

Q41H 锻钢法兰球阀

Q41H Forged Steel Flanged Ball Valve

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开维喜阀门集团有限公司
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Q41H 锻钢法兰球阀

型号: Q41H	规格: DN15-DN200
公称压力: 2.5-4.0Mpa	适用介质: 水、气、油
适用温度: $\leq 350^{\circ}\text{C}$	阀体材质: 锻钢、锻不锈钢
连接方式: 法兰	驱动方式: 气动、电动、手动、涡轮
其他参数: 制造标准按 GB/T12237	

Q41H Forged Steel Flanged Ball Valve

Model: Q41H	Specifications: DN15-DN200
Nominal Pressure: 2.5-4.0Mpa	Applicable Media: water, gas, oil
Applicable Temperature: $\leq 350^{\circ}\text{C}$	Body Material: forged steel, forged stainless steel
End Connection :flange	Operation: Manual, pneumatic, electric, Gear
Other Parameters: Manufacturing standard according to GB/T12237.	

Q41H 锻钢法兰球阀概述

Q41H 锻钢法兰球阀是一种采用锻造阀体与法兰连接的高压高温专用球阀。阀体由 A105 等锻钢材料锻造而成，具备优异的机械强度和承压能力。阀门采用金属硬密封结构，通过旋转阀杆带动精密加工的球体实现 90 度启闭，能在高压差和高温工况下保持稳定密封。该阀门设计符合高压工业标准，适用于石油、化工、电站、天然气等领域的高压管路系统，是严苛工况下实现可靠截断的关键设备。

Q41H Forged Steel Flanged Ball Valve Overview

The Q41H Forged Steel Flanged Ball Valve is a specialized high-pressure and high-temperature ball valve featuring a forged valve body and flanged connections. The valve body is forged from materials such as A105, providing exceptional mechanical strength and pressure-bearing capacity. The valve employs a metal hard-seal structure, where a precisely machined ball is rotated 90 degrees by the stem to achieve opening and closing. This design maintains reliable sealing under conditions of high pressure differential and elevated temperatures. Compliant with industrial high-pressure standards, this valve is suitable for high-pressure pipeline systems in sectors such as petroleum, chemical, power generation, and natural gas. It serves as critical equipment for reliable shut-off in demanding operating conditions.



Q41H 锻钢法兰球阀产品图
Q41H Forged Steel Flanged Ball Valve

Q41H 锻钢法兰球阀特点

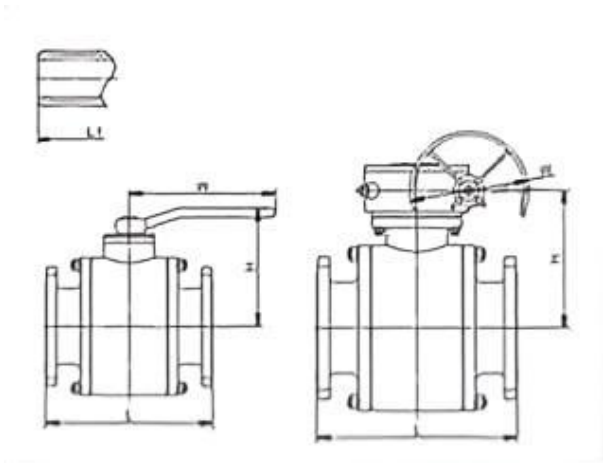
1. 锻钢阀体高压性能：采用锻造成型工艺，材质均匀致密，无铸造缺陷，能可靠承受高压、高温及频繁压力冲击。
2. 金属硬密封耐磨损：球体与阀座采用硬质合金密封面，耐冲刷、耐高温、耐磨损，使用寿命长，适用于含颗粒介质工况。
3. 法兰连接安全可靠：采用标准法兰连接，结构稳固，密封性好，适用于高压管道系统安装。
4. 操作稳定维护简便：固定球或浮动球结构优化，操作扭矩低且稳定。部分型号支持在线维护，密封件更换相对便捷。
5. 防火安全设计：通常符合 API 607 等防火标准，在软密封失效时仍能通过金属副密封保持基本密封性能。

Q41H Forged Steel Flanged Ball Valve Features

1. High-Pressure Performance of Forged Steel Body: Utilizes a forging process that results in a homogeneous, dense material structure free from casting defects, ensuring reliable performance under high pressure, high temperature, and frequent pressure surges.
2. Metal Hard Seal for Wear Resistance: Features hard alloy sealing surfaces on the ball and seat, offering excellent resistance to erosion, high temperatures, and abrasion for extended service life, even in media containing solid particles.
3. Safe and Reliable Flanged Connection: Employs standard flanged connections, providing robust structural integrity and superior sealing performance, making it ideal for installation in high-pressure

pipeline systems.

