开维喜阀门集团
Kaiweixi valve group
https://www.kaiweixi.com
E-mail：sales@kaiweixi.com

Q941F 电动浮动球阀

Q941F Electric Floating Ball Valve

使用说明书

开维喜阀门集团有限公司

Kaiweixi Valve Group Co., Ltd.

地址：中国 浙江省温州市瓯北街道三桥工业区林下路 1 号　电话：0577-67038872　传真：0577-67198981　邮编：325100

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Q941F 电动浮动球阀

型号：Q941F-16P/40P/64P/25P/16R/25R/40R/64R　规格： DN15-DN300
公称压力：PN16,PN25,PN40,PN64　适用介质：水、蒸汽、油品及类似液体、气体。
适用温度：≤350℃　阀体材质：铸钢、不锈钢、合金钢、青铜
连接方式：法兰　驱动方式：电动
其他参数：制造标准按 GB/T 12237

Q941F Electric Floating Ball Valve

Model:Q941F-16P/40P/64P/25P/16R/25R/40R/64R　Specifications: DN15-DN400
Nominal Pressure:PN16,PN25,PN40,PN64
Applicable Media: Water, steam, oil and similar liquids and gases.
Applicable Temperature:≤350℃　Body Material:Carbon steel, stainless steel,alloy steel,Bronze
End Connection : Flange　Operation:electric
Other Parameters: Manufacturing standard according to GB/T 12237.

Q941F 电动浮动球阀概述

Q941F 电动浮动球阀是一种由电动执行器驱动的浮动式球阀，采用法兰连接。阀体通常采用铸钢、不锈钢或铸铁材质，内部球体在介质压力作用下可产生微量浮动位移，紧压出口端阀座形成密封。阀门通过电动执行器驱动阀杆，带动球体作 90 度旋转，实现快速启闭或比例调节。其密封副多采用聚四氟乙烯（PTFE）等软质材料，确保可靠密封。该阀门以电力为动力源，接收控制信号即可自动运行，广泛应用于石油、化工、电力、水处理及楼宇自动化等行业的流体管路系统中，实现对水、蒸汽、油品、气体等介质的远程或自动控制。

Q941F Electric Floating Ball Valve Overview

The Q941F Electric Floating Ball Valve is a floating ball valve driven by an electric actuator, designed with flange connections. The valve body is typically made of cast steel, stainless steel, or cast iron, and its internal ball can produce a slight floating displacement under medium pressure, tightly pressing against the outlet seat to form a seal. The valve operates via an electric actuator that drives the valve stem to rotate the ball by 90 degrees, enabling quick opening/closing or proportional regulation. The sealing pair often utilizes soft materials such as PTFE (polytetrafluoroethylene) to ensure reliable sealing. Powered by electricity, the valve operates automatically upon receiving control signals. It is widely used in fluid pipeline systems across industries such as petroleum, chemical, power, water treatment, and building automation, enabling remote or automatic control of media such as water, steam, oil, and gases.

