

Q81F 卡箍式（快装）三片式球阀

Q81F Clamp (Quick-Connect) Three-Piece Ball Valve

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

Q81F 卡箍式（快装）三片式球阀

型号: Q81F	规格: 1/2" -4"
公称压力: 1.6-6.4Mpa	适用介质: 水、食品、饮料及卫生级系统
适用温度: ≤180℃	阀体材质: 不锈钢
连接方式: 卡箍	驱动方式: 气动、电动、手动
其他参数: 制造标准按 GB/T12237	

Q81F Clamp (Quick-Connect) Three-Piece Ball Valve

Model: Q81F	Specifications: 1/2"-4"
Nominal Pressure: 1.6-6.4Mpa	Applicable Media: Water, food, beverage, and hygienic systems
Applicable Temperature: ≤180℃	Body Material: stainless steel
End Connection :clamp	Operation: Manual, pneumatic, electric
Other Parameters: Manufacturing standard according to GB/T12237.	

Q81F 卡箍式（快装）三片式球阀概述

Q81F 卡箍式（快装）三片式球阀是一种采用卫生级卡箍（快装）连接、三片式阀体结构的专用球阀。阀体通常采用 304/316 不锈钢材质，表面经精密抛光处理，两端为标准卫生级卡箍接头，可实现管道的快速拆装。阀门内部采用三片式螺栓连接，便于完全分解清洗，球体与阀座密封采用 PTFE 等符合卫生标准的材料。该阀门专为需要频繁清洗、灭菌及防止污染的流程设计，广泛应用于食品、饮料、制药、生物工程及化妆品等卫生级流体管路系统中。

Q81F Clamp (Quick-Connect) Three-Piece Ball Valve Overview

The Q81F Clamp (Quick-Connect) Three-Piece Ball Valve is a specialized ball valve featuring sanitary clamp (quick-connect) ends and a three-piece body construction. The valve body is typically made of 304/316 stainless steel, with surfaces precision-polished to sanitary standards. Both ends are equipped with standard sanitary clamp fittings, enabling rapid installation and disconnection from the pipeline. Internally, the three-piece bolted design allows for complete disassembly for thorough cleaning. The ball and seat seals utilize sanitary-grade materials such as PTFE. This valve is specifically engineered for processes requiring frequent cleaning, sterilization, and contamination prevention, making it widely used in sanitary fluid handling systems across industries such as food and beverage, pharmaceuticals, biotechnology, and cosmetics.



Q81F 卡箍式（快装）三片式球阀产品图
Q81F Clamp (Quick-Connect) Three-Piece Ball Valve Product Image

Q81F 卡箍式（快装）三片式球阀特点

1. 卡箍快装连接便捷：采用标准卫生级卡箍（如 SMS、DIN、ISO）连接，安装与拆卸快速简便，无需特殊工具，极大提高了管路系统的维护与清洗效率。
2. 卫生级设计无死角：阀体内腔及所有过流表面经高等级抛光处理，连接处平滑过渡，确保无流体残留死角，符合 GMP、FDA 等卫生规范要求。
3. 三片式结构易维护：阀体采用三片式螺栓连接，可完全解体，便于对内部所有部件进行彻底检查、清洗、消毒或更换密封件。
4. 密封可靠操作轻便：采用卫生级弹性密封材料，密封性能好。90 度手柄操作，启闭迅速，扭矩小。
5. 适用范围明确：专用于常温至中温的液体介质，工作压力通常为中低压。其设计核心是满足高卫生标准与频繁清洗的工艺需求。

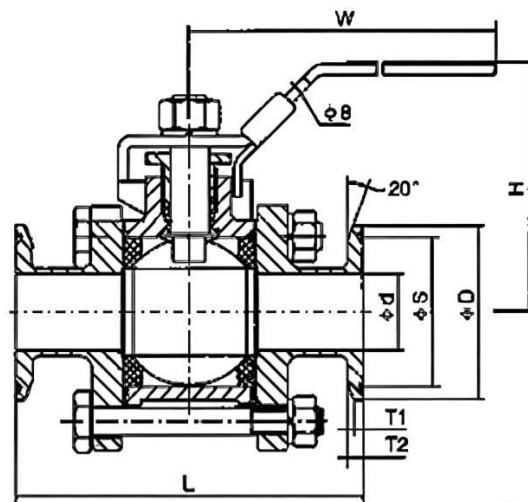
Q81F Clamp (Quick-Connect) Three-Piece Ball Valve Features

1. Convenient Clamp Quick Connection: Utilizes standard sanitary clamp connections (e.g., SMS, DIN, ISO), enabling fast and easy installation and disassembly without special tools. This significantly enhances maintenance and cleaning efficiency in piping systems.
2. Sanitary Design with No Dead Zones: The valve's inner cavity and all wetted surfaces are polished to a high-grade finish, with smooth transitions at connection points to eliminate fluid retention dead zones. Complies with sanitary regulations such as GMP and FDA.
3. Easy Maintenance with Three-Piece Structure: The valve body employs a three-piece bolted design, allowing complete disassembly for thorough inspection, cleaning, sterilization, or replacement of internal

components, including seals.

