开维喜阀门集团
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Q61F 锻钢三片式球阀

Q61F Forged Steel Three-Piece Ball Valve

使用说明书

开维喜阀门集团有限公司

Kaiweixi Valve Group Co., Ltd.

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Q61F 锻钢三片式球阀

型号：Q61F
公称压力：1.0-6.4Mpa
适用温度：≤350℃
连接方式：焊接
其他参数：制造标准按 GB/T12237
规格：1/4”-4”
适用介质：水、气、油
阀体材质：锻钢、锻不锈钢
驱动方式：气动、电动、手动

Q61F Forged Steel Three-Piece Ball Valve

Model:Q61F
Nominal Pressure:1.0-6.4Mpa
Applicable Temperature: ≤350℃
End Connection :Welded
Other Parameters: Manufacturing standard according to GB/T12237.
Specifications: 1/4”-4”
Applicable Media: water, gas, oil
Body Material: forged steel, forged stainless steel
Operation:Manual, pneumatic, electric

Q61F 锻钢三片式球阀概述

Q61F 锻钢三片式球阀是一种采用锻钢阀体、内螺纹或对焊连接的高性能紧凑型球阀，其阀体由三段式结构通过高强度螺栓连接构成。阀门采用锻钢材料（如 A105）精密加工，通过旋转阀杆带动球体实现 90 度快速启闭，密封副采用聚四氟乙烯（PTFE）等软质材料或金属硬密封结构。该设计兼具高压承压能力与紧凑安装尺寸，专为石油化工、电站、高压仪表及空间受限的管路系统设计，是小口径高压工况下实现可靠截断的理想设备。

Q61F Forged Steel Three-Piece Ball Valve Overview

The Q61F Forged Steel Three-Piece Ball Valve is a high-performance compact ball valve featuring a forged steel body with internal thread or butt weld connections. Its body consists of three segments connected by high-strength bolts. The valve is precision-machined from forged steel materials (e.g., A105), and the ball is rotated 90 degrees via the stem for quick opening and closing. The sealing pair utilizes soft materials such as PTFE or a metal hard-seal configuration. This design combines high-pressure capability with a compact installation footprint, making it specifically suitable for applications in petrochemicals, power plants, high-pressure instrumentation, and piping systems with limited space. It is an ideal choice for reliable shut-off in small-bore, high-pressure operating conditions.

Q61F 锻钢三片式球阀产品图
Q61F Forged Steel Three-Piece Ball Valve Product Image

Q61F 锻钢三片式球阀特点

1.锻钢阀体高压紧凑：采用锻造工艺，材质致密强度高，结构紧凑，适用于小口径高压管道，承压性能优异。

2.三片式结构维护便捷：阀体由三部分螺栓连接，无需从管道完全拆下即可对中段阀体进行内部检修和密封件更换，维护成本低。

3.连接方式灵活可靠：提供内螺纹（NPT/G）或对焊连接，满足不同高压管路连接需求，密封性好，安装稳固。

4.密封性能优良多样：标配软密封确保零泄漏，可选金属硬密封以适应高温或含颗粒介质，适用范围广。

5.经济耐用应用广泛：锻钢材质耐腐蚀、寿命长，三片式设计降低了全生命周期维护成本，是高压小口径管路的优选阀门。

Q61F Forged Steel Three-Piece Ball Valve Features

1. Compact Forged Steel Body for High-Pressure Applications:

Utilizes a forging process to achieve dense material and high strength. Its compact design is suitable for small-bore, high-pressure pipelines, offering excellent pressure-bearing performance.

2. Convenient Maintenance with Three-Piece Structure:

The valve body consists of three bolted sections, enabling internal inspection and seal replacement of

the middle body segment without completely removing the valve from the pipeline, thereby reducing maintenance costs.

3. Flexible and Reliable Connection Options:

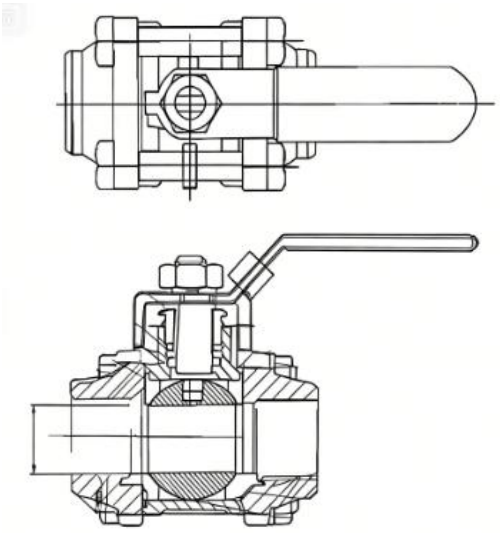
Provides internal thread (NPT/G) or butt weld connections, meeting various high-pressure pipeline connection requirements with reliable sealing and stable installation.

