

**注意：**用户在使用本产品之前，请先仔细阅读本说明书。

**NOTICE:** The user must read this operation instruction carefully, Before Use this product.

**DYQ340Y-16C 型**

DYQ340Y-16C Type

**手动偏心半球阀**

Manual Eccentric Half Ball Valve

# 使用说明书

operation instruction



**上海沪工阀门厂（集团）有限公司**

SHANGHAI HUGONG VALVE FACTORY (GROUP) CO., LTD.

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**CAUTION!**

**This operation instruction has to be read and observed carefully before unpacking and commissioning of the product! The product may only be used and serviced by persons familiar with the operation instruction. Without the authorization, changes are not permissible. Before any work on the product, precautions have to be taken to protect personnel and equipment against all sources of danger resulting from chemical composition, pressure and temperature of the medium as well as from all operating powers.**

**注意！**

开箱及交付使用前必须仔细阅读该说明书，该产品只允许在规定参数下使用，未经允许，不允许对该产品做任何改动。

对该产品做任何处理之前，应采取安全措施保护人员和设备，例如：化学腐蚀、介质温度及压力伤害及动力源等。

## 手动偏心半球阀

### 使用说明书

#### Manual Eccentric Half Ball Valve

#### Operation Instruction

### 1 用途和性能规范

#### Purpose and performance specifications

##### 1. 1 用途 purpose

a、本产品适用于污水处理、纸浆、氧化铝、城市采暖供热要求严紧的场合；适用于电厂、水力除渣或气态输送管道的控制。可实现对介质的调节和严密切断。

This product is suitable for wastewater treatment, pulp, alumina, city heating heating was required. Apply to power plant, the control of hydraulic slag or gas pipelines. Can realize to adjust the medium and carefully cut off.

b、适用范围：污水处理、纸浆、氧化铝、城市采暖供热、电厂、水力除渣或气态输送管道等行业。

Scope of application: water treatment, pulp, alumina, city heating heating, power plants, hydraulic slag or gas pipelines, etc.

##### 1. 2 性能规范 performance specifications

|                           |                                |   |     |
|---------------------------|--------------------------------|---|-----|
| 试验压力<br>Test<br>pressure  | 壳体试验 Strength test             | 2.4   | MPa |
|                           | 低压密封试验 Low pressure seal test  | 0.6   |     |
|                           | 高压密封试验 High pressure seal test | 1.76  |     |
| 适用温度 Suitable temperature |                                | -29~425   | °C  |
| 适用介质 suitable medium      |                                | 水、蒸气、油品、非腐蚀性气体或液体<br>Water, steam, oil, non - corrosive gas or liquid |     |



1. 3 阀门最大工作压力额定值（压力-温度基准）

Valve maximum working pressure rating benchmark (pressure and temperature)

（表压 Gage pressure: MPa）

|                       |        |      |      |
|-----------------------|--------|------|------|
| 温度(°C)<br>temperature | -29~38 | 93   | 148  |
| 额定值<br>rated value    | 1.6    | 1.43 | 1.24 |

表中温度是指工作状态下管路介质的温度,表中压力是持续无冲击压力.

The temperature in the table refers to the temperature of the working status line medium, pressure is no impact on the continued in the table.

2 采用标准

Adoption standard

2. 1 设计制造按 GB12237、API608 的规定；

The design and manufacture according to stipulations GB12237, API608;

2. 2 检验和试验按 API 598 的规定；

Inspection and testing according to the provisions of the API 598;

2. 3 法兰尺寸按 JB79 或 GB/T9113.1 的规定；

The provisions of the regulation according to JB79 or GB/T9113.1 flange size;

2. 4 结构长度按 GB12221 的规定；

The face to face size according to stipulations GB12221;

2. 5 压力—温度基准按 GB9131 的规定。

According to stipulations GB9131 pressure - temperature.