Q941F 电动浮动球阀产品图
Q941F Electric Floating Ball Valve Product Image

Q941F 电动浮动球阀特点

1.紧凑型浮动密封结构：采用浮动球设计，在介质压力作用下球体向阀座移动实现自紧密封，结构简单紧凑，密封性能可靠。

2.智能化电动控制：配置一体化电动执行器，可实现精确的开关控制和比例调节，支持远程操作和自动化系统集成，显著提升流程控制效率。

3.优良的密封与流通性能：软密封阀座确保双向密封严密，泄漏率低。全通径设计流阻极小，特别适合需要高流通能力的管路系统。

4.操作安全维护简便：电动执行器具备过载保护和手自动切换功能。阀门结构简单，日常维护工作量小，阀座更换相对便捷。

5.防火与多规格选择：通常提供防火防静电设计，软密封失效后能形成金属副密封。可提供多种材质、压力等级和连接标准，适用范围广泛。

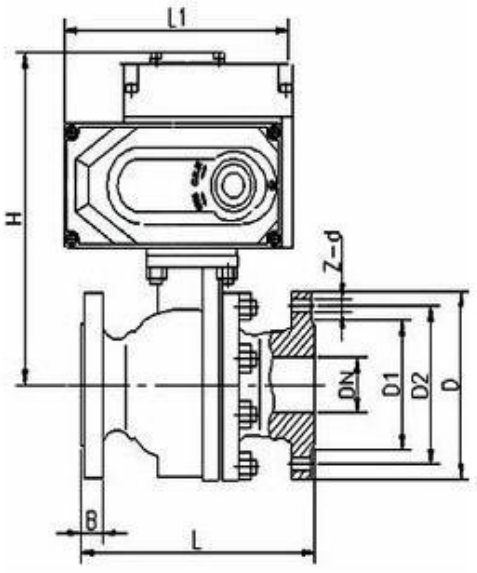
Q941F Electric Floating Ball Valve Features

1. Compact Floating Seal Structure: Utilizing a floating ball design, the ball moves towards the seat under medium pressure to achieve self-tightening sealing. This structure is simple, compact, and offers reliable sealing performance.
2. Intelligent Electric Control: Equipped with an integrated electric actuator, it enables precise on/off control and proportional regulation. It supports remote operation and integration with automation systems, significantly improving process control efficiency.
3. Excellent Sealing and Flow Performance: The soft-sealing valve seat ensures tight bidirectional sealing with a low leakage rate. The full-bore design minimizes flow resistance, making it particularly suitable for

pipeline systems requiring high flow capacity.

4. Safe Operation and Easy Maintenance: The electric actuator features overload protection and manual/automatic switching functions. The valve's simple structure reduces daily maintenance efforts, and the valve seat replacement is relatively straightforward.

5. Fire-Safe and Versatile Specifications: Typically designed with fire-safe and anti-static features, it can form a metal-to-metal secondary seal if the soft seal fails. Available in various materials, pressure ratings, and connection standards, it is widely applicable across different scenarios.



Q941F 电动浮动球阀结构图

Q941F Electric Floating Ball Valve Structure Diagram

零部件名称材料表

Parts Name Material List

序号NO.	名称 Name	材料 Material
1	阀体 Body	碳钢、不锈钢 Carbon steel, stainless steel
2	球体 Ball	2cr13+氮化处理 nitriding
3	密封圈 sealing ring	PTFE、碳素纤维＋PTFE、对位聚苯 Carbon fiber+PTFE, para polystyrene
4	填料 packing	PTFE
5	阀杆 Stem	2cr13、不锈钢 stainless steel

性能规范表 Performance Specification		
公称压力 Nominal Pressure	1.6/2.5/4/6.4	Mpa
强度试验压力 Shell Test	2.4/3.75/6/9.6	
密封试验压力 Seal Test	1.76/2.75/4.4/7.04	
适用温度 Suitable Temp.	≤350	℃

