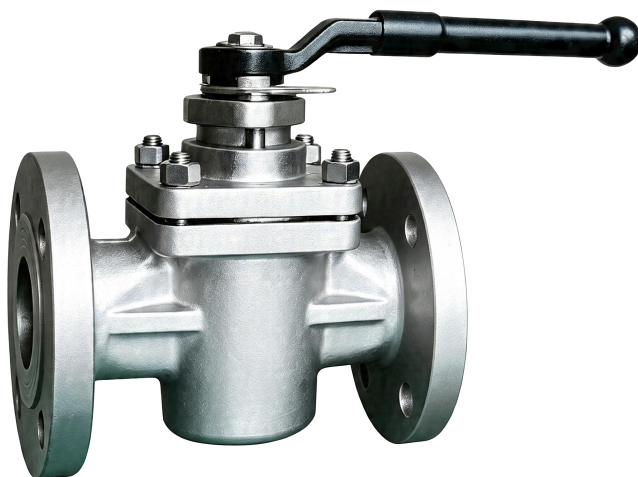


美、德标卡套软密封旋塞阀

American and German Standard Ferrule Soft-Sealed Plug Valve

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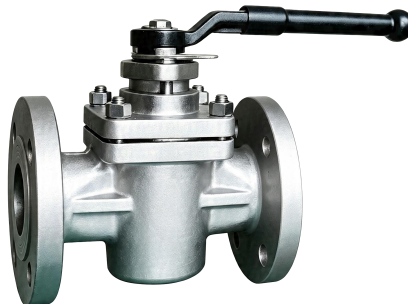


开维喜阀门集团有限公司
Kaiweixi Valve Group Co., LTD.

美、德标卡套软密封旋塞阀

型号: ZDAX43, ZDDX43 规格: DN15-DN350
公称压力: 150Lb~900Lb 适用介质: 水、蒸汽、油品等
适用温度: $\leq 180^{\circ}\text{C}$ 阀体材质: ASTM A216 WCB、ASTM A351-CF8、CF8M、CF3、CF3M
连接方式: 法兰、焊接 驱动方式: 手柄、蜗轮蜗杆传动、气动、电动

Model: ZDAX43, ZDDX43
Specification: DN15-DN350
Nominal pressure: 150Lb ~ 900Lb
Applicable medium: Water, steam, oil, etc.
Applicable temperature: $\leq 180^{\circ}\text{C}$
Valve body material: ASTM A216 WCB, ASTM A351 CF8, CF8M, CF3, CF3M
Connection method: Flanged, welded
drive method: Handle, worm gear drive, pneumatic, electric



美、德标卡套软密封旋塞阀产品图

American and German Standard Ferrule Soft-Sealed Plug Valve Product Diagram

概述

美、德标卡套软密封旋塞阀是一种通过锥形或圆柱形旋塞（塞体）的旋转运动来实现流体通道的开启或关闭的阀门。该阀为直通式结构，旋塞上设有贯通的介质流道，通过旋转旋塞 90 度，使流道与阀体通道对齐或垂直，从而实现全开或全关。其阀杆与旋塞为一体式或固定连接设计，操作时阀杆与旋塞同步旋转，无升降动作，填料密封位于阀杆与阀体之间，确保外密封可靠。阀体两端采用卡套式连接方式，通过卡套螺母压紧卡套实现与管道的密封连接，安装拆卸方便，无需焊接，适用于仪表管路及高压小口径管道系统。该阀门同时符合美标及德标设计规范，结构尺寸标准化，可满足不同标准的管道配套需求。密封面衬覆聚四氟乙烯（PTFE/F4）等软密封材料，形成自润滑软密封结构，具有良好的密封性能和耐腐蚀性能。该阀门依靠旋塞与阀体密封面之间的精密配合及 PTFE 软密封衬套实现密封，操作扭矩小，密封性能稳定，广泛应用于石油、化工、制药、食品等行业的腐蚀性介质管路系统中，作为截断或接通介质之用。

