符合 API 607 等防火标准。
- 8、长寿命与低维护：由于摩擦小、耐磨损，阀门使用寿命长；维护周期延长，在正常工况下可长期免维护运行，显著降低总体使用成本。

Features

Metal Hard-Seal Structure

1、The valve seat and disc sealing surfaces are treated through processes such as overlay welding with stainless steel, Stellite alloy, or hard material coating, forming a high-hardness metal sealing pair. This design offers excellent wear and erosion resistance, with a service life significantly exceeding that of soft-sealed butterfly valves.

2、Multi-Eccentric Design

Utilizing single-eccentric, double-eccentric, or triple-eccentric construction, the disc instantly separates from the seat during valve operation, achieving friction-free opening and closing. This results in low operating torque and minimal wear on the sealing surfaces.

3、High-Temperature and High-Pressure Performance

The metal hard-seal structure enables the valve to withstand higher operating temperatures

(typically up to 425° C or above) and higher working pressures, making it suitable for high- temperature and high- pressure media such as steam, thermal oil, and hot flue gas.

4、Pneumatic Rapid Control

Equipped with a high- performance pneumatic actuator (piston or vane type), the valve provides fast opening and closing speeds. It supports remote automatic control and integration with DCS/PLC systems to meet automated process control requirements.

5、Excellent Sealing Performance

Relying on the wedge- like compression effect generated by the eccentric design, the valve ensures tight contact of the metal sealing surfaces when closed. It offers reliable bidirectional sealing, with leakage levels reaching ANSI Class VI or higher standards.

6、Corrosion and Abrasion Resistance

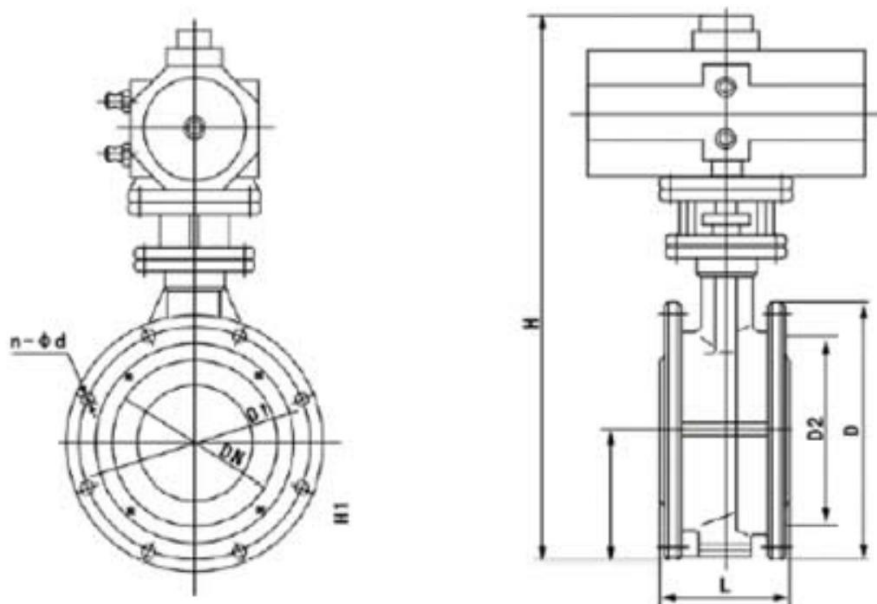
The high hardness of the metal sealing surfaces, combined with the option of corrosion- resistant alloy materials or surface hardening treatments for the valve body and key components, effectively resists medium corrosion and erosion from solid particles. Suitable for slurry or flue- gas pipelines containing dust or particulate matter.

7、Fire- Safe Design

Selected models incorporate fire- safe functionality. In the event of a fire, the metal sealing pair can maintain a certain degree of sealing performance even after any soft sealing materials are destroyed, preventing large- scale media leakage. Complies with fire- safety standards such as API 607.

8、Long Service Life and Low Maintenance

Thanks to minimal friction and high wear resistance, the valve delivers extended service life. Maintenance intervals are prolonged, allowing for long- term maintenance- free operation under normal conditions, significantly reducing overall lifecycle costs.



