

# Certificate

## Certificate of Conformity with Fugitive Emission Testing According to

**ISO 15848-1:2015 + Amd 1:2017**

**Certificate no.:**

**01 202 CHN/K-251004-Z**

**Name and address of the  
applicant / license holder:**

**Zhejiang Magpie Sealing Element Co., Ltd.  
No.9 Xiezhai Alley, Puyi Village, Oubei Street, Yongjia County,  
Wenzhou City, Zhejiang Province, China**

*We hereby certify that the results of Valve Stem Assembly Sealing System tests carried out under our inspection on the below industrial valve(s) meeting the requirements in the standard mentioned above. This certificate does not imply assessment of the product production. It reflects only our inspection for tested valve described herein at the time and the place of test, and does not refer to any other matters. Detail valve technical data and manufacturer's information, refer to appendix and test report.*

**Model/ Type identification** 4" CL300 Ball Valve

**Description of tested valve:** NPS4 CL300 Ball Valve, Body: ASTM A182 F304, Stem: 17-4PH, Body seal:SS304+Flexible Graphite, Stem seal: Graphite Packing, Design standard: API 6D

**Name and address of the  
manufacturer:**

**Zhejiang Magpie Sealing Element Co., Ltd.  
No.9 Xiezhai Alley, Puyi Village, Oubei Street, Yongjia County, Wenzhou  
City, Zhejiang Province, China**

**General drawing number:** Q47Y-300Lb-4"

**Test report number:** ROCKB202501009-1

**Test medium/ Criteria:** Helium /  $\leq 6.24 \times 10^{-5}$  mbar  $\times$  l/s (stem seal),  $\leq 50$ ppmv(body seal)

**Test result:** Passed

**Performance class:** ISO FE BH-CC3-SSA1 – tRT(260°C) – CL300 - ISO15848-1

### Extension of qualification to untested valves in accordance with ISO15848-1: 2015 Paragraph 8

Other valve stem size qualified for:

Ø17.5~70 mm

Other pressure ranges qualified for:

Equal Class 300 or lower

Place: Beijing

**Wang Weigang**  
Technical Expert

Date: 12 May., 2025

**TÜV Rheinland (China) Ltd.**  
Industrial Services & Cybersecurity Greater China

TÜV Rheinland (China) Ltd.  
Room 301, 3F and Room 1203, 12F, Building C, CATIC Plaza,  
No. 15, Ronghua South Road, Beijing Economic-Technological  
Development Area, Beijing, China.100176, Tel.: 010-85242222

[www.tuv.com](http://www.tuv.com)

 **TÜVRheinland®**  
Precisely Right.

ISO15848-1 Rev.20221110

## Construction & Test Data

**Name and address of the applicant / license holder:** Zhejiang Magpie Sealing Element Co., Ltd.  
No.9 Xiezhai Alley, Puyi Village, Oubei Street, Yongjia County,  
Wenzhou City, Zhejiang Province, China

**Name and address of the manufacturer:** Zhejiang Magpie Sealing Element Co., Ltd.  
No.9 Xiezhai Alley, Puyi Village, Oubei Street, Yongjia County,  
Wenzhou City, Zhejiang Province, China

**Test facility:** Zhejiang Rock Mechanical Inspection and Testing Co., Ltd.

**Test report No.:** ROCKB202501009-1

|                                                        |                                                                                                                                                                |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model/ Type identification</b>                      | 4" CL300 Ball Valve                                                                                                                                            |
| <b>Description of tested valve:</b>                    | NPS4 CL300 Ball Valve, Body: ASTM A182 F304, Stem: 17-4PH, Body seal:SS304+Flexible Graphite, Stem seal: Graphite Packing, Design standard: API 6D             |
| <b>Serials number of tested valve:</b>                 | Sample No.: ROCKP202501009-1                                                                                                                                   |
| <b>Performance class:</b>                              | ISO FE BH-CC3-SSA1 – tRT(260°C) – CL300 - ISO15848-1                                                                                                           |
| <b>General drawing number:</b>                         | Q47Y-300Lb-4"                                                                                                                                                  |
| <b>Stem drawing number:</b>                            | Q47Y-300Lb-4-01"                                                                                                                                               |
| <b>Stem sealing type / Size (Ring Qty.):</b>           | Graphite Packing / $\Phi 35 \times \Phi 45 \times 28$ mm (6)                                                                                                   |
| <b>Stem sealing Manufacturer / Model / Description</b> | Zhejiang Magpie Sealing Element Co.,Ltd. / M900 / 2 nos. of metal-wire-reinforced braided graphite rings + 4 nos. of polymer-reinforced braided graphite rings |
| <b>Body sealing type / Size (Ring Qty.):</b>           | SS304+Flexible Graphite / $\Phi 176 \times \Phi 190 \times 4.8$ mm (1), $\Phi 51 \times \Phi 60 \times 3.8$ mm, $\Phi 31 \times \Phi 40 \times 3.8$ mm         |
| <b>Stem size:</b>                                      | $\Phi 35$ mm                                                                                                                                                   |
| <b>Test medium/ Criteria:</b>                          | Helium/ $\leq 6.24 \times 10^{-5}$ mbar $\times$ l/s (stem seal), $\leq 50$ ppmv(body seal)                                                                    |
| <b>Test result/ Leakage rate:</b>                      | Passed /Max. $4.46 \times 10^{-5}$ mbar $\times$ l/s (stem seal),Max.6.2ppmv (body seal)                                                                       |

*The Valve Sealing System is in compliance with the above mentioned requirements. The test and the classification is based on a type approval and does not include the factory inspection.*

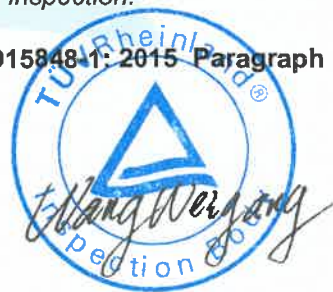
### Extension of qualification to untested valves in accordance with ISO15848-1: 2015 Paragraph 8

Other valve stem size qualified for:  $\Phi 17.5 \sim 70$  mm  
Other pressure ranges qualified for: Equal Class 300 or lower

An Ji  
Project Engineer  
Date: 12 May., 2025

An Ji

Wang Weigang  
Technical Expert  
Date: 12 May., 2025



Place: Beijing

TÜV Rheinland (China) Ltd.  
Industrial Services & Cybersecurity Greater China

TÜV Rheinland (China) Ltd.  
Room 301, 3F and Room 1203, 12F, Building C, CATIC Plaza,  
No. 15, Ronghua South Road, Beijing Economic-Technological  
Development Area, Beijing, China.100176, Tel.: 010-85242222

ISO15848-1 Rev.20221110  
 **TÜVRheinland®**  
Precisely Right.

# 检测报告

## Test Report

报告编号  
Report No. ROCKB202501009-1

产品名称  
Product Name 球阀 4" CL300  
Ball Valve 4" CL300

委托单位  
Customer 浙江喜鹊密封件有限公司  
Zhejiang Magpie Sealing Element Co., Ltd.