Overview

The American and German standard ferrule-type soft-seated plug valve is a type of valve that opens or closes the fluid passage through the rotary motion of a tapered or cylindrical plug. The valve adopts a straight-through structure, with a through-type medium flow port provided on the plug. By rotating the plug 90 degrees, the flow port aligns with or becomes perpendicular to the valve body passage, thereby achieving fully open or fully closed positions. The valve stem is integrally or fixedly connected to the plug. During operation, the stem and plug rotate synchronously without any lifting motion. Packing sealing is provided between the stem and the valve body to ensure reliable external sealing. Both ends of the valve body adopt ferrule-type connections, where the ferrule is compressed by the ferrule nut to achieve a sealed connection with the pipeline, allowing for easy installation and disassembly without the need for welding, suitable for instrument piping and high-pressure small-bore pipeline systems. The valve is designed in compliance with both American and German standards, with standardized structural dimensions to meet the piping requirements of different standards. The sealing surfaces are lined with soft sealing materials such as PTFE (F4), forming a self-lubricating soft sealing structure with excellent sealing performance and corrosion resistance. The valve relies on precise fit and the PTFE soft sealing liner between the plug and the valve body sealing surfaces to achieve sealing, offering low operating torque and stable sealing performance. It is widely used in corrosive media pipeline systems in petroleum, chemical, pharmaceutical, food and other industries for shut-off or flow passage applications.

特点

1. 双标准设计，适配广泛：阀门同时符合美标及德标设计规范，结构尺寸标准化，可满足不同标准的管道配套需求，适用于出口及国际项目。
2. 卡套连接，安装便捷：阀体两端采用卡套式连接方式，通过卡套螺母压紧卡套实现密封连接，安装拆卸方便，无需焊接，适用于仪表管路及高压小口径管道系统。
3. 快速启闭，流道直通：旋塞旋转 90 度即可完成启闭，操作迅速。全开时流道呈直通状，流体阻力小，不易产生涡流或沉积。
4. 密封性能可靠：旋塞与阀体密封面衬覆聚四氟乙烯（PTFE）等软密封材料，形成自润滑软密封结构，实现良好的密封效果，操作轻便。
5. 无升降结构，安装空间小：阀杆与旋塞一体旋转，无轴向位移，整体高度较低，适用于安装空间受限的仪表盘或管道系统。
6. 双向密封无流向限制：阀门设计为双向密封，无严格介质流向要求，安装适应性更强。

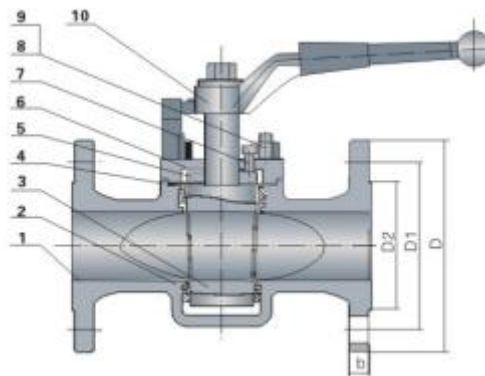
Feature

1. Dual Standard Design for Wide Compatibility: The valve is designed in compliance with both American and German standards, with standardized structural dimensions to meet the piping requirements of different standards, suitable for export and international projects.
2. Ferrule Connection for Easy Installation: Both ends of the valve body adopt ferrule-type connections, where the ferrule is compressed by the ferrule nut to achieve a sealed connection, allowing for easy installation and disassembly without welding, suitable for instrument piping and high-pressure small-bore pipeline systems.
3. Quick Opening/Closing with Straight-Through Flow Path: A 90-degree rotation of the plug completes opening or closing, providing rapid operation. When fully open, the flow path is straight, resulting in low fluid resistance and minimal vortex or sedimentation.

4 . Reliable Sealing Performance: The sealing surfaces of the plug and valve body are lined with soft sealing materials such as PTFE, forming a self-lubricating soft sealing structure that achieves excellent sealing effect with smooth operation.

5 . Non-Rising Stem Design, Compact Installation Height: The stem and plug rotate as one unit without axial movement, resulting in a low overall height, suitable for installation on instrument panels or pipeline systems with limited space.

6 . Bidirectional Sealing with No Flow Direction Restriction: The valve is designed for bidirectional sealing with no strict requirement on flow direction, offering greater installation flexibility.



美、德标卡套软密封旋塞阀结构图

American and German Standard Ferrule Soft-Sealed Plug Valve Structural diagram

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

序号/No.	名称/name	材料/material
1	阀体/valve body	ASTM A216 WCB、ASTM A351-CF8、CF8M、CF3、CF3M
2	卡套/Ferrule	PTFE
3	塞子/plug	ASTM A217-WC1、WC6、WC9、C5,ASTM A351-CF8、CF8M、CF3、CF3M
4	垫片/Gasket	柔性石墨+不锈钢、PTFE/Flexible graphite + stainless steel,PTFE
5	调整垫/Adjusting shim	ASTM A182-Gr.F6a ASTM A182-F22,ASTM A182-F304、F316、F321、F304L、F316L
6	阀盖/Bonnet	ASTM A216-WCB,ASTM A351-CF8、CF8M、CF3、CF3M
7	调整螺栓/Adjusting bolt	ASTM A193-B7、A193-B8、A193-B8M
8	六角螺母/Hexagon nut	ASTM A194-2H, A194-8, A194-8M
9	螺栓/Bolt	ASTM A193-B7、A193-B8、A193-B8M
10	手柄/Handle	ASTM A216 WCB

性能规范表 Performance Specification Sheet

性能规范表 Performance Specification Sheet

公称压力 Nominal Pressure	1.0	MPa
强度试验压力 Strength test pressure	1.5	
密封试验压力 Sealing test pressure	1.1	
适用温度 Applicable Temperature	≤180	℃

外形尺寸标准要求

1、阀门的结构长度按 ASME B16.10 的标准

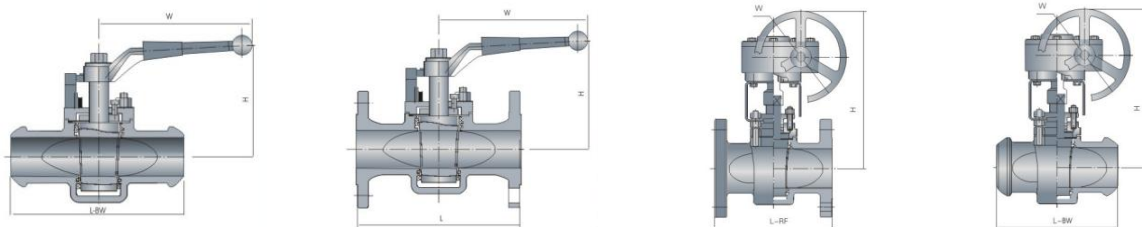
2、连接法兰按 ASME B16.5 的标准

Standard requirements for external dimensions

1. The structural length of the valve shall comply with the standard of ASME B16.10

2. Connecting flanges according to ASME B16.5 standard

外形尺寸表 Outline dimension table



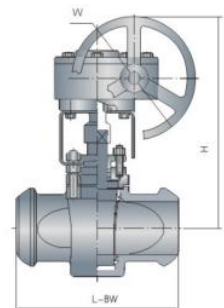
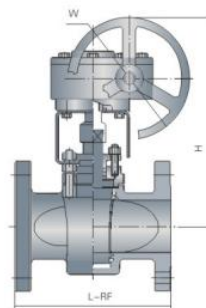
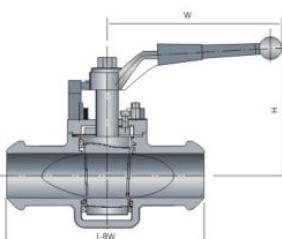
型号/Model: ZDAX43-150LB 压力等级/Pressure rating: 150LB																
口径 Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
	in	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF		108	117	127	140	165	178	190	203	229	254	267	292	330	356	381
L-BW		152	178	203	216	229	267	305	330	356	381	394	457	533	610	686
H		110	115	115	135	140	150	165	180	380	460	520	580	620	680	760
W		175	175	175	220	280	305	350	405	300	300	320	320	350	380	450
重量 Weight (kg)		8.5	9.5	10.5	12	14	18	22	26	40	60	70	130	219	381	570

型号/Model: ZDAX43-600LB 压力等级/Pressure rating: 600LB																
口径 Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
	in	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14

L-RF-BW		165	190	216	229	241	292	330	356	432	508	559	660	787	838	889
H		110	115	115	135	140	150	165	180	380	460	520	580	620	680	760
W		175	175	175	220	280	305	350	405	300	300	320	320	350	380	450
重量 Weight (kg)		11	13	17	20	23	27	31	36	72	98	141	245	330	515	710

型号/Model: ZDAX43-300LB 压力等级/Pressure rating: 300LB																
口径 Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
	in	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF		140	152	165	178	190	216	241	283	305	381	403	419	457	502	762
L-BW		152	178	203	216	229	267	305	330	356	381	457	521	559	635	762
H		110	115	115	135	140	150	165	180	380	460	520	580	620	680	760
W		175	175	175	220	280	305	350	405	300	300	320	320	350	380	450
重量 Weight (kg)		9.5	10.5	12	14	16	20	24	29	53	75	85	185	230	390	550

型号/Model: ZDAX43-900LB 压力等级/Pressure rating: 900LB																
口径 Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
	in	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF-BW		229	229	254	279	305	368	419	381	457	559	610	737	838	965	1029
H		110	115	115	135	140	150	165	180	380	460	520	580	620	680	760
W		175	175	175	220	280	305	350	405	300	300	320	320	350	380	450
重量 Weight (kg)		13	16	21	24	28	32	40	47	91	117	165	285	420	610	860



型号/Model: ZDDX43-16 压力等级/Pressure rating: PN16																
口径 Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
L-RF-BW		130	150	160	180	200	230	290	310	350	400	480	600	730	850	980
H		150	155	160	180	190	200	220	230	380	460	520	580	620	680	740
W		300	300	300	350	400	500	500	550	300	300	320	320	350	380	380
重量 Weight (kg)		9	10	11	13	14	19	23	27	43	62	75	155	222	390	580

型号/Model: ZDDX43-40 压力等级/Pressure rating: PN40																
口径 Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
L-RF-BW		130	150	160	180	200	230	290	310	350	400	480	600	730	850	980
H		190	195	225	260	280	310	340	395	435	470	535	590	630	680	720
W		120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
重量 Weight (kg)		12	14	18	21	24	29	33	39	75	103	146	251	337	521	720

型号/Model: ZDDX43-25 压力等级/Pressure rating: PN25																
口径 Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
L-RF-BW		130	150	160	180	200	230	290	310	350	400	480	600	730	850	980
H		150	155	160	180	190	200	220	230	380	460	520	580	620	680	740
W		300	300	300	350	400	500	500	550	300	300	320	320	350	380	380
重量 Weight (kg)		10	11	13	15	17	22	31	55	77	88	190	190	235	399	630

型号/Model: ZDDX43-64 压力等级/Pressure rating: PN64																
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口径 Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
L-RF-BW		130	150	160	180	200	230	290	310	350	400	480	600	730	850	980
H		190	195	225	260	280	310	340	395	435	470	535	590	630	680	720
W		120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
重量 Weight (kg)		14	17	22	25	29	34	43	50	94	123	170	291	430	625	875

美、德标卡套软密封旋塞阀安装与维护须知

第一部分：安装须知

一、 安装前准备

核对阀门：核对设备铭牌，确认公称压力、口径及壳体材质（通常为不锈钢、碳钢或合金钢）符合设计要求，确认阀门符合美标及德标设计规范。检查旋塞与阀体 PTFE 衬套密封面有无划伤、变形或损坏，并检查卡套接头及卡套螺母是否完好。

管道准备：安装前必须对管道系统进行彻底吹扫或冲洗，清除管道内残留的焊渣、铁锈、油污及杂物，防止杂质进入阀腔损伤 PTFE 密封面。管道端面应平整、无毛刺，外表面光滑以保证卡套密封效果。

方向与姿势：阀门为双向密封阀门，无严格介质流向限制。为便于操作和维护，推荐水平安装并使阀杆处于垂直向上位置，手轮应朝向便于操作的方向。卡套连接时应确保管道插入到位，卡套螺母预紧适度。

Part 1: Installation Instructions

1、 Preparation before installation

Verification: Check the valve nameplate to confirm that the nominal pressure, nominal diameter, and body material (typically stainless steel, carbon steel, or alloy steel) meet the design requirements, and confirm that the valve complies with both American and German standards. Inspect the sealing surfaces of the plug and valve body PTFE liner for scratches, deformation, or damage. Check that the ferrule connections and ferrule nuts are intact.

Pipeline Preparation: Before installation, the pipeline system must be thoroughly purged or flushed to remove weld slag, rust, oil, and other debris, preventing foreign matter from entering the valve cavity and damaging the PTFE sealing surfaces. The pipe end shall be smooth and free of burrs, and the outer surface shall be smooth to ensure ferrule sealing effectiveness.

Orientation and Position: The valve is a bidirectional sealing valve with no strict flow direction restriction. For ease of operation and maintenance, horizontal installation is recommended with the valve stem in a vertical upward position. The handwheel should face a direction convenient for operation. During ferrule connection, ensure that the pipe is inserted to the limit position and the ferrule nuts are pre-tightened appropriately.

二、 安装过程

卡套连接与对中：将管道插入阀体卡套接口至限位位置，手动预紧卡套螺母，确保管道与阀体自然对中，严禁强行扳拧或使用加长杠杆。禁止以阀杆、手轮作为承力点。使用专用工具按力矩要求均匀拧紧卡套螺母，完成密封连接。对于不同标准（美标/德标）的卡套，应使用相应的力矩值。

位置选择：建议安装在需要耐腐蚀介质输送的管段中，如化工、制药、石油等行业的仪表管路或高压小口

径管道系统。安装位置应留有足够的空间用于操作和检修。

支撑与仪表: 对于较重的阀门或存在振动的工况, 管道应有独立支撑, 避免阀体承受额外弯矩。为监控运行状态, 建议在阀门上下游安装压力表, 用于判断阀门密封性能。

2、 Installation process

Ferrule Connection and Alignment: Insert the pipe into the valve body ferrule connection to the limit position, manually pre-tighten the ferrule nut, and ensure natural alignment between the pipe and the valve body. Forced wrenching or the use of extended levers is prohibited. Do not use the valve stem or handwheel as load-bearing points. Use appropriate tools to tighten the ferrule nut evenly according to the torque requirements to achieve a sealed connection. For different standards (American/German), use corresponding torque values.

Location Selection: The valve should be installed in pipeline sections requiring corrosion-resistant media transport, such as instrument piping or high-pressure small-bore pipeline systems in chemical, pharmaceutical, and petroleum industries. Sufficient space shall be reserved for operation and maintenance.

Supports and Instruments: For heavy valves or applications with vibration, independent pipeline supports shall be provided to prevent additional bending moments on the valve body. To monitor operating status, it is recommended to install pressure gauges upstream and downstream of the valve to evaluate valve sealing performance.

第二部分: 操作与使用须知

一、初始投运:

排气与充液: 缓慢开启系统介质进口阀, 打开阀门高点的排气阀 (如有), 待介质连续稳定流出后关闭, 排尽阀腔内空气。

检漏与观察: 升压至工作压力后, 检查阀体与管道卡套连接处、阀杆填料处有无渗漏。注意检查卡套接头处有无介质泄漏。记录初始状态下的操作扭矩, 作为运行基准值。观察并确认阀门在关闭状态下无内漏。

二、运行监控与操作:

操作扭矩监测 (科学维护依据): 定期记录阀门启闭时的操作扭矩。阀门采用 PTFE 衬套密封, 正常操作扭矩较小且稳定。当扭矩明显增大时, 表明密封面可能发生粘连、异物卡滞或填料过紧, 应及时检查处理。严禁强行操作。

启闭操作: 启闭阀门时应缓慢转动手轮。旋塞阀为 90° 旋转启闭, 全开或全关位置应有明显限位感。到位后勿过度施力。长期处于固定位置的阀门, 建议每月进行一次全行程旋转, 防止旋塞与 PTFE 衬套密封面粘连。

定期检查: 对于间歇使用的阀门, 建议定期进行启闭操作, 确认阀门灵活可靠。

卡套接头检查: 定期检查卡套接头处有无泄漏, 如发现泄漏可适当均匀拧紧卡套螺母, 但不得超过规定力矩。

Part 2: Instructions for Operation and Use

I. Initial Commissioning

Venting and Filling: Slowly open the system medium inlet valve. Open the vent valve at the high point of the valve (if available) and close it after a continuous and stable flow of medium emerges, ensuring that air in the valve cavity is completely expelled.

Leak Check and Observation: Raise the pressure to the working pressure and check for leakage at the valve-body ferrule connections and valve stem packing. Pay attention to check for medium leakage at the ferrule connections. Record the initial operating torque as a baseline value. Observe and confirm that there is no internal leakage when the valve is closed.

II. Operation Monitoring and Handling

Torque Monitoring (Basis for Scientific Maintenance): Regularly record the operating torque when opening or closing the valve. The valve adopts a PTFE liner seal, and the normal operating torque is low and stable. A significant increase in torque indicates possible sticking, foreign matter obstruction, or over-tightened packing on the sealing surfaces, which should be inspected and addressed promptly. Forced operation is prohibited.

Opening and Closing Operation: Rotate the handwheel slowly when opening or closing the valve. The plug valve opens and closes by a 90-degree rotation, and a distinct limit feel should be present at the fully open and fully closed positions. Do not over-torque when reaching the end position. For valves remaining in a fixed position for extended periods, a full-stroke rotation is recommended once per month to prevent sticking between the plug and the PTFE liner sealing surfaces.

Periodic Inspection: For valves used intermittently, regular opening and closing operations are recommended to confirm that the valve is flexible and reliable.

Ferrule Connection Inspection: Regularly check for leakage at the ferrule connections. If leakage is found, evenly tighten the ferrule nut appropriately, but do not exceed the specified torque.

第三部分：维护与保养须知

一、日常维护

外观与泄漏检查: 定期巡检, 检查阀体、卡套连接处、阀杆填料压盖有无锈蚀、裂纹或泄漏。如有微量外漏可适当均匀拧紧填料螺栓或卡套螺母。

仪表维护: 确保上下游压力表读数准确、灵敏。

操作灵活性检查: 定期(如每月)对阀门进行全行程启闭操作, 确认转动灵活、无卡滞现象。

二、旋塞密封维护

安全隔离与泄压: 关闭阀门上下游的截止阀。缓慢打开下游泄放阀或系统放空口, 确认阀腔压力降至零且无介质流出后, 方可进行后续操作。对于高温介质, 须待阀体温度降至常温后再作业。

拆卸填料压盖: 使用合适工具, 均匀对角松开并卸下填料压盖螺栓。注意保护密封面, 避免划伤。

取出与检查旋塞: 小心取出旋塞(如为可拆式结构)。检查旋塞与阀体 PTFE 衬套密封面有无划伤、腐蚀、变形或异物粘连。检查 PTFE 衬套是否磨损、开裂或老化。检查填料是否老化、变硬或失去弹性。

清洁密封面: 使用软布和清洁剂擦拭密封面, 清除结垢、锈蚀或粘连物。严禁用硬物刮擦 PTFE 密封面。对于轻微磨损, 可轻微打磨, 但不得损坏 PTFE 层。

检查与更换密封件: 必须更换所有旧填料和密封垫片。如 PTFE 衬套损坏或老化严重, 应更换整个旋塞或阀体组件。

回装与调试: 将旋塞准确复位, 确保密封面清洁。均匀对称紧固填料压盖螺栓。操作旋塞应转动灵活、无卡滞。回装后进行密封性试验, 确认无内外泄漏。

卡套接头维护: 如卡套接头泄漏, 可适当拧紧卡套螺母。如多次拧紧后仍泄漏, 应更换卡套或重新切割管道端面。

Part Three: Maintenance and Care Instructions

I. Routine and Periodic Maintenance

Visual and Leak Inspection: Perform regular inspections to check for rust, cracks, or leakage at the valve body, ferrule connections, and valve stem packing gland. If slight external leakage occurs, evenly tighten the packing bolts or ferrule nuts as appropriate.

Instrument Maintenance: Ensure that upstream and downstream pressure gauges are accurate and responsive.

Operational Flexibility Check: Regularly (e.g., monthly) perform a full-stroke opening and closing operation of the valve to confirm smooth rotation and no sticking.

II. Plug Seal Maintenance (Core Procedure)

Safety Isolation and Depressurization: Close the shutoff valves upstream and downstream of the valve. Slowly open the downstream drain valve or system vent. Ensure that the valve cavity pressure drops to zero and no medium flows out before proceeding with subsequent operations. For high-temperature media, allow the valve body temperature to cool to ambient temperature before working.

Disassembly of Packing Gland: Use appropriate tools to evenly and diagonally loosen and remove the packing gland bolts. Protect the sealing surfaces from scratches.

Removal and Inspection of Plug: Carefully remove the plug (if of a removable design). Inspect the plug and valve body PTFE liner sealing surfaces for scratches, corrosion, deformation, or foreign matter adhesion. Check whether the PTFE liner is worn, cracked, or aged. Check whether the packing has aged, hardened, or lost elasticity.

Cleaning of Sealing Surfaces: Wipe the sealing surfaces with a soft cloth and cleaning agent to remove scale, rust, or adhered matter. Do not scrape the PTFE sealing surfaces with hard tools. For minor wear, light sanding may be performed, but do not damage the PTFE layer.

Inspection and Replacement of Sealing Components: All old packing and gaskets must be replaced. If the PTFE liner is damaged or severely aged, replace the entire plug or valve body assembly (as recommended by the manufacturer).