D641H 气动硬密封蝶阀结构图

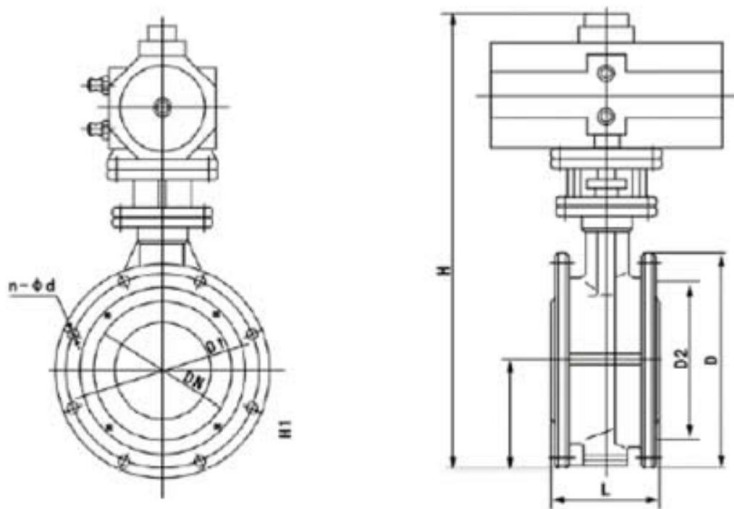
Structural Diagram of D641H Pneumatic Hard-sealed Butterfly Valve

零部件名称材料表 Parts List and Materials Specification

名称 Name	材料 material
阀体 Valve Body	铸铁、球铁、不锈钢 Cast iron, ductile iron, stainless steel
蝶板 Disc	WCB 碳钢 / 合金钢 / 不锈钢 (密封面堆焊钴基硬质合金) WCB Carbon Steel / Alloy Steel / Stainless Steel (sealing surface overlaid with cobalt-based hard alloy)
阀轴 (阀杆) Stem	2Cr13 不锈钢 / 合金钢 2Cr13 Stainless Steel / Alloy Steel
密封圈 Seat Ring	不锈钢圈 Stainless Steel Ring
填料 Packing	柔性石墨 Flexible Graphite
螺栓 / 螺母 Bolts / Nuts	碳钢 (或不锈钢, 匹配阀体材质) Carbon Steel (or Stainless Steel, matching valve body material)
气动执行器 Pneumatic Actuator	铝合金 (缸体) + 碳钢 (附件) Aluminum Alloy (cylinder) + Carbon Steel (accessories)

性能规范表 Performance Specification Table

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公称压力 Nominal Pressure	1.0/1.6/2.5	MPa
强度试验压力 Strength Test Pressure	1.5/2.4/3.75	
密封试验压力 Seal Test Pressure	1.1/1.76/2.75	
适用温度 Applicable Temperature	≤425	℃



D643H 气动硬密封蝶阀外形尺寸图

D643H Pneumatic Metal-Sealed Butterfly Valve Overall Dimension Drawing

D643H 气动硬密封蝶阀外形尺寸表

D643H Pneumatic Metal-Sealed Butterfly Valve overall dimension table

公称通径 (DN) Nominal Diameter (DN)	主要尺寸 Principal Dimensions			法兰尺寸和螺栓规格 Flange Dimensions and Bolt Specifications								
				1.0 MPa			1.6 MPa			2.5 MPa		
	L	H1	H	D	D1	n-Φd	D	D1	n-Φd	D	D1	n-Φd
50	108	350	112	165	125	4-18	165	125	4-18	165	125	4-18
65	112	370	115	185	145	4-18	185	145	4-18	185	145	8-18
80	114	380	120	200	160	4-18	200	160	8-18	200	160	8-18
100	127	420	138	220	180	8-18	220	180	8-18	235	190	8-22
125	140	460	164	250	210	8-18	250	210	8-18	270	220	8-26
150	140	555	175	285	240	8-22	285	240	8-22	300	250	8-26
200	152	760	200	340	295	8-22	340	295	12-22	360	310	12-26
250	165	830	243	395	350	12-22	405	355	12-26	425	370	12-30
300	178	895	250	445	400	12-22	460	410	12-26	485	430	16-30
350	190	950	280	505	460	16-22	520	470	16-26	555	490	16-33
400	216	1190	305	565	515	16-26	580	525	16-30	620	550	16-36
450	222	1255	350	615	565	20-26	640	585	20-30	670	600	20-36
500	229	1305	380	670	620	20-26	715	650	20-33	730	660	20-36
600	267	1340	445	780	725	20-30	840	770	20-36	845	770	20-39
700	292	1520	480	895	840	24-30	910	840	24-36	960	875	24-42
800	318	1710	530	1015	950	24-33	1025	950	24-39	1085	990	24-48
900	330	1810	580	1115	1050	28-33	1125	1050	28-39	1185	1090	28-48
1000	410	1960	650	1230	1160	28-36	1255	1170	24-42	1320	1210	28-58
1200	470	2250	760	1455	1380	32-39	1485	1390	32-48	1530	1420	32-56

