

DQ347H 低温球阀

DQ347H Cryogenic Ball Valve

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书



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

## DQ347H 低温球阀

|                                    |                             |
|------------------------------------|-----------------------------|
| 型号: DQ347H-CL150/CL300/CL600/CL900 | 规格: 3" -16"                 |
| 公称压力: 150LB, 300LB, 600LB, 900LB   | 适用介质: 液化天然气、乙烯、丙烯等低温介质      |
| 适用温度: -196℃ ~-29℃                  | 阀体材质: LCB、CF8、CF3、CF8M、CF3M |
| 连接方式: 法兰                           | 驱动方式: 手动、气动、电动              |
| 其他参数: 制造标准按 API6D                  |                             |

## DQ347H Cryogenic Ball Valve

|                                                                                         |                                              |
|-----------------------------------------------------------------------------------------|----------------------------------------------|
| Model: DQ347H-CL150/CL300/CL600/CL900                                                   | Specifications: 3"-16"                       |
| Nominal Pressure: 150LB, 300LB, 600LB, 900LB                                            |                                              |
| Applicable Media: Liquefied natural gas, ethylene, propylene, and other cryogenic media |                                              |
| Applicable Temperature: -196℃ ~-29℃                                                     | Body Material: LCB、CF8、CF3、CF8M、CF3M         |
| End Connection : Flange                                                                 | Operation: Manual, pneumatic, electric Other |
| Parameters: Manufacturing standard according to API6D.                                  |                                              |

### DQ347H 低温球阀概述

DQ347H 型低温球阀专用于液化天然气、液氮、液氧及液态烃等超低温介质控制系统，适用温度范围可达 -196℃。阀门采用顶装式设计及全通路流道，确保低流阻与在线维护便捷性，其启闭通过球体旋转 90 度实现，操作迅捷可靠。阀体及关键部件均选用奥氏体不锈钢并经深冷处理，有效防止材料冷脆，保障了在极端低温工况下的密封完整性与结构安全，是液化气体储运、空分及低温化工等关键系统中的理想截断设备。

### DQ347H Cryogenic Ball Valve Overview

The DQ347H low-temperature ball valve is specifically designed for ultra-low temperature medium control systems such as liquefied natural gas, liquid nitrogen, liquid oxygen, and liquid hydrocarbons, with a temperature range applicable down to -196°C. Featuring a top-mounted design and full bore flow path, the valve ensures low flow resistance and convenient online maintenance. Its opening and closing mechanism is achieved by rotating the ball 90 degrees, enabling swift and reliable operation. Both the valve body and critical components are made of austenitic stainless steel and undergo cryogenic treatment, effectively preventing material brittleness and ensuring sealing integrity and structural safety under extreme low-temperature conditions. It serves as an ideal shut-off device for key systems in liquefied gas storage and transportation, air separation, and cryogenic chemical processes.



DQ347H 低温球阀产品图  
DQ347H Cryogenic Ball Valve Product Image

#### DQ347H 低温球阀特点

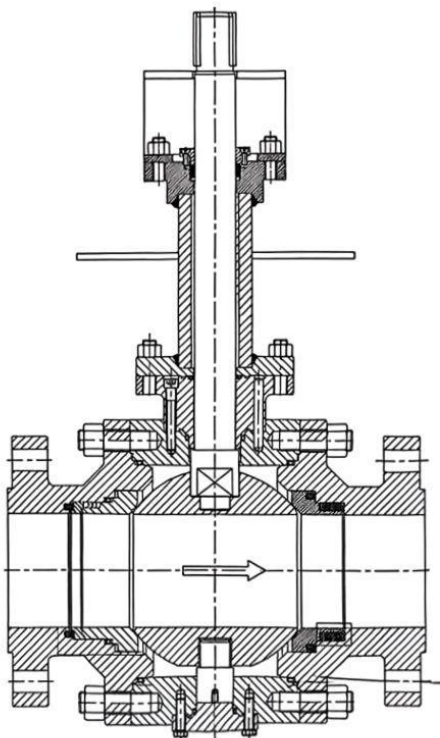
- 1.超低温材料保障：主体采用经深冷处理的奥氏体不锈钢，具备优异的低温韧性，彻底杜绝阀体与球体在低温下的冷脆风险。
- 2.长效低温密封：采用特殊配方的增强聚四氟乙烯（PTFE）或金属密封圈，结合弹性加载设计，在温度剧烈波动时可自动补偿，确保双向零泄漏。
- 3.防吹出安全设计：阀杆采用倒密封阶梯式结构，配合防静电装置，即使在异常压力下也能有效防止阀杆脱出，安全性高。
- 4.操作轻便可靠：内置低温润滑轴承，显著降低操作扭矩；加长阀盖设计能有效隔离冷源，保护填料与执行机构，确保阀门启闭灵活。
- 5.防火与多功能性：符合 API 607 防火标准，软密封失效时可形成辅助金属密封；支持手动、齿轮、气动及电动等多种驱动方式，适配自动化控制需求。