### 3 结构特点和使用原理

#### Structure characteristic and using principle

##### 3. 1 结构及主要外形尺寸参见简图

See diagram structure and the main dimension

##### 3. 2 本产品由阀体、偏心轴、阀盖、球冠、轴套、阀座等主要部件组成，通过偏心轴旋转 90° 来实现阀门的启闭，起到截断介质的作用。

This product by the body, the eccentric shaft, valve cover, spherical cap, bushings, valve seat main parts, such as by eccentric shaft rotate 90 ° of the valve opening and closing, have the effect of truncation medium.

##### 3. 3 本产品保证了阀门在开启或关闭过程中，阀座和球冠没有相互摩擦，本产品采用偏心曲轴，使得球冠中心线与阀门流道中心线偏离一个偏心距。在阀门开启时，曲轴转过一个很小的角度，球冠就会离开阀座，球冠和阀座不再接触；反之，在阀门关闭过程中，只有在关闭瞬间，球冠才和阀座接触。

This product to ensure the valve in the process of opening or closing, seat and spherical cap without rubbing against each other, this product USES the eccentric crankshaft, making the center line of the spherical cap deviates from the center line of the valve port a eccentricity. When the valve opens, the crankshaft turns a small Angle, the ball will leave the seat, the ball and seat no longer contact; On the other hand, in the process of valve closing, only in the closing moments, spherical cap and seat contact.

##### 3. 4 本产品采用上装式结构，在维修过程中，不需从管线中拆卸下来，只需卸下阀盖上的螺栓，取下阀盖，从而可以取出偏心轴，这样保证了阀门能够在线维修。

This product USES jacket type structure, in the process of maintenance, do not need to be removed from the pipeline, simply remove bonnet bolts on, remove the valve cover, which can remove the eccentric shaft, so to ensure the valve to online service.

### 3. 5 特点

#### Characteristic

- ① 偏心半球阀为上装式结构。对装在管道上的阀门可直接在线检查与维修，能有效减少装置停车，降低成本。

For the jacket type structure. The valve can be directly mounted on the pipeline online inspection and maintenance, can effectively reduce the parking device, reduce the cost.

- ② 偏心半球阀是单阀座设计。消除了阀门中腔介质因异常升压而影响使用安全的问题。

Single seat design. To eliminate the influence due to abnormal pressure valve lumen medium use safety problems.

- ③ 低扭矩设计。特殊结构设计的阀杆，只需配一个小手把阀门就能轻松启闭。

Low torque design. Special structure design of the valve stem, only with a small hand could easily open/close the valve.

- ④ 启闭无摩擦。这一功能完全解决了传统阀门因密封面之间相互摩擦而影响密封的问题。

Open/close without friction. This function completely solve the traditional valve for sealing surface friction each other and affect the sealing problem.



- ⑤ 楔形密封结构。阀门是靠阀杆提供的机械力，将球楔压到阀座上而密封，使阀门的密封性不受管线压差变化的影响，在各种工况下密封性能都有可靠保证。

The structure of sealing wedge. Valve by valve stem provides mechanical force, wedge pressure the ball into the seat and seal, make the valve's sealing is not affected by changes in the pipeline pressure difference, under various conditions sealed performance has a reliable guarantee.

- ⑥ 密封面的自清洁结构。当球体倾离阀座时，管线中的流体沿球体密封面成 360° 均匀通过，不仅消除了高速流体对阀座局部的冲刷，也冲走了密封面上的聚积物，达到自清洁的目的。

Since the clean structure of the sealing surface. When the ball tilting away from the seat, fluid in the pipeline along the sphere uniform sealing surface into 360 ° through, not only eliminates the high velocity on the seat of local scour, also washed away by the accumulated on the surface of the sealing material, achieve the goal of the clean.

#### 4 阀门主要零件材料

##### Major parts material of the valve

|                |                      |            |                   |         |         |
|----------------|----------------------|------------|-------------------|---------|---------|
| 名称<br>name     | 阀体 body<br>阀盖 bonnet | 填料 packing | 阀杆 stem           | 球体 ball | 阀座 seat |
| 材料<br>material | ASTM A216<br>WCB     | PTFE       | ASTM A351<br>F304 | 316     | 316+STL |



## 5 保管、安装、使用、检查

### Safekeeping, Installation, Use and Inspection

#### 5. 1 保管 Safekeeping

- a. 本阀须保管存放在干燥、通风的室内。

This valve should be stored in dry and ventilated room.