外形尺寸标准要求

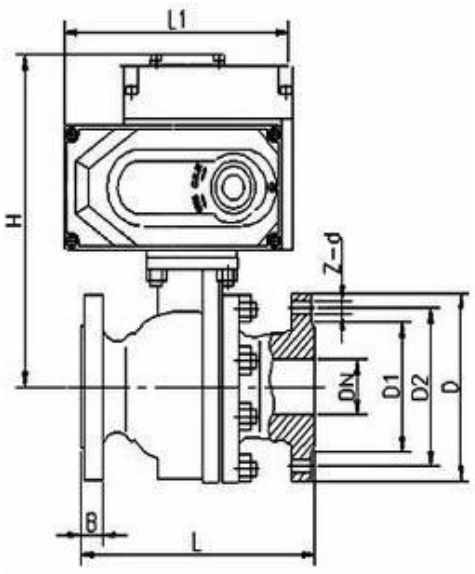
1、阀门的结构长度按 GB/T 12221 的标准

2、连接法兰按 GB/T 9113 的标准

Dimensions Standard Requirements

1. The structural length of the valve shall conform to the standard GB/T 12221.

2. The connecting flange shall conform to the standard GB/T 9113.



Q941F 电动浮动球阀外形图

Q941F Electric Floating Ball Valve View Drawing

Q941F 电动浮动球阀外形尺寸表

Q941F Electric Floating Ball Valve Dimensions Table

公称通径 DN(mm)		15	20	25	32	40	50	65	80	100	125	150	200	250	300
L		130	140	150	165	180	200	220	250	280	320	360	400	630	750
A1	防爆型 Explosion-proof type	137	137	137	137	137	137	137	137	137	137	137	137	137	137
	标准型 standard form	40	40	40	40	40	40	40	40	40	40	40	40	40	40
PN1.6MPa 法兰连接尺寸															
D		95	105	115	140	150	165	185	200	220	250	285	340	405	460
D1		65	75	85	100	110	125	145	160	180	210	240	295	355	410
D2		46	56	65	76	84	99	118	132	156	184	211	266	319	370
b		14	16	16	18	18	20	22	24	24	26	28	24	26	28
f		2	2	2	2	2	2	2	2	2	2	2	2	2	2
n-Φd		4-14	4-14	4-14	4-18	4-18	4-18	4-18	8-18	8-18	8-18	8-22	12-22	12-26	12-26

PN2.5MPa 法兰连接尺寸														
D	95	105	115	140	150	165	185	200	235	270	300	360	425	485
D1	65	75	85	100	110	125	145	160	190	220	250	310	370	430
D2	46	56	65	76	84	99	118	132	156	184	211	274	330	389
b	14	16	16	18	18	20	22	24	24	26	28	34	38	42
f	2	2	2	2	2	2	2	2	2	2	2	2	2	2
n-Φd	4-14	4-14	4-14	4-18	4-18	4-18	8-18	8-18	8-22	8-26	8-26	12-26	12-30	16-30

Q941F 电动浮动球阀安装、使用与维护说明书

安装指南

1. 安装前准备：核对阀门规格、压力等级、法兰标准、材质（如 304/316）及执行器电源电压、控制信号是否与设计一致。清洁阀门通道与管道端口，避免异物损伤不锈钢表面及密封面。
2. 吊装与搬运：使用阀体吊耳进行吊装，严禁以电动执行器作为受力点。搬运时需采取保护措施，防止不锈钢表面被硬物划伤或沾染腐蚀性物质。
3. 法兰连接与紧固：将阀门置于管道法兰之间，确保流向符合要求（如阀体有箭头标识）。使用合适的非金属垫片（如 PTFE），按对角线顺序分次均匀拧紧螺栓，防止不锈钢法兰面因受力不均而产生变形或划伤。
4. 电气接线与防护：根据电气接线图，由专业电工正确连接电源线与控制信号线（如开/关指令、反馈信号）。接线口务必密封严实，达到相应的防护等级（如 IP67）。执行器外壳应可靠接地。
5. 手动机构检查：安装后，需切换至手动模式（通常通过旋转手轮或拉出手动离合器），检查阀门启闭是否灵活正常，然后再切换回电动模式。

使用操作

1. 电动自动操作：通过控制柜、PLC 或现场按钮发送指令，驱动执行器控制阀门启闭。比例调节型阀门可接收 4-20mA 等模拟信号实现开度精确控制。
2. 手动应急操作：在断电或调试时，可切换至手动模式进行操作。手动操作完毕后，必须按执行器说明切换回电动模式，否则通电时可能损坏机构。
3. 状态监控与反馈：通过执行器上的机械指示窗或获取远程位置反馈信号（如无源触点、电位计或 4-20mA），实时确认阀门开度状态。
4. 运行限制：本阀门主要用于截断或调节，但长期用于小开度节流可能因高速介质冲刷而损伤软密封阀座。若长期处于静止状态，建议定期进行全行程开关操作。

维护保养

1. 定期外观与功能检查：定期检查阀体及法兰连接处有无泄漏，不锈钢表面有无异常腐蚀或污损。检查执行器外壳密封是否完好，电气接头有无松动。
2. 电气系统维护：定期检查执行器的电源、信号线路是否完好，清除执行器散热口的灰尘。检查并确保电机过热保护功能正常。
3. 阀杆密封维护：若阀杆填料处出现轻微外漏，可均匀适量拧紧填料压盖螺母。若无效或泄漏严重，需在系统泄压后更换合适的填料（如柔性石墨）。
4. 内漏处理与密封件更换：若阀门关闭不严，首先尝试数次全开全关冲刷杂质。如无效，则需离线拆解，检查并清洁球体与阀座密封面，若磨损严重则需更换。更换的密封件材质应与介质兼容。
5. 长期停用与存放：长期停用前，应将阀门置于全开或全关的安全位置，断开电源并做好防水防尘保护。