#### DQ347H Cryogenic Ball Valve Features

1. Cryogenic Material Guarantee: The main body is made of austenitic stainless steel treated with cryogenic processing, featuring excellent low-temperature toughness to completely eliminate the risk of brittle failure between the valve body and the ball at cryogenic temperatures.
2. Long-term low-temperature sealing: Utilizes specially formulated reinforced polytetrafluoroethylene (PTFE) or metal sealing rings, combined with an elastic loading design, to automatically compensate for severe temperature fluctuations and ensure bidirectional zero leakage.
3. Anti-blowout safety design: The valve stem adopts an inverted sealing stepped structure, combined with an anti-static device, effectively preventing stem ejection even under abnormal pressure, ensuring high safety.

4. Easy and reliable operation: Equipped with built-in low-temperature lubrication bearings to significantly reduce operational torque; the extended valve cover design effectively isolates cold sources, protecting the packing and actuator while ensuring flexible valve opening and closing.

5. Fireproofing and Versatility: Compliant with API 607 fireproof standards, forming an auxiliary metal seal in case of soft seal failure; supports manual, gear, pneumatic, and electric drive methods, meeting automation control requirements.



DQ347H 低温球阀结构图

DQ347H Cryogenic 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          | 304、316、LCB             |
| 2      | 球体 Ball          | 304、316、LCB             |
| 3      | 密封圈 sealing ring | PTFE                    |
| 4      | 填料 packing       | PTFE+O 型圈 PTFE + O ring |
| 5      | 阀杆 Stem          | 304、316、LCB             |

#### 性能规范表 Performance Specification

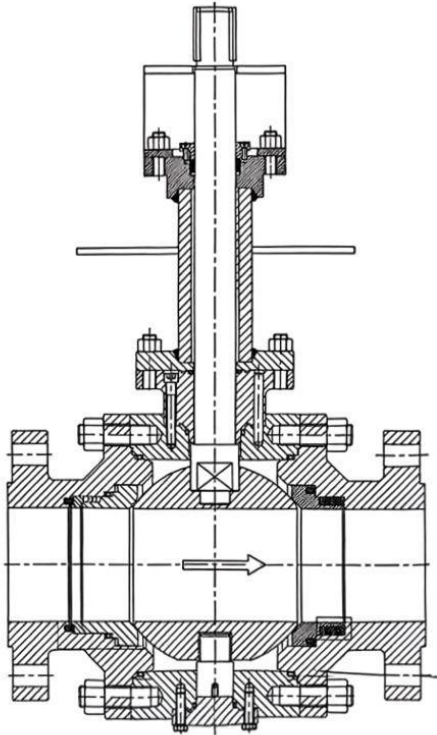
|                       |          |     |
|-----------------------|----------|-----|
| 公称压力 Nominal Pressure | 2-15     | MPa |
| 强度试验压力 Shell Test     | 3-22.5   |     |
| 密封试验压力 Seal Test      | 2.2-16.5 |     |
| 适用温度 Suitable Temp.   | -196~-29 | ℃   |

## 外形尺寸标准要求

- 1、阀门的结构长度按 ASME16. 10 的标准
- 2、连接法兰按 ASME16. 50 的标准

## Dimensions Standard Requirements

1. The structural length of the valve shall conform to the standard ASME16.10.
2. The connecting flange shall conform to the standard ASME16.50.



