

D671X 气动对夹蝶阀系列

D671X Pneumatic Wafer Butterfly Valve Series

使
用
说
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书

Operating Instructions



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

D671X 气动对夹蝶阀

D671X Pneumatic Wafer Butterfly Valve

型号: D671X 规格: DN50-DN1200
公称压力: PN10~PN16 适用介质: 水、油品及各种酸碱介质
适用温度: $\leq 150^{\circ}\text{C}$ 阀体材质: 铸铁、球墨铸铁、铸钢、不锈钢+衬胶、衬氟
连接方式: 对夹 驱动方式: 气动
Model: D671X
Specifications: DN50 - DN1200
Nominal Pressure: PN10 - PN16
Applicable Media: Water, oil, and various acids and alkalis
Applicable Temperature: $\leq 150^{\circ}\text{C}$
Valve Body Materials: Cast iron, ductile iron, cast steel, stainless steel + rubber lining, fluorine lining
Connection Type: Wafer type
Actuation Mode: Pneumatic

概述

D671X 气动对夹蝶阀是一种以压缩空气为动力源，通过气动执行器驱动蝶板作 90° 旋转来实现快速启闭或调节管道流体的自动化阀门。该阀门采用对夹式连接方式，通过阀体两侧螺栓直接紧固在管道法兰之间，安装结构紧凑，占用空间小。气动执行器将气压转化为旋转扭矩，驱动阀杆带动蝶板在阀体内精准旋转。蝶板密封面采用橡胶等弹性材料整体包覆，通过过盈配合与阀体形成软密封。其启闭过程中，蝶板与阀座能快速脱离与贴合，实现高效的流体控制。D671X 气动对夹蝶阀具有响应速度快、操作便捷、自动化程度高等特点，广泛应用于给排水、消防、暖通空调及工业自动化控制等领域。

Overview

The D671X Pneumatic Wafer Butterfly Valve is an automated valve designed for the rapid on/off operation or regulation of pipeline fluid flow. Utilizing compressed air as the power source, it employs a pneumatic actuator to drive a 90° -degree rotation of the disc. The valve features a wafer-style connection, where it is directly clamped between two pipeline flanges via bolts on both sides of its body, resulting in a compact installation with minimal spatial footprint. The pneumatic actuator converts air pressure into rotary torque, which precisely drives the valve stem and the connected disc within the valve body. The disc's sealing surface is integrally lined with an elastic material such as rubber, forming a soft seal through an interference fit with the valve body. During the opening and closing process, the disc quickly disengages from and re-engages with the valve seat, enabling highly efficient fluid control. Characterized by fast response, ease of operation, and a high degree of automation, the D671X Pneumatic Wafer Butterfly Valve is widely used in water supply and drainage, fire protection, HVAC systems, and various industrial automation control applications.



D671X 气动对夹蝶阀产品图

D671X Pneumatic Wafer Butterfly Valve Product Diagram

特点

- 1、气动快速响应：采用高性能单/双作用气动执行器，启闭迅速（0.5-3 秒内完成），响应灵敏，支持频繁启闭操作，适用于自动化控制系统。
- 2、对夹紧凑设计：阀体采用对夹式结构，安装长度短、体积小、重量轻，可节省管道安装空间，特别适用于管道密集或空间受限的场合。
- 3、高性能软密封：蝶板密封圈采用优质三元乙丙（EPDM）橡胶、丁腈（NBR）橡胶或氟橡胶（FKM）整体包覆，密封性能优越，可实现零泄漏（密封等级达 VI 级），适应多种介质。
- 4、双向密封可靠：设计结构确保阀门在正向和反向压力下均能实现可靠密封，不受介质流向影响。
- 5、流阻低、节能高效：全开时蝶板与介质流向平行，流道通畅，流体阻力小，有效降低系统压力损失，节约能源。
- 6、耐腐蚀长寿命：阀体材质可选球墨铸铁、碳钢或不锈钢，表面进行环氧树脂喷涂等防腐处理；密封材料耐化学腐蚀，延长阀门使用寿命。
- 7、智能控制适配：可配备电磁阀、限位开关、定位器、过滤减压阀等附件，轻松接入 PLC、DCS 等自动化控制系统，实现远程控制和精确调节。
- 8、维护简便经济：模块化设计，结构简单，拆卸方便；主要密封件可快速更换，支持在线维修，降低维护成本与停机时间。