4. Versatile and Superior Sealing Performance:

Standard soft sealing ensures zero leakage, while optional metal hard sealing is available for high-temperature or media containing particles, offering broad applicability.

5. Cost-Effective and Durable for Wide Applications:

Forged steel material provides corrosion resistance and long service life. The three-piece design reduces the total lifecycle maintenance cost, making it an optimal valve choice for small-bore, high-pressure pipelines.



Q61F 锻钢三片式球阀结构图

Q61F Forged Steel 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	碳钢、不锈钢 cast steel, stainless steel
2	球体 ball	不锈钢 stainless steel
3	密封垫 seal gasket	PTFE
4	填料 packing	PTFE
5	阀杆 stem	1CR13

性能规范表 Performance Specification

公称压力 Nominal Pressure	1-6.4	Mpa
强度试验压力 Shell Test	1.5-9.6	
密封试验压力 Seal Test	1.1-7.04	
适用温度 Suitable Temp.	350	℃

外形尺寸标准要求

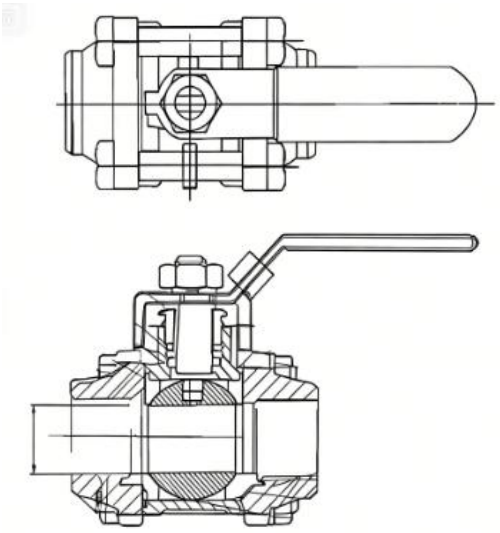
1、阀门的结构长度按 GB/T12221 的标准

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.



Q61F 锻钢三片式球阀外形图

Q61F Forged Steel Three-Piece Ball Valve View Drawing

Q61F 锻钢三片式球阀外形尺寸表

Q61F Forged Steel Three-Piece Ball Valve Dimensions Table

SIZE	1/4″	3/8″	1/2″	3/4″	1″	1-1/4″	1-1/2″	2″	2-1/2″	3″	4″
D	11.6	12.7	15	20	25	32	38	50	65	80	100
L	60	60	70	85	95	110	130	150	190	210	268
H	50	50	130	130	165	165	190	190	250	250	280
E	100	100	22.7	27.5	33.5	42	48.6	60.5	76.3	90	106.5

Q61F 锻钢三片式球阀安装、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、连接方式（内螺纹或对焊）及锻钢材质是否符合高压管道设计

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（如适用）：在管道外螺纹上顺时针缠绕适量密封带或涂抹高温密封剂。手动将阀门旋入管道，对正螺纹后用扳手卡住阀体六角部位均匀紧固，避免过度用力。