委托单位地址  
Customer's Address 浙江省温州市永嘉县瓯北街道浦一村谢宅巷 9 号  
No.9 Xiezhai Alley, Puyi Village, Oubei Street,  
Yongjia County, Wenzhou City, Zhejiang Province

试验项目  
Test Project ISO 15848-1 阀门逸散性试验  
ISO 15848-1 Valve Fugitive Emission Test

试验起始日期  
Date Started 2025 年 2 月 27 日  
February 27, 2025

试验结束日期  
Date Finished 2025 年 3 月 10 日  
March 10, 2025

浙江岩石机械检测有限公司  
Zhejiang Rock Mechanical Inspection and Testing Co., Ltd.



☒ inspected ☒ reviewed ☒ witnessed

## 声明 Statement

1. 检测报告封面无公司“检验检测专用章”、检测报告无“检验检测专用章”骑缝、检测报告结论无“检验检测专用章”或无审核人、批准人签字无效。

The report is invalid without “Inspection and Testing Stamp” on report cover and cross pages and on conclusion, or without signature of reviewer and approver.

2. 报告涂改无效。

Report is invalid if altered.

3. 本公司仅对正式报告负责，任何形式的复印件、传真件、影印件、电子文本仅作参考之用。任何人不得剪辑或部分复制其中的内容。

The company is only responsible for the original report. Any form of copy, fax, photocopy, electronic texts can only be regarded as reference. Editing or partial copy by any party is not allowed.

4. 非本公司抽样，检测报告仅对送检样品负责，委托单位对样品的代表性和相关资料的真实性负责。

Company is not responsible for sampling, therefore the report is only responsible for submitted sample. Customer shall be responsible for the representativity of submitted sample and the authenticity of submitted documents.

5. 委托单位若对检测报告有异议，应于本报告报出之日起三十日内向检测单位提出书面申请。

If customer has any objection to report, written application shall be raised by customer within 30 days after the issue of report.

6. 本公司对不可重复性试验、异议期内不稳定样品、检测无剩余样品等不具备复检条件的委托检测任务，不进行复检。

Company doesn't have the obligation to repeat testing when testing doesn't have repeatability, or samples are not stable during objection period, or sample is used up.

7. 本公司承诺保护委托单位在检测业务中涉及的商业信息、技术文件和商业秘密等，妥善处理相关资料、样品和数据。

Company promises all commercial information, technical document or trade secret related to testing shall be protected, and all documents, samples and data shall be properly handled.

通讯地址：浙江省温州市永嘉县瓯北街道和一工业区

Address: Heyi Industrial Zone, Oubei, Yongjia, Wenzhou, Zhejiang.

邮政编码 Post code: 325000

联系电话 Tel.: 0577-6708 7799

传 真 Fax: 0577-6708 7799

邮 箱 E-mail: rock@rock-lab.cn

网 址 Web: www.rock-lab.cn



☐ inspected ☒ reviewed ☒ witnessed

## 概述 Summary:

|                                      |                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                 |                              |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| 阀门尺寸/压力/类型<br>Valve Size/Rating/Type | 4" CL300<br>球阀 Ball Valve                                                                                                                                                                                                                                                                               | 阀门产品系列号<br>Valve Product SN                                                                                                                                                                                                                                                                                                                     | /                            |
| 阀门总图号<br>Valve GA Drawing No.        | Q47Y-300Lb-4"                                                                                                                                                                                                                                                                                           | 设计标准<br>Design Standards                                                                                                                                                                                                                                                                                                                        | API 6D                       |
| 阀杆运动方式<br>Stem Motion                | 四分之一回转<br>Quarter turn                                                                                                                                                                                                                                                                                  | 执行器类型<br>Actuator type                                                                                                                                                                                                                                                                                                                          | 气动<br>Pneumatic              |
| 阀体材料<br>Body Material                | ASTM A182 F304                                                                                                                                                                                                                                                                                          | 阀体密封描述<br>Body Seal Description                                                                                                                                                                                                                                                                                                                 | 垫片<br>Gasket                 |
| 阀杆材料<br>Stem Material                | 17-4PH                                                                                                                                                                                                                                                                                                  | 阀杆直径<br>Stem Diameter                                                                                                                                                                                                                                                                                                                           | Φ35 mm                       |
| 阀杆密封描述<br>Stem Seal Description      | 石墨填料<br>Graphite Packing                                                                                                                                                                                                                                                                                | 炉号<br>Heat No.                                                                                                                                                                                                                                                                                                                                  | D23279 (阀体 Body)             |
| 试验标准<br>Test Basis                   | DIN EN ISO 15848-1: 2017-07 工业阀门-逸散性排放的测量、试验和鉴定程序<br>第 1 部分: 用于阀门型式试验的分级体系和鉴定程序<br><i>DIN EN ISO 15848-1: 2017-07 Industrial valves – Measurement, test and qualification procedures for fugitive emissions – Part 1: Classification system and qualification procedures for type testing of valves</i> |                                                                                                                                                                                                                                                                                                                                                 |                              |
| 试验场地<br>Test Facility                | 中国浙江省永嘉县瓯北镇和一工业区岩石阀门检测实验室<br>ROCK Valve Testing Lab, Heyi Industrial Zone, Oubei, Yongjia, Zhejiang, PRC                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                 |                              |
| 抽样方<br>Selected by                   | 厂家<br>Manufacturer                                                                                                                                                                                                                                                                                      | 收样日期<br>Collected Date                                                                                                                                                                                                                                                                                                                          | 2025.02.05                   |
| 样品编号<br>Sample No.                   | ROCKP202501009-1                                                                                                                                                                                                                                                                                        | 样品状态<br>Sample status                                                                                                                                                                                                                                                                                                                           | 完好<br>Intact                 |
| 检测项目<br>Test Item                    | 密封性能试验<br>Sealing Performance                                                                                                                                                                                                                                                                           | 试验介质<br>Test medium                                                                                                                                                                                                                                                                                                                             | 99.999% 氦气<br>99.999% Helium |
| 阀门性能等级<br>Performance Class          | ISO FE BH – CC3 – SSA1 – tRT(260°C) – CL300 – ISO15848-1                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                 |                              |
| 覆盖范围<br>Extension of Qualification   | 覆盖条件<br>Criteria for Qualification Extension                                                                                                                                                                                                                                                            | 备注<br>Remarks                                                                                                                                                                                                                                                                                                                                   |                              |
|                                      | 阀杆直径: 17.5mm 至 70mm<br>Stem diameter: from 17.5mm to 70mm                                                                                                                                                                                                                                               | 详细要求见 DIN EN ISO 15848-1: 2017-07 第 8 节。<br>Refer to Section 8 of DIN EN ISO 15848-1: 2017-07 for details.<br><br><input checked="" type="checkbox"/> inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> witnessed |                              |
|                                      | 阀门压力等级: CL300 或以下<br>Valve rating: CL300 or lower                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                 |                              |
|                                      | 温度范围: +5°C至+260°C<br>Temperature range: from +5°C to +260°C                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                 |                              |
|                                      | 泄漏等级: BH 或 CH<br>Leakage Class: BH or CH                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                 |                              |
|                                      | 机械循环等级: CC1, CC2, CC3<br>Mechanical-cycle class: CC1, CC2, CC3                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                 |                              |
| 试验结论<br>Test Conclusion              | 是否符合试验要求?<br>Did it pass test requirements?                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                 |                              |