Features

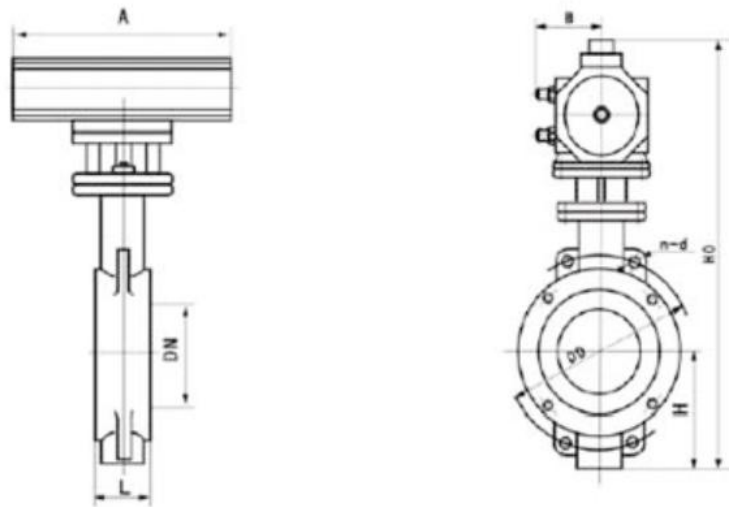
- 1、Pneumatic Quick Response: Equipped with high-performance single/double-acting pneumatic actuators, enabling rapid opening and closing (completed within 0.5-3 seconds), responsive operation, and suitability for frequent switching. Ideal for automated control systems.
- 2、Wafer-Type Compact Design: The valve body adopts a wafer-type structure, featuring short installation length, small size, and lightweight construction. Saves pipeline installation space and is especially suitable for densely arranged pipelines or space-constrained applications.
- 3、High-Performance Soft Seal: The disc sealing ring is fully overlaid with high-quality EPDM, NBR, or FKM rubber, offering excellent sealing performance to achieve zero leakage (sealing class up to Class VI) and compatibility with various media.
- 4、Reliable Bidirectional Sealing: The design ensures reliable sealing under both forward and reverse pressure, independent of medium flow direction.

5、Low Flow Resistance, Energy-Efficient: When fully open, the disc is parallel to the flow direction, providing a smooth flow path with minimal fluid resistance. Effectively reduces system pressure loss and saves energy.

6、Corrosion-Resistant, Long Service Life: Valve body materials include ductile iron, carbon steel, or stainless steel, with surface anticorrosion treatments such as epoxy resin coating. Sealing materials resist chemical corrosion, extending valve service life.

7、Smart Control Compatibility: Can be equipped with accessories such as solenoid valves, limit switches, positioners, and filter regulators for easy integration into PLC, DCS, and other automated control systems, enabling remote control and precise adjustment.

8、Easy and Economical Maintenance: Modular design with a simple structure allows easy disassembly. Key sealing components can be replaced quickly, supporting online maintenance to reduce downtime and maintenance costs.



D671X 气动对夹蝶阀结构图

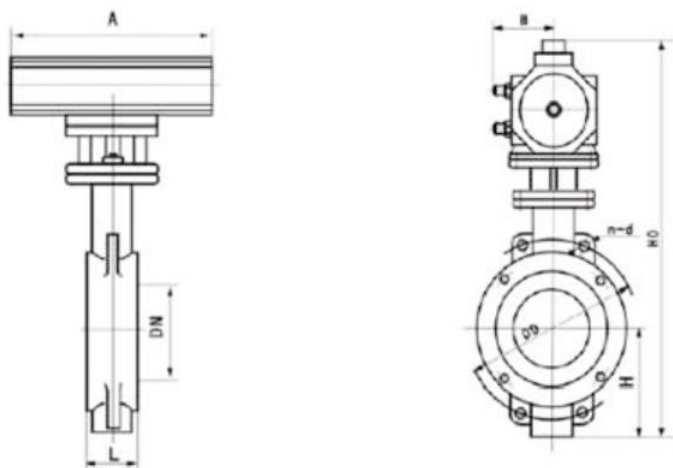
D671X Pneumatic Wafer Butterfly Valve Structural Diagram

零部件名称材料表 List of Component Names and Materials

名称 Name	材料 Mterial
气动执行器 Pneumatic Actuator	铝合金（缸体）+ 碳钢（附件） Aluminum alloy (cylinder body)+carbon steel (attachment)
阀杆 Valve Stem	不锈钢（316，耐腐蚀型） Stainless Steel (316, Corrosion-Resistant)
蝶板 Butterfly Disc	碳钢（基底）+ 聚四氟乙烯（PTFE 衬层） Carbon Steel (Base) + PTFE (Liner)
密封件 Seals	聚四氟乙烯（PTFE）或氟橡胶 PTFE or Fluororubber
阀座 Valve Seat	聚四氟乙烯（PTFE） PTFE
螺栓 / 螺母 Bolts / Nuts	不锈钢（316，耐腐蚀型） Stainless Steel (316, Corrosion-Resistant)
阀体 Valve Body	铸铁、球墨铸铁、铸钢、不锈钢+衬胶、衬氟 Cast iron, ductile iron, cast steel, stainless steel + rubber lining, fluorine lining

性能规范表 Performance Specification Table

性能规范表 Performance Specification Table		
公称压力 Nominal Pressure	1.0/1.6	MPa
强度试验压力 Strength Test Pressure	1.5/2.4	
密封试验压力 Sealing Test Pressure	1.1/1.76	
适用温度 Applicable Temperature	≤150	℃



D671X 气动对夹蝶阀外形尺寸图

D671X Pneumatic Wafer Butterfly Valve Overall Dimension Drawing

D671X 气动对夹蝶阀外形尺寸表

D671X Pneumatic Wafer Butterfly Valve overall dimension table

DN	主要外形尺寸 Dimensional Outline Table					主要连接尺寸 Key Connection Dimensions					
	L	H	HO	A	B	0.6MPa		1.0MPa		1.6MPa	
						D0	n-d	D0	n-d	D0	n-d
50	43	63	315	180	65	110	4-14	125	4-18	125	4-18
65	46	70	330	180	65	130	4-14	145	4-18	145	4-18
80	46	83	390	245	72	150	4-18	160	8-18	160	8-18
100	52	105	431	240	72	170	4-18	180	8-18	180	8-18
125	56	115	455	240	72	200	8-18	210	8-18	210	8-18
150	56	137	626	350	93	225	8-18	240	8-22	240	8-22
200	60	164	720	350	93	280	8-18	295	8-22	295	12-22
250	68	206	800	550	350	335	12-18	350	12-22	355	12-26
300	78	230	860	600	350	395	12-22	400	12-22	410	12-26
350	78	248	883	600	350	445	12-22	460	16-22	470	16-26

400	102	289	972	600	350	495	16-22	515	16-26	525	16-30
450	114	320	1043	750	380	550	16-22	565	20-26	585	20-30
500	127	343	1098	750	380	600	20-22	620	20-26	650	20-33
600	154	413	1236	750	380	705	20-26	725	20-30	770	20-36
700	165	478	1431	750	380	810	24-26	840	24-30	840	24-36
800	190	525	1488	750	380	920	24-30	950	24-33	950	24-39
900	203	620	1615	1250	380	1020	24-30	1050	28-33	1050	28-39
1000	216	725	1765	1500	580	1120	28-30	1160	28-36	1170	28-42
1200	254	780	1976	1500	580	1340	32-33	1380	32-39	1390	32-48

安装与维护须知

一、安装说明

1. 安装前检查:

核对验证: 仔细核对阀门铭牌上的型号 (D671X)、公称通径 (DN)、压力等级 (PN) 及阀体材质, 确保与管道设计要求完全一致。核对阀体上的流向箭头, 确认其与介质流向匹配。

外观与内部检查: 检查阀门及气动执行器外观, 确认无运输损伤。清除阀腔内及软密封面 (橡胶/氟塑料) 上的所有防护物、油脂和杂物, 避免损伤密封面。

手动功能测试: 将执行机构上的手动操作装置切换至“手动”模式, 手动操作阀门, 确认蝶板启闭灵活、无卡阻。测试后, 将蝶板置于微开状态 (约 10%开度), 以便安装对中。操作完毕切换回“自动”模式。

2. 安装位置与方向:

阀门可安装于水平或垂直管道上, 安装位置应便于操作、观察、维护及气源管路连接。

流向确认: 必须确保阀体上标示的箭头方向与管道中介质的流向一致。本阀门通常为单向密封, 反向安装可能导致密封失效或寿命缩短。

3. 管道对接要求:

本阀门采用对夹式连接, 需通过一组长螺栓、螺母夹持在两片管道法兰之间。

严禁使用阀门螺栓强行纠正管道法兰间的错位、倾斜或间隙过大。安装前应首先校准管道, 确保两片法兰平行对中、间距与阀门厚度匹配。

安装步骤:

将阀门置于两片法兰之间, 插入少量螺栓初步定位。

通过手动机构将蝶板旋转至全开位置，以减少安装阻力并保护密封面。

分步均匀拧紧：使用扳手，按对角交叉顺序，分 2-3 轮逐步均匀拧紧所有对夹螺栓至规定扭矩值。此操作可防止阀体受力不均变形，确保密封面均匀贴合。

4. 气动执行机构安装与调试：

执行机构通常已预装于阀门上。阀门在管道上紧固后，再进行气路连接和调试。

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“IN”）。气源压力须符合执行器要求，建议在气路中安装过滤减压阀。

初始手动操作： 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。
- 调节执行机构上的关向限位螺钉，使蝶板达到全关位置，并确保密封。
- 通气使阀门开启。
- 调节执行机构上的开向限位螺钉，使蝶板达到全开位置（通常为 90°）。
- 反复进行数次开关循环，确认动作平稳、终点位置准确。

附件调试： 如配备定位器、电磁阀、限位开关等，严格按其说明书接线和设定。

二、使用与操作说明

1. 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，通过手动或慢速气动操作，缓慢进行数次全开全关操作，以磨合密封面。

正常自动操作： 通过控制系统信号平稳操作，避免快速启闭引起水锤。

手动操作： 气源故障时使用。操作前必须切换至“手动”模式，操作力均匀，到达全开或全关位置即停止，切勿强行超限操作。

2. 开度调节：

当配置气动定位器时，本阀门可用于流量或压力调节。

避免长期小开度节流： 严禁将阀门长期用作节流阀并停留在极小开度（通常 $<15^\circ$ ），以免高速流体对软密封面造成气蚀和冲蚀破坏。

定期全行程操作： 若长期处于调节状态，应每周或每月定期进行全行程开关操作，防止密封面局部沉积或粘滞。

3. 重要注意事项：

介质与温度： 确认阀门材质及软密封材料（如 EPDM、NBR、PTFE）适用于工作介质及温度范围。

高温工况： 用于高温介质时，冷态安装后首次升温至工作温度时，必须在热态下对所有对夹螺栓进行热态再紧固，防止泄漏。

气源质量： 保持气源清洁干燥，确保执行机构可靠工作。

三、维护与保养说明

1. 日常维护:

定期检查阀门外部、法兰连接处及气路接口有无泄漏。
保持阀门及执行机构清洁，特别是阀杆伸出部位。
定期检查气源处理元件，排放冷凝水。
观察阀门动作是否正常、有无异响。

2. 定期检查:

根据使用频率和工况，建议每 6 至 12 个月进行一次全面检查。
阀门部分：检查阀杆转动是否灵活、有无泄漏；检查螺栓紧固状态；检查软密封面的磨损、老化情况。
执行机构部分：检查执行器外观及紧固件；检查手动机构功能；对需润滑部位加注指定润滑脂；检查附件工作状态。

3. 存放要求:

长期存放时，阀门应处于微开状态（蝶板开启约 5° - 10° ），避免密封面长期受压变形。
封闭阀门两端通道口。
执行机构切换至“手动”模式，断开气源。
存放于干燥、通风的室内，避免阳光直射和腐蚀环境。

4. 常见故障与处理:

泄漏（关闭不严）：检查并调整关向限位；检查密封面是否有异物或损伤；检查螺栓是否均匀紧固。
阀门不动作：检查气源压力及管路；检查电磁阀、定位器是否故障；切换至手动模式检查是否卡阻。
操作扭矩过大：检查是否有内部卡阻或介质结晶；检查润滑是否失效；检查密封件是否老化。

核心提示：软密封阀座/蝶板密封层为关键易损件。如需更换，建议联系专业技术人员或生产厂家处理，以确保密封性能。

Installation and Maintenance Guide

I. Installation Instructions

1. Pre-Installation Inspection

Verification:

Carefully check the model (D671X), nominal diameter (DN), pressure rating (PN), and valve body material on the valve nameplate to ensure they fully comply with the pipeline design specifications. Confirm that the flow direction arrow on the valve body matches the intended medium flow direction.

Visual and Internal Inspection:

Inspect the exterior of the valve and pneumatic actuator for any shipping damage. Remove all protective materials, grease, and debris from the valve cavity and soft sealing surfaces (rubber/fluoroplastic) to prevent damage.

Manual Function Test:

Switch the manual override on the actuator to "Manual" mode. Operate the valve manually to confirm the disc opens and closes smoothly without sticking. After testing, leave the disc in a slightly open position (approx. 10%) to facilitate centering during installation. Switch back to "Automatic" mode upon completion.

2. Installation Position and Direction

The valve can be installed in horizontal or vertical pipelines. The position should allow for easy operation, observation, maintenance, and connection of the air supply line.

Flow Direction Confirmation:

It is mandatory that the arrow direction marked on the valve body aligns with the medium flow direction in the pipeline. This valve is typically designed for unidirectional sealing; reverse installation may lead to sealing failure or reduced service life.

3. Pipeline Connection Requirements

This valve utilizes a wafer-type connection, clamped between two pipeline flanges using a set of long bolts and nuts.

NEVER use the valve bolts to forcibly correct misalignment, tilting, or excessive gaps between the pipeline flanges. Prior to installation, align the pipeline to ensure the two flanges are parallel, centered, and their spacing matches the valve thickness.

Installation Steps:

Position the valve between the two flanges and insert a few bolts for initial alignment.

Fully open the disc using the manual override to reduce installation resistance and protect the sealing surfaces.

Gradual and Uniform Tightening: Using a wrench, tighten all wafer bolts in a crosswise pattern, proceeding in 2-3 stages, to the specified torque value. This prevents uneven stress on the valve body and ensures uniform sealing surface contact.

4. Pneumatic Actuator Installation and Commissioning

The actuator is typically pre-mounted on the valve. Finalize pneumatic connections and adjustments only after the valve is securely fastened in the pipeline.

Air Supply Connection: Connect a clean, dry, and stable air supply to the actuator inlet port

(usually marked "IN"). The air pressure must meet the actuator requirements. Installing a filter-regulator in the air line is recommended.

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

Stroke and Limit Adjustment (Critical Steps):

- a. Switch to "Automatic" mode and apply air to close the valve.
- b. Adjust the close-direction limit screw on the actuator so the disc reaches the fully closed position with proper sealing.
- c. Apply air to open the valve.
- d. Adjust the open-direction limit screw on the actuator so the disc reaches the fully open position (typically 90°).
- e. Perform several open-close cycles to confirm smooth operation and accurate end positions.

