

BQ41F 保温球阀

BQ41F Jacket Ball Valve

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

BQ41F 保温球阀

型号: BQ41F-25P/25R

公称压力: PN16, PN25

适用温度: $\leq 300^{\circ}\text{C}$

连接方式: 法兰

其他参数: 制造标准按 GB/T12224

规格: DN15-DN150

适用介质: 重油、胶类等易凝固介质

阀体材质: 铸钢、不锈钢

驱动方式: 手动、气动、电动

BQ41F Jacket Ball Valve

Model: BQ41F-25P/25R

Nominal Pressure: PN16, PN25

solidified media

Applicable Temperature: $\leq 300^{\circ}\text{C}$

End Connection : Flange

Other Parameters: Manufacturing standard according to GB/T12224.

Specifications: DN15-DN150

Applicable Media: heavy oil, adhesives, and other easily

Body Material: stainless steel, carbon steel

Operation: Manual, pneumatic, electric

BQ41F 保温球阀概述

BQ41F 保温球阀是一种在标准法兰球阀外部集成保温夹套的特殊阀门，主要用于需要维持介质温度或防止介质凝固的管道系统。其阀体采用铸钢或不锈钢材质，并设计有整体式或焊接式夹套层，可通过蒸汽、热水或热油等热媒在夹套内循环，对阀体及内部通道进行持续加热或保温。阀门通过旋转球体 90° 实现启闭，密封副通常采用耐温的 PTFE 或增强材料。该阀门专用于石油化工、沥青、油脂、食品及制药等行业中输送高粘度、易结晶或需保持流动性的介质管路，确保工艺流程的连续与稳定。

BQ41F Jacket Ball Valve Overview

The BQ41F Jacket Ball Valve is a specialized valve that integrates an insulation jacket on the exterior of a standard flanged ball valve. It is primarily used in pipeline systems requiring temperature maintenance or prevention of media solidification. The valve body is made of cast steel or stainless steel and features an integrated or welded jacket layer, allowing circulating heating media (such as steam, hot water, or thermal oil) within the jacket to continuously heat or insulate the valve body and internal passages. The valve operates by rotating the ball 90° to open or close, and the sealing pair typically utilizes temperature-resistant PTFE or enhanced materials. This valve is specifically designed for industries such as petrochemicals, asphalt, oil and fat processing, food, and pharmaceuticals, where it is used to transport high-viscosity, crystallization-prone, or flow-maintaining media, ensuring continuity and stability in process flows.



BQ41F 保温球阀产品图
BQ41F Jacket Ball Valve Product Image

BQ41F 保温球阀特点

1. 高效保温设计：阀体集成保温夹套，可通过外部热媒循环对阀体及通道进行均匀加热，有效防止介质在阀内凝固、结晶或温度损失，维持工艺温度。
2. 可靠的密封与耐温性：采用耐高温的阀座密封材料（如增强 PTFE、PPL 或金属密封），确保在保温工况及温度变化下仍能保持良好的密封性能。
3. 操作灵活与低热损：保温夹套与操作机构分离设计，启闭操作不受保温系统影响。夹套覆盖关键区域，热效率高，能量损失小。
4. 结构紧凑与多种接口：夹套与阀体一体成型或焊接，结构紧凑坚固。提供蒸汽、热水等多种热媒进出口连接方式，方便接入工厂伴热系统。
5. 适用介质广泛：特别适用于沥青、重油、树脂、巧克力、化工浆料等易凝固或高粘度介质，有效解决了此类介质在阀门处易堵塞、难操作的行业难题。

BQ41F Jacket Ball Valve Features

1. Efficient Insulation Design

The valve body integrates an insulation jacket that enables uniform heating of the valve body and flow passages through circulating external thermal media. This effectively prevents media from solidifying, crystallizing, or losing temperature within the valve, thereby maintaining process temperatures.

2. Reliable Sealing and Temperature Resistance

Equipped with high- temperature- resistant seat sealing materials (such as reinforced PTFE, PPL, or metal seals), ensuring consistent sealing performance under insulated operating conditions and

temperature fluctuations.