编制/日期: 陈友萍  
PRPD/DATE: 2025.3.12

审核/日期: 金亦凡  
CHKD/DATE: 2025.3.12

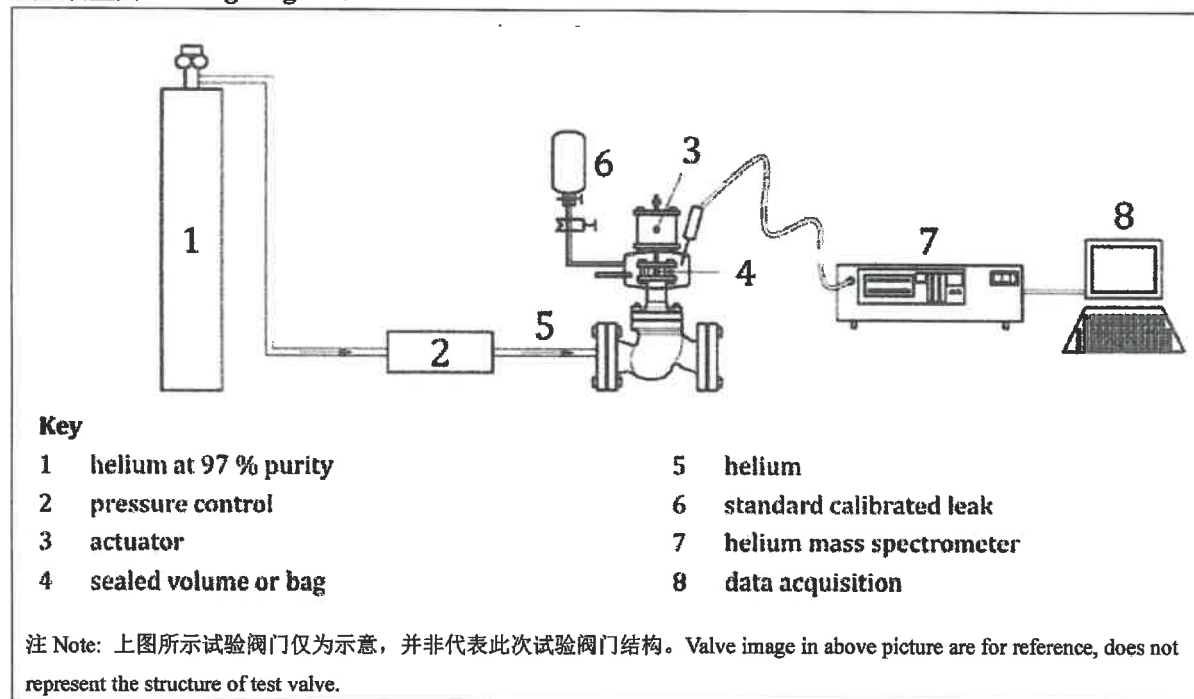
批准/日期:

APPD/DATE:

## 阀杆密封设计信息 Stem Sealing Design Information:

| 阀杆密封描述<br>Stem Seal Description                                   |                                            | 石墨填料<br>Graphite Packing                                                                                                                                                  |                   |   |
|-------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---|
| 填料参数<br>Packing<br>Parameter                                      | 厂家 / 型号 (若有)<br>Mfr. / Model (if have)     | 浙江喜鹊密封件有限公司 / M900<br>Zhejiang Magpie Sealing Element Co. Ltd. / M900                                                                                                     |                   |   |
|                                                                   | 填料描述<br>Description                        | 石墨填料<br>(2个带金属丝加强编织石墨圈 + 4个高分子材料编织石墨圈)<br>Graphite packing / 2 nos. of metal-wire-reinforced braided graphite rings + 4 nos. of polymer-reinforced braided graphite rings |                   |   |
|                                                                   | 填料材料<br>Packing Material.                  | 石墨<br>Graphite                                                                                                                                                            | 填料圈数<br>Ring Qty. | 6 |
|                                                                   | 尺寸(内径×外径×总高)<br>Size (ID×OD×TH)            | Φ 35mm×Φ 45mm×28mm                                                                                                                                                        |                   |   |
|                                                                   | 填料压盖螺母拧紧扭矩<br>Gland Bolt Tightening Torque | 65 N·m                                                                                                                                                                    |                   |   |
| 阀体密封描述<br>Body Seal Description                                   |                                            | 垫片<br>Gasket                                                                                                                                                              |                   |   |
| 垫片参数<br>Gasket<br>Parameter                                       | 厂家 / 型号 (若有)<br>Mfr. / Model (if have)     | /                                                                                                                                                                         |                   |   |
|                                                                   | 材料<br>Material.                            | SS304 + 柔性石墨<br>SS304 + Flexible Graphite                                                                                                                                 | 数量<br>Qty.        | 1 |
|                                                                   | 垫片尺寸(内径×外径×厚度)<br>Gasket Size (ID×OD×TK)   | Φ 176mm×Φ 190mm×4.8mm                                                                                                                                                     |                   |   |
|                                                                   | 螺栓拧紧扭矩<br>Bolt Tighten Torque              | 260 N·m                                                                                                                                                                   |                   |   |
| 垫片参数<br>Gasket<br>Parameter                                       | 厂家 / 型号 (若有)<br>Mfr. / Model (if have)     | /                                                                                                                                                                         |                   |   |
|                                                                   | 材料<br>Material.                            | SS304 + 柔性石墨<br>SS304 + Flexible Graphite                                                                                                                                 | 数量<br>Qty.        | 1 |
|                                                                   | 垫片尺寸(内径×外径×厚度)<br>Gasket Size (ID×OD×TK)   | Φ 51mm×Φ 60mm×3.8mm                                                                                                                                                       |                   |   |
|                                                                   | 螺栓拧紧扭矩<br>Bolt Tighten Torque              | 55 N·m                                                                                                                                                                    |                   |   |
| 垫片参数<br>Gasket<br>Parameter                                       | 厂家 / 型号 (若有)<br>Mfr. / Model (if have)     | /                                                                                                                                                                         |                   |   |
|                                                                   | 材料<br>Material.                            | SS304 + 柔性石墨<br>SS304 + Flexible Graphite                                                                                                                                 | 数量<br>Qty.        | 1 |
|                                                                   | 垫片尺寸(内径×外径×厚度)<br>Gasket Size (ID×OD×TK)   | Φ 31mm×Φ 40mm×3.8mm                                                                                                                                                       |                   |   |
|                                                                   | 螺栓拧紧扭矩<br>Bolt Tighten Torque              | 55 N·m                                                                                                                                                                    |                   |   |
| 其它位置的密封设计及描述<br>Sealing Design and Description of other locations |                                            | /                                                                                                                                                                         |                   |   |