4. Reliable Sealing and Lightweight Operation: Incorporates sanitary-grade elastomeric sealing materials for excellent sealing performance. The 90-degree handle operation ensures quick opening and closing with low torque.

5. Well-Defined Application Scope: Specifically designed for liquid media at ambient to moderate temperatures and typically rated for medium to low working pressures. Its core design focus is to meet high sanitary standards and process requirements involving frequent cleaning.



Q81F 卡箍式（快装）三片式球阀结构图

Q81F Clamp (Quick-Connect) 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 carbon 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	不锈钢 stainless steel

性能规范表 Performance Specification

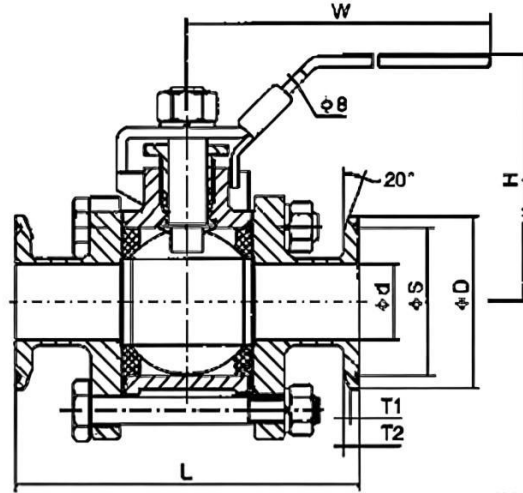
公称压力 Nominal Pressure	1.6-6.4	Mpa
强度试验压力 Shell Test	2.4-9.6	
密封试验压力 Seal Test	1.76-7.04	
适用温度 Suitable Temp.	180	℃

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.



Q81F 卡箍式（快装）三片式球阀外形图

Q81F Clamp (Quick-Connect) Three-Piece Ball Valve View Drawing

Q81F 卡箍式（快装）三片式球阀外形尺寸表

Q81F Clamp (Quick-Connect) Three-Piece Ball Valve Dimensions Table

SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
PORT	9.6	15.9	22.2	28.5	34.9	47.5	60.2	72.9	97.4
L	75	90	100	110	125	150	190	220	270
D	25.0	25.0	50.4	50.4	50.4	63.9	77.4	90.0	118.9
S	2.024	2.24	43.60	43.60	43.60	56.30	70.60	83.30	110.30
H	64	67	83	89	100	108	150	161	180
T1	—	—	2.85	2.85	2.85	2.85	2.85	2.85	2.85
T2	3.63	3.63	4.75	—	—	—	—	—	—
W	125	125	140	140	200	200	250	250	290

Q81F 卡箍式（快装）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、卡箍标准（如 SMS、DIN、ISO）及阀体材质（通常为不锈钢）是否符合卫生级或快速安装管路设计要求。检查卡箍、密封圈及快装接头是否完好无损。
2. 管道端口准备：确保管道端口的连接面平整、光滑，无毛刺或划伤，且尺寸与阀门卡箍匹配。对于卫生

级应用，管道端口应进行抛光处理。

3. 卡箍连接操作：将密封垫圈正确放入阀门的卡槽内。将阀门两端与管道端口对齐，确保完全插入到位。使用专用卡箍将阀门与管道箍紧，确保卡箍两侧螺栓均匀受力，达到规定的锁紧力矩，以实现均匀密封。
4. 安装方向与空间：阀门可安装于任意方向，但需确保手柄有充足的 90 度旋转空间。确认卡箍连接不会与其他部件干涉。
5. 安装后测试：手动操作阀门数次，检查启闭是否顺畅。对系统进行压力测试，检查卡箍连接处及阀门本身有无泄漏。

使用操作

1. 启闭操作：通过手柄进行 90 度旋转实现快速启闭。操作应平稳到位，当手柄与管道平时为全开，垂直时为全关。避免急速或蛮力操作。
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，建议设置辅助标识。
3. 常规使用：本阀门主要用于需要频繁拆卸清洗或快速更换的卫生、制药、食品饮料等流程的截断，不应用于流量调节。
4. 注意事项：操作时注意卡箍部位安全，防止夹伤。带压状态下严禁松动或拆卸卡箍。

维护保养

1. 定期检查：定期检查卡箍连接处有无泄漏或松动。检查手柄是否牢固，阀门外部有无损伤。
2. 快速拆卸清洗（利用卡箍及三片式结构）：停机泄压后，松开两端卡箍，即可将阀门整体从管路上拆下。进一步松开三片式阀体的连接螺栓，可将阀门完全分解，对所有过流部件进行彻底清洗、消毒或检查。
3. 密封件更换：每次拆卸维护或定期检修时，建议检查并更换阀座密封圈及管道密封垫圈。更换时需确保密封圈型号、材质正确，并正确安装到位。
4. 卡箍维护：检查卡箍有无变形、锈蚀，锁紧螺栓是否完好。必要时进行更换，确保锁紧力可靠。
5. 存放保养：阀门清洗维护后或长期存放时，应保持内部干燥清洁，对所有金属表面进行适当防护。建议将阀门组装好存放，密封圈宜单独密封保管。重新安装前，需检查所有密封件状态。

Q81F Clamp (Quick-Connect) Three-Piece Ball Valve Installation, Operation & Maintenance Instructions Installation Guide

1. Pre-Installation Preparation: Verify that the valve model, pressure rating, clamp standard (e.g., SMS, DIN, ISO), and body material (typically stainless steel) comply with the sanitary or quick-connect piping system design requirements. Inspect the clamps, gaskets, and connections for any damage or defects.
2. Pipe End Preparation: Ensure that the pipe ends are flat, smooth, free of burrs or scratches, and that their dimensions match the valve clamps. For sanitary applications, pipe ends should be polished to the required finish.
3. Clamp Connection Procedure: Correctly place the sealing gasket into the valve's groove. Align both ends of the valve with the pipe ends, ensuring they are fully inserted into place. Secure the connection using the dedicated clamps. Tighten the clamp bolts evenly and gradually to the specified torque, ensuring uniform sealing pressure.

4. **Installation Orientation and Space:** The valve can be installed in any orientation, but sufficient space must be provided for a full 90-degree rotation of the handle. Confirm that the clamp connections do not interfere with other components.

5. **Post-Installation Testing:** Manually operate the valve several times to ensure smooth opening and closing. Conduct a pressure test on the system and check for leaks at the clamp connections and the valve itself.

Operation

1. **Opening/Closing Operation:** Operate the valve by rotating the handle 90 degrees for quick opening or closing. Movement should be smooth and carried to the full stop position: handle parallel to the pipe indicates fully open; handle perpendicular indicates fully closed. Avoid sudden or forced operation.

2. **Position Indication:** The handle position provides a clear visual indication of the valve status (open/closed). For locations with poor visibility, the use of auxiliary status tags is recommended.

3. **Normal Service:** This valve is primarily designed for ON/OFF isolation in sanitary, pharmaceutical, food & beverage, and other processes requiring frequent disassembly for cleaning or quick replacement. It must NOT be used for flow regulation.

4. **Precautions:** Be cautious of the clamp area during operation to prevent pinching injuries. It is strictly forbidden to loosen or remove clamps while the system is pressurized.

Maintenance

1. **Periodic Inspection:** Regularly inspect clamp connections for leaks or looseness. Check that the handle is secure and inspect the valve exterior for any damage.

2. **Quick Disassembly for Cleaning (Utilizing Clamp & Three-Piece Design):** After system shutdown and depressurization, loosen the clamps at both ends to remove the entire valve from the line. By further loosening the bolts connecting the three-piece body, the valve can be fully disassembled for thorough cleaning, sanitization, and inspection of all wetted parts.

3. **Seal Replacement:** It is recommended to inspect and replace the seat seals and pipe connection gaskets during each disassembly for maintenance or as part of a scheduled service interval. Ensure the replacement seals are of the correct type and material and are properly installed.

4. **Clamp Maintenance:** Inspect clamps for deformation, corrosion, and ensure the locking bolts are in good condition. Replace if necessary to maintain reliable clamping force.

5. **Storage & Preservation:** After cleaning or for long-term storage, ensure the valve interior is dry and clean. Apply suitable protection to all metal surfaces. It is advisable to store the valve fully assembled, while seals/gaskets should be stored separately in sealed packaging. Before reinstallation, inspect the condition of all sealing components.

非常感谢您的阅读！

Thank you very much for reading!

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