DQ347H 低温球阀外形图  
DQ347H Cryogenic Ball Valve View Drawing

## DQ347H 低温球阀外形尺寸表

## DQ347H Cryogenic Ball Valve Dimensions Table

| 主要外形尺寸 (单位:mm)                                 |         |             |       |       |       |       |       |       |       |
|------------------------------------------------|---------|-------------|-------|-------|-------|-------|-------|-------|-------|
| 型号 Type                                        | 尺寸 Size | 公称尺寸 NPS/in |       |       |       |       |       |       |       |
|                                                |         | 3           | 4     | 6     | 8     | 10    | 12    | 14    | 16    |
| DQ347H-CL150<br>DQ347H-CL150P<br>DQ347H-CL150R | d1      |             | 100   | 150   | 201   | 252   | 303   | 334   | 385   |
|                                                | L       |             | 229   | 394   | 457   | 533   | 610   | 686   | 762   |
|                                                | D       |             | 230   | 280   | 345   | 405   | 485   | 535   | 595   |
|                                                | D1      |             | 190.5 | 241.3 | 298.5 | 362   | 431.8 | 476.3 | 539.8 |
|                                                | D2      | —           | 157   | 216   | 270   | 323.8 | 381   | 412.8 | 469.9 |
| DQ347H-CL300<br>DQ347H-CL300P                  | d1      |             |       | 150   | 201   | 252   | 303   | 334   | 385   |
|                                                | L       |             | —     | 403   | 502   | 568   | 648   | 762   | 838   |

|                                                |    |       |       |       |       |       |       |       |       |
|------------------------------------------------|----|-------|-------|-------|-------|-------|-------|-------|-------|
| DQ347H-CL300R                                  | D  | —     | —     | 320   | 380   | 445   | 520   | 585   | 650   |
|                                                | D1 |       | —     | 269.9 | 330.2 | 387.4 | 450.8 | 514.4 | 571.5 |
|                                                | D2 |       |       | 216   | 270   | 323.8 | 381   | 412.8 | 469.9 |
| DQ347H-CL600<br>DQ347H-CL600P<br>DQ347H-CL600R | d1 |       | 100   | 150   | 201   | 252   | 303   | —     |       |
|                                                | L  |       | 432   | 559   | 660   | 787   | 838   |       | —     |
|                                                | D  |       | 275   | 355   | 420   | 510   | 560   | —     | —     |
|                                                | D1 |       | 215.9 | 292.1 | 349.2 | 431.8 | 489   | —     |       |
|                                                | D2 |       | 157   | 216   | 270   | 323.8 | 381   | —     |       |
| DQ347H-CL900<br>DQ347H-CL900P<br>DQ347H-CL900R | d1 | 74    | 100   | 150   | 201   | 252   | —     | —     |       |
|                                                | L  | 381   | 457   | 610   | 737   | 838   | —     | —     | —     |
|                                                | D  | 240   | 290   | 380   | 470   | 545   | —     |       |       |
|                                                | D1 | 190.5 | 235   | 317.5 | 393.7 | 469.9 |       | —     |       |
|                                                | D2 | 127   | 157   | 216   | 270   | 323.8 |       | —     |       |

## DQ347H 低温球阀安装、使用与维护说明书

### 安装指南

1. 安装前准备：核对阀门型号、压力等级及适用温度是否符合管路设计要求。清除阀门内腔及管道内的异物与水分，确保流道清洁。
2. 吊装与搬运：使用阀体上的吊装孔进行吊装，避免撞击或直接钩挂阀杆、手轮等部件。轻拿轻放，保护密封面与附件。
3. 安装方向与位置：阀门可安装在管路任意位置，但阀杆垂直向上安装为推荐方向。安装时应考虑操作空间和维护便利性。
4. 管道连接：确保管道法兰面清洁、对齐，均匀对称拧紧连接螺栓。阀门与管道法兰间应使用符合低温要求的垫片。
5. 焊接连接（如适用）：如为焊接端阀门，应采用惰性气体保护焊，并采取适当冷却措施，防止阀内密封件因过热损坏。

### 使用操作

1. 启用前检查：首次使用或长时间停用后，应检查阀门开关灵活性，确认填料压盖螺栓无松动，并确保执行机构状态正常。
2. 启闭操作：通过驱动装置（手轮、齿轮箱或执行器）平稳操作。阀门为 90 度旋转启闭，全开或全关后请勿强行继续旋转。
3. 状态指示：对于带执行机构的阀门，请注意观察开度指示器或信号反馈，确保阀门到达预定位置。
4. 维护性操作：在低温工况下，如需进行启闭操作，建议先进行少量流通以冷却阀体，避免温度骤变带来的应力。

1. 定期检查：定期检查阀杆填料处有无泄漏，外部紧固件是否松动，阀门表面有无腐蚀或结霜异常。
2. 密封性能维护：若发现轻微泄漏，可尝试均匀紧固填料压盖螺栓。如泄漏无法停止，则需停机泄压后更换填料或密封件。
3. 长期停用：若阀门长期停用，应将其置于全开或全关位置，排空内部介质，并对阀门通道进行保护性封堵，防止异物进入。
4. 维修注意事项：阀门维修前必须将管道内介质完全排空、泄压至常温。拆卸时应注意保护阀座与球体密封面，更换的密封件必须为原厂指定低温型号。
5. 常见故障处理：若出现操作扭矩过大，检查是否因低温润滑失效或内部结冰；若阀门无法完全密封，需检查密封面是否损坏或是否有杂质嵌入。

#### DQ347H Cryogenic Ball Valve Installation, Use, and Maintenance Manual Installation Guide

1. Preparation before installation: Check whether the valve model, pressure rating, and applicable temperature meet the pipeline design requirements. Remove foreign objects and moisture from the valve cavity and pipeline to ensure the cleanliness of the flow channel.
2. Lifting and handling: Use the lifting holes on the valve body for lifting, avoiding impact or direct hooking of valve stems, handwheels, and other components. Handle with care to protect the sealing surface and accessories.
3. Installation direction and position: The valve can be installed at any position in the pipeline, but it is recommended to install the valve stem vertically upwards. During installation, consideration should be given to operational space and maintenance convenience.
4. Pipeline connection: Ensure that the flange surface of the pipeline is clean and aligned, and tighten the connecting bolts evenly and symmetrically. Gaskets that meet low temperature requirements should be used between valves and pipeline flanges.
5. Welding connection (if applicable): If it is a welded end valve, inert gas shielded welding should be used, and appropriate cooling measures should be taken to prevent damage to the sealing components inside the valve due to overheating.

#### Usage and Operation

1. Pre use inspection: After the first use or long-term shutdown, the flexibility of the valve switch should be checked to confirm that the packing gland bolts are not loose, and to ensure that the actuator is in normal condition.
2. Opening and closing operation: Smooth operation through the driving device (handwheel, gearbox or actuator). The valve should rotate 90 degrees to open and close. Do not forcefully continue rotating after fully opening or closing.
3. Status indication: For valves with actuators, please pay attention to the opening indicator or signal feedback to ensure that the valve reaches the predetermined position.
4. Maintenance operation: In low-temperature conditions, if opening and closing operations are required, it is recommended to first perform a small amount of circulation to cool the valve body and avoid stress caused by sudden temperature changes.

maintenance

1. Regular inspection: Regularly check for leaks at the valve stem packing, loose external fasteners, and abnormal corrosion or frosting on the valve surface.
2. Sealing performance maintenance: If a slight leak is found, try tightening the packing gland bolts evenly. If the leakage cannot be stopped, the machine needs to be stopped to release pressure and replace the packing or seal.
3. Long term shutdown: If the valve is not in use for a long time, it should be placed in the fully open or fully closed position, the internal medium should be emptied, and the valve channel should be protected and sealed to prevent foreign objects from entering.
4. Maintenance precautions: Before repairing the valve, the medium inside the pipeline must be completely emptied and depressurized to room temperature. When disassembling, attention should be paid to protecting the valve seat and the sealing surface of the ball. The replaced sealing components must be the low-temperature model specified by the original factory.
5. Common troubleshooting: If there is excessive operating torque, check whether it is due to low-temperature lubrication failure or internal icing; If the valve cannot be completely sealed, it is necessary to check whether the sealing surface is damaged or whether there are impurities embedded.

非常感谢您的阅读！

Thank you very much for reading!

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