## 试验装置图 Test Rig Diagram:



## 泄漏测量设备 Leakage Detection Equipment

|                                    |                                    |                                           |                                          |
|------------------------------------|------------------------------------|-------------------------------------------|------------------------------------------|
| 设备名称<br>Device Name                | 氦质谱检漏仪<br>Helium mass spectrometer | 品牌/型号/系列号<br>Brand / Model / SN           | Leybold / PHOENIX<br>Vario / 90001653510 |
| 设备ID<br>Device ID                  | J002                               | 灵敏度<br>Sensitivity                        | 5E-12 mbar•l•s <sup>-1</sup>             |
| 真空氮漏孔编号<br>Helium Standard Leak SN | D210732                            | 真空氮漏孔有效期<br>Helium Standard Leak Validity | 2025-02-05                               |

## 试验条件 Test Conditions:

|                                                  |                                                                                    |                                                      |                              |
|--------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------|
| 最大允许泄漏量<br>Maximum Allowable<br>Measured Leakage | 阀杆密封Stem seals:<br>$\leq 6.24E-05 \text{ mbar} \cdot \text{l} \cdot \text{s}^{-1}$ | 试验压力/升温温度<br>Test Pressure / Elevated<br>Temperature | 4.96MPa@RT<br>3.22MPa@+260°C |
|                                                  | 阀体密封Body seals:<br>$\leq 50 \text{ ppmv}$                                          |                                                      |                              |
| 总温度循环数<br>Total Thermal Cycles                   | 4                                                                                  | 总机械循环数<br>Total Mechanical Cycles                    | 100000                       |

## 试验结果 Test Results:

|                                                                     |          |                                                     |          |
|---------------------------------------------------------------------|----------|-----------------------------------------------------|----------|
| 完成温度循环数<br>Number of Thermal<br>Cycles Completed                    | 4        | 完成机械循环数<br>Number of Mechanical<br>Cycles Completed | 100000   |
| 阀杆处最大泄漏量<br>Maximum Leakage<br>Through Stem, mbar·l·s <sup>-1</sup> | 4.46E-05 | 阀体密封最大泄漏量<br>Max. Body Seal Leakage,<br>ppmv        | 6.2      |
| 阀门泄漏量是否低于允许值?<br>Was Valve Leakage Below Allowable?                 |          |                                                     | 是<br>YES |

## 阀门操作扭矩 Valve Operating Torque:

|                                                    |   |
|----------------------------------------------------|---|
| 第一次循环开启方向起始扭矩<br>BTO @ 1 <sup>st</sup> cycle (N·m) | / |
| 第一次循环关闭方向起始扭矩<br>BTC @ 1 <sup>st</sup> cycle (N·m) | / |
| 最后一次循环开启方向起始扭矩<br>BTO @ last cycle (N·m)           | / |
| 最后一次循环关闭方向起始扭矩<br>BTC @ last cycle (N·m)           | / |
| 齿轮箱齿比<br>Gearbox Ratio                             | / |

## 备注Remark:

1. 气动阀门, 操作扭矩未直接测量。Pneumatic valve, operation torque was not directly measured.
2. 执行器厂家/型号 Actuator Mfr./Model No.: Bray/S92-210.
3. 气源压力 3 Bar. Air source pressure: 3bar.

