

Q61F 全焊接球阀

Q61F Fully Welded Ball Valve

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

Q61F 全焊接球阀双放散

型号: Q61F-16C/25C/40C
公称压力: PN16, PN25, PN40
适用温度: ≤550℃
连接方式: 焊接
其他参数: 制造标准按 API6D

规格: DN15~DN1200
适用介质: 水、油、燃气及某些腐蚀性液体
阀体材质: 碳钢、不锈钢
驱动方式: 手动、蜗轮、电动、气动

Q61F Fully Welded Ball Valve

Model: Q61F-16C/25C/40C

Specifications: DN15~DN1200

Nominal Pressure: PN16, PN25, PN40

Applicable Media: Water, oil, gas, and certain corrosive liquids

Applicable Temperature: ≤550℃

Body Material: Carbon steel, stainless steel

End Connection : Welded

Operation: Manual, worm gear, electric, pneumatic

Other Parameters: Manufacturing standard according to API6D.

Q61F 全焊接球阀概述

Q61F 全焊接球阀是一种阀体与管道采用同材质焊接连接的永久性截断阀门，无外部法兰与螺栓连接点。其阀体由多块锻件或钢板通过先进的工艺焊接成型，内部采用浮动或固定球结构及聚四氟乙烯等软密封阀座。该阀门设计用于高温、高压及严苛工况，通过球体旋转 90 度实现启闭，具有极高的结构强度和密封完整性。主要应用于城市燃气主干网、长输石油天然气管道、区域供热系统及其他不允许泄漏的直埋或重要地上管道，作为系统的关键截断设备。

Q61F Fully Welded Ball Valve Overview

Q61F fully welded ball valve is a permanent cut-off valve with a valve body and pipeline connected by welding of the same material, without external flanges and bolt connection points. The valve body is formed by welding multiple forgings or steel plates through advanced technology, and the internal structure adopts floating or fixed ball structure and soft sealing valve seat such as polytetrafluoroethylene. This valve is designed for high temperature, high pressure, and harsh working conditions, and can be opened and closed by rotating the ball 90 degrees. It has extremely high structural strength and sealing integrity. Mainly used in urban gas backbone networks, long-distance oil and gas pipelines, regional heating systems, and other buried or important above ground pipelines that are not allowed to leak, as key cutoff equipment for the system.



Q61F 全焊接球阀产品图
Q61F Fully Welded Ball Valve Product Image

Q61F 全焊接球阀特点

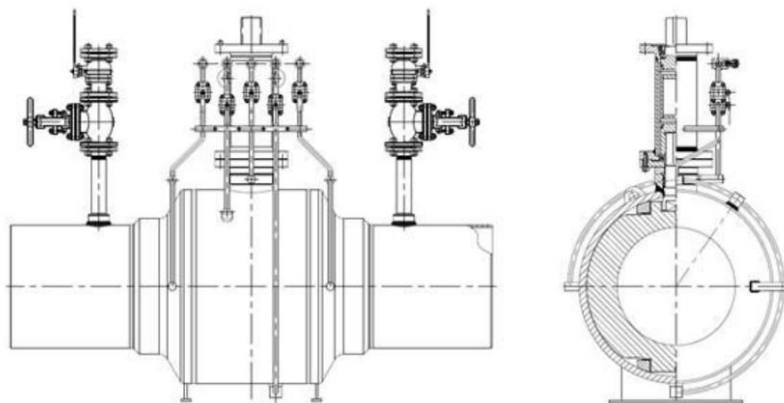
1. 全焊接无泄漏结构：阀体采用整体焊接成型，无任何可拆卸法兰连接，从根本上杜绝了阀体外漏的风险，尤其适合易燃、易爆及有毒介质的输送。
2. 高强度与长寿命：焊接阀体结构连续，应力分布均匀，承压能力强，耐管道应力变形与地震载荷，设计寿命通常与管线保持一致。
3. 直埋与紧凑设计：无需建设阀门井，可直接埋于地下，节省空间与施工成本。外部结构极为紧凑，仅有短小的阀颈露出地面便于操作。
4. 极低的维护需求：全焊接密封结构在正常工况下无需维护，运行可靠。阀杆通常采用双重密封与注脂紧急密封设计，进一步保障长期密封性。
5. 高性能密封与驱动：密封副可适应较大压力与温度变化，并常配备防火设计。通过地上加长阀杆或直接与全焊接执行机构连接，实现可靠的地面或远程操作。

Q61F Fully Welded Ball Valve Features

1. Fully welded leak free structure: The valve body is formed by integral welding without any detachable flange connections, fundamentally eliminating the risk of external leakage of the valve body, especially suitable for the transportation of flammable, explosive, and toxic media.
2. High strength and long life: The welded valve body structure is continuous, with uniform stress distribution, strong pressure bearing capacity, and resistance to pipeline stress deformation and seismic loads. The design life is usually consistent with the pipeline.
3. Direct burial and compact design: No need to build valve wells, can be directly buried underground, saving space and construction costs. The external structure is extremely compact, with only a short valve neck exposed to the ground for easy operation.

4. Extremely low maintenance requirements: The fully welded sealed structure does not require maintenance under normal working conditions and operates reliably. The valve stem usually adopts a dual seal and grease injection emergency seal design to further ensure long-term sealing.

5. High performance sealing and driving: The sealing pair can adapt to large pressure and temperature changes, and is often equipped with fire-resistant design. Reliable ground or remote operation can be achieved by extending the valve stem on the ground or directly connecting it to a fully welded actuator.



Q61F 全焊接球阀结构图

Q61F Fully Welded 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	A105
2	球体 Ball	A105+ENP
3	密封圈 sealing ring	PPL
4	填料 packing	柔性石墨 flexible graphite
5	阀杆 Stem	F6A
6	放空阀 bleeder valve	A105-Hzn

性能规范表 Performance Specification

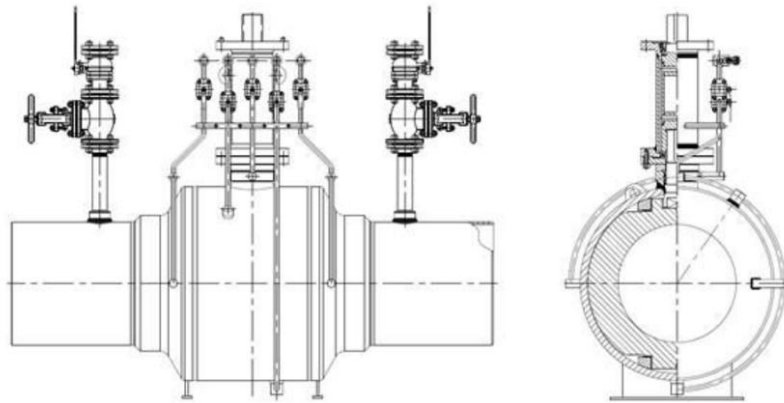
公称压力 Nominal Pressure	1.6/2.5/4	Mpa
强度试验压力 Shell Test	2.4/3.75/6	
密封试验压力 Seal Test	1.76/2.75/4.4	
适用温度 Suitable Temp.	≤500	℃

外形尺寸标准要求

- 1、阀门的结构长度按 GB/T 12221 的标准
- 2、全焊接按 GB/T 12234 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 12234.



Q61F 全焊接球阀外形图

Q61F Fully Welded Ball Valve View Drawing

Q61F 全焊接球阀外形尺寸表

Q61F Fully Welded Ball Valve Dimensions Table

DN	L (RF)	L (WE)	D1	D2	H1 (手柄)	H1 (涡轮)	W (手柄)	W (涡轮)
15	150	210	27	48	64	—	129	—
20	160	230	34	60	76	—	159	—
25	180	230	42	76	85	—	159	—
32	200	260	48	89	95	—	245	—
40	230	300	60	89	124	—	245	—
50	270	300	76	114	162	—	30	—
65	280	300	89	140	175	—	320	—
80	300	325	114	168	192	169	450	—
100	350	325	141	203	205	183	450	230
125	350	350	168	219	225	203	450	230
150	400	400	219	273	245	224	1000	230
200	502	521	273	351	285	262	1000	320
250	568	560	325	426	348	322	1500	350
300	648	635	377	508	—	355	—	350

Q61F 全焊接球阀安装、使用与维护说明书

安装指南

- 安装前准备：**确认阀门规格、压力等级、材质（通常为碳钢或不锈钢）及焊接端规格与管线完全匹配。阀门属于一次性安装产品，安装前必须完成所有性能测试与检查。
- 焊接工艺要求：**焊接必须由合格焊工按照批准的焊接工艺规程（WPS）进行。阀体与管道应采用氩弧焊打底，焊条电弧焊或其它合适方法填充盖面。焊接前需清洁坡口，阀门应处于全开位置，并对阀体采取适当的冷却措施（如使用湿布包裹），防止内部密封件因焊接高温受损。

3. 安装定位与对齐：阀门安装位置应充分考虑未来地面操作或执行机构安装的便利性。管道与阀门焊接端口必须精确对齐，间隙均匀，避免强力组对，以防产生过大的安装应力。

4. 焊后处理与检查：焊接完成后，必须清除焊渣、飞溅物，并按相关标准进行焊缝外观检查 and 无损检测（如 RT 或 UT）。对于直埋安装，还需对阀门外露部分及焊缝进行符合要求的防腐处理。

5. 系统测试：阀门安装入管线后，参与整个管道系统的强度试验和严密性试验。试验压力需符合设计规范。

使用操作

1. 启闭操作：通过地上加长杆或与阀门直接焊接的执行机构进行操作。操作时应平稳缓慢，旋转 90 度到位，避免急速开关产生水击。操作后可通过位置指示器确认开关状态。

