

Q11F 方形三片式球阀

Q11F Square Three-Piece Ball Valve

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

Q11F 方形三片式球阀

型号: Q11F
公称压力: PN16, PN25, PN40
适用温度: ≤450℃
连接方式: 螺纹
其他参数: 制造标准按 GB/T12224

规格: DN15-DN200
适用介质: 水、蒸汽、油品、腐蚀性介质
阀体材质: 锻钢、锻不锈钢
驱动方式: 手动、气动、电动

Q11F Square Three-Piece Ball Valve

Model: Q11F	Specifications: DN15-DN200
Nominal Pressure: PN16, PN25, PN40	Applicable Media: water, gas, oil corrosive media
Applicable Temperature: ≤450℃	Body Material: forged steel, forged stainless steel
End Connection: Thread	Operation: Manual, pneumatic, electric
Other Parameters: Manufacturing standard according to GB/T12224.	

Q11F 方形三片式球阀概述

Q11F 方形三片式球阀是一种采用三片式分体结构、方形阀体设计的内螺纹连接球阀。阀体及连接部件通常采用黄铜或不锈钢材质，由两片端盖与中间阀体通过螺栓连接构成，结构稳固且便于拆装维护。阀门通过旋转阀杆带动球体实现 90 度启闭，阀座密封采用聚四氟乙烯（PTFE）等软质材料，确保可靠密封。该阀门以其独特的方形外观、紧凑的分体结构和高性价比著称，适用于水、油、气等非腐蚀性介质，工作压力通常为 PN16-PN40，广泛应用于仪器仪表、小型设备、供水气动系统及一般工业管路中。

Q11F Square Three-Piece Ball Valve Overview

The Q11F Square Three-Piece Ball Valve is a ball valve featuring a three-piece split-body design with a square-shaped valve body and internal thread connections. The valve body and connecting components are typically made of brass or stainless steel, consisting of two end caps and a central valve body bolted together to form a stable structure that facilitates easy disassembly and maintenance. The valve operates by rotating the stem to drive the ball 90 degrees for opening or closing, while the seat seal is made of soft materials such as PTFE (polytetrafluoroethylene) to ensure reliable sealing. Known for its distinctive square appearance, compact split-body design, and high cost-effectiveness, this valve is suitable for non-corrosive media such as water, oil, and gas, with a typical working pressure range of PN16 to PN40. It is widely used in instrumentation, small equipment, water/gas supply systems, pneumatic systems, and general industrial pipelines.



Q11F 方形三片式球阀产品图

Q11F Square Three-Piece Ball Valve Product Image

Q11F 方形三片式球阀特点

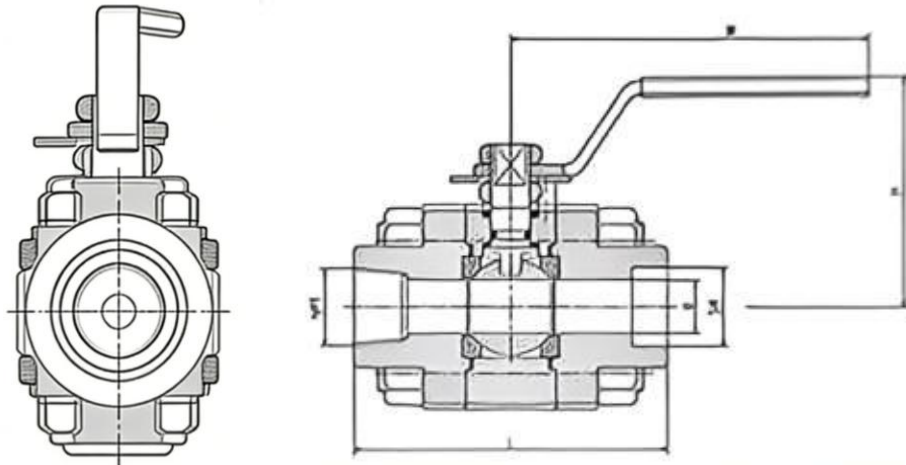
1. 方形三片式分体结构：独特的方形阀体由三部分螺栓连接而成，结构稳固、拆装便捷，便于清洗和维护内部零件。
2. 螺纹连接紧凑可靠：采用内螺纹（G 或 NPT）连接，结构短小，安装空间要求低，密封可靠，适合小型紧凑管路布置。
3. 优良密封与低操作扭矩：PTFE 阀座与球体形成软密封，密封性能好，摩擦系数小，启闭操作轻便灵活。
4. 耐用性与维护简便：黄铜或不锈钢材质耐腐蚀、强度高，使用寿命长。若密封失效，可通过更换阀座或整体维修包快速修复，维护成本低。
5. 经济实用与外观规整：制造成本合理，性价比高。方形外观便于在设备或管路上规整布置和固定，整体美观且实用。