3. Flexible Operation and Low Heat Loss

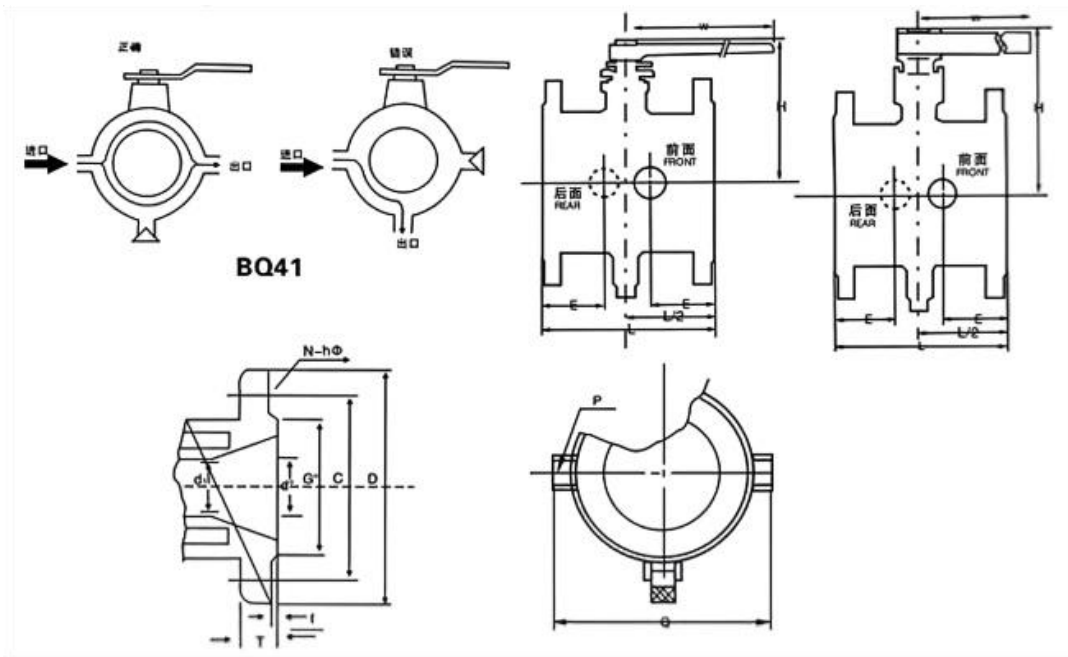
The insulation jacket is designed separately from the operating mechanism, allowing valve operation to remain unaffected by the heating system. The jacket covers critical areas with high thermal efficiency and minimal energy loss.

4. Compact Structure and Multiple Connection Options

The jacket is integrated or welded to the valve body, providing a compact and robust structure. Various connection types (e.g., for steam, hot water) are available for thermal media inlet/outlet, facilitating easy integration into plant heating systems.

5. Wide Applicability to Different Media

Particularly suitable for media prone to solidification or high viscosity, such as asphalt, heavy oil, resin, chocolate, and chemical slurries. This design effectively addresses common industrial challenges like clogging and difficult operation at valve points.



BQ41F 保温球阀结构图

BQ41F Jacket 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	O 型圈 O ring	氟橡胶氟橡胶 FKM 、Viton
4	填料 packing	PTFE

5	阀杆 stem	不锈钢 stainless steel
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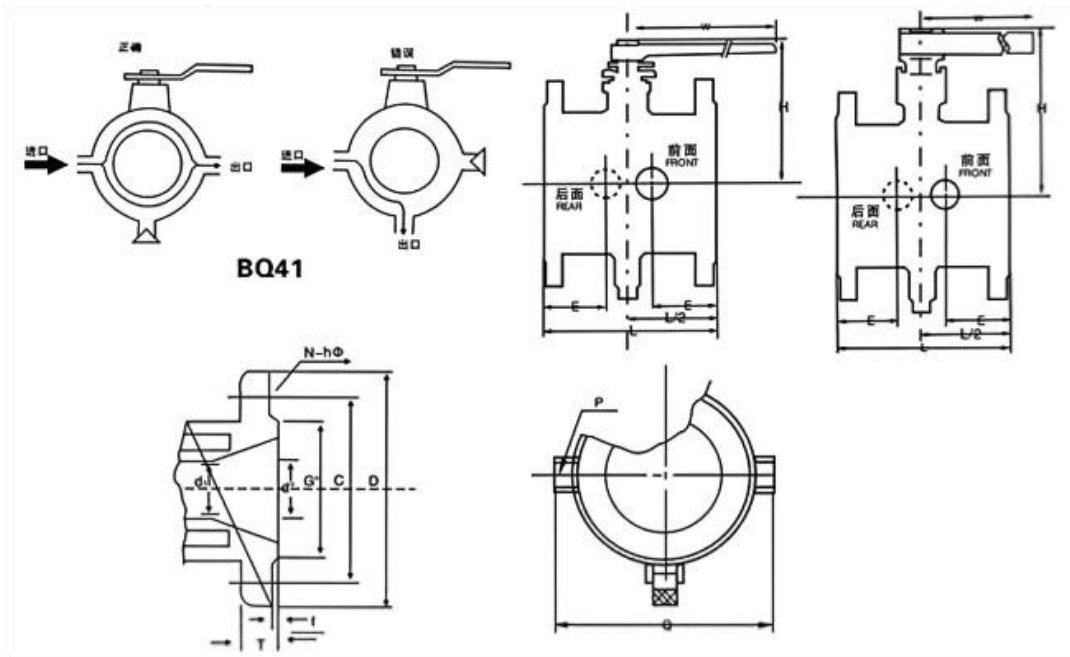
性能规范表 Performance Specification		
公称压力 Nominal Pressure	1.6/2.5	Mpa
强度试验压力 Shell Test	2.4/3.75	
密封试验压力 Seal Test	1.76/2.75	
适用温度 Suitable Temp.	300	℃