2. 运行监控：阀门在正常运行期间处于常开或常闭状态，无需频繁操作。但需定期检查地上部分有无异常、阀杆密封处是否泄漏，以及执行机构（如有）的工作状态。

3. 操作限制：本阀门设计用于全开或全关闭断，严禁用于节流调节。对于长期处于固定位置的阀门，建议每年进行 1-2 次全行程开关操作，以保持球体与阀座的灵活性。

维护保养

1. 预防性维护（注脂）：阀门通常配备注脂阀。根据运行工况和维护规程，定期通过注脂阀向阀座密封腔和阀杆密封部位注入指定的专用密封脂，以补充密封、防止内部卡涩并润滑密封面。

2. 阀杆外漏处理：若阀杆填料处出现轻微泄漏，可通过拧紧填料压盖螺母或通过阀杆注脂阀注入密封脂进行临时处理。若无效，可能需要由专业人员在带压情况下进行阀杆密封件的更换（如果设计允许）。

3. 内漏处理：若阀门出现关闭不严，首先尝试通过阀座注脂阀注入足量密封脂，通常可暂时消除内漏。如果注脂无效，则表明内部密封件可能已严重磨损，需评估管线停运进行阀门整体更换的必要性。

4. 在线维修的局限性：由于阀体为全焊接结构，无法像分体式阀门那样进行现场解体维修。主要的在线维护手段是注脂。任何涉及阀体或内部承压部件的维修，均等同于更换阀门。

5. 长期管理：建立阀门档案，记录安装位置、焊接信息、操作记录及注脂维护历史。对于直埋阀门，应确保地面标志桩清晰、准确，以便定位和维护。

Installation, Use, and Maintenance Manual for Q61F Fully Welded Ball Valve

Installation Guide

1. Preparation before installation: Confirm that the valve specifications, pressure rating, material (usually carbon steel or stainless steel), and welding end specifications match the pipeline perfectly. Valves are disposable installation products, and all performance tests and inspections must be completed before installation.

2. Welding process requirements: Welding must be carried out by qualified welders in accordance with the approved Welding Procedure Specification (WPS). The valve body and pipeline should be filled with argon arc welding as the base, welding rod arc welding or other suitable methods to cover the surface. Before welding, the groove needs to be cleaned, the valve should be in the fully open position, and appropriate cooling measures should be taken on the valve body (such as wrapping it with a damp cloth) to prevent damage to the internal seals due to high welding temperatures.

3. Installation positioning and alignment: The installation position of the valve should fully consider the

convenience of future ground operation or actuator installation. The welding ports of pipelines and valves must be accurately aligned, with even gaps, to avoid strong assembly and prevent excessive installation stress.

4. Post weld treatment and inspection: After welding is completed, welding slag and spatter must be removed, and the appearance inspection and non-destructive testing (such as RT or UT) of the weld seam must be carried out according to relevant standards. For direct burial installation, it is also necessary to perform anti-corrosion treatment on the exposed parts and welds of the valve in accordance with the requirements.

5. System testing: After the valve is installed in the pipeline, participate in the strength test and tightness test of the entire pipeline system. The test pressure must comply with the design specifications.

Usage and Operation

1. Opening and closing operation: operated through an extended rod on the ground or an actuator directly welded to the valve. When operating, it should be smooth and slow, rotating 90 degrees to avoid water hammer caused by rapid switching. After operation, the switch status can be confirmed through the position indicator.

2. Operation monitoring: The valve is in a normally open or normally closed state during normal operation, and does not require frequent operation. But it is necessary to regularly check whether there are any abnormalities in the above ground parts, whether there is leakage at the valve stem seal, and the working status of the actuator (if any).

3. Operation restrictions: This valve is designed for fully open or fully closed shut-off, and is strictly prohibited from being used for throttling regulation. For valves that are in a fixed position for a long time, it is recommended to perform 1-2 full stroke switch operations per year to maintain the flexibility of the ball and seat.

maintenance

1. Preventive maintenance (grease injection): Valves are usually equipped with grease injection valves.

According to the operating conditions and maintenance regulations, regularly inject designated special sealing grease into the valve seat sealing chamber and valve stem sealing area through the grease injection valve to supplement the seal, prevent internal jamming, and lubricate the sealing surface.

2. Valve stem leakage treatment: If there is a slight leakage at the valve stem packing, temporary treatment can be carried out by tightening the packing gland nut or injecting sealing grease through the valve stem grease valve. If ineffective, professional personnel may need to replace the valve stem seal under pressure (if allowed by the design).

3. Internal leakage treatment: If the valve is not tightly closed, first try injecting sufficient sealing grease through the valve seat grease injection valve, which can usually temporarily eliminate internal leakage. If the grease injection is ineffective, it indicates that the internal seals may have been severely worn, and the necessity of shutting down the pipeline and replacing the valve as a whole needs to be evaluated.

4. Limitations of online maintenance: Due to the fully welded structure of the valve body, it is not possible to perform on-site disassembly and maintenance like split valves. The main online maintenance method is grease injection. Any repair involving the valve body or internal pressure bearing components is equivalent to replacing the valve.

5. Long term management: Establish valve files to record installation locations, welding information, operation records, and grease injection maintenance history. For buried valves, it is necessary to ensure that the ground marker posts are clear and accurate for positioning and maintenance.

非常感谢您的阅读！

Thank you very much for reading!

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