

Q21F 内外丝球阀

Q21F Female & Male Thread Ball Valve

使 用 说 明 书



开维喜阀门集团有限公司
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Q21F 内外丝球阀

型号: Q21F-16P	规格: DN15-DN50
公称压力: 1.6Mpa	适用介质: 水及类似于水的介质
适用温度: ≤120℃	阀体材质: 不锈钢
连接方式: 内螺纹	驱动方式: 手动
其他参数: 制造标准按 GB/T12237	

Q21F Female & Male Thread Ball Valve

Model: Q21F-16P	Specifications: DN15-DN50
Nominal Pressure: 1.6Mpa	Applicable Media: Water and water-like media
Applicable Temperature: ≤120℃	Body Material: stainless steel
End Connection :NPT	Operation: Manual
Other Parameters: Manufacturing standard according to GB/T12237.	

Q21F 内外丝球阀概述

Q21F 内外丝球阀是一种采用内外螺纹组合连接结构的紧凑型球阀。阀体通常采用黄铜或不锈钢材质，一端为外螺纹（如 G 螺纹），另一端为内螺纹，可直接连接不同接口标准的管路或设备，省去额外接头。阀门通过旋转阀杆带动球体实现 90 度快速启闭，阀座采用聚四氟乙烯（PTFE）等软密封材料确保可靠密封。该阀门兼具转接与截断双重功能，结构小巧，安装灵活，适用于水、油、空气等非腐蚀性介质，广泛应用于暖通系统、仪器仪表、小型设备及家庭管路中。

Q21F Female & Male Thread Ball Valve Overview

The Q21F Female & Male Thread Ball Valve is a compact ball valve featuring a combined female and male thread connection design. The valve body is typically constructed from brass or stainless steel. With external threads on one end (e.g., G-thread) and internal threads on the other, it can directly connect pipelines or equipment with different interface standards, eliminating the need for additional fittings. The valve operates via a 90-degree rotation of the stem to quickly open or close the ball. A PTFE (or similar soft seal) seat ensures reliable sealing. Combining both adaptation and shut-off functions in one compact unit, this valve offers a small footprint and flexible installation. It is suitable for non-corrosive media such as water, oil, and air, and is widely used in HVAC systems, instrumentation, small-scale equipment, and residential plumbing.



Q21F 内外丝球阀产品图
Q21F Female & Male Thread Ball Valve Product Image

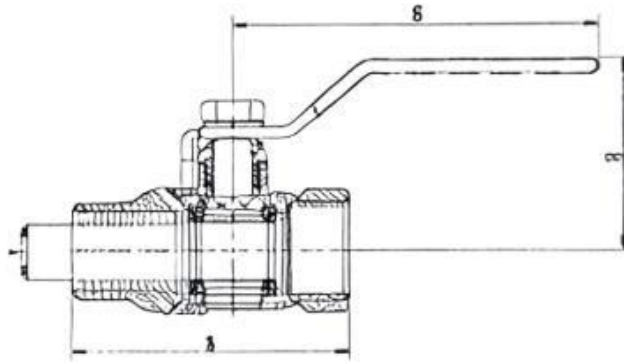
Q21F 内外丝球阀特点

1. 内外螺纹组合设计：一端外螺纹、一端内螺纹的特殊结构，可直接实现不同接口管路的转换连接，简化安装，节省空间与成本。
2. 紧凑型多功能结构：集转接与截断功能于一体，结构短小精悍，特别适合空间受限或需要管路转接的场合。
3. 优良密封性能：PTFE 阀座与球体形成软密封，密封可靠，操作扭矩小，启闭轻便灵活。
4. 安装便捷经济实用：无需额外转换接头，安装快速简便。黄铜或不锈钢材质耐腐蚀，使用寿命长，维护成本低。
5. 适用范围广：适用于常规温度压力范围内的水、油、空气等介质，是家庭、商业及一般工业管路中经济高效的连接控制元件。

Q21F Female & Male Thread Ball Valve Features

1. Combined Female & Male Thread Design: Features a unique construction with external threads on one end and internal threads on the other, enabling direct adaptation between pipelines with different interfaces. This simplifies installation while saving space and cost.
2. Compact and Multi-Functional Structure: Integrates both connection adaptation and shut-off functions in a single, short-face-to-face unit. Ideal for space-constrained installations or applications requiring pipeline interface conversion.
3. Excellent Sealing Performance: The PTFE seat creates a reliable soft seal with the ball, ensuring effective sealing. Low operating torque allows for smooth and effortless opening and closing.