\*\*\*以下空白\*\*\*

\*\*\*Intentionally left blank\*\*\*

□ inspected ☒ reviewed ☒ witnessed

## 试验数据 Test Data:

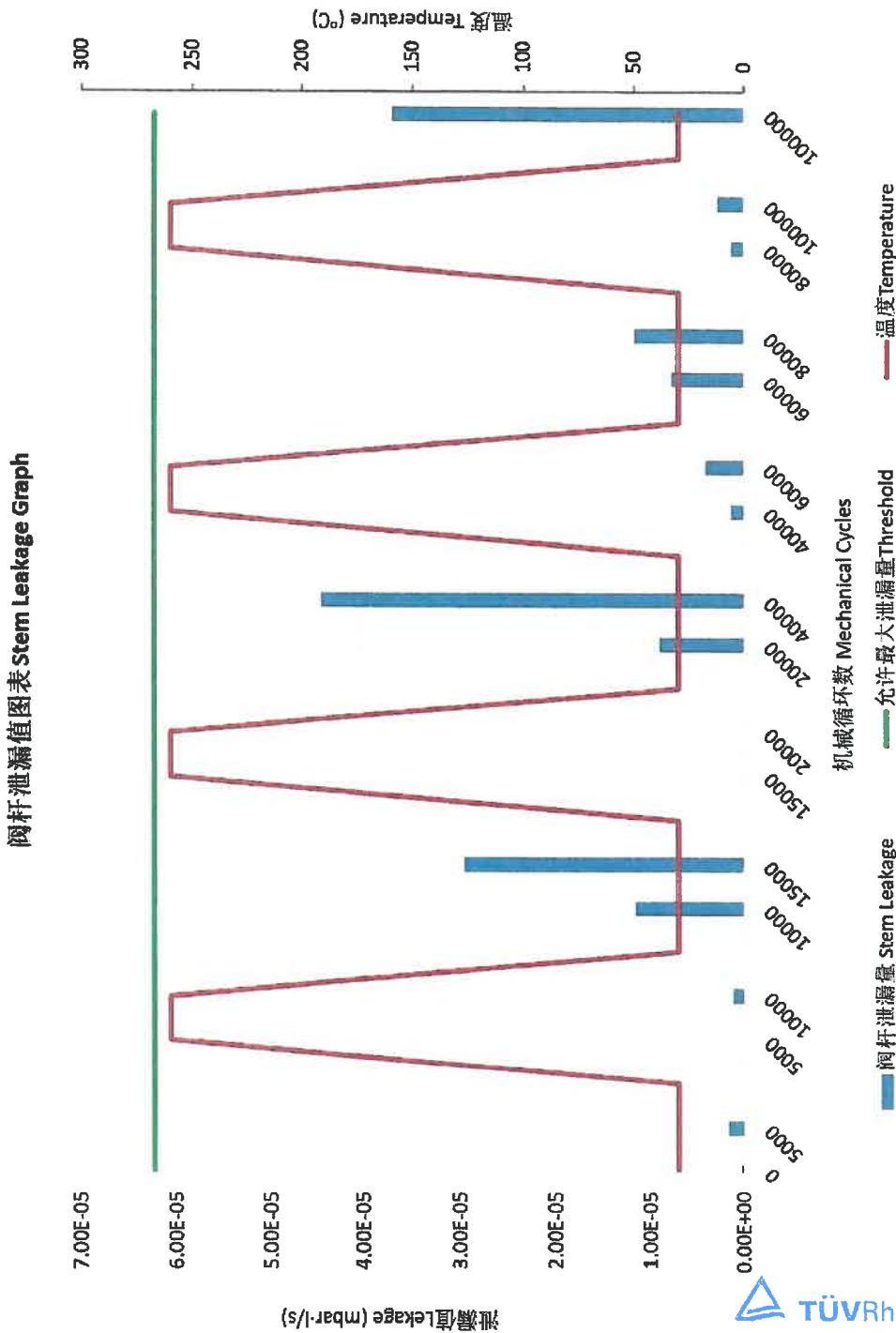
| 循环数<br>Cycle<br>Number | 试验温度<br>Test Temperature |        |        | 压力<br>Pressure<br>MPa | 阀杆净泄漏量<br>Net Stem Leakage<br>mbar·l·s <sup>-1</sup> | 阀体净泄漏量<br>Net Body<br>Leakage<br>ppmv | 判定<br>Evaluation |
|------------------------|--------------------------|--------|--------|-----------------------|------------------------------------------------------|---------------------------------------|------------------|
|                        | TC1-°C                   | TC2-°C | TC3-°C |                       |                                                      |                                       |                  |
| 0                      | RT                       | RT     | RT     | 4.96                  | 2.28E-07                                             | 4.1                                   | 合格 Pass          |
| 5000                   | RT                       | RT     | RT     | 5.03                  | 1.64E-06                                             | /                                     | 合格 Pass          |
| 5000                   | 260.0                    | 260.0  | 260.0  | 3.57                  | 8.08E-08                                             | /                                     | 合格 Pass          |
| 10000                  | 260.0                    | 260.0  | 260.0  | 3.58                  | 1.13E-06                                             | /                                     | 合格 Pass          |
| 10000                  | RT                       | RT     | RT     | 4.96                  | 1.15E-05                                             | /                                     | 合格 Pass          |
| 15000                  | RT                       | RT     | RT     | 4.96                  | 2.95E-05                                             | /                                     | 合格 Pass          |
| 15000                  | 260.0                    | 260.0  | 260.0  | 3.57                  | 1.17E-08                                             | /                                     | 合格 Pass          |
| 20000                  | 260.0                    | 260.0  | 260.0  | 3.57                  | 3.29E-08                                             | /                                     | 合格 Pass          |
| 20000                  | RT                       | RT     | RT     | 4.96                  | 8.98E-06                                             | 3.7                                   | 合格 Pass          |
| 40000                  | RT                       | RT     | RT     | 4.96                  | 4.46E-05                                             | /                                     | 合格 Pass          |
| 40000                  | 260.0                    | 260.0  | 260.0  | 3.57                  | 1.26E-06                                             | /                                     | 合格 Pass          |
| 60000                  | 260.0                    | 260.0  | 260.0  | 3.57                  | 4.06E-06                                             | /                                     | 合格 Pass          |
| 60000                  | RT                       | RT     | RT     | 4.96                  | 7.69E-06                                             | 4.4                                   | 合格 Pass          |
| 80000                  | RT                       | RT     | RT     | 4.96                  | 1.16E-05                                             | /                                     | 合格 Pass          |
| 80000                  | 260.0                    | 260.0  | 260.0  | 3.57                  | 1.27E-06                                             | /                                     | 合格 Pass          |
| 100000                 | 260.0                    | 260.0  | 260.0  | 3.57                  | 2.76E-06                                             | /                                     | 合格 Pass          |
| 100000                 | RT                       | RT     | RT     | 4.96                  | 3.71E-05                                             | 6.2                                   | 合格 Pass          |

## 备注 Note:

- RT 温度范围为+5℃至+40℃。RT is in the range of +5℃ to +40℃.
- TC1 位置: 流道; TC2 位置: 阀体表面; TC3 位置: 填料函表面。  
TC1 Location: flow path; TC2 Location: valve body surface; TC3 Location: stuffing box surface.
- 阀体净泄漏测量值为各处阀体密封泄漏测量值中最大值。  
Net Body Leakage measurement is the maximum value of measurements on all body seals.
- 在常温第 60000 次循环时, 填料扭矩由 42.7/44.9N·m 调整至 56.8/59.8N·m。  
Packing torque was adjusted from 42.7/44.9N·m to 56.8/59.8N·m during 60000<sup>th</sup> cycle at ambient temperature.


☐ inspected ☒ reviewed ☒ witnessed

阀杆泄漏值图表 Stem Leakage Graph.