Q11F Square Three-Piece Ball Valve Features

1. Square Three-Piece Split Structure: The distinctive square valve body is composed of three bolted-together sections, offering a sturdy construction and convenient disassembly, facilitating internal cleaning and component maintenance.
2. Compact and Reliable Threaded Connection: Equipped with internal threads (G or NPT), the valve features a short, space-saving design that requires minimal installation space while ensuring reliable sealing, making it suitable for small and compact pipeline layouts.
3. Excellent Sealing and Low Operating Torque: The PTFE seat forms a soft seal with the ball, providing superior sealing performance and a low friction coefficient, which enables smooth and effortless opening and closing operation.

4. Durability and Ease of Maintenance: Made from corrosion-resistant and high-strength brass or stainless steel, the valve ensures long service life. In case of seal failure, it can be quickly restored by replacing the seat or using a complete repair kit, resulting in low maintenance costs.

5. Cost-Effectiveness and Neat Appearance: With reasonable manufacturing costs, the valve delivers high value for money. Its square shape allows for orderly arrangement and secure mounting on equipment or pipelines, offering both aesthetic appeal and practicality.



Q11F 方形三片式球阀结构图

Q11F Square Three-Piece 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	不锈钢 stainless steel
2	球体 ball	不锈钢 stainless steel
3	O 型圈 O ring	氟橡胶氟橡胶 FKM 、Viton
4	填料 packing	弹性石墨 flexible graphite
5	阀杆 stem	不锈钢 stainless steel

性能规范表 Performance Specification

公称压力 Nominal Pressure	1.6/2.5/4	Mpa
强度试验压力 Shell Test	2.4/3.75/6	
密封试验压力 Seal Test	1.76/2.75/4.4	
适用温度 Suitable Temp.	450	℃

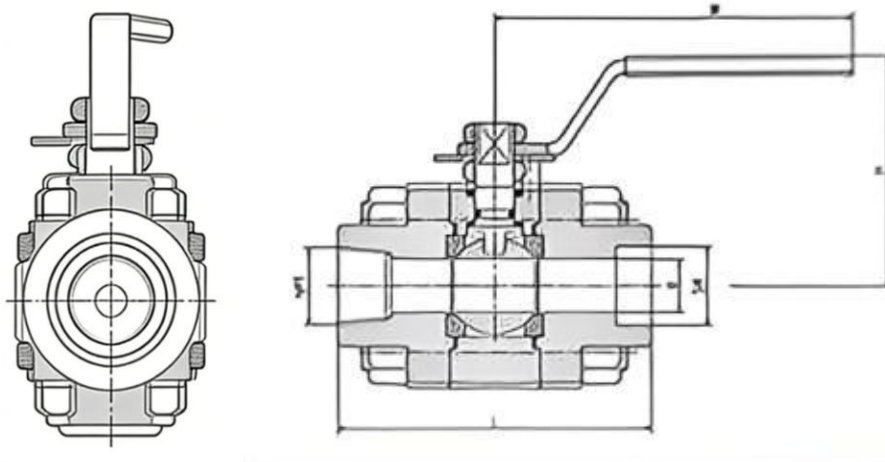
外形尺寸标准要求

1、阀门的结构长度按 GB/T12221 的标准

2、连接法兰按 JB/T7306 的标准

Dimensions Standard Requirements

1. The structural length of the valve shall conform to the standard GB/T12221.
2. The connecting flange shall conform to the standard JB/T7306.