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 JB/T79 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 JB/T79.



BQ41F 保温球阀外形图

BQ41F Jacket Ball Valve View Drawing

BQ41F 保温球阀外形尺寸表

BQ41F Jacket Ball Valve Dimensions Table

公称通径 DN	L	D	D1	D2	B	F	Z-Φd	2-G
15	130	95	65	45	14	2	4-Φ14	3-8
20	150	105	75	55	14	2	4-Φ14	3-8
25	160	115	85	65	14	2	4-Φ14	3-8

32	165	135	100	78	16	2	4-Φ18	1-2
40	180	145	110	85	16	3	4-Φ18	1-2
50	200	160	125	100	16	3	4-Φ18	1-2
65	220	180	145	120	18	3	4-Φ18	1-2
80	250	195	160	135	20	3	4-Φ18	1-2
100	280	215	180	155	20	3	4-Φ18	1-2
125	320	280	240	210	22	3	4-Φ23	1-2
150	360	335	295	265	26	3	4-Φ23	1-2

II型连接尺寸

公称通径 DN	L	D	D1	D2	B	F	Z-Φd	2-G
15	130	95	65	45	14	2	4-Φ14	3-8
20	150	105	75	55	14	2	4-Φ14	3-8
25	160	115	85	65	14	2	4-Φ14	3-8
32	165	135	100	78	16	2	4-Φ18	1-2
40	180	145	110	85	16	3	4-Φ18	1-2
50	200	160	125	100	16	3	4-Φ18	1-2
65	220	180	145	120	18	3	4-Φ18	1-2
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BQ41F 保温球阀安装、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、法兰标准及夹套设计压力与温度是否与工艺要求一致。清洁阀门流道及管道端口，确保无异物。
2. 阀门主体安装：将阀门按阀体箭头所示介质流向水平或垂直安装于管道中。使用合适的垫片，按对角线顺序均匀紧固法兰连接螺栓。

3. 保温夹套连接：根据夹套进出口标识，正确连接热媒（蒸汽、热水或导热油）的进口与回水管路。确保热媒流向与夹套设计流向一致，并在热媒管路上安装隔离阀、过滤器及压力表。
4. 系统测试：先对阀门主体进行管道系统压力试验，确保无泄漏。再对保温夹套系统单独进行压力试验（试验压力一般为夹套设计压力的 1.5 倍），检查夹套焊缝及连接处有无泄漏。
5. 保温层施工：夹套压力试验合格后，方可对阀门外部（除操作机构及显示部位外）进行保温层施工，保温材料应耐热且便于日后拆卸维护。

使用操作

1. 启闭操作：通过手柄、齿轮箱或执行器进行 90 度旋转操作，实现阀门的开启或关闭。操作时无需考虑夹套系统。
2. 保温系统投用：在输送易凝介质前，应先开启保温系统，使热媒循环，将阀体预热至工艺要求温度。可通过触摸阀体表面或测量回水温度判断预热效果。
3. 运行监控：正常运行期间，需监控热媒的压力、温度及流量是否稳定，确保保温效果。同时观察阀门主体是否有泄漏。
4. 停机操作：计划停机时，应先关闭介质管道，待阀门内介质排空或置换完毕后，再关闭保温系统。紧急停机时，若介质可能凝固，应保持保温系统运行或尽快对阀门进行吹扫。

维护保养

1. 定期检查：定期检查阀门主体法兰及阀杆处有无介质泄漏。检查保温夹套的连接处有无热媒泄漏，压力表示值是否正常。
2. 夹套系统清洗：根据热媒水质情况，定期清洗夹套内部，防止水垢或杂质堆积影响传热效率。清洗时需隔离夹套系统并泄压。
3. 密封性能维护：若阀门出现内漏，可能是阀座密封件因高温老化或磨损所致。需在阀门冷却并泄压后，更换耐高温密封件。
4. 长期停用保养：若阀门长期停用，应将阀门内部及夹套内的介质彻底排空吹净。对阀杆等外露金属表面涂抹防锈脂。重新启用前，需对阀门主体及夹套系统分别进行压力与功能测试。
5. 注意事项：进行任何维护前，必须确认阀门主体及夹套系统均已泄压并冷却至常温。拆卸保温层时需小心，避免损坏夹套外壁。

BQ41F Jacket Ball Valve Installation, Operation, and Maintenance Instructions

Installation Guide

1. Pre- Installation Preparation

- Verify that the valve model, pressure rating, flange standard, jacket design pressure, and temperature match the process requirements.
- Clean the valve passage and pipe ends to ensure they are free of foreign matter.

2. Valve Body Installation

- Install the valve horizontally or vertically in the pipeline according to the flow direction indicated by the arrow on the body.
- Use appropriate gaskets and tighten flange bolts evenly in a crisscross sequence.

3. Insulation Jacket Connection

- Connect the heating medium (steam, hot water, or thermal oil) supply and return lines to the jacket inlet and outlet ports as marked.
- Ensure the flow direction of the heating medium matches the jacket design. Install isolation valves, filters, and pressure gauges on the heating medium piping.

4. System Testing

- First perform a pressure test on the valve body as part of the pipeline system to ensure no leakage.
- Then conduct a separate pressure test on the insulation jacket system (test pressure is generally 1.5 times the jacket design pressure) to check for leaks at welds and connections.

5. Insulation Layer Installation

- Only after the jacket pressure test is passed may the external insulation layer be installed (excluding the operating mechanism and indicator areas).
- The insulation material should be heat-resistant and allow for future removal and maintenance.

Operation

1. Opening/Closing Operation

- Operate the valve by rotating the handle, gearbox, or actuator 90° to open or close. The jacket system does not affect the valve operation.

2. Insulation System Start-up

- Before conveying solidify-prone media, start the insulation system to circulate the heating medium and preheat the valve body to the required process temperature.
- Preheat effectiveness can be judged by touching the valve surface or measuring the return-line temperature.

3. Operational Monitoring

- During normal operation, monitor the pressure, temperature, and flow rate of the heating medium to ensure consistent insulation performance.
- Simultaneously observe the valve body for any leakage.

4. Shutdown Procedure

- For planned shutdowns, first close the media pipeline, then shut down the insulation system after the valve is drained or purged.

- In emergency shutdowns where media may solidify, keep the insulation system running or promptly purge the valve.

Maintenance

1. Regular Inspection

- Periodically check for media leakage at the valve body flanges and stem.
- Inspect jacket connections for heating- medium leaks and verify pressure- gauge readings are normal.

2. Jacket System Cleaning

- Clean the interior of the jacket regularly based on heating- medium water quality to prevent scale or debris buildup that could reduce heat- transfer efficiency.
- Isolate and depressurize the jacket system before cleaning.

3. Sealing- Performance Maintenance

- If internal leakage occurs, it may be due to high- temperature aging or wear of the seat seal.
- After cooling and depressurizing the valve, replace the high- temperature- resistant sealing elements.

4. Long- Term Standby Maintenance

- If the valve is out of service for an extended period, thoroughly drain and purge both the valve interior and the jacket.
- Apply anti- rust grease to exposed metal surfaces such as the stem.
- Before restarting, perform pressure and functional tests separately on the valve body and jacket system.

5. Important Notes

- Before performing any maintenance, ensure both the valve body and jacket system are depressurized and cooled to ambient temperature.
- Exercise caution when removing the insulation layer to avoid damaging the outer jacket surface.

非常感谢您的阅读！

Thank you very much for reading!



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