4. Stable Operation and Easy Maintenance: Optimized fixed or floating ball design ensures low and stable operating torque. Certain models support in-line maintenance, allowing for relatively convenient replacement of sealing components.
5. Fire-Safe Design: Typically compliant with fire safety standards such as API 607. In the event of soft seal failure, a secondary metal-to-metal seal maintains essential sealing performance.



Q41H 锻钢法兰球阀结构图

Q41H Forged Steel Flanged Ball Valve

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	铸钢、碳钢 cast steel, stainless steel
2	球体 ball	铸钢、碳钢 cast steel, stainless steel
3	密封垫 seal gasket	PTFE、对位聚苯 Poly
4	填料 packing	PTFE、柔性石墨 Flexible Graphite
5	阀杆 stem	铸钢、碳钢 cast steel, stainless steel

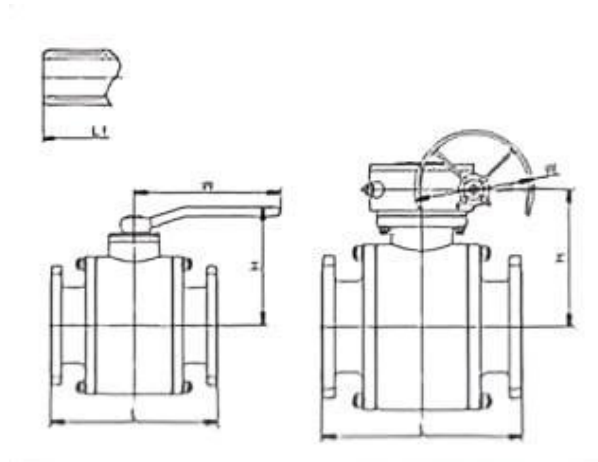
性能规范表 Performance Specification		
公称压力 Nominal Pressure	2.5/4	Mpa
强度试验压力 Shell Test	3.75/6	
密封试验压力 Seal Test	2.75/4.4	
适用温度 Suitable Temp.	350	℃

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.



Q41H 锻钢法兰球阀外形图
Q41H Forged Steel Flanged Ball Valve View Drawing

Q41H 锻钢法兰球阀外形尺寸表

Q41H Forged Steel Flanged Ball Valve Dimensions Table

DN	mm	15	20	25	32	40	50	65	80	100	125	150	200
NPS	in	1/2	3/4	1	1 ¹ / ₄	1 ¹ / ₂	2	2 ¹ / ₂	3	4	5	6	8
400LB 法兰 Flange	L	165	190	216	—	241	292	330	356	406 (432)	—	—	—
6. 4MPa 法兰 Flange	L	165	190	216	229	241	292	330	356	432	508	559	660
10. 0MPa 法兰 Flange	L	165	190	216	229	241	292	330	356	432	508	559	660
对焊 Butt Welding	L1	165	190	216	—	241	292	330	356	406 (432)	—	—	

Q41H 锻钢法兰球阀安装、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、法兰标准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法兰密封面，确保无杂质。
2. 法兰连接与紧固：使用合适的金属垫片，将阀门置于管道法兰之间，确保阀体流向箭头与介质流向一致。按对角线顺序分步、均匀拧紧所有高强度合金钢螺栓至规定扭矩，防止因受力不均导致密封失效。
3. 安装方向确认：阀门可安装于水平或垂直管道，推荐阀杆垂直向上安装，以确保填料密封效果。若垂直安装需确保执行机构固定可靠。
4. 操作测试：安装后手动操作阀门全行程开关数次，确认启闭顺畅无卡阻。检查法兰连接处有无泄漏。
5. 系统压力测试：阀门参与管道系统压力试验，试验压力需符合 ASME B16.34 等高压规范，试验后全面复查密封性。

