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AUMA Riester GmbH & Co. KG

P.O. Box 1362

DE 79373 Muellheim

Tel +49 7631 809 - 0

Fax +49 7631 809 - 1250

info@auma.com

www.auma.com

AUMA-Armaturenantriebe Ges.m.b.H.

AT 2512 Tribuswinkel

Tel +43 2252 82540

Fax +43 2252 8254050

office@auma.at

www.auma.at

Y006.094/049/ro/1.21



Industrie Service

CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA Third Edition, April 1999

Certificate No.: 220579

Ref. Test report No.: 220578

Name and postal address of manufacturer: **SICHUAN KCON VALVE MFG. CO., LTD.**
 Section 3, Shenzhen Road, Guanghan Industrial Zone,
 PC: 618300, Guanghan City, Sichuan Province,
 P. R. China

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA Third Edition, April 1999. The testing results of valves meet the requirements of API SPEC 6FA.

1. Description of Test Valve :

| | |
|--------------------------------|--|
| Type of Test Valve | 4" 150LB Full Bore Trunnion Ball Valve |
| Description of Valve | Ball Valve |
| Valve Size (NPS) | 4" |
| Pressure Rating (ANSI Class) | Class 150 |
| Valve Body Material | ASTM A216 WCB |

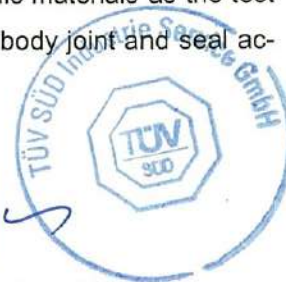
2. Qualified Range of Valves :

| | |
|---|---|
| Type | 4"-150Lb Ball Valve |
| Description of Valves | Ball Valves |
| Qualified Sizes (NPS) <i>(according to API 6FA Table 2)</i> | 4" , 6" , 8" |
| Qualified Pressure Ratings (Class) <i>(according to API 6FA Table 3)</i> | 150; 300 |
| Qualified Marking <i>(according to API 6FA Para.7)</i> | Qualified valves shall be permanently marked: 6FA |
| Remark: the technical data of test valve see back of this certificate appendix 1. | |

This certificate is issued according to API SPEC 6FA Third Edition, April 1999, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA Third Edition, April 1999, Para.4.8.

Shanghai, July 22, 2014
 (Place, date)


 TÜV SÜD Industrie Service GmbH





Industrie Service

Appendix 1:

Certificate No.: 220579

Ref. Test report No.: 220578

**Name and postal address of manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province,
P. R. China**

Technical Data of Valve

1. Type of Test Valve: 4" 150LB Full Bore Trunnion Ball Valve

2. Description of Test Valve: Ball Valve

3. Details of Valve:

| Valves Size (NPS) Material Part Name | 4" |
|--|----------------------|
| Body | ASTM A216 WCB |
| Closure | ASTM A216 WCB |
| Ball | ASTM A105+ENP |
| Stem | ASTM A29 4140+ENP |
| Lower Stem | ASTM A29 4140+ENP |
| Bolt | ASTM A193 B7 |
| Stud | ASTM A193 B7 |
| Nut | ASTM A194 2H |
| Spring | Inconel X750 |
| O Ring | VITON |
| Seat | RPTFE |
| Seat Ring | ASTM A105 |
| Gland Packing | Graphite |
| Design Drawing No.: | KHE-4-14027-12 Rev.0 |

Shanghai, July 22, 2014

(Place, date)



TÜV SÜD Industrie Service GmbH

TÜV SÜD Industrie Service GmbH
Shanghai Office
No.88 Heng Tong Road,
Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
Fax: + 86 21 6140-8600



2012002883Z



(2012)国认监认字(349)号

No: 2014FM528

检 验 报 告

Inspection Report



检测
CNAS L1598

TOV SÜD Industrie Service GmbH

reviewed

witnessed

by chen Guntm

dated 2014-7-10

产品名称: 球 阀

PRODUCT:

委托单位: 四川精控阀门制造有限公司

CLIENT:

生产单位: 四川精控阀门制造有限公司

MANUFACTURER:

检验类别: 委托检验

INSPECTION TYPE:

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute
 国家泵阀产品质量监督检验中心
 National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告 Inspection Report

No 2014FM528

共 4 页 第 1 页 Page 1 of 4 pages

| | | | | | |
|---|---|---------------------------------|-------------------------|------------------------|---|
| 产品名称 Product | 球 阀 | | 型号规格 Model | 4" -150LB | |
| | | | 商 标 Trademark | / | |
| 委托单位 Client | 四川精控阀门制造有限公司 | | 检验类别 Inspection type | 委托检验 | |
| 生产单位 Manufacturer | 四川精控阀门制造有限公司 | | 样品等级 Grade of sample | / | |
| 生产单位地址 Address | 四川省广汉市深圳路西三段 | | 抽样日期 Sampling date | / | |
| 抽样地点 Sampling location | / | | 到样日期 Reaching date | 2014年7月7日 | |
| 样品数量 Quantity of samples | 1 台 | 抽样基数 Base number of sampling | / | 抽样者 Sampling person | / |
| 原样品编号 Serial number of original sample | / | | 样品编号 Sample number | 2014 阀字 1303 | |
| 检验依据 Inspection basis | API 6FA-1999 《阀门耐火试验规范》。 | | | | |
| 检验项目 Inspection items | 耐火试验（火烧试验、低压试验、操作试验）。 | | | | |
| 检验结论 Inspection conclusion | 经检验，所检项目的检验结果符合 API 6FA-1999 标准的要求。 测试数据见检验结果（附表）。 | | | | |
| 备注 Remarks | / | | | | |

签发日期: 2014年 7 月 15 日
 Date of issue:



批准:
 Approver:

王是明

审核:
 Reviewer:

吴磊

主检:
 Chief inspector:

靳卫华

合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

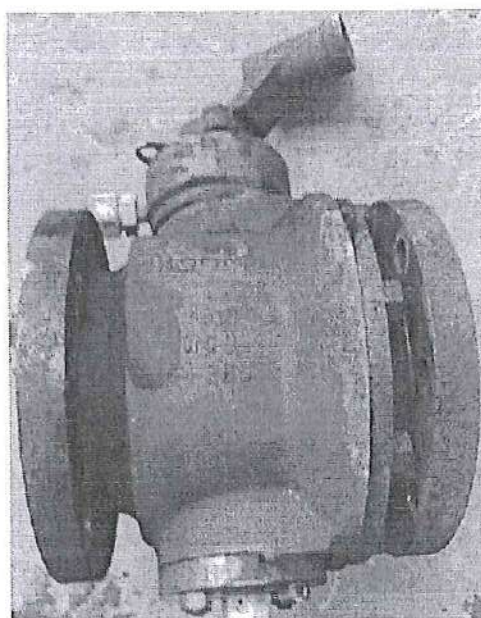
检 验 报 告
Inspection Report

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共 4 页 第 2 页 Page 2 of 4 pages

检验样品外观照片:

Photo of the inspected sample:



合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告
Inspection Report

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检验结果 (附表)

检验日期: 2014 年 7 月 10 日

Inspection results

Date of test:

| 检验项目 Inspection item | 单位 Unit | 铭牌参数 Nameplate parameter | 技术要求 Technical requirements | 检验数据 Inspected data | 单项评价 Single-item evaluation |
|-------------------------|--|-----------------------------|---|---|--------------------------------|
| 耐火试验 | | | 阀门进口端水压力 1.5 ± 0.15MPa, 火烧持续时间 30.0min。火烧期间, 阀门密封面泄漏率应 ≤ 400mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率应 ≤ 100mL/in./min。 | 火烧期间, 阀门密封面泄漏率: 6.7mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率: 4.9mL/in./min。 | 符合要求 |
| | | | 阀门进口端水压力 0.20 ± 0.02MPa, 持续 5min 后, 进行 5min 的阀门密封面泄漏试验和阀门外泄漏试验。 阀门密封面泄漏率应 ≤ 40mL/in./min; 阀门外泄漏率应 ≤ 20mL/in./min。 | 阀门密封面泄漏率: 0mL/in./min; 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| | | | 阀门进口端水压力 1.5 ± 0.15MPa, 持续 5min 后, 进行 5min 的阀门密封外泄漏试验, 泄漏率应 ≤ 200mL/in./min。 | 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| 备注 Remarks | 该阀密封副类型为金属/非金属, 公称尺寸为 4", 压力级为 Class150。 | | | | |

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合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告

Inspection Report

No. 2014FM528

共 4 页 第 4 页 Page 4 of 4 pages

检验结果 (附表)

检验日期: 2014 年 7 月 10 日

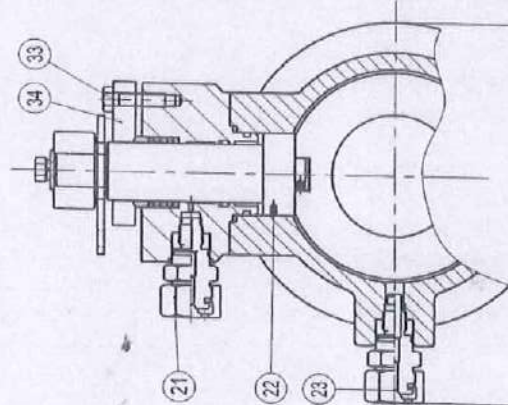
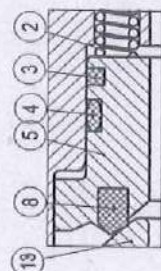
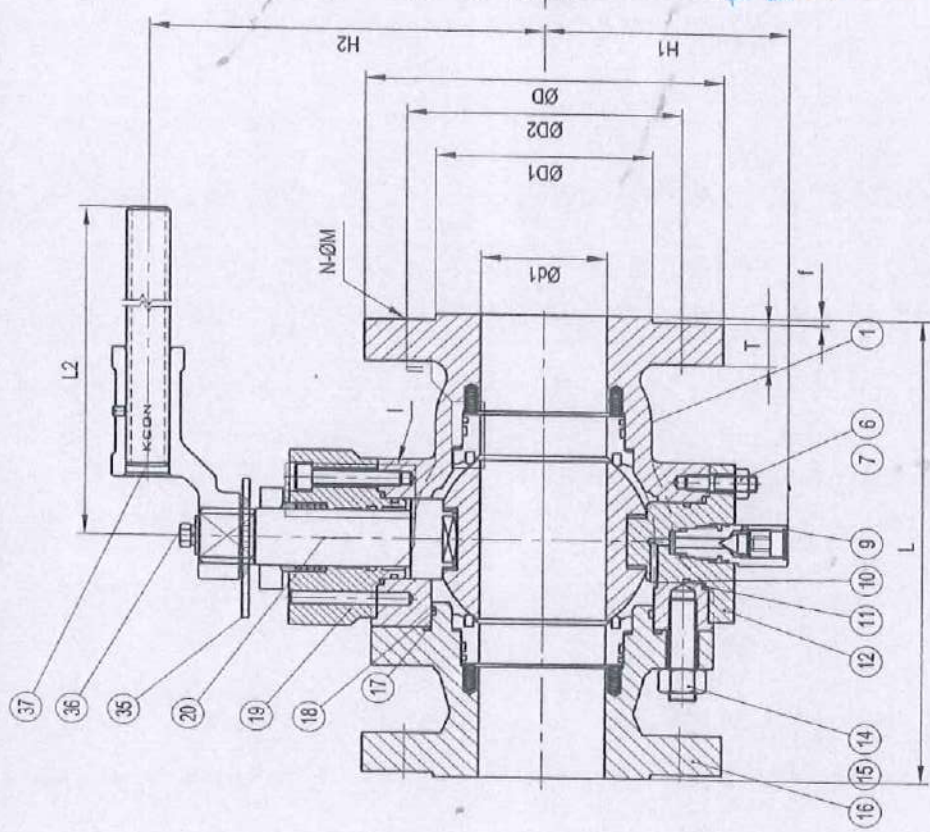
Inspection results

Date of test:

| 试验项目 Inspection item | 试验操作情况 Test operating conditions |
|---------------------------|---|
| 火烧试验 Fire test | 1、热电偶和测温块 阀门处于关闭位置且水平安装, 阀杆处于水平位置, 在阀门外共布置了 2 个测量火焰温度的热电偶和 2 个测温块。阀门的下侧和阀杆两处各布置 1 个热电偶和 1 个测温块。 |
| | 2、热电偶温度 点火后, 阀门下侧处火焰热电偶在火烧 2 分钟时温度达到 775.0℃; 阀杆处火焰热电偶在火烧 2 分钟时温度达到 768.1℃。 在火烧剩余期间, 阀门下侧处火焰热电偶的温度保持在 800.7℃~899.1℃ 之间; 阀杆处火焰热电偶的温度保持在 766.0℃~834.2℃ 之间。 |
| | 3、测温块温度 点火后, 阀门下侧处测温块的温度在 8.5 分钟时升至 650℃ 以上; 阀杆处测温块的温度在 6.5 分钟时升至 650℃ 以上。 |
| | 4、试验期间水压力 阀门进口端水压力保持在 1.50MPa~1.54MPa, 无瞬时压力损失。 |
| | 5、冷却 喷水强制冷却, 在火烧结束后 5 分钟, 阀门表面温度降到 100℃ 以下。 |
| 低压试验 Low pressure test | 阀门进口端水压力保持在 0.20MPa, 阀门处于关闭状态, 保持压力 5 分钟后进行检漏。 |
| 操作试验 Operational test | 在 1.5MPa 压差下打开试验阀门, 阀门达到半开启状态, 排空管道和试验阀门体腔内的空气和水蒸汽, 再保持试验阀和管道中压力 1.5MPa, 5 分钟后检测试验阀门的外部泄漏。 |

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| Dimensions in Millimetres | | | | | | | | | | | | | |
|---------------------------|-------|-----|-----|-----|-------|-----|------|-----|-------|-----|-----|-----|-----|
| Size | Class | Ød1 | L | ØD | ØD1 | ØD2 | T | f | N-ØM | H1 | H2 | L1 | L2 |
| 4" | 150LB | 100 | 229 | 229 | 190.5 | 157 | 22.3 | 1.5 | 8-Ø19 | 165 | 245 | 295 | 650 |



TUV SUD Industrie Service GmbH
 reviewed
 witnessed
 by *Cher Guichon*
 dated 2014-7-7
 View I

| NO. | PART NAME | MATERIAL | CONDITION |
|-----|-------------------------|----------------|-------------|
| 40 | | | |
| 39 | | | |
| 38 | | | |
| 37 | Lever | Carbon Steel | Zinc Plated |
| 36 | Ball | A183 B7 | |
| 35 | Stopper | Carbon Steel | Zinc Plated |
| 34 | Clear Flange | A216 WCB | |
| 33 | Ball | A183 B7 | |
| 32 | Thrust Bearing | SS304 | PTFE Coated |
| 31 | O Ring | VITON | |
| 30 | Spiral Wound Gasket | SS316+Graphite | |
| 29 | Bearing | SS304 | PTFE Coated |
| 28 | Ball | A183 B7 | |
| 27 | Back Ring | R.PTFE | |
| 26 | O Ring | VITON | |
| 25 | Gland Packing | Graphite | |
| 24 | Gland | A276 304 | |
| 23 | Seat Greaser | Carbon Steel | Zinc Plated |
| 22 | Anti-Static Spring Ball | SS304 | |
| 21 | Stem Greaser | Carbon Steel | Zinc Plated |
| 20 | Stem | A29 4140+ENP | |
| 19 | Seal Ring | A105+ENP | |
| 18 | O Ring | VITON | |
| 17 | Spiral Wound Gasket | SS316+Graphite | |
| 16 | Closure | A216 WCB | |
| 15 | Nut | A194 2H | |
| 14 | Stud | A193 B7 | |
| 13 | Ball | A105+ENP | |
| 12 | Lower Stem | A29 4140+ENP | |
| 11 | Spiral Wound Gasket | SS316+Graphite | |
| 10 | O Ring | VITON | |
| 9 | Drain Valve | Assembly | |
| 8 | Seat | R.PTFE | |
| 7 | Nut | A194 2H | |
| 6 | Stud | A183 B7 | |
| 5 | Seal Ring | A105 | ENP |
| 4 | O Ring | VITON | |
| 3 | Gasket | Graphite | |
| 2 | Spring | Inconel X750 | |
| 1 | Body | A216 WCB | |

| NOTE | | | |
|------------------------|-------------------------------|----------------------------|------------------------|
| DESIGN: | API 6D | END CONNECTION: | FLANGE RF - ANSI B16.5 |
| END TO END: | ANSI B16.10 | ANTI BLOW STEM: | EQUIPPED |
| FIRE SAFE: | API 6FAAP607 | ANTI STATIC DEVICE: | EQUIPPED |
| INSPECTION: | API 598 | LEAKAGE RATE: | |
| SOUR SERVICE: | | | |
| CLIENT: | | | |
| CLIENT REF. NO.: | | | |
| PROJECT: | Trunnion Ball Valve Full Bore | | |
| JOB NO.: | CP14027KD | Drawing NO. KHE-4-14027-12 | REV: 0 |
| DRAWN: | CHECK: | APPROVE: | DATE: |
| BY: <i>[Signature]</i> | BY: <i>[Signature]</i> | BY: <i>[Signature]</i> | 2014-05-28 |

KCON SICHUAN KCON VALVE MANUFACTURING CO., LTD.



Industrie Service

CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA Third Edition, April 1999

Certificate No.: 220583

Ref. Test report No.: 220582

Name and postal address of manufacturer: **SICHUAN KCON VALVE MFG. CO., LTD.**
 Section 3, Shenzhen Road, Guanghan Industrial Zone,
 PC: 618300, Guanghan City, Sichuan Province,
 P. R. China

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA Third Edition, April 1999. The testing results of valves meet the requirements of API SPEC 6FA.

1. Description of Test Valve :

| | |
|--------------------------------|--|
| Type of Test Valve | 4" 600LB Full Bore Trunnion Ball Valve |
| Description of Valve | Ball Valve |
| Valve Size (NPS) | 4" |
| Pressure Rating (ANSI Class) | Class 600 |
| Valve Body Material | ASTM A216 WCB |

2. Qualified Range of Valves :

| | |
|---|---|
| Type | 4"-600Lb Ball Valve |
| Description of Valves | Ball Valves |
| Qualified Sizes (NPS) <i>(according to API 6FA Table 2)</i> | 4" , 6" , 8" |
| Qualified Pressure Ratings (Class) <i>(according to API 6FA Table 3)</i> | 600; 900 |
| Qualified Marking <i>(according to API 6FA Para.7)</i> | Qualified valves shall be permanently marked: 6FA |
| Remark: the technical data of test valve see back of this certificate appendix 1. | |

This certificate is issued according to API SPEC 6FA Third Edition, April 1999, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA Third Edition, April 1999, Para.4.8.

Shanghai, July 22, 2014
 (Place, date)


TÜV SÜD-Industrie Service GmbH



Industrie Service

Appendix 1:

Certificate No.: 220583

Ref. Test report No.: 220582

**Name and postal address of manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province,
P. R. China**

Technical Data of Valve

1. Type of Test Valve: 4" 600LB Full Bore Trunnion Ball Valve

2. Description of Test Valve: Ball Valve

3. Details of Valve:

| Part Name | Valves Size (NPS) Material |
|---------------------|---------------------------------|
| | 4" |
| Body | ASTM A216 WCB |
| Closure | ASTM A216 WCB |
| Ball | ASTM A105+ENP |
| Upper Stem | ASTM A29 4140+ENP |
| Lower Sten | ASTM A29 4140+ENP |
| Bolt | ASTM A193 B7 |
| Stud | ASTM A193 B7 |
| Nut | ASTM A194 2H |
| Spring | Inconel X750 |
| O Ring | VITON |
| Seat | NYLON |
| Seal Ring | ASTM A105+ENP |
| Gland Packing | Graphite |
| Design Drawing No.: | KHE-4-14027-10 Rev.0 |

Shanghai, July 22, 2014
(Place, date)

TÜV SÜD Industrie Service GmbH
Shanghai Office
No.88 Heng Tong Road,
Shanghai 200070 P. R. China



TÜV SÜD Industrie Service GmbH

Tel.: +86 21 6141-0123
Fax: + 86 21 6140-8600

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2012002883Z



(2012)国认监认字(349)号

No: 2014FM529

检 验 报 告

Inspection Report



检测
CNAS L1598

TOV SÜD Industrie Service GmbH

reviewed

witnessed

by Chen Guibin

dated 2014-7-10



产品名称: 球 阀

PRODUCT:

委托单位: 四川精控阀门制造有限公司

CLIENT:

生产单位: 四川精控阀门制造有限公司

MANUFACTURER:

检验类别: 委托检验

INSPECTION TYPE:

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告


Inspection Report

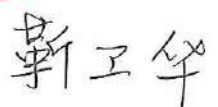
No 2014FM529

共 4 页 第 1 页 Page 1 of 4 pages

| | | | | | |
|---|---|---------------------------------|-------------------------|------------------------|---|
| 产品名称 Product | 球 阀 | | 型号规格 Model | 4" -300LB | |
| | | | 商 标 Trademark | / | |
| 委托单位 Client | 四川精控阀门制造有限公司 | | 检验类别 Inspection type | 委托检验 | |
| 生产单位 Manufacturer | 四川精控阀门制造有限公司 | | 样品等级 Grade of sample | / | |
| 生产单位地址 Address | 四川省广汉市深圳路西三段 | | 抽样日期 Sampling date | / | |
| 抽样地点 Sampling location | / | | 到样日期 Reaching date | 2014年7月7日 | |
| 样品数量 Quantity of samples | 1台 | 抽样基数 Base number of sampling | / | 抽样者 Sampling person | / |
| 原样品编号 Serial number of original sample | / | | 样品编号 Sample number | 2014 阀字 1304 | |
| 检验依据 Inspection basis | API 6FA-1999 《阀门耐火试验规范》。 | | | | |
| 检验项目 Inspection items | 耐火试验（火烧试验、低压试验、操作试验）。 | | | | |
| 检验结论 Inspection conclusion | <p>经检验，所检项目的检验结果符合 API 6FA-1999 标准的要求。 测试数据见检验结果（附表）。</p> <p style="text-align: right;">签发日期: 2014年7月15日 Date of issue:</p> | | | | |
| 备注 Remarks | / | | | | |

批准: 
Approver:

审核: 
Reviewer:

主检: 
Chief inspector:

合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

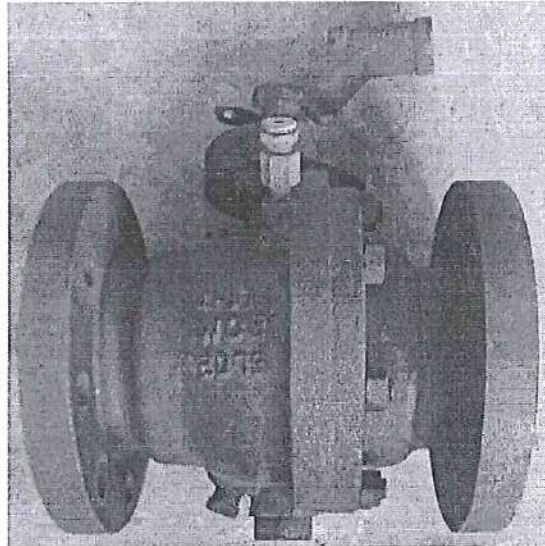
检 验 报 告
Inspection Report

No 2014FM529

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检验样品外观照片:

Photo of the inspected sample:



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检验报告 Inspection Report

No. 2014FM529

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检验结果 (附表)

检验日期: 2014年7月10日

Inspection results

Date of test:

| 检验项目 Inspection item | 单位 Unit | 铭牌参数 Nameplate parameter | 技术要求 Technical requirements | 检验数据 Inspected data | 单项评价 Single-item evaluation |
|-------------------------|--|-----------------------------|--|--|--------------------------------|
| 耐火试验 | / | / | 阀门进口端水压力 3.7 ± 0.37MPa, 火烧持续时间 30.0min。火烧期间, 阀门密封面泄漏率应 ≤ 400mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率应 ≤ 100mL/in./min。 | 火烧期间, 阀门密封面泄漏率: 29.2mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率: 9.0mL/in./min。 | 符合要求 |
| | | | 阀门进口端水压力 0.34 ± 0.034MPa, 持续 5min 后, 进行 5min 的阀门密封面泄漏试验和阀门外泄漏试验。 阀门密封面泄漏率应 ≤ 40mL/in./min; 阀门外泄漏率应 ≤ 20mL/in./min。 | 阀门密封面泄漏率: 0mL/in./min; 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| | | | 阀门进口端水压力 3.7 ± 0.37MPa, 持续 5min 后, 进行 5min 的阀门密封外泄漏试验, 泄漏率应 ≤ 200mL/in./min。 | 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| 备注 Remarks | 该阀密封副类型为金属/非金属, 公称尺寸为 4", 压力级为 Class300。 | | | | |

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合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告

Inspection Report

No 2014FM529

共 4 页 第 4 页 Page 4 of 4 pages

检验结果 (附表)

检验日期: 2014 年 7 月 10 日

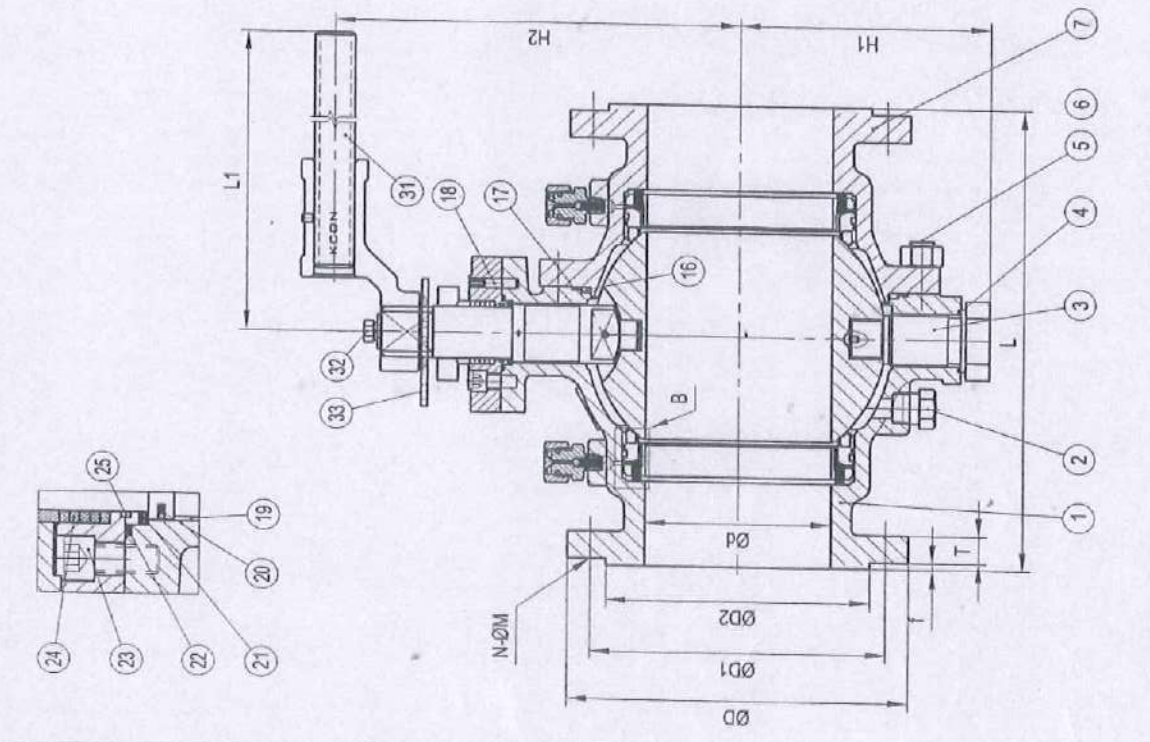
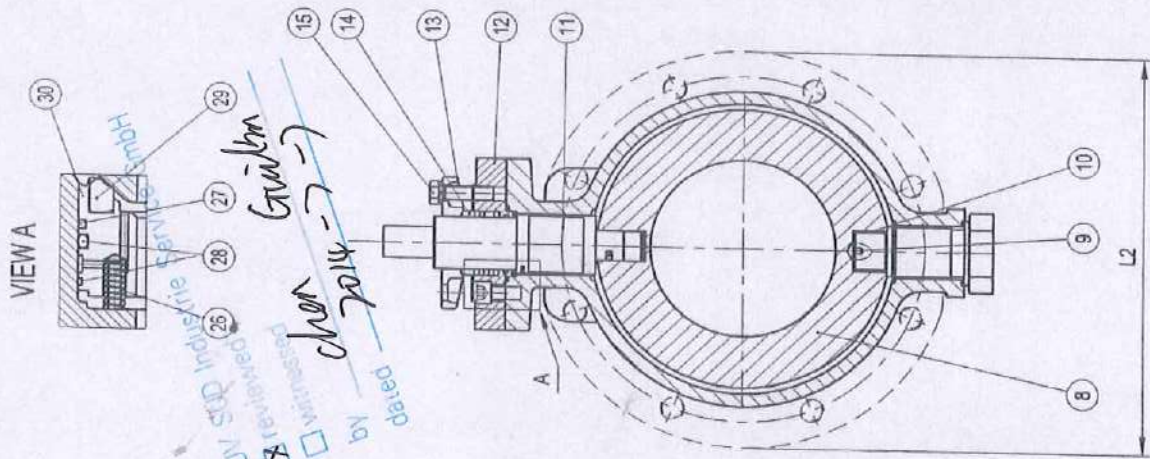
Inspection results

Date of test:

| 试验项目 Inspection item | 试验操作情况 Test operating conditions |
|---------------------------|---|
| 火烧试验 Fire test | 1、热电偶和测温块 阀门处于关闭位置且水平安装, 阀杆处于水平位置, 在阀门外共布置了 2 个测量火焰温度的热电偶和 2 个测温块。阀门的下侧和阀杆两处各布置 1 个热电偶和 1 个测温块。 |
| | 2、热电偶温度 点火后, 阀门下侧处火焰热电偶在火烧 2 分钟时温度达到 770.1℃; 阀杆处火焰热电偶在火烧 2 分钟时温度达到 800.1℃。 在火烧剩余期间, 阀门下侧处火焰热电偶的温度保持在 765.9℃~954.7℃ 之间; 阀杆处火焰热电偶的温度保持在 803.4℃~852.2℃ 之间。 |
| | 3、测温块温度 点火后, 阀门下侧处测温块的温度在 8.5 分钟时升至 650℃ 以上; 阀杆处测温块的温度在 8.0 分钟时升至 650℃ 以上。 |
| | 4、试验期间水压力 阀门进口端水压力保持在 3.67MPa~3.75MPa, 无瞬时压力损失。 |
| | 5、冷却 喷水强制冷却, 在火烧结束后 4 分钟, 阀门表面温度降到 100℃ 以下。 |
| 低压试验 Low pressure test | 阀门进口端水压力保持在 0.34MPa, 阀门处于关闭状态, 保持压力 5 分钟后进行检漏。 |
| 操作试验 Operational test | 在 3.7MPa 压差下打开试验阀门, 阀门达到半开启状态, 排空管道和试验阀门体腔内的空气和水蒸汽, 再保持试验阀和管道中压力 3.7MPa, 5 分钟后检测试验阀门的外部泄漏。 |

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| Dimensions in Millimetres | | | | | | | | | | | | | |
|---------------------------|-------|-----|-----|-----|-----|-------|------|-----|-------|-----|-----|-----|-----|
| Size | Class | Ød | L | ØD | T | J | N-ØM | H1 | H2 | L1 | L2 | | |
| 4" | 300LB | 102 | 305 | 255 | 200 | 157.2 | 30.2 | 1.6 | 3-Ø52 | 140 | 245 | 700 | 262 |



| NO. | PART NAME | MATERIAL | CONDITION |
|-----|-------------------------|----------------|-------------|
| 40 | | | |
| 39 | | | |
| 38 | | | |
| 37 | | | |
| 36 | | | |
| 35 | | | |
| 34 | | | |
| 33 | Stopper | Carbon Steel | Zinc Plated |
| 32 | Blot | A193 B7 | |
| 31 | Lever | Carbon Steel | Zinc Plated |
| 30 | Seal Ring | A105-ENP | |
| 29 | Seat | PTFE | |
| 28 | O Ring | VITON | |
| 27 | Gasket | Graphite | |
| 26 | Spring | Inconel X750 | |
| 25 | O Ring | VITON | |
| 24 | Gland Packing | Graphite | |
| 23 | Bolt | A193 B7 | |
| 22 | Sprial Wound Gasket | SS316+Graphite | |
| 21 | Thrust Bearing | A276 304 | PTFE Coated |
| 20 | Anti-Static Spring/Ball | A276 304 | |
| 19 | Stem Bearing | A276 304 | PTFE Coated |
| 18 | Pin | A276 304 | |
| 17 | Sprial Wound Gasket | SS316+Graphite | |
| 16 | O Ring | VITON | |
| 15 | Bolt | A193 B7 | |
| 14 | Gland | A276 304 | |
| 13 | Gland Flange | A216 WCB | |
| 12 | Operator Flange | A105 | Zinc Plated |
| 11 | Upper Stem | A29 4140-ENP | |
| 10 | Lower Stem Bearing | A276 304 | PTFE Coated |
| 9 | Thrust Bearing | A276 304 | PTFE Coated |
| 8 | Ball | A105-ENP | |
| 7 | Closure | A216 WCB | |
| 6 | Nut | A194 2H | |
| 5 | Stud | A193 B7 | |
| 4 | Sprial Wound Gasket | SS316+Graphite | |
| 3 | Lower Stem | A29 4140-ENP | |
| 2 | Drain Plug | Carbon Steel | Zinc Plated |
| 1 | Body | A216 WCB | |

| DESIGN : | | API 6D | END CONNECTION : | FLANGE RF - ANSI B16.5 |
|-------------------|--|--------------|----------------------|------------------------|
| END TO END : | | ANSI B16.10 | ANTI BLOW STEM : | EQUIPPED |
| FIRESAFE : | | API 6FAFP907 | ANTI STATIC DEVICE : | EQUIPPED |
| INSPECTION : | | API 598 | LEAKAGE RATE : | |
| SOUR SERVICE : | | | | |
| CLIENT : | | | | |
| CLIENT REF. NO. : | | | | |
| PROJECT : | | | | |

| JOB NO. : | | CP14027KD | Drawing NO. : | KHE-4-14027-11 | REV. : | 0 |
|-----------|---------|-----------|---------------|----------------|------------|---|
| DRAWN : | CHECK : | | APPROVE : | | DATE : | |
| BY : | BY : | | | | 2014-05-28 | |

Trunnion Ball Valve Full Bore

KCON SICHUAN KCON VALVE MANUFACTURING CO., LTD.

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Test Report

(Valve fugitive emission test according to ISO15848-1: 2015+Amd.1:2017)

Certificate No. :267733
Test Report No.:267732

Applicant / Manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province, P. R. China

Inspection body: TÜV SÜD Industrie Service GmbH
Floor 3-13, No.151, Heng Tong Road, Shanghai, P. R. China

Lab of test: SICHUAN KCON VALVE MFG. CO., LTD. (Test Laboratory)

Test Date: December 12-13 2019

Description of valves: JKD115-L002N1-3" A150 RTJ Forged Steel Ball Valve

Size: 3"

Pressure Rating: Class 1500

Drawing No.: QSD03007-0000 REV.0

Test Witnessed By: CHEN Gullin / TÜV SÜD Inspector

Inspection and Tests

1. Conformity of Equipment

The test equipment was verified by TÜV SÜD inspector according to requirements of ISO15848-1:2015+Amd.1:2017 and found satisfactory. The detailed arrangement of the fugitive emission test equipment is shown below:

Figure 1 Typical stem seal leakage measurement system with Vacuum Method

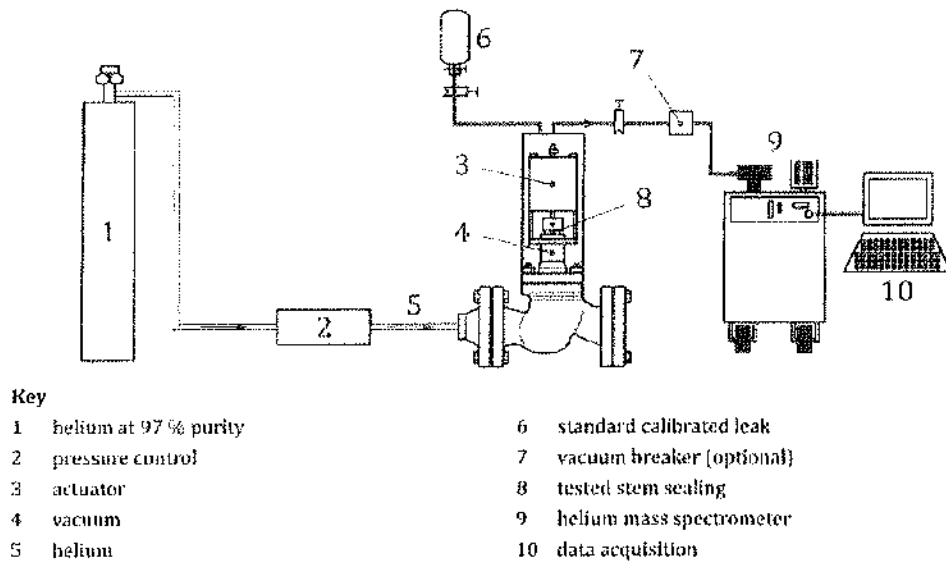
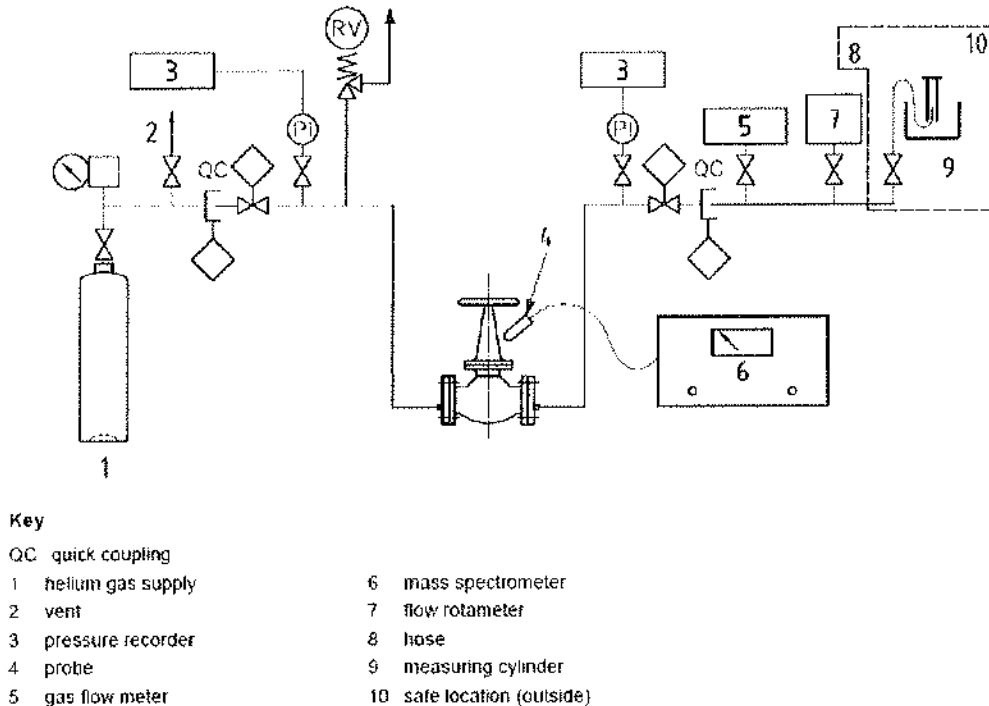


Figure 2 Typical body seal leakage measurement system with Sniffing Method



Test Report No.:267732

2. Document review

The specific product data file provided by the valve manufacturer includes:

- a) cross sectional valve assembly drawing;
- b) bill of valve material
- c) stem or shaft seal description, dimension and specifications;
- d) body seal description, dimension and specifications;
- e) material specifications of stem or shaft seal components;
- f) hydrostatic test certificate.

The above documents are reviewed with no objection.

3. Technical Data of Test Valve:

a) General description of test valve

| | |
|----------------------------|---|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD115-L002N1-3" A150 RTJ Forged Steel Ball Valve |
| Valve size | 3" |
| Pressure rating | Class 1500 |
| Stem size | Ø35 mm |
| Body/bonnet material | ASTM A350 LF2 |
| Seal material | Graphite + VITON AED O-Ring |
| Valve assembly drawing no. | QSD03007-0000 REV.0 |

4. Visual and dimensional check of the test valve:

The test valve was chosen at random by the manufacturer in its workshop and submitted to the laboratory. The visual and dimensional check was performed according to drawing No.: QSD03007-0000 REV.0 and results found satisfactory. The mark was verified on valve as following:

| | | | |
|---------------------|-----------|-------------|------------|
| <u>KCON</u> | <u>3"</u> | <u>1500</u> | <u>LF2</u> |
| Manufacturer' Brand | Size | Class | Material |

The stem size was measured as Ø35mm.

5. Preparation of the test valve:

Before the fugitive emission test, the test valve was hydrostatic tested under 384bar, the test showed no visible leakage or deformation. Then the valve was cleaned and dried.



Test Report No.:267732

6. Calibration of test instrument

The test instrument was turned on, warmed up at the minimum time according to the requirements of the equipment manufacturer and calibrated with the standard calibrated leak 100% helium according to the procedure specified in Annex A, Para.A.1.4.2 of ISO15848-1:2015+Amd.1:2017.

7. Fugitive emission test and measurement

The test valve was mounted on a test rig with the stem positioned vertical. And the fugitive emission test is carried out as per requirement of ISO15848-1:2015+Amd.1:2017 Para.5.

7.1 Preliminary tests at room temperature (test 1)

The valve was pressurized with test fluid Helium to 25.6MPa according to manufacturer's requirements in the partly opened position, the temperature at locations "X"/"Y"/"Z" are measure and recorded as room temperature.

The stem seal leakage measurement was performed by the Vacuum method as described in ISO15848-1 Annex A.

The body seal leakage measurement was performed by the sniffing method as described in ISO15848-1 Annex B.

The test results are as follows:

Test results of preliminary tests

| Item | ISO15848-1 Required Value | Actual Value |
|-------------------------|----------------------------|----------------------|
| Stem leakage (mbar.l/s) | $\leq 6.24 \times 10^{-6}$ | 0.2×10^{-6} |
| Body seal leakage(ppmv) | ≤ 50 | 0.1 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017.

7.2 Mechanical cycle test at the room temperature (test 2/3/4/5/6)

A total of 1500 mechanical cycles was performed on the test valve while it was kept pressurized under a differential pressure of 25.6MPa according to the manufacturer's requirements at room temperature. The pressure should be improved and kept at 25.6MPa to measure the leakage, and then the leakage from the stem seal and from the valve body seal were both measured with following results:

Test results of final tests

| Item | ISO15848-1 Required Value | Actual Value |
|--|----------------------------|----------------------|
| Stem leakage (mbar.l/s)after 50 cycles | $\leq 6.24 \times 10^{-6}$ | 0.2×10^{-6} |
| Stem leakage (mbar.l/s)after 100 cycles | $\leq 6.24 \times 10^{-6}$ | 0.2×10^{-6} |
| Stem leakage (mbar.l/s)after 150 cycles | $\leq 6.24 \times 10^{-6}$ | 0.4×10^{-6} |
| Stem leakage (mbar.l/s)after 200 cycles | $\leq 6.24 \times 10^{-6}$ | 0.4×10^{-6} |
| Stem leakage (mbar.l/s)after 205 cycles | $\leq 6.24 \times 10^{-6}$ | 0.4×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 0.1 |
| Stem leakage (mbar.l/s)after 1000 cycles | $\leq 6.24 \times 10^{-6}$ | 0.8×10^{-6} |
| Stem leakage (mbar.l/s)after 1500 cycles | $\leq 6.24 \times 10^{-6}$ | 0.8×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 0.1 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017

8. Post test examination

Test Report No.:267732

After all the above tests completed, the test valve was disassembled and all sealing components visually examined. It is found that no notable wear and any other significant observations.

9. Performance classes

As a result of the above tests, the test valve covered performance classes as follows:

ISO FE AH – CO2 –SSA 0 – tRT – CL1500 – ISO 15848-1

10. Extension of qualification to untested valves shall be according to ISO15848-1:2015+Amd.1:2017 paragraph 8.

We, hereby declare that I have checked test valve and witnessed the fugitive emission test on the tested valve according to ISO15848-1:2015+Amd.1:2017. The test results are as mentioned in this report.

TÜV SÜD Industrie Service GmbH


Chen Guilin



Date: February 17, 2020

Annexes:

- 1) Copy of Drawing No.: QSD03007-0000 REV.0;
- 2) Test Report of Fugitive Emission Test No. JK20191213-01.



Test Report

(Valve fugitive emission test according to ISO15848-1: 2015+Amd.1:2017)

Certificate No. :267735

Test Report No.:267734

Applicant / Manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.

Section 3, Shenzhen Road, Guanghan Industrial Zone,

PC: 618300, Guanghan City, Sichuan Province, P. R. China

Inspection body: TÜV SÜD Industrie Service GmbH

Floor 3-13, No.151, Heng Tong Road, Shanghai, P. R. China

Lab of test: SICHUAN KCON VALVE MFG. CO., LTD. (Test Laboratory)

Test Date: December 10-12, 2019

Description of valves: JKD115-C002N1-8" A150 RTJ Forged Steel Ball Valve

Size: 8"

Pressure Rating: Class 1500

Drawing No.: QTD08007-0000 REV.0

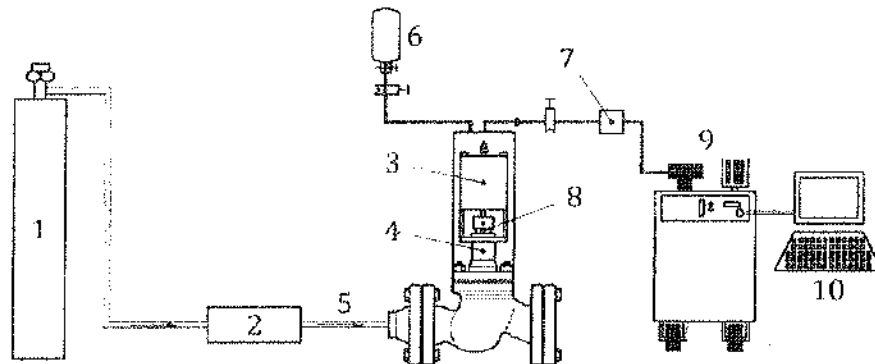
Test Witnessed By: CHEN Guilin / TÜV SÜD Inspector

Inspection and Tests

1. Conformity of Equipment

The test equipment was verified by TÜV SÜD inspector according to requirements of ISO15848-1:2015+Amd.1:2017 and found satisfactory. The detailed arrangement of the fugitive emission test equipment is shown below:

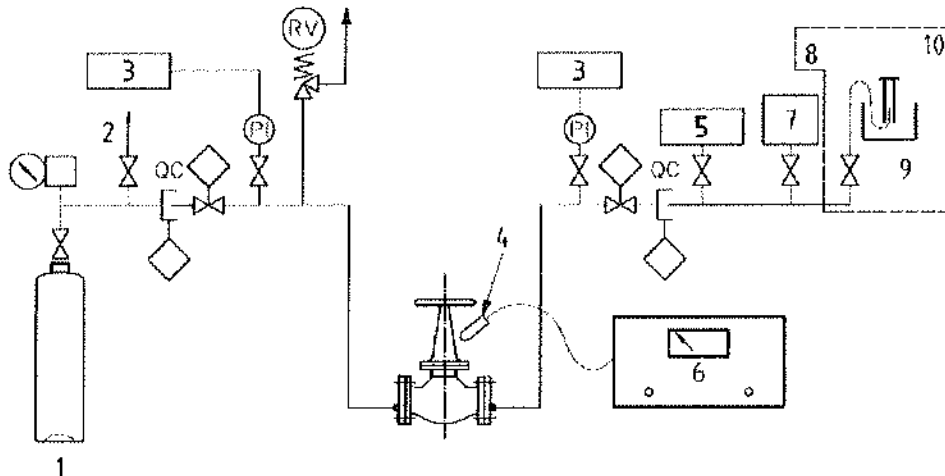
Figure 1 Typical stem seal leakage measurement system with Vacuum Method



Key

- | | |
|-------------------------|-----------------------------|
| 1 helium at 97 % purity | 6 standard calibrated leak |
| 2 pressure control | 7 vacuum breaker (optional) |
| 3 actuator | 8 tested stem sealing |
| 4 vacuum | 9 helium mass spectrometer |
| 5 helium | 10 data acquisition |

Figure 2 Typical body seal leakage measurement system with Sniffing Method



Key

- | | |
|---------------------|----------------------------|
| QC quick coupling | 6 mass spectrometer |
| 1 helium gas supply | 7 flow rotameter |
| 2 vent | 8 hose |
| 3 pressure recorder | 9 measuring cylinder |
| 4 probe | 10 safe location (outside) |
| 5 gas flow meter | |



Test Report No.:267734

2. Document review

The specific product data file provided by the valve manufacturer includes:

- a) cross sectional valve assembly drawing;
- b) bill of valve material
- c) stem or shaft seal description, dimension and specifications;
- d) body seal description, dimension and specifications;
- e) material specifications of stem or shaft seal components;
- f) hydrostatic test certificate.

The above documents are reviewed with no objection.

3. Technical Data of Test Valve:

a) General description of test valve

| | |
|----------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD115-C002N1-8" A150 RTJ Forged Steel Ball Valve |
| Valve size | 8" |
| Pressure rating | Class 1500 |
| Stem size | Φ70 mm |
| Body/bonnet material | ASTM A105 |
| Seal material | Graphite + VITON AED O-Ring |
| Valve assembly drawing no. | QTD08007-0000 REV.0 |

4. Visual and dimensional check of the test valve:

The test valve was chosen at random by the manufacturer in its workshop and submitted to the laboratory. The visual and dimensional check was performed according to drawing No.: QTD08007-0000 REV.0 and results found satisfactory. The mark was verified on valve as following:

| | | | |
|---------------------|-----------|-------------|-------------|
| <u>KCON</u> | <u>8"</u> | <u>1500</u> | <u>A105</u> |
| Manufacturer' Brand | Size | Class | Material |

The stem size was measured as Ø70mm.

5. Preparation of the test valve:

Before the fugitive emission test, the test valve was hydrostatic tested under 384bar, the test showed no visible leakage or deformation. Then the valve was cleaned and dried.

Test Report No.:267734

6. Calibration of test instrument

The test instrument was turned on, warmed up at the minimum time according to the requirements of the equipment manufacturer and calibrated with the standard calibrated leak 100% helium according to the procedure specified in Annex A, Para.A.1.4.2 of ISO15848-1:2015+Amd.1:2017.

7. Fugitive emission test and measurement

The test valve was mounted on a test rig with the stem positioned vertical. And the fugitive emission test is carried out as per requirement of ISO15848-1:2015+Amd.1:2017 Para.5.

7.1 Preliminary tests at room temperature (test 1)

The valve was pressurized with test fluid Helium to 25.6MPa according to manufacturer's requirements in the partly opened position, the temperature at locations "X"/"Y"/"Z" are measure and recorded as room temperature.

The stem seal leakage measurement was performed by the Vacuum method as described in ISO15848-1 Annex A.

The body seal leakage measurement was performed by the sniffing method as described in ISO15848-1 Annex B.

The test results are as follows:

Test results of preliminary tests

| Item | ISO15848-1 Required Value | Actual Value |
|-------------------------|----------------------------|----------------------|
| Stem leakage (mbar.l/s) | $\leq 1.25 \times 10^{-5}$ | 3.2×10^{-6} |
| Body seal leakage(ppmv) | ≤ 50 | 0.1 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017.

7.2 Mechanical cycle test at the room temperature (test 2/3/4/5/6)

A total of 1500 mechanical cycles was performed on the test valve while it was kept pressurized under a differential pressure of 25.6MPa according to the manufacturer's requirements at room temperature. The pressure should be improved and kept at 25.6MPa to measure the leakage, and then the leakage from the stem seal and from the valve body seal were both measured with following results:

Test results of final tests

| Item | ISO15848-1 Required Value | Actual Value |
|--|----------------------------|----------------------|
| Stem leakage (mbar.l/s)after 50 cycles | $\leq 1.25 \times 10^{-5}$ | 3.2×10^{-6} |
| Stem leakage (mbar.l/s)after 100 cycles | $\leq 1.25 \times 10^{-5}$ | 3.2×10^{-6} |
| Stem leakage (mbar.l/s)after 150 cycles | $\leq 1.25 \times 10^{-5}$ | 4.2×10^{-6} |
| Stem leakage (mbar.l/s)after 200 cycles | $\leq 1.25 \times 10^{-5}$ | 4.0×10^{-6} |
| Stem leakage (mbar.l/s)after 205 cycles | $\leq 1.25 \times 10^{-5}$ | 4.2×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 0.2 |
| Stem leakage (mbar.l/s)after 1000 cycles | $\leq 1.25 \times 10^{-5}$ | 6.0×10^{-6} |
| Stem leakage (mbar.l/s)after 1500 cycles | $\leq 1.25 \times 10^{-5}$ | 8.0×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 0.3 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017

8. Post test examination



Test Report No.:267734

After all the above tests completed, the test valve was disassembled and all sealing components visually examined. It is found that no notable wear and any other significant observations.

9. Performance classes

As a result of the above tests, the test valve covered performance classes as follows:

ISO FE AH – CO2 –SSA 0 – tRT – CL1500 – ISO 15848-1

10. Extension of qualification to untested valves shall be according to ISO15848-1:2015+Amd.1:2017 paragraph 8.

We, hereby declare that I have checked test valve and witnessed the fugitive emission test on the tested valve according to ISO15848-1:2015+Amd.1:2017. The test results are as mentioned in this report.

TÜV SÜD Industrie Service GmbH


Chen Guilin



Date: February 17, 2020

Annexes:

- 1) Copy of Drawing No.: QTD08007-0000 REV.0;
- 2) Test Report of Fugitive Emission Test No. JK20191212-01.



Test Report

(Valve fugitive emission test according to ISO15848-1: 2015+Amd.1:2017)

Certificate No. :279983

Test Report No.:279982

Applicant / Manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province, P. R. China

Inspection body: TÜV SÜD Industrie Service GmbH
Floor 3-13, No.151, Heng Tong Road, Shanghai, P. R. China

Lab of test: SICHUAN KCON VALVE MFG. CO., LTD. (Test Laboratory)

Test Date: August 16-20, 2021

Description of valves: JKD125FW-L0053R4-16" A250 RTJ Ball Valve
Size: 16"
Pressure Rating: Class 2500
Drawing No.: HTD16008-0000 Rev.0

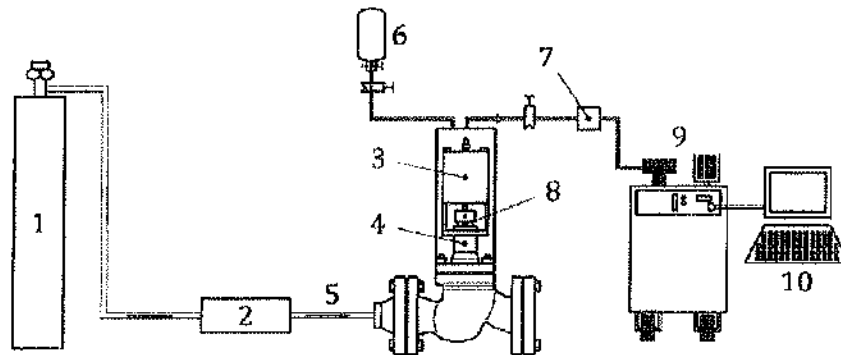
Test Witnessed By: CHEN Guilin / TÜV SÜD Inspector

Inspection and Tests

1. Conformity of Equipment

The test equipment was verified by TÜV SÜD inspector according to requirements of ISO15848-1:2015+Amd.1:2017 and found satisfactory. The detailed arrangement of the fugitive emission test equipment is shown below:

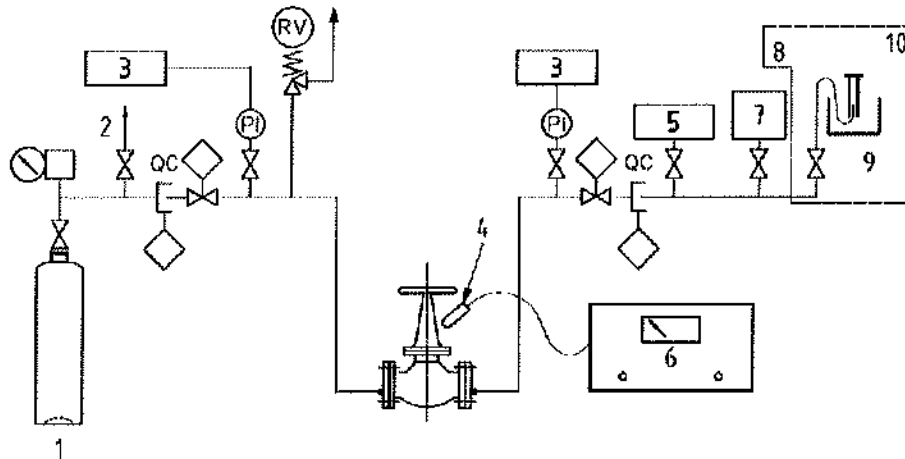
Figure 1 Typical stem seal leakage measurement system with Vacuum Method



Key

- | | |
|-------------------------|-----------------------------|
| 1 helium at 97 % purity | 6 standard calibrated leak |
| 2 pressure control | 7 vacuum breaker (optional) |
| 3 actuator | 8 tested stem sealing |
| 4 vacuum | 9 helium mass spectrometer |
| 5 helium | 10 data acquisition |

Figure 2 Typical body seal leakage measurement system with Sniffing Method



Key

- | | |
|---------------------|----------------------------|
| QC quick coupling | 6 mass spectrometer |
| 1 helium gas supply | 7 flow rotameter |
| 2 vent | 8 hose |
| 3 pressure recorder | 9 measuring cylinder |
| 4 probe | 10 safe location (outside) |
| 5 gas flow meter | |



Test Report No.:279982

2. Document review

The specific product data file provided by the valve manufacturer includes:

- a) cross sectional valve assembly drawing;
- b) bill of valve material
- c) stem or shaft seal description, dimension and specifications;
- d) body seal description, dimension and specifications;
- e) material specifications of stem or shaft seal components;
- f) hydrostatic test certificate.

The above documents are reviewed with no objection.

3. Technical Data of Test Valve:

a) General description of test valve

| | |
|----------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD125FW-L0053R4-16" A250 RTJ Ball Valve |
| Valve size | 16" |
| Pressure rating | Class 2500 |
| Stem size | Φ120 mm |
| Body/bonnet material | ASTM A350 LF2 CL1 |
| Seal material | VITON AED O-Ring and Graphite |
| Valve assembly drawing no. | HTD16008-0000 Rev.0 |

4. Visual and dimensional check of the test valve:

The test valve was chosen at random by the manufacturer in its workshop and submitted to the laboratory. The visual and dimensional check was performed according to drawing No.: HTD16008-0000 Rev.0 and results found satisfactory. The mark was verified on valve as following:

| | | | |
|---------------------|------------|-------------|------------|
| <u>KCON</u> | <u>16"</u> | <u>2500</u> | <u>LF2</u> |
| Manufacturer` Brand | Size | Class | Material |

The stem size was measured as Ø120mm.

5. Preparation of the test valve:

Before the fugitive emission test, the test valve was hydrostatic tested under 646bar, the test showed no visible leakage or deformation. Then the valve was cleaned and dried.

6. Calibration of test instrument

The test instrument was turned on, warmed up at the minimum time according to the requirements of the equipment manufacturer and calibrated with the standard calibrated leak 100% helium according to the procedure specified in Annex A, Para.A.1.4.2 of ISO15848-1:2015+Amd.1:2017.





Test Report No.:279982

7. Fugitive emission test and measurement

The test valve was mounted on a test rig with the stem positioned vertical. And the fugitive emission test is carried out as per requirement of ISO15848-1:2015+Amd.1:2017 Para.5.

7.1 Preliminary tests at room temperature (test 1)

The valve was pressurized with test fluid Helium to 42.6MPa according to manufacturer's requirements in the partly opened position, the temperature at locations "X"/"Y"/"Z" are measure and recorded as room temperature.

The stem seal leakage measurement was performed by the Vacuum method as described in ISO15848-1 Annex A.

The body seal leakage measurement was performed by the sniffing method as described in ISO15848-1 Annex B.

The test results are as follows:

Test results of preliminary tests

| Item | ISO15848-1 Required Value | Actual Value |
|-------------------------|----------------------------|----------------------|
| Stem leakage (mbar.l/s) | $\leq 8.91 \times 10^{-6}$ | 1.4×10^{-6} |
| Body seal leakage(ppmv) | ≤ 50 | 2.8 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017.

7.2 Mechanical cycle test at the room temperature (test 2/3/4/5/6)

A total of 205 mechanical cycles was performed on the test valve while it was kept pressurized under a differential pressure of 42.6MPa according to the manufacturer's requirements at room temperature.

The pressure should be improved and kept at 42.6MPa to measure the leakage, and then the leakage from the stem seal and from the valve body seal were both measured with following results:

Test results of final tests

| Item | ISO15848-1 Required Value | Actual Value |
|--|----------------------------|----------------------|
| Stem leakage (mbar.l/s)after 50 cycles | $\leq 8.91 \times 10^{-6}$ | 1.8×10^{-6} |
| Stem leakage (mbar.l/s)after 100 cycles | $\leq 8.91 \times 10^{-6}$ | 3.3×10^{-6} |
| Stem leakage (mbar.l/s)after 150 cycles | $\leq 8.91 \times 10^{-6}$ | 3.8×10^{-6} |
| Stem leakage (mbar.l/s)after 200 cycles | $\leq 8.91 \times 10^{-6}$ | 4.8×10^{-6} |
| Stem leakage (mbar.l/s)after 205 cycles | $\leq 8.91 \times 10^{-6}$ | 4.9×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 5.2 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017

8. Post test examination

After all the above tests completed, the test valve was disassembled and all sealing components visually examined. It is found that no notable wear and any other significant observations.

9. Performance classes

As a result of the above tests, the test valve covered performance classes as follows:

ISO FE AH – CO1 –SSA 0 – tRT – CL2500 – ISO 15848-1

10. Extension of qualification to untested valves shall be according to ISO15848-1:2015+Amd.1:2017 paragraph 8.





Test Report No.:279982

We, hereby declare that I have checked test valve and witnessed the fugitive emission test on the tested valve according to ISO15848-1:2015+Amd.1:2017. The test results are as mentioned in this report.

TÜV SÜD Industrie Service GmbH

Chen Guilin



Chen Guilin

Date: August 26, 2021

Annexes:

- 1) Copy of Drawing No.: HTD16008-0000 Rev.0;
- 2) Test Report of Fugitive Emission Test No. JK20210820-03.

ISO 15848-1 QUALIFICATION CERTIFICATE



Certificate No.: 279983
Ref. Test report No.: 279982

We hereby certify that the valve below has passed the fugitive emission test successfully according to Class AH of ISO15848-1:2015+Amd.1:2017 for a total of 205 cycles.

| | |
|-----------------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD125FW-L0053R4-16" A250 RTJ Ball Valve |
| Valve size | 16" |
| Pressure rating | Class 2500 |
| Stem size | Φ120 mm |
| Body/bonnet material | ASTM A350 LF2 CL1 |
| Seal material | VITON AED O-Ring and Graphite |
| Valve assembly drawing no. | HTD16008-0000 Rev.0 |

The tested valve covers performance class (para.6.6):

ISO FE AH – CO1 – SSA 0 – tRT – CL2500 – ISO 15848-1

Extension of qualification (in particular) to untested valves in accordance with paragraph 8 of ISO15848-1.

Other stem sizes qualified: 60 mm up to 240 mm

Other pressure ranges qualified: Class 2500 and lower

This certificate must be read in conjunction with test report No.:279982

Shanghai, August 26, 2021
(Place, date)

Guilin Chen

TÜV SÜD Industrie Service GmbH
 Westendstr. 199
 80686 München Germany

TÜV SÜD Industrie Service GmbH
 Shanghai Office
 Floor 3-13, No.151, Heng Tong Road,
 Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
 Fax: + 86 21 6140-8600

ISO 15848-1 QUALIFICATION CERTIFICATE



Certificate No.: 267733
Ref. Test report No.: 267732

We hereby certify that the valve below has passed the fugitive emission test successfully according to Class AH of ISO15848-1:2015+Amd.1:2017 for a total of 1500 cycles.

| | |
|-----------------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD115-L002N1-3" A150 RTJ Forged Steel Ball Valve |
| Valve size | 3" |
| Pressure rating | Class 1500 |
| Stem size | Φ35 mm |
| Body/bonnet material | ASTM A350 LF2 |
| Seal material | Graphite + VITON AED O-Ring |
| Valve assembly drawing no. | QSD03007-0000 REV.0 |

The tested valve covers performance class (para.6.6):

ISO FE AH – CO2 – SSA 0 – tRT – CL1500 – ISO 15848-1

Extension of qualification (in particular) to untested valves in accordance with paragraph 8 of ISO15848-1.

Other stem sizes qualified: 17.5 mm up to 70 mm

Other pressure ranges qualified: Class 1500 and lower

This certificate must be read in conjunction with test report No.:267732

Shanghai, February 17, 2020
(Place, date)



Guilin Chen

TÜV SÜD Industrie Service GmbH
 Westendstr. 199
 80686 München Germany

TÜV SÜD Industrie Service GmbH
 Shanghai Office
 Floor 3-13, No.151, Heng Tong Road,
 Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
 Fax: + 86 21 6140-8600

ISO 15848-1 QUALIFICATION CERTIFICATE



Certificate No.: 267735
Ref. Test report No.:267734

We hereby certify that the valve below has passed the fugitive emission test successfully according to Class AH of ISO15848-1:2015+Amd.1:2017 for a total of 1500 cycles.

| | |
|-----------------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD115-C002N1-8" A150 RTJ Forged Steel Ball Valve |
| Valve size | 8" |
| Pressure rating | Class 1500 |
| Stem size | Φ70 mm |
| Body/bonnet material | ASTM A105 |
| Seal material | Graphite + VITON AED O-Ring |
| Valve assembly drawing no. | QTD08007-0000 REV.0 |

The tested valve covers performance class (para.6.6):

ISO FE AH – CO2 – SSA 0 – tRT – CL1500 – ISO 15848-1

Extension of qualification (in particular) to untested valves in accordance with paragraph 8 of ISO15848-1.

Other stem sizes qualified: 35 mm up to 140 mm

Other pressure ranges qualified: Class 1500 and lower

This certificate must be read in conjunction with test report No.: 267734

Shanghai, February 17, 2020
(Place, date)


Guilin Chen
TÜV SÜD Industrie Service GmbH
 Westendstr. 199
 80686 München Germany

TÜV SÜD Industrie Service GmbH
 Shanghai Office
 Floor 3-13, No.151, Heng Tong Road,
 Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
 Fax: + 86 21 6140-8600



Industrie Service

CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA Third Edition, April 1999

Certificate No.: 220571

Ref. Test report No.: 220570

Name and postal address of manufacturer: **SICHUAN KCON VALVE MFG. CO., LTD.**
 Section 3, Shenzhen Road, Guanghan Industrial Zone,
 PC: 618300, Guanghan City, Sichuan Province,
 P. R. China

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA Third Edition, April 1999. The testing results of valves meet the requirements of API SPEC 6FA.

1. Description of Test Valve :

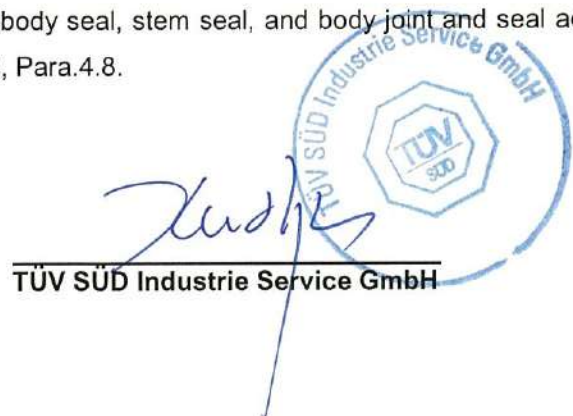
| | |
|--------------------------------|--|
| Type of Test Valve | 2" 150LB Full Bore Trunnion Ball Valve |
| Description of Valve | Ball Valve |
| Valve Size (NPS) | 2" |
| Pressure Rating (ANSI Class) | Class 150 |
| Valve Body Material | ASTM A216 WCB |

2. Qualified Range of Valves :

| | |
|---|---|
| Type | 2"-150Lb Ball valve |
| Description of Valves | Ball valves |
| Qualified Sizes (NPS) <i>(according to API 6FA Table 2)</i> | 2", 2½ ", 3", 4" |
| Qualified Pressure Ratings (Class) <i>(according to API 6FA Table 3)</i> | 150; 300 |
| Qualified Marking <i>(according to API 6FA Para.7)</i> | Qualified valves shall be permanently marked: 6FA |
| Remark: the technical data of test valve see back of this certificate appendix 1. | |

This certificate is issued according to API SPEC 6FA Third Edition, April 1999, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA Third Edition, April 1999, Para.4.8.

Shanghai, July 22, 2014
 (Place, date)


TÜV SÜD Industrie Service GmbH



Industrie Service

Appendix 1:

Certificate No.: 220571

Ref. Test report No.: 220570

**Name and postal address of manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province,
P. R. China**

Technical Data of Valve

1. Type of Test Valve: 2" 150LB Full Bore Trunnion Ball Valve

2. Description of Test Valve: Ball valve

3. Details of Valve:

| Part Name | Valves Size (NPS) Material |
|---------------------|---------------------------------|
| | 2" |
| Body | ASTM A216 WCB |
| Closure | ASTM A216 WCB |
| Ball | ASTM A105+ENP |
| Stem | ASTM A29 4140+ENP |
| Seat | RPTFE |
| Gland Packing | Graphite |
| Seal Ring | ASTM A105+ENP |
| Seat Ring | ASTM A105 |
| Stud | ASTM A193 B7 |
| Nut | ASTM A194 2H |
| O Ring | VITON |
| Low Stem | ASTM A29 4140+ENP |
| Design Drawing No.: | KHE-4-14027-2 Rev.0 |

Shanghai, July 22, 2014
(Place, date)

TÜV SÜD Industrie Service GmbH
Shanghai Office
No.88 Heng Tong Road,
Shanghai 200070 P. R. China



TÜV SÜD Industrie Service GmbH

Tel.: +86 21 6141-0123
Fax: + 86 21 6140-8600



2012002883Z



(2012)国认监认字(349)号

No: 2014FM524

检 验 报 告

Inspection Report



检测 TÜV SÜD Industrie Service GmbH
CNAS L1598

by Chen Guolin
dated 2014-7-9



产品名称: 球 阀
PRODUCT:

委托单位: 四川精控阀门制造有限公司
CLIENT:

生产单位: 四川精控阀门制造有限公司
MANUFACTURER:

检验类别: 委托检验
INSPECTION TYPE:

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute
 国家泵阀产品质量监督检验中心
 National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告 Inspection Report

No. 2014FM524

共 4 页 第 1 页 Page 1 of 4 pages

| | | | | |
|---|--|---------------------------------|-------------------------|------------------------|
| 产品名称 Product | 球 阀 | | 型号规格 Model | 2" -150LB |
| | | | 商 标 Trademark | / |
| 委托单位 Client | 四川精控阀门制造有限公司 | | 检验类别 Inspection type | 委托检验 |
| 生产单位 Manufacturer | 四川精控阀门制造有限公司 | | 样品等级 Grade of sample | / |
| 生产单位地址 Address | 四川省广汉市深圳路西三段 | | 抽样日期 Sampling date | / |
| 抽样地点 Sampling location | / | | 到样日期 Reaching date | 2014年7月7日 |
| 样品数量 Quantity of samples | 1 台 | 抽样基数 Base number of sampling | / | 抽样者 Sampling person |
| 原样品编号 Serial number of original sample | / | | 样品编号 Sample number | 2014 阀字 1299 |
| 检验依据 Inspection basis | API 6FA-1999 《阀门耐火试验规范》。 | | | |
| 检验项目 Inspection items | 耐火试验（火烧试验、低压试验、操作试验）。 | | | |
| 检验结论 Inspection conclusion | <p>经检验，所检项目的检验结果符合 API 6FA-1999 标准的要求。 测试数据见检验结果（附表）。</p> <p style="text-align: right;">签发日期：2014年7月15日 Date of issue:</p> | | | |
| 备注 Remarks | / | | | |

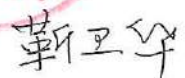
批准：
 Approver:



审核：
 Reviewer:



主检：
 Chief inspector:



合肥通用机电产品检测院有限公司
 Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
 National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告
Inspection Report

No 2014FM524

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检验结果 (附表)

检验日期: 2014 年 7 月 9 日

Inspection results

Date of test:

| 检验项目 Inspection item | 单位 Unit | 铭牌参数 Nameplate parameter | 技术要求 Technical requirements | 检验数据 Inspected data | 单项评价 Single-item evaluation |
|-------------------------|--|-----------------------------|--|---|--------------------------------|
| 耐火试验 | | / | 阀门进口端水压力 1.5 ± 0.15MPa, 火烧持续时间 30.0min。火烧期间, 阀门密封面泄漏率应 ≤ 400mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率应 ≤ 100mL/in./min。 | 火烧期间, 阀门密封面泄漏率: 6.0mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率: 6.3mL/in./min。 | 符合要求 |
| | / | / | 阀门进口端水压力 0.20 ± 0.020MPa, 持续 5min 后, 进行 5min 的阀门密封面泄漏试验和阀门外泄漏试验。 阀门密封面泄漏率应 ≤ 40mL/in./min; 阀门外泄漏率应 ≤ 20mL/in./min。 | 阀门密封面泄漏率: 0mL/in./min; 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| | / | / | 阀门进口端水压力 1.5 ± 0.15MPa, 持续 5min 后, 进行 5min 的阀门密封外泄漏试验, 泄漏率应 ≤ 200mL/in./min。 | 阀门外泄漏率: 25.0mL/in./min。 | 符合要求 |
| 备注 Remarks | 该阀密封副类型为金属/非金属, 公称尺寸为 2", 压力级为 Class150。 | | | | |

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合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告

Inspection Report

No 2014FM524

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检验结果 (附表)

检验日期: 2014年7月9日

Inspection results

Date of test:

| 试验项目 Inspection item | 试验操作情况 Test operating conditions |
|---------------------------|---|
| 火烧试验 Fire test | 1、热电偶和测温块 阀门处于关闭位置且水平安装, 阀杆处于水平位置, 在阀门外共布置了2个测量火焰温度的热电偶和2个测温块。阀门的下侧和阀杆两处各布置1个热电偶和1个测温块。 |
| | 2、热电偶温度 点火后, 阀门下侧处火焰热电偶在火烧2分钟时温度达到784.2℃; 阀杆处火焰热电偶在火烧2分钟时温度达到782.1℃。 在火烧剩余期间, 阀门下侧处火焰热电偶的温度保持在772.6℃~877.2℃之间; 阀杆处火焰热电偶的温度保持在767.2℃~846.3℃之间。 |
| | 3、测温块温度 点火后, 阀门下侧处测温块的温度在8.5分钟时升至650℃以上; 阀杆处测温块的温度在8.5分钟时升至650℃以上。 |
| | 4、试验期间水压力 阀门进口端水压力保持在1.41MPa~1.58MPa, 无瞬时压力损失。 |
| | 5、冷却 喷水强制冷却, 在火烧结束后5分钟, 阀门表面温度降到100℃以下。 |
| 低压试验 Low pressure test | 阀门进口端水压力保持在0.20MPa, 阀门处于关闭状态, 保持压力5分钟后进行检漏。 |
| 操作试验 Operational test | 在1.5MPa压差下打开试验阀门, 阀门达到半开启状态, 排空管道和试验阀门体腔内的空气和水蒸汽, 再保持试验阀和管道中压力1.5MPa, 5分钟后检测试验阀门的外部泄漏。 |

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| Dimensions in Millimetres | | | | | | | | | | | | | |
|---------------------------|-------|-----|-----|-----|-------|------|------|-----|-------|-----|-----|-----|-----|
| Size | Class | Ød1 | L | ØD | ØD1 | ØD2 | T | f | N-ØM | H1 | H2 | L1 | L2 |
| 2" | 150LB | 49 | 178 | 150 | 120.7 | 92.1 | 17.5 | 1.6 | 4-Ø19 | 116 | 196 | 200 | 400 |

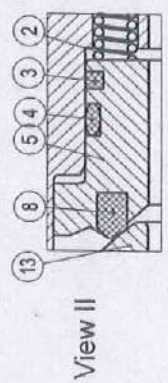
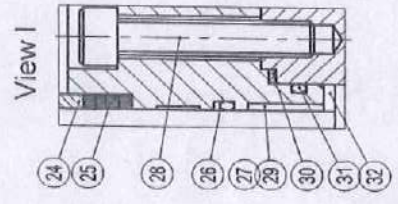
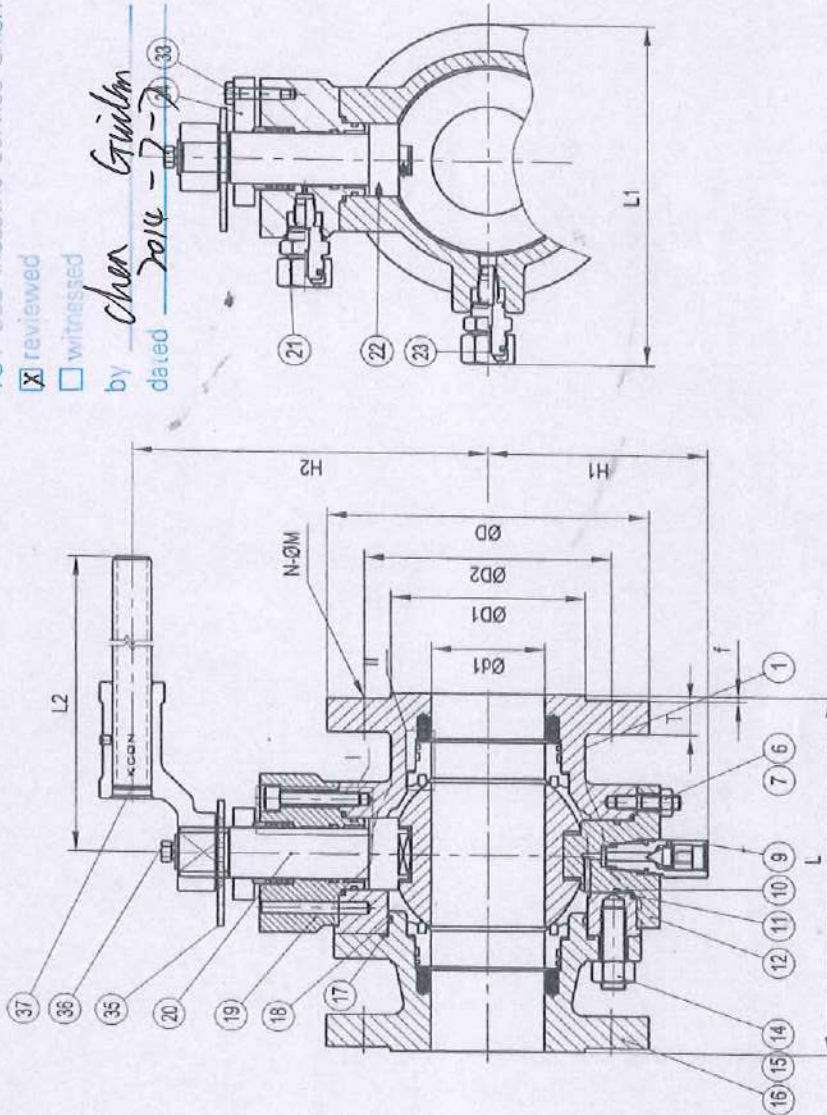
TUV SÜD Industrie Service GmbH

reviewed

witnessed

by *chen Guolin*

dated *2014-12-17*



| NO. | PART NAME | MATERIAL | CONDITION |
|-----|-------------------------|----------------|-------------|
| 40 | | | |
| 39 | | | |
| 38 | Lever | Carbon Steel | Zinc Plated |
| 37 | Ball | A193 B7 | |
| 36 | Stopper | Carbon Steel | Zinc Plated |
| 35 | Gland Flange | A216 WCB | |
| 34 | Bolt | A193 B7 | |
| 33 | Thrust Bearing | SS304 | PTFE Coated |
| 32 | O Ring | VITON | |
| 31 | Spiral Wound Gasket | SS316+Graphite | |
| 30 | Bearing | SS304 | PTFE Coated |
| 29 | Ball | A193 B7 | |
| 28 | Back Ring | R, PTFE | |
| 27 | O Ring | VITON | |
| 26 | Gland Packing | Graphite | |
| 25 | Gland | A276 304 | |
| 24 | Seat Greaser | Carbon Steel | Zinc Plated |
| 23 | Anti-Static Spring/Ball | SS304 | |
| 22 | Slam Greaser | Carbon Steel | Zinc Plated |
| 21 | Stem | A2B 4140+ENP | |
| 20 | O Ring | A105+ENP | |
| 19 | Spiral Wound Gasket | VITON | |
| 18 | Close | A216 WCB | |
| 17 | Nut | A194 2H | |
| 16 | Ball | A105+ENP | |
| 15 | Lower Stem | A2B 4140+ENP | |
| 14 | Spiral Wound Gasket | SS316+Graphite | |
| 13 | O Ring | VITON | |
| 12 | Assembly | | |
| 11 | R, PTFE | | |
| 10 | A194 2H | | |
| 9 | A193 B7 | | ENP |
| 8 | A105 | | |
| 7 | VITON | | |
| 6 | Graphite | | |
| 5 | Inconel X750 | | |
| 4 | A216 WCB | | |
| 3 | | | |
| 2 | | | |
| 1 | | | |

| NOTE | | | |
|------------------|-------------------------------|---------------------|------------------------|
| DESIGN: | API 6D | END CONNECTION: | FLANGE RF - ANSI B16.5 |
| END TO END: | ANSI B16.10 | ANTI BLOW STEM: | EQUIPPED |
| FIRESAFE: | API 6A/6B/67 | ANTI STATIC DEVICE: | EQUIPPED |
| INSPECTION: | API 606 | LEAKAGE RATE: | |
| SOUR SERVICE: | | | |
| CLIENT: | | | |
| CLIENT REF. NO.: | | | |
| PROJECT: | Trunnion Ball Valve Full Bore | | |
| JOB NO.: | CP14027KD | Drawing NO.: | KHE-4-14027-2 REV 0 |
| DRAWN: | CHECK | APPROVE: | DATE |
| BY: | | | 2014-05-28 |

KCON SICHUAN KCON VALVE MANUFACTURING CO., LTD.

合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

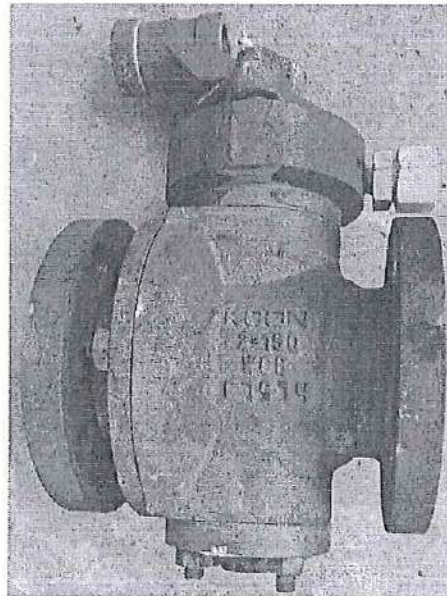
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检验样品外观照片:

Photo of the inspected sample:





Industrie Service

CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA Third Edition, April 1999

Certificate No.: 220573

Ref. Test report No.: 220572

Name and postal address of manufacturer: **SICHUAN KCON VALVE MFG. CO., LTD.**
 Section 3, Shenzhen Road, Guanghan Industrial Zone,
 PC: 618300, Guanghan City, Sichuan Province,
 P. R. China

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA Third Edition, April 1999. The testing results of valves meet the requirements of API SPEC 6FA.

1. Description of Test Valve :

| | |
|--------------------------------|--|
| Type of Test Valve | 2" 300LB Full Bore Trunnion Ball Valve |
| Description of Valve | Ball valve |
| Valve Size (NPS) | 2" |
| Pressure Rating (ANSI Class) | Class 300 |
| Valve Body Material | ASTM A216 WCB |

2. Qualified Range of Valves :

| | |
|---|---|
| Type | 2"-300Lb Ball valve |
| Description of Valves | Ball valves |
| Qualified Sizes (NPS) <i>(according to API 6FA Table 2)</i> | 2", 2½", 3", 4" |
| Qualified Pressure Ratings (Class) <i>(according to API 6FA Table 3)</i> | 300; 400; 600 |
| Qualified Marking <i>(according to API 6FA Para.7)</i> | Qualified valves shall be permanently marked: 6FA |
| Remark: the technical data of test valve see back of this certificate appendix 1. | |

This certificate is issued according to API SPEC 6FA Third Edition, April 1999, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA Third Edition, April 1999, Para.4.8.

Shanghai, July 22, 2014
 (Place, date)

TÜV SÜD Industrie Service GmbH





Industrie Service

Appendix 1:

Certificate No.: 220573

Ref. Test report No.: 220572

**Name and postal address of manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province,
P. R. China**

Technical Data of Valve

1. Type of Test Valve: 2" 300LB Full Bore Trunnion Ball Valve

2. Description of Test Valve: Ball valve

3. Details of Valve:

| Part Name | Valves Size (NPS) Material |
|---------------------|---------------------------------|
| | 2" |
| Body | ASTM A216 WCB |
| Body Cap | ASTM A216 WCB |
| Ball | ASTM A105+ENP |
| Stem | ASTM A29 4140+ENP |
| Seat | RPTFE |
| Gland Packing | Graphite |
| Spring | Inconel X750 |
| Seat Ring | ASTM A105+ENP |
| Stud | ASTM A193 B7 |
| Nut | ASTM A194 2H |
| O Ring | VITON |
| Lower Stem | ASTM A29 4140+ENP |
| Design Drawing No.: | KHE-4-14027-15 Rev.0 |

Shanghai, July 22, 2014
(Place, date)



TÜV SÜD Industrie Service GmbH

TÜV SÜD Industrie Service GmbH
Shanghai Office
No.88 Heng Tong Road,
Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
Fax: + 86 21 6140-8600



2012002883Z



(2012)国认监认字(349)号

No: 2014FM525

检 验 报 告

Inspection Report



CNAS L1598

SJD Industrie Service GmbH

reviewed

witnessed

by Chen Guilm
dated 2014-7-9



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产品名称: 球 阀
PRODUCT:

委托单位: 四川精控阀门制造有限公司
CLIENT:

生产单位: 四川精控阀门制造有限公司
MANUFACTURER:

检验类别: 委托检验
INSPECTION TYPE:

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute
 国家泵阀产品质量监督检验中心
 National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告 Inspection Report

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| | | | | |
|---|---|---------------------------------|-------------------------|------------------------|
| 产品名称 Product | 球 阀 | | 型号规格 Model | 2" -300LB |
| | | | 商 标 Trademark | / |
| 委托单位 Client | 四川精控阀门制造有限公司 | | 检验类别 Inspection type | 委托检验 |
| 生产单位 Manufacturer | 四川精控阀门制造有限公司 | | 样品等级 Grade of sample | / |
| 生产单位地址 Address | 四川省广汉市深圳路西三段 | | 抽样日期 Sampling date | / |
| 抽样地点 Sampling location | / | | 到样日期 Reaching date | 2014年7月7日 |
| 样品数量 Quantity of samples | 1 台 | 抽样基数 Base number of sampling | / | 抽样者 Sampling person |
| 原样品编号 Serial number of original sample | / | | 样品编号 Sample number | 2014 阀字 1300 |
| 检验依据 Inspection basis | API 6FA-1999 《阀门耐火试验规范》。 | | | |
| 检验项目 Inspection items | 耐火试验（火烧试验、低压试验、操作试验）。 | | | |
| 检验结论 Inspection conclusion | <p>经检验，所检项目的检验结果符合 API 6FA-1999 标准的要求。 测试数据见检验结果（附表）。</p> <p style="text-align: right;">签发日期: 2014年7月15日 Date of issue:</p> | | | |
| 备注 Remarks | / | | | |

批准:
 Approver:

(Signature)

审核:
 Reviewer:

(Signature)

主检:
 Chief inspector:

(Signature)



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合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告

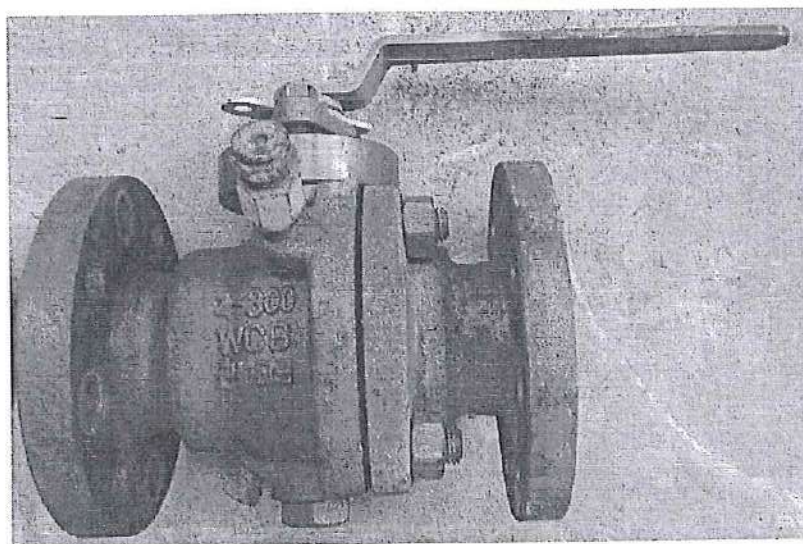
Inspection Report

No. 2014FM525

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检验样品外观照片:

Photo of the inspected sample:



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

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检验结果 (附表)

检验日期: 2014 年 7 月 9 日

Inspection results

Date of test:

| 检验项目 Inspection item | 单位 Unit | 铭牌参数 Nameplate parameter | 技术要求 Technical requirements | 检验数据 Inspected data | 单项评价 Single-item evaluation |
|-----------------------------------|--|-----------------------------|--|--|--------------------------------|
| 火烧试验 Fire test | / | / | 阀门进口端水压力 3.7 ± 0.37MPa, 火烧持续时间 30.0min。火烧期间, 阀门密封面泄漏率应 ≤ 400mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率应 ≤ 100mL/in./min。 | 火烧期间, 阀门密封面泄漏率: 13.3mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率: 7.9mL/in./min。 | 符合要求 |
| 耐火试验 低压试验 Low pressure test | / | / | 阀门进口端水压力 0.34 ± 0.034MPa, 持续 5min 后, 进行 5min 的阀门密封面泄漏试验和阀门外泄漏试验。 阀门密封面泄漏率应 ≤ 40mL/in./min; 阀门外泄漏率应 ≤ 20mL/in./min。 | 阀门密封面泄漏率: 0mL/in./min; 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| 操作试验 Operational test | / | / | 阀门进口端水压力 3.7 ± 0.37MPa, 持续 5min 后, 进行 5min 的阀门密封外泄漏试验, 泄漏率应 ≤ 200mL/in./min。 | 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| 备注 Remarks | 该阀密封副类型为金属/非金属, 公称尺寸为 2", 压力级为 Class300。 | | | | |

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合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告

Inspection Report

No 2014FM525

共 4 页 第 4 页 Page 4 of 4 pages

检验结果 (附表)

检验日期: 2014 年 7 月 9 日

Inspection results

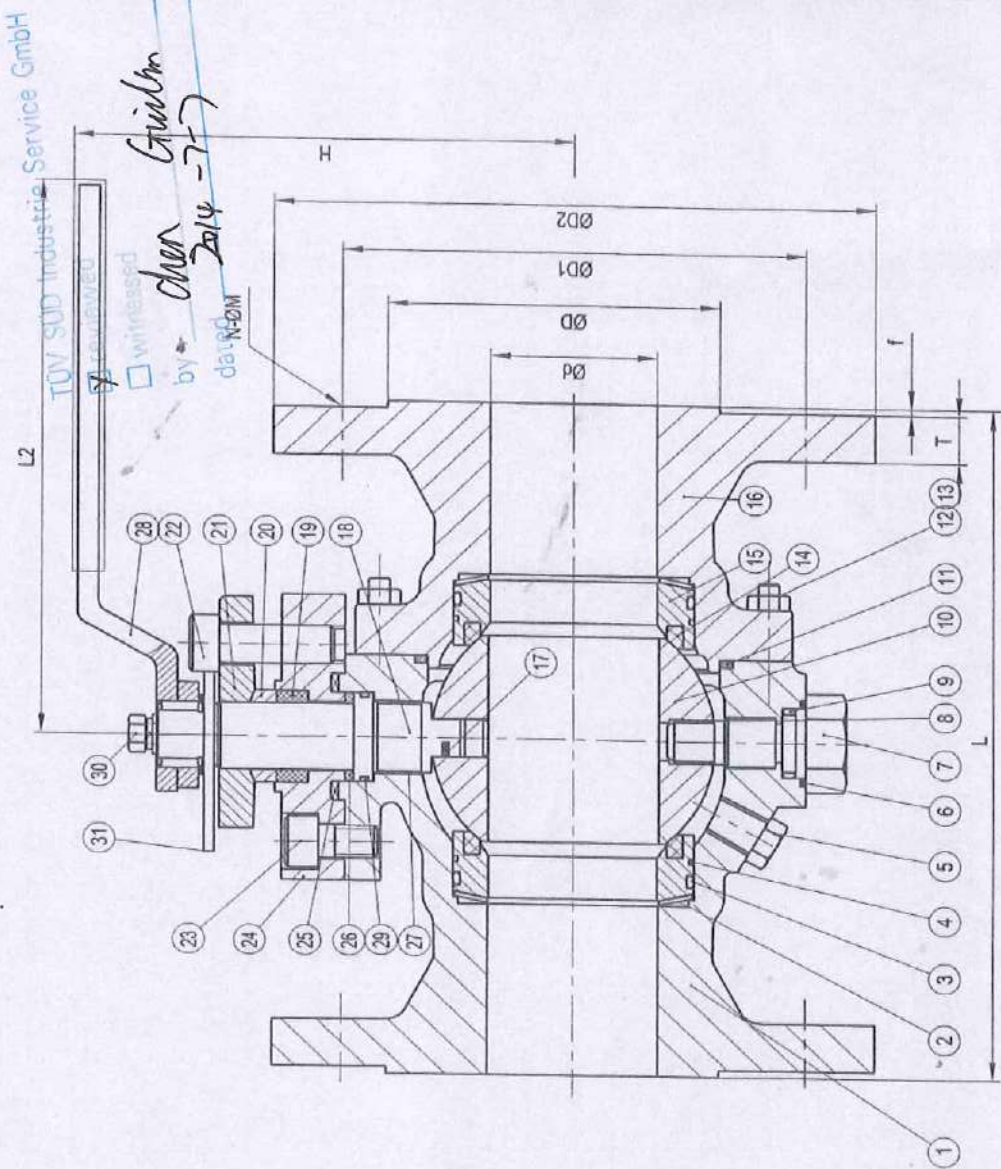
Date of test:

| 试验项目 Inspection item | 试验操作情况 Test operating conditions |
|---------------------------|---|
| 火烧试验 Fire test | 1、热电偶和测温块 阀门处于关闭位置且水平安装, 阀杆处于水平位置, 在阀门外共布置了 2 个测量火焰温度的热电偶和 2 个测温块。阀门的下侧和阀杆两处各布置 1 个热电偶和 1 个测温块。 |
| | 2、热电偶温度 点火后, 阀门下侧处火焰热电偶在火烧 2 分钟时温度达到 822.1℃; 阀杆处火焰热电偶在火烧 2 分钟时温度达到 832.6℃。 在火烧剩余期间, 阀门下侧处火焰热电偶的温度保持在 768.4℃~845.6℃ 之间; 阀杆处火焰热电偶的温度保持在 824.7℃~849.2℃ 之间。 |
| | 3、测温块温度 点火后, 阀门下侧处测温块的温度在 8.0 分钟时升至 650℃ 以上; 阀杆处测温块的温度在 7.0 分钟时升至 650℃ 以上。 |
| | 4、试验期间水压力 阀门进口端水压力保持在 3.69MPa~3.75MPa, 无瞬时压力损失。 |
| | 5、冷却 喷水强制冷却, 在火烧结束后 5 分钟, 阀门表面温度降到 100℃ 以下。 |
| 低压试验 Low pressure test | 阀门进口端水压力保持在 0.34MPa, 阀门处于关闭状态, 保持压力 5 分钟后进行检漏。 |
| 操作试验 Operational test | 在 3.7MPa 压差下打开试验阀门, 阀门达到半开启状态, 排空管道和试验阀门体腔内的空气和水蒸汽, 再保持试验阀和管道中压力 3.7MPa, 5 分钟后检测试验阀门的外部泄漏。 |

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Dimensions in Millimetres

| | | | | | | | | | | | |
|------|-------|----|-----|-----|-----|-----|------|-----|-------|-----|-----|
| Size | Class | Ød | L | ØD | ØD1 | ØD2 | T | I | N-ØM | L2 | H |
| 2" | 300LB | 50 | 216 | 165 | 127 | 92 | 30.7 | 1.6 | 8-Ø19 | 170 | 150 |



| NO. | PART NAME | MATERIAL | CONDITION |
|-----|---------------------|----------------|-------------|
| 31 | Stopper | Carbon Steel | Zinc Plated |
| 30 | Bit | A193 B7 | |
| 29 | O Ring | VITON | |
| 28 | Lever | Carbon Steel | Zinc Plated |
| 27 | Stem Bearing | A276 304 | PTFE Coated |
| 26 | Thrust Bearing | A276 304 | PTFE Coated |
| 25 | Gasket | Graphite | |
| 24 | Top Flange | Carbon Steel | Zinc Plated |
| 23 | Bolt | A193 B7 | |
| 22 | Bit | A193 B7 | |
| 21 | Gland Flange | A216 WCB | |
| 20 | Gland | A276 304 | |
| 19 | Gland Packing | Graphite | |
| 18 | Stem | A29 4140+ENP | |
| 17 | Anti-Static Spring | A276 304 | |
| 16 | Body Cap | A218 WCB | |
| 15 | Seal Ring | A105+ENP | |
| 14 | Seal | R PTFE | |
| 13 | Nut | A194 2H | |
| 12 | Stud | A193 B7 | |
| 11 | Spiral Wound Gasket | SS316+Graphite | |
| 10 | Ball | A105+ENP | |
| 9 | O Ring | VITON | |
| 8 | Lower Stem Bearing | A276 304 | PTFE Coated |
| 7 | Lower Stem | A29 4140+ENP | |
| 6 | Gasket | SS316+Graphite | |
| 5 | Drain Plug | Carbon Steel | Zinc Plated |
| 4 | Gasket | Graphite | |
| 3 | O Ring | VITON | |
| 2 | Spring | Inconel X750 | |
| 1 | Body | A216 WCB | |

DESIGN : A21 6D END CONNECTION : FLANGE RF - ANSI B16.5
 END TO END : ANSI B16.10 ANTI BLOW STEM : EQUIPPED
 FIRESAFE : API6FAAP1607 ANTI STATIC DEVICE : EQUIPPED
 INSPECTION : API 598 LEAKAGE RATE :
 SOUR SERVICE :
 CLIENT:
 CLIENT REF. NO.:
 PROJECT:

| | | | |
|--|-----------|---------------|----------------------|
| Trunnion Ball Valve | | Full Bore | |
| JOB NO. : | CP14027KD | Drawing NO. : | KHE-4-14027-15 REV 0 |
| DRAWN : | CHECK : | APPROVE : | DATE : |
| BY : | BY : | BY : | 2014-05-28 |
| KCON SICHUAN KCON VALVE MANUFACTURING CO., LTD. | | | |

Fișă tehnică: IT-RAMM - Robinet cu sferă, corp demontabil, montaj suprateran, acționare manuală cu indicare locală a poziției

| Nr. crt. | Specificațiile tehnice impuse prin Caietul de sarcini | Corespondența propunerii tehnice cu specificațiile tehnice impuse prin Caietul de sarcini | Producător |
|----------|---|---|------------|
| 0 | 1 | 2 | 3 |
| 1. | <p>Parametri tehnici și funcționali:</p> <ul style="list-style-type: none"> - Fluidul de lucru: - gaz natural cu densitatea (ρ) - 0,717 Kg / Nm³ - amestec de gaze naturale cu Hidrogen în proporție de 10%. - Clasa de presiune/Presiunea nominală: conform schema tehnologică - Diametru nominal: conform schema tehnologică - Temperatura mediului ambiant: conform schema tehnologică - Temperatura gazului: conform schema tehnologică - Presiunea maximă gaz în conductă: conform clasa presiune indicată Centralizator IT - Amplasare instalații tehnologice: exterioare - Montaj: suprateran, orizontal sau vertical - Se vor respecta prevederile: EN 12186:2015 Infrastructura pentru gaze. Stații de reglare a presiunii gazelor pentru transport și distribuție. Cerințe funcționale | <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> | |
| 2. | <p>Parametrii constructivi robinet:</p> <ul style="list-style-type: none"> - Conectare la instalația tehnologică: flanșe cu gât conform EN 1092-1 / flanșe cu gât conform ASME B 16.5 respectiv ASME 16.47 Seria B funcție de diametrul robinetului (robinetul se va livra cu contraflanșe, organe de ansamblare, garnituri). - Materialul conductei pe care se montează: L360NE conf. EN ISO 3183/2020 - Tratament specific organe de ansamblare: zincare la cald - Tip garnituri pentru flanșe: spirometalice cu umplutură de carbon conform ASME B 16.20 respectiv ASME 16.47 Seria B. - Dimensiuni constructive: conform ISO 14313 (API 6D) - Tip robinet: cu sferă "full bore" montaj trunnion conform EN 1983 - Tip DIB-1 conform API6D (ISO 14313) (la robinetele Dn≥150) - tip etanșare: PMSS - Material etanșare soft: PTFE / VITON. - Tip scaun de etanșare: DPE (Duble Piston Efect / Scaune bidirecționale la robinetele Dn≥150) | <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> <p style="text-align: center;">CONFORM</p> | |

| | | | |
|-------------|---|----------------|--|
| | - Corpul robinetului: oțel carbon sau oțel aliat, construcție demontabilă in trei părți conform EN 1983 | CONFORM | |
| | - Materialul tijeii: oțel aliat | CONFORM | |
| | - Material scaune de etanșare: oțel carbon cu acoperire metalică de înaltă rezistență cu carbură de tungsten (WC) | CONFORM | |
| | - Materialul sferei: oțel carbon cu acoperire metalică de înaltă rezistență cu carbură de tungsten (WC) | CONFORM | |
| | - Tip sferă conform EN 1983: bilă masivă (solid ball) dintr-o singură bucată | CONFORM | |
| | - Clasa B de etansare conform ISO 15848-1 (emisii în atmosferă) | CONFORM | |
| | - Protecție anticorozivă: vopsire, culoare: RAL 7044. | CONFORM | |
| | - Deschidere la Δp maxim | CONFORM | |
| 3. | Dotări minime: | | |
| | - Dispozitiv de blocare a desprinderii tijeii (Blow out proof stem) | CONFORM | |
| | - Dispozitiv antifoc și antistatic | CONFORM | |
| | - Etanșare ax acționare schimbabilă sub presiune | CONFORM | |
| | - Dispozitiv pentru purjare (la robinetele $Dn \geq 150$ mm) | CONFORM | |
| | - Sistem de injecție pastă de etanșare la obturator și ax de acționare (la robinetele $Dn \geq 150$ mm) | CONFORM | |
| | - Talpă de sprijin pentru montaj (la robinetele $Dn \geq 150$ mm) | CONFORM | |
| 4. | Acționare: | | |
| 4.1. | Caracteristici tehnice | | |
| | - Tip acționare: manuală, | CONFORM | |
| | - Montaj pe robinet tip: Sfert de tură | CONFORM | |
| | - Monitorizare capete de cursă prin contacte electrice montate în cutie Ex zonă 2, grad de protecție IP 67: Da | CONFORM | |
| | - Indicarea locală a poziției(indicator mecanic al poziției Închis/Deschis) : Da | CONFORM | |
| | - Sistem unități de măsură: Metric | CONFORM | |
| | - Montaj: Suprateran, | CONFORM | |
| | - Dispozitiv de blocare: Da (conform ISO 14313), | CONFORM | |
| | - Grad de protecție mecanică a acționarii: IP 67, | CONFORM | |
| | - Protecție anticorozivă: vopsea de înaltă rezistență culoare RAL 7044 | CONFORM | |
| 4.2. | Norme și aprobări solicitate pentru acționare. | | |
| | - Protecție mecanică (ANSI/IEC 60529): IP67M – documente doveditoare anexate la oferta tehnică, marcaj corespunzător la predarea produsului. | CONFORM | |
| 5. | Teste și certificări puse la dispoziția beneficiarului | | |
| | - Pentru robinet: Condiții generale conform ISO 14313. | | |
| | - Pentru robinet: Încercări suplimentare conform ISO 14313 Anexa B: <ul style="list-style-type: none"> • încercarea de etanșeitate cu gaze la presiune joasă (B3), | CONFORM | |

| | | | |
|-----------|--|----------------|--|
| | <ul style="list-style-type: none"> • încercarea de etanșeitate cu gaze la presiune înaltă (B4), • încercarea cavității la suprapresiune pentru tipul de robinet din comandă – DIB-1 (B11) – funcție de tipul robinetului din comandă. | | |
| | - Suduri conform API 1104, analiza îmbinărilor sudate cu radiații penetrante 100%. | CONFORM | |
| | - Test de capăt de cursă (0% închis, 100% deschis), | CONFORM | |
| | - Se vor avea în vedere cerințe prevăzute la punctul 4.2. "Norme și aprobări solicitate pentru acționare" | CONFORM | |
| 6. | Mod de ofertare: | | |
| | Documentația care va fi prezentată la ofertare: | | |
| | - Pentru producătorul robinetului: Certificatul de conformitate cu ISO 14313 (API 6D) | CONFORM | |
| | - Pentru tipul de robinet din ofertă: Certificat și raport de încercare la foc ("fire safe") conform ISO 10497 (API 607, API 6FA) | CONFORM | |
| | - Pentru produs: Certificat de tip CE, PED 2014/68/EU, privind stabilirea condițiilor pentru punerea pe piață a echipamentelor sub presiune; | CONFORM | |
| | - Rapoarte de comportare în exploatare de la beneficiar în calitate de utilizator final strict pentru tipul de produsul oferit, cu diametrul similar. | CONFORM | |
| | - Caracteristicile tehnice ale produselor oferite trebuie să fie identificate și evidențiate, în cataloage sau specificații tehnice de producător, strict pentru produsul oferit, aceste vor fi parte integrantă din oferta tehnică. Cataloage și specificații tehnice vor fi asumate de către ofertantul echipamentului (original sau copie conform cu originalul). | CONFORM | |
| | - Ofertantul are obligația de a face dovada conformității produsului care urmează să fie furnizat cu prezenta cerință tehnică. | CONFORM | |
| | - Se vor oferta și livra numai echipamente noi, de ultimă generație și originale, conform cu specificațiile și documentele specifice ale producătorului. Nu se vor oferta produse demo, recondiționate sau refuzate de alți beneficiari. | CONFORM | |
| 7. | Documentație care va însoți produsul | | |
| | Cartea tehnică a produsului (în limba română) | | |
| | - Fișa Tehnică (robinet/acționare), <ul style="list-style-type: none"> • coeficient de debit Cv sau Kv, • forța sau momentul maxim de acționare pentru robinetul în stare nouă, • forța sau momentul maxim admisibil la tija robinetului, • momentul maxim admisibil de intrare la reductor (unde este cazul), | CONFORM | |
| | - Instrucțiuni de montaj în instalație (robinet/acționare), | CONFORM | |

| | | | |
|------------|--|----------------|--|
| | - Instrucțiuni de punere în funcțiune și exploatare (robinet/acționare), | CONFORM | |
| | - Instrucțiuni de scoatere din funcțiune (robinet/acționare), | CONFORM | |
| | - Instrucțiuni/manuale de operare și întreținere (robinet/acționare), <ul style="list-style-type: none"> • operare, verificare etanșeități, • ungere, drenare, gresare, • cauze defecte, remedieri, verificări, • lista piese de schimb de mare uzură, | CONFORM | |
| | - Listă de componente și desene de ansamblu/subansamblu (secțiuni, detalii,) (robinet/acționare), | CONFORM | |
| | - Schemele de interconectare a acționării (funcție de tipul robinetului din comandă), | CONFORM | |
| | - Raport de Trasabilitate (robinet/acționare), | CONFORM | |
| | - Certificate /Teste Materiale componente, | CONFORM | |
| | - Certificate/Raport pentru Teste de presiune/etanșeitate, | CONFORM | |
| | - Certificate/ Teste protecții anticorozive. | CONFORM | |
| | - Buletine de analiză suduri. | CONFORM | |
| 8. | Marcare și identificare | | |
| | - Conform ISO 14313. Funcție de tipul robinetului din comandă, marcaje corespunzătoare punctului 4.3. "Norme și aprobări solicitate pentru acționare". | CONFORM | |
| 9. | Condiții de livrare: | | |
| | - Furnizorul robinetului va dimensiona și va livra inclusiv acționarea. | | |
| | - Robinetul se va livra complet echipat, cu acționarea montată. | CONFORM | |
| | - Produsele vor fi ambalate pentru a face față transportului, manipulării și depozitării până la destinația finală. | CONFORM | |
| | - Toate materialele de ambalare a produselor, precum și toate materialele necesare protecției coletelor (paleți de lemn, folii de protecție, etc.) vor rămâne în proprietatea achizitorului. | CONFORM | |
| | - Ofertantul va asigura integritatea produselor livrate, până la sediul achizitorului. | CONFORM | |
| | - Echipamentele livrate vor fi complet echipate cu toate accesoriile necesare pentru punerea în funcțiune și vor respecta cerințele impuse privind proiectarea și execuția instalațiilor tehnologice | CONFORM | |
| 10. | Condiții de garanție și postgaranție | | |
| | - Producătorul va garanta calitatea și buna funcționare a produsului timp de 24 luni de la punerea în funcțiune sau de 36 luni de la data livrării. | CONFORM | |
| 11. | Alte condiții: | | |

| | | | |
|--|--|--|--|
| | - Furnizorul va acorda asistență tehnică și instruirea personalului de exploatare după un program convenit de părți. | | |
| | - Beneficiarul va participa la probele de presiune după un program convenit de părți. | | |

PROIECTANT,

PRECIZARE:

1. Responsabilitatea completării coloanelor 2 și 3 revine ofertantului.
2. Toate cerințele din prezenta fișă tehnică sunt obligatorii.
3. Se vor considera edițiile în vigoare a normativelor și standardelor la care se fac referire.
4. În coloana 2 ofertantul va preciza corespondența între oferta tehnică și prezenta fișă tehnică.
5. În acest scop, ofertantul va preciza pentru fiecare solicitare din fișă tehnică (coloana 1): documentul, pagina, articolul/paragraful din oferta tehnică prin care se atestă îndeplinirea cerinței.
6. Oferta va conține un cuprins care va indica paginile unde se găsesc toate cerințele din fișă tehnică.
7. Ofertarea se va face în limba română. Ofertantul își asumă corectitudinea traducerii.

KCON®

Focus On Pipeline & Process Valve Solution

ROBINET CU SFERĂ ACȚIONAT MANUAL CU REDUCTOR SI INDICARE LOCALA A POZITIEI DN250 ANSI150

锻钢分体式球阀
FORGED SPLIT BODY BALL VALVE



四川精控阀门制造有限公司
SICHUAN KCON VALVE MFG. CO.,LTD.

**Specificație tehnică, robinet cu sferă, corp demontabil,
montaj suprateran cu acționare manuală și indicare locală a poziției**

1. Parametrii tehnici și funcționali

- a) Fluidul de lucru:
 - gaz natural conform SR 3317:2015 densitatea – 0.717 kg/ Nm³.
 - amestec de gaze naturale cu Hidrogen in proportie de 10%
- b) Clasa de presiune/ Presiunea nominală: PANSI150
- c) Diametru nominal: DN250.
- d) Temperatura mediului ambiant: în intervalul standard de temperatură –29°C și +60°C, ce cuprinde și intervalul solicitat între -29°C și + 55°C.
- e) Temperatura gazului: cuprinsă între -20°C și maxim + 55°C.
- f) Presiunea maximă gaz în conductă: 16 bar
- g) Amplasare instalații tehnologice: exterioare.
- h) Montaj: suprateran, orizontal sau vertical.
- i) Se vor respecta prevederile: SR EN 12186:2015 Infrastructură pentru gaze. Stații de reglare a presiunii gazelor pentru transport și distribuție. Cerințe funcționale.

2. Parametri constructivi robinet:

- a) Conectarea la instalația tehnologică: flanșe cu gât conform ASME B16.5 respectiv ASME 16.47 Seria B, sau flanșe cu gât conform SR EN 1092/1, funcție de diametrul robinetului (robinetul se va livra cu contraflanșe, organe de asamblare, garnituri)

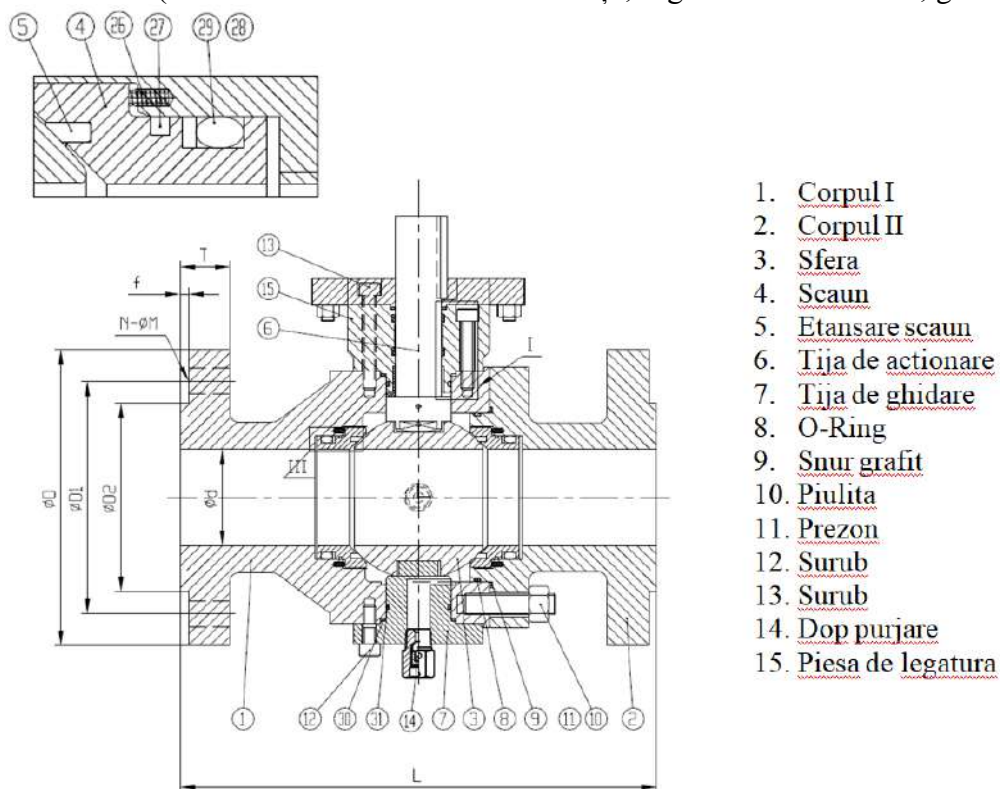


Figura. 1 - Tip robinet: Robinet în construcție demontabilă, montaj suprateran, conexiunea la proces cu flanșe ASME B16.5

- b) Materialul conductei pe care se montează: conform SR EN 3183
- c) Tratament specific organe de asamblare: zincare la cald.
- d) Tip garnituri pentru flanșe: spirometalice cu umplutură de carbon conform ASME B 16.20/ ASME B16.47.
- e) Dimensiuni constructive: conform API 6D .

| DN | Distanța față la față – îmbinare cu flanșe (mm) |
|-----------|---|
| 250 / 10" | B=533 mm |

- f) Tip robinet : cu sferă, cu trecere totala (full bore), montaj trunnion .

| DN | Deschidere minimă robineți cu trecere totală (mm) |
|-----------|---|
| 250 / 10" | A = Ø250 |

- g) Robinetul nu necesita DIB-1.
- h) Tip etanșare: PMSS (Primary Metal Secondary Soft) presupune etanșare cu garnitură (Soft) montată pe scaun de etanșare prelucrat astfel încât în lipsa etanșării soft să mențină funcționalitatea robinetului prin intermediul etanșării metal/metal.
- i) Material etanșare soft: PTFE / VITON
- j) Tip scaun de etanșare: SPE (simple piston efect/ scaune unidirecționale);

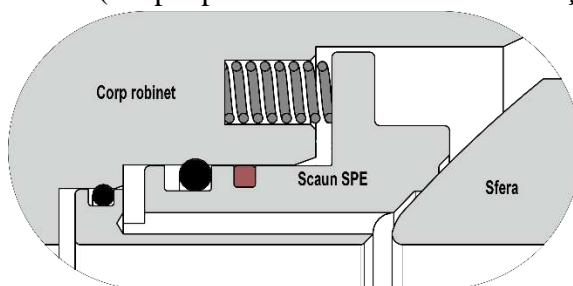


Figura. 2 - Scaun de etanșare tip SPE (Simple piston effect)

- k) Corpul robinetului: oțel carbon, construcție demontabilă in trei părți conform SR EN 1983
- l) Materialul tijei: oțel aliat - INOX
- m) Materialul sferei: oțel carbon cu acoperire metalică de înaltă rezistență în zona de etanșare cu carbură de tungsten (WC).
- n) Material scaune de etanșare: oțel carbon cu acoperire metalică de înaltă rezistență cu carbură de tungsten (WC).
- o) Tip sferă SR EN 1983: bila masiva (solid ball) dintr-o singură bucată
- p) Clasa B de etanșare conform ISO 15848-1 (emisii în atmosferă)
- q) Protecție anticorozivă: vopsire, culoare: RAL 7044.
- r) Deschidere la Δp maxim

3. Dotari minime:

- a) Protecție pentru blocarea desprinderii tijei (blow out proof stem).
- b) Dispozitiv antifoc si antistatic
- c) Etanșare ax, acționare schimbabilă sub presiune.
- d) Robinetul nu necesita racord auxiliar de purjare.

- e) Robinetul nu necesita sistem de injectie pasta de etansare.
- f) Robinetul nu necesita talpa de sprijin pentru montaj.

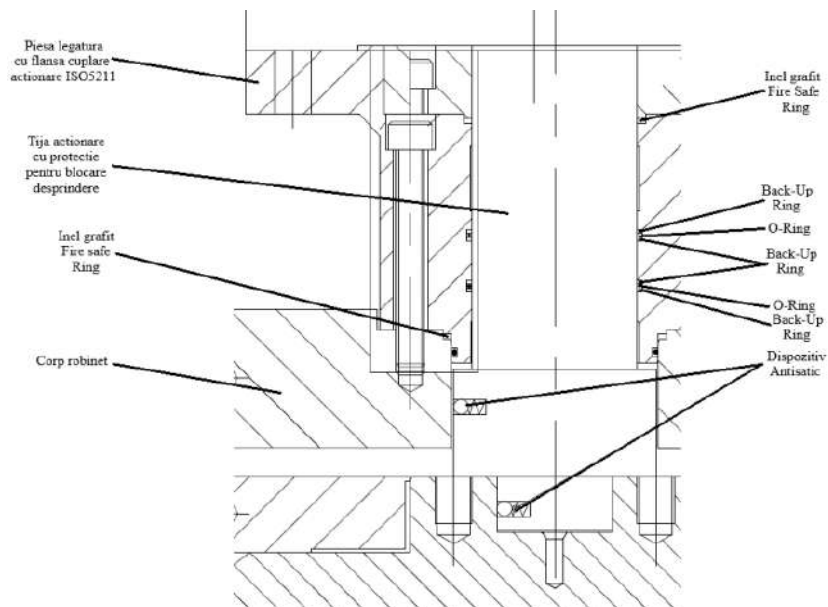


Figura. 3 - Etansare tijă de acționare
- Etansare tijă de acționare

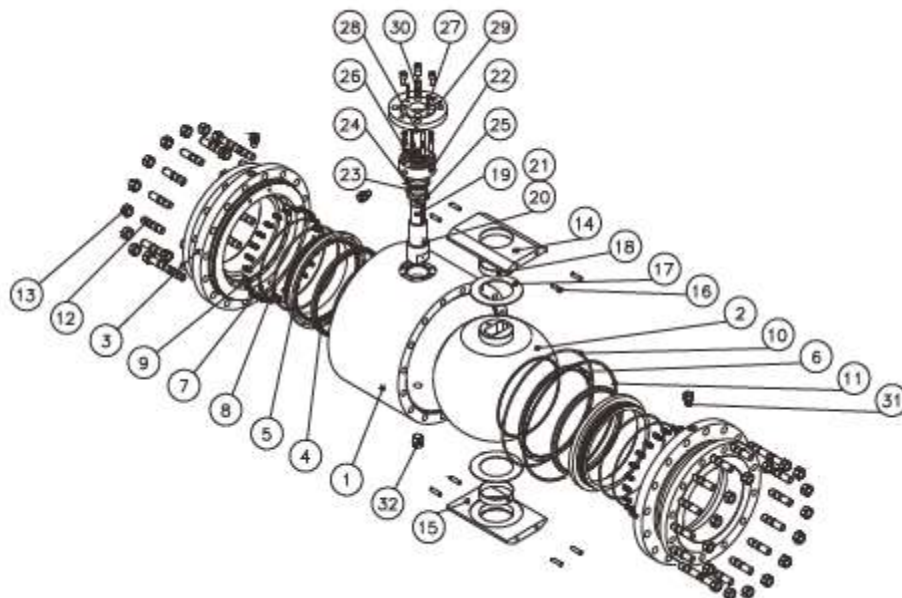


Figura.4 – Imagine explodată de ansamblu pentru robinet cu montaj suprateran

4. Acționare:

Manuală, conform ISO 12490.

- a) Tip acționare: Manuală

- b) Montaj pe robinet tip: Sfert de tură
- c) Monitorizare capete de cursă prin contacte electrice montate în cutie Ex zona 2, grad de protecție IP 67
- d) Indicarea locală a poziției (Închis/Deschis)
- e) Sistem unități de măsură: Metric
- f) Montaj: Suprateran
- g) Dispozitiv de blocare (conform SR ISO 14313)
- h) Grad de protecție mecanică: IP 67
- i) Protecție anticorozivă: vopsea de înaltă rezistență culoare RAL 7044
- j) Protecție mecanică (ANSI/IEC 60529): IP67M – documente doveditoare anexate la oferta tehnică, marcaj corespunzător la predarea produsului.

5. Teste și certificări puse la dispoziția beneficiarului

- a) Condiții generale conform API 6D
 - Testarea standard a robinetelor cu sferă:
 - Testare hidrostatică a robinetului
 - Testare hidrostatică a scaunelor de etanșare
- b) Teste suplimentare pentru robinete conform API6D (SR ISO 14313) Anexa B:
 - etanșeitate cu gaze la presiune joasă (B3),
 - etanșeitate cu gaze la presiune înaltă (B4),
 - încercarea cavității la suprapresiune – DIB-1 (B11).– funcție de tipul robinetului din comandă.
- c) Examinarea nedistructivă RT a îmbinărilor sudate se efectuează doar în zonele accesibile acestei metode.
Se vor efectua metode nedistructive permisibile VT, PT sau MT și respectiv RT sau UT în zonele accesibile
- d) Test capăt de cursă (0% închis, 100% deschis) cu acționarea montată
- e) Acționarea robinetului va respecta cerințele din caietul de sarcini conform cu cap. 4.2

6. Documentația care va însoți produsul:

Pentru robinet condiții generale conform API 6D(SR ISO 14313)

Cartea tehnică a produsului

- a) Fișă tehnică (robinet/acționare):
 - coeficient de debit Cv sau Kv,
 - forța sau momentul maxim de acționare pentru robinetul în stare nouă,
 - forța sau momentul maxim admisibil la tija robinetului,
 - momentul maxim admisibil de intrare la reductor (unde este cazul).
- b) Instrucțiuni de montaj în instalație (robinet/acționare).
- c) Instrucțiuni de punere în funcțiune și exploatare (robinet/acționare).
- d) Instrucțiuni de scoatere din funcțiune (robinet/acționare).
- e) Instrucțiuni/manuale de operare și întreținere (robinet/acționare):
 - operarea, verificarea etanșeității,
 - ungere, drenare, gresare,
 - cauze defecte, remedieri, verificări,
 - listă piese de schimb de mare uzură.
- f) Lista de componente și desene de ansamblu/subansamblu (secțiuni, detalii) (robinet/acționare).
- g) Scheme de interconectare a acționării.

- h) Documente de trasabilitate pentru componente.
- i) Certificate / Teste materiale componente
- j) Certificare / Raport pentru teste de presiune/etanșeitate
- k) Certificare/teste protecții anticorozive (robineți).
- l) Declarație de conformitate CE
- m) Buletin de analiză suduri.

7. Marcare și identificare- conform API 6D

- 1 Serie unică pentru fiecare produs
- 2 Dată finalizare produs (luna/an)
- 3 Greutatea produsului
- 4 Diametrul nominal al produsului
- 5 Presiunea maximă la temperatura maximă
- 6 Presiunea maximă la temperatura minimă
- 7 Test suplimentar cerut de client
- 8 Lungimea față la față a produsului
- 9 Material sferă
- 10 Material scaun
- 11 Tip etanșare scaun
- 12 Material tijă
- 13 Corp

8. Condiții de livrare:

- a. Acționarea manuală este dimensionată și va fi furnizată împreună cu robinetul.
- b. Robinetul se va livra complet echipat, cu acționarea montată, cu contraflanșe, organe de asamblare și garnituri (sau separat în funcție de cerințele ulterioare și tipul de acționare).
- c. Produsele vor fi ambalate individual pentru a face față transportului, manipulării și depozitării până la locația de montaj.
- d. Toate materialele de ambalare a produselor, precum și toate materialele necesare protecției coletelor vor rămâne în proprietatea achizitorului.
- e. Ofertantul va asigura integritatea produselor livrate, până la sediul achizitorului.

9. Condiții de garanție și postgaranție

Perioada de garanție este cuprinsă între data recepției produselor și împlinirea a 24 de luni de la punerea în funcțiune a produselor, dar nu mai mult de 36 de luni de la data recepției acestora.

10. Alte condiții:

TOTALGAZ INDUSTRIE va acorda asistență tehnică și instruirea personalului de exploatare la locațiile indicate de beneficiar. Beneficiarul va participa la probele de presiune după un program convenit de părți.

EU-TYPE EXAMINATION CERTIFICATE – PRODUCTION TYPE

Certificate No.:
4157-2014-CE-RGC-ACCREDIA

Initial date:
7 March, 2014

Valid:
7 June, 2017 – 6 March, 2024

This certificate consists of 6 pages

This is to certify that representative examples of products manufactured by

SICHUAN KCON VALVE MFG. CO., LTD.

West 3 Section, Shenzhen Road, Guanghan Industrial Economic Development Zone,
Guanghan, Sichuan People's Republic of China

have been assessed with respect to the conformity assessment procedure described
in

ANNEX III MODULE B – PRODUCTION TYPE OF DIRECTIVE 2014/68/EU ON PRESSURE EQUIPMENT

and found to comply with the requirements in Annex I – Essential Safety
Requirements of the Directive.

The certificate is valid for the following products:

| | |
|----------------------------|---|
| Type of Pressure Equipment | Pressure Accessory |
| Product Name | Valve |
| Product Version | Ball Valve, Gate Valve, Globe Valve, Check Valve, Plug Valve |

Place and date:
Vimercate 12 June, 2017



SGQ N° 003 A EMAS N° 009 F
SGA N° 003 D PRO N° 003 B
SGE N° 007 M PRLS N° 094 C
SOR N° 004 F SSI N° 002 G

Membro di MLA EA per gli schemi di accreditamento
SGQ, SGA, PRD, PRLS, TSP, GNG, LAB e LAT di MLA EA
per gli schemi di accreditamento SGQ, SGA, SSI, TSM
e PRO e di MLA LAC per gli schemi di accreditamento
LAB, MEO, LA3 e ISP

For the notified body 0496:
**DNV GL Business Assurance Italia
S.r.l.**

Nicola Privato
Management Representative

Certificate No.: 4157-2014-CE-RGC-ACCREDIA
 Place and date: Vimercate 12 June, 2017
 Revision No.: 01

Jurisdiction

Application of Directive 2014/68/EU and Decreto Legislativo n. 26 of 15 February 2016.

Certificate history

| Revision | Description | Issued date |
|----------|----------------------|---------------|
| 00 | Original Certificate | 7 March, 2014 |
| 01 | Plug Valve added | 12 June, 2017 |

Products covered by this certificate

| Product name | Product description | PED Category | Product standard |
|--------------|---------------------|--------------|------------------------|
| Valve | Ball Valve | I, II, III | API 6D |
| | Slab Gate Valve | | API 6D |
| | Gate Valve | | API 6D API 600 |
| | Globe Valve | | BS 1873 ASME B16.34 |
| | Check Valve | | BS 1868 API 6D |
| | Plug Valve | | API 6D API 599 |

Design data

| Product name | Maximum allowable pressure (PS) | Minimum/Maximum allowable temperature (TS) | Fluid Group |
|--|---|--|-------------|
| Ball Valve | Class 150/Class 300 Class 900/Class 600 Class 1500/Class 2500 | ASTM A352 grade LCC -46 °C to +150 °C | 1 and 2 |
| | | ASTM A995 grade 4A 0 °C to +50 °C | |
| | | ASTM A105 -29 °C to +150 °C | |
| | | ASTM A350 grade LF2 -29 °C to +150 °C | |
| | | ASTM A182 grade F304 -29 °C to +150 °C | |
| | | ASTM A182 grade F316 -29 °C to +150 °C | |
| ASTM A182 grade F51 0 °C to +150 °C | | | |
| Gate Valve, Slab Gate Valve, Globe Valve, Check Valve | Class 150/Class 300 Class 900/Class 600 Class 1500/Class 2500 | ASTM A216 grade WCB 0 °C to +425 °C | |
| | | ASTM A351 grade CF8 -29 °C to +425 °C | |
| | | ASTM A351 grade CF8M -29 °C to +425 °C | |

Certificate No.: 4157-2014-CE-RGC-ACCREDIA
 Place and date: Vimercate 12 June, 2017
 Revision No.: 01

| Product name | Maximum allowable pressure (PS) | Minimum/Maximum allowable temperature (TS) | Fluid Group |
|--------------|---|--|-------------|
| Plug Valve | Class 150/Class 300 Class 900/Class 600 Class 1500/Class 2500 | ASTM A216 grade WCB -29 °C to +150 °C | 1 and 2 |
| | | ASTM A352 grade LCB -46 °C to +150 °C | |
| | | ASTM A352 grade LCC -46 °C to +150 °C | |
| | | ASTM A350 grade LF2 -46 °C to +150 °C | |
| | | ASTM A105 -29 °C to +150 °C | |

Range of products covered by this certificate

| No | Type of valve | Specification Rating | | | | | | Standard | | | |
|----|----------------------------------|----------------------|-------------|-------------|-----------------------|----------------------|------------|----------|-------------------|----------------|----------------------------|
| | | Class 150 | Class 300 | Class 600 | Class 900 | Class 1500 | Class 2500 | Design | Inspection | End | Face to Face |
| 01 | Full bore float ball valve | DN32 ~200 | DN32 ~200 | DN32 ~50 | DN32 ~50 | DN32 ~50 | N/A | API 6D | API 598 API 6D | ASME B16.5 | ASME B16.10 |
| 02 | Full bore trunnion ball valve | DN50 ~600 | DN50 ~600 | DN50 ~600 | DN50 ~600 | DN32 ~600 | DN32 ~300 | API 6D | API 598 API 6D | ASME B16.5 | ASME B16.10 |
| 03 | | DN650 ~900 | DN650 ~900 | DN650 ~900 | DN650 ~900 | N/A | N/A | API 6D | API 598 API 6D | ASME B16.47 | API 6D |
| 04 | | N/A | N/A | N/A | DN550 DN950 | DN 550 DN650 ~900 | DN350 ~500 | API 6D | API 598 API 6D | ASME B16.25 | Manufact urer's spec |
| 05 | | DN 550 | N/A | DN 550 | N/A | N/A | N/A | API 6D | API 598 API 6D | MSS SP-44 | API 6D |
| 06 | Reduced bore float ball valve | DN50 ~250 | DN50 ~250 | N/A | N/A | N/A | N/A | API 6D | API 598 API 6D | ASME B16.5 | ASME B16.10 |
| 07 | Reduced Bore trunnion ball valve | DN150 ~600 | DN150 ~600 | DN150 ~600 | DN150 ~600 | DN150 ~600 | DN150 ~300 | API 6D | API 598 API 6D | ASME B16.5 | API 6D |
| 08 | | DN 550 | DN 550 | DN 550 | N/A | N/A | N/A | API 6D | API 598 API 6D | MSS SP-44 | API 6D |
| 09 | | DN650 ~1000 | DN650 ~1000 | DN650 ~1000 | DN650 ~900 | N/A | N/A | API 6D | API 598 API 6D | ASME B16.47 | API 6D |
| 10 | | N/A | N/A | N/A | DN 550 DN950 ~1050 | DN 550 DN650 ~900 | DN350 ~500 | API 6D | API 598 API 6D | ASME B16.25 | Manufact urer's spec |

Certificate No.: 4157-2014-CE-RGC-ACCREDIA
 Place and date: Vimercate 12 June, 2017
 Revision No.: 01

| No | Type of valve | Specification Rating | | | | | | Standard | | | |
|----|-----------------|----------------------|------------|-----------|-----------|------------|------------|-------------------|------------|-----------------------------|---------------------|
| | | Class 150 | Class 300 | Class 600 | Class 900 | Class 1500 | Class 2500 | Design | Inspection | End | Face to Face |
| 11 | Gate valve | DN50 ~600 | DN50 ~600 | DN50 ~600 | DN50 ~600 | DN50 ~300 | DN50 ~200 | API 600 | API 598 | ASME B16.5 ASME B16.25 | ASME B 16.10 |
| 12 | Gate valve | DN650 ~900 | DN650 ~900 | N/A | N/A | N/A | N/A | API 6D | API 598 | ASME B 16.47 ASME B16.25 | ASME B 16.10 |
| 13 | Slab gate valve | DN50 ~900 | DN50 ~900 | DN50 ~900 | DN50 ~600 | DN50 ~600 | N/A | API 6D | API 598 | ASME B 16.5 ASME B 16.47 | ASME B 16.10 |
| 14 | Check valve | DN50 ~600 | DN50 ~600 | DN50 ~600 | DN80 ~400 | DN50 ~400 | DN50 ~300 | BS1868 | API 598 | ASME B 16.5 ASME B16.25 | ASME B 16.10 |
| 15 | Check valve | DN650 ~900 | N/A | N/A | N/A | N/A | N/A | API 6D | API 598 | ASME B 16.47 ASME B16.25 | ASME B 16.10 |
| 16 | Globe valve | DN50 ~400 | DN50 ~300 | DN50 ~300 | DN50 ~250 | DN50 ~200 | DN50 ~200 | BS 1873 | API 598 | ASME B 16.5 ASME B16.25 | ASME B 16.10 |
| 17 | Globe valve | N/A | DN 400 | N/A | N/A | N/A | N/A | ASME B16.34 | API 598 | ASME B 16.5 ASME B16.25 | ASME B 16.10 |
| 18 | Plug Valve | DN32 ~40 | DN32 ~40 | DN32 ~40 | DN32 ~40 | DN32 ~40 | DN32 ~40 | API 6D API 599 | API 6D | ASME B16.11 | Manufacturer's spec |
| | | DN50 ~600 | DN50 ~600 | DN50 ~600 | DN50 ~600 | DN50 ~600 | DN50 ~300 | API 6D API 599 | API 6D | ASME B16.5 | API 6D |

869 / 1388

Certificate No.: 4157-2014-CE-RGC-ACCREDIA
 Place and date: Vimercate 12 June, 2017
 Revision No.: 01

Materials

The materials listed below have been subject to Particular Material Appraisal as required by PED Annex 1 Sec. 4.2b. The documents describe, in a complete and concise manner, the characteristics of the materials and their conformity to the directive No. 2014/68/EU.

The materials subject to the Particular Material Appraisal may be used in pressure equipment in accordance with directive 2014/68/EU and to the conditions as stated in the documents for the respective grades of material qualities.

| Title | Rev. | Date |
|----------------------------|------|------------|
| ASTM A216/A216M grade WCB | 1 | 2017-05-08 |
| ASTM A351/A351M grade CF8 | 0 | 2014-02-24 |
| ASTM A351/A351M grade CF8M | 0 | 2014-02-24 |
| ASTM A193/A193M grade B8 | 0 | 2014-02-24 |
| ASTM A193/A193M grade B8R | 0 | 2014-02-24 |
| ASTM A193/A193M grade B7 | 1 | 2017-05-08 |
| ASTM A193/A193M grade B7M | 0 | 2014-02-24 |
| ASTM A193/A193M grade B8M | 0 | 2014-02-24 |
| ASTM A320/A320M grade L7 | 0 | 2017-05-08 |
| ASTM A352/A352M grade LCB | 0 | 2017-05-08 |
| ASTM A352/A352M grade LCC | 1 | 2017-05-08 |
| ASTM A995/A995M grade 4A | 0 | 2014-02-24 |
| ASTM A105/A105M | 1 | 2017-05-08 |
| ASTM A350/A350M grade LF2 | 1 | 2017-05-08 |
| ASTM A182/A182M grade F304 | 0 | 2014-02-24 |
| ASTM A182/A182M grade F316 | 0 | 2014-02-24 |
| ASTM A182/A182M grade F51 | 0 | 2014-02-24 |

Sites covered by this certificate

| Product name | Product description | Site Address |
|--------------|--|---|
| Valve | Ball valve, Slab Gate Valve, Gate Valve, Check Valve, Globe Valve, Plug Valve | West 3 Section, Shenzhen Road Guanghan Industrial Economic Development Zone, Guanghan, Sichuan People's Republic of China |

Certificate No.: 4157-2014-CE-RGC-ACCREDIA
 Place and date: Vimercate 12 June, 2017
 Revision No.: 01

Applications/limitations

- the internals of the valves are excluded from the certificate;
- material of non-harmonized standards must comply with the relevant PMA documents (Particular Material Appraisal) appraised by DNV GL Business Assurance Italia S.r.l.;
- the valves classified according to Directive 2014/68/EU, Article 4.3, must not bear CE marking;
- pressure-temperature rating shall be lesser than body rating and seat rating.

Documents reviewed

| Document No | Rev | Date | Title | Status |
|-------------|-----|------------|--------------------------------------|---|
| TCF | 3 | 2014-02 | CE Renew Documents B+C1 | A for drawing and calculation FI for others |
| CE-PV-16-01 | 0 | 2016.12.19 | Plug Valve | A for drawing |
| CE-PV-16-02 | 1 | 2017.04.27 | | |
| CE-PV-16-03 | 1 | 2017.04.27 | | |
| Calculation | 0 | 2016.12.20 | Design Calculation for Plug Valve | A for calculation |
| - | - | - | EU declaration of conformity | FI for others |
| - | - | - | Marking and labelling for plug Valve | |
| - | - | - | User manual for Plug Valve | |

*) A=Approved, FI=For information

Terms and conditions for the certificate

This Certificate does not give the Manufacturer the right to CE mark and put on the market the product(s) listed on this Certificate. Only after the product(s) have been found to comply with the requirements in one of the following Conformity Assessment Modules C2, D, E or F, the Manufacturer may draw up an EC declaration of conformity and legally affix the CE mark followed by the identification number of the Notified Body involved in these modules.

Other valid terms and conditions are found in the DNV GL 's PED Certification Rules.

END OF CERTIFICATE

PRODUCT SURVEILLANCE CERTIFICATE

Certificate No.:
4168-2014-CE-RGC-ACCREDIA

Initial date:
2014-03-07

Validity:
2019-05-10 - 2024-03-06

This certificate consists of 4 pages

This is to certify that the final assessment process of

SICHUAN KCON VALVE MFG. CO., LTD.

West 3 Section, Shenzhen Road, Guanghan Industrial Economic Development Zone,
Guanghan, Sichuan People's Republic of China

has been monitored and found to comply with respect to the conformity assessment
procedure described in

ANNEX III MODULE C2 OF DIRECTIVE 2014/68/EU ON PRESSURE EQUIPMENT

The certificate is valid for the following scope:

| | |
|----------------------------|---------------------------|
| Type of Pressure Equipment | Pressure Accessory |
| Product Name | Valves |

Place and date:
Vimercate 2019-05-14



SIQ2 N° 003 A
SGA N° 003 D
SGE N° 007 M
SQR N° 004 F
ENAS N° 009 P
PRD N° 003 B
PRS N° 094 C
SSI N° 002 G

Membro di IMLA EA per gli schemi di accreditamento
SIQ2, SGA, PRD, PRS, ISR, DNG2, LAB e LAT, di IMLA DMF
per gli schemi di accreditamento SIQ2, SGA, SSI, P208
e PRD e di IMLA ILAE per gli schemi di accreditamento
LAB, MED, LAT e ISP

For the notified body 0496:
**DNV GL Business Assurance Italia
S.r.l.**

Nicola Privato
Management Representative

Certificate No.: 4168-2014-CE-RGC-ACCREDIA
 Place and date: Vimercate 2019-05-14
 Revision No.: 02

Jurisdiction

Application of Directive 2014/68/EU and Decreto Legislativo n. 26 of 15 February 2016.

Certificate history

| Revision | Description | Issued date |
|----------|-------------------------|-------------|
| 00 | Original certificate | 2014-03-07 |
| 01 | Extension of plug valve | 2017-07-04 |
| 02 | Re certificate | 2019-05-14 |

EU-Type examination certificate reference

| Certificate No. | Revision No. | Expiry date | Issued by Notified Body No. |
|---------------------------|--------------|-------------|-----------------------------|
| 4157-2014-CE-RGC-ACCREDIA | 01 | 2024-03-06 | 0496 |

Products covered by this certificate

| Product name | Product description | PED Category | Product standard |
|--------------|---------------------|--------------|------------------------|
| Valve | Ball Valve | I, II, III | API 6D |
| | Slab Gate Valve | | API 6D |
| | Gate Valve | | API 6D API 600 |
| | Globe Valve | | BS 1873 ASME B16.34 |
| | Check Valve | | BS 1868 API 6D |
| | Plug Valve | | API 6D API 599 |

Certificate No.: 4168-2014-CE-RGC-ACCREDIA
 Place and date: Vimercate 2019-05-14
 Revision No.: 02

Design data

| Product name | Maximum allowable pressure (PS) | Minimum/Maximum allowable temperature (TS) | Fluid Group | Test pressure (PT) |
|--|---|--|-------------|--------------------|
| Ball Valve | Class 150/Class 300 Class 900/Class 600 Class 1500/Class 2500 | ASTM A352 grade LCC -46 °C to +150 °C | 1 and 2 | 1.5* PS for shell |
| | | ASTM A995 grade 4A 0 °C to +50 °C | | |
| | | ASTM A105 -29 °C to +150 °C | | |
| | | ASTM A350 grade LF2 -29 °C to +150 °C | | |
| | | ASTM A182 grade F304 -29 °C to +150 °C | | |
| | | ASTM A182 grade F316 -29 °C to +150 °C | | |
| | | ASTM A182 grade F51 0 °C to +150 °C | | |
| Gate Valve, Slab Gate Valve, Globe Valve, Check Valve | Class 150/Class 300 Class 900/Class 600 Class 1500/Class 2500 | ASTM A216 grade WCB 0 °C to +425 °C | 1 and 2 | 1.5* PS for shell |
| | | ASTM A351 grade CF8 -29 °C to +425 °C | | |
| | | ASTM A351 grade CF8M -29 °C to +425 °C | | |
| Plug Valve | Class 150/Class 300 Class 900/Class 600 Class 1500/Class 2500 | ASTM A216 grade WCB -29 °C to +150 °C | 1 and 2 | 1.5* PS for shell |
| | | ASTM A352 grade LCB -46 °C to +150 °C | | |
| | | ASTM A352 grade LCC -46 °C to +150 °C | | |
| | | ASTM A350 grade LF2 -46 °C to +150 °C | | |
| | | ASTM A105 -29 °C to +150 °C | | |

Sites covered by this certificate

| Site name | Site Address | Monitored by | Date | Report ref |
|-----------------------------------|--|-----------------|------------|-------------------|
| SICHUAN KCON VALVE MFG. CO., LTD. | West 3 Section, Shenzhen Road, Guanghan Industrial Economic Development Zone, Guanghan, Sichuan People's Republic of China | DNV GL Shanghai | 2019-03-xx | Monitoring report |

Certificate No.: 4168-2014-CE-RGC-ACCREDIA
 Place and date: Vimercate 2019-05-14
 Revision No.: 02

Applications/limitations

- the internals of the valves are excluded from the certificate;
- material of non-harmonized standards must comply with the relevant PMA documents (Particular Material Appraisal) appraised by DNV GL Business Assurance Italia S.r.l.;
- the valves classified according to Directive 2014/68/EU, Article 4.3, must not bear CE marking;
- pressure-temperature rating shall be lesser than body rating and seat rating.

Documents reviewed

| Document No | Rev | Date | Title | Status |
|-----------------------|-----|------------|--------------------------------------|--|
| File | 3 | 2014-02 | CE Renew Documents B+C1 | A for drawing and calculation FI for others |
| CE-PV-16-01 | 0 | 2016.12.19 | Plug Valve | A for drawing |
| CE-PV-16-02 | 1 | 2017.04.27 | | |
| CE-PV-16-03 | 1 | 2017.04.27 | | |
| Calculation | 0 | 2016.12.20 | Design Calculation for Plug Valve | A for calculation |
| D. of C. | 0 | - | EU declaration of conformity | FI for others |
| Marking and labelling | 0 | - | Marking and labelling for plug Valve | |
| Manual | 0 | - | User manual for Plug Valve | |

*) A=Approved, FI=For information

Terms and conditions for the certificate

Valid terms and conditions are found in the DNV GL's PED Certification Rules.

END OF CERTIFICATE

MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
0023-2001-AQ-RGC-RvA

Initial certification date:
19 January, 2001

Valid:
19 January, 2019 - 19 January, 2022

This is to certify that the management system of

SICHUAN KCON VALVE MFG. CO., LTD.

West 3 Section, Shenzhen Road, Guanghan Industrial Economic Development, Zone,
Guanghan, Sichuan, China

has been found to conform to the Quality Management System standard:
ISO 9001:2015/GB/T 19001-2016

This certificate is valid for the following scope:

Design, Manufacture and Sale of Ball Valve, Plug Valve, Gate Valve, Check Valve, Globe Valve, Butterfly Valve, Pig Valve, Control Valve, Forced Seal Valve & Valve Spare Parts

Place and date:
Shanghai, 30 September, 2018



The RvA is a signatory to the IAF MLA

For the issuing office:
DNV GL – Business Assurance
Suite A, Building 9, No.1591 Hongqiao
Road, Changning District, Shanghai
200336, P.R. China
TEL: +86 21 32799000

Zhu Hai Ming
Management Representative



MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
0023-2001-AQ-RGC-RvA

Initial certification date:
19 January, 2001

Valid:
19 January, 2022 – 19 January, 2025

This is to certify that the management system of

SICHUAN KCON VALVE MFG. CO., LTD.

West 3 Section, Shenzhen Road, Guanghan Industrial Economic Development Zone,
Guanghan, Sichuan, China

has been found to conform to the Quality Management System standard:

GB/T 19001-2016/ISO 9001:2015

This certificate is valid for the following scope:

Design, Manufacture and Service of Ball Valve (including Control, Pigging and Forced Sealing Types), Plug Valve, Gate Valve, Check Valve, Globe Valve (including Control and Blow-out Types), Butterfly Valve, and Other Pressure Pipeline Metal Valves (within the Scope of Permission) as well as Valve Accessories

Place and date:
Shanghai, 15 October, 2021

For the issuing office:
DNV - Business Assurance
Suite A, Building 9, No.1591 Hongqiao
Road, Changning District, Shanghai
200336, P.R. China
TEL: +86 21 32799000



Zhu Hai Ming
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DNV Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands - TEL: +31(0)102922689. www.dnv.com/assurance
877 / 1388

ITS Series *Position Monitoring Switch*



First in Automation...



STOP





ITS series position monitoring switch boxes are primarily a rotary position indication device designed to integrate valve and NAMUR rotary pneumatic actuator with a variety of mounting options, internal switches or sensors and configurations.

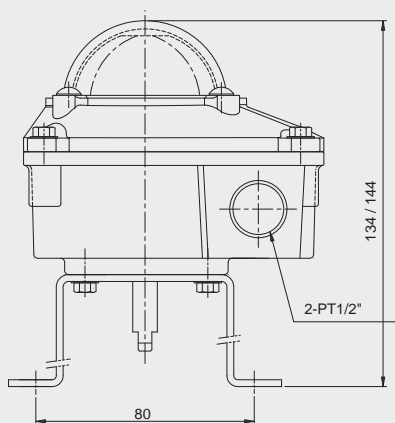
ITS 100 series

ITS 100 series are specially designed suitable for small size pneumatic actuator and valves to reduce installation space, but provides high performance by equipping a variety of switches and sensors.

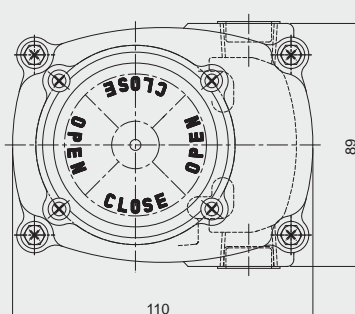
| SPECIFICATION | Standard | Option |
|----------------------------|--|--|
| Enclosure | Weather proof IP67, O-ring sealed | |
| Outside coating | Epoxy-Polyester inside and outside against corrosion | Nylon Coating Special color Coating |
| Ambient temperature | -20°C~+80°C | |
| Cable entries | 2 - PT1/2", other standard threads | (NPT1/2", PF1/2", M20x1.5 and PG13.5) |
| Terminal block | 8 nos of terminal strips (6 for switches, 2 for solenoid valve power) | |
| Position indicator | Dome type 0°~90° | Others(3 way L-port, T-port) |
| Mounting bracket | Stainless steel acc. to VDI/VDE3845, NAMUR, SS1, SS2 as standard | SS3, MT1 as option |
| Switches(Sensors) | 2-SPDT mechanical switch(Form C) as standard | Proximity sensors(P & F, Autonics), Others |

DIMENSION

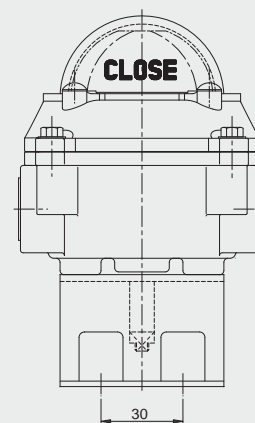
ITS 100 series



Front view



Top view



Side view

Explosion Proof position monitoring switches



Rigid and compact design constructed from aluminum alloy die-casting capable of operating even in arduous conditions

ITS 300 series

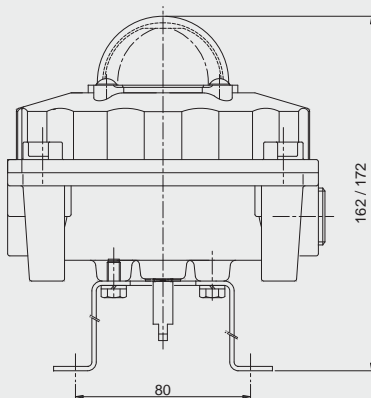
ITS 300 series are designed suitable for valve and actuators in hazardous area application, having compact but robust construction conforms to EN50014 and 50018, also suitable in Zone 1 and 2, and ingress protection IP67
Standard aluminum housing provides reliable explosion proof performance.



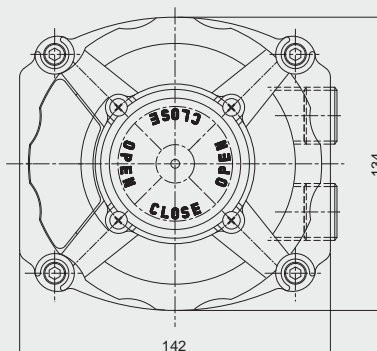
| SPECIFICATION | Standard | Option |
|----------------------------|--|--|
| Enclosure | Explosion proof Ex d IIC T6, IP67, O-ring sealed | IP 68 |
| Outside coating | Epoxy-Polyester outside against corrosion | Nylon Coating Special color Coating |
| Ambient temperature | -20°C~+80°C | Higher(~100°C) and lower (-40°C~) temperature |
| Cable entries | 2 - PF3/4", other standard threads | (NPT3/4", M20x1.5", M25x1.5") |
| Terminal block | 8 nos of terminal strips (6 for switches, 2 for solenoid valve power) | |
| Position indicator | Dome type 0°~90° | Others(3 way L-port, T-port) |
| Mounting bracket | Stainless steel acc. to VDI/VDE3845 NAMUR, SS1, SS2 as standard | SS3, MT1 as option |
| Switches(Sensors) | 2-SPDT mechanical switch(Form C) | DPDT Switches Proximity sensors(P & F, Autonics) Magnetic sensors Position transmitter (output 0~1Kohm, 4-20mA DC) |

DIMENSION

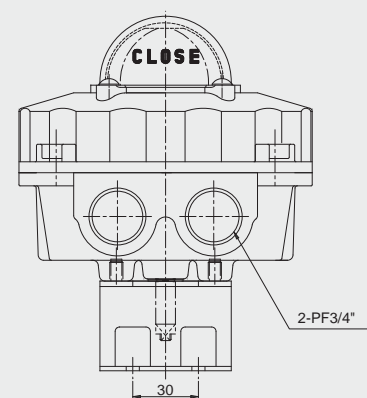
ITS 300 series



Front view



Top view



Side view

Dome position indicator constructed from high impact resistance poly-carbonate material which offers instant visual recognition of valve or actuator position up to 50 meters distance.

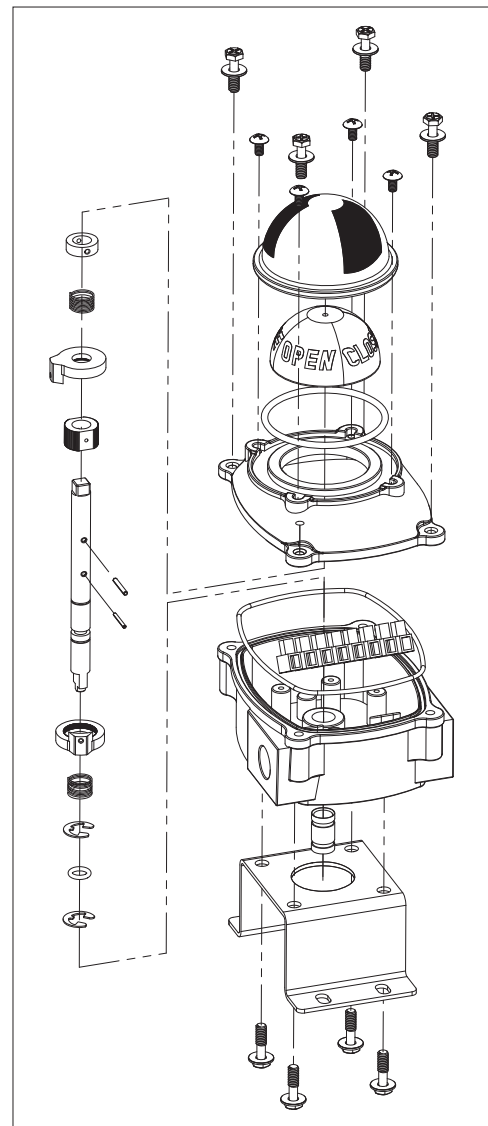


ITS 500 series

Special stainless steel housing(316L or Duplex) provide very high protection performance against extremely corrosive environmental condition. Suitable for off-shore application. Other specification is same with ITS 300 series except for enclosure & coating.

CONSTRUCTION MATERIAL

| | |
|-------------------------|--|
| Housing | Low cooper aluminum die-casting |
| Coating | Epoxy-Polyester inside/outside(100 series) Chromated /Epoxy-Polyester(300 series) No painting on stainless steel housing |
| Sealing | NBR O-rings on each interface (Dome indicator, Lower/Upper housing, Shaft) |
| Cams | Poly-carbonate |
| Bushings | Bronze |
| Shaft | AISI303 Stainless steel |
| Earth Lug | Stainless steel |
| Bolts | All in stainless steel |
| Mounting bracket | Plate steel(ST series) Stainless steel(SS series and MT1) |



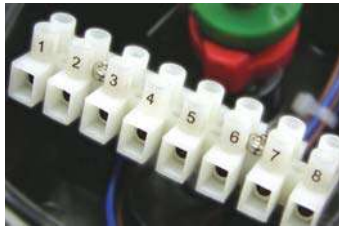
Easy set cam

Easy and precise cam set without setting tool
Red cam for close, Green cam for open



Standard Cam

Cam with Sensing Target



Terminal block and strips

Socket type terminal strip with screws
Max. 2.5mm², 26A at 30°C(approved by UL, CSA)

Visual position indicator

Directly engaged with driving shaft to provide continuous position
High strength, Chemical resistance and transparent poly-carbonate
High visibility and reliability
Red for close, Yellow for open (Red for close, Green for open as option)



Standard



L-port

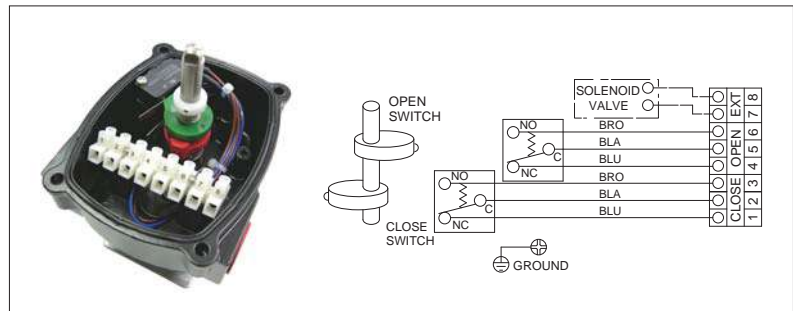


T-port

Mechanical switches

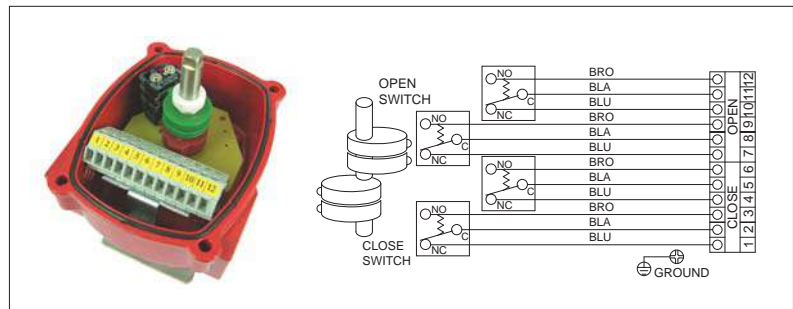
2-SPDT switches

Rating : 16A 1/2HP 125/250V AC,
0.6A 125V DC
0.3A 250V DC
approved by UL, CSA



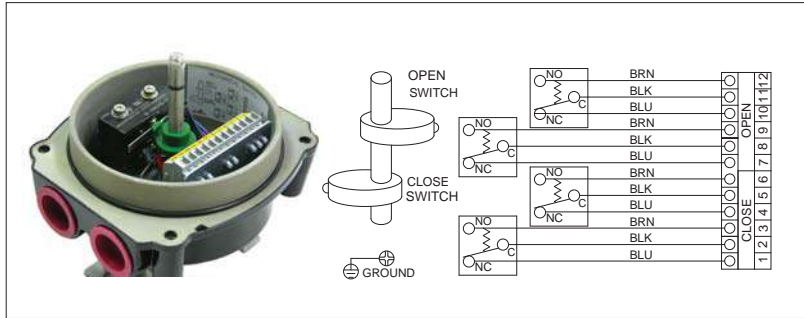
4-SPDT switches

Rating : 5A 125 V AC
3A 125 V AC
0.6A 125 V DC
approved by UL, CSA



Mechanical DPDT switches

Rating : 10A 125 or 250V AC
 2A 480V AC
 1/8HP 125V AC
 0.25HP 250V AC
 0.5A 125V DC
 0.25A 250V DC
 approved by UL, CSA



Proximity Sensors

Autonics sensors

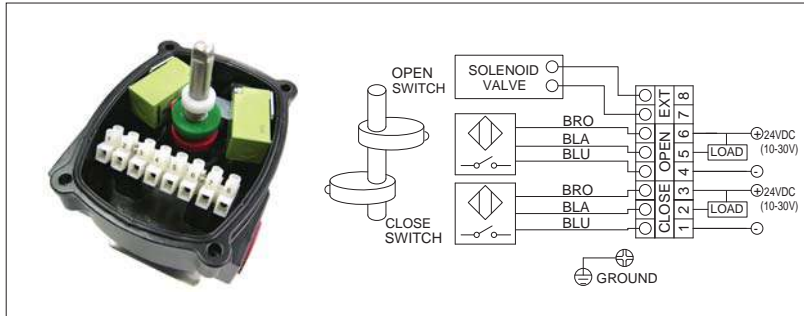
PSN17-5DNU-NPN

PSN17-5DPU-PNP

Voltage rating : 10~30V DC

Sensing distance : 5mm

Ambient temperature : -25°C ~+70°C



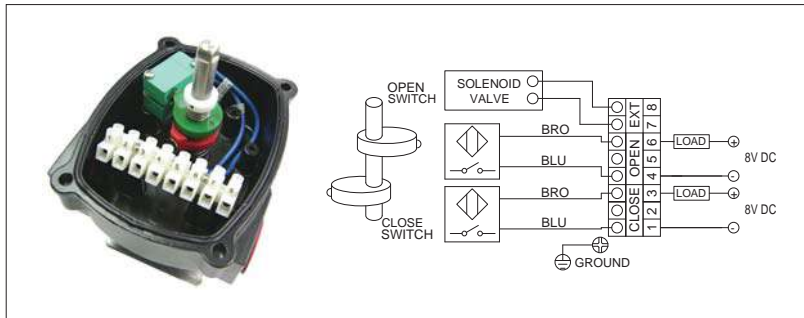
P & F sensors

NJ2-V3-N(Intrinsic safe, two wire)

Voltage rating : 8V DC

Sensing distance : 2mm

Ambient temperature : -25°C ~+100°C

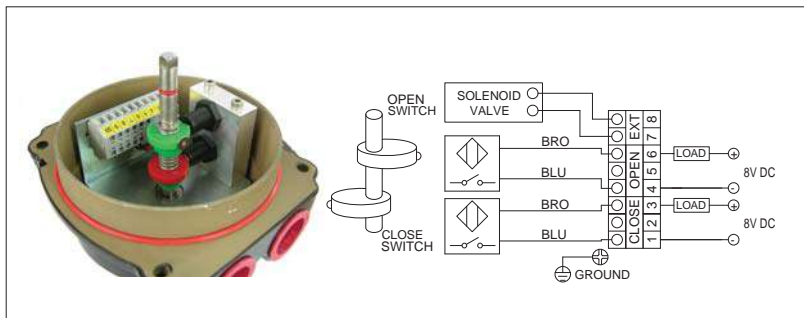


NJ4-12GK-SN

Voltage rating : 8V DC

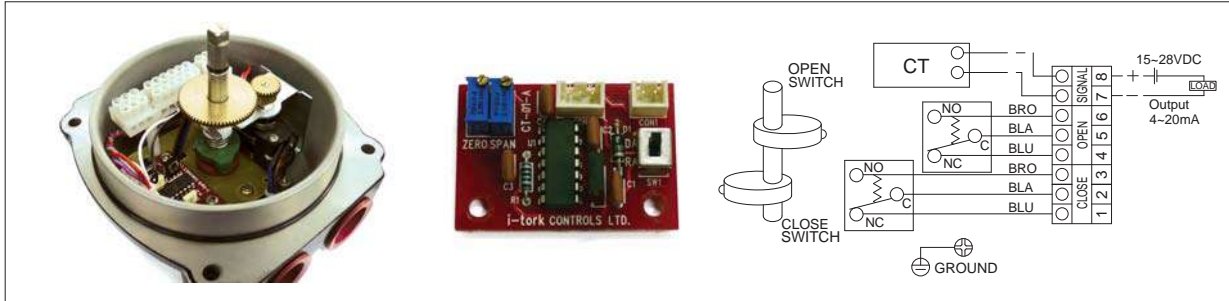
Sensing distance : 4mm

Ambient temperature : -50°C ~+100°C



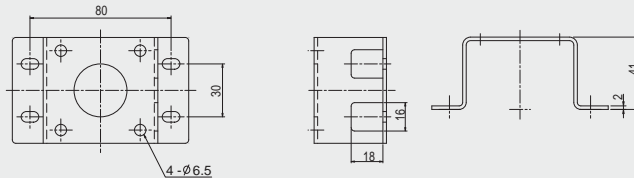
Position transmitter

Providing 4-20mA DC(or 0~1Kohm) output signal as feedback, 15~28VDC loop power(24V DC input power)
 Load impedance : 0~600 Ohm, Max output : 35mA DC
 Adjustment : Zero and span

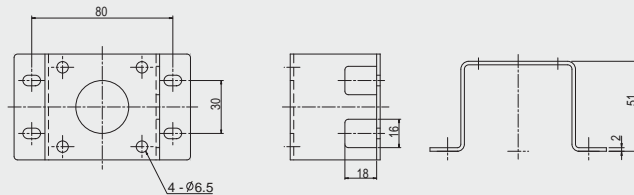


Mounting bracket(Acc. to VDI/VDE3845)

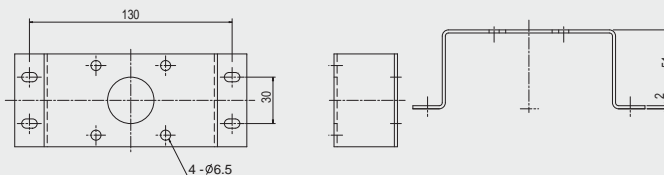
SS1



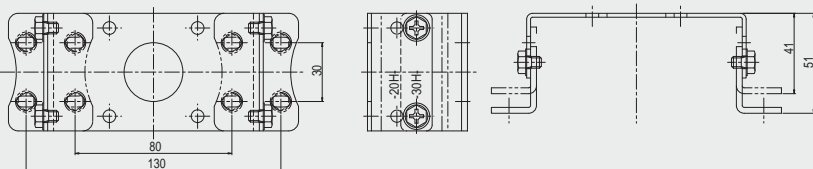
SS2



SS3



MT1



Standard bracket provided together with switch box(included)

SS1 30 x 80 x 20(H)

SS2 30 x 80 x 30(H)

Optional bracket provided with extra cost

SS3 30 x 130 x 30(H)

MT1 30 x 80 x 20(H), 30 x 80 x 30(H)

30 x 130 x 20(H), 30 x 130 x 30(H)

Others as option

Model number Legend

| ITS | 1 | 0 | 0 |
|-----|---|------------------------|--------------------------------|
| | 1: Weather proof | 0: Mechanical switches | 0 : 2 - SPDT |
| | 3: Explosion proof | | 1 : 3 - SPDT |
| | 5: Special material housing (316L, Duplex) | | 2 : 4 - SPDT |
| | | | 3 : 2 - SPST |
| | | | 4 : 2 - DPDT |
| | | | 5 : 2 - SPDT + output(0~1Kohm) |
| | | | 6 : 2 - SPDT + output(4-20mA) |
| | | 1 : Proximity sensors | 0 : Autonics (PSN17-5DNU-NPN) |
| | | | 1 : P & F (NJ2-V3-N) |
| | | | S: Other type sensors |

- Model numbers in Green are applicable to ITS100, 300 and 500 series
- Model numbers in Red are applicable to ITS300 and 500 series



Website : <http://www.i-tork.com>

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Focus On Pipeline & Process Valve Solution



四川精控阀门制造有限公司

地址：中国四川广安市深圳路西三段 邮编：618300

电话：+86 838 6839898 传真：+86 838 6839880

电邮：sales@kconvalve.com 网址：www.kconvalve.com

SICHUAN KCON VALVE MFG. CO., LTD.

Add.: West 3 Section, Shenzhen Road, Guanghan City, Sichuan, China 618300

Tel.: +86 838 6839859 Fax: +86 838 6839880

Email: overseas@kconvalve.com

Web: www.kconvalve.com

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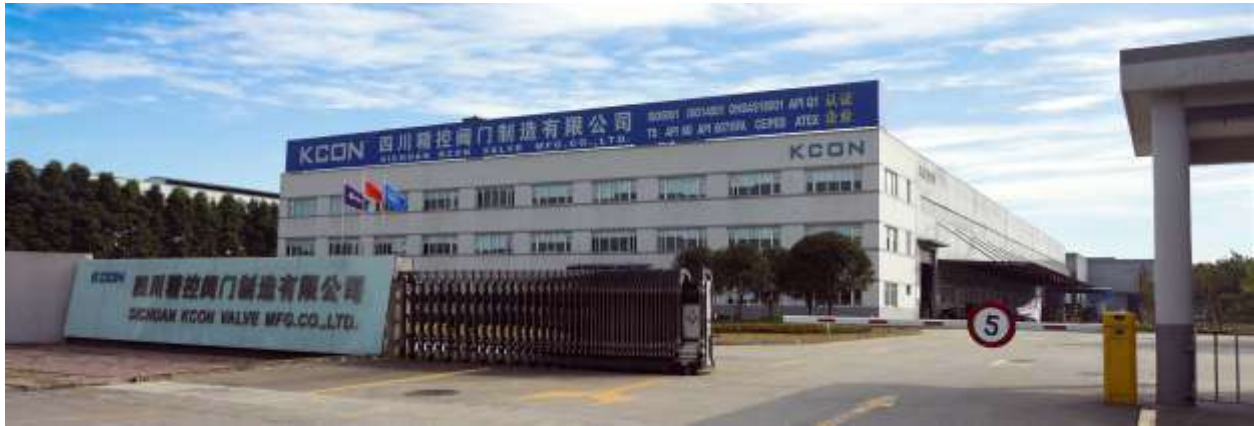
Focus On Pipeline & Process Valve Solution

锻钢分体式球阀 FORGED SPLIT BODY BALL VALVE



四川精控阀门制造有限公司
SICHUAN KCON VALVE MFG. CO.,LTD.

公司简介 KCON Profile



四川精控阀门制造有限公司成立于2001年6月，专注于油气长输管线阀门和过程控制阀门的研发制造，多年来致力于为客户提供经济高效的工程解决方案，甚至超越用户，合同方和经销商的预期，并取得了多项相关资质和认证。参与了数量众多的各种石油天然气，石化，化工行业的工程项目，在这些方面积累了丰富的实践经验。

Established in June 2001, KCON VALVE MFG.CO.,LTD. (hereinafter to be referred as “KCON”) Focusing on manufacturing pipeline valves and process valves, has the ability to provide engineering and cost-effective solutions to its customers and has enjoyed many years of solid growth. During that time all relevant qualifications and approvals have naturally been gained. Yet possibly even more important to prospective business partners such as users, contractors and distributors, KCON has accumulated vast experience in numerous and varied projects of oil & gas, petrochemical, and chemical industries etc.



董事长 顾立东先生
Mr.Gu Lidong, Managing Director of KCON Valve

资质证书 Certificates

精控阀门取得了以下世界组织机构的认证
KCON has been certified by below institutions worldwide.

- | | | |
|--------------------------------------|-------------------------|---------------------------|
| 1) API Q1 9 th ED by API | 5) CE/PED by DNV | 9) OHSAS18001:2007 by DNV |
| 2) API 6D 24 rd ED by API | 6) ATEX by DNV | 10) TS by AQSIQ |
| 3) API 607 6 th ED by TUV | 7) ISO9001:2015 by DNV | |
| 4) API 6FA 3 rd ED by TUV | 8) ISO14001:2015 by DNV | |

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型号编制方法

MODEL NUMBER CODING SYSTEM

| | | | | | | | | | | |
|-------|-------|---|----|----|---|----|----|-----|-----|----|
| 1 | 2 | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| VSF32 | JKD51 | — | L0 | 03 | 3 | R3 | H1 | 12" | A15 | RF |

① 驱动器型号 MODEL OF ACTUATOR

A 手柄操作无此代号。No code for lever operation.

B 带驱动器时，直接用驱动器型号。Actuator model to be applied for actuated valve.

② 阀门型号 MODEL OF VALVE

| 全口径/Full Bore | | |
|---------------|--|-----------|
| JKD11 | 锻钢全口径浮动球 Forged steel full bore floating ball Class150 | 1/2" ~4" |
| JKD12 | 锻钢全口径浮动球 Forged steel full bore floating ball Class300 | 1/2" ~4" |
| JKD51 | 锻钢全口径固定球 Forged steel full bore trunnion-mounted ball Class150 | 2" ~56" |
| JKD52 | 锻钢全口径固定球 Forged steel full bore trunnion-mounted ball Class300 | 2" ~56" |
| JKD14 | 锻钢全口径浮动球 Forged steel full bore floating ball Class400 | 1/2" ~2" |
| | 锻钢全口径固定球 Forged steel full bore trunnion-mounted ball Class400 | 2" ~56" |
| JKD16 | 锻钢全口径浮动球 Forged steel full bore floating ball Class600 | 1/2" ~2" |
| | 锻钢全口径固定球 Forged steel full bore trunnion-mounted ball Class600 | 2" ~56" |
| JKD18 | 锻钢全口径浮动球 Forged steel full bore floating ball Class800 | 1/2" ~2" |
| JKD19 | 锻钢全口径浮动球 Forged steel full bore floating ball Class900 | 1/2" ~2" |
| | 锻钢全口径固定球 Forged steel full bore trunnion-mounted ball Class900 | 2" ~56" |
| JKD115 | 锻钢全口径浮动球 Forged steel full bore floating ball Class1500 | 1/2" ~2" |
| | 锻钢全口径固定球 Forged steel full bore trunnion-mounted ball Class1500 | 2" ~24" |
| JKD125 | 锻钢全口径固定球 Forged steel full bore trunnion-mounted ball Class2500 | 1/2" ~12" |

| 缩径 / Reduced Bore | | |
|-------------------|--|-----------|
| JKD21 | 锻钢缩径浮动球 Forged steel reduced bore floating ball Class150 | 1/2" ~6" |
| JKD22 | 锻钢缩径浮动球 Forged steel reduced bore floating ball Class300 | 1/2" ~6" |
| JKD61 | 锻钢缩径固定球 Forged steel reduced bore trunnion-mounted ball Class150 | 2" ~60" |
| JKD62 | 锻钢缩径固定球 Forged steel reduced bore trunnion-mounted ball Class300 | 2" ~60" |
| JKD24 | 锻钢缩径浮动球 Forged steel reduced bore floating ball Class400 | 1/2" ~3" |
| | 锻钢缩径固定球 Forged steel reduced bore trunnion-mounted ball Class400 | 2" ~60" |
| JKD26 | 锻钢缩径浮动球 Forged steel reduced bore floating ball Class600 | 1/2" ~3" |
| | 锻钢缩径固定球 Forged steel reduced bore trunnion-mounted ball Class600 | 2" ~60" |
| JKD28 | 锻钢缩径浮动球 Forged steel reduced bore floating ball Class800 | 1/2" ~3" |
| JKD29 | 锻钢缩径浮动球 Forged steel reduced bore floating ball Class900 | 1/2" ~3" |
| | 锻钢缩径固定球 Forged steel reduced bore trunnion-mounted ball Class900 | 2" ~60" |
| JKD215 | 锻钢缩径浮动球 Forged steel reduced bore floating ball Class1500 | 1/2" ~3" |
| | 锻钢缩径固定球 Forged steel reduced bore trunnion-mounted ball Class1500 | 2" ~30" |
| JKD225 | 锻钢缩径固定球 Forged steel reduced bore trunnion-mounted ball Class2500 | 1/2" ~16" |

3 壳体材料代号 CODE OF BODY MATERIAL

| 代号 Code | 壳体材料 Body material | 代号 Code | 壳体材料 Body material | 代号 Code | 壳体材料 Body material | 代号 Code | 壳体材料 Body material |
|------------|-----------------------|------------|-----------------------|------------|-----------------------|------------|-----------------------|
| C0 | A105 | D0 | A182 F51(UNS 31803) | S0 | F6A | 20 | 20合金 ALLOY 20 |
| C1 | A694 F52 | D1 | A182 F53(UNS 31750) | S1 | F304 | HA | 哈氏合金A HASTELLOY A |
| C2 | A684 F60 | D2 | A182 F55(UNS 31760) | S2 | F304L | HB | 哈氏合金B HASTELLOY B |
| L0 | A350 LF2 | D3 | A182 F44(UNS 31254) | S3 | F316 | OT | 其它 Other |
| L1 | A350 LF3 | A0 | MONEL | S4 | F316L | | |

4 内件材料代号 CODE OF TRIM MATERIAL

| 代号 Code | 球体材料 Ball material | 阀座支承圈材料 Seat retainer material | 阀杆材料 Stem material |
|------------|-----------------------|-----------------------------------|-----------------------|
| 00 | A105 | A105 | A105 |
| 01 | A105 | A105 | F6A |
| 02 | A105 | A105 | 4140 |
| 03 | LF2 | LF2 | LF2 |
| 04 | LF2 | LF2 | F6A |
| 05 | LF2 | LF2 | 4140 |
| 06 | F6A | F6A | F6A |
| 07 | F304 | F304 | F304 |
| 08 | F304L | F304L | F304L |
| 09 | F316 | F316 | F316 |
| 10 | F316L | F316L | F316L |
| 11 | F51(UNS 31803) | F51(UNS 31803) | F51(UNS 31803) |
| 12 | F53(UNS 31750) | F53(UNS 31750) | F53(UNS 31750) |
| 13 | F55(UNS 31760) | F55(UNS 3160) | F55(UNS 31760) |
| 14 | F44(UNS 31254) | F44(UNS 31254) | F44(UNS 31254) |
| 15 | MONEL | MONEL | MONEL |
| 16 | 其它 Other | 其它 Other | 其它 Other |

5 内件处理代号 CODE OF TRIM FOR SURFACE COATING

| 代号 Code | 球体 Ball | 阀座支承圈 Seat retainer | 阀杆 Stem | 顶法兰 Top flange |
|------------|------------|------------------------|------------|-------------------|
| 1 | HCr | Zn | N/A | Zn |
| 2 | HCr | Zn | Zn | Zn |
| 3 | ENP 0.001" | ENP 0.001" | ENP 0.001" | ENP 0.001" |
| 4 | ENP 0.003" | ENP 0.003" | ENP 0.003" | ENP 0.003" |
| 5 | N/A | N/A | ENP 0.001" | N/A |
| 6 | N/A | N/A | N/A | Zn |
| 7 | 其它 Other | 其它 Other | 其它 Other | 其它 Other |

6 密封形式及材料 SEALING PATTERN & MATERIAL

| 代号 Code | 阀座材料 Seat material | O型圈材料 O-rings material | 代号 Code | 阀座材料 Seat material | O型圈材料 O-rings material |
|------------|-----------------------|---------------------------|------------|----------------------------|---------------------------|
| N1 | NYLON PA12 | NBR | R6 | RPTFE | VITON AED |
| N2 | NYLON PA12 | HNBR | R7 | RPTFE | PTFE包覆 PTFE |
| N3 | NYLON PA12 | LNBR | P1 | PEEK | NBR |
| N4 | NYLON PA12 | VITON | P2 | PEEK | HNBR |
| N5 | NYLON PA12 | VITON B | P3 | PEEK | LNBR |
| N6 | NYLON PA12 | VITON AED | P4 | PEEK | VITON |
| N7 | NYLON PA12 | PTFE包覆 PTFE | P5 | PEEK | VITON B |
| D1 | DEVLON | NBR | P6 | PEEK | VITON AED |
| D2 | DEVLON | HNBR | P7 | PEEK | PTFE包覆 PTFE |
| D3 | DEVLON | LNBR | M1 | 喷焊STL Spray welding STL | NBR |
| D4 | DEVLON | VITON | M2 | 喷焊STL Spray welding STL | HNBR |
| D5 | DEVLON | VITON B | M3 | 喷焊STL Spray welding STL | LNBR |
| D6 | DEVLON | VITON AED | M4 | 喷焊STL Spray welding STL | VITON |
| D7 | DEVLON | PTFE包覆 PTFE | M5 | 喷焊STL Spray welding STL | VITON B |
| R1 | RPTFE | NBR | M6 | 喷焊STL Spray welding STL | VITON AED |
| R2 | RPTFE | HNBR | M7 | 喷焊STL Spray welding STL | PTFE包覆 PTFE |
| R3 | RPTFE | LNBR | M8 | 喷焊STL Spray welding STL | N/A |
| R4 | RPTFE | VITON | OT | 其它 OTHER | 其它 OTHER |
| R5 | RPTFE | VITON B | | | |

7 特殊要求 SPECIAL REQUIREMENT

| 代号 Code | 形式 Pattern |
|---------|---|
| L1 | 低温-46℃阀杆加长+150mm 150mm stem extension for low temperature to -46℃. |
| L2 | 低温-46℃以下阀杆加长+300mm 300mm stem extension for low temperature lower than -46℃. |
| H1 | 高温阀杆加长+150mm 150mm stem extension for high temperature |
| H2 | 高温阀杆加长+300mm 300mm stem extension for high temperature |
| F | 粉体金属密封 Metal seated for powder service |

8 口径 SIZE : 1/2" ~ 60"

9 法兰标准 FLANGE STANDARD

| 标准 Standard | ANSI 150~2500 | JB 16~250kgf/cm ² | JIS 10~20K | HGJ 16~250kgf/cm ² |
|-------------|---------------|------------------------------|------------|-------------------------------|
| 压力 Pressure | A15~A250 | J1.6~J25 | 10K~20K | H1.6~H25 |

10 法兰形式 FINISH OF FLANGE SURFACE

| | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|
| 代号 Code | RF | FF | SF | LF | SM | LM | LG |
| 形式 Type | 凸面 | 全平面 | 小凹面 | 大凹面 | 小凸面 | 大凸面 | 大槽面 |
| 代号 Code | SG | LT | ST | RTJ | SW | BW | |
| 形式 Type | 小槽面 | 大榫面 | 小榫面 | 环槽面 | 承插焊 | 对焊 | |

2

结构及特点

CONSTRUCTIONS AND FEATURES

2.1 球体固定 TRUNNION-MOUNTED BALL

球体固定，而浮动阀座可沿流道轴线方向自由移动。

介质压力通过球体传递到转动轴承上，能有效降低转动扭矩。低压时，弹簧推动阀座紧贴球体，能有效的实现密封。

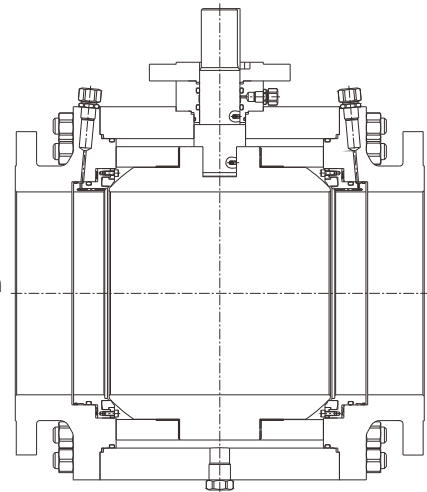
随着介质压力的增加，压力推动阀座更紧的贴紧球体，使密封更加可靠。

The ball is fixed but the seat rings are floating and free to move along the valve axis of passageway.

The fluid pressure delivered through ball to the revolving bearing can effectively reduce the driving torque.

At low pressure the seat sealing action is achieved by the thrust of the spring acting on the seat rings.

Pressure will push seat ring to ball even tighter as medium pressure increases to make seal more reliable.



2.2 分离的球体及阀杆 INDEPENDENT BALL AND STEM

球体及阀杆采用了分离式设计，能使介质作用在球体上的压力对阀杆的影响减少到最低，使阀门扭矩达到最小。

Ball and stem independent design can minimize the the effect of thrust to stem generated by pressure acting on ball, and can also minimize valve torque.

2.3 防静电设计 ANTI-STATIC DESIGN

防静电弹簧及钢球的设计能使阀门在任何情况下都能提供可靠的导电性能。

The electrical conductance continuity between all the metallic components is guaranteed and certified with the design of anti-static spring and ball.

2.4 浮动的阀座 FLOATING SEAT RINGS

精确设计的阀座能保证在零压差下和最大压差下都能实现完全密封并产生最小的扭矩。

Accurately designed seat can minimize torque and guarantee full sealing performance under zero differential pressure and maximum differential pressure.

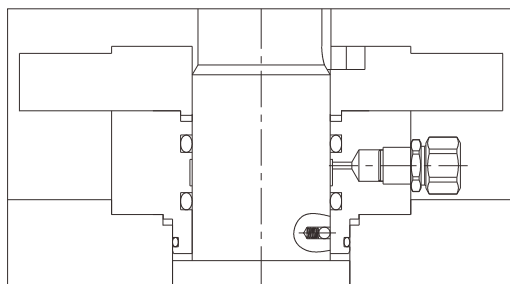
2.5 阀门外部双重密封 DOUBLE SEAL FOR CLOSURE AND STEM

在左右体及阀杆部都设计为双重密封，能最大限度避免外漏。同时第二重密封为防火材料，能在发生火灾时避免外漏。

Double seal design of closure and stem can maximum avoid outer leakage. Meanwhile the second seal can also prevent outer leakage when fire occurs due to its fireproof material.

2.6 阀杆部的密封 STEM SEALING

阀杆部的轴向密封由两个O形圈和一个石墨垫组成，紧急注脂阀的入口放置在两个O形圈之间。此注脂阀注入密封脂和取下连接法兰后，不管在带压或不带压情况下，在阀门任意开度位置，此石墨垫都可被更换。此时在O形圈和密封脂之间可保持着压力不外泄。只有在阀门全开或全关位置而且中腔的压力泄放以后，阀杆部其它部分的密封才可带压下更换。



Stem seal consists of two O-rings and one graphite gasket, retained by gland bushing, and emergency sealant injection port is located between the two O-rings. With sealant injected and gland flange removed, the graphite gasket can be replaced while valve is in any position, and no matter valve is under pressure or not. The pressure can be maintained in the place between O-ring and sealant. Other sealing parts of stem can only be replaced under pressure while the valve is in full open or full close position and body cavity pressure released.

2.7 阀门驱动 VALVE OPERATION

手动操作的阀门可提供带手柄和带手操器两种形式。手柄操作的阀门被限制在小于或等于以下口径：

Hand operated valves are supplied either with a lever or gear operator. The use of lever is limited to valves equal or smaller than:

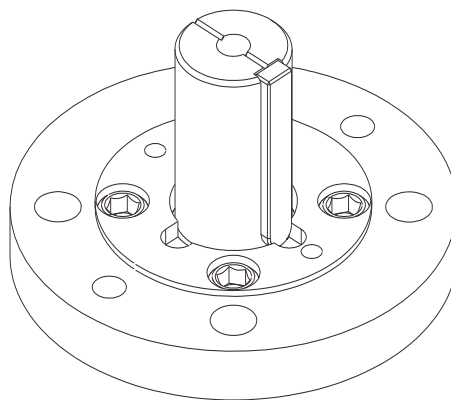
4"–Class 150 4"–Class 300

3"–Class 600 3"–Class 900

2"–Class 1500 1"–Class 2500

本公司可提供电动、气动、液动阀门。其连接法兰为ISO5211标准。

We can also supply electric, pneumatic and hydraulic actuated valves. Its top flange standard is ISO5211.



2.8 双阻双泄 DOUBLE BLOCK & BLEED

阀门在全开及全关位置的双阻双泄功能是本产品的标准设计。

Valve double block and bleed function in full close and full open position is our standard design.

2.9 阀门防火 FIRE SAFE

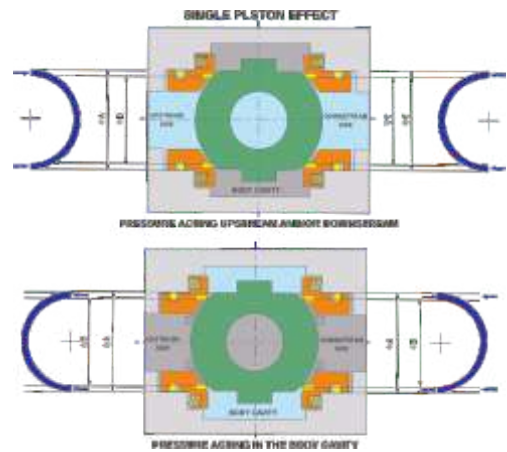
KCON公司生产的球阀通过了API 607防火要求认证。

KCON ball valves are designed and certified to API 607 Firesafe requirements.

2.10 标准的单活塞效应 (自动泄压阀座) STANDARD SINGLE PISTON EFFECT (SELF-RELIEVING SEATS)

在全关或全开位置下，介质上游侧或下游侧的压力在活塞效应作用下，把阀座推向球体，实现密封；而如果中腔有多余压力就会把阀座推离球体，自动释放多余压力，使中腔压力不会异常增高，能提供安全的自动泄压功能。

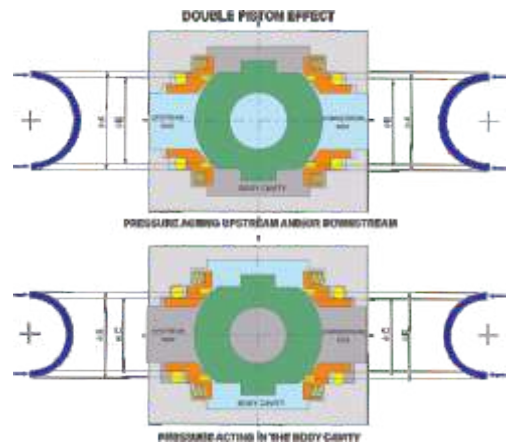
In the fully closed or fully open position, the pressure on the upstream or downstream side of the medium pushes the valve seat to the ball under the effect of the piston to achieve the sealing; if there is excess pressure in the body cavity, the valve seat will be pushed away from the ball, and the excess pressure will be released automatically, so that the pressure in the body cavity will not increase abnormally, which can provide a safe automatic pressure relief function.



2.11 特殊的双活塞效应 OPTIONAL DOUBLE PISTON EFFECT

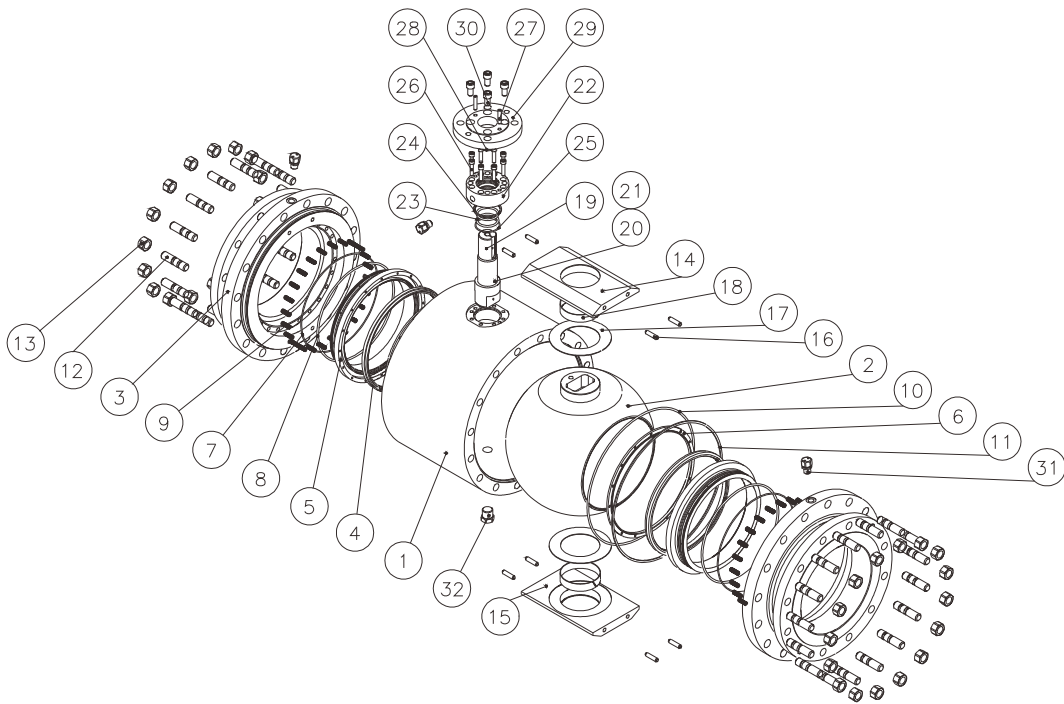
在全关或全开位置下，介质上游侧或下游侧的压力在活塞效应作用下，把阀座推向球体，实现密封；而如果中腔有多余压力也会把阀座推向球体，实现密封，而不会自动泄压，可能使中腔压力越来越高，而带来危险，用户需订购一只安全泄压阀安放在中腔。所以此种设计不做为标准设计，只做为特殊应用可供用户选择。

In the fully closed or fully open position, the pressure on the upstream or downstream side of the medium pushes the valve seat to the ball under the effect of the piston to achieve the sealing; if there is excess pressure in body cavity, the valve seat will also be pushed to ball to create sealing, no automatic pressure relief, which may cause pressure increase in body cavity and cause danger, so the user needs to purchase a safety relief valve to install on body cavity. Therefore, this kind of design is not a standard design, but a special application for users to choose.



3

标准零件组合 STANDARD PARTS



注：此图仅用于DN≥6"。 Note: This drawing is only for DN≥6".

零件清单 PARTS LIST

| No. | 零件名称 PART NAME | | No. | 零件名称 PART NAME | |
|-----|---------------------|-----|-----|-----------------------------|-----|
| 1 | 阀体 BODY | | 7 | 支承圈O型圈 SEAT RETAINER O-RING | YES |
| 2 | 球体 BALL | | 8 | 支承圈O型圈 SEAT RETAINER O-RING | YES |
| 3 | 左右体 BONNET | | 9 | 螺旋弹簧 SPRING | |
| 4 | 阀座 SEAT | YES | 10 | 结合部垫片 BONNET GASKET | YES |
| 5 | 阀座支承圈 SEAT RETAINER | | 11 | 结合部O型圈 BONNET O-RING | YES |
| 6 | 阀座压环 SEAT IMPACTOR | | 12 | 螺柱 STUD | |

备注：带YES的零件为推荐的常用备件。

Remark: The parts with YES are the recommended spare parts.

零件清单 PARTS LIST

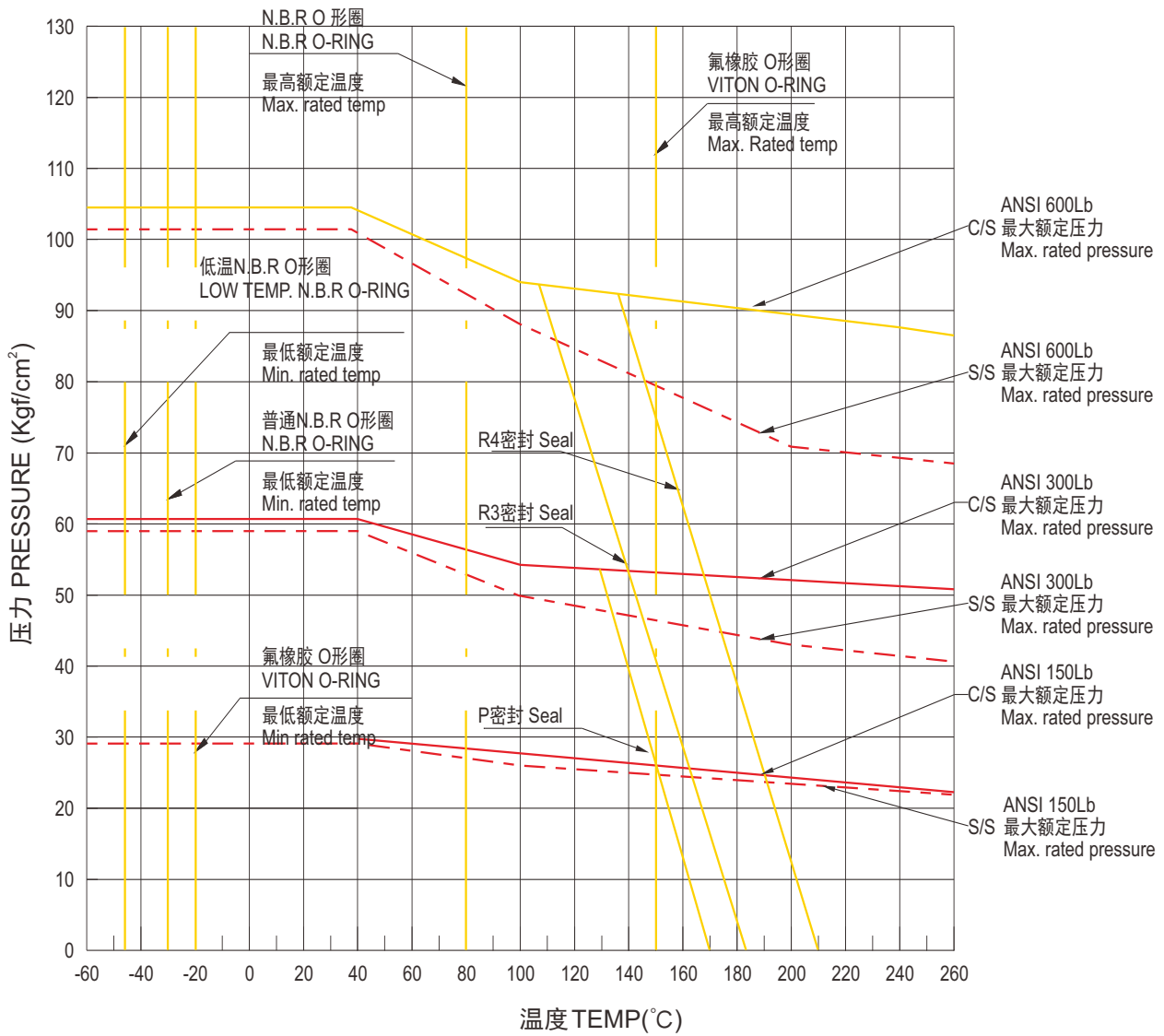
| No. | 零件名称 PART NAME | No. | 零件名称 PART NAME | |
|-----|------------------------------|-----|-------------------------------|-----|
| 13 | 螺母 NUT | 23 | 密封导圈O型圈 GLAND PLATE O-RING | YES |
| 14 | 上支承板 UPPER INTERNAL TRUNNION | 24 | 密封导圈O型圈 GLAND PLATE O-RING | YES |
| 15 | 下支承板 LOWER INTERNAL TRUNNION | 25 | 密封导圈垫片 GLAND PLATE GASKET | YES |
| 16 | 圆柱销 PIN | 26 | 螺栓 BOLT | |
| 17 | 止推轴承 THRUST BEARING | 27 | 结合部O型圈 BONNET O-RING | |
| 18 | 转动轴承 TRUNNION BEARING | 28 | 连接法兰垫片 OPERATOR FLANGE GASKET | YES |
| 19 | 阀杆 STEM | 29 | 连接法兰 OPERATOR FLANGE | |
| 20 | 防静电弹簧 ANTI-STATIC SPRING | 30 | 螺栓 BOLT | |
| 21 | 防静电钢球 ANTI-STATIC BALL | 31 | 注脂阀 GREASE JET VALVE | |
| 22 | 密封导圈 GLAND PLATE | 32 | 排污塞 DRAIN PLUG | |

备注：带YES的零件为推荐的常用备件。

Remark: The parts with YES are the recommended spare parts.



压力温度曲线 PRESSURE-TEMPERATURE CHART





阀门测试 VALVE TESTS

本公司生产的阀门100%按API 6D的要求生产。
KCON valves are manufactured in accordance with API 6D requirements.

标准性能测试 STANDARD PERFORMANCE TESTS

- ▶ 外观及尺寸检查 Visual & Dimension Inspection
- ▶ 高压壳体测试 High-pressure Hydrostatic Shell Test
- ▶ 高压密封测试 High-pressure Hydrostatic Seat Test
- ▶ 低压密封测试 Low-pressure Air Seat Test
- ▶ 阀门力矩检查 Stem Torque Test

泄露等级 LEAKAGE RATES

| 标准代号 Standard Code | 软密封 Soft Seated | 金属密封 Metal Seated |
|-----------------------|--------------------|----------------------|
| API 6D | 无泄漏 No Leakage | - |
| BS 6755 | Rate A | Rate B |
| ANSI B16.104 | Class VI | Class V |

额定压力及测试压力 RATED PRESSURE & TEST PRESSURE

| 压力等级 ASME Class | 额定压力 Rated Pressure | | | 阀体测试 Shell Test | | |
|--------------------|---------------------|-----|---------------------|-----------------|-------|---------------------|
| | psi | bar | kgf/cm ² | psi | bar | kgf/cm ² |
| 150 | 275 | 19 | 19.3 | 413 | 28.5 | 29 |
| 300 | 720 | 50 | 51 | 1080 | 75 | 77 |
| 600 | 1440 | 99 | 101 | 2160 | 148.5 | 152 |
| 900 | 2160 | 149 | 152 | 3240 | 223.5 | 228 |
| 1500 | 3600 | 248 | 253 | 5400 | 372 | 380 |
| 2500 | 5988 | 413 | 421 | 8982 | 619.5 | 632 |

| 压力等级 ASME Class | 高压测试 H.P. Seat Test | | | 低压测试 Air Seat Test | | |
|--------------------|---------------------|-------|---------------------|--------------------|-----|---------------------|
| | psi | bar | kgf/cm ² | psi | bar | kgf/cm ² |
| 150 | 303 | 20.9 | 21 | 100 | 6 | 7 |
| 300 | 792 | 55 | 56 | 100 | 6 | 7 |
| 600 | 1584 | 108.9 | 111 | 100 | 6 | 7 |
| 900 | 2376 | 163.9 | 167 | 100 | 6 | 7 |
| 1500 | 3960 | 272.8 | 278 | 100 | 6 | 7 |
| 2500 | 6587 | 454.3 | 463 | 100 | 6 | 7 |

单位换算关系 Unit Conversion: 1 bar = 14.5 psi = 0.981 kgf/cm² = 100 kpa 1 °F = (1.8 × °C) + 32

测试时间 TEST DURATION

| | 壳体试压 Shell Test | | | | 阀座试压 Seat Test | |
|--------------------------|-----------------|--------|---------|------|----------------|-----|
| | 1/2"-4" | 6"-10" | 12"-18" | ≥20" | 1/2"-4" | ≥6" |
| 测试时间 Test Duration(S) | 120 | 300 | 900 | 1800 | 120 | 300 |



流量计算方法

DATA FOR CALCULATION OF FLOW

流量系数Cv值表示的是在60°F温度1Psi压力下的每分钟通过阀门的用加仑表示的流量。在此表中表示的是不同口径不同压力等级下的Cv值，这些值是严格遵照此方法进行测试的数据。

The coefficient of flow Cv expresses the rate of flow in gallons per minute at 60°F water with a pressure drop of 1 psig across the valve. The Cv coefficients for the various types and sizes, shown in the table, have been determined from actual flow tests.

注：Kv值是公制的流量系数。其与Cv值的换算关系是如下，Note: Kv is the metric equivalent of Cv, Kv = Cv × 0.85

对于液体 For Liquids

$$(1) Q_L = C_v \sqrt{\frac{\Delta P}{G_L}} \quad (2) \Delta P = G_L \left(\frac{Q_L}{C_v} \right)^2$$

对于气体 For Gases

$$(3) Q_g = 1360 C_v \sqrt{\frac{\Delta P}{G_g T} \cdot \frac{P_1 + P_2}{2}} \quad (4) Q_g = 1360 C_v \sqrt{P_1^2 + 2 G_g T \left(\frac{Q_g}{1360 C_v} \right)^2}$$

符号说明 Symbols Remarks

| | |
|----------------------------|--|
| QL: 液体流量 (加仑/分钟) | QL: Liquid Flow(Gallon/Minute) |
| ΔP: 压差P1-P2 (psi) | ΔP: Differential Pressure P1-P2(psi) |
| GL: 液体相对水的比重(在60 时水为1) | GL: Specific gravity of liquid(water=1 at 60) |
| Qg: 气体流量 (立方英尺/小时) | Qg: Volumetric flow of gas (SCFH) |
| Gg: 气体相对空气的比重(在60°F时 空气为1) | Gg: Specific gravity of gas(air=1 at 60°F) |
| T: 气体绝对温度(°F+460) | T: Absolute temperature of gas(°F+460) |

流量系数Cv FLOW COEFFICIENTS Cv

| 口径 Size | 压力等级 Classes | | | | | |
|------------|--------------|------|------|------|------|------|
| | 150 | 300 | 600 | 900 | 1500 | 2500 |
| 2 | 420 | 420 | 400 | 330 | 330 | 250 |
| 1-1/2 | 690 | 690 | 610 | 520 | 510 | 320 |
| 3×2 | 200 | 200 | 200 | 190 | 180 | 200 |
| 3 | 1200 | 1050 | 1000 | 910 | 820 | 500 |
| 4×3 | 600 | 600 | 600 | 590 | 550 | 560 |
| 4 | 2200 | 2100 | 1850 | 1800 | 1700 | 1100 |
| 6×4 | 800 | 800 | 790 | 790 | 780 | 745 |
| 6 | 5150 | 5100 | 4600 | 4380 | 3800 | 2500 |

| 口径 Size | 压力等级 Classes | | | | | |
|------------|--------------|--------|--------|--------|-------|-------|
| | 150 | 300 | 600 | 900 | 1500 | 2500 |
| 8×6 | 2150 | 2150 | 2150 | 2150 | 2150 | 2150 |
| 8 | 9500 | 9400 | 9000 | 8500 | 7400 | 5300 |
| 10×8 | 4300 | 4300 | 4300 | 4450 | 4450 | 4100 |
| 10 | 15000 | 15000 | 14700 | 14500 | 11500 | 8300 |
| 12×10 | 7550 | 7550 | 7550 | 8000 | 9000 | 7550 |
| 14×10 | 6000 | 6000 | 6000 | 6100 | 6100 | - |
| 12 | 23000 | 23000 | 22500 | 21100 | 18000 | 13000 |
| 14×12 | 14000 | 14000 | 14000 | 12800 | 13000 | - |
| 16×12 | 9100 | 9100 | 9100 | 8900 | 8900 | - |
| 14 | 28000 | 28000 | 28000 | 25000 | 21000 | - |
| 16×14 | 15000 | 15000 | 15000 | 14200 | 14100 | - |
| 16 | 37200 | 37200 | 37200 | 34500 | 27500 | - |
| 18×16 | 21000 | 21000 | 21000 | 19200 | 19000 | - |
| 20×16 | 15300 | 15300 | 15300 | 13800 | 12000 | - |
| 18 | 49000 | 49000 | 49000 | 45000 | 37000 | - |
| 20×18 | 28400 | 28400 | 28400 | 25000 | 25000 | - |
| 20 | 59000 | 59000 | 59000 | 55200 | 47800 | - |
| 24×20 | 28200 | 28200 | 28000 | 25100 | 20600 | - |
| 22 | 68200 | 68200 | 68200 | 62000 | 54000 | - |
| 24 | 92000 | 92000 | 92000 | 83800 | 70000 | - |
| 30×24 | 36000 | 36000 | 36000 | 32900 | - | - |
| 26 | 110000 | 110000 | 110000 | 98500 | - | - |
| 28 | 121000 | 121000 | 121000 | 113000 | - | - |
| 30 | 145000 | 144000 | 144000 | 130000 | - | - |
| 36×30 | 64000 | 64000 | 64000 | 61500 | - | - |
| 32 | 170000 | 170000 | 170000 | 151000 | - | - |
| 36×32 | 87000 | 87000 | 87000 | 69500 | - | - |
| 36 | 210000 | 210000 | 210000 | 198200 | - | - |
| 40 | 267500 | 267500 | 267500 | - | - | - |
| 42×36 | 96700 | 96700 | 96000 | - | - | - |
| 42 | 280000 | 280000 | 280000 | - | - | - |
| 48 | 384000 | 384000 | 384000 | - | - | - |
| 56×42 | 89000 | 89000 | 89000 | - | - | - |
| 56 | 521000 | 521000 | 521000 | - | - | - |



外形尺寸

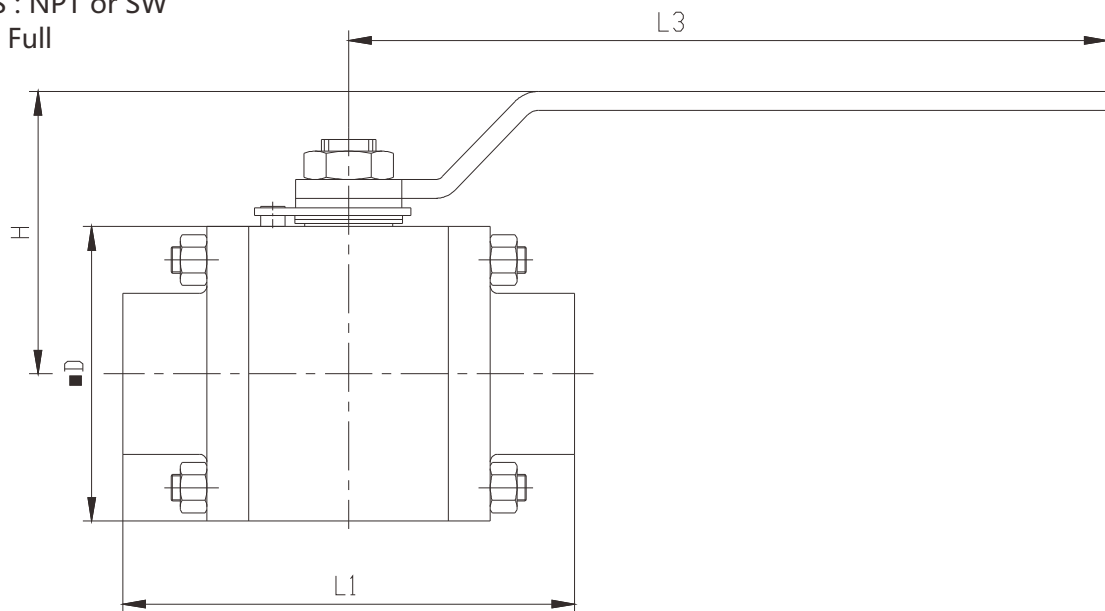
OVERALL DIMENSIONS

FLOATING BALL VALVE

Class 800 /1500 (PN140/250)

ENDS : NPT or SW

Bore: Full



| NPS | | 1/2 | 3/4 | 1 | 1-1/2 | 2 |
|-----------------------|----|-----|-----|-----|-------|-----|
| DN | | 15 | 20 | 25 | 40 | 50 |
| Class 800 (PN140) | L1 | 92 | 111 | 123 | 149 | 174 |
| | ΦD | 65 | 75 | 90 | 115 | 140 |
| | H | 65 | 70 | 85 | 100 | 135 |
| | L3 | 160 | 160 | 230 | 230 | 350 |
| Weight(kg) | | 2.5 | 4 | 6 | 13 | 23 |
| Class 1500 (PN250) | L1 | 92 | 111 | 123 | 149 | 174 |
| | ΦD | 65 | 75 | 90 | 115 | 140 |
| | H | 65 | 70 | 85 | 100 | 135 |
| | L3 | 160 | 160 | 230 | 230 | 350 |
| Weight(kg) | | 2.5 | 4 | 6 | 13 | 23 |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

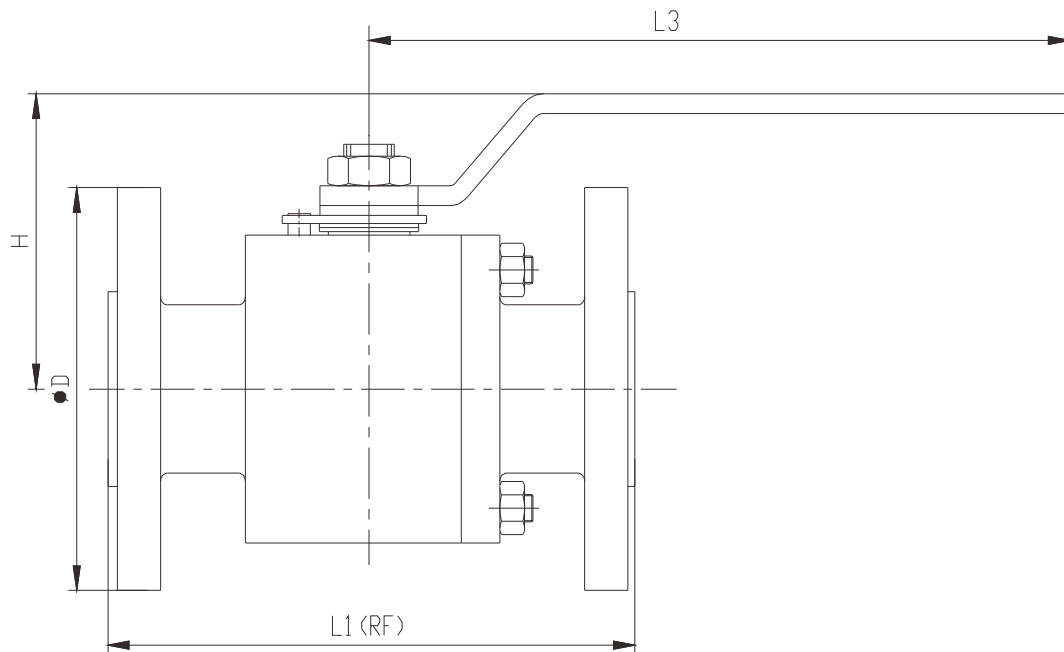
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

FLOATING BALL VALVE

Class 150/ 300 (PN20/50)

Flange End:RF

Bore: Full



| NPS | | 1/2 | 3/4 | 1 | 1-1/2 | 2 | 2-1/2 | 3 | 4 |
|---------------------|----|-----|-----|-----|-------|-----|-------|-----|-----|
| DN | | 15 | 20 | 25 | 40 | 50 | 65 | 80 | 100 |
| Class 150 (PN20) | L1 | 108 | 117 | 127 | 165 | 178 | 190 | 203 | 229 |
| | ΦD | 90 | 100 | 110 | 125 | 150 | 180 | 190 | 230 |
| | H | 85 | 90 | 100 | 120 | 130 | 175 | 180 | 220 |
| | L3 | 130 | 130 | 160 | 230 | 230 | 400 | 400 | 700 |
| Weight(kg) | | 3.5 | 5 | 6.5 | 14 | 17 | 27 | 34 | 52 |
| Class 300 (PN50) | L1 | 140 | 152 | 165 | 190 | 216 | 241 | 283 | 305 |
| | ΦD | 95 | 115 | 125 | 155 | 165 | 190 | 210 | 255 |
| | H | 85 | 90 | 100 | 120 | 130 | 175 | 180 | 220 |
| | L3 | 130 | 130 | 160 | 230 | 230 | 400 | 400 | 700 |
| Weight(kg) | | 5.5 | 6 | 13 | 19 | 21 | 30 | 48 | 61 |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

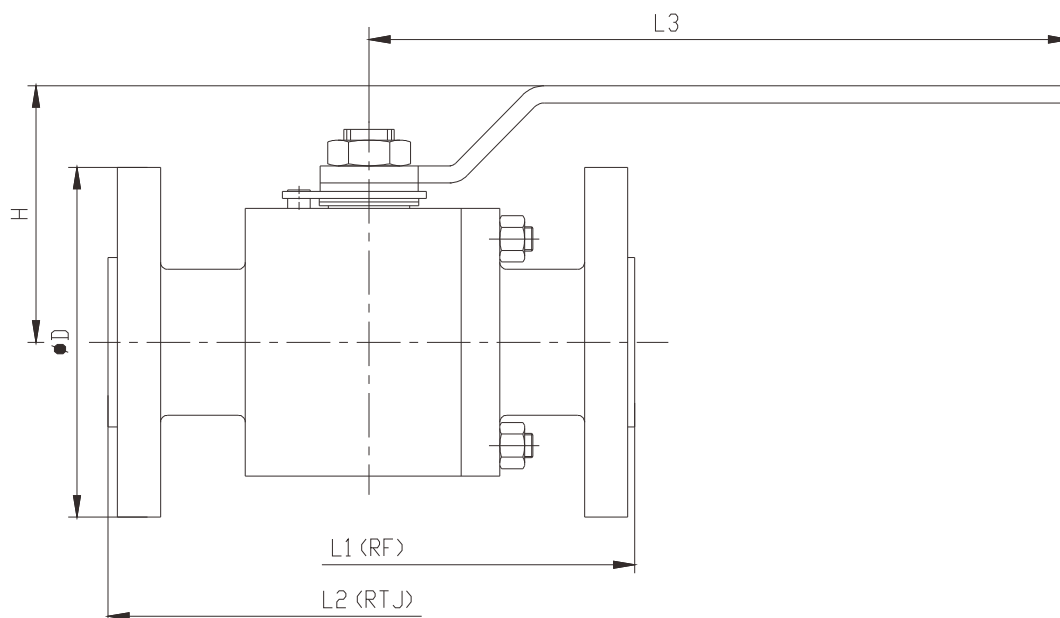
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

FLOATING BALL VALVE

Class 400/600 (PN63/100)

Flange End:RF or RTJ

Bore: Full



| NPS | | 1/2 | 3/4 | 1 | 1-1/2 | 2 |
|----------------------|---------|-----|------|-----|-------|-----|
| DN | | 15 | 20 | 25 | 40 | 50 |
| Class 400 (PN63) | L1(RF) | 165 | 190 | 216 | 241 | 292 |
| | L2(RTJ) | 165 | 190 | 216 | 241 | 295 |
| | ΦD | 95 | 115 | 125 | 155 | 165 |
| | H | 80 | 95 | 95 | 105 | 130 |
| | L3 | 130 | 250 | 250 | 300 | 400 |
| Weight(kg) | | 5 | 10.5 | 11 | 24 | 37 |
| Class 600 (PN100) | L1(RF) | 165 | 190 | 216 | 241 | 292 |
| | L2(RTJ) | 165 | 190 | 216 | 241 | 295 |
| | ΦD | 95 | 115 | 125 | 155 | 165 |
| | H | 80 | 95 | 95 | 105 | 130 |
| | L3 | 130 | 250 | 250 | 300 | 400 |
| Weight(kg) | | 5 | 10.5 | 11 | 24 | 37 |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

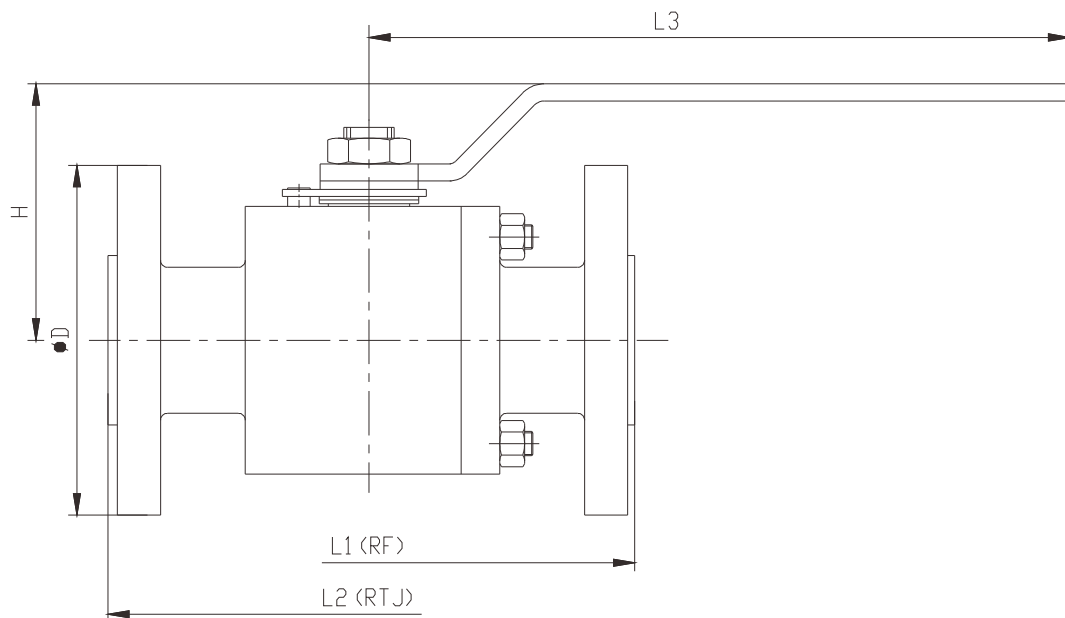
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

FLOATING BALL VALVE

Class 900/1500 (PN150/PN250)

Flange End:RF or RTJ

Bore: Full



| NPS | | 1/2 | 3/4 | 1 | 1-1/2 | 2 |
|-----------------------|---------|-----|------|-----|-------|-----|
| DN | | 15 | 20 | 25 | 40 | 50 |
| Class 900 (PN150) | L1(RF) | 190 | 229 | 254 | 305 | 368 |
| | L2(RTJ) | 190 | 229 | 254 | 305 | 371 |
| | ΦD | 120 | 130 | 150 | 180 | 215 |
| | H | 80 | 100 | 110 | 120 | 140 |
| | L3 | 200 | 250 | 350 | 350 | 400 |
| Weight(kg) | | 9.5 | 14.5 | 30 | 42 | 57 |
| Class 1500 (PN250) | L1(RF) | 190 | 229 | 254 | 305 | 368 |
| | L2(RTJ) | 190 | 229 | 254 | 305 | 371 |
| | ΦD | 120 | 130 | 150 | 180 | 215 |
| | H | 80 | 100 | 110 | 120 | 140 |
| | L3 | 200 | 250 | 350 | 350 | 400 |
| Weight(kg) | | 9.5 | 14.5 | 30 | 42 | 57 |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

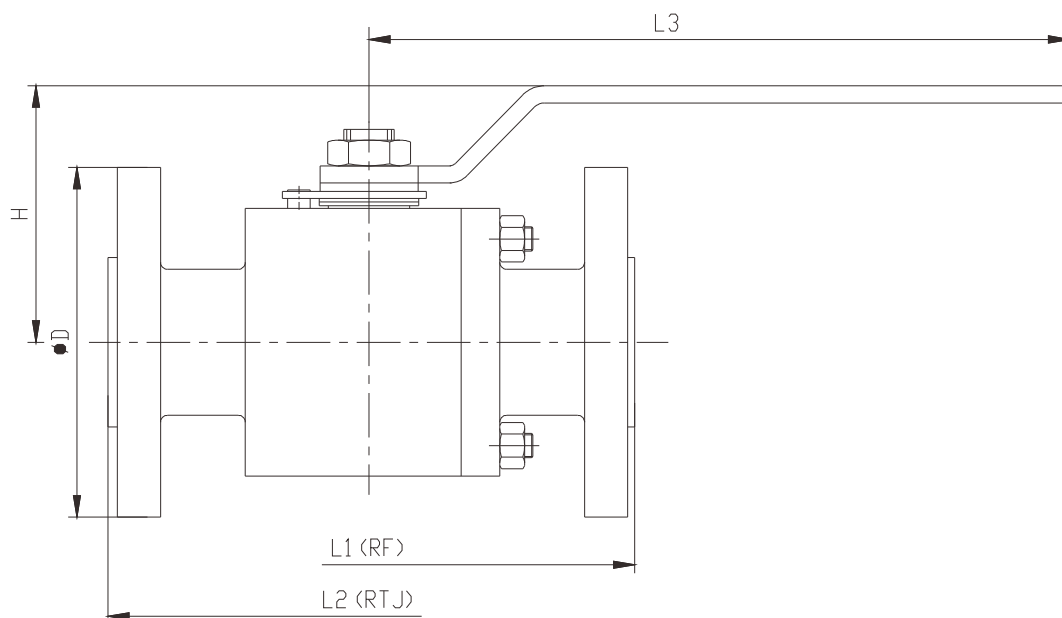
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

FLOATING BALL VALVE

Class 2500 (PN420)

Flange End:RF or RTJ

Bore: Full



| NPS | | 1/2 | 3/4 | 1 | 1-1/2 | 2 |
|-----------------------|---------|------|-----|-----|-------|----|
| DN | | 15 | 20 | 25 | 40 | 50 |
| Class 2500 (PN420) | L1(RF) | 229 | 254 | 305 | - | - |
| | L2(RTJ) | 229 | 254 | 305 | - | - |
| | ΦD | 135 | 140 | 160 | - | - |
| | H | 100 | 110 | 125 | - | - |
| | L3 | 250 | 300 | 350 | - | - |
| Weight(kg) | | 14.5 | 30 | 42 | - | - |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

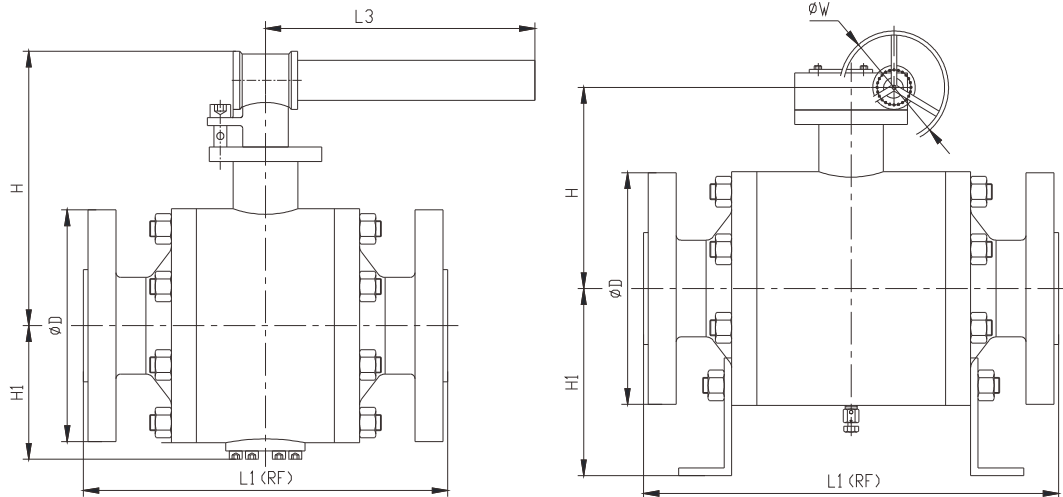
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 150/ 300 (PN20/50)

Flange End:RF

Bore: Full



| NPS | | 2 | 2-1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
|------------------|--------|------|-------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| DN | | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
| Class 150 (PN20) | L1(RF) | 178 | 190 | 203 | 229 | 394 | 457 | 533 | 610 | 686 | 762 | 864 | 914 | 991 | 1067 |
| | ΦD | 150 | 180 | 190 | 230 | 280 | 345 | 405 | 485 | 535 | 595 | 635 | 700 | 750 | 815 |
| | H | 225 | 230 | 235 | 290 | 295 | 330 | 370 | 400 | 440 | 490 | 530 | 590 | 640 | 700 |
| | H1 | 120 | 130 | 135 | 160 | 240 | 275 | 360 | 400 | 390 | 430 | 480 | 520 | 560 | 590 |
| | L3 | 325 | 400 | 450 | 700 | - | - | - | - | - | - | - | - | - | - |
| | ΦW | - | - | - | - | 465 | 465 | 600 | 600 | 600 | 600 | 600 | 750 | 750 | 750 |
| Weight(kg) | | 21.5 | 28 | 33 | 80 | 130 | 285 | 410 | 600 | 800 | 1020 | 1250 | 1800 | 2460 | 3100 |
| Class 300 (PN50) | L1(RF) | 216 | 241 | 283 | 305 | 403 | 502 | 568 | 648 | 762 | 838 | 914 | 991 | 1092 | 1143 |
| | ΦD | 165 | 190 | 210 | 255 | 320 | 380 | 445 | 520 | 585 | 650 | 710 | 775 | 840 | 915 |
| | H | 225 | 230 | 265 | 290 | 295 | 330 | 370 | 420 | 450 | 500 | 560 | 620 | 660 | 700 |
| | H1 | 120 | 130 | 135 | 160 | 240 | 275 | 360 | 400 | 390 | 440 | 490 | 565 | 610 | 640 |
| | L3 | 450 | 500 | 700 | 800 | - | - | - | - | - | - | - | - | - | - |
| | ΦW | - | - | - | - | 465 | 600 | 600 | 600 | 600 | 600 | 750 | 750 | 750 | 750 |
| Weight(kg) | | 25 | 35 | 50 | 110 | 170 | 331 | 520 | 750 | 1150 | 1450 | 1750 | 2200 | 2800 | 3600 |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

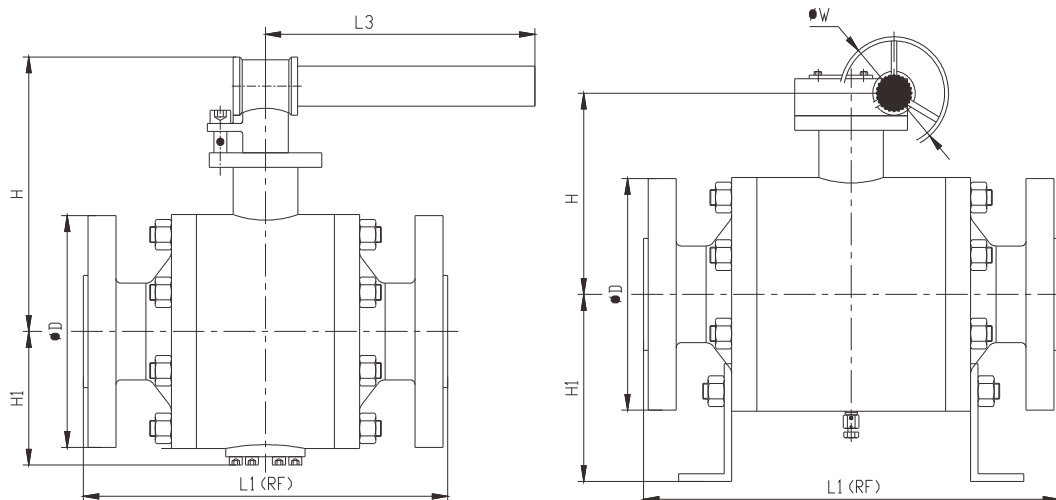
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 150 (PN20)

Flange End:RF

Bore: Full



| NPS | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 48 | 56 | |
|------------------------|---------|------|------|------|------|------|-------|-------|-------|-------|-------|------|
| DN | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1200 | 1400 | |
| Class 150 (PN20) | L1(RF) | 1143 | 1245 | 1295 | 1372 | 1473 | 1524 | 1648 | 1753 | 1930 | 2134 | 2489 |
| | ΦD(A系列) | 870 | 925 | 985 | 1060 | 1110 | 1170 | 1240 | 1290 | 1345 | 1510 | 1745 |
| | ΦD(B系列) | 785 | 835 | 885 | 940 | 1005 | 1055 | 1215 | 1175 | 1224 | 1390 | 1600 |
| | H | 740 | 760 | 810 | 840 | 870 | 920 | 950 | 1000 | 1150 | 1300 | 1500 |
| | H1 | 640 | 680 | 710 | 740 | 770 | 820 | 860 | 900 | 950 | 1100 | 1350 |
| | L3 | - | - | - | - | - | - | - | - | - | - | - |
| ΦW | 750 | 750 | 750 | 750 | 800 | 800 | 900 | 900 | 1000 | 1000 | 1000 | |
| Weight(kg) | 4050 | 4830 | 5960 | 7480 | 8032 | 9100 | 12500 | 14100 | 15320 | 22000 | 34150 | |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

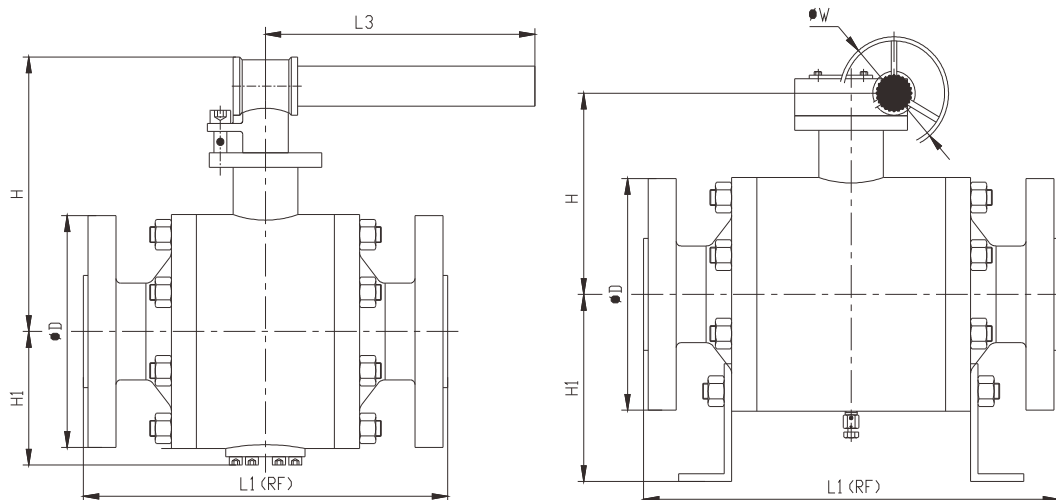
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 300 (PN50)

Flange End:RF

Bore: Full



| NPS | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 48 | 56 | |
|------------------------|---------|------|------|------|------|-------|-------|-------|-------|-------|-------|------|
| DN | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1200 | 1400 | |
| Class 300 (PN50) | L1(RF) | 1245 | 1346 | 1397 | 1524 | 1626 | 1727 | 1870 | 1956 | 2083 | 2170 | 2743 |
| | ΦD(A系列) | 970 | 1035 | 1090 | 1150 | 1205 | 1270 | 1170 | 1240 | 1290 | 1465 | 1710 |
| | ΦD(B系列) | 865 | 920 | 990 | 1055 | 1110 | 1170 | 1220 | 1275 | 1335 | 1510 | 1765 |
| | H | 740 | 780 | 840 | 870 | 920 | 950 | 1000 | 1050 | 1200 | 1350 | 1550 |
| | H1 | 680 | 710 | 740 | 750 | 820 | 860 | 900 | 950 | 1000 | 1150 | 1400 |
| | L3 | - | - | - | - | - | - | - | - | - | - | - |
| ΦW | 750 | 750 | 750 | 750 | 800 | 900 | 1000 | 1000 | 1000 | 1000 | 1000 | |
| Weight(kg) | 4670 | 5780 | 6600 | 7940 | 9100 | 10150 | 11600 | 14800 | 16120 | 24070 | 38200 | |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

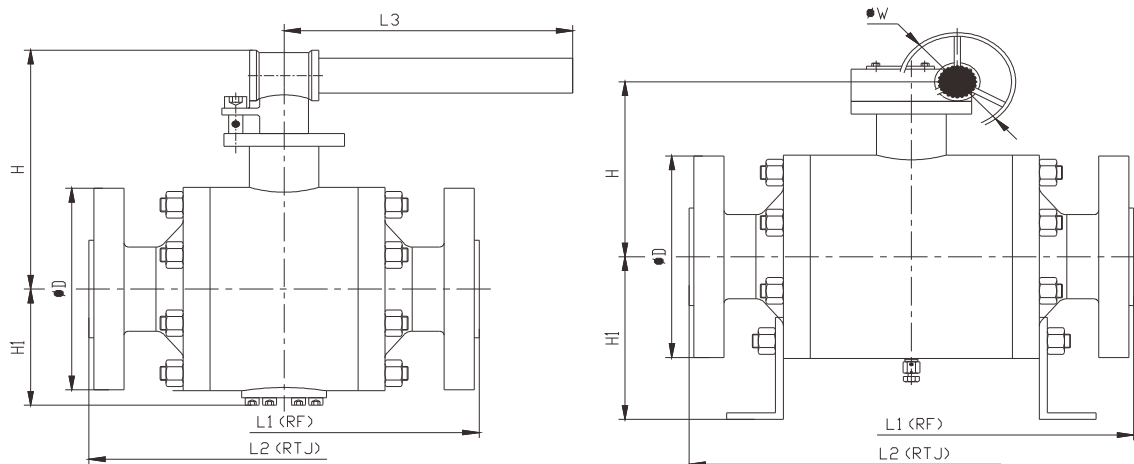
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 400 (PN63)

Flange End:RF or RTJ

Bore: Full



| NPS | 2 | 2-1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | |
|------------------------|---------|-------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|
| DN | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | |
| Class 400 (PN63) | L1(RF) | 292 | 330 | 356 | 406 | 495 | 597 | 673 | 762 | 826 | 902 | 978 | 1054 | 1143 | 1232 |
| | L2(RRJ) | 292 | 333 | 359 | 410 | 498 | 600 | 676 | 765 | 829 | 905 | 981 | 1060 | 1153 | 1241 |
| | ΦD | 165 | 190 | 210 | 255 | 320 | 380 | 445 | 520 | 585 | 650 | 710 | 775 | 840 | 915 |
| | H | 225 | 245 | 225 | 250 | 300 | 340 | 375 | 420 | 470 | 520 | 570 | 610 | 670 | 720 |
| | H1 | 120 | 130 | 135 | 160 | 240 | 275 | 360 | 400 | 420 | 440 | 480 | 520 | 580 | 620 |
| | L3 | 450 | 600 | - | - | - | - | - | - | - | - | - | - | - | - |
| ΦW | - | - | 465 | 465 | 465 | 600 | 600 | 600 | 600 | 600 | 750 | 750 | 750 | 750 | |
| Weight(kg) | 28 | 38 | 55 | 130 | 250 | 450 | 680 | 940 | 1170 | 1400 | 1980 | 2650 | 3300 | 3950 | |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

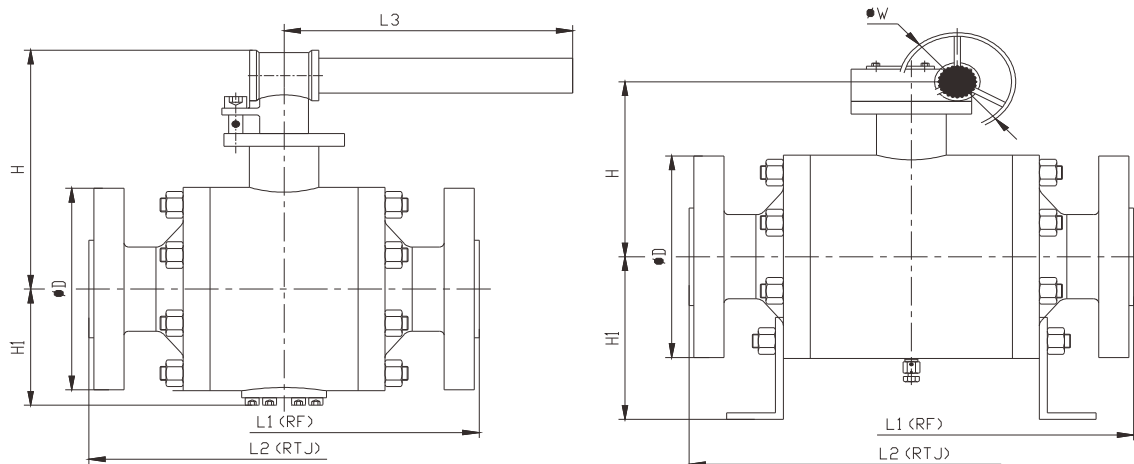
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 600 (PN100)

Flange End: RF or RTJ

Bore: Full



| NPS | | 2 | 2-1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
|-------------------------|---------|-----|-------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| DN | | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
| Class 600 (PN100) | L1(RF) | 292 | 330 | 356 | 432 | 559 | 660 | 787 | 838 | 889 | 991 | 1092 | 1194 | 1295 | 1397 |
| | L2(RRJ) | 292 | 333 | 359 | 435 | 562 | 664 | 791 | 841 | 892 | 994 | 1095 | 1200 | 1305 | 1407 |
| | ΦD | 165 | 190 | 210 | 275 | 355 | 420 | 510 | 560 | 605 | 685 | 745 | 815 | 870 | 940 |
| | H | 225 | 245 | 225 | 250 | 300 | 340 | 380 | 430 | 480 | 520 | 580 | 620 | 680 | 750 |
| | H1 | 120 | 130 | 135 | 160 | 240 | 300 | 360 | 420 | 460 | 500 | 540 | 580 | 620 | 670 |
| | L3 | 450 | 600 | - | - | - | - | - | - | - | - | - | - | - | - |
| | ΦW | - | - | 465 | 465 | 465 | 600 | 600 | 600 | 600 | 750 | 750 | 750 | 750 | 750 |
| Weight(kg) | | 28 | 38 | 55 | 140 | 260 | 490 | 770 | 990 | 1280 | 1540 | 2100 | 2800 | 3800 | 4800 |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

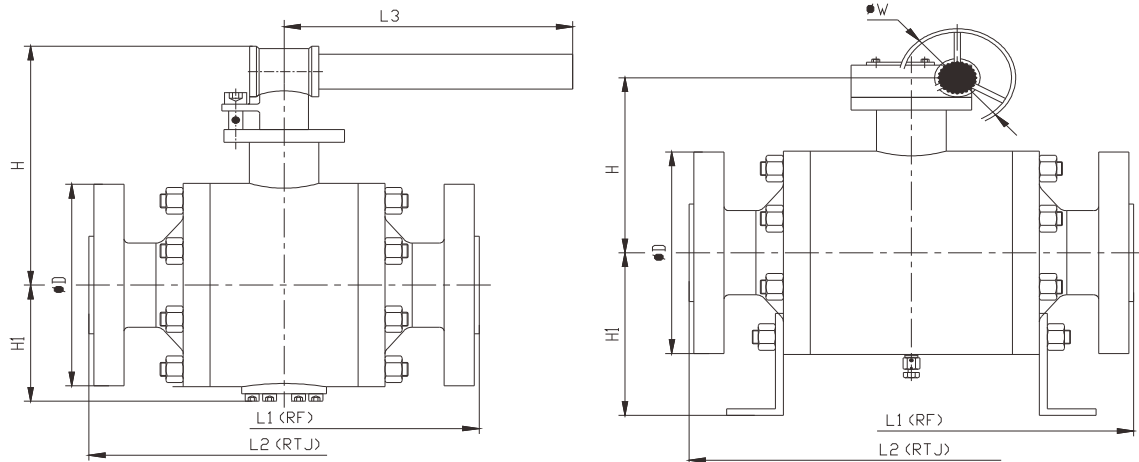
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 400 (PN63)

Flange End:RF or RTJ

Bore: Full



| NPS | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 48 | 56 | |
|------------------------|---------|------|------|------|------|-------|-------|-------|-------|-------|-------|------|
| DN | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1200 | 1400 | |
| Class 400 (PN63) | L1(RF) | 1308 | 1397 | 1524 | 1651 | 1778 | 1880 | 2150 | 2170 | 2175 | 2435 | 2710 |
| | L2(RRJ) | 1321 | 1410 | 1537 | 1667 | 1794 | 1895 | - | - | - | - | - |
| | ΦD(A系列) | 970 | 1035 | 1090 | 1150 | 1205 | 1270 | 1205 | 1270 | 1320 | 1510 | 1755 |
| | ΦD(B系列) | 850 | 915 | 970 | 1035 | 1085 | 1155 | - | - | - | - | - |
| | H | 730 | 750 | 800 | 970 | 1020 | 1070 | 1130 | 1200 | 1280 | 1500 | 1600 |
| | H1 | 640 | 720 | 780 | 850 | 880 | 920 | 980 | 1020 | 1060 | 1260 | 1450 |
| | L3 | - | - | - | - | - | - | - | - | - | - | - |
| ΦW | 750 | 750 | 750 | 750 | 750 | 800 | 900 | 1000 | 1000 | 1000 | 1000 | |
| Weight(kg) | 4800 | 5600 | 6850 | 8770 | 9500 | 11100 | 13500 | 16350 | 18300 | 29100 | 43250 | |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

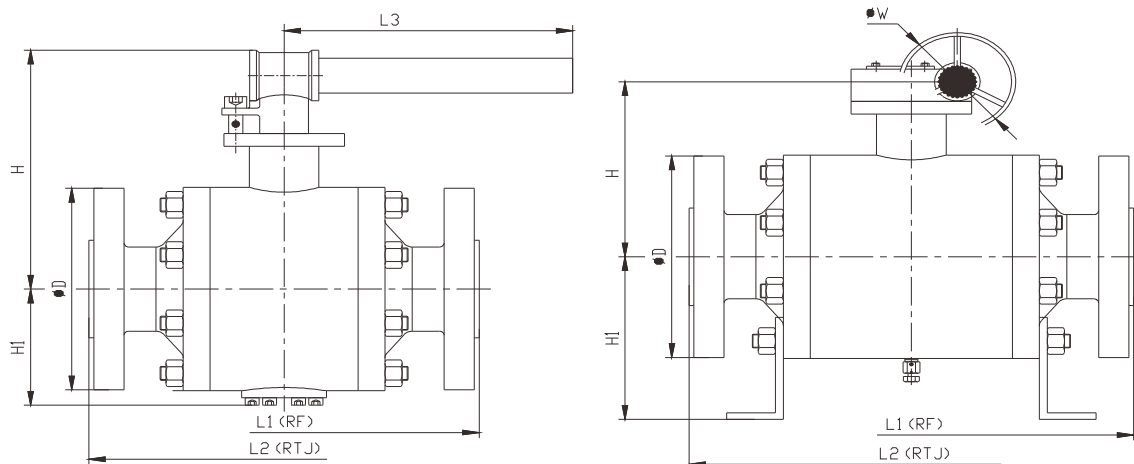
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class600 (PN100)

Flange End:RF or RTJ

Bore: Full



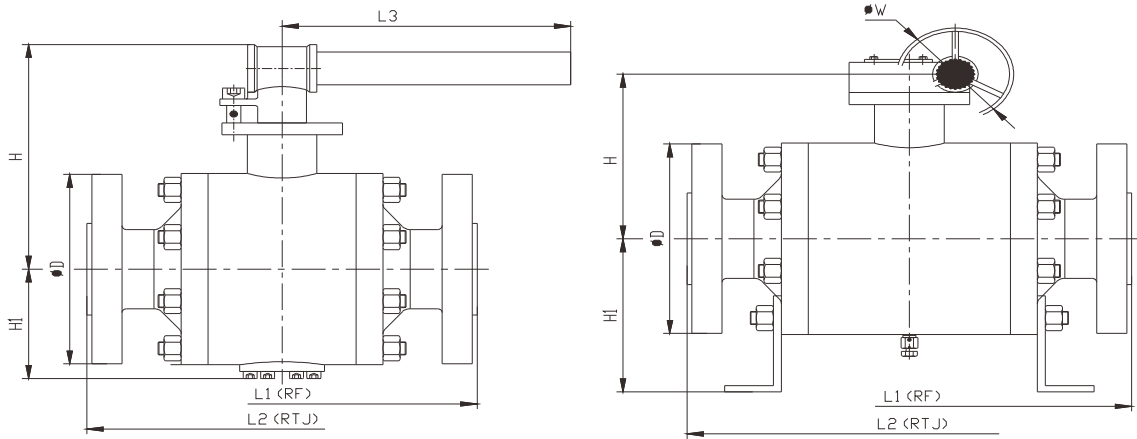
| NPS | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 48 | 56 | |
|-------------------------|---------|------|------|------|-------|-------|-------|-------|-------|-------|-------|------|
| DN | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1200 | 1400 | |
| Class 600 (PN100) | L1(RF) | 1448 | 1549 | 1651 | 1778 | 1930 | 2083 | 2150 | 2170 | 2175 | 2435 | 2710 |
| | L2(RRJ) | 1461 | 1564 | 1664 | 1794 | 1946 | 2099 | - | - | - | - | - |
| | ΦD(A系列) | 1015 | 1075 | 1130 | 1195 | 1245 | 1315 | 1270 | 1320 | 1405 | 1595 | 1855 |
| | ΦD(B系列) | 890 | 950 | 1020 | 1085 | 1160 | 1215 | - | - | - | - | - |
| | H | 730 | 750 | 800 | 970 | 1020 | 1070 | 1130 | 1200 | 1280 | 1500 | 1600 |
| | H1 | 640 | 720 | 780 | 850 | 880 | 920 | 980 | 1020 | 1060 | 1260 | 1450 |
| | L3 | - | - | - | - | - | - | - | - | - | - | - |
| ΦW | 750 | 750 | 750 | 750 | 800 | 900 | 1000 | 1000 | 1000 | 1000 | 1000 | |
| Weight(kg) | 5650 | 6760 | 8380 | 9740 | 11340 | 13300 | 16750 | 18840 | 21360 | 31200 | 47490 | |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 900 (PN150)
 Flange End:RF or RTJ
 Bore: Full



| NPS | 2 | 2-1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | |
|-------------------------|---------|-------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|
| DN | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | |
| Class 900 (PN150) | L1(RF) | 368 | 419 | 381 | 457 | 610 | 737 | 838 | 965 | 1029 | 1130 | 1219 | 1321 | 1549 |
| | L2(RRJ) | 371 | 422 | 384 | 460 | 613 | 740 | 841 | 968 | 1038 | 1140 | 1232 | 1334 | 1568 |
| | ΦD | 215 | 245 | 240 | 290 | 380 | 470 | 545 | 610 | 640 | 705 | 785 | 855 | 1040 |
| | H | 225 | 235 | 235 | 270 | 320 | 350 | 400 | 480 | 520 | 550 | 600 | 650 | 720 |
| | H1 | 120 | 130 | 140 | 165 | 255 | 300 | 370 | 440 | 460 | 490 | 520 | 540 | 630 |
| | L3 | 700 | 700 | - | - | - | - | - | - | - | - | - | - | - |
| ΦW | - | - | 465 | 465 | 600 | 600 | 600 | 600 | 750 | 750 | 800 | 900 | 1000 | |
| Weight(kg) | 48 | 60 | 80 | 145 | 360 | 580 | 1010 | 1510 | 1750 | 2150 | 2820 | 4200 | 6800 | |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

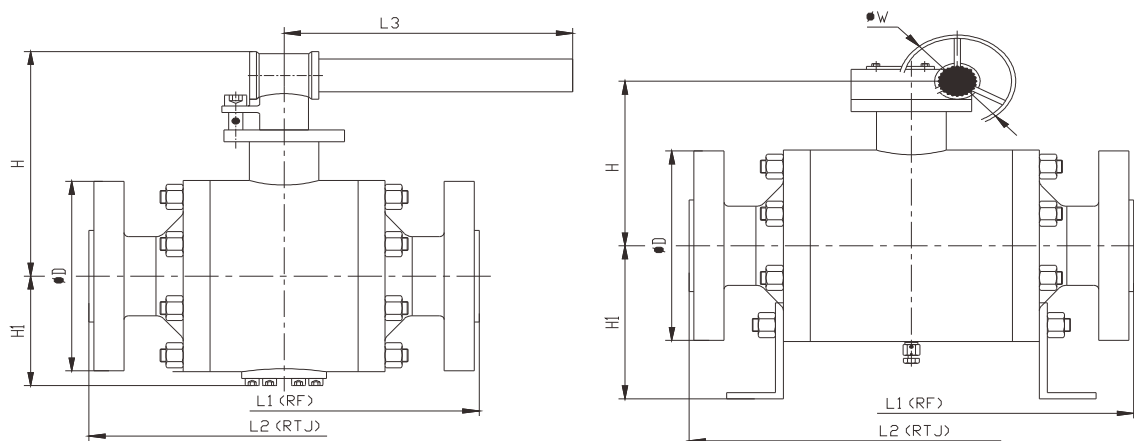
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 1500 (PN250)

Flange End: RF or RTJ

Bore: Full



| NPS | 2 | 2-1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | |
|--------------------------|---------|-------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|
| DN | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | |
| Class 1500 (PN250) | L1(RF) | 368 | 419 | 470 | 546 | 705 | 832 | 991 | 1130 | 1257 | 1384 | 1537 | 1664 | 1944 |
| | L2(RRJ) | 371 | 433 | 473 | 549 | 711 | 841 | 1000 | 1146 | 1276 | 1407 | 1559 | 1686 | 1972 |
| | ΦD | 215 | 245 | 265 | 310 | 395 | 485 | 585 | 675 | 750 | 825 | 915 | 985 | 1170 |
| | H | 225 | 235 | 240 | 270 | 340 | 400 | 470 | 520 | 550 | 600 | 650 | 700 | 780 |
| | H1 | 120 | 130 | 140 | 165 | 290 | 330 | 420 | 500 | 520 | 540 | 580 | 620 | 680 |
| | L3 | 700 | 700 | - | - | - | - | - | - | - | - | - | - | - |
| | ΦW | - | - | 465 | 465 | 600 | 600 | 600 | 750 | 750 | 800 | 900 | 1000 | 1000 |
| Weight(kg) | 50 | 70 | 97 | 198 | 480 | 820 | 1500 | 2250 | 2850 | 4070 | 6200 | 9080 | 1430 | |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

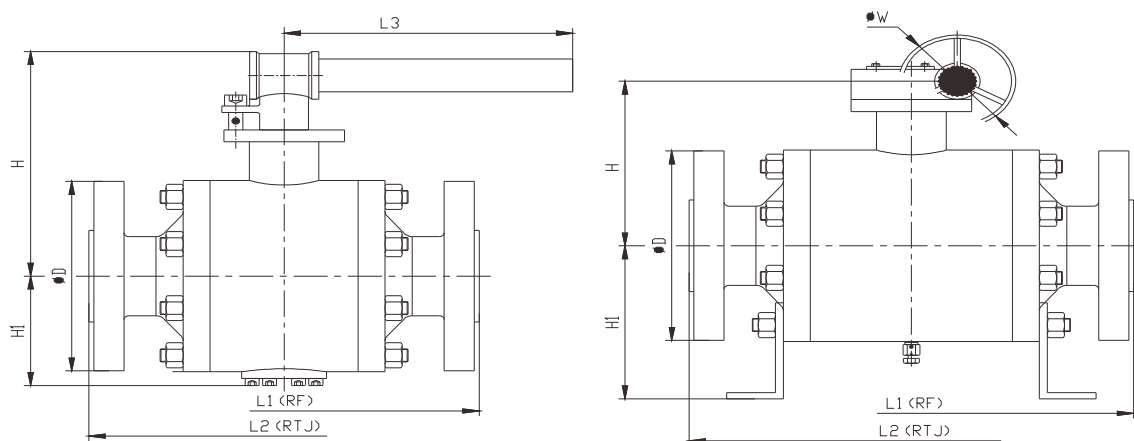
Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 2500 (PN420)

Flange End:RF or RTJ

Bore: Full



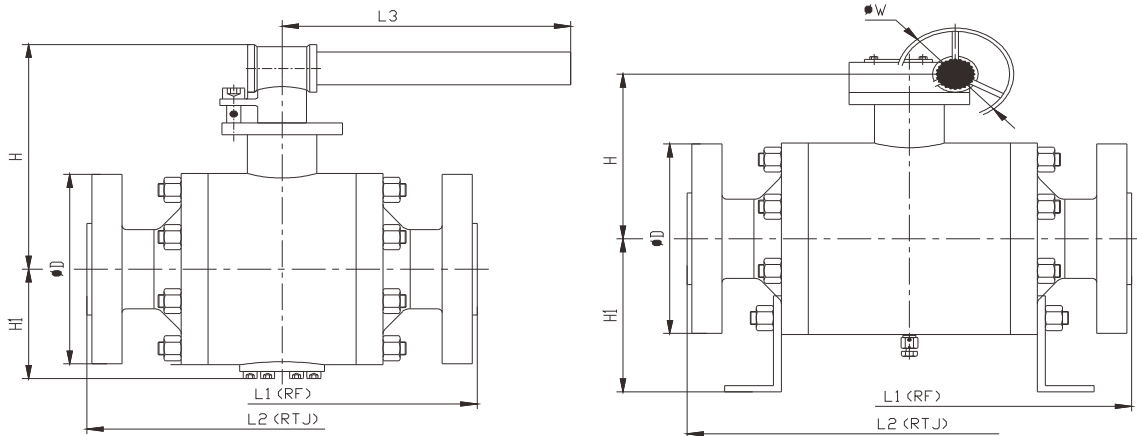
| NPS | 2 | 2-1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 |
|--------------------------|---------|-------|-----|-----|-----|------|------|------|------|-----|-----|-----|-----|
| DN | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 |
| Class 2500 (PN420) | L1(RF) | 451 | 508 | 578 | 673 | 914 | 1022 | 1270 | 1422 | - | - | - | - |
| | L2(RRJ) | 454 | 514 | 584 | 683 | 927 | 1038 | 1292 | 1445 | - | - | - | - |
| | ΦD | 235 | 265 | 305 | 355 | 485 | 550 | 675 | 760 | - | - | - | - |
| | H | 225 | 250 | 280 | 340 | 420 | 470 | 570 | 620 | - | - | - | - |
| | H1 | 145 | 170 | 190 | 220 | 350 | 400 | 500 | 570 | - | - | - | - |
| | L3 | - | - | - | - | - | - | - | - | - | - | - | - |
| | ΦW | 465 | 465 | 600 | 600 | 600 | 750 | 800 | 800 | - | - | - | - |
| Weight(kg) | 88 | 150 | 187 | 380 | 770 | 1357 | 2200 | 3300 | - | - | - | - | - |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

TRUNNION BALL VALVE

Class 900 (PN150)
 Flange End: RF or RTJ
 Bore: Full



| NPS | | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 48 | 56 |
|-------------------------|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DN | | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1200 | 1400 |
| Class 900 (PN150) | L1(RF) | 1651 | 1753 | 1880 | 2032 | 2159 | 2286 | 2283 | 2340 | 2438 | 2769 | 2900 |
| | L2(RRJ) | 1673 | 1775 | 1902 | 2054 | 2188 | 2315 | 2311 | 2368 | 2461 | 2797 | 2930 |
| | ΦD | 1085 | 1170 | 1230 | 1315 | 1395 | 1460 | 1460 | 1510 | 1560 | 1785 | 1885 |
| | H | 850 | 900 | 980 | 1150 | 1200 | 1300 | 1370 | 1450 | 1460 | 1530 | 1650 |
| | H1 | 660 | 710 | 780 | 810 | 850 | 900 | 950 | 1000 | 1050 | 1150 | 1250 |
| | L3 | - | - | - | - | - | - | - | - | - | - | - |
| | ΦW | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Weight(kg) | | 8040 | 10840 | 12220 | 14800 | 17200 | 18900 | 22400 | 24250 | 28700 | 36200 | 51000 |

注：气动、电动、气液联动锻钢分体式球阀和其它规格锻钢分体式球阀外形尺寸请向我公司咨询。

Note: please consult us for the dimensions of pneumatic, electric, gas over oil forged split body Ball Valves and other forged split body Ball Valves.

KCON Valve Typical Overseas Project List 2015-2022

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|--|---|-----------------------|--|-----------|---|--|----------------|------|------|---------|----------|------------------------------|
| 1 | CP22565KD / 21057423-PO-PR-V13-1, CP22581KD / 20SC127122002 | KOC / Jereh Oil & Gas Engineering Corp. | End User / EPC | Jurassic Production Facility-5 (JPF-5) at North Kuwait Project | Oil / Gas | Floating Ball Valve 1/2"~3"-150LB & 300LB, 1/2"~2"-600LB, 3/4"-900LB Trunnion Ball Valve 4"~12"-150LB, 4"~10"-300LB, 3"~8"-600LB, 2" & 6"-900LB Double Ball Floating Ball Valve 1"-1500LB Double Ball Trunnion Ball Valve 2"-300LB~900LB Motor Trunnion Ball Valve 16"-900LB Pneumatic Trunnion Ball Valve 6" & 16"-900LB Gate Valve 2"-150LB, 1/2"~1"-800LB, 3/4"-1500LB Globe Valve 2"~4"-150LB & 600LB, 2" & 4"-300LB, 3/4"-1500LB Piston Lift Check Valve 8"-300LB & 600LB, 1/2" & 3/4"-1500LB Swing Check Valve 2" & 3"-150LB, 6"-900LB Wafer Dual Plate Check Valve 4"-150LB Lug Centerline Butterfly Valve 3"~8"-150LB Needle Valve 1/2"-1500LB | API6D, API594, API602, API609, BS1873, BS1868, ASME B16.34 | CS, SS, SDSS | 2216 | 2022 | Kuwait | Mid-East | Ball, GGC, Butterfly, Needle |
| 2 | CP22586KD / KO22020, CP22561KD / E210200GLS-PO-005, CP22575KD / KO22018, CP22576KD / E210200GLS-PO-037 | KAR / Jereh Oil & Gas Engineering Corp. | End User / EPC | KAR Water Injection Project | Oil / Gas | One-piece Floating Ball Valve 1/2"-300LB & 600LB One-piece RB Floating Ball Valve 3/4"*1/2"-300LB RB Floating Ball Valve 3"*2"-150LB, 2"*1.5" & 4"*3"-300LB, 0.75"*0.5"-800LB Trunnion Ball Valve 10"-600LB RB Trunnion Ball Valve 2"*1.5"~24"*20"-600LB RB Motor Trunnion Ball Valve 20"*16"-600LB Pneumatic Trunnion Ball Valve 8"~16"-150LB Gate Valve 2"~24"-150LB, 0.5"~24"-300LB, 2"~10"-600LB, 0.5"~1.5"-800LB Globe Valve 2"~20"-150LB, 2" & 4"-300LB, 6"-600LB Lug Type Check Valve 2"~20"-150LB, 4"-300LB, 8"-600LB Axial Check Valve 4"~24"-150LB, 20"-300LB, 20" & 30"-600LB Triple Eccentric Butterfly Valve 2"-150LB Pneumatic Centerline Butterfly Valve 4" & 6"-150LB | API6D, API594, API600, API602, API609, ISO17292, BS1873 | CS, SS, Bronze | 691 | 2022 | Iraq | Mid-East | Ball, GGC, Butterfly |
| 3 | CP22519KD / KSM-HTE-05 REV.0, CP22577KD / CMIT-PRT-10.53-220031 | CNOOC IRAQ / CNOOC-ENPAL | End User / EPC | Missan Oil Field Development Project | Oil / Gas | Floating Ball Valve 1/2" & 3"-300LB Trunnion Ball Valve 18"-150LB, 6"-300LB Needle Valve 1/2"-300LB Safety Valve 3"*2"*4"-300LB*150LB | API6D, API526, ISO17292, ASME B16.34 | CS | 161 | 2022 | Iraq | Mid-East | Ball, Needle, Safety |
| 4 | CP22571KD | CNOOC IRAQ | End User | Missan Oil Field FLARE TIP UPGRADE PROJECT | Oil / Gas | Floating Ball Valve 3/4" & 1"-150LB, 3/4"-800LB Trunnion Ball Valve 10"~32"-150LB Gate Valve 1"~20"-150LB Globe Valve 2"-150LB Wafer Dual Plate Check Valve 2"-150LB | API6D, API600, API602, API623, ISO17292 | CS, SS | 53 | 2022 | Iraq | Mid-East | Ball, GGC |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|--|---|-----------------------|---|-----------|---|--|---------------|-----|------|------------|---------------|---------------------------------|
| 5 | CP22551KD / 3020229900160 | GPC Investment / HBP | End User / EPC | Gas Processing Plant (GPP) with a capacity of 1 000 000 000 Nm3/year at the Kashagan field of Atyrau region Project | Oil / Gas | L Type Three-way Trunnion Ball Valve DN25~DN150-150LB, DN50-300LB, DN80 & DN100-600LB | API6D | CS, SS | 55 | 2022 | Kazakhstan | Asia | Ball |
| 6 | CP22514KO / PO# JPF_1249, CP22530KO / ZIO-8060-02, CP22535KO / CC-1179-PO-08, CP22564KO / Q-21123/PO-001/KOC, CP22025KO / 3863/22 | KOC | End User | MRO Project | Oil / Gas | Floating Ball Valve 3/4"-800LB Trunnion Ball Valve 8"~16"-150LB, 2"-600LB Gate Valve 3/4" & 1"-800LB Globe Valve 1/2"-800LB, 16"-150LB, 1/2" & 3/4"-1500LB, 1"-4500LB Lug Type Dual Plate Check Valve 3"-150LB, 8"-300LB Swing Check Valve 8"-150LB~900LB, 12"-600LB | API6D, API594, API602, BS1873, BS1868, MSS-SP 72 | CS, LCS, SDSS | 146 | 2022 | Kuwait | Mid-East | Ball, GGC |
| 7 | CP22032KO-A / K-2176/KOC LTSA PO 1079888/PO-001 R, CP22032KO-B / K-2176/KOC LTSA PO 1104493/PO-002 R1, CP22032KO-C / K-2176/KOC LTSA PO 1134037/PO-003 R2 | KOC | End User | KOC 3 YEARS LTSA FOR BALL VALVES 2 IN & ABOVE PROJECT | Oil / Gas | Floating Ball Valve 2"-150LB~600LB Trunnion Ball Valve 3"~12"-150LB, 6"~10"-300LB, 4"~12"-600LB, 4"-1500LB Metal Seated Trunnion Ball Valve 6"-900LB Motor Trunnion Ball Valve 10"-150LB | API6D | CS, SS, SDSS | 219 | 2022 | Kuwait | Mid-East | Ball |
| 8 | CP22018KO / P22/KCON/1877, CP22559KO / P22/KCON/1876-2 | KNPC | End User | MRO Project | Refinery | Floating Ball Valve 6"-150LB Gate Valve 1"-150LB & 800LB, 12"-150LB | API6D, API600, API602 | CS, SS | 41 | 2022 | Kuwait | Mid-East | Ball, Gate |
| 9 | CP22549KD / PJP0220485, PJP0220560 CP22596KOD / DM-CMHI-226-PO-220 | Petrobras / SBM | End User / EPC | Almirante Tamandare - FPSO Project | Offshore | RB Floating Ball Valve 0.5"~1.5"*1"-150LB, 1.5"*1"-300LB & 3000PSI & 6000PSI, 0.75"*0.5"-6000PSI RB Trunnion Ball Valve 3"*2"-6000PSI Gate Valve 0.75" & 1.5"-150LB & 300LB Globe Valve 0.75" ~1.5"-150LB, 1.5"-300LB Piston Check Valve 1" & 1.5"-150LB | API602, ISO17292, ISO15761, MFG | CS, SS | 645 | 2022 | Brazil | Latin America | Ball, GGC |
| 10 | CP22530KO / ZIO-8060-02 | KNPC | End User | Procurement, Construction & Commissioning of the modification in valve system of burner Project | Refinery | Floating Ball Valve 3/4"-800LB Trunnion Ball Valve 8"~16"-150LB Gate Valve 3/4" & 1"-800LB Globe Valve 1/2"-800LB, 16"-150LB | API602, BS1873, MSS-SP 72 | CS, LCS | 10 | 2022 | Kuwait | Mid-East | Ball, Gate, Globe |
| 11 | CP22521KDO / DQ220107-M002C-4 | CNOOC IRAQ / Daqing Oilfield Construction Group | End User / EPC | Provision OF EPCC for Water Pipeline Project | Oil / Gas | Trunnion Ball Valve 3/4" & 1"-1500LB Gate Valve 2"-1500LB Globe Valve 6"-1500LB Slab Gate Valve 6"-1500LB Angle Type Control Valve 6"-1500LB | API6D, API600, API623, ASME B16.34 | CS, SDSS | 41 | 2022 | Iraq | Mid-East | Ball, Globe, Slab Gate, Control |
| 12 | CP22527KO / 2022-PO00167/TS | ADNOC | End User | MRO Project | Offshore | Gate Valve 2"-150LB | API600 | CS | 24 | 2022 | UAE | Mid-East | Gate |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|---|--|-----------------------|---|---------------|--|---|---------------------------|------|-------------|--------------|----------|----------------------------|
| 13 | CP22017KO / 22/TKC/28430 | SSGC | End User | SSGC/FP/11449 Ball & Plug Valves Project | Oil / Gas | Fully Welded Trunnion Ball Valve 8" & 12"-600LB | API6D | CS | 16 | 2022 | Pakistan | Asia | Ball |
| 14 | CP22015KO / 1813702292, CP22024KO / 1813702334 | KOC / HEAVY ENGINEERING INDUSTRIES & SHIPBUILDING CO | End User / EPC | Installation of Flowlines for Producer Wells in Umm Niqa Project | Oil / Gas | Pressure Balance Plug Valve 2" & 3"-300LB, 3"-900LB, 2"-1500LB | API6D | CS | 2340 | 2022 | Kuwait | Mid-East | Plug |
| 15 | CP22594KOD / 16001-P22-102V5-RMB-V, CP19617KO / 16001-P19-08815-RMB-V | SABIC / WISON | End User / EPC | Saudi Kayan EOEG DBN Project | Petrochemical | Lined Plug Valve 3/4"~24"-150LB | API599 | SS | 18 | 2019 ~ 2022 | Saudi Arabia | Mid-East | Plug |
| 16 | CP21046KO / PD.2312/400-MECD/JEZ/VALVE/(GR-B), CP18114KO / PD.2312/397-MECD/EZ/VALVE/GR-B | TITAS | End User | TITAS Gas Project | Oil / Gas | Pressure Balance Plug Valve 6" & 16"-150LB, 8" & 16"-600LB | API6D | CS | 9 | 2018 ~ 2022 | Bangladesh | Asia | Plug |
| 17 | CP21589KD / E21008HCDP-PO-014, CP21584KD / E21008-PO-030, CP21665KD / E21008-PO-072 | ADNOC / Almansoori / Jereh | End User / EPC | Jebel Ali Pilot Phase Project (JAPP) | Oil / Gas | Floating Ball Valve 1/2"~4"-150LB, 3/4" & 1"-600LB, 1/2"~1"-800LB & 900LB RB Floating Ball Valve 2"*1-1/2"-150LB & 300LB Double Ball Floating Ball Valve 1"-600LB Trunnion Ball Valve 2" & 3"-600LB, RB Trunnion Ball Valve 2"*1-1/2"~4*3"-600LB & 900LB Globe Valve 1" & 2"-150LB & 900LB, 1" & 4"-600LB, 1/2" & 1"-800LB, 1/2" & 3/4"-1500LB Piston Check Valve 1"-150LB, 1/2" & 1"-800LB & 1500LB Dual Plate Check Valve 2"-150LB & 900LB Needle Valve 1/2"-150LB & 800LB | API6D, API594, API602, API608, BS1873, BS5352, ISO17292 | CS, LCS, SS, SDSS, Bronze | 339 | 2021 | UAE | Mid-East | Ball, Globe, Check, Needle |
| 18 | CP21675KD / KO21043 | CNOOC IRAQ / CNOOC-ENPAL | End User / EPC | EPCC FOR DEGASSING STATION UPGRADING AGS1&FQS PROJECT | Oil / Gas | Floating Ball Valve 3/4"~2"-300LB Trunnion Ball Valve 4"~12"-300LB Globe Valve 3/4"~3"-300LB Wafer Swing Check Valve 4"~12"-300LB | API6D, API602, BS1873, ISO17292 | CS | 72 | 2021 | Iraq | Mid-East | Ball, Globe, Check |
| 19 | CP21692KD / E21010OGLS-PO-021 | SONATRACH / JEREH | End User / EPC | BRN-ROD CTH EPC Project | Oil / Gas | Pneumatic RB Floating Ball Valve 2"*1 1/2"~4*3"-150LB Pneumatic RB Trunnion Ball Valve 2"*1 1/2"~14*12"-300LB, 3"*2"~18*14"-600LB, 6"*4" & 10"*8"-2500LB Pneumatic Trunnion Ball Valve 2"~4"-300LB | API6D | CS, LCS, SS | 23 | 2021 | Algeria | Africa | Ball |
| 20 | CP21048KOC | BGFCL / CPPEC | End User / EPC | Installation of Wellhead Compressors at Location-A of Titas Gas Field Project | Oil / Gas | RB Floating Ball Valve 2"*1-1/2"~4*3"-150LB RB Trunnion Ball Valve 8"*6"~24*20"-600LB, 2"*1-1/2"~6"*4"-1500LB | API6D | CS | 160 | 2021 | Bangladesh | Asia | Ball |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|--|---|-----------------------|---|---------------|---|---|-----------------------------------|-----|------|-----------------|----------|-------------------------|
| 21 | CP21028KO / 3826/21, CP21556KO / 3811/21, CP21037KO / 3831/21, CP21691KO / 3844/21, CP21681KO / Q-21123/PO-001 | KOC | End User | MRO Project | Oil / Gas | Pressure Balance Plug Valve 3"-600LB, 5"-1500LB Wafer Lug Center-lined Butterfly Valve 3"~24"-150LB, 3"-300LB Needle Valve 1"-300LB | API6D, API609, API602 | CS, Bronze | 186 | 2021 | Kuwait | Mid-East | Plug, Butterfly, Needle |
| 22 | CP21029KO / JPF_000962-1, CP21624KO / JPF_000980-1, CP21519KO / JPF_000879-1 | KOC | End User | JPF 3 O&M Project | Oil / Gas | Pneumatic Floating Ball Valve 2"-300LB Pneumatic Trunnion Ball Valve 4"-300LB & 600LB Floating Ball Valve 3/4"~3"-150LB, 2"-300LB, 3/4"-600LB, 1/2" & 3/4"-2000LB Trunnion Ball Valve 4" & 6"-150LB Gate Valve 2"~8"-150LB, 2"-300LB & 600LB, 3/4"-800LB Globe Valve 4"-600LB, 2"-1500LB Swing Check Valve 3"-150LB | API6D, API600, API602, BS1868, ASME B16.34, MSS SP 80, MSS SP 110 | CS, SS, SDSS, Alloy, Bronze | 59 | 2021 | Kuwait | Mid-East | Ball, GGC |
| 23 | CP21543KO / PO-034-21-KOC, CP21040KO / PO-569-930125-21 | KOC | End User | MFE/SEK/2671/JS, MFE/SEK/2325206/VK Project | Oil / Gas | Gate Valve 3/4" & 2"-150LB & 1500LB, 3/4"~10"-300LB, 6"-900LB Dual Plate Lug Check Valve 8"-300LB Pressure Balance Plug Valve 1-1/2"-150LB | API600, API602, API594, API6D | CS, SDSS | 99 | 2021 | Kuwait | Mid-East | Gate, Check, Plug |
| 24 | CP21549KO / 1813701731 | KNPC | End User | PJ19-087 & PJ19-090 Project | Petrochemical | Gate Valve 3/4"~20"-150LB, 6"~24"-300LB, 3/4" & 1"-800LB | API600, API602 | CS | 57 | 2021 | Kuwait | Mid-East | Gate |
| 25 | CP21639KO / WT-21-018 | KNPC | End User | RFQ # 1036010 MAA-D/C- PLUG VALVES Project | Petrochemical | Fully Jacketed Plug Valve 4"x6"-150LB, 2"x1"-300LB PTFE Lined Plug Valve 2"-150LB | API599 | CS | 6 | 2021 | Kuwait | Mid-East | Plug |
| 26 | CP21634KO / 2113744337 | ADNOC | End User | Application of Digital Oil Field Technology on Brownfield Towers in Zakum Field Project | Oil / Gas | Needle Valve 1/2"-2500LB | ASME B16.34 | SS | 88 | 2021 | UAE | Mid-East | Needle |
| 27 | CP21551KDO / DQ210415-M059C-5, CP21578KDO / DQ210524-M074C-7 | PETROCHINA HALFAYA / Daqing Oilfield Construction Group | End User / EPC | Halfaya Oil Field Surface Facility Phase 3 MRO Project | Oil / Gas | Swing Check Valve 6"-150LB Wafer type Single Plate Check Valve 3" & 4"-150LB | API6D | CS, SDSS | 7 | 2021 | Iraq | Mid-East | Check |
| 28 | CP21038KD / GWHT20210039323 | PipeChina | End User | No. 50 Valve Station of China-Myanmar Pipeline Project | Oil / Gas | Motor Pressure Balance Plug Valve 2"~13"-600LB | API6D | CS | 6 | 2021 | Myanmar / China | Asia | Plug |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|---|--|-----------------------|---|---------------|--|--|---------------|------|-------------|-----------------|---------------|-------------------------------|
| 29 | CP21513KDO / DQ201217-M174C-7, CP21547KD / KO21011, CP21586KD / KO21022 | CNOOC IRAQ | End User | EPCC for Water Pipeline Project | Oil / Gas | Floating Ball Valve 1/2"~4"-150LB Trunnion Ball Valve 12" & 16"-300LB, 3/4"~2"-1500LB Gate Valve 2"-1500LB Slab Gate Valve 6"-1500LB Globe Valve 4"-300LB, 1" & 6"-1500LB Swing Check Valve 6"-1500LB Piston Check Valve 1-1/2"-150LB Three-Eccentric Butterfly Valve 10"-150LB Angle Type Control Valve 6"-1500LB | API6A, API6D, API600, API602, API609, API623, ISO17292, BS1873 | CS, SS, SDSS | 245 | 2021 | Iraq | Mid-East | Ball, GGC, Butterfly, Control |
| 30 | CP21002KO / 2021-PO00016TS | ADNOC | End User | MRO Project | Oil / Gas | Trunnion Ball Valve 2"-1500LB RB Trunnion Ball Valve 30"*26"-600LB, 12"*10"-900LB | API6D | CS | 4 | 2021 | UAE | Mid-East | Ball |
| 31 | CP21030KD / GTPT-PU-POR-033 | ETAP / Jereh Oil & Gas Engineering Corporation | End User / EPC | Construction of Gas Treatment Plant - Tataouine Gas Project | Oil / Gas | Floating Ball Valve 1"~4"-300LB, 1"&2"-600LB, 1"&1-1/2"-900LB Trunnion Ball Valve 2"~8"-300LB, 2"~6"-600LB, 2"~8"-900LB | API6D | CS, SS | 98 | 2021 | Tunisia | Africa | Ball |
| 32 | CP21025KO / 4340360582, CP21546KO / 4340346350, CP21616KO / 4340364576 | TRINSEO | End User | MRO Project | Chemical | Pneumatic Floating Ball Valve 1/2"~4"-150LB, 1"-800LB Trunnion Ball Valve 2" & 4"-300LB Gate Valve 8"-150LB, 2" & 4"-300LB | API6D, API600, API608 | CS, SS | 29 | 2021 | HongKong, China | Asia | Ball, Gate |
| 33 | CP21026KO / BC2021 0021 | EMEQIP | Trader | MRO Project | Petrochemical | Pig Launcher Valve 8"-150LB Floating Ball Valve 1/2" & 1"-4000PSI Motor Trunnion Ball Valve 8"-150LB | API6D, ASME B16.34 | CS, LCS | 14 | 2021 | Maroc | Africa | Ball, Pig Launcher |
| 34 | CP21510KD / THRD-2020-0629-5, CP21557KD / THRD-2020-0629-3, CP21569KD / THRD-2020-0629-1, CP21591KD / THRD-2020-0629-6, CP20563KDO / THRD-2020-0629 | KENYA PORTS AUTHORITY / CCCC | End User / EPC | MOMBASA NEW KIPEVU OIL TERMINAL (KOT) PREOJECT | Oil / Gas | Motor Trunnion Ball Valve DN100~DN900-150LB, DN300 & DN600-300LB Electro-Hydraulic Trunnion Ball Valve DN600~DN900-150LB, DN600-300LB Motor Slab Gate Valve DN300~DN900-150LB | API6D | CS | 182 | 2020 ~ 2021 | Kenya | Africa | Ball, Slab Gate |
| 35 | CP20507KODC / CPTDC20EX5140034, CP20507KODC-A / CPTDC20EX5140034-02, CP21625KODC / CPTDC20EX5140034-003 | CPTDC PERU | End User | Peruvian Valve Procurement Project | Oil / Gas | Floating Ball Valve 2"~6"-150LB, 4"-300LB, 2"-600LB & 1500LB, 1/2"-1000PSI Trunnion Ball Valve 2" & 3"-600LB, 4"-1500LB Gate Valve 2"-300LB Swing Check Valve 2"-600LB & 1500LB, 1" & 2"-800LB Wafer Lug Centerline Butterfly Valve 8"-150LB | API6D, AP600, API602, API608, API609 | CS, SS, Alloy | 1419 | 2020 ~ 2021 | Peru | Latin America | Ball, Gate, Check, Butterfly |
| 36 | CP20517KD / ZYGDBFFG-ZGDX-2020-MM-267; CP21657KD / GWHT20210041018, BT-CG-20220322 | PipeChina | End User | RUSSIA-CHINA East-Route Natural Gas Pipeline Project | Oil / Gas | Manual Pressure Balance Plug Valve 20"-600LB Motor Pressure Balance Plug Valve 2"~20"-600LB Gas Over Oil Pressure Balance Plug Valve 16" & 20"-600LB | API6D | CS, LCS | 100 | 2020 ~ 2021 | Russia / China | Europe / Asia | Plug |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|--|---|-------------------------|---|---------------|---|--|----------------------|-----|-------------|-------------|----------|----------------------|
| 37 | CP21689KD / ZW20211230-RD54-2B, CP21534KD / 3020219900061, CP20535KD / K020006, CP19644KD / ZW20191209-RD54-1A/2A REV1 | GAS PROCESSING COMPANY / HBP / ZhanWang | End User / EPC / Trader | Comprehensive natural gas treatment project of kajansa oil field, aktobin Prefecture, Kazakhstan | Oil / Gas | Pneumatic Floating Ball Valve 1"-600LB Pneumatic Trunnion Ball Valve 1"~6"-600LB, 10"-300LB, 12"-150LB Floating Ball Valve 1/2"~3"-150LB, 3/4"~2"-300LB & 600LB, 1/2"~1"-800LB RB Floating Ball Valve 2"~1-1/2"-150LB Trunnion Ball Valve 10"-300LB Double Three Way Ball Valve 3/4"~6"-150LB, 4"-300LB, 3"-600LB Gate Valve 3/4"~10"-150LB Globe Valve 3/4"~1"-150LB, 1"-300LB & 600LB Lift Check Valve 1/2"~1-1/2"-150LB, 1"-300LB & 600LB Swing Check Valve 6"-600LB Wafer Three-Eccentric Butterfly Valve 3"~6"-150LB | API6D, API602, API594, API609, ISO17292, ISO15761, ASME B16.34, ASME B55155, GB/T12224 | CS, SS | 369 | 2019 ~ 2021 | Kazakhstan | Asia | Ball, GGC, Butterfly |
| 38 | CP18093KO, CP19572KO, CP19601KO, CP21637KO / P/17052048-PI-000-0001 Rev.0- Rev.5 | KOC | End User | EPC for Train 3 of WARA Pressure Maintenance Project | Oil / Gas | Floating Ball Valve 2" & 3"-150LB Trunnion Ball Valve 4"~12"-150LB, 4" & 6"-300LB Gate Valve 2"~36"-150LB, 2"~6"-300LB, 4"~12"-900LB 2"-1500LB Globe Valve 2"~12"-150LB, 6"-900LB Non Slam Check Valve 12"~16"-150LB, 14"-300LB, 16"-900LB Slab Gate Valve 6"~12"-900LB Post Indicator Gate Valve with extending stem 10"-300LB Swing Check Valve 2" & 3"-150LB, 6"-900LB Dual Plate Check Valve 2"~24"-150LB, 8"-300LB & 900LB BRONZE Trunnion Ball Valve 4" & 6"-300LB BRONZE Gate Valve 2" & 3"-150LB, 3"~6"-300LB | API6D, API600, API594, BS1868, MSS SP-80 | CS, SS, SDSS, Bronze | 948 | 2018 ~ 2021 | Kuwait | Mid-East | Ball, GGC, Slab Gate |
| 39 | CP20039KOD / BC20176, CP20063KOD / BC20176-1 | JFE Engineering | EPC | Sodegaura Thermal Power Plant Project | Power | Fully Welded Trunnion Ball Valve 12"-150LB, 4"~12"-900LB | API6D | CS | 37 | 2020 | Japan | Asia | Ball |
| 40 | CP20621KO / APEISCO-PO-1120-059 | KNPC | End User | MAB - DC - STEAM JACKETED VALVES FOR SULPHUR UNTIS (VEC 16-30) | Petrochemical | Fully Jacket Plug Valve 8*6" & 10*8"-150LB | API599 | CS | 6 | 2020 | Kuwait | Mid-East | Plug |
| 41 | CP20524KD / DPOC/23/17/2682B(SO15) | DPOC / Grand Petroleum Services | End User / EPC | EPCC of 12 Oil Producer Wellheads Facilities & One Oil Gathering Manifold (OGM) | Oil / Gas | Trunnion Ball Valve 6"*4"&8"-900LB, 3/4"-1500LB Lug Wafer Dual Plate Check Valve 6"-900LB | API6D, API594, ASME B16.34 | CS | 55 | 2020 | South Sudan | Africa | Ball, Check |
| 42 | CP20049KO / HGTC/PO:085 | KNPC | End User | MAA-DC / BALL VALVE | Petrochemical | Top Entry Trunnion Ball Valve 3" & 14"-150LB | MSS-SP-72 | CS | 2 | 2020 | Kuwait | Mid-East | Ball |
| 43 | CP20021KOD / BC20123 | 福井石油儲備株式会社 Fukui Oil Reserves Co. Ltd. | End User | Fukui National Petroleum Reserves Base Project | Oil / Gas | Casting Fully Welded Trunnion Ball Valve 500A-300LB | API6D | SCPH2 | 3 | 2020 | Japan | Asia | Ball |
| 44 | CP20030KOD / KO20013 | KSRM / AN HUI Changhao | End User / Trader | Valves for 50 MMSCFD TBS, 30 MMSCFD CMS and 1000 PSIG, 10 Bar External & 6 Bar Internal Pipelines Project | Power | Trunnion Ball Vave 4"~16"-150LB, 10"-600LB Floating Ball Valve 1"-600LB, 3/4"-3000psi | API6D | CS | 23 | 2020 | Bangladesh | Asia | Ball |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|---|---|-----------------------|---|---------------|--|--|----------------------|------|------|------------|----------|----------------------|
| 45 | CP20527KD / SGTRCC002462SG, CP20556KD / SGAFCC19007 | CNOOC IRAQ / CNOOC-ENPAL | End User / EPC | General Contracting Project of Natural Gas Treatment Plant in Missan Oil Field | Oil / Gas | Floating Ball Valve 1"-150LB & 900LB, 2"~1-1/2" & 3/4"-300LB, Gate Valve 2"-150LB, Globe Valve 1"-150LB | ISO17292, API6D, API600, API602 | SS, SDSS | 74 | 2020 | Iraq | Mid-East | Ball, Gate, Globe |
| 46 | CP20564KO / 2020401014 | Freepoint Commodities Singapore / ERIKS | End User / Trader | Upgrading Works for Pulau Sambu Fuel Terminal (Phase 1) | Oil / Gas | Floating Ball Valve 1/2" & 2"-800LB, Lift Check Valve 1" & 2"-PN25 | ASME B16.34 | Bronze | 35 | 2020 | Singapore | Asia | Ball, Check |
| 47 | CP20028KOD / BC20110-2, CP20511KOD / BC19017 R1 | ダイセル(Daicel) / JGC | End User / EPC | ダイセル(Daicel) Chemical MAC-C VALVES Project | Petrochemical | Trunnion Ball Valve 80A~350A-600LB, 80A~250A-900LB, 250A-JIS 10K, 150A-JIS 20K Gate Valve 2" & 6"-900LB Swing Check Valve 3" & 6"-900LB | API6D, API600 | CS, SS, Alloy | 147 | 2020 | Japan | Asia | Ball, Gate, Check |
| 48 | CP20059KO / 3769/20 | KOC | End User | MRO Project | Oil / Gas | T-Type Three Way Trunnion Ball Valve 2"~10"-150LB, 2"~4"-300LB, 3"~6"-600LB | API6D | CS | 18 | 2020 | Kuwait | Mid-East | Ball |
| 49 | CP20552KO / CMIT-804-PRT-10.25-EQP-002-Manual Valves RevA | CNOOC IRAQ / SERT | End User / EPC | Missan Oil Filed Development WTP Upgrade Project | Oil / Gas | Floating Ball Valve 3/4"~4"-150LB Trunnion Ball Valve 6", 8" & 10"-150LB Slab Gate Valve 4"~24"-150LB Gate Valve 1", 2" & 6"-150LB Globe Valve 2"~12"-150LB Wafer Single Plate Check Valve 2", 4" & 6"-150LB | API6D, API600, API602, BS1873, ISO17292 | CS, SS, SDSS | 198 | 2020 | Iraq | Mid-East | Ball, GGC, Slab Gate |
| 50 | CP20528KO / POO000416-R2 | KSRM Power Plant / ZICOM | End User / EPC | Valves for 50 MMSCFD TBS, 30 MMSCFD CMS and 1000 PSIG, 10 Bar External & 6 Bar Internal Pipelines Project | Power | Floating Ball Valve 1" & 2"-150LB, 300LB & 600LB Trunnion Ball Valve 4"~12"-150LB, 12"-300LB, 6"~12"-600LB Gate Valve 1/2" & 1"-800LB Globe Valve 1"~6"-150LB, 1" & 2"-300LB, 1" & 8"-600LB Piston Check Valve 1"-150LB Dual Check Valve 12"-150LB & 600LB | API6D, API594, API602, BS1873 | CS | 233 | 2020 | Bangladesh | Asia | Ball, GGC |
| 51 | CP20509KO, CP20509KO-A / POO001832/3, POO001855/1, POO01853/1 | BGFCL / ZICOM | End User / EPC | INSTALLATION OF GAS COMPRESSORS AT TITAS (LOCATION C) AND NARSINGDI GAS FIELDS | Oil / Gas | Floating Ball Valve 1/2"~6"-150LB~800LB Trunnion Ball 4"~20"-150LB ~900LB Slab Gate Valve 4"~6"-150LB Globe Valve 1"~20"-150LB~1500LB Piston Check Valve 1"-150LB Swing Check Valve 2"~4"-150LB Butterfly Valve 2"~4"-150LB Y-Strainer 2"~4"-150LB~600LB Cage Strainer 3"~6"-150LB | API6D, API594, API602, API609, BS1873 | CS | 1042 | 2020 | Bangladesh | Asia | Ball, GGC, Butterfly |
| 52 | CP20510KO / 19-1-04-11776 Rev.1 | KNPC | End User | MODIFICATION OF LSAR HSAR VGO CIRCUITS & MISCELLANEOUS WORKS | Petrochemical | Motor Gate Valve 12"-300LB Gate Valve 2", 4", 6" & 8"-150LB, 1" & 2"-300LB | API600, API602 | CS | 12 | 2020 | Kuwait | Mid-East | Gate |
| 53 | CP20048KOD / BC20168 R1 | JERA Co., Inc. | End User | Joetsu Thermal Power Plant Project | Power | Fully Welded Trunnion Ball Valve 6", 8" & 10"-900LB | API6D | CS | 11 | 2020 | Japan | Asia | Ball |
| 54 | CP20533KO / ESD/5587/C-953-Supply of Valves | KOC | End User | KOC Contract# EF1934 - Supply and Installation of VSM Pumps | Oil / Gas | Floating Ball Valve 3/4"~3"-150LB, 3/4" & 2"-300LB, 1/2"-800LB Gate Valve 3/4"~16"-150LB, 2" & 12"-300LB, 1/2" & 1"-800LB Swing Check Valve 3"-150LB, 2"-300LB Piston Check Valve 3/4" & 1"-150LB, 3/4"-300LB, 1"-800LB | API6D, API600, API602, MSS-SP-80, BS1868 | CS, SS, SDSS, Bronze | 100 | 2020 | Kuwait | Mid-East | Ball, Gate, Check |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|---|----------------------------|-------------------------|---|---------------|---|--|---------------------|------|-------------|-----------------|----------|--------------------|
| 55 | CP20512KD / SGAFCC19007D019; CP20534KD / SGAFCC00006B05; CP20520KD / SGAFCC00006B04; CP19520KD / SGAFCC00006, SGAFCC00006B01, SGAFCC00006B02, SGAFCC00006B03; CP19535KD / SGAFCC19007, SGAFCC19007B01 | CNOOC IRAQ / CNOOC-ENPAL | End User / EPC | EPCC project of BUS1 & BUS3 & BUN degassing station and AGS1&FQS degassing station in Missan Oilfield | Oil / Gas | Floating Ball Valve 1/2"~4"-150LB & 300LB, 2"-600LB, 3/4"~1 1/2"-800LB Trunnion Ball Valve 6"~16"-150LB, 6"~20"-300LB Gate Valve 12"-150LB, 10" & 12"-300LB Globe Valve 2"~14"-300LB Swing Check Valve 10"~16"-300LB Jacket Ball Valve 1/2"-150LB | API6D, API600, BS1873, ISO17292, ASME B16.34 | CS, SS, SDSS, Alloy | 3117 | 2019 ~ 2020 | Iraq | Mid-East | Ball, GGC |
| 56 | CP19588KO / 18087B/028 | ADNOC / CPECC / ITT | End User / EPC / Trader | EPC FOR BAB INTEGRATED FACILITIES PROJECT | Oil / Gas | Floating Ball Valve 1-1/2" & 2"-150LB, 1"x3/4", 1/2" & 1"-300LB, 1-1/2" & 2"-800LB Trunnion Ball Valve 2"x1-1/2", 2" & 3"-300LB Double Ball Floating Ball Valve 1/2"-300LB Gate Valve 1", 2" & 12"-300LB Globe Valve 1" & 2"-300LB Dual Plate Check Valve 12"-300LB | API6D, API600, API594 | CS | 138 | 2019 | UAE | Mid-East | Ball, GGC |
| 57 | CP19611KO / HGTC-KN-012-19, CP19607KO / 3707/19 | KNPC | End User | MAA-D/C-VALVES FOR AGRP DIFFECT | Petrochemical | Fully Jacketed Plug Valve 2"x1" ~ 8"x6"-150LB | API599 | CS | 16 | 2019 | Kuwait | Mid-East | Plug |
| 58 | CP19602KD / KCO19062 | GHANA GAS / Shandong Kerui | End User / EPC | KCO19062 Ghana static equipment skid project | Oil / Gas | Floating Ball Valve 3/4"~6"-150LB, 1"-600LB, 1/2" & 3/4"-800LB 1" & 1 1/2"-900LB Trunnion Ball Valve 8"~16"-150LB, 2"~12"-600LB & 900LB Globe Valve 1" & 2"-150LB~ 800LB, 1"~10"-900LB, 1/2" & 1"-1500LB Piston check valve 1" - 150LB, 3/4"~1-1/2"-800LB Swing check valve 2"-150LB & 600LB, 2"~12"-900LB | API6D, API602, API608, API594, BS1873 | CS, LCS, SS | 502 | 2019 | Ghana | Africa | Ball, Globe, Check |
| 59 | CP19596KO / P19/KCON/1444, CP19622KO / ZIO-7880-01 | KOC | End User | MRO Project | Oil / Gas | Trunnion Ball Valve 20"-150LB Gate Valve 3"-300LB | API6D, API600 | SDSS, Bronze | 5 | 2019 | Kuwait | Mid-East | Ball, Gate |
| 60 | CP19583KO / PO 19-1-04-11776 | KOC | End User | JURASSIC PRODUCTION FACILITIES (JPF) AT WEST RAUDHATAIN NORTH KUWAIT | Oil / Gas | Bronze Floating Ball Valve 3"-150LB Double Ball Floating Ball Valve 2"-600LB | API6D | CS, Bronze | 7 | 2019 | Kuwait | Mid-East | Ball |
| 61 | CP19026KOD / BC19065 | Chiyoda | EPC | Chiba Arkon Plant (CAP) Project | Power | Vacuum Jacket Ball Valve 40A*15A~80A*50A-JIS10K Non-vacuum Jacket Ball Valve 40A*20A~80A*50A-JIS10K | API6D | SS | 63 | 2019 | Japan | Asia | Ball |
| 62 | CP19570KO / 4340222097, CP19604KO / 4340237513, CP19049KO / 4340258541 | DOW / TRINSEO | End User | MRO Project | Chemical | Lug Three-Eccentric Butterfly Valve 6"~12"-150LB Pneumatic Lug type Eccentric Butterfly Valve 6"-150LB Floating Ball Valve 6"-150LB | API6D, API609 | CS | 17 | 2019 | HongKong, China | Asia | Ball, Butterfly |
| 63 | CP19025KOD / BC19012 | Chiyoda | EPC | Futtsu Power Plant Project | Power | Fully Welded Trunnion Ball Valve 350A-900LB | API6D | CS | 7 | 2019 | Japan | Asia | Ball |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|--|--|-----------------------|--|---------------|---|---------------------------------|-------------|-----|-------------|--------------|---------------|------------------------|
| 64 | CP19578KD / P/ZBZZ/1906/0030/0241, P/ZBZZ/1907/0027/0270 | CNOOC-ENPAL / No.7 construction Co., Ltd. of China petroleum & natural gas | EPC | 17pcs non-standard equipment project in Missan Oilfield | Oil / Gas | Floating Ball Valve 3", 3"*2" & 2"*1.5"-150LB, 3/4"~4", 3"*2" & 4"*3"-300LB Trunnion Ball Valve 6", 6"*4" & 4"*3"-150LB Butterfly Type Globe Valve 1"~4"-300LB Swing Check Valve 3"-150LB, 4"-300LB | API6D, API602, BS1873, ISO17292 | CS, Alloy | 235 | 2019 | Iraq | Mid-East | Ball, Globe, Check |
| 65 | CP19020KO / PO-373-CH-2019 | ZADCO / ADNOC | End User | MRO Project | Oil / Gas | Trunnion Ball Valve 18"x14"-300LB | API6D | CS | 1 | 2019 | UAE | Mid-East | Ball |
| 66 | CP19575KOD / BC19046, CP19609KOD / BC19095 | MITSUI | EPC | 三井化学市原3HPプラント建設工事 (Mitsui Chemicals Ichihara 3HP Plant) Construction Project | Chemical | Gate Valve 700A & 800A-150LB, 150A & 500A-300LB | API600 | CS | 12 | 2019 | Japan | Asia | Gate |
| 67 | CP19035KD / 20190324 | PETROCHINA HALFAYA / HBP | End User / EPC | Halfaya Oil Field Surface Facility Phase 3 Project | Oil / Gas | Motor Trunnion Ball Valve 4" & 6"-300LB | API6D | CS | 12 | 2019 | Iraq | Mid-East | Ball |
| 68 | CP19648KO / 18918-P19-011B2-USD-C | SABIC / WISON | End User / EPC | Upgrade of evaporator & condenser EG1&76" Pipe (18918) | Petrochemical | Non-Lubricated Plug Valve 3/4" & 2"-150LB | API599 | SS | 10 | 2019 | Saudi Arabia | Mid-East | Plug |
| 69 | CP19017KD / MK/PP-3/2019 | MUNAITAS / KING | End User / EPC | Increase of Capacity of the Kazakhstan-China Oil Pipeline (Kenkiyak-Atyrau Oil Pipeline) Project | Oil / Gas | Trunnion Ball Valve 20"*16" & 24"*20"-300LB~600LB Fully Welded Trunnion Ball Valve 24"*20"-300LB Slab Gate Valve 20"-150LB~600LB Swing Check Valve 24"-600LB | API6D | CS | 40 | 2019 | Kazakhstan | Asia | Ball, Check, Slab Gate |
| 70 | CP19016KD, CP19002KD / P/FSF/2682B11-INT006, P/FSF/2682B(04)-INT006 | DPOC / Grand Petroleum Services | End User / EPC | Engineering, Procurement, Construction and Commissioning (EPC) for Field Surface Facilities | Oil / Gas | Motor Trunnion Ball Valve 10"~12"-300LB | API6D | CS | 12 | 2019 | South Sudan | Africa | Ball |
| 71 | CP18141KO / 1001-51-PC-ME-OR-0002, CP19533KO / 1001-51-PC-ME-OR-0020 | Ghana Gas / MLE | End User / EPC | ANOKYI Mainline Compressor Station (AMCS) EPC Project | Oil / Gas | Motor Fully Welded Trunnion Ball Valve 20"*16" & 20"-900LB Pneumatic Trunnion Ball Valve 2" & 3"-600LB, 1-1/2"~12"-900LB Pneumatic Floating Ball Valve 2"-150LB Fisher Lever Contol Valve Globe Valve 1 1/2"-600LB, 1"-900LB Fisher Pressure Regulator Valve Globe Valve 1"-150LB | API6D, API602 | CS, LCS | 31 | 2018 ~ 2019 | Ghana | Africa | Ball, Globe |
| 72 | CP18225KO / PO_7718 CP19045KO / PO_7719 | PETROBRAS | End User | P66, P67, P70 FPSO Projects | Offshore | Pneumatic Trunnion Ball Valve 8"-300LB Trunnion Ball Valve 2"~6"-1500LB | API6D | CS, LCS, SS | 81 | 2018 ~ 2019 | Brazil | Latin America | Ball |
| 73 | CP19042KD, CP18036KD / RKDM-PR-PO-0007, EMRK-P-EPC-P-PO-PM-0012-00 | CPPMEC | End user | EPC for Ronier-Kome Pipeline 500 X 10 4t/a Expansion and Facility Modification Project | Oil / Gas | Motor Slab Gate Valve 4"~24"-150LB, 18"-600LB & 900LB Manual Slab Gate Valve 2"~24"-150LB | API6D | CS | 74 | 2018 ~ 2019 | Chad | Africa | Slab Gate |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|---|--------------------------|-----------------------|---|---------------|---|--|---------------------------|------|------|------------|----------|--------------------------|
| 74 | CP18059KO / 28.14.0000.823.01.006.18/79 | GTCL | End User | Construction of gas pipeline for Mirsarai Economic Zone and KGDC Gas Distribution Network up gradation project | Oil / Gas | Fully Welded Trunnion Ball Valve 8"~16"-300LB, 16"-600LB Gate Valve 1/2"~1"-1500LB Pressure Blance Plug Valve 2"~6"-300LB& 600LB Needle Valve 1/2"-1500LB | API6D, API602 | CS | 357 | 2018 | Bangladesh | Asia | Ball, Gate, Plug, Needle |
| 75 | CP18009KO / 659749760, CP18067KO / 659899504, CP18170KO / ZIO-7458-01, CP18140KO / 3630-18, CP18026KO / ZIO-7246-01 | KOC | End User | MRO Project | Petrochemical | Metal Seated Trunnion Ball Valve 1"-1500LB Trunnion Ball Valve 2" & 24"-600LB Globe Valve 2"-600LB Triple Eccentric Butterfly Valve 14"-150LB Centerline Butterfly Valve 4"~6"-300LB | API6D, API609, BS1873 | CS | 32 | 2018 | Kuwait | Mid-East | Ball, Globe, Butterfly |
| 76 | CP18516KD / 20180526 | OPIC / HBP | End User / EPC | Engineering, Procurement, Construction, Installation and Commissioning for Surface Facilities of ORYX Oilfield of BCO III Block in Chad | Oil / Gas | Metal Seated Electro-Hydraulic Trunnion Ball Valve 4" & 8"-300LB | API6D | CS | 3 | 2018 | Chad | Africa | Ball |
| 77 | CP18042KO / 659843741 | KOC | End User | KOC HOLTTF -2 GOFSCO | Petrochemical | Double Ball Floating Ball valve 2"-300LB | API6D | SDSS | 8 | 2018 | Kuwait | Mid-East | Ball |
| 78 | CP18022KO / ZIO-7023-01 | KOC | End User | 16053333 - Construction of Flow Lines and Associated Works in North Kuwait Area Including GC-29, 30 & 31. | Petrochemical | Globe Valve 1/2"~3/4"-1500LB | API602 | CS | 448 | 2018 | Kuwait | Mid-East | Globe |
| 79 | CP17131KO / PO-93384, CP18014KO / P.O 93606, CP18051KO / 93572, CP18094KO / P.O 93747 | TAKREER | End User | BeAAT Expansion Project | Petrochemical | Turnnion Ball Valve 10"x8"-150LB Floating Ball Valve 3/4"x1/2"~6"x4"-150LB, 2"x1 1/2"-300LB, 1/2"~1 1/2"x1"-800LB Gate Valve 1"~8"-150LB, 2"~10"-300LB, 1/2"~1-1/2"-800LB Globe Valve 1/2"~1-1/2"-800LB Piston Check Valve 1/2"~1-1/2"-800LB Dual Plate Check Valve 6" & 24"-150LB Swing Check Valve 2"~4"-150LB | API594, BS1868, BS1873, BS5154, ISO10434, ISO15761, ISO17292 | CS, SS, Hastelloy, Bronze | 3273 | 2018 | UAE | Mid-East | Ball, GGC |
| 80 | CP18507KD / B18003-PC-GD-CT-002 | CNOOC-ENPAL | EPC | Iraq water plant phase II and the second compressor EPC project | Oil / Gas | Floating Ball Valve 1/2"~3"-150LB, 1"~4"-300LB, 1"~3"-600LB Metal Seated Floating Ball Valve 3/4"-150 & 300LB Trunnion Ball Valve 8"~16"-300LB, 2"~12"-600LB Gate Valve 1/2"~14"-150 & 300LB, 1/2"~3"-600LB, 6" & 12"-1500LB Globe Valve 1"~3"-150~600LB Swing Check Valve 2"~12"-150LB, 3"~12"-300 & 600LB Tilting Check Valve 12"-1500LB Piston Check Valve 3/4"~1"-150LB & 600LB | API6D, API600, API602, BS1873, ISO17292 | CS, SS, DSS | 392 | 2018 | Iraq | Mid-East | Ball, GGC |
| 81 | CP18224KO / BC18153 | JFE Steel Corporation | EPC | JFE スチール株式会社 (JFE Steel Corporation) 東日本製鉄所 Project | Power | Fully Welded Trunnion Ball Valve 300A-150LB | API6D | CS | 8 | 2018 | Japan | Asia | Ball |
| 82 | CP18035KD / 20180138 | PETROCHINA HALFAYA / CPE | End User / EPC | Purchase of Materials for FSF from Y2018 to Y2021 | Oil / Gas | Motor Trunnion Ball Valve 4", 6"-300LB | API6D | CS | 64 | 2018 | Iraq | Mid-East | Ball |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|--|--|-----------------------|--|---------------|---|---------------------------------------|-----------|-----|------|-----------------|----------|--------------------------|
| 83 | CP18525KOD / GD2019ZCIX0005 | GTCL / CNOOC | End User / EPC | MAHESHKHALI ZERO POINT GAS TRANSMISSION PIPELINE PROJECT | Onshore | Gas over Oil Fully Welded Trunnion Ball Valve 42"x40" & 42"-600LB Fully Welded Floating Ball Valve 3/4"x1/2"-800LB, 4"-150LB Fully Welded Trunnion Ball Valve 2"x1-1/2"~42"-600LB Globe Valve 2"~4"-600LB Dual Pate wafer Check Valve 2"~42"-600LB Pressure Balance Plug Valve 10"~16"-600LB | API6D, BS1873, API598 | CS, LCS | 79 | 2018 | Bangladesh | Asia | Ball, Globe, Check, Plug |
| 84 | CP18200KOD / BC18099 | MITSUBISHI HITACHI | EPC | 瀬戸内共同火力株式会社 (Setouchi Joint Power Company) 福山新2号 Project | Power | Floating Ball Valve DN50~DN100-JIS10K Metal Seated Turnion Ball Valve DN50~DN150-JIS20K | API6D | SS | 16 | 2018 | Japan | Asia | Ball |
| 85 | CP18084KOD / BC18024 | MITSUBISHI HITACHI | EPC | JFE扇島火力発電所 (JFE Ogashima Power Station) Project | Power | Floating Ball Valve DN20~DN100-JIS10K Metal Seated Turnion Ball Valve DN20~DN150-JIS20K | API6D | SS | 84 | 2018 | Japan | Asia | Ball |
| 86 | CP18501KO / PO#: 286060 | KNPC | End User | BALL VALVE, PTFE LINED, 2 INCH CL 150 FOR UNIT 47 | Petrochemical | Floating Ball Valve 2"~4"-150LB Trunnion Ball Valve 4"-600LB | API6D | CS, SS | 6 | 2018 | Kuwait | Mid-East | Ball |
| 87 | CP18148KO / 113-07092018 | UNITED ENERGY PAKISTAN LIMITED / IESPK | End User / Trader | MRO Project | Oil / Gas | Double Ball Trunnion Ball Valve 6"-900LB | API6D | LCS | 4 | 2018 | Pakistan | Asia | Ball |
| 88 | CP18142KO / PO0000348R2, PO0000350R2, PO0000376, PO0000382 | GTCL / ZICOM | End User / EPC | Design, build, procurement & supply, installation, construction, testing and commissioning of 1(one) 200 MMSCFD capacity ANSI #600 City Gate Station (CGS) and 2(Two) ANSI #300 High Pressure District Regulating Station (HP-DRS) each of 50 mmscf capacity in Mirsharai Economic Zone on Turn-Key (EPC) basis. | Oil / Gas | Pneumatic Trunnion Ball Valve 16"-150LB & 600LB, 10" & 20"-300LB Trunnion Ball Valve 8"&16"-150LB, 10"~20"-300LB, 12"&16"-600LB Floating Ball Valve 1"&2"-150LB~600LB Dual Plate Wafer Check Valve 2"-150LB Globe Valve 1"~16"-150LB~600LB Gate Valve 1/2"~1"-600LB | API6D, API600, API602, BS1873, API602 | CS | 593 | 2018 | Bangladesh | Asia | Ball, GGC |
| 89 | CP18128KO / PO NO: 04252025 | IESPK | Trader | MRO Project | Petrochemical | Double Ball Trunnion Ball Valve 2"~6"-150LB, 4"-300LB, 2"~4"-600LB, 2"-900LB, 1"-3000PST | API6D | CS | 34 | 2018 | Pakistan | Asia | Ball |
| 90 | CP18064KDO / CPP-MM-DB-2018-001 | Hassyan Clean Coal Power Plant | End User | Hassyan Clean Coal Power Plant - Phase I (4X600MW NET) Projectct | Power | Pneumatic Trunnion Ball Valve 1" & 2"-150LB, 24"-600LB | API6D | CS | 17 | 2018 | UAE | Mid-East | Ball |
| 91 | CP18111KO / 3620/18 | KNPC | End User | MAA-DC-MAIERAL FOR PJ11-033 | Petrochemical | Non Lubricated Taper Plug Valve 1/2" & 3/4" - 300LB | API599 | CS | 3 | 2018 | Kuwait | Mid-East | Plug |
| 92 | CP18097KO / 2680, CP18119KO / 4340142789, CP18198KO / 4340165711, CP18156KO / 4340153261, CP18054KO / 4340124240, CP18201KO / 4340166293, CP18230KO / PO4340184518 | DOW / TRINSEO | End User | MRO Project | Chemical | Metal Seated Floating Ball Valve 4"-300LB Floating Ball Valve 3", 4"-150LB & 300LB Trunnion Ball Valve 4" & 12"-150LB Gate Valve 1" & 4"-150LB Swing Check Valve 4"-150LB | API6D, API602, API600 | CS, SS | 57 | 2018 | HongKong, China | Asia | Ball, Gate, Check |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|---|------------------------------|-----------------------|--|---------------|---|--|------------|-----|-------------|-----------------|----------|-------------------------------|
| 93 | CP17118KD / ZWHBP20170622, 增补二, 增补三, CP18015KD / ZWHBP20170622增补四, CP18043KD / ZWHBP20170622增补五 | GAS PROCESSING COMPANY / HBP | End User / EPC | Comprehensive natural gas treatment project of kajansa oil field, aktobin Prefecture, Kazakhstan | Oil / Gas | Pneumatic Trunnion Ball Valve 12"-150LB, 10"-300LB, 1"~6"-600LB RB Floating Ball Valve 2"~1-1/2"-150LB~1500LB Floating Ball Valve 1/2"~2"-150LB~1500LB Three Way Ball Valve 3/4"~6"-150LB, 4"-300LB, 3"-600LB Globe Valve 3/4"& 1"-150LB~600LB Lift Check Valve 1/2"~1 1/2"-150LB Spring type Check Valve 3/4"-class150 Swing Check Valve 6"-600LB Metal Seated Three-eccentric Butterfly Valve 3"~6"-150LB | API6D, API602, API594 | CS, SS | 760 | 2017 ~ 2018 | Kazakhstan | Asia | Ball, Globe, Check, Butterfly |
| 94 | CP17210KO / C/F/17/866 | BGFCL | End User | Procurement of Valves (Globe Valve, Gate Valve and Plug Valve) | Oil / Gas | Globe Valve 2"-2500LB Slab Gate Valve 3"~4"-2500LB Pressure Balance Plug Valve 3"~4"-2500LB | API6D, API600, BS1873 | CS | 38 | 2017 | Bangladesh | Asia | Globe, Plug, Slab Gate |
| 95 | CP17224KO / 3568/17 | KOC | End User | KOC PO 566919- KOC New Building Complex, Building B-4 Reception | Petrochemical | Pressure Balance Plug Valve 1-1/2"-300LB | API6D | CS | 6 | 2017 | Kuwait | Mid-East | Plug |
| 96 | CP17208KO / 4340097780, CP17198KO / 4340094224, CP17018KO / 4340038590 | DOW / TRINSEO | End User | MRO Project | Chemical | Trunnion Ball Valve 12"-150LB Floating Ball Valve 1-1/2"-300LB, 4"-150LB Gate Valve 4"-150LB, 3/4"-300LB Swing Check Valve 4"-150LB | API6D, API602 | CS, SS | 12 | 2017 | HongKong, China | Asia | Ball, Gate, Check |
| 97 | CP17207KO / PO08112017 | Steeltrade | Trader | MRO Project | Petrochemical | Floating Ball Valve 1"~6"-150LB, 1"~3"-300LB, 1/2"~2"-800LB Double Eccentric Butterfly Valve 3"~8"-150LB, 10"~12"-300LB Centerline Butterfly Valve 2-1/2"~10"-150LB Dual Plate Check Valve 3"~10"-150LB Gate Valve 12"-300LB Globe Valve 1"-800LB Swing Check Valve 12"-300LB Wafer Check Valve 6"-150LB | ISO17292, API608, API600, API609, BS1873, BS1868 | CS, SS, DI | 411 | 2017 | Italy | Europe | Ball, GGC, Butterfly |
| 98 | CP17129KO / IPO-22411 | AII | Trader | MRO Project | Petrochemical | Gate Valve 1"&2"-1500LB Swing Check Valve 1"-1500LB | API602 | SS | 10 | 2017 | Singapore | Asia | Gate, Check |
| 99 | CP17202KO / 659643711 | KOC | End User | OIL SEPARATION TRAIN AND PRODUCED WATER TRAIN FOR HOLTTF-2 PROJECT | Petrochemical | Floating Ball Valve 3/4"~4"-150LB Turnnion Ball Valve 8"~16"-150LB Gate Valve 1/2"-150LB Globe Valve 3/4"~2"-150LB Swing Check Valve 2"-150LB Needle Valve 1/2"-150LB | API6D, API602 | CS, SDSS | 114 | 2017 | Kuwait | Mid-East | Ball, GGC, Needle |
| 100 | CP17191KO / ZIO-7082-01, CP17221KO / ZIO-7133-01, CP17023KO / 17-4-04-00284 | KOC | End User | MRO Project | Oil / Gas | Trunnion Ball Valve 8"-900LB, 10"-1500LB Gate Valve 1/2"-2500LB, 3/4"-800LB | API6D, API602 | CS, SS | 100 | 2017 | Kuwait | Mid-East | Ball, Gate |
| 101 | CP17239KO / ZIO-7067-01 | KOC | End User | 16052448 - Supply And Installation of VSM Pump at GC-06 & GC-20 And New 20" Pipeline From GC-09 to CMM | Oil / Gas | Globe Valve 3/4"~8"-300LB Swing Check Valve 2"-150LB, 2" & 4"-300LB | API6D, API602 | CS | 38 | 2017 | Kuwait | Mid-East | Globe, Check |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|---|------------------------|-----------------------|---|---------------|--|--------------------------|-----------|-----|------|-----------------|----------|-------------------------------|
| 102 | CP17220KO / ZIO-6899-03, CP17071KO / ZIO-6871-01 | KOC | End User | 15052049 - New Tanks Along With Associated Facilities at GC-17 and Abduliyah Pump Station | Oil / Gas | Floating Ball Valve 1/2"-800LB, 3/4"-300LB Trunnion Ball Valve 4"-150LB | API6D | CS, SDSS | 63 | 2017 | Kuwait | Mid-East | Ball |
| 103 | CP17127KO / 22/DKS/21185 | SSGC | End User | Tender No.: SSGC-FP-7715 | Oil / Gas | Pressure Balance Plug Valve 2"-150LB | API6D | CS | 480 | 2017 | Pakistan | Asia | Plug |
| 104 | CP17094KO / KSS/AGP-3L/PRO/PIC-2/OO-01-01/2017/12382 | AGP / KSS | End User / EPC | Increase of capacity of the "Kazakhstan-China" Main Gas Pipeline(the first section) | Oil / Gas | Fully Welded Trunnion Ball Valve 12"*10"~16"*12"-600LB | API6D | LCS | 7 | 2017 | Kazakhstan | Asia | Ball |
| 105 | CP17081KO / PO FR_1703021476_TR | SONATRACH / PFF | End User / Trader | Sonatrach Algeria Project | Oil / Gas | Dual Plate Wafer Check Valve 4"~12"-150LB, 8"~12"-300LB, 6"~8"-600LB, 4"~8"- 900LB, 6"-1500LB & 2500LB | API594 | CS | 123 | 2017 | Algeria | Africa | Check |
| 106 | CP17058KO / 28.14.0000.174.02.003 (B).17; 28.14.0000.174.02.003(B).17/302 | GTCL | End User | Chittagong-Feni-Bakhrabad gas transmission parallel pipeline project | Oil / Gas | Gas over Oil Fully Welded Trunnion Ball Valve 30" & 36"-600LB Fully Welded Trunnion Ball Valve 12"~36"-600LB Pressure Balance Plug Valve 2"~10"-600LB Gate Valve 1"-3000PSI | API6D, API602 | CS | 221 | 2017 | Bangladesh | Asia | Ball, Gate, Plug |
| 107 | CP17011KO / 2017400113, CP17142KO / 2017401300, CP17088KO / 2017400929 | ERIKS | Trader | MRO Project | Oil / Gas | Floating Ball Valve 1/2"~2"-150LB Globe Valve 2"~6"-150LB Dual Wafer Check Valve 3" & 16"-PN16, 2"~5"-PN25 Centerline Wafer Butterfly Valve 2"~8"-150LB | API6D, BS1873, API609 | CS | 62 | 2017 | Singapore | Asia | Ball, Globe, Check, Butterfly |
| 108 | CP16176KO / FR/1610021470/MF | SONATRACH / PFF | End User / Trader | Sonatrach Algeria Project | Oil / Gas | RB Metal Seated Ball Valve 8"*6~10"*8"-600LB RB floating Ball Valve 3"*2"-300LB Floating Ball Valve 3/4"-150LB Turnnion Ball Valve 8"-600LB | API6D | CS | 41 | 2016 | Algeria | Africa | Ball |
| 109 | CP16085KO / S16 LK 126 | S.A.PETROTECH CO.,LTD. | Trader | BIO GAS PLANT 1 PROJECT | Petrochemical | Floating Ball Valve 2-1/2"-150LB Knife Gate Valve 3"~12"-150LB | API6D, MSS SP-81 | CS | 96 | 2016 | Thailand | Asia | Ball, Gate |
| 110 | CP16082KO / 00004078, CP16043KO / 00003972 | DOW / TRINSEO | End User | MRO Project | Chemical | Floating Ball Valve 1/2"~1"-150LB Gate Valve 1/2"-150LB Globe Valve 1/2"-150LB Lift Check Valve 1/2"-150LB Manual & Pneumatic Knife Gate Valve 8"-150LB | API6D, API602, MSS-SP-81 | CS, SS | 35 | 2016 | HongKong, China | Asia | Ball, GGC |
| 111 | CP16031KO / S16 LK 062 | S.A.PETROTECH CO.,LTD. | Trader | 340,000 LPD MOTOR FUEL PROJECT | Oil / Gas | CenterLine Butterfly Valve 3"~20"-150LB | API609 | CS, SS | 84 | 2016 | Thailand | Asia | Butterfly |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|---|---|-----------------------|--|---------------|---|---|-------------------|------|-------------|------------|----------|-------------------------------|
| 112 | CP16061KO / S16 LK 085 | TPK ETHANOL / S.A.P | End User / Trader | PLUG VALVE, STRAINER, & CHECK VALVE (CHEMICAL AREA) PROJECT | Chemical | Lined Plug Valve 1/2"~4"-150LB Strainer 1"-150LB Lined Swing Check Valve 1/2"~3"-150LB | API594, API599, ASME B16.34 | CS | 76 | 2016 | Thailand | Asia | Check, Plug |
| 113 | CP16041KD / CPTDC16EX2300126 | Egyptian Natural Gas Company (GASCO) / CPTDC | End User / EPC | Giza North Power Project and South Helwan Project | Power | Pressure Balance Plug Valve 2"~20"-600LB | API6D | CS | 161 | 2016 | Egypt | Africa | Plug |
| 114 | CP16137KD / C16065-PUR-PO-012 | FOTCO | End User | RLNG Transmission Pipeline EPC Project in Port Qasim | Oil / Gas | Fully Welded Trunnion Ball Valve 30"-900LB RB Trunnion Ball Valve 1"~3/4"~4"~3"-150LB, 1"~3/4"~30"~24"-600LB, 2"~1-1/2"-900LB Trunnion Ball Valve 2" & 3"-150LB~900LB | API6D | CS, SS | 167 | 2016 | Pakistan | Asia | Ball, Globe |
| 115 | CP16111KD / KO16020 | Egyptian Natural Gas Company (GASCO) / Teres Energy Equipment Co., Ltd. | End User / Trader | Egypt natural gas power plant pressure regulating skid-mount project | Power | Pressure Blance Plug Valve 12"~36"-600LB | API6D | CS | 36 | 2016 | Egypt | Africa | Plug |
| 116 | CP15121KD/B13007-PC1-B038, CP15189KD/B13007-PC1-E036-PO003, CP15168+15172KD/B13007-PC1-E036-PO002, CP15157KD/B13007-PC1-E036-PO001, CP15008KD/B13007-PC1-K005, CP16004KD/B13007-PC1-E036-PO004, CP16026KD/B13007-PC1-E036-PO005, CP16095KD-C/B13007-PC1-E036-PO007 | CNOOC IRAQ / CNOOC-ENPAL | End User / EPC | Iraq Missan Oilfield BUT Upgrade and New CPF Project | Oil / Gas | Motor Trunnion Ball Valve 18" & 22"-300LB Floating Ball Valve 1/2"~4"-150LB~800LB Jacketed Ball Valve 1/2"~4"-150LB~600LB Gate Valve 1/2"~4"-150LB~600LB Globe Valve 1/2"~4"-150LB~800LB Wafer Single Plate Check Valve 1/2"~4"-150LB~800LB | API6D, API602, ISO17292, BS5352 | CS, SS | 3010 | 2015 ~ 2016 | Iraq | Mid-East | Ball, GGC |
| 117 | CP15099 / PO91530, CP15146KO / PO9164, CP15058KO / PO91458, CP15187KO / PO91776, CP15200KO / PO91857, CP16055KO / PO92080 | TAKREER | End User | NORM HANDLING,TREATMENT&DISPOSAL PROJECT AT BeAAT | Petrochemical | RB Floating Ball Valve 1"~3/4"~4"~3"-150LB~800LB Gate Valve 1"~3"-150LB~800LB Globe Valve 3/4"-800LB Lift Check Valve 3/4"~1-1/2"-800LB Swing Check Valve 2"~3"-150LB & 300LB Tilting Check Valve 8"~12"-150LB | ISO17292, ISO10434, ISO15761, BS1868, EN12266 | CS, SS, Hastelloy | 780 | 2015 ~ 2016 | UAE | Mid-East | Ball, GGC |
| 118 | CP15180KO | SUPER PETRO CHEMICALS/ EXMIN | End User / Trader | MRO Project | Petrochemical | Gate Valve 2"~8"-150LB Globe Valve 2"~8"-150LB Swing Check Valve 2"~8"-150LB Flange 2"~12"-150LB SPW 2"~8"-150LB | API600, BS1868, BS1873 | CS | 869 | 2015 | Bangladesh | Asia | GGC |
| 119 | CP15199KO / S15 LK 189, CP15177KO / S15 LK 162 | S.A.PETROTECH CO.,LTD. | Trader | MRO Project | Petrochemical | Gate Valve 1"-1500LB & 2500LB, 18"-300LB, 4"-900LB Globe Valve 1"-1500LB & 2500LB, 12"-300LB | API600, BS1873 | CS, SS | 28 | 2015 | Thailand | Asia | Gate, Globe |
| 120 | CP15183KO / 2015402286, 2015402287 | ERIKS | Trader | Kaombo FPSO (North) | Oil / Gas | Floating Ball Valve 2"-150LB, 1/2"~1-1/2"-800LB Globe Valve 2"~6"-150LB Dual Plate Check Valve 2"~8"-150LB Centerline Butterfly Valve 2"~8"-150LB | API6D, API609, API600, BS1873, API594 | CS | 474 | 2015 | Singapore | Asia | Ball, Globe, Check, Butterfly |

| Item | Contract no. | Owner / Customer Name | Owner / Customer Type | Project Name | Industry | Products Range | Standards | Materials | QTY | Year | Country | Region | Valve Types |
|------|--|-----------------------|-----------------------|---|---------------|--|---------------------------------------|-----------|-----|------|-----------|---------------|-------------------------|
| 121 | CP15129KO | ERIKS | Trader | System 55 (steam system) | Oil / Gas | Gate Valve 20"-300LB, 2"~14"-600LB, 3/4"-800LB Globe Valve 2"-600LB | API602, API600, BS1873 | CS | 27 | 2015 | Singapore | Asia | Gate, Globe |
| 122 | CP15130KD / CMIT-PRT-10.53-150105 | CNOOC IRAQ | End User | Extra Valves for BUT Upgrade Project | Oil / Gas | Floating Ball Valve 4"-150LB Turnnion Ball Valve 6"~24"-150LB, 18"-300LB, 6"~20"-600LB, 16"~28"-900LB Slab Gate Valve 6"~14"-150LB Gate Valve 4"~24"-150LB Single Plate Check Valve 6"~24"-150LB, 20"-600LB & 900LB (Butterfly Type Plug) Globe Valve 4"~14"-150LB Bellow Type Globe Valve 6"~16"-300LB | API6D, API600, BS1868, BS1873, API609 | CS | 464 | 2015 | Iraq | Mid-East | Ball, GGC, Slab Gate |
| 123 | CP15003 / 2015400012, CP15153 / 2015400595 | ERIKS | Trader | MRO Project | Petrochemical | Globe Valve 1/2"~4"-150LB~300LB Single Plate Check Valve 2-1/2"-150LB Needle Valve 1/4"-6000PSI | API594, BS1873 | CS, SS | 89 | 2015 | Malaysia | Asia | Globe, Check, Needle |
| 124 | CP15081 / FPE-P-PU-PO-0022 | CPPMEC | EPC | Fishing Port Expansion Phase III & IV Project in Luanda, Angola | Oil / Gas | Electro-Hydraulic Trunnion Ball Valve 20"-150LB Motor Trunnion Ball Valve 20"-150LB Floating Ball Valve 1"~4"-150LB RB Trunnion Ball Valve 20"*16"~32"*26"-150LB | API6D | CS | 89 | 2015 | Angola | Africa | Ball |
| 125 | CP15159KO | Valve IT | Trader | Kowsar BF03 | Oil / Gas | Double-Eccentric Center Butterfly Valve 8"~20"-150LB | API609 | CS | 7 | 2015 | Italy | Europe | Butterfly |
| 126 | CP15065KO / FR/1504021407/PAV R1, CP15067KO / FR/1504021408/PAV | SONATRACH / PFF | End User / Trader | Sonatrach Algeria Project | Oil / Gas | Floating Ball Valve 6"-300LB Trunnion Ball Valve 6"-2500LB Pressure Blance Plug Valve 2"-1500LB Gate Valve 10"-600LB Swing Check Valve 10"-300LB | API6D, BS1868, BS1873 | CS | 20 | 2015 | Algeria | Africa | Ball, Gate, Check, Plug |
| 127 | CP15101KO / PO S15 LK 075 | PTTGC / S.A.P | End User / Trader | LPG Project | Oil / Gas | Trunnion Ball Valve 6" & 10"-300LB | API6D | CS | 8 | 2015 | Thailand | Asia | Ball |
| 128 | CP15082KO / P558096 | SENER / Richards | End User / Trader | LOS RAMONES I PIPELINE PROJECT | Oil / Gas | Fully Welded Trunnion Ball Valve 16", 18" & 28"-300LB | API6D | SS | 18 | 2015 | Mexico | Latin America | Ball |

TO WHOM MAY BE CONCERNED

Hydrogen Declaration

Subject: PLUG VALVES

We KCON, with registered office in West 3 Section, Shenzhen Road, Guanghan, Sichuan 618300, China, declare under our sole responsibility that the products in subject are in our product range are suitable for operations with 20 Mol% hydrogen content in natural gas.

Zeng Kai

Stamp / Signature



A handwritten signature in black ink that reads "Zeng Kai". The signature is written in a cursive style and overlaps the right side of the blue stamp.

KCON VALVE MFG CL LTD

IN ATENTIA CELOR INTERESATI

DECLARAȚIE HIDROGEN

Subiect: ROBINETE CEP

Noi KCON, cu sediul in West 3 Section, Shenzhen Road, Guanghan, Sichuan 618300, China, declarăm pe propria noastră responsabilitate că produsele din subiect se află în gama noastră de fabricație și sunt adecvate pentru aplicații unde fluidul de lucru este amestec de gaz natural cu hidrogen în proporție de 20%.

Zeng Kai

Ștampilă / Semnătură



KCON VALVE MFG CL LTD

Acceptance Letter from Hatanaka Special Valve Industries Co., Ltd.

Reference No. BC18001-1-20190814
信函编号:

Date: 2019-08-14
日期:

ACCEPTANCE CERTIFICATE
验收证明书

| | |
|-------------------------------|-----------------------------------|
| Supplier 供应商 | Sichuan KCON Valve Mfg. Co., Ltd. |
| PO No. 合同号 | BC18001-1 R2 |
| Required Delivery Date 要求交货日期 | 2019-08-09 |
| Actual Delivery Date 实际交货日期 | 2019-08-09 |

Scope of Valve Supply:
供货范围:

| Valve Type 阀门类型 | Description 描述 | Material 材质 | Qty. 数量 |
|---|---------------------|----------------------------|------------|
| Metal Seated API6D Trunnion Ball Valve | 50A (DN50)-900LB | CF8/F304+NI60/ F316+STL | 7 |
| Metal Seated API6D Trunnion Ball Valve | 200A (DN200)-900LB | CF8/F304+NI60/ F316+STL | 10 |
| API6D Swing Check Valve | 400A (DN400)-JIS20K | WCB/WCB+STL | 1 |

We certified that the Goods and related services under the Contract has been delivered and completed in all respects in strict compliance with the provisions of the Contract including all plans, designs, drawings, specifications and all modifications thereof as per direction and satisfaction of the Procuring Entity. However this acceptance certificate does not relieve the supplier from its warranty obligations.

我方证明, 本合同项下的货物和相关服务已严格按照本合同的规定交付和完成, 包括所有计划、设计、图纸、规范及其所有修改, 符合并满足采购实体要求。但是, 本验收证明书并不免除供应商的质保义务。

Shen Yanghua
Procurement Manager
Hatanaka (Shanghai) Special Valve Industries Co., Ltd.
Tel: +86-21-6137-0081



Acceptance Letter from ZICOM for P303 Project

ZICOM EQUIPMENT PTE LTD *bizSAFE* 

29 Tuas Avenue 3, Singapore 639420; Tel: (65) 6861388; Fax: (65) 6865 1764;
E-mail: zapl@zicomgroup.com; Web: www.zicomequipment.com.sg; www.zicomgroup.com
Company Registration No. 197400446C.

Reference No. POO00348R2 dated 28/9/2018

Date: 15/2/2019

ACCEPTANCE CERTIFICATE

| | |
|---------|----------------------------------|
| Vendor | Sichuan KCON Valve MFG. Co., Ltd |
| PO No. | POO000348R2 |
| Project | P303 |

Scope of Supply: Ball Valve, Globe Valve, Gate Valve, Check Valve

Required Delivery Date: 20/1/2019

Actual Delivery Date: 19/1/2019

| CASE NO. | DESCRIPTION OF GOODS | QUANTITY |
|----------|-------------------------------|----------|
| 1# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 2# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 3# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 4# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 5# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 6# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 7# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 8# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 9# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 10# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 11# | Trunnion Ball Valve 16"-600LB | 1PCS |
| 12# | Trunnion Ball Valve 16"-600LB | 1PCS |

Add: West 3 Section, Shenzhen Road, Guanghan Industrial Zone, Sichuan, P.R. China 618300

Fax: +86 838 6839880

Tel: +86 838 6839859

E-mail: overseas@kconvalve.com

Website: www.kconvalve.com

ZICOM EQUIPMENT PTE LTD *bisSAFE*      

29 Tuas Avenue 3, Singapore 639420; Tel: (65) 6861388; Fax: (65) 6865 1764;
E-mail: zepl@zicongroup.com; Web: www.zicomequipment.com.sg; www.zicongroup.com
Company Registration No. 197400446C.

| | | | |
|-----|---------------------|-----------|------|
| 13# | Trunnion Ball Valve | 16"-600LB | 1PCS |
| 14# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 15# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 16# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 17# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 18# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 19# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 20# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 21# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 22# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 23# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 24# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 25# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 26# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 27# | Trunnion Ball Valve | 12"-600LB | 1PCS |
| 28# | Trunnion Ball Valve | 20"-300LB | 1PCS |
| 29# | Trunnion Ball Valve | 20"-300LB | 1PCS |
| 30# | Trunnion Ball Valve | 20"-300LB | 1PCS |
| 31# | Trunnion Ball Valve | 20"-300LB | 1PCS |
| 32# | Trunnion Ball Valve | 20"-300LB | 1PCS |
| 33# | Trunnion Ball Valve | 12"-300LB | 1PCS |
| 34# | Trunnion Ball Valve | 12"-300LB | 1PCS |
| 35# | Trunnion Ball Valve | 12"-300LB | 1PCS |
| 36# | Trunnion Ball Valve | 12"-300LB | 1PCS |
| 37# | Trunnion Ball Valve | 12"-300LB | 1PCS |

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Company Registration No. 197400446C.



| | | | |
|-----|------------------------------|------------------|-------|
| 38# | Trunnion Ball Valve | 12"-300LB | 1PCS |
| 39# | Trunnion Ball Valve | 12"-300LB | 1PCS |
| 40# | Trunnion Ball Valve | 10"-300LB | 1PCS |
| 41# | Floating Ball Valve | 2"-600LB | 15PCS |
| 42# | Floating Ball Valve | 2"-600LB | 15PCS |
| 43# | Floating Ball Valve | 2"-300LB | 15PCS |
| | Floating Ball Valve | 2"-150LB | 13PCS |
| | Dual Plate Wafer Check Valve | 2"-150LB | 2PCS |
| 44# | Floating Ball Valve | 1"-300LB | 13PCS |
| | Floating Ball Valve | 1"-150LB | 12PCS |
| | Floating Ball Valve | 1"-600LB | 30PCS |
| 45# | Globe Valve | 2"-150LB | 2PCS |
| | Globe Valve | 2"-300LB | 2PCS |
| 46# | Globe Valve | 12"-300LB | 1PCS |
| 47# | Globe Valve | 12"-300LB | 1PCS |
| 48# | Globe Valve | 12"-300LB | 1PCS |
| 49# | Globe Valve | 16"-600LB | 1PCS |
| 50# | Globe Valve | 1"-150LB | 2PCS |
| | Globe Valve | 1"-300LB | 7PCS |
| | Globe Valve | 1"-600LB | 7PCS |
| | Gate Valve | 1"-600LB (NPT) | 25PCS |
| | Gate Valve | 1/2"-600LB (NPT) | 35PCS |
| 51# | O-ring/Gasket | 16"-600LB | 2SETS |
| | O-ring/Gasket | 12"-600LB | 2SETS |

Add: West 3 Section, Shenzhen Road, Guanghan Industrial Zone, Sichuan, P.R. China 618300
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Company Registration No. 197400446C.

| | | | |
|-----|----------------|-----------|-------|
| | O-ring/Gasket | 20"-300LB | 2SETS |
| | O-ring/Gasket | 12"-300LB | 2SETS |
| | O-ring/Gasket | 10"-300LB | 2SETS |
| | Gasket | 2"-600LB | 2SETS |
| | Gasket | 2"-300LB | 2SETS |
| | Gasket | 2"-150LB | 2SETS |
| | Gasket | 1"-600LB | 2SETS |
| | Gasket | 1"-300LB | 2SETS |
| | Gasket | 1"-150LB | 2SETS |
| 52# | O-ring/Gasket | 16"-600LB | 1SETS |
| | Seat Ring+Seat | 16"-600LB | 1SETS |
| | O-ring/Gasket | 12"-600LB | 1SETS |
| | Seat Ring+Seat | 12"-600LB | 1SETS |
| | O-ring/Gasket | 20"-300LB | 1SETS |
| | Seat Ring+Seat | 20"-300LB | 1SETS |
| | O-ring/Gasket | 12"-300LB | 1SETS |
| | Seat Ring+Seat | 12"-300LB | 1SETS |
| | O-ring/Gasket | 10"-300LB | 1SETS |
| | Seat Ring+Seat | 10"-300LB | 1SETS |
| | Gasket | 2"-600LB | 1SETS |
| | Seat | 2"-600LB | 1SETS |
| | Gasket | 2"-300LB | 1SETS |
| | Seat | 2"-300LB | 1SETS |
| | Gasket | 2"-150LB | 1SETS |
| | Seat | 2"-150LB | 1SETS |

Add: West 3 Section, Shenzhen Road, Guanghan Industrial Zone, Sichuan, P.R. China 618300

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Tel: +86 838 6839859

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ZICOM EQUIPMENT PTE LTD *bioSAFE* 

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E-mail: zempl@zicomgroup.com; Web: www.zicomequipment.com.sg; www.zicomgroup.com
Company Registration No. 197400446C.

| | | | |
|-----|---------------------|-----------|-------|
| | Gasket | 1"-600LB | 1SETS |
| | Seat | 1"-600LB | 1SETS |
| | Gasket | 1"-300LB | 1SETS |
| | Seat | 1"-300LB | 1SETS |
| | Gasket | 1"-150LB | 1SETS |
| | Seat | 1"-150LB | 1SETS |
| 1# | Trunnion Ball Valve | 16"-300LB | 1PCS |
| 2# | Trunnion Ball Valve | 12"-300LB | 1PCS |
| 3# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 4# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 5# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 6# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 7# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 8# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 9# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 10# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 11# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 12# | Trunnion Ball Valve | 10"-300LB | 2PCS |
| 13# | Trunnion Ball Valve | 10"-300LB | 1PCS |
| | Trunnion Ball Valve | 6"-300LB | 1PCS |
| 14# | Trunnion Ball Valve | 16"-150LB | 1PCS |
| 15# | Trunnion Ball Valve | 16"-150LB | 1PCS |
| 16# | Trunnion Ball Valve | 16"-150LB | 1PCS |
| 17# | Trunnion Ball Valve | 16"-150LB | 1PCS |
| 18# | Trunnion Ball Valve | 16"-150LB | 1PCS |

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Company Registration No. 197400446C.



| | | | |
|-----|------------------------------|-------------------|-------|
| 19# | Trunnion Ball Valve | 16"-150LB | 1PCS |
| 20# | Trunnion Ball Valve | 16"-150LB | 1PCS |
| 21# | Trunnion Ball Valve | 8"-150LB | 2PCS |
| 22# | Floating Ball Valve | 2"-150LB | 13PCS |
| | Dual Plate Wafer Check Valve | 2"-150LB | 1PCS |
| 23# | Floating Ball Valve | 1"-300LB | 51PCS |
| | Floating Ball Valve | 1"-150LB | 25PCS |
| 24# | Globe Valve | 2"-150LB | 4PCS |
| 25# | Gate Valve | 1"-600LB (NPT) | 20PCS |
| | Gate Valve | 1/2"-600LB (NPT) | 21PCS |
| | Globe Valve | 1"-150LB | 8PCS |
| | Globe Valve | 1"-300LB | 7PCS |
| 26# | Globe Valve | 10"-300LB | 1PCS |
| 27# | Globe Valve | 16"-150LB | 1PCS |
| 28# | Globe Valve | 16"-150LB | 1PCS |
| 29# | O-ring/Gasket | 16"-300LB | 2SETS |
| | O-ring/Gasket | 16"-150LB | 2SETS |
| | O-ring/Gasket | 12"-300LB | 2SETS |
| | O-ring/Gasket | 10"-300LB | 2SETS |
| | O-ring/Gasket | 8"-150LB | 2SETS |
| | O-ring/Gasket | 6"-300LB | 2SETS |
| | Gasket | 2"-150LB | 2SETS |
| | Gasket | 1"-300LB | 2SETS |
| | Gasket | 1"-150LB | 2SETS |

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Company Registration No. 197400446C.



| | | | |
|-----|------------------------------|-----------|----|
| 1# | Trunnion Ball Valve | 16"-300LB | 1 |
| 2# | Trunnion Ball Valve | 12"-300LB | 1 |
| 3# | Trunnion Ball Valve | 10"-300LB | 2 |
| 4# | Trunnion Ball Valve | 10"-300LB | 2 |
| 5# | Trunnion Ball Valve | 10"-300LB | 2 |
| 6# | Trunnion Ball Valve | 10"-300LB | 2 |
| 7# | Trunnion Ball Valve | 10"-300LB | 2 |
| 8# | Trunnion Ball Valve | 10"-300LB | 2 |
| 9# | Trunnion Ball Valve | 10"-300LB | 2 |
| 10# | Trunnion Ball Valve | 10"-300LB | 2 |
| 11# | Trunnion Ball Valve | 10"-300LB | 2 |
| 12# | Trunnion Ball Valve | 10"-300LB | 2 |
| 13# | Trunnion Ball Valve | 10"-300LB | 1 |
| | Trunnion Ball Valve | 6"-300LB | 1 |
| 14# | Trunnion Ball Valve | 16"-150LB | 1 |
| 15# | Trunnion Ball Valve | 16"-150LB | 1 |
| 16# | Trunnion Ball Valve | 16"-150LB | 1 |
| 17# | Trunnion Ball Valve | 16"-150LB | 1 |
| 18# | Trunnion Ball Valve | 16"-150LB | 1 |
| 19# | Trunnion Ball Valve | 16"-150LB | 1 |
| 20# | Trunnion Ball Valve | 16"-150LB | 1 |
| 21# | Trunnion Ball Valve | 8"-150LB | 2 |
| 22# | Floating Ball Valve | 2"-150LB | 13 |
| | Dual Plate Wafer Check Valve | 2"-150LB | 1 |
| 23# | Floating Ball Valve | 1"-300LB | 51 |

Add: West 3 Section, Shenzhen Road, Guanghan Industrial Zone, Sichuan, P.R. China 618300

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Company Registration No. 197400446C.



| | | | |
|-----|---------------------|-------------------|-------|
| | Floating Ball Valve | 1"-150LB | 25 |
| 24# | Globe Valve | 2"-150LB | 4 |
| 25# | Gate Valve | 1"-600LB (NPT) | 20 |
| | Gate Valve | 1/2"-600LB (NPT) | 21 |
| | Globe Valve | 1"-150LB | 8 |
| | Globe Valve | 1"-300LB | 7 |
| 26# | Globe Valve | 10"-300LB | 1 |
| 27# | Globe Valve | 16"-150LB | 1 |
| 28# | Globe Valve | 16"-150LB | 1 |
| 29# | O-ring/Gasket | 16"-300LB | 2SETS |
| | O-ring/Gasket | 16"-150LB | 2SETS |
| | O-ring/Gasket | 12"-300LB | 2SETS |
| | O-ring/Gasket | 10"-300LB | 2SETS |
| | O-ring/Gasket | 8"-150LB | 2SETS |
| | O-ring/Gasket | 6"-300LB | 2SETS |
| | Gasket | 2"-150LB | 2SETS |
| | Gasket | 1"-300LB | 2SETS |
| | Gasket | 1"-150LB | 2SETS |
| 30# | Gasket | 16"-300LB | 2SETS |
| | Seat Ring+Seat | 16"-300LB | 1SETS |
| | O-ring/Gasket | 16"-150LB | 2SETS |
| | Seat Ring+Seat | 16"-150LB | 1SETS |
| | O-ring/Gasket | 12"-300LB | 2SETS |
| | Seat Ring+Seat | 12"-300LB | 1SETS |

Add: West 3 Section, Shenzhen Road, Guanghan Industrial Zone, Sichuan, P.R. China 618300

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Company Registration No. 197400446C.

| | | |
|----------------|-----------|-------|
| O-ring/Gasket | 10"-300LB | 2SETS |
| Seat Ring+Seat | 10"-300LB | 1SETS |
| O-ring/Gasket | 8"-150LB | 2SETS |
| Seat Ring+Seat | 8"-150LB | 1SETS |
| O-ring/Gasket | 6"-300LB | 2SETS |
| Seat Ring+Seat | 6"-300LB | 1SETS |
| Gasket | 2"-150LB | 2SETS |
| Seat | 2"-150LB | 1SETS |
| Gasket | 1"-300LB | 2SETS |
| Seat | 1"-300LB | 1SETS |
| Gasket | 1"-150LB | 2SETS |
| Seat | 1"-150LB | 1SETS |

We certified that the Goods and related services under the Contract has been delivered and completed in all respects in strict compliance with the provisions of the Contract including all plans, designs, drawings, specifications and all modifications thereof as per direction and satisfaction of the Procuring Entity/Engineer-in Charge. However this acceptance certificate does not relieve the supplier from its warranty obligations.


Sim Wee Siang

Procurement Manager

ZICOM Equipment Pte Ltd

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E-mail: zepl@zicomgroup.com; Web: www.zicomequipment.com.sg; www.zicomgroup.com
Company Registration No. 197400446C.



Reference No. POO00350R2 date 5/11/2018

Date: 15/4/2019

ACCEPTANCE CERTIFICATE

| | |
|---------|----------------------------------|
| Vendor | Sichuan KCON Valve MFG. Co., Ltd |
| PO No. | POO00350-R2 |
| Project | P303 |

Scope of Supply: Ball Valve, Globe Valve, Plug Valve

Required Delivery Date: 25/3/2019

Actual Delivery Date: 22/3/2019

| CASE NO. | DESCRIPTION OF GOODS | QUANTITY |
|----------|--------------------------------|----------|
| 1# | Pneumatic Ball Valve 16"-150LB | 1PCS |
| 2# | Pneumatic Ball Valve 16"-150LB | 1PCS |
| 3# | Pneumatic Ball Valve 16"-150LB | 1PCS |
| 4# | Pneumatic Ball Valve 16"-150LB | 1PCS |
| 5# | Pneumatic Ball Valve 16"-600LB | 1PCS |
| 6# | Pneumatic Ball Valve 20"-300LB | 1PCS |
| 7# | Pneumatic Ball Valve 10"-300LB | 1PCS |
| 8# | Pneumatic Ball Valve 10"-300LB | 1PCS |
| 9# | Floating ball valve 2"-300LB | 2PCS |
| | Floating ball valve 2"-150LB | 4PCS |
| 10# | Globe Valve 2"-150LB | 2PCS |
| | Globe Valve 2"-300LB | 1PCS |
| 11# | Plug Valve 4"-300LB | 1PCS |

Add: West 3 Section, Shenzhen Road, Guanghan Industrial Zone, Sichuan, P.R. China 618300

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bizSAFE



29 Tuas Avenue 3, Singapore 639420; Tel: (65) 6861388; Fax: (65) 6865 1764;
E-mail: zepl@zicomgroup.com; Web: www.zicomequipment.com.sg; www.zicomgroup.com
Company Registration No. 197400446C.

| | | | |
|-----|-------------|----------|------|
| 12# | Globe Valve | 2"-150LB | 6PCS |
| 13# | Globe Valve | 2"-300LB | 3PCS |

We certified that the Goods and related services under the Contract has been delivered and completed in all respects in strict compliance with the provisions of the Contract including all plans, designs, drawings, specifications and all modifications thereof as per direction and satisfaction of the Procuring Entity/Engineer-in Charge. However this acceptance certificate does not relieve the Supplier from its warranty obligations.

Sim Wee Siang

Procurement Manager

ZICOM Equipment Pte Ltd

Add: West 3 Section, Shenzhen Road, Guanghan Industrial Zone, Sichuan, P.R. China 618300


Fax: +86 838 6839880

Tel: +86 838 6839859

E-mail: overseas@kconvalve.com

Website: www.kconvalve.com

Acceptance Letter from Petrogas Piping Middle East for KOC Project



PETRO GAS PIPING
SPECIALIST GLOBAL SUPPLIER OF WORLD CLASS PIPING PRODUCTS

HEAD OFFICE
Jebel Ali Free Zone
PO Box 261457, Dubai
United Arab Emirates
Tel.: +971-4-886-2818
Fax: +971-4-886-2872
E-Mail: info@pgpgroup.com
www.pgpgroup.com

DUBAI USA SINGAPORE ABU DHABI SAUDI ARABIA OMAN KUWAIT QATAR INDIA CHINA

Reference No. P1740400284
信函编号:

Date: 2020-06-04
日期:

ACCEPTANCE CERTIFICATE
验收证明书

| | |
|-------------------------------|-----------------------------------|
| Supplier 供应商 | Sichuan KCON Valve Mfg. Co., Ltd. |
| PO No. 合同号 | 17-4-04-00284 |
| Project Name/End User 项目名称 | KOC |
| Required Delivery Date 要求交货日期 | 2017-05-20 |
| Actual Delivery Date 实际交货日期 | 2017-12-01 & 2018-07-09 |

Scope of Valve Supply:
供货范围:

| Valve Type 阀门类型 | Description 描述 | Material 材质 | Qty. 数量 |
|--------------------|-------------------|----------------|------------|
| Ball Valve | 10" 1500LB | A351 CG6MN | 2 |
| | | | |
| | | | |
| | | | |

We certified that the Goods and related services under the Contract has been delivered and completed in all respects in strict compliance with the provisions of the Contract including all plans, designs, drawings, specifications and all modifications thereof as per direction and satisfaction of the Procuring Entity. However, this acceptance certificate does not relieve the supplier from its warranty obligations.

我方证明，本合同项下的货物和相关服务已严格按照本合同的规定交付和完成，包括所有计划、设计、图纸、规范及其所有修改，符合并满足采购实体要求。但是，本验收证明书并不免除供应商的质保义务。

Shaun Blades
Procurement Director
PETROGAS PIPING MIDDLE EAST FZCO
Tel: 00971-4886-2818



Pipes | Fittings | Flanges | Valves
Carbon Steel | Stainless Steel | Special Alloys | Duplex | Super Duplex

Add: West 3 Section, Shenzhen Road, Guanghan, Sichuan, 618300, P.R.China.
Tel: +86 838 6839859 Fax: +86 838 6839880
Email: overseas@kconvalve.com Website: www.kconvalve.com

Acceptance Letter from Maptrade for PETROBRAS Project

Reference No. PO-771820200604
函编号:

Date: 2020-06-04 信
日期:

ACCEPTANCE CERTIFICATE

验收证明书

| | |
|-------------------------------|-----------------------------------|
| Supplier 供应商 | Sichuan KCON Valve Mfg. Co., Ltd. |
| PO No. 合同号 | PO-7718 / CP18225 KO |
| Project Name 项目名 | PETROBRAS MRO PROJECT |
| Required Delivery Date 要求交货日期 | 2019-02-15 |
| Actual Delivery Date 实际交货日期 | 2019-05-21 |

Scope of Valve Supply:

供货范围:

| Valve Type 阀门类型 | Description 描述 | Material 材质 | Qty. 数量 |
|---------------------------|-------------------|----------------|------------|
| Trunnion Ball Valve 球阀 | 8" -300LB | LF2 CL1 | 1 |

We certified that the Goods and related services under the Contract has been delivered and completed in all respects in strict compliance with the provisions of the Contract including all plans, designs, drawings, specifications and all modifications thereof as per direction and satisfaction of the Procuring Entity. However this acceptance certificate does not relieve the supplier from its warranty obligations.

我方证明, 本合同项下的货物和相关服务已严格按照本合同的规定交付和完成, 包括所有计划、设计、图纸、规范及其所有修改, 符合并满足采购实体要求。但是, 本验收证明书并不免除供应商的质保义务。

Sign:  Maptrade Indústria e Comércio de Produtos Ltda
CNPJ: 10.451.845/0005-80

Name/Title: Maptrade Indústria e Comércio de Produtos Ltda.

Gabriel Laplan

Add: West 3 Section, Shenzhen Road, Guanghan, Sichuan, 618300, P.R.China.

Tel: +86 838 6839859 Fax: +86 838 6839880

Email: overseas@kconvalve.com Website: www.kconvalve.com

Acceptance Letter from Dow Chemical (Trinseo HongKong)

Reference No. PO-434013636620200605
信函编号:

Date: 2020-06-05
日期:

ACCEPTANCE CERTIFICATE

验收证明书

| | |
|-------------------------------|-----------------------------------|
| Supplier 供应商 | Sichuan KCON Valve Mfg. Co., Ltd. |
| PO No. 合同号 | P04340136366 / CP18097 KO |
| Project Name 项目名 | TRINSEO MRO PROJECT |
| Required Delivery Date 要求交货日期 | 2018-06-30 |
| Actual Delivery Date 实际交货日期 | 2018-07-11 |

Scope of Valve Supply:

供货范围:

| Valve Type 阀门类型 | Description 描述 | Material 材质 | Qty. 数量 |
|--------------------------------|-------------------|----------------|------------|
| Metal Seated Ball Valve 金属密封球阀 | 4" -300LB | WCB | 6 |
| Soft Seated Ball Valve 软密封球阀 | 4" -300LB | WCB | 6 |
| Gate Valve | 1" -150LB | F316 | 15 |
| Gate Valve | 1" -300LB | A105 | 15 |
| | | | |

We certified that the Goods and related services under the Contract has been delivered and completed in all respects in strict compliance with the provisions of the Contract including all plans, designs, drawings, specifications and all modifications thereof as per direction and satisfaction of the Procuring Entity. However this acceptance certificate does not relieve the supplier from its warranty

obligations.

我方证明, 本合同项下的货物和相关服务已严格按照本合同的规定交付和完成, 包括所有计划、设计、图纸、规范及其所有修改, 符合并满足采购实体要求。但是, 本验收证明书并不免除供应商的质保义务。

Sign&Stamp:

Name/Title:



LU Bing Tao (Contract Manager)

Add: West 3 Section, Shenzhen Road, Guanghan, Sichuan, 618300, P.R.China.

Tel: +86 838 6839859 Fax: +86 838 6839880

Email: overseas@kconvalve.com Website: www.kconvalve.com

Acceptance Letter from UPS for TAKREER Project



UNITED PIPING SOLUTIONS DMCC
P.O. Box - 61430
Dubai - UAE
Tel: +971-4-412-8542
Fax: +971-4-412-8438
Email: sales@unitedpipinggroup.com

Date: 2015 / 9 / 23

Job No.: CP15058KO

Dear Sir / Madam,

We confirm that we have ordered valves from KCON VALVE MFG. CO., LTD.,
Guanghan, Sichuan in China

Type of valves
Manual ball valves
Manual gate valves
Manual globe valves
Check valves

Scope of supply:
1/2" to 3"
150LB, 300LB, 800LB
Qty: 575 PCS

Material:
Body WCB / A105 / F316 dual
Trim F316 / MONEL / 13Cr

For the moment, we have successfully tested and received the valves.

Kind Regards

Manager
Liu Xiao Ming

UNITED PIPING SOLUTIONS DMCC





Industrie Service

CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA Third Edition, April 1999

Certificate No.: 220579

Ref. Test report No.: 220578

Name and postal address of manufacturer: **SICHUAN KCON VALVE MFG. CO., LTD.**
 Section 3, Shenzhen Road, Guanghan Industrial Zone,
 PC: 618300, Guanghan City, Sichuan Province,
 P. R. China

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA Third Edition, April 1999. The testing results of valves meet the requirements of API SPEC 6FA.

1. Description of Test Valve :

| | |
|--------------------------------|--|
| Type of Test Valve | 4" 150LB Full Bore Trunnion Ball Valve |
| Description of Valve | Ball Valve |
| Valve Size (NPS) | 4" |
| Pressure Rating (ANSI Class) | Class 150 |
| Valve Body Material | ASTM A216 WCB |

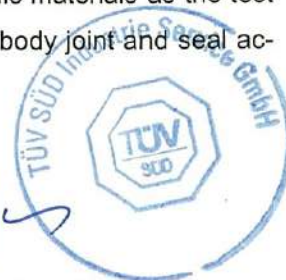
2. Qualified Range of Valves :

| | |
|---|---|
| Type | 4"-150Lb Ball Valve |
| Description of Valves | Ball Valves |
| Qualified Sizes (NPS) <i>(according to API 6FA Table 2)</i> | 4" , 6" , 8" |
| Qualified Pressure Ratings (Class) <i>(according to API 6FA Table 3)</i> | 150; 300 |
| Qualified Marking <i>(according to API 6FA Para.7)</i> | Qualified valves shall be permanently marked: 6FA |
| Remark: the technical data of test valve see back of this certificate appendix 1. | |

This certificate is issued according to API SPEC 6FA Third Edition, April 1999, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA Third Edition, April 1999, Para.4.8.

Shanghai, July 22, 2014
 (Place, date)


 TÜV SÜD Industrie Service GmbH





Industrie Service

Appendix 1:

Certificate No.: 220579

Ref. Test report No.: 220578

**Name and postal address of manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province,
P. R. China**

Technical Data of Valve

1. Type of Test Valve: 4" 150LB Full Bore Trunnion Ball Valve

2. Description of Test Valve: Ball Valve

3. Details of Valve:

| Part Name | Valves Size (NPS) Material | 4" |
|---------------------|---------------------------------|----------------------|
| Body | | ASTM A216 WCB |
| Closure | | ASTM A216 WCB |
| Ball | | ASTM A105+ENP |
| Stem | | ASTM A29 4140+ENP |
| Lower Stem | | ASTM A29 4140+ENP |
| Bolt | | ASTM A193 B7 |
| Stud | | ASTM A193 B7 |
| Nut | | ASTM A194 2H |
| Spring | | Inconel X750 |
| O Ring | | VITON |
| Seat | | RPTFE |
| Seat Ring | | ASTM A105 |
| Gland Packing | | Graphite |
| Design Drawing No.: | | KHE-4-14027-12 Rev.0 |

Shanghai, July 22, 2014

(Place, date)

Xudh

TÜV SÜD Industrie Service GmbH



TÜV SÜD Industrie Service GmbH
Shanghai Office
No.88 Heng Tong Road,
Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
Fax: + 86 21 6140-8600



2012002883Z



(2012)国认监认字(349)号

No: 2014FM528

检 验 报 告

Inspection Report



检测
CNAS L1598

TOV SÜD Industrie Service GmbH

reviewed

witnessed

by chen Guntm

dated 2014-7-10

产品名称: 球 阀

PRODUCT:

委托单位: 四川精控阀门制造有限公司

CLIENT:

生产单位: 四川精控阀门制造有限公司

MANUFACTURER:

检验类别: 委托检验

INSPECTION TYPE:

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute
 国家泵阀产品质量监督检验中心
 National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告 Inspection Report

No 2014FM528

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| | | | | | |
|---|---|---------------------------------|-------------------------|------------------------|---|
| 产品名称 Product | 球 阀 | | 型号规格 Model | 4" -150LB | |
| | | | 商 标 Trademark | / | |
| 委托单位 Client | 四川精控阀门制造有限公司 | | 检验类别 Inspection type | 委托检验 | |
| 生产单位 Manufacturer | 四川精控阀门制造有限公司 | | 样品等级 Grade of sample | / | |
| 生产单位地址 Address | 四川省广汉市深圳路西三段 | | 抽样日期 Sampling date | / | |
| 抽样地点 Sampling location | / | | 到样日期 Reaching date | 2014年7月7日 | |
| 样品数量 Quantity of samples | 1 台 | 抽样基数 Base number of sampling | / | 抽样者 Sampling person | / |
| 原样品编号 Serial number of original sample | / | | 样品编号 Sample number | 2014 阀字 1303 | |
| 检验依据 Inspection basis | API 6FA-1999 《阀门耐火试验规范》。 | | | | |
| 检验项目 Inspection items | 耐火试验（火烧试验、低压试验、操作试验）。 | | | | |
| 检验结论 Inspection conclusion | <p>经检验，所检项目的检验结果符合 API 6FA-1999 标准的要求。 测试数据见检验结果（附表）。</p> <p style="text-align: right;">签发日期：2014年7月5日 Date of issue:</p> | | | | |
| 备注 Remarks | / | | | | |

批准：
 Approver:

王是明

审核：
 Reviewer:

吴磊

主检：
 Chief inspector:

靳卫华



合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

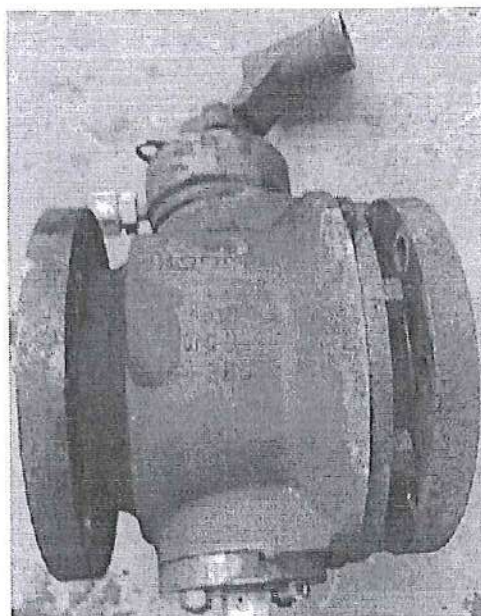
检 验 报 告
Inspection Report

No 2014FM528

共 4 页 第 2 页 Page 2 of 4 pages

检验样品外观照片:

Photo of the inspected sample:



合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告
Inspection Report

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检验结果 (附表)

检验日期: 2014 年 7 月 10 日

Inspection results

Date of test:

| 检验项目 Inspection item | 单位 Unit | 铭牌参数 Nameplate parameter | 技术要求 Technical requirements | 检验数据 Inspected data | 单项评价 Single-item evaluation |
|-------------------------|--|-----------------------------|---|---|--------------------------------|
| 耐火试验 | | / | 阀门进口端水压力 1.5 ± 0.15MPa, 火烧持续时间 30.0min。火烧期间, 阀门密封面泄漏率应 ≤ 400mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率应 ≤ 100mL/in./min。 | 火烧期间, 阀门密封面泄漏率: 6.7mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率: 4.9mL/in./min。 | 符合要求 |
| | | / | 阀门进口端水压力 0.20 ± 0.02MPa, 持续 5min 后, 进行 5min 的阀门密封面泄漏试验和阀门外泄漏试验。 阀门密封面泄漏率应 ≤ 40mL/in./min; 阀门外泄漏率应 ≤ 20mL/in./min。 | 阀门密封面泄漏率: 0mL/in./min; 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| | | / | 阀门进口端水压力 1.5 ± 0.15MPa, 持续 5min 后, 进行 5min 的阀门密封外泄漏试验, 泄漏率应 ≤ 200mL/in./min。 | 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| 备注 Remarks | 该阀密封副类型为金属/非金属, 公称尺寸为 4", 压力级为 Class150。 | | | | |

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合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告

Inspection Report

No. 2014FM528

共 4 页 第 4 页 Page 4 of 4 pages

检验结果 (附表)

检验日期: 2014 年 7 月 10 日

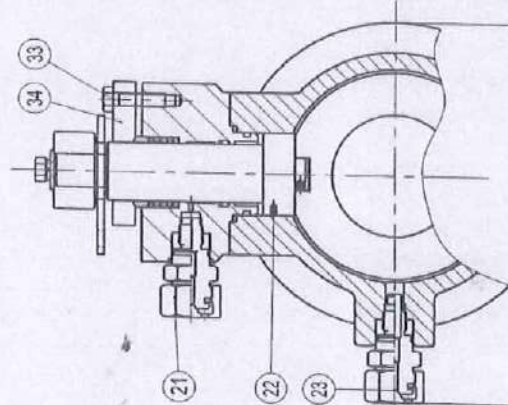
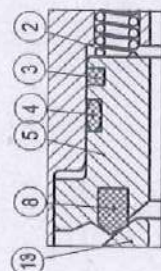
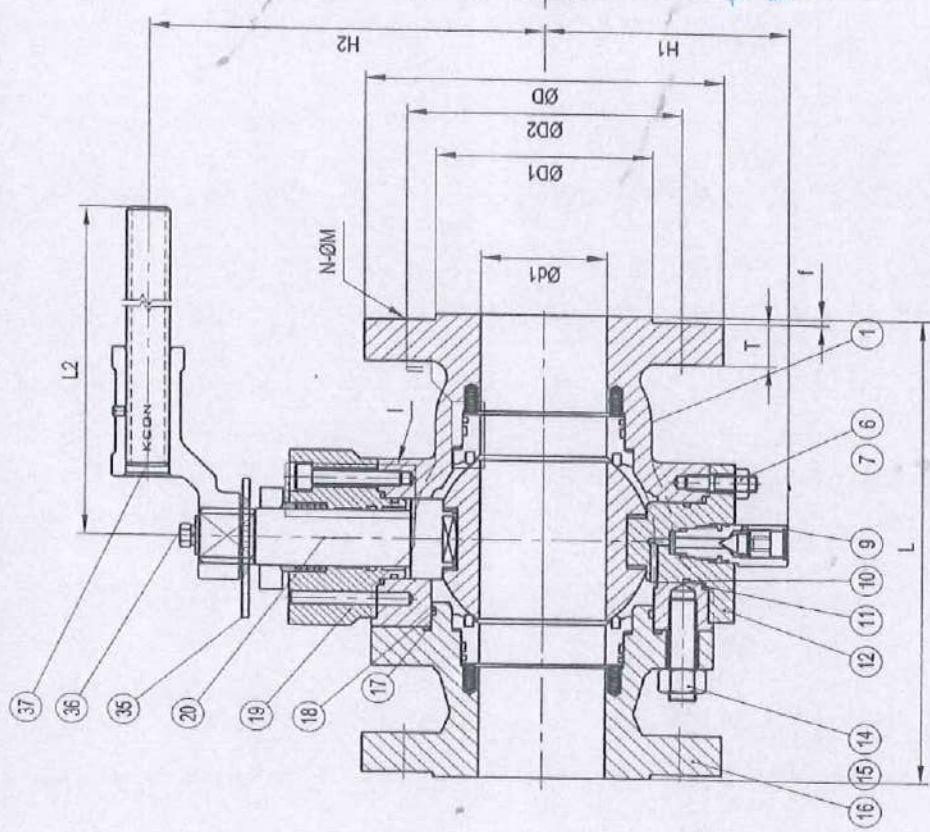
Inspection results

Date of test:

| 试验项目 Inspection item | 试验操作情况 Test operating conditions |
|---------------------------|---|
| 火烧试验 Fire test | 1、热电偶和测温块 阀门处于关闭位置且水平安装, 阀杆处于水平位置, 在阀门外共布置了 2 个测量火焰温度的热电偶和 2 个测温块。阀门的下侧和阀杆两处各布置 1 个热电偶和 1 个测温块。 |
| | 2、热电偶温度 点火后, 阀门下侧处火焰热电偶在火烧 2 分钟时温度达到 775.0℃; 阀杆处火焰热电偶在火烧 2 分钟时温度达到 768.1℃。 在火烧剩余期间, 阀门下侧处火焰热电偶的温度保持在 800.7℃~899.1℃ 之间; 阀杆处火焰热电偶的温度保持在 766.0℃~834.2℃ 之间。 |
| | 3、测温块温度 点火后, 阀门下侧处测温块的温度在 8.5 分钟时升至 650℃ 以上; 阀杆处测温块的温度在 6.5 分钟时升至 650℃ 以上。 |
| | 4、试验期间水压力 阀门进口端水压力保持在 1.50MPa~1.54MPa, 无瞬时压力损失。 |
| | 5、冷却 喷水强制冷却, 在火烧结束后 5 分钟, 阀门表面温度降到 100℃ 以下。 |
| 低压试验 Low pressure test | 阀门进口端水压力保持在 0.20MPa, 阀门处于关闭状态, 保持压力 5 分钟后进行检漏。 |
| 操作试验 Operational test | 在 1.5MPa 压差下打开试验阀门, 阀门达到半开启状态, 排空管道和试验阀门体腔内的空气和水蒸汽, 再保持试验阀和管道中压力 1.5MPa, 5 分钟后检测试验阀门的外部泄漏。 |

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| Dimensions in Millimetres | | | | | | | | | | | | | |
|---------------------------|-------|-----|-----|-----|-------|-----|------|-----|-------|-----|-----|-----|-----|
| Size | Class | Ød1 | L | ØD | ØD1 | ØD2 | T | f | N-ØM | H1 | H2 | L1 | L2 |
| 4" | 150LB | 100 | 229 | 229 | 190.5 | 157 | 22.3 | 1.5 | 8-Ø19 | 165 | 245 | 295 | 650 |



TUV SUD Industrie Service GmbH
 reviewed
 witnessed
 by *Cher Guilm*
 dated *2014-7-7*
 View I

| NO. | PART NAME | MATERIAL | CONDITION |
|-----|-------------------------|----------------|-------------|
| 40 | | | |
| 39 | | | |
| 38 | | | |
| 37 | Lever | Carbon Steel | Zinc Plated |
| 36 | Bot | A183 B7 | |
| 35 | Stopper | Carbon Steel | Zinc Plated |
| 34 | Clear Flange | A216 WCB | |
| 33 | Bot | A183 B7 | |
| 32 | Thrust Bearing | SS304 | PTFE Coated |
| 31 | O Ring | VITON | |
| 30 | Spiral Wound Gasket | SS316+Graphite | |
| 29 | Bearing | SS304 | PTFE Coated |
| 28 | Ball | A183 B7 | |
| 27 | Back Ring | R.PTFE | |
| 26 | O Ring | VITON | |
| 25 | Gland Packing | Graphite | |
| 24 | Gland | A276 304 | |
| 23 | Seat Greaser | Carbon Steel | Zinc Plated |
| 22 | Anti-Static Spring Ball | SS304 | |
| 21 | Stem Greaser | Carbon Steel | Zinc Plated |
| 20 | Stem | A29 4140+ENP | |
| 19 | Seal Ring | A105+ENP | |
| 18 | O Ring | VITON | |
| 17 | Spiral Wound Gasket | SS316+Graphite | |
| 16 | Closure | A216 WCB | |
| 15 | Nut | A194 2H | |
| 14 | Stud | A183 B7 | |
| 13 | Ball | A105+ENP | |
| 12 | Lower Stem | A29 4140+ENP | |
| 11 | Spiral Wound Gasket | SS316+Graphite | |
| 10 | O Ring | VITON | |
| 9 | Drain Valve | Assembly | |
| 8 | Seat | R.PTFE | |
| 7 | Nut | A194 2H | |
| 6 | Stud | A183 B7 | |
| 5 | Seat Ring | A105 | ENP |
| 4 | O Ring | VITON | |
| 3 | Gasket | Graphite | |
| 2 | Spring | Inconel X750 | |
| 1 | Body | A216 WCB | |

| DESIGN: | | END CONNECTION: