

D343Y 法兰硬密封蝶阀系列

D343Y Flanged Hard Seal Butterfly Valve Series

使
用
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书

Instruction Manual



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

D343Y 法兰硬密封蝶阀

D343Y Flanged Hard Seal Butterfly Valve

型号: D343Y	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: -29~425℃/-40℃-600℃	阀体材质: 铸钢、不锈钢、双相不锈钢
连接方式: 法兰	驱动方式: 手动、蜗轮传动、气动、电动
Model: D343Y	
Size: DN50 - DN1200	
Nominal Pressure: PN10 - PN25	
Applicable Medium: Water, oil and similar liquids, gas	
Applicable Temperature: -29~425℃ / -40℃-600℃	
Body Material: Cast steel, stainless steel, duplex stainless steel	
Connection Type: Flange	
Drive Mode: Manual, worm gear drive, pneumatic, electric	

概述

D343Y 不锈钢三偏心硬密封蝶阀是一种通过高强度不锈钢蝶板绕其固定轴（阀杆）旋转来实现开启、关闭和调节流体通道的阀门。其设计采用“三偏心”结构，即阀杆轴线同时偏离蝶板密封面中心、管道通道中心线以及阀体中心，使得蝶板在启闭过程中能够瞬间脱离或压紧阀座，完全消除了密封面之间的摩擦和卡挤。阀门采用法兰式连接，安装与拆卸便捷。蝶板与阀座密封面均为金属材料（不锈钢对不锈钢），并经过精密研磨处理，依靠三偏心结构产生的凸轮效应，在阀门关闭时实现越关越紧的可靠密封。该阀门可通过手动、电动或气动装置驱动阀杆旋转 90°，实现对高温、高压及腐蚀性介质管路的严密截断与精确控制。

Overview

The D343Y Stainless Steel Triple Eccentric Hard Seal Butterfly Valve is a valve that achieves opening, closing, and flow regulation through the rotation of a high-strength stainless steel disc around its fixed axis (valve stem). Its design features a "triple eccentric" structure, meaning the valve stem axis is offset from the center of the disc sealing surface, the centerline of the pipeline, and the center of the valve body. This allows the disc to instantly disengage from or press against the valve seat during opening and closing, completely eliminating friction and binding between the sealing surfaces. The valve adopts a flanged connection for convenient installation and disassembly. Both the disc and valve seat sealing surfaces are made of metallic materials (stainless steel against stainless steel) and are precision-lapped. Relying on the cam effect generated by the triple eccentric structure, the valve achieves a reliable sealing action that tightens as the valve closes. This valve can be operated manually, electrically, or pneumatically, rotating the stem 90° to achieve tight shut-off and precise control in pipelines handling high-temperature, high-pressure, and corrosive media.



D343Y 不锈钢三偏心硬密封蝶阀产品图

D343Y Stainless Steel Triple Eccentric Hard Seal Butterfly Valve product image

特点

- 1、三偏心零摩擦结构：采用创新的三偏心设计（轴向偏心、径向偏心、角偏心），使蝶板在启闭旋转过程中，密封面在瞬间脱离或接触阀座，完全消除了传统蝶阀密封副之间的机械摩擦与卡挤，大幅延长了阀门使用寿命，并确保启闭扭矩轻便。
- 2、硬密封耐高温：蝶板与阀座密封面均采用不锈钢金属材料（堆焊或整体合金），并经高精度研磨抛光。该设计使其能够耐受高达 600℃ 以上的高温工况，适用于蒸汽、热油及高温烟气等严苛介质。
- 3、越关越紧的可靠密封：利用三偏心结构产生的凸轮效应，在阀门关闭时，蝶板密封圈与阀座之间产生自锁式压紧力，实现金属对金属的零泄漏密封（符合 API 598 标准），且密封性能随介质压力升高而增强。
- 4、流线型流道，低流阻：阀体流道设计平滑流畅，蝶板在完全开启状态下几乎不占据流道空间，介质流动接近直通管状态，流体阻力极小，压力损失小，适合高流速和大流量工况。
- 5、耐腐蚀与长寿命：阀体主体采用优质不锈钢（如 CF8、CF8M、CF3 等）铸造，具备优异的抗腐蚀性能。高硬度的金属密封副耐磨、耐冲蚀，确保了阀门在腐蚀性、颗粒性介质中的长期稳定运行。
- 6、广泛的高端工况适应性：产品可设计为软密封（对温度要求不高时可选配软密封圈）与硬密封双重结构，但主体为硬密封。适用于石油、化工、电力、冶金、制药以及高温空气、煤气、油气混合等苛刻管路系统，作为调节或截流装置使用。

Features

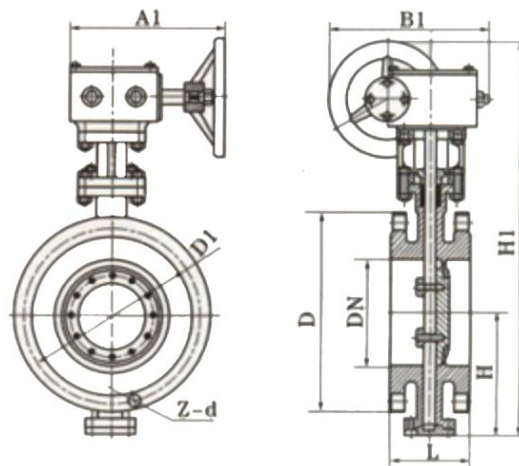
- 1、Triple Eccentric Zero-Friction Design: Employs an innovative triple eccentric design (axial offset, radial offset, angular offset). This ensures the sealing surfaces instantly disengage from or contact the valve seat during the disc's opening and closing rotation, completely eliminating the mechanical friction and binding found in traditional butterfly valve sealing pairs. This significantly extends the valve's service life and ensures light operating torque.
- 2、Hard Seal for High-Temperature Resistance: Both the disc and valve seat sealing surfaces are made of stainless steel metal materials (hardfaced or solid alloy) and are precision ground and polished. This design enables the valve to withstand high-temperature conditions up to 600° C and above, making it suitable for demanding media such as steam, thermal oil, and high-temperature flue gas.
- 3、Reliable Tighter-as-It-Closes Seal: Utilizes the cam effect generated by the triple eccentric design. As the valve closes, a self-locking compression force develops between the disc seal and the valve seat, achieving a metal-to-metal zero-leakage seal (conforming to API 598 standards).

The sealing performance enhances as the medium pressure increases.

4、Streamlined Flow Path, Low Flow Resistance: The valve body features a smoothly designed flow path. When fully open, the disc occupies minimal space within the flow path, allowing the medium to flow almost as through a straight pipe. This results in extremely low fluid resistance and minimal pressure loss, making it ideal for high-velocity and high-flow applications.

5、Corrosion Resistance and Long Service Life: The main valve body is cast from high-quality stainless steel (such as CF8, CF8M, CF3, etc.), providing excellent corrosion resistance. The high-hardness metal sealing pair is resistant to wear and erosion, ensuring long-term stable operation in corrosive or particulate-laden media.

6、Broad Suitability for Demanding Applications: While primarily a hard-seal valve, the product can be designed with a dual soft-seal (optional soft seal ring when temperature requirements are lower) and hard-seal structure. It is widely applicable in demanding pipeline systems such as those in petroleum, chemical, power, metallurgy, pharmaceutical industries, as well as for high-temperature air, gas, oil-gas mixtures, serving as a regulating or shut-off device.



D343Y 不锈钢三偏心硬密封蝶阀结构图

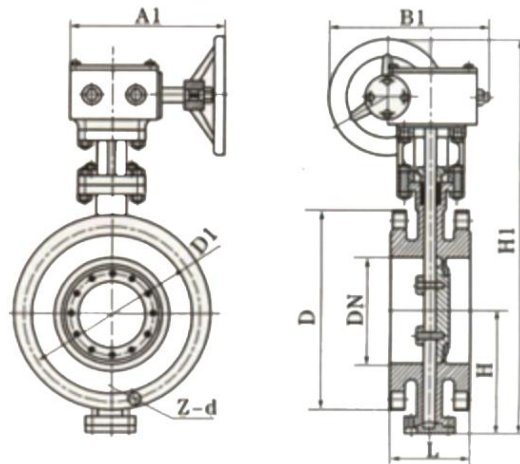
D343Y Stainless Steel Triple Eccentric Hard Seal Butterfly Valve Structure Diagram

零部件名称材料表 Parts and Materials List

零件名称 part name	材料 Material
阀体 body	铸钢、不锈钢、双相不锈钢 Cast steel, stainless steel, duplex stainless steel
蝶板 disc	铸钢、合金钢(镀硬铬)、不锈钢、铬钼钢 Cast steel, alloy steel (hard chrome plated), stainless steel, chrome molybdenum steel
密封圈 Sealing Ring	不锈钢、聚内脂、抗磨材料 stainless steel, polylactide, wear-resistant material
阀杆 stem	2Cr13、1Cr13 不锈钢、铬钼钢 2Cr13 stainless steel, 1Cr13 stainless steel, chrome molybdenum steel
填料 packing	柔性石墨 Flexible graphite

性能规范表 Performance Specification Table

性能规范表 Performance Specification Table		
公称压力 Nominal Pressure	1.0/1.6/2.5	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	-29~425℃/-40℃-600℃	℃



D343Y 不锈钢三偏心硬密封蝶阀外形尺寸图

D343Y Flanged Hard Seal Butterfly Valve Overall Dimension Drawing

D343Y 不锈钢三偏心硬密封蝶阀外形尺寸表

D343Y Flanged Hard Seal Butterfly Valve Overall Dimension Table

公称通径 DN		结构长度 Face-to-Face Dimension		外形尺寸 Overall Dimension				连接尺寸 (标准值) Connection Dimension (Standard Value)								
		L		H	D343Y			PN0.6MPa			PN1.0MPa			PN1.6MPa		
		法兰 Flange	对夹 Wafer		H1	A1	B1	D	D1	Z-d	D	D1	Z-d	D	D1	Z-d
毫米 mm	英寸 inch															
50	2	108	43	112	350	180	200	140	110	4-14	165	125	4-18	165	125	4-18
65	2 1/2	112	46	115	370	180	200	160	130	4-14	185	145	4-18	185	145	4-18
80	3	114	64	120	380	180	200	190	150	4-18	200	160	8-18	200	160	8-18
100	4	127	64	138	420	180	200	210	170	4-18	220	180	8-18	220	180	8-18
125	5	140	70	164	460	180	200	240	200	8-18	250	210	8-18	250	210	8-18
150	6	140	76	175	555	270	280	265	225	8-18	285	240	8-22	285	240	8-22
200	8	152	89	208	605	270	280	320	280	8-18	340	295	8-22	340	295	12-22
250	10	165	114	243	680	270	280	375	335	12-18	395	350	12-22	405	355	12-26

300	12	178	114	283	800	380	420	400	395	12-22	445	400	12-22	460	410	12-26
350	14	190	127	310	835	380	420	490	445	12-22	505	460	16-22	520	470	16-26
400	16	216	140	340	915	450	470	540	495	16-22	565	515	16-26	580	525	16-30
450	18	222	152	380	960	480	490	595	550	16-22	615	565	20-26	640	585	20-30
500	20	229	152	410	1020	480	490	645	600	20-22	670	620	20-26	715	650	20-33
600	24	267	154	470	1225	480	490	755	705	20-26	780	725	20-30	840	770	20-36
700	28	292	165	550	1355	640	660	860	810	24-26	895	840	24-30	910	840	24-36
800	32	318	190	640	1470	640	660	975	920	24-30	1015	950	24-33	1025	950	24-39
900	36	330	203	710	1545	750	860	1075	1020	24-30	1115	1050	28-33	1125	1050	28-39
1000	40	410	216	770	1795	850	900	1175	1120	28-30	1230	1160	28-36	1255	1170	28-42
1200	48	470	254	890	1965	850	900	1405	1340	32-33	1455	1380	32-39	1485	1390	32-48

D343Y 法兰硬密封蝶阀安装与维护须知

一、安装说明

安装前检查：

核对阀门型号、口径、压力等级及介质流向是否与管路设计要求一致。

检查阀门外观，确保运输过程中阀体、法兰密封面及蝶板无损伤。清除阀腔内及蝶板密封面的保护物和杂物。

手动旋转手柄或驱动方榫，确认蝶板启闭灵活、无卡阻。安装前建议将蝶板调整至微开状态（约 10%-15% 开度）。

安装位置与方向：

阀门可安装于水平或垂直管道上，安装位置应便于观察、操作和维护。

注意阀体或法兰上的箭头指示方向，确保其与介质设计流向一致。

管道对接要求：

阀门采用双法兰连接，需使用标准管道法兰进行安装。严禁通过强行拧紧螺栓校正管道法兰间的错位或间隙，以免阀体变形导致密封失效。

安装时，将阀门置于两片法兰之间，放入密封垫片（如需要），插入螺栓后，采用对角、分步、均匀的方式拧紧螺母，确保阀门受力均匀。

驱动装置安装：

若配备电动、气动或蜗轮执行机构，应在阀门管道安装就位后再行安装。确保执行机构输出轴与阀杆对中，连接牢固可靠。

手动操作阀门至全关位置，再安装执行机构，并依据其说明书进行行程和扭矩的调试设定。

二、使用与操作说明

开启与关闭:

首次使用时, 建议在低压或介质未充满管道状态下, 缓慢进行数次全开全关操作, 以磨合密封面。
正常操作时应平稳启闭, 避免冲击。手动操作时, 到达全开或全关位置后请勿继续强行旋转手柄。使用执行机构时, 应确保其限位装置调整正确。

开度调节:

本阀门可用于调节流量, 通过控制蝶板旋转角度可实现近似线性的流量控制。
若长期处于部分开启的调节状态, 建议定期进行全行程开关操作, 以防局部沉积或结垢影响密封与操作。

注意事项:

本阀门利用三偏心结构实现金属硬密封, 不宜作为节流阀长期处于微小开度 (如 $<15^{\circ}$) 工作, 以免高速介质流冲蚀密封面。
用于高温工况时, 冷态安装并首次通入热介质后, 需对法兰螺栓进行热态再紧固, 防止因热膨胀差异引起泄漏。
如介质中含有固体颗粒或纤维, 使用前应评估其对密封面的磨损与卡阻风险。

三、维护与保养说明

日常维护:

定期检查阀门外部及法兰连接处有无泄漏。
保持阀杆及传动部件清洁, 并按需对阀杆密封处、蜗轮传动机构等加注适量润滑脂。
检查配套执行机构 (如有) 的运行状态是否正常。

定期检查:

根据使用频率与工况条件, 建议每 6-12 个月进行一次全面检查。
检查内容包括: 金属密封面磨损情况、阀杆转动是否灵活、法兰螺栓是否松动、O 型圈等密封件是否老化。

存放要求:

阀门长期存放时, 应处于微开状态 (避免密封面长期受压粘连), 并装好两端法兰保护盖。
存放于干燥、通风的室内环境中, 避免阳光直射、雨淋及腐蚀性气氛。

故障与处理:

泄漏: 检查蝶板是否关到位; 检查金属密封面是否损坏或有异物卡入; 检查法兰螺栓是否均匀紧固。
操作扭矩过大: 检查是否有内部卡阻或异物堆积; 检查阀杆与轴套润滑是否充分; 检查执行机构是否匹配或过载。
如需更换金属密封圈、阀杆等内部零件, 或遇到无法排除的故障, 建议联系专业人员或生产厂家处理。

重要提示:

本说明为通用性技术指导, 适用于常规工况。D343Y 为金属硬密封蝶阀, 若用于特殊介质 (如强腐蚀、易燃易爆、超低温等)、关键安全系统或极端参数场合, 必须严格遵循相关行业规范及制造商的专项技术协议进行操作与维护。

D343Y Flanged Hard Seal Butterfly Valve Installation and Maintenance Instructions

I. Installation Instructions

Pre-Installation Inspection:

Verify that the valve model, diameter, pressure rating, and medium flow direction meet the pipeline design requirements.

Inspect the valve appearance to ensure no damage occurred to the body, flange sealing surfaces, or disc during transportation. Remove protective materials and debris from the valve cavity and the disc sealing surface.

Manually operate the handle or drive square to confirm the disc opens and closes flexibly without jamming. Before installation, it is recommended to position the disc slightly open (approx. 10%-15% opening).

Installation Position and Direction:

The valve can be installed on horizontal or vertical pipelines, ensuring the position is accessible for inspection, operation, and maintenance.

Pay attention to the arrow direction marked on the valve body or flange, ensuring it aligns with the designed medium flow direction.

Pipeline Connection Requirements:

The valve features a double-flange connection and must be installed using standard pipe flanges. It is strictly forbidden to correct misalignment or gaps between pipe flanges by forcibly tightening bolts, as this can deform the valve body and lead to seal failure.

During installation, position the valve between the two flanges, insert the gasket (if required), place the bolts, and tighten the nuts diagonally, step-by-step, and evenly to ensure uniform stress on the valve.

Actuator Installation:

If equipped with an electric, pneumatic, or worm gear actuator, install it after the valve has been positioned in the pipeline. Ensure the actuator output shaft is centered with the valve stem and the connection is secure and reliable.

Manually operate the valve to the fully closed position before installing the actuator. Then, debug and set the stroke and torque according to the actuator's manual.

II. Usage and Operation Instructions

Opening and Closing:

For initial use or after prolonged shutdown, it is recommended to perform several slow full-open and full-close operations under low pressure or without medium to help seat the sealing surfaces.

During normal operation, open and close smoothly to avoid impact. When operating manually, do not continue to forcefully turn the handle after reaching the fully open or fully closed position. When using an actuator, ensure its limit devices are adjusted correctly.

Opening Adjustment:

This valve can be used for flow regulation, achieving approximately linear flow control by adjusting the disc rotation angle.

If the valve is maintained in a partially open regulating state for extended periods, it is recommended to perform full-stroke operations periodically to prevent localized deposits or scaling that could affect sealing and operation.

Precautions:

This valve achieves metal hard sealing using a triple eccentric structure. It should not be used for prolonged throttling at very small openings (e.g., $<15^\circ$) to avoid erosion of the sealing surfaces by high-velocity media.

For high-temperature applications, after cold installation and initial introduction of hot media, perform a hot re-torquing of the flange bolts to prevent leaks caused by differential thermal expansion.

If the medium contains solid particles or fibers, assess the risk of wear and jamming on the sealing surfaces before use.

III. Maintenance and Care Instructions

Routine Maintenance:

Regularly inspect the valve exterior and flange connections for any leaks.

Keep the valve stem and transmission components clean, and apply appropriate lubricating grease to the stem seal area, worm gear mechanism, etc., as needed.

Check the operational status of any supporting actuators.

Periodic Inspection:

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

Inspection items include: wear condition of the metal sealing surfaces, smoothness of stem rotation, tightness of flange bolts, and condition of seals like O-rings for aging or damage.

Storage Requirements:

For long-term storage, the valve should be kept slightly open (to prevent prolonged compression and adhesion of sealing surfaces) and fitted with protective covers on both flange ends.

Store indoors in a dry, ventilated environment, avoiding direct sunlight, rain, and corrosive atmospheres.

Troubleshooting:

Leakage: Check if the disc is fully closed; inspect the metal sealing surfaces for damage or trapped foreign matter; check if flange bolts are evenly tightened.

Excessive Operating Torque: Check for internal jamming or accumulated debris; verify adequate lubrication between the stem and bushings; check if the actuator is correctly sized or overloaded.

For replacing internal parts like metal seals or stems, or for faults that cannot be resolved, it is recommended to contact a professional or the manufacturer.

Important Note:

These instructions provide general technical guidance applicable to standard operating conditions. The D343Y is a metal hard-seal butterfly valve. For special media (e.g., strongly corrosive, flammable, explosive, ultra-low temperature), critical safety systems, or extreme parameter applications, relevant industry standards and the manufacturer's specific technical agreements must be strictly followed during operation and maintenance.

非常感谢您的阅读！

Thank you very much for reading!

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