1. 启闭操作：通过手柄、齿轮箱或执行器进行 90 度旋转操作。锻钢阀门通常操作扭矩较低，但仍应平稳操作，达到全开或全关位置时停止。
2. 状态确认：通过手柄位置指示器或执行器反馈信号明确判断阀门开关状态。高压管线建议设置永久性状态标牌。
3. 常规使用：本阀门适用于高压高温工况的全开或全关闭断，不应用于流量调节。长期全开运行时，建议定期进行全行程开关操作。
4. 注意事项：带压操作时若感觉扭矩异常持续增大，应立即停止并检查系统压力是否超标或阀门内部是否出现异常。

维护保养

1. 定期检查：定期检查法兰连接处有无泄漏，阀体表面有无异常腐蚀或损伤。检查所有外部紧固件是否保持规定扭矩。
2. 密封系统维护：若阀门出现轻微内漏，可能是金属密封面磨损。高压工况下不建议现场修复，应安排专业检修。
3. 阀杆填料维护：若阀杆处出现外漏，可均匀适度拧紧填料压盖螺母。若无效或泄漏严重，需在系统泄压后更换高压高温专用填料。
4. 内部检修：需拆卸阀门内部时，应先确认系统已完全泄压并冷却。检查球体与阀座硬密封面的磨损、冲蚀情况，必要时由专业人员研磨修复或更换组件。
5. 长期停用：阀门长期存放应处于全开或全关状态，对阀杆及外露金属表面采取防锈措施。重新启用前需进行高压压力测试和操作灵活性检查。

Q41H Forged Steel Flanged Ball Valve Installation, Operation, and Maintenance Instructions

Installation Guide

1. Pre-Installation Preparation: Verify that the valve model, pressure class, flange standard, and forged steel material comply with the high-pressure pipeline design requirements. Clean the valve inner cavity and pipeline flange sealing surfaces to ensure they are free of contaminants.
2. Flange Connection and Tightening: Use an appropriate metal gasket. Position the valve between the pipeline flanges, ensuring the flow direction arrow on the valve body aligns with the media flow. Tighten all high-strength alloy steel bolts gradually, evenly, and in a crisscross sequence to the specified torque to prevent seal failure due to uneven stress.
3. Installation Orientation: The valve can be installed in horizontal or vertical pipelines. Installation with the stem vertical is recommended to ensure optimal stem seal performance. If installed vertically, ensure any actuator is securely fixed.
4. Operational Test: After installation, manually operate the valve through its full open and close cycle

several times to confirm smooth, unobstructed movement. Check for leaks at the flange connections.

5. System Pressure Testing: The valve must participate in the pipeline system pressure test. The test pressure must comply with high-pressure standards such as ASME B16.34. Conduct a comprehensive leak check after the pressure test.

Operation

1. Opening/Closing Operation: Operate the valve by rotating it 90 degrees via the hand lever, gearbox, or actuator. Although forged steel valves typically have low operating torque, operation should still be smooth and steady. Stop applying force once the full open or full closed position is reached.
2. Position Indication: Clearly determine the valve position (open/closed) using the hand lever indicator or actuator feedback signal. For high-pressure lines, installing permanent status tags is recommended.
3. Normal Use: This valve is designed for on/off isolation service in high-pressure and high-temperature applications and should not be used for flow throttling. If the valve remains fully open for extended periods, periodic full-cycle operation is recommended.
4. Precautions: If an abnormal, persistent increase in operating torque is felt during pressurized operation, stop immediately and investigate whether system pressure exceeds limits or if internal valve issues exist.

Maintenance

1. Regular Inspection: Periodically inspect flange connections for leaks and the valve exterior for abnormal corrosion or damage. Check that all external fasteners maintain the specified torque.
2. Sealing System Maintenance: Minor internal leakage may indicate wear on the metal sealing surfaces. On-site repair under high-pressure conditions is not recommended; professional overhaul should be scheduled.
3. Stem Packing Maintenance: If external leakage occurs at the stem, the gland follower nuts may be tightened evenly and moderately. If leakage persists or is severe, the system must be depressurized and the high-pressure/high-temperature specific packing replaced.
4. Internal Inspection: Before disassembling the valve internals, ensure the system is fully depressurized and cooled. Inspect the hard-seal surfaces of the ball and seat for wear or erosion. If necessary, grinding repair or component replacement by qualified personnel is required.
5. Long-Term Storage: Valves in long-term storage should be in the fully open or fully closed position. Apply anti-corrosion protection to the stem and other exposed metal surfaces. Before recommissioning, perform a high-pressure leak test and an operational flexibility check.

非常感谢您的阅读！

Thank you very much for reading!

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