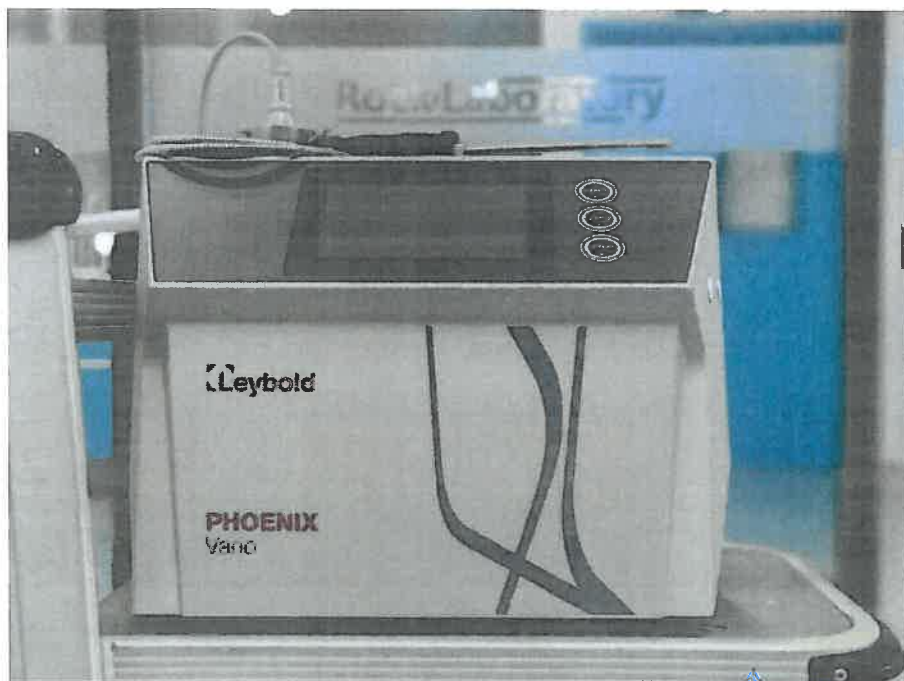
inspected reviewed witnessed

照片记录 Photographic Record

试验流程 Testing Process



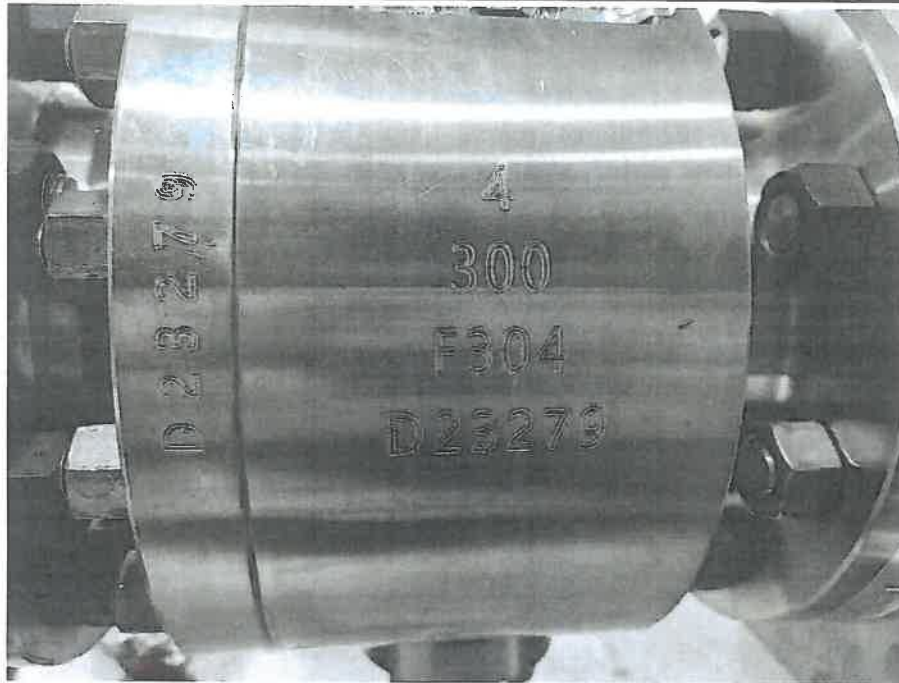
试验阀门 Tested valve



检漏仪 Leakage detector

**照片记录 Photographic Record**

**阀门拆解后零部件 Post-disassembly Valve Components**



**阀体标识 Valve Marking**



**阀门拆解 Valve disassembly**

照片记录 Photographic Record

阀门拆解后零部件 Post-disassembly Valve Components



石墨填料 Graphite packing



阀杆 Stem

照片记录 Photographic Record

阀门拆解后零部件 Post-disassembly Valve Components



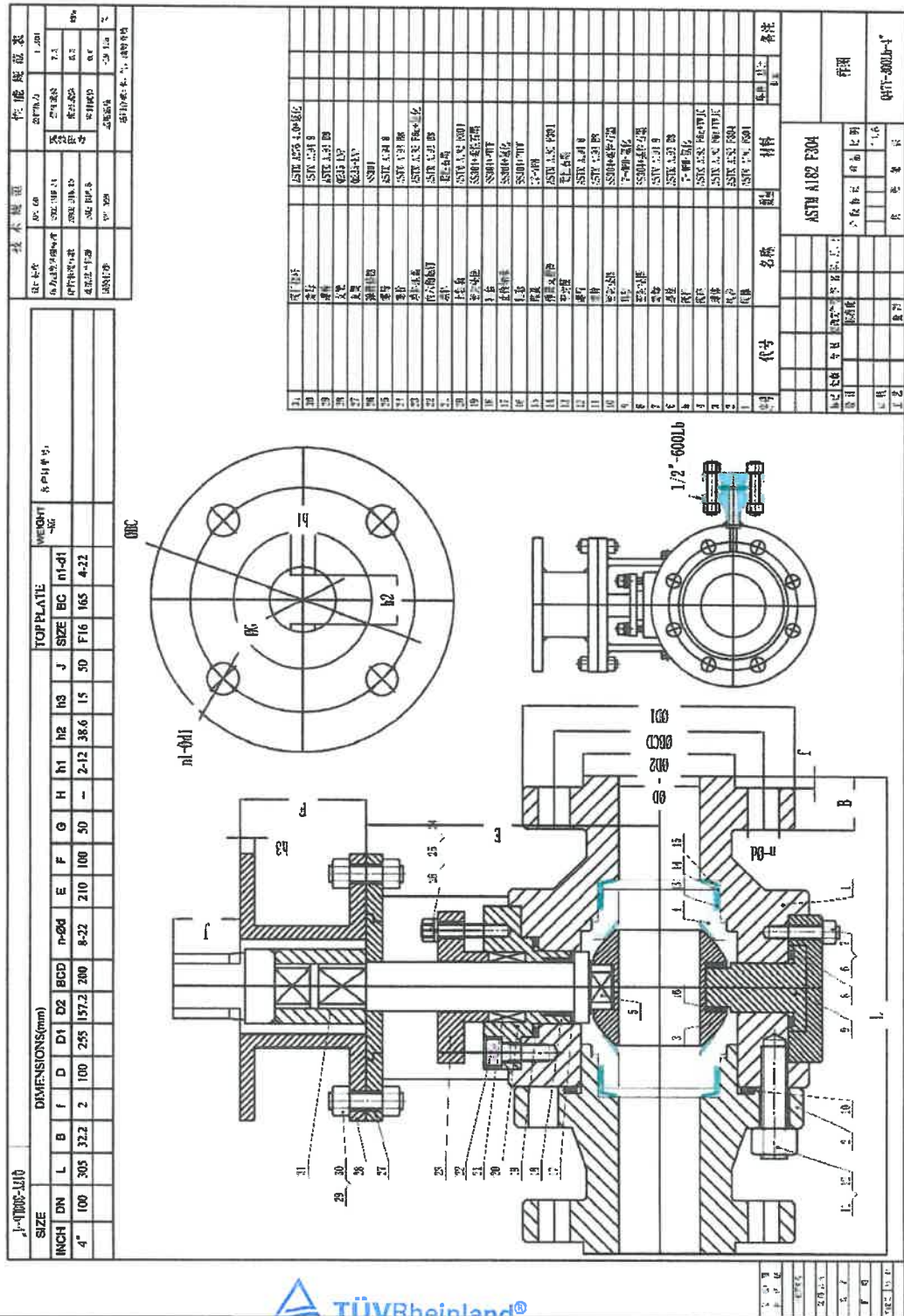
填料压盖 Gland flange



填料函 Packing sealing chamber

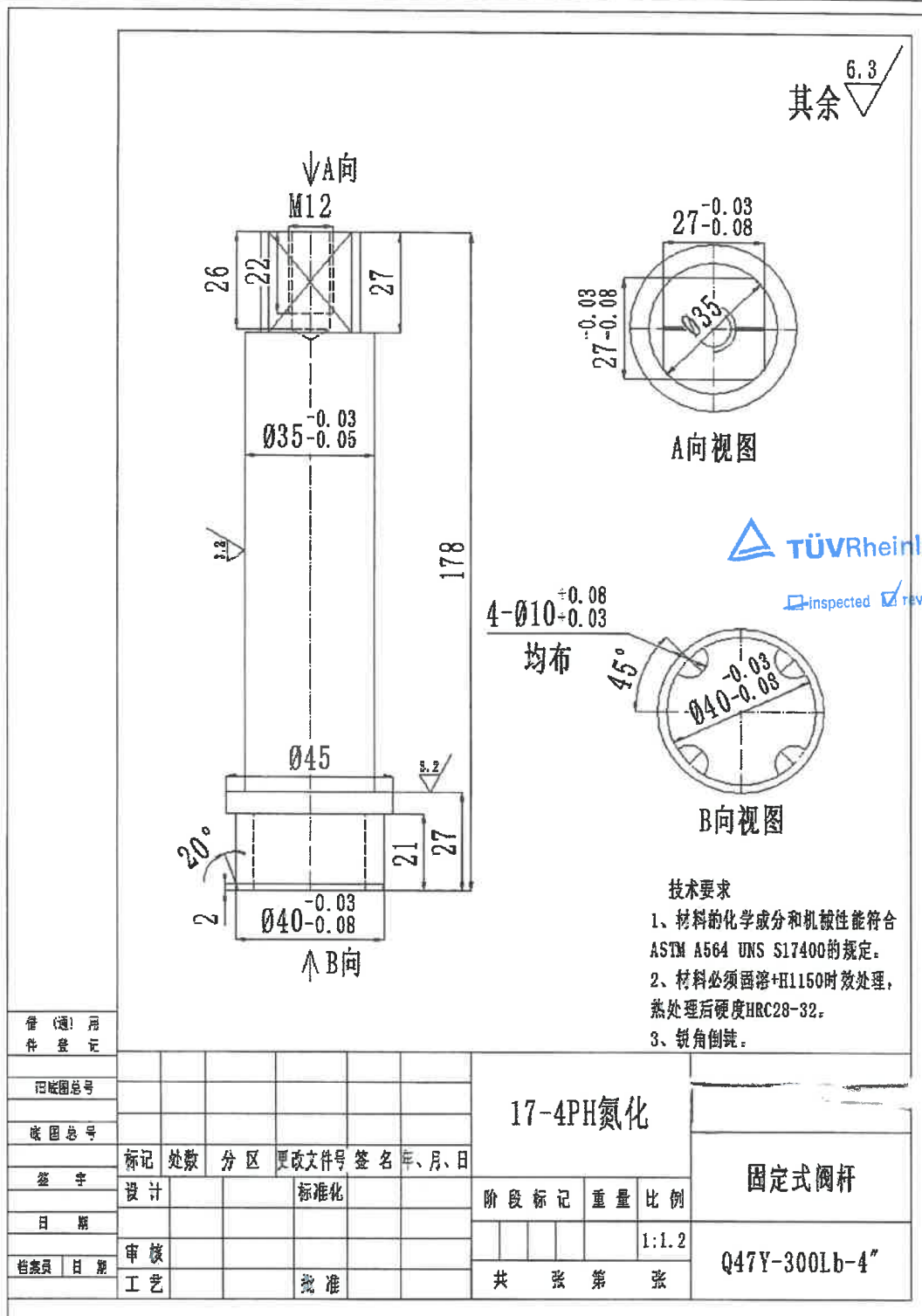
## 阀门图纸 Valve Drawings

### 总装图 General Assembly



## 阀门图纸 Valve Drawings

### 阀杆 Stem



## 图纸Drawing

## 填料图纸 Packing Drawing

| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 2                                                                                                                                                                                                                          |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <div style="border: 1px solid black; padding: 5px; display: inline-block;">M900</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | A                                                                                                                                                                                                                          |  |