安装与维护须知

一、 安装说明

安装前检查:

核对验证: 仔细核对阀门铭牌上的型号 (D643H)、公称通径 (DN)、压力等级 (PN 或 Class)、阀体材质及执行机构规格, 确认其与管道设计要求完全一致。核对阀体上的流向箭头, 确保与介质流向匹配。

外观与内部检查: 检查阀门及气动执行器外观, 确保无运输损伤。特别检查 阀座、蝶板等硬密封面 (通常为金属或硬质合金) 有无磕碰或划伤。清除阀腔内所有包装物、防锈剂及杂物。

手动功能测试: 将执行机构切换至 “手动” 模式, 利用手轮或手柄操作。确认蝶板启闭全程 无卡涩、跳跃感, 动作平滑。测试后, 将蝶板置于 微开状态 (约 15° 开度), 以便管道安装对准。完成后切换回 “自动” 模式。

安装位置与方向:

阀门可安装于水平或垂直管道。由于其通常用于较高要求工况, 安装位置必须预留充足空间, 便于气路连接、附件维护、手动操作以及散热 (高温工况)。

流向确认: 必须严格遵守 阀体上标示的介质流向箭头。硬密封蝶阀通常为 单向密封 或 优先流向密封, 反向安装将导致密封失效或寿命急剧缩短。

管道对接要求:

使用与阀门法兰匹配的 标准管道法兰。确保管道法兰密封面形式 (如突面 RF、凹凸面 MFM) 与阀门法兰一致, 垫片材质应适合工况。

严禁 通过强力拧紧螺栓来纠正管道法兰与阀门法兰之间的错位、倾斜或间隙过大。安装前应校准管道, 保证两端法兰平行对中。

将阀门置于两法兰之间, 初步穿入所有螺栓并用手拧紧。

分步均匀拧紧: 使用扭矩扳手, 严格按照 对角、交叉的顺序, 分 至少三轮 (如 50%, 80%, 100%) 逐步均匀拧紧所有螺栓至规定扭矩值。此步骤对硬密封阀门防止泄漏至关重要, 能避免阀体变形影响密封副的精密配合。

气动执行机构安装与调试:

执行机构通常已预装。阀门就位紧固后, 进行气路和电气连接。

气源连接: 连接洁净、干燥、稳定的气源至执行机构进气口 (通常标示为 “IN”)。气源压力必须符合执行器要求, 强烈建议 在气路中安装过滤减压阀和油雾器 (若执行机构需要润滑)。

初始手动操作: 在通气前, 确认执行机构处于 “手动” 模式。

行程与限位调试 (关键步骤):

- 切换至 “自动” 模式, 通气使阀门 关闭。
- 精细调节 执行机构上的 关向限位螺钉, 使蝶板达到预设的密封关闭位置。对于硬密封阀门, 轻微的过调或欠调都可能影响密封效果, 需反复微调验证。

- c. 通气使阀门 开启。
- d. 精细调节 开向限位螺钉，使蝶板达到全开位置（通常为 90°）。
- e. 进行多次完整的开关循环，观察动作是否平稳、无冲击，终点位置是否重复性好且无泄漏。

附件调试： 如配置 定位器、电磁阀、限位开关、位置变送器 等，严格按其说明书接线、设定和校准。定位器的零点、满度调节对硬密封阀的调节性能尤为关键。

二、 使用与操作说明

开启与关闭操作：

首次或长期停用后启用： 建议在系统低压或无压状态下，通过手动模式或慢速气动控制，非常缓慢地 进行数次全行程操作，以使硬密封副（金属对金属或金属对复合层）得到初步磨合，并清除可能存在的微小颗粒。

正常自动操作： 通过控制系统信号操作。硬密封阀门关闭时通常需要更高的密封比压，操作中可能感觉启闭力矩较大，此为正常现象。

手动操作： 气源故障或调试时使用。操作前必须切换至“手动”模式，操作力应平稳均匀。硬密封阀门在接近关闭位置时阻力会明显增加，此为密封面开始接触挤压所致，应持续稳定施力直至完全关闭，但切勿使用加长杠杆暴力操作。