Accessory Commissioning: For accessories like positioners, solenoid valves, or limit switches, follow their respective manuals strictly for wiring and setup.

II. Operation and Usage Instructions

1. Opening and Closing Operation

Initial or Post-Long-Term Startup: It is advisable to perform several slow, full open-close cycles manually or at low pneumatic speed under low or no system pressure to gently seat the sealing surfaces.

Normal Automatic Operation: Operate smoothly via control system signals. Avoid rapid cycling to prevent water hammer.

Manual Operation: Used during air supply failure. Always switch to "Manual" mode first. Apply force evenly and stop once the fully open or closed position is reached. Do not force beyond limits.

2. Throttling Operation

When equipped with a pneumatic positioner, this valve can be used for flow or pressure regulation.

Avoid Prolonged Low-Degree Throttling: The valve must NOT be used as a throttle valve and kept at a very small opening (typically <15°) for extended periods, as this can cause cavitation and erosion damage to the soft sealing surfaces from high-velocity fluid.

Regular Full-Stroke Cycling: If used for prolonged regulation, perform full open-close cycles weekly or monthly to prevent localized deposits or sticking on the sealing surfaces.

3. Important Precautions

Medium and Temperature: Ensure the valve materials and soft seal materials (e.g., EPDM, NBR, PTFE) are suitable for the working medium and temperature range.

High-Temperature Service: For high-temperature media, hot re-tightening of all wafer bolts must be performed after the initial cold installation when the system first reaches operating temperature, to prevent leaks.

Air Supply Quality: Maintain a clean, dry air supply for reliable actuator operation.

III. Maintenance and Servicing Instructions

1. Routine Maintenance

Periodically inspect the valve exterior, flange connections, and pneumatic connections for leaks.
Keep the valve and actuator clean, especially the exposed stem area.
Regularly check air preparation units and drain condensate.
Observe valve operation for normal function and any unusual noises.

2. Periodic Inspection

Depending on usage frequency and conditions, a comprehensive inspection every 6 to 12 months is recommended.

Valve Section: Check for smooth stem rotation and leaks; inspect bolt tightness; examine soft sealing surfaces for wear and aging.

Actuator Section: Inspect actuator exterior and fasteners; check manual override function; lubricate designated points with specified grease; verify accessory operation.

3. Storage Requirements

For long-term storage, the valve should be in a slightly open position (disc $\sim 5^{\circ}$ - 10° open) to prevent permanent deformation of the sealing surfaces under constant pressure.

Seal off both valve ports.

Switch the actuator to "Manual" mode and disconnect the air supply.

Store indoors in a dry, ventilated area, protected from direct sunlight and corrosive environments.

4. Common Troubleshooting

Leakage (Failure to Seal): Check and adjust close-direction limit; inspect sealing surfaces for debris or damage; check for uniform bolt tightness.

Valve Fails to Operate: Check air supply pressure and lines; inspect solenoid valve/positioner for faults; switch to manual mode to check for binding.

Excessive Operating Torque: Check for internal binding or media crystallization; verify lubrication; inspect seals for aging.

Key Note: The soft valve seat/disc seal is a key wear component. For replacement, it is recommended to contact professional technical personnel or the manufacturer to ensure sealing performance.



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Kaiweixi valve group
<https://www.kaiweixi.com>
E-mail: sales@kaiweixi.com

非常感谢您的阅读！

Thank you very much for reading!

开维喜阀门集团有限公司

地址：浙江省温州市永嘉县瓯北街道三桥工业区林下路 1 号

电话：+86 18967796392

网址：<https://www.kaiweixi.com>

mail: karrie@kaiweixi.com

Kaiweixi Valve Group Co., Ltd

Address: No.1 Linxia Road, Sanqiao Industrial Zone, Oubei Street, Yongjia County, Wenzhou City,
Zhejiang Province

Phone:+86 18967796392

URL: <https://www.kaiweixi.com>

E-mail: karrie@kaiweixi.com