| <div style="display: flex; justify-content: space-around; align-items: center;"><div style="text-align: center;"><p>石墨与金属材料编织盘根</p><p>石墨与高分子材料编织盘根</p></div><div style="text-align: center;"><p>Technical drawing of a packing assembly. It shows a central square with a grid of circles. The outer square has a dimension of 45 (+0.15/-0.15). The inner square has a dimension of 35 (+0.10/-0). The thickness of the packing is 2 (+0.15/-0). The distance between the packing and the inner square is 6 (+0.25/-0).</p></div></div> |  | B                                                                                                                                                                                                                          |  |
| <div style="display: flex; justify-content: space-between; align-items: center;"><div style="width: 40%;"><p>借通零件登记</p><p>插图</p><p>校核</p><p>旧版图号</p><p>签字</p><p>日期</p></div><div style="width: 60%;"><p>技术条件</p><p>1. 填料厚度为非预紧状态下的自由状态尺寸</p><p>2. 不允许有影响密封性能的伤痕、飞边、棱角倒塌，外来杂质及其他可能影响</p><p>3. 未标注公差尺寸的公差等级按GB/T1804-2000中规定的H级精度控制。</p><p>4. 金属隔环由客户设计制造</p></div></div>                                                                                                                                                                  |  | <div style="display: flex; justify-content: space-between; align-items: center;"><div style="width: 40%;"><p>名称:</p><p>石墨填料组</p></div><div style="width: 60%;"><p>浙江喜鹊密封件有限公司</p><p>M900</p><p>编织石墨环+压制石墨环</p></div></div> |  |

TÜVRheinland

☐ inspected ☒ reviewed ☒ witnessed

受控

| 标记 | 变更 | 更改文件号 | 签字 | 日期 |
|----|----|-------|----|----|
| 编制 | 审核 | 标准    |    |    |
| 校核 | 批准 | 质量    |    |    |
| 审核 | 批准 | 批准    |    |    |
| 工艺 | 批准 | 批准    |    |    |

共1页

第1页

## 厂家试验记录 Test record by Manufacturer

## 压力试验记录 Pressure test record

产品质量证明书  
PRODUCT QUALITY CERTIFICATE

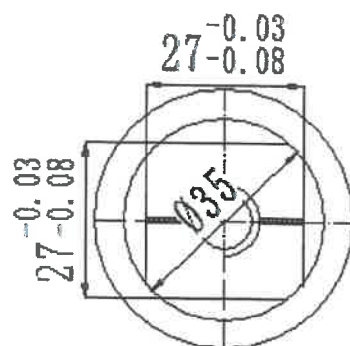
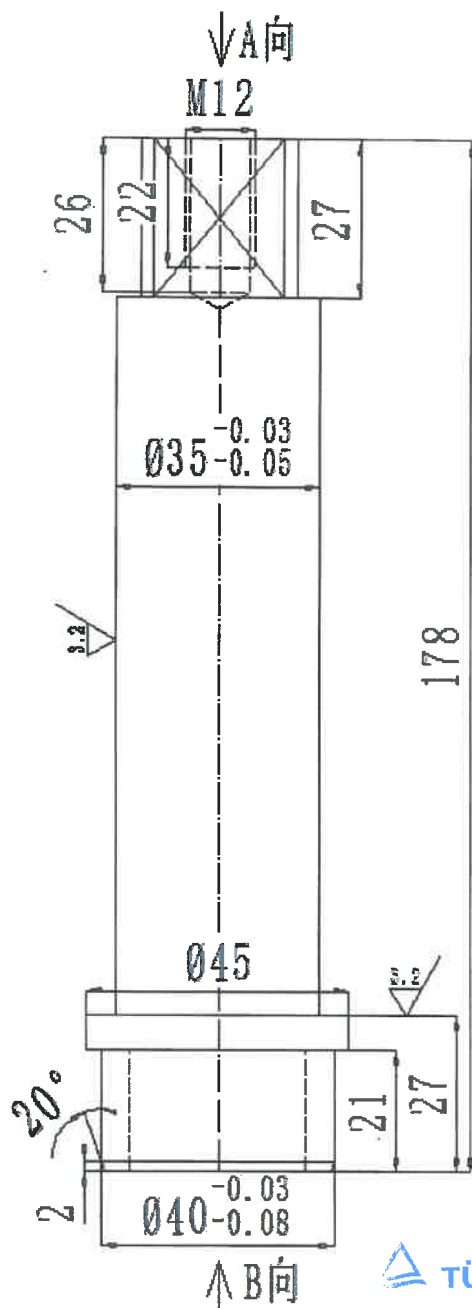
|                                                                                                                                                                                                                                         |                          |                      |                               |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------|-------------------------------|------------------|----------------------------|-----------------|-----------------------|--------------------------|-------|----|---|------|----|----|----|-------|-------------|--------------|----------|----------|-----------|----|-----|
| HQ/JR-05-61                                                                                                                                                                                                                             | No:HQ24060601            |                      |                               |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 产品名称<br>Name                                                                                                                                                                                                                            | 产品型号<br>Type             | 使用温度<br>Working Temp | 执行标准<br>Execution standard    | 产品数量<br>Quantity | 适用介质<br>Medium             | 订单号<br>Part No. | 物料编码<br>Material code |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 球阀                                                                                                                                                                                                                                      | Q47Y-300LB-4"            | -29~425℃             | API 598                       | 1                | 水、油品等介质<br>Steam Water Oil |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 零件<br>parts Name                                                                                                                                                                                                                        | 炉号<br>Heat No.           | 材料<br>Material       | 化学成分 Chemical Composition (%) |                  |                            |                 |                       | 力学性能 Mechanical Property |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
|                                                                                                                                                                                                                                         |                          |                      | C                             | Si               | Mn                         | S               | P                     | Cu                       | Cr    | Mo | V | Ni   | Ti | Al | Nb | N     | Rm<br>(MPa) | Rel<br>(MPa) | A<br>(%) | Z<br>(%) | AK<br>(J) | HB |     |
| 阀体 Body                                                                                                                                                                                                                                 | D23279                   | F304                 | 0.068                         | 0.557            | 0.976                      | 0.006           | 0.035                 | /                        | 18.14 | /  | / | 8.12 | /  | /  | /  | /     | 0.03        | 553          | 298      | 48       | 66        | /  | /   |
| 阀盖 Bonnet                                                                                                                                                                                                                               | D23279                   | F304                 | 0.068                         | 0.557            | 0.976                      | 0.006           | 0.035                 | /                        | 18.14 | /  | / | 8.12 | /  | /  | /  | /     | 0.03        | 553          | 298      | 48       | 66        | /  | /   |
| 球体 Ball                                                                                                                                                                                                                                 | F4311016                 | 17-4PH+TWAC          | 0.098                         | 0.69             | 0.52                       | 0.017           | 0.031                 | /                        | 11.98 | /  | / | 0.22 | /  | /  | /  | /     | /           | 813          | 625      | 26       | 47        | /  | 253 |
| 阀杆 Stem                                                                                                                                                                                                                                 | M223507                  | 17-4PH+氟化            | 0.037                         | 0.544            | 0.688                      | 0.004           | 0.035                 | 3.07                     | 15.77 | /  | / | 3.56 | /  | /  | /  | 0.182 | /           | 1022         | 864      | 20       | 60        | /  | 283 |
|                                                                                                                                                                                                                                         |                          |                      |                               |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 检验结果 Test results                                                                                                                                                                                                                       | 符合 标准. Conform standard. |                      |                               |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 压力试验 Pressure test                                                                                                                                                                                                                      |                          |                      |                               |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 验收标准 Acceptance criteria                                                                                                                                                                                                                | API 598                  |                      |                               |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 检验项目<br>Test Items                                                                                                                                                                                                                      | 强度试验<br>Shell Test       | 密封试验<br>Seat Test    | 上密封试验<br>Back Seat Test       |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 试验介质 Test Medium                                                                                                                                                                                                                        | 水 Water                  | 水 Water              | 水 Water                       |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 试验压力 (MPa) Test Pressure                                                                                                                                                                                                                | 7.5                      | 5.5                  | /                             |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 保压持续时间 (s) Test Duration                                                                                                                                                                                                                | 60                       | 60                   | /                             |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 结论 results                                                                                                                                                                                                                              | 合格 qualified             | 合格 qualified         | 合格 qualified                  | 合格 qualified     |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 结论 (Conclusion):<br>本产品经检验, 符合规定标准要求, 产品合格, 准予出厂, 特此证明。<br>We hereby certify that the above results through examinations and tests, this product is perfectly in accordance with corresponding standards and is fit for transportation. |                          |                      |                               |                  |                            |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |
| 编制 Inspector                                                                                                                                                                                                                            | 张立群 Zhang lichun         | 审核 audit             | 苏晓春 Su xiaochun               | 日期 Date          | 2024.6.6                   |                 |                       |                          |       |    |   |      |    |    |    |       |             |              |          |          |           |    |     |

\*\*\*报告结束\*\*\*

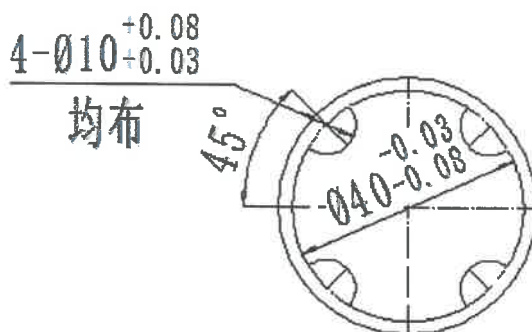
\*\*\*End of report\*\*\*



其余  $\nabla 6.3$



A向视图



B向视图

技术要求

- 1、材料的化学成分和机械性能符合 ASTM A564 UNS S17400 的规定。
- 2、材料必须固溶+H1150时效处理，热处理后硬度HRC28-32。
- 3、锐角倒钝。

TÜVRheinland®

inspected reviewed witnessed

17-4PH氮化



Q47Y-300Lb-4"-01

|      |  |
|------|--|
| 零件名称 |  |
| 图样编号 |  |
| 设计   |  |
| 审核   |  |
| 批准   |  |
| 日期   |  |
| 工艺   |  |

| 标记 | 处数 | 分区 | 更改文件号 | 签名 | 年、月、日 |
|----|----|----|-------|----|-------|
| 设计 | 1  |    | 标准化   |    |       |
| 审核 | 1  |    |       |    |       |
| 批准 | 1  |    |       |    |       |

| 阶段 | 标记 | 重量 | 比例 |
|----|----|----|----|
| 共  | 张  | 第  | 张  |