Reassembly and Testing: Properly reposition the plug, ensuring that the sealing surfaces are clean. Evenly and symmetrically tighten the packing gland bolts. The plug shall rotate smoothly without sticking. After reassembly, perform a sealing test to confirm no internal or external leakage.

Ferrule Connection Maintenance: If leakage occurs at the ferrule connection, appropriately tighten the ferrule nut. If leakage persists after multiple tightening attempts, replace the ferrule or recut the pipe end.

故障现象/Fault Phenomenon	可能原因/Possible Causes	处理方法/Corrective Actions
阀门无法完全关闭, 内漏严重 / Valve fails to close completely; severe internal leakage	1.旋塞与 PTFE 衬套密封面磨损或划伤 2.PTFE 衬套变形或破损 3.密封面有异物卡滞 / 1.Wear or scratching of plug and PTFE liner sealing surfaces 2.Deformation or damage of PTFE liner 3.Foreign matter stuck between sealing surfaces	1.拆解检查密封面, 轻微磨损可打磨, 严重时更换旋塞或阀体 2.更换 PTFE 衬套或阀体 3.清洗密封面, 清除异物 / 1.Disassemble and inspect sealing surfaces; light sanding for minor wear; replace plug or valve body for severe damage 2.Replace PTFE liner or valve body 3.Clean sealing surfaces to remove foreign matter
阀杆填料处外漏 / External leakage at valve stem packing	1.填料螺栓松动 2.填料老化或磨损 3.阀杆表面划伤或腐蚀 / 1.Packing bolts loose 2.Packing aged or worn 3.Valve stem surface scratched or corroded	1.均匀拧紧填料螺栓 2.泄压后更换新填料 3.修复或更换阀杆 / 1.Evenly tighten packing bolts 2.Depressurize and replace packing 3.Repair or replace the valve stem
操作扭矩过大, 转动困难 / Excessive operating torque; difficult rotation	1.长期未操作, PTFE 密封面粘连 2.填料压得过紧 3.阀体或旋塞变形 / 1.Long period without operation; PTFE sealing surfaces stuck 2.Packing compressed too tightly 3.Valve body or plug deformed	1.反复转动直至灵活, 必要时拆解清洁 2.适当松解填料压盖 3.检查工况是否超限, 必要时更换阀门 / 1.Rotate repeatedly until smooth; disassemble and clean if necessary 2.Slightly loosen the packing gland 3.Check if operating conditions exceed limits; replace

		valve if necessary
卡套连接处泄漏 / Leakage at ferrule connections	1.卡套螺母松动 2.卡套损坏 3.管道 端面不平整或管径偏差 / 1.Ferrule nut loose 2.Ferrule damaged 3.Pipe end uneven or pipe diameter deviation	1.按规定力矩均匀拧紧卡套螺母 2.更换卡套 3.重新切割管道端面或更换管道 / 1.Evenly tighten ferrule nut according to torque requirements 2.Replace ferrule 3.Recut pipe end or replace pipe

四、 长期停用与存放

长期停用的阀门，应将其置于半开状态（约 15° ~30° 开启位），避免 PTFE 密封面长期受压变形。关闭系统进出口阀门，排除阀腔内积液和压力。

对阀杆外露表面、卡套螺纹等加工表面进行防锈处理（如涂防锈脂）。

阀门进出口应用塑料盖封住，防止灰尘和异物进入阀腔。

存放在干燥、通风的室内，不得露天堆放，避免受潮和机械损伤。

PTFE 材料应避免长期暴露于高温或强辐射环境。

3、 Long term disuse and storage

For valves taken out of service for extended periods, place them in a partially open position (approximately 15° to 30° open) to prevent long-term compression deformation of the PTFE sealing surfaces. Close the system inlet and outlet valves, and drain any trapped pressure and liquid from the valve cavity.

Apply rust preventive treatment (e.g., anti-rust grease) to exposed valve stem surfaces, ferrule threads, and other machined surfaces.

Cover the valve inlet and outlet with plastic caps to prevent dust and foreign matter from entering the valve cavity.

Store in a dry, well-ventilated indoor location. Outdoor storage is not permitted. Protect from moisture and mechanical damage.

PTFE material should not be exposed to high temperature or strong radiation for extended periods.

非常感谢您的阅读！

Thank you very much for reading!

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