4. Easy Installation and Cost-Effectiveness: Eliminates the need for additional adapters, enabling quick and simple installation. Brass or stainless steel construction provides corrosion resistance, long service life, and low maintenance costs.
5. Wide Range of Applications: Suitable for media such as water, oil, and air within standard temperature and pressure ranges. Serves as a cost-efficient connection and control component for residential, commercial, and general industrial piping systems.



Q21F 内外丝球阀结构图

Q21F Female & Male Thread 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	密封圈 seal gasket	PTFE
4	填料 packing	弹性石墨 Flexible Graphite
5	阀杆 stem	不锈钢 Stainless Steel
6	阀座 seat	RPTFE

性能规范表 Performance Specification

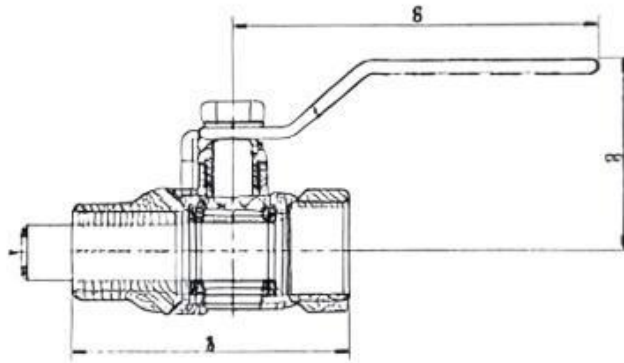
公称压力 Nominal Pressure	1.6	Mpa
强度试验压力 Shell Test	2.4	
密封试验压力 Seal Test	1.8	
适用温度 Suitable Temp.	120	℃

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 GB9113 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 GB9113.



Q21F 内外丝球阀外形图

Q21F Female & Male Thread Ball Valve View Drawing

Q21F 内外丝球阀外形尺寸表

Q21F Female & Male Thread Ball Valve Dimensions Table

ON	SIZE	L	H	O	S
09	1/8"	47	31	85	5
10	2/8"	55	41	81	10
15	1/2"	61	42	81	12
20	3/8"	55.5	47	93	15

Q21F 内外丝球阀安装、使用与维护说明

安装指南

1. 安装前准备：核对阀门型号、压力等级及螺纹规格（内外螺纹类型）是否符合管路设计要求。清洁阀门内腔及管道端口，确保无杂质。
2. 螺纹连接操作：根据阀门两端螺纹类型，在管道对应螺纹上缠绕适量聚四氟乙烯生料带或涂抹密封剂。先手动旋入一端，对正后再连接另一端。使用合适工具分别卡住阀体两端六角部位交替均匀紧固，避免单边受力导致阀体扭曲。
3. 安装顺序建议：建议先将阀门一端与固定端管道连接并初步紧固，再连接另一端管道进行调整对正，最后进行最终紧固。
4. 安装方向确认：阀门可安装于任意方向，但需确保手柄有充足且无障碍的 90 度旋转空间，并能清晰观察到开关位置指示。
5. 安装后测试：手动操作阀门全行程开关数次，检查启闭是否顺畅。对两端螺纹连接处进行压力测试，确保无渗漏。

使用操作

1. 启闭操作：通过手柄旋转 90 度实现启闭，手柄与管道轴线平行时为开启，垂直时为关闭。操作应平稳到位，勿强行超程旋转。
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，建议在阀体或手柄上做明显标记。
3. 常规使用：本阀门主要用于管路截断或转接处的流体控制，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. 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，可能内部有杂质或密封件异常，应停止操作并检查。