定期进行手动操作以防卡涩。重新启用前，需全面测试电气功能与阀门密封性能。

Installation, Use, and Maintenance Manual for Q941F Electric Floating Ball Valve

Installation Guide

1. Preparation before installation: Check whether the valve specifications, pressure rating, flange standards, materials (such as 304/316), actuator power supply voltage, and control signals are consistent with the design. Clean the valve channels and pipeline ports to prevent foreign objects from damaging the stainless steel surface and sealing surface.

2. Lifting and handling: Use valve body lifting lugs for lifting, and it is strictly prohibited to use electric actuators as force points. Protective measures should be taken during transportation to prevent the stainless steel surface from being scratched by hard objects or contaminated with corrosive substances.

3. Flange connection and fastening: Place the valve between the pipeline flanges to ensure that the flow direction meets the requirements (such as arrow markings on the valve body). Use suitable non-metallic gaskets (such as PTFE) and tighten the bolts evenly in diagonal order to prevent deformation or scratches on the stainless steel flange surface due to uneven stress.

4. Electrical wiring and protection: According to the electrical wiring diagram, a professional electrician should correctly connect the power line and control signal line (such as on/off command, feedback signal). The wiring port must be tightly sealed to achieve the corresponding protection level (such as IP67). The actuator casing should be reliably grounded.

5. Manual mechanism inspection: After installation, it is necessary to switch to manual mode (usually by rotating the handwheel or pulling out the manual clutch), check whether the valve opens and closes flexibly and normally, and then switch back to electric mode.

Usage and Operation

1. Electric automatic operation: Send instructions through control cabinets, PLCs, or on-site buttons to drive actuators to control valve opening and closing. Proportional regulating valves can receive analog signals such as 4-20mA to achieve precise control of opening.

2. Manual emergency operation: In case of power outage or debugging, it can be switched to manual mode for operation. After manual operation, it is necessary to switch back to electric mode according to the actuator instructions, otherwise the mechanism may be damaged when powered on.

3. Status monitoring and feedback: Real time confirmation of valve opening status can be obtained through mechanical indicator windows on the actuator or remote position feedback signals (such as passive contacts, potentiometers, or 4-20mA).

4. Operational limitations: This valve is mainly used for cutting off or regulating, but long-term use for small opening throttling may damage the soft seal valve seat due to high-speed medium flushing. If it is in a stationary state for a long time, it is recommended to perform regular full stroke switch operations.

Maintenance

1. Regular appearance and functional inspection: Regularly check for leaks at the valve body and flange connections, and for abnormal corrosion or fouling on the stainless steel surface. Check if the actuator housing seal is intact and if the electrical connectors are loose.

2. Electrical system maintenance: Regularly check whether the power and signal lines of the actuator are intact, and remove dust from the actuator heat dissipation port. Check and ensure that the motor overheat protection function is functioning properly.

3. Valve stem sealing maintenance: If there is slight leakage at the valve stem packing, the packing gland nut can be tightened evenly and appropriately. If it is ineffective or the leakage is severe, it is necessary to replace the appropriate packing (such as flexible graphite) after the system is depressurized.

4. Internal leakage treatment and seal replacement: If the valve is not tightly closed, first try to fully open and close it several times to flush out impurities. If it is ineffective, offline disassembly is required to inspect and clean the sealing surface of the ball and valve seat. If it is severely worn, it needs to be replaced. The material of the replaced seal should be compatible with the medium.

5. Long term disuse and storage: Before long-term disuse, the valve should be placed in a safe position of fully open or fully closed, the power should be disconnected, and waterproof and dustproof protection should be taken. Regularly perform manual operations to prevent jamming. Before reactivation, a comprehensive test of electrical functionality and valve sealing performance is required.

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 18967796135

网址：https://www.kaiweixi.com

E-mail：yannie@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 18967796135

URL: https://www.kaiweixi.com

E-mail：yannie@kaiweixi.com