3. 对焊连接操作（如适用）：需由合格焊工按焊接工艺规程施焊。焊接前阀门应处于全开位置，并对阀体采取有效的冷却措施，防止焊接高温影响内部密封件。

4. 三片式结构注意事项：安装时无需拆卸阀门的三段式连接螺栓。在紧固管道连接过程中，应确保阀门整体不受扭曲应力，防止内部密封组件错位。

5. 系统压力测试：阀门安装后参与管道系统的压力试验。试验压力需符合高压设计规范，试验后检查所有连接处有无泄漏。

使用操作

1. 启闭操作：通过手柄或执行器进行 90 度旋转操作。操作应平稳到位，达到全开或全关位置时停止，严禁使用加长杠杆强行操作。

2. 状态确认：通过手柄位置或执行器反馈信号明确判断阀门开关状态。对于高压小口径管线，操作状态需清晰可辨。

3. 常规运行：本阀门设计用于高压工况下的全开或全关闭断，不应用于流量调节。长期处于全开状态时，建议定期进行全行程开关操作。

4. 注意事项：在高压系统带压操作时，应缓慢均匀施力。若感觉操作扭矩异常增大，应立即停止并检查系统压力是否超标或阀门内部是否卡阻。

维护保养

1. 定期检查：定期检查阀门连接处有无泄漏，阀体表面有无异常腐蚀或损伤。检查三片式连接螺栓及外部紧固件是否松动。

2. 在线维护（利用三片式结构）：若需检查或更换内部阀座、密封件，可在系统完全泄压后，仅拆卸中段阀体两端的连接螺栓，将中段阀体部分移开进行维护，无需完全拆卸阀门。

3. 密封系统维护：若阀门出现内漏，可能为阀座密封面磨损。可通过上述方法检查密封面，轻微损伤可清洗处理，严重磨损需更换密封组件。

4. 阀杆密封维护：若阀杆处出现外漏，可均匀适度拧紧填料压盖。高压工况下若泄漏持续，需在系统泄压后更换高压专用填料。

5. 长期停用：阀门长期存放应处于全开或全关状态，对连接螺纹或焊口区域采取防锈保护。重新启用前需进行全面的压力测试和功能检查。

Installation, Operation, and Maintenance Instructions for Q61F Forged Steel Three-Piece Ball Valve

Installation Guide

1. Pre-Installation Preparation: Verify that the valve model, pressure rating, connection method (internal thread or buttweld), and forged steel material comply with the high-pressure pipeline design requirements. Thoroughly clean the valve cavity and pipeline ports to ensure they are free of any impurities.

2. Threaded Connection Procedure (if applicable): Wrap an appropriate amount of sealing tape or apply high-temperature thread sealant clockwise on the external threads of the pipe. Hand-tighten the valve onto the pipe, align the threads, and then use a wrench on the hexagonal section of the valve body to tighten evenly, avoiding excessive force.

3. Buttweld Connection Procedure (if applicable): Welding must be performed by a qualified welder

following approved welding procedures. The valve should be fully open during welding, and effective cooling measures should be applied to the valve body to prevent welding heat from affecting internal seals.

4. Considerations for Three-Piece Structure: Do not disassemble the three-piece connection bolts during installation. When tightening pipeline connections, ensure the valve body is not subjected to torsional stress to prevent misalignment of internal sealing components.

5. System Pressure Testing: The installed valve must participate in the pipeline system pressure test. The test pressure must comply with high-pressure design standards. After testing, inspect all connections for leaks.

Operation

1. Opening/Closing Operation: Operate the valve via a 90-degree rotation of the hand lever or actuator. Ensure smooth and complete operation, stopping when fully open or fully closed. Using extended levers to force operation is strictly prohibited.

2. Position Indication: Clearly determine the valve position (open/closed) via the hand lever position or actuator feedback signal. For small-diameter high-pressure pipelines, the operating status must be clearly discernible.

3. Normal Service: This valve is designed for on/off isolation under high-pressure conditions and should not be used for flow throttling. If the valve remains fully open for extended periods, periodic full-stroke operation is recommended.

4. Precautions: When operating under pressure in high-pressure systems, apply force slowly and evenly. If abnormal resistance or increased torque is felt, stop immediately and check whether system pressure exceeds limits or if internal valve obstruction has occurred.

Maintenance

1. Regular Inspection: Periodically inspect valve connections for leaks and the valve body surface for abnormal corrosion or damage. Check the tightness of the three-piece connection bolts and external fasteners.

2. In-Line Maintenance (Utilizing the Three-Piece Structure): To inspect or replace internal seats or seals, fully depressurize the system. Only the bolts connecting both ends of the middle body section need to be removed to slide the middle section out for maintenance, without fully disassembling the valve.

3. Sealing System Maintenance: Internal leakage may indicate wear on the seat sealing surfaces. Inspect the sealing surfaces as described above—minor damage may be cleaned, while severe wear requires replacement of sealing components.

4. Stem Seal Maintenance: If leakage occurs at the stem, tighten the gland evenly and moderately. If leakage persists under high-pressure conditions, the system must be depressurized and

high-pressure-specific packing replaced.

5. Long-Term Storage: Valves in long-term storage should be in the fully open or fully closed position. Apply anti-corrosion protection to threaded or welded areas. Before recommissioning, conduct comprehensive pressure testing and functional checks.

非常感谢您的阅读！

Thank you very much for reading!

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