- b. 本阀保管存放期间，球体应处于全开状态，两端通道须封闭。

This valve preservation during the storage, sphere should be in the fully open position, on both ends of the channel must be closed.

- c. 本阀在保管存放期间，应定期检查其质量状况，及时采取防护措施。

This valve in custody during the storage, shall regularly check the quality, to take protective measures in a timely manner.

#### 5. 2 安装 Installation

- a. 本阀可安装于任意位置，但必须要便于维护、检修、操作。

This valve can be installed in any position, but must be easy to maintain, maintenance and operation.

- b. 安装前，应扳转扳手转动球体，检查内腔及密封面，并清洗。

Before the installation, should pull spanner rotating sphere, check the lumen and the sealing surface, and cleaning.

- c. 安装前，必须仔细核对阀门标志和铭片是否和工况要求相符。

Before installation, must carefully check whether marks and inscription of valve and working condition requirements.

- d. 安装前，应检查体盖螺栓是否被均匀拧紧，填料是否被均匀压紧。

Before the installation, should check whether body cover bolts evenly tighten, whether the packing is uniform pressure.

- e. 安装时，应均匀对称拧紧连接螺栓，以免引起体、盖预紧不均匀。

When installation, should be symmetrical tighten connection bolts evenly, lest cause uneven, cover preload.

- f. 安装后，阀门须全开进行管道吹扫和系统压力试验。

After installation, the valve must be fully open to pipeline purging and pressure test system.

### 5. 3 使用 Use

- a. 阀门的使用工况必须与铭牌和使用说明书的规定相符。

Operating conditions of valve must be consistent with the provisions of the nameplate and the instruction for use.

- b. 本阀在系统运行过程中必须全开或全关，严禁作调节用。

This valve must be fully open or close in the process of system operation, it is strictly prohibited to adjust.

- c. 应保持本阀内腔清洁，必要时应加以清洗。

Should keep this in the valve cavity clean, if necessary, shall be clean.

- d. 开启阀门应徐徐转动手柄，以免由于快速开启引起系统中产生水锤作用，造成流量过急或压力波动。

Open valve should be slowly turn the handle, in order to avoid the middle water hammer effect caused by quick opening system, causing traffic rush or pressure fluctuations.

### 5. 4 检查 Inspection

1. 阀门有使用期间应定期检查如下项目,发现问题及时修理。

The valve should be regularly check the following items during

use, found that the problem timely repair.

- a. 紧固件是否出现松动。

Fasteners, whether there is loose.

- b. 填料是否被严重磨损,垫片是否损坏(停车检修)。

Whether the packing was serious wear and tear, gasket is damaged (parking overhaul).

- c. 驱动是否轻便,有无阻隔现象。

Driven by light, do you have any blocking phenomenon.

- d. 球面,阀座是否被损坏,阀座是否被严重磨损(停车检修)。

Sphere, the seat is damaged, the seat will be serious wear and tear (parking overhaul).

- e. 阀座与阀体配合处是否出现渗漏(停车检修)。

Seat and body fit place whether leakage (parking overhaul).

- f. 壳体是否被严重腐蚀或磨损导致壳体明显变薄,甚至出现渗漏,如果出现这些现象,须报废(停车检修)。

Shell was severe corrosion or wear leads to obvious thinning, appear even leakage, if appear these phenomenon, must be discarded (parking overhaul).

2. 阀门检修装配后, 必须按相应标准进行压力试验, 每次检修后应做好情况记录, 以备考查。

Valve repair after the assembly, should be carried out according to corresponding standard pressure test, should do well in case after each maintenance records, for examination.