开度调节：

当配备高性能 气动定位器 时，本阀门可用于精确的流量、压力调节。其硬密封特性在部分开度下比较密封具有更好的抗冲蚀性，但仍有限度。

避免长期小开度运行： 不建议 长期在 极小开度（如 $<20^\circ$ ） 下作节流使用，尤其是高压差场合，以免高速流体对密封面特定部位造成严重冲蚀。

定期全行程运动： 若长期用于调节，应 每周或每半月 进行一次全开全关操作，以保持阀门灵活性，防止杂质在密封面堆积。

重要注意事项：

流向与压力： 严禁反向承压使用（除非明确标注为双向密封）。关闭时，介质压力应作用于使蝶板与阀座贴合更紧的方向（即推荐流向）。

高温工况： 用于高温介质时，冷态安装紧固后，系统升温至工作温度并稳定运行一段时间后，必须 在热态下对所有法兰螺栓进行 热态再紧固，以补偿材料热膨胀差异。

低温工况： 用于低温时，应注意阀杆填料等部件的低温适应性，并确保阀门内部干燥，防止结冰。

颗粒介质： 介质中含有固体颗粒时，建议在阀门上游安装过滤器，并在操作时避免在颗粒可能卡滞的位置（如半开状态）停留过久。

三、 维护与保养说明

日常维护：

定期巡检阀门外部、法兰连接处及气路管接头有无泄漏。

保持阀门和执行机构清洁，特别是阀杆伸出部位，防止灰尘、腐蚀性物质堆积。

定期检查气源处理元件（过滤器、减压阀），排放冷凝水，确保气源质量。

观察阀门动作是否正常，有无异常声音或振动。

定期检查:

根据工况严酷程度（温度、压力、腐蚀性、冲刷性），建议每 3 至 12 个月 进行一次系统的预防性检查和维护。

阀门部分:

检查阀杆密封（填料函）有无泄漏，适度调整压盖。

检查法兰螺栓预紧力。

重点检查密封副磨损情况。可通过性能测试或视检口（如有）进行。检查密封面有无明显的冲蚀、划痕、压痕或点蚀。

执行机构与附件部分:

检查执行器外观及紧固件。

检查手动机构功能。

对需要润滑的齿轮、轴承部位加注指定型号的高温或长效润滑脂。

检查定位器零点、满度漂移情况，清洁气路放大器节流孔。

检查限位开关、电磁阀的动作可靠性。

存放要求:

长期存放时，阀门应处于微开状态（约 5° - 15° ），避免硬密封面长期受压产生塑性变形或“压痕”。

封闭阀门两端口，防止异物进入。

执行机构切换至“手动”模式，并存放在安全位置。

断开气源和电源，对裸露接口进行防尘防潮保护。

存放于干燥、通风的室内环境，远离腐蚀性气氛。

常见故障与处理:

阀门泄漏（关闭不严）:

检查气源压力是否足够，执行机构输出力矩是否达标。

检查并重新精确调整 关向限位。

检查密封面是否有异物卡塞或损伤。轻微损伤有时可通过精细研磨修复。

检查阀门流向是否正确。

阀门不动作或动作异常:

检查气源、电路是否正常。

检查电磁阀、定位器是否故障。

切换至手动模式，如手动操作困难，可能阀门内部因杂质、热胀冷缩或密封面损伤导致卡阻。

检查执行机构是否内部泄漏损坏。

操作扭矩过大:

检查是否介质温度、压力超出设计范围。

检查密封面是否过度磨损或发生粘着磨损（高温下易发生）。

检查管道应力是否传递至阀体。

检查润滑是否失效。

重要提示： 硬密封蝶阀的密封副（如多层金属阀座、蝶板密封圈）是核心精密部件。其更换、修复或研磨工作需要专业工具和技术。除非用户具备专门知识和条件，否则强烈建议将此类维修工作委托给专业技术人员或阀门制造商，以确保恢复其原有性能。

Installation and Maintenance Instructions

I. Installation Instructions

Pre-Installation Inspection:

Verification: Carefully verify that the model (D643H), nominal diameter (DN), pressure rating (PN or Class), body material, and actuator specifications on the valve nameplate exactly match the pipeline design requirements. Confirm that the flow direction arrow on the valve body aligns with the intended medium flow.

Visual and Internal Inspection: Inspect the valve and pneumatic actuator for any damage incurred during transportation. Pay particular attention to the hard sealing surfaces (typically metal or hard alloy) of the seat and disc for any impact marks or scratches. Remove all packaging materials, rust preventatives, and debris from the valve cavity.

Manual Function Test: Switch the actuator to "Manual" mode and operate it using the handwheel or lever. Confirm that the disc opens and closes smoothly throughout its travel without sticking or jumping. After testing, position the disc in a slightly open state (approximately 15° open) to facilitate pipeline alignment during installation. Switch back to "Automatic" mode upon completion.

Installation Position and Orientation:

The valve can be installed in horizontal or vertical pipelines. Given its typical application in demanding service conditions, the installation location must provide ample space for air line connections, accessory maintenance, manual operation, and heat dissipation (for high-temperature applications).

Flow Direction Confirmation: It is imperative to strictly adhere to the medium flow direction arrow marked on the valve body. Hard-sealed butterfly valves are generally designed for unidirectional sealing or preferred flow direction sealing. Installation in the reverse direction will lead to seal failure or a drastic reduction in service life.

Pipeline Connection Requirements:

Use standard pipeline flanges compatible with the valve flanges. Ensure the pipeline flange face type (e.g., Raised Face RF, Male-Female MFM) matches the valve flange, and that the gasket material is suitable for the service conditions.

It is strictly forbidden to forcibly tighten bolts to correct misalignment, inclination, or excessive gaps between the pipeline flanges and the valve flanges. Align the pipeline before installation to ensure both end flanges are parallel and concentric.

Position the valve between the two flanges, insert all bolts initially, and hand-tighten them.

Stepwise and Uniform Tightening: Using a torque wrench, strictly follow a crosswise, alternating sequence to gradually and uniformly tighten all bolts to the specified torque value

in at least three rounds (e.g., 50%, 80%, 100%). This step is crucial for hard-sealed valves to prevent leakage, as it avoids valve body deformation that could compromise the precision fit of the sealing pair.

Pneumatic Actuator Installation and Commissioning:

The actuator is typically pre-mounted. Connect the pneumatic and electrical circuits after the valve is positioned and secured in the pipeline.

Air Supply Connection: Connect a clean, dry, and stable air supply to the actuator inlet port (usually marked "IN"). The air supply pressure must comply with the actuator requirements. It is strongly recommended to install a filter regulator and, if required by the actuator, a lubricator in the air line.

Initial Manual Operation: Before supplying air, confirm the actuator is in "Manual" mode.

Travel and Limit Adjustment (Critical Step):

- a. Switch to "Automatic" mode and supply air to close the valve.
- b. Precisely adjust the close-direction limit screw on the actuator to position the disc at the preset sealed closed position. For hard-sealed valves, even slight over- or under-adjustment can affect sealing performance, requiring repeated fine-tuning and verification.
- c. Supply air to open the valve.
- d. Precisely adjust the open-direction limit screw to position the disc at the full open position (typically 90°).
- e. Perform several complete open-close cycles, observing whether the action is smooth and shock-free, and whether the end positions are repeatable and leak-free.

Accessory Commissioning: If equipped with accessories such as a positioner, solenoid valve, limit switch, or position transmitter, strictly follow their respective manuals for wiring, parameter setting, and calibration. The zero and span adjustments of the positioner are particularly critical for the modulating performance of hard-sealed valves.

II. Operation and Use Instructions

Opening and Closing Operations:

Initial Start-up or After Prolonged Shutdown: It is recommended to perform several full-stroke operations very slowly under low or no system pressure, using manual mode or slow pneumatic control. This allows for initial running-in of the hard sealing pair (metal-to-metal or metal-to-composite) and removes any potential fine particles.

Normal Automatic Operation: Operate via control system signals. Hard-sealed valves typically require higher sealing specific pressure when closing, which may result in a perceptibly higher operating torque; this is normal.

Manual Operation: Use in case of air supply failure or during commissioning. The actuator must be switched to "Manual" mode before operation. Apply force steadily and uniformly. Resistance will increase noticeably as a hard-sealed valve approaches the closed position due to initial contact and compression of the sealing surfaces. Apply continuous, steady force until fully closed,

but do not use extended levers for forced operation.

Opening Adjustment:

When equipped with a high-performance pneumatic positioner, this valve can be used for precise flow or pressure regulation. Its hard-sealed characteristic provides better erosion resistance at partial openings compared to soft-sealed valves, but within limits.

Avoid Prolonged Low-Opening Operation: It is not advisable to use the valve for extended periods as a throttle at very low openings (e.g., $<20^\circ$), especially under high pressure differentials, to prevent severe erosion of specific areas on the sealing surfaces by high-velocity fluid.

Periodic Full-Stroke Movement: If used continuously for modulation, perform a full open-close operation weekly or bi-weekly to maintain valve flexibility and prevent debris accumulation on the sealing surfaces.

Important Precautions:

Flow Direction and Pressure: Reverse pressure application is strictly prohibited (unless explicitly marked as bidirectional sealing). When closed, the medium pressure should act in the direction that forces the disc tighter against the seat (i.e., the recommended flow direction).

High-Temperature Service: For high-temperature media, after the initial cold installation and tightening, it is mandatory to perform a hot re-tightening of all flange bolts once the system has reached operating temperature and stabilized, to compensate for differential thermal expansion of materials.

Low-Temperature Service: For low-temperature applications, ensure the suitability of components like the stem packing for low temperatures and keep the valve interior dry to prevent freezing.

Particulate Media: If the medium contains solid particles, installing an upstream filter is recommended. Avoid prolonged 停留 at positions where particles might lodge (e.g., half-open) during operation.

III. Maintenance and Care Instructions

Routine Maintenance:

Periodically inspect the valve exterior, flange connections, and pneumatic tubing joints for leaks.

Keep the valve and actuator clean, especially the exposed stem area, to prevent dust and corrosive substance buildup.

Regularly check air preparation units (filters, regulators), drain condensate, and ensure air supply quality.

Observe valve operation for normalcy, and check for abnormal noises or vibration.

Periodic Inspection:

Depending on the severity of service conditions (temperature, pressure, corrosiveness,

erosiveness), a systematic preventive inspection and maintenance is recommended every 3 to 12 months.

Valve Section:

Check the stem seal (stuffing box) for leaks and adjust the gland follower appropriately.
Check the preload on flange bolts.

Focus on inspecting the wear condition of the sealing pair. This can be done via performance testing or through an inspection port (if available). Check sealing surfaces for significant erosion, scratches, indentations, or pitting.

Actuator and Accessories Section:

Inspect the actuator housing and fasteners.

Check the manual override function.

Lubricate gears, bearings, etc., requiring grease with the specified type of high-temperature or long-life lubricant.

Check the positioner for zero and span drift, and clean the orifice of the pneumatic relay if applicable.

Verify the operational reliability of limit switches and solenoid valves.

Storage Requirements:

For long-term storage, the valve should be in a slightly open position (approximately 5° - 15°) to prevent plastic deformation or "indentation" of the hard sealing surfaces from constant pressure.

Seal both valve ports to prevent ingress of foreign matter.

Switch the actuator to "Manual" mode and store it in a safe position.

Disconnect the air supply and power, and protect exposed interfaces from dust and moisture.

Store in a dry, well-ventilated indoor environment, away from corrosive atmospheres.

Common Faults and Troubleshooting:

Valve Leakage (Not Sealing Tightly):

Check if the air supply pressure is sufficient and if the actuator output torque meets requirements.

Check and re-adjust the close-direction limit precisely.

Check the sealing surfaces for foreign object obstruction or damage. Minor damage can sometimes be repaired by fine grinding.

Verify that the valve flow direction is correct.

Valve Inoperative or Abnormal Operation:

Check if the air supply and electrical circuits are normal.

Check for faults in solenoid valves or positioners.

Switch to manual mode. If manual operation is difficult, internal obstruction due to debris, thermal expansion/contraction, or sealing surface damage may be the cause.
Check the actuator for internal leakage or damage.

Excessive Operating Torque:

Check if the medium temperature or pressure exceeds the design range.
Check if the sealing surfaces are excessively worn or have experienced adhesive wear (common at high temperatures).
Check if pipeline stress is being transmitted to the valve body.
Check if lubrication has failed.

Important Notice: The sealing pair (e.g., multi-layer metal seat, disc seal ring) of a hard-sealed butterfly valve is a core precision component. Its replacement, repair, or grinding work requires specialized tools and expertise. Unless the user possesses specific knowledge and conditions, it is strongly recommended to entrust such repair work to qualified technicians or the valve manufacturer to ensure restoration of its original performance.

非常感谢您的阅读！

Thank you very much for reading!

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