Q11F 方形三片式球阀外形图

Q11F Square Three-Piece Ball Valve View Drawing

Q11F 方形三片式球阀外形尺寸表

Q11F Square Three-Piece Ball Valve Dimensions Table

磅级 Class	缩径 RB	通径 FB	L	L1	d	NPT		SW		H	W
						RB	FB	RB	FB		
Q11F	3/8"×1/4"	1/4"	92	9.6	9.5	3/8"	1/4"	17.6	14.2	53	130
	1/2"×3/8"	3/8"	92	9.6	9.5	1/2"	3/8"	21.8	17.6	53	130
	3/4"×1/2"	1/2"	92	12.7	14	3/4"	1/2"	27.1	21.8	56	130
800LB	1"×3/4"	3/4"	111	12.7	19	1"	3/4"	33.8	27.1	70	160
900LB	1-1/4"×1"	1"	127	12.7	25	1-1/4"	1"	42.6	33.8	80	220
	1-1/2"×1-1/4"	1-1/4"	140	12.7	30	1-1/2"	1-1/4"	48.7	42.6	90	250
	2"×1-1/2"	1-1/2"	152	15.9	38	2"	1-1/2"	61.2	48.7	100	250
1500LB	2-1/2"×2"	2"	178	15.9	48	2-1/2"	2"	74.1	61.2	110	300
Q11F	3/8"×1/4"	1/4"	111	9.6	9.5	3/8"	1/4"	17.6	14.2	53	160
	1/2"×3/8"	3/8"	111	9.6	9.5	1/2"	3/8"	21.8	17.6	53	160
	3/4"×1/2"	1/2"	111	12.7	14	3/4"	1/2"	27.1	21.8	56	160
2500LB	1"×3/4"	3/4"	127	12.7	19	1"	3/4"	33.8	27.1	70	220
	1-1/4"×1"	1"	140	12.7	25	1-1/4"	1"	42.6	33.8	80	250
	1-1/2"×1-1/4"	1-1/4"	152	12.7	30	1-1/2"	1-1/4"	48.7	42.6	90	250
	2"×1-1/2"	1-1/2"	178	15.9	38	2"	1-1/2"	61.2	48.7	100	300
	2-1/2"×2"	2"	203	15.9	48	2-1/2"	2"	74.1	61.2	110	320

Q11F 方形三片式球阀安装、使用与维护说明

安装指南

1. 安装前准备：核对阀门型号、压力等级、螺纹标准（G 或 NPT）及材质是否符合管路设计要求。清洁阀

门内腔及管道端口，确保无任何杂质。

2. 螺纹连接操作：在管道外螺纹上顺时针缠绕适量的聚四氟乙烯生料带或涂抹合适的密封剂。手动将阀门旋入管道，确保对正螺纹，避免错扣。使用合适的工具（如扳手卡住阀体方形部位）进行最终紧固，注意用力适度，防止损坏螺纹或阀体。
3. 三片式结构注意：阀门由两片端盖与中间阀体通过螺栓连接，安装时无需拆卸此结构。但在紧固管道螺纹时，应避免将扭矩过度传递至连接螺栓而导致内部密封错位。
4. 安装方向与空间：阀门可安装在任意方向，但应确保手柄有足够的旋转空间（通常 90 度），并能清晰观察到开关位置。
5. 安装后检查：安装完成后，手动操作阀门数次，检查启闭是否顺畅，并检查螺纹连接处有无渗漏。

使用操作

1. 启闭操作：通过手柄进行 90 度旋转操作。手柄与管道轴线平行时为开启状态，垂直时为关闭状态。操作应平稳，达到限位后请勿强行继续旋转。
2. 状态确认：通过手柄位置可直观判断阀门开关状态。对于不易观察的位置，可在手柄或阀体上做标记。
3. 常规使用：本阀门主要用于管路的截断或接通，不应用于精确的流量调节。长期处于全开状态时，建议定期进行全行程开关操作，以保持阀座弹性。
4. 带压操作注意事项：在系统带压状态下操作时，应缓慢均匀施力。若操作异常困难，可能内部有杂质或阀座异常，应停止操作并检查。

维护保养

1. 定期检查：定期检查阀门螺纹连接处有无渗漏，阀体表面有无腐蚀或损伤。检查手柄是否牢固。
2. 在线清洗（利用三片式结构）：若怀疑阀门内部有杂质影响密封，可在系统泄压后，拆卸阀门两端的连接螺栓，将中间阀体部分取出进行内部检查和清洗，而无需将阀门完全从管道上拆下。
3. 内漏处理：若阀门关闭后仍存在内漏，可能是阀座密封面磨损或夹有杂质。可通过上述方法取出中间阀体，检查并清洗球体和阀座密封面。若阀座损坏，可更换阀座密封圈或整体维修包。
4. 阀杆密封维护：若阀杆处出现轻微外漏，可尝试均匀拧紧阀杆压盖。若无效，需泄压后更换阀杆密封填料。
5. 拆卸与储存：需要完全拆卸时，应先泄压。长期储存应使阀门处于全开或全关状态，保持端口清洁并加盖保护。定期活动手柄以防卡滞。

Q11F Square Three-Piece Ball Valve Installation, Operation and Maintenance Instructions Installation Guide

1. Pre-installation Preparation

Verify that the valve model, pressure rating, thread standard (G or NPT), and material meet the pipeline design requirements. Clean the valve interior and pipe ends to ensure no impurities are present.

2. Threaded Connection Procedure

Wrap an appropriate amount of PTFE tape or apply a suitable thread sealant clockwise on the external pipe threads. Manually screw the valve onto the pipe, ensuring proper thread alignment to avoid cross-threading. Use appropriate tools (e.g., a wrench on the square section of the valve body) for final tightening, applying moderate force to prevent damage to threads or the valve body.

3. Note on Three-Piece Structure

The valve consists of two end caps and a center body connected by bolts; do not disassemble this structure during installation. When tightening the pipe threads, avoid transferring excessive torque to the connecting bolts, which could cause internal seal misalignment.

4. Mounting Orientation and Clearance

The valve can be installed in any orientation, but ensure sufficient clearance (typically 90°) for handle rotation and clear visibility of the open/closed position.

5. Post-installation Inspection

After installation, manually operate the valve several times to ensure smooth opening and closing. Inspect threaded connections for leaks.

Operation

1. Opening/Closing Operation

Rotate the handle 90° to operate. The valve is open when the handle is parallel to the pipeline axis and closed when perpendicular. Operate smoothly and do not force rotation beyond its limit.

2. Status Confirmation

The handle position visually indicates the valve's open/closed status. For poorly visible locations, mark the handle or valve body.

3. Regular Use

This valve is primarily used for on/off pipeline flow control and is not intended for precise flow regulation. If kept fully open for extended periods, periodically cycle it through its full travel to maintain seat elasticity.

4. Operation Under Pressure

When operating under system pressure, apply force slowly and evenly. If abnormal resistance is encountered, possible causes include internal debris or seat abnormalities; stop operation and investigate.

Maintenance

1. Regular Inspection

Periodically check threaded connections for leaks and the valve body for corrosion or damage. Verify that the handle is secure.

2. In-line Cleaning (Utilizing Three-Piece Structure)

If internal contamination is suspected to affect sealing, depressurize the system, remove the bolts connecting the two end caps, and extract the center body for internal inspection and cleaning without fully removing the valve from the pipeline.

3. Internal Leakage Handling

If leakage persists after closing, possible causes include worn seat seals or trapped debris. Use the method above to extract the center body, inspect and clean the ball and seat sealing surfaces. Replace the seat seal ring or full repair kit if damaged.

4. Stem Seal Maintenance

If minor external leakage occurs at the stem, attempt to evenly tighten the stem gland. If leakage continues, depressurize the valve and replace the stem packing.

5. Disassembly and Storage

Before full disassembly, depressurize the system. For long-term storage, leave the valve fully open or fully closed, keep ports clean and capped, and periodically operate the handle to prevent seizing.

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