## 6 故障及排除方法

### Faults and elimination method

| 现象 phenomenon  | 原 因 cause   | 排 除 dispose  |
|--|---|--|
| 阀杆转动不灵<br>Stem in irons  | 1. 填料压得过紧<br>Too tightly on the packing<br>2. 阀杆与其配合部位有损伤或积有污物<br>valve stem and its matching parts have damage or product contamination<br>3. 开关次数过多或球体表面有污物<br>The amounts of switch and sphere surface is dirt | 1. 松开螺母重新调整<br>Loosen the nut to readjust<br>2. 拆开修整及清除污物<br>Open repair and remove dirt<br>3. 拆开清洗、排除污物<br>Open washing, eliminate dirt                         |
| 球体与阀座的密封面之间渗漏<br>Between the sphere and valve seat sealing surface leakage | 1. 预紧力不够<br>The pre-tightening force is not enough<br>2. 密封有损伤或有污物存在<br>Seal damage or contamination<br>3. 密封面变形磨损或失效<br>The seal face deformation wear or failure  | 1. 增加预紧力<br>Increase the pre-tightening force<br>2. 重新修整或研磨密封面并清除污物<br>Rebuild or ground sealing surface and remove dirt<br>3. 更换密封圈<br>Replace the sealing ring |
| 现象 phenomenon  | 原 因 cause   | 排 除 dispose  |
| 阀座与阀体配合处渗漏<br>Seat and body with leakage                                   | 阀座损伤<br>seat damage   | 更换阀座<br>Replace seat   |
| 阀杆填料处渗漏<br>Stem packing leakage  | 1. 填料压紧力不够<br>Packing pressure force is not enough<br>2. 填料使用过久失效<br>Packing used for the failure   | 1. 重新调整螺栓、螺母<br>To adjust bolt and nut<br>2. 更换填料<br>Change the packing  |
| 阀体阀盖连接处渗漏<br>valve bonnet joint leakage                                    | 1. 中法兰螺栓松动<br>The flange bolt looseness<br>2. 垫片被损坏<br>Gasket is damaged  | 1. 重新均匀拧紧螺母<br>Evenly tighten nut<br>2. 更换垫片<br>Replace the gasket   |

## 7 注意事项

### Matters needing attention

7. 1 阀门材料的选用及其在使用中变质的可能性和必要的定期检查由用户负责考虑。

valve and its use in material selection of the possibility of metamorphic and necessary regular inspection shall be the responsibility of the user to consider.

7. 2 本阀设计只考虑一般工况,如有特殊工况(流体为易燃、易爆、有毒、氧化性等;压力温度急剧波动;工作环境恶劣:如野外、振动、火灾、狂风、地震等)应在合同中相应注明结构上的要求。

This valve design only considered the general condition, if you have any special conditions (fluid for flammable, explosive, toxic, oxidation, etc.; the pressure temperature volatility; working environment bad yan: such as field, vibration, fire, storm, earthquake, etc.) should be indicated in the corresponding contract structural requirements.

7. 3 本阀门设计只考虑轻微腐蚀,对于有严重或特殊腐蚀的场合,本阀不适用。

This valve design considers only slight corrosion, with serious corrosion or special occasions, this valve is not applicable.

7. 4 阀门工作温度范围不得超过第 1.2 条表中的规定,超过(含瞬时)此范围引起的后果完全是用户的责任。

Valve operating temperature range shall not exceed the provisions in article 1.2 of the table, more than (including instantaneous) consequences arising out of the scope of this is entirely the responsibility of the user.

7. 5 相应温度下阀门最大工作压力不得超过第 1.3 条表中的规定,超过(含瞬时)

此范围或使用与温度不相应的压力额定值引起的后果完全是用户的责任。

Corresponding temperature valve maximum working pressure shall not exceed the provisions in article 1.3 of the table, more than (including instantaneous) this range or use with temperature is not the corresponding consequences arising out of the pressure rating is the responsibility of the user.

7. 6 本阀门适用的介质列于第 1.2 条表中，超过此范围引起的后果完全是用户的责任。

The valve is used media listed in article 1.2 of the table, the consequences arising out of the more than this range is the responsibility of the user.