维护保养

1. 定期检查：定期检查阀门两端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. 内部维护：若阀门出现关闭不严（内漏），可能为阀座密封面磨损或附着杂质。需将阀门从管道上拆下，拆卸相关部件后检查并清洗球体与阀座密封面。
3. 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螺母。若无效或泄漏严重，需将阀门泄压后更换阀杆密封填料。
4. 螺纹维护：长期使用后若拆卸阀门，应检查两端螺纹有无损伤。重新安装时需更换新的密封材料，确保密封可靠。
5. 存放保养：阀门长期存放应处于全开或全关状态，保持端口清洁并加盖防尘。定期活动手柄以防卡滞。若作为备件存放，建议标注其内外螺纹规格以便快速选用。

Installation, Operation and Maintenance Instructions for Q21F Female & Male Thread Ball Valve Installation Guide

1. Pre-installation Preparation: Verify that the valve model, pressure rating and thread specifications (including thread types) comply with pipeline design requirements. Clean the internal cavity of the valve and pipe ends to ensure they are free from contaminants.
2. Thread Connection Procedure: Based on the thread types at both ends of the valve, wrap an appropriate amount of PTFE tape or apply sealant to the corresponding pipe threads. Start by hand-tightening one end, ensuring correct alignment before connecting the opposite end. Use suitable tools on the hexagonal flats at both ends of the valve body, tightening alternately and evenly to avoid distortion from unilateral force.
3. Recommended Installation Sequence: It is recommended to first connect and preliminarily tighten one end of the valve to a fixed pipeline section, then connect and align the opposite end before performing final tightening.
4. Installation Orientation: The valve can be installed in any orientation. However, ensure there is sufficient unobstructed clearance for 90-degree handle rotation and that the open/close position indicator is clearly visible.
5. Post-installation Testing: Manually cycle the valve through its full open/close travel several times to verify smooth operation. Conduct a pressure test on both threaded connections to confirm they are leak-free.

Operation

1. Opening/Closing Operation: Open or close the valve by rotating the handle 90 degrees. The valve is open when the handle is parallel to the pipeline axis and closed when perpendicular. Operate smoothly to the end position without forcing beyond the stops.
2. Position Verification: The valve position (open/closed) can be visually confirmed by handle orientation. For locations with poor visibility, apply clear markings on the valve body or handle.
3. Normal Use: This valve is primarily designed for on/off service or flow direction change at pipeline connections. It should not be used for precise flow regulation (throttling). For valves maintained in the fully open position for extended periods, periodic full-stroke operation is recommended to maintain seat elasticity.
4. Precautions: When operating under system pressure, apply force slowly and evenly. If operation becomes abnormally difficult, this may indicate internal contamination or seal issues. Cease operation and investigate immediately.

Maintenance

1. Regular Inspection: Periodically inspect both threaded connections for leaks and the valve exterior for corrosion or damage. Verify that the handle is secure.
2. Internal Maintenance: If the valve fails to seal properly (internal leakage), this may be due to worn seat seals or debris accumulation. Remove the valve from the pipeline. After disassembling relevant components, inspect and clean the sealing surfaces of the ball and seats.
3. Stem Seal Maintenance: For minor leakage around the stem, attempt to evenly tighten the stem gland nut. If ineffective or if leakage is severe, replace the stem packing after depressurizing the valve.
4. Thread Maintenance: If disassembling the valve after prolonged use, inspect threads at both ends for damage. Always use new sealing material during reinstallation to ensure reliable sealing.
5. Storage: Valves intended for long-term storage should be left fully open or fully closed. Keep ports clean and capped against dust. Periodically exercise the handle to prevent seizing. For spare parts storage, label with internal/external thread specifications for quick identification and selection.

非常感谢您的阅读！

Thank you very much for reading!

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