7. 7 安全锁、防火 防静电装置及排污口在合同有明确规定时才设置，用户必需根据工况要求明确提出是否（合同中没规定，视为否）。

Safety lock, fire prevention, anti-static equipment and sewage outlet shall be specified in the contract when the Settings, the user must according to the working condition requirements specify whether (not stipulated in the contract, as no).

7. 8 本阀门属于双阀座阀门，当阀门处于关闭时，体腔可能积有残液，在系统升温中，残液可能被加热引起体腔压力异常升高。此阀门未采取措施泄压，用户可以通过在后续系统起动过程中部分开启阀门或排污螺塞将残液排出。

This belongs to the double valve seat valve, when the valve is closed, the body cavity may have residual liquid product, in the system temperature, residual liquid can be heated to cause abnormal body cavity pressure increases. This did not take measures pressure relief valve, the user can through in the subsequent system partially open the valve in the process

of starting or drain plug will be residual liquid discharge.

7. 9 阀门工作过程中的体表温度可能引起人体接触烫伤，用户必需在相应部位设置警示标志。

Valve body temperature can cause the human body contact burns in the process of work, the user must set up warning signs in the corresponding parts.

7. 10 阀门不得带压增加或更换填料。

Valves shall not be increased with pressure or change the packing.

7. 11 管路介质中不得含有固体颗粒，否则易引起阀座密封面损坏。

Medium shall not containing solid particles in the pipeline, otherwise may cause damage of valve seat sealing surface.

7. 12 阀门运行过程中不得焊接修理和表面涂漆。

Shall not be welding repair and in the process of the operation of the surface coating.

7. 13 阀门在受压状态下不得拆卸。

Under the compression state shall not remove the valve.

7. 14 阀门在修理中需按第 4 条表中材料匹配。

The valve should be according to the article 4 in the repair material matching in the table.

7. 15 本阀门设计未进行寿命计算、试验及疲劳强度校核，用户在使用时必需定期检修、更换。

This valve design life calculation, test and fatigue strength check, should be used when users in the use of preventive maintenance, replacement.

7. 16 本阀门设计未考虑地震载荷，由此引起的后果，制造厂概不负责。



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This valve design did not consider the earthquake load, the resulting consequences, manufacturer is not responsible for.





8 附图

Drawing

### 技术要求

DYQ341Y-16C-00

1. 阀门设计与制造技术要求按GB/T12237的规定
2. 阀门检验和试验按GB/T13927的规定
3. 阀门的堆焊长度按GB/T12221的规定
4. 阀门的法兰尺寸按JB/T79.1的规定
5. 阀门球盖球盖后密封和水、蒸汽机腔，并在球盖两端用网盖盖住。

### 性能规范表

|        |         |
|--------|---------|
| 公称压力   | 1.6     |
| 试验强度试验 | 2.4 MPa |
| 密封试验   | 1.75    |
| 压力     | 0.6     |
| 气密封试验  | 0.6     |
| 最高工作温度 | 120 °C  |
| 适用介质   | 水、蒸汽、油等 |

### performance specification

|                     |                   |
|---------------------|-------------------|
| Nominal pressure    | 1.6               |
| Strength test       | 2.4 MPa           |
| Sealing test        | 1.75              |
| Air seal test       | 0.6               |
| Working temperature | -10~120°          |
| Applicable medium   | Water, Steam, Oil |

### Technical requirements

1. The valve design and manufacturing technical requirements according to the provisions of GB/T12237
2. The check valve and test according to the provisions of JB/T9092
3. The length of the valve structure according to the provisions of GB/T12221
4. The valve flange dimensions according to the provisions of JB/T79.1
5. The valve test after the clear water, wipe lumen, and cover with blank cap size at both ends.

| NO. | Code           | Name             | Qty. | Material     | Remark |
|-----|----------------|------------------|------|--------------|--------|
| 14  |                | 传动装置 Gearing     | 1    | 组合件 Assembly |        |
| 13  | DYQ341Y-16C-13 | 支架 Support       | 1    | WCB          |        |
| 12  | DYQ341Y-16C-12 | 阀盖 Bannet        | 1    | WCB          |        |
| 11  | DYQ341Y-16C-11 | 球座 packing gland | 1    | 304          |        |
| 10  | DYQ341Y-16C-10 | 填料 packing       | 6    | PTFE         |        |
| 9   | DYQ341Y-16C-09 | 轴 Shaft Sleeve   | 1    | QT450-10     |        |
| 8   | DYQ341Y-16C-08 | 垫片 Gasket        | 1    | SS304        |        |
| 7   | DYQ341Y-16C-07 | 副杆(2) Stem (2)   | 1    | 304          |        |
| 6   | DYQ341Y-16C-06 | 球帽 Spherical Cap | 1    | 316          |        |
| 5   | DYQ341Y-16C-05 | 轴 Shaft Sleeve   | 1    | QT450-10     |        |
| 4   | DYQ341Y-16C-04 | 副杆(1) Stem (1)   | 1    | 304          |        |
| 3   | DYQ341Y-16C-03 | 球体 ball          | 1    | 316          |        |
| 2   | DYQ341Y-16C-02 | 阀座 seal          | 1    | 316+STL      |        |
| 1   | DYQ341Y-16C-01 | 阀体 body          | 1    | WCB          |        |

|     |                |                  |      |              |        |
|-----|----------------|------------------|------|--------------|--------|
| NO. | Code           | Name             | Qty. | Material     | Remark |
| 14  |                | 传动装置 Gearing     | 1    | 组合件 Assembly |        |
| 13  | DYQ341Y-16C-13 | 支架 Support       | 1    | WCB          |        |
| 12  | DYQ341Y-16C-12 | 阀盖 Bannet        | 1    | WCB          |        |
| 11  | DYQ341Y-16C-11 | 球座 packing gland | 1    | 304          |        |
| 10  | DYQ341Y-16C-10 | 填料 packing       | 6    | PTFE         |        |
| 9   | DYQ341Y-16C-09 | 轴 Shaft Sleeve   | 1    | QT450-10     |        |
| 8   | DYQ341Y-16C-08 | 垫片 Gasket        | 1    | SS304        |        |
| 7   | DYQ341Y-16C-07 | 副杆(2) Stem (2)   | 1    | 304          |        |
| 6   | DYQ341Y-16C-06 | 球帽 Spherical Cap | 1    | 316          |        |
| 5   | DYQ341Y-16C-05 | 轴 Shaft Sleeve   | 1    | QT450-10     |        |
| 4   | DYQ341Y-16C-04 | 副杆(1) Stem (1)   | 1    | 304          |        |
| 3   | DYQ341Y-16C-03 | 球体 ball          | 1    | 316          |        |
| 2   | DYQ341Y-16C-02 | 阀座 seal          | 1    | 316+STL      |        |
| 1   | DYQ341Y-16C-01 | 阀体 body          | 1    | WCB          |        |

|          |   |   |   |   |   |
|----------|---|---|---|---|---|
| PROJECT  | a | b | c | d | 上海沪工阀门厂 (集团) 有限公司<br>SHANGHAI HUGONG VALVE FACTORY (GROUP) CO.,LTD. |
| NO.      |   |   |   |   |   |
| DIRECT   |   |   |   |   |   |
| ENGINE   |   |   |   |   |   |
| DESIGN   |   |   |   |   |   |
| COLLATE  |   |   |   |   |   |
| STANDARD |   |   |   |   |   |

|          |            |                                  |           |                |
|----------|------------|----------------------------------|-----------|----------------|
| DESIGNER | TECHNOLOGY | PROJECT MARK                     | WEIGHT    | SCALE          |
| CHECK    | EXAMINE    | Manual Eccentric Half Ball Valve |           | 1:1            |
| APPROVE  | DATE       | Drawing                          |           |                |
|          |            | TOTAL PAPER:                     | PAGE NO.: |                |
|          |            |                                  |           | DYQ341Y-16C-00 |

|        |
|--------|
| 借通用件登记 |
| 插图     |
| 校核     |
| 审核     |
| 日期     |



## ® 上海沪工阀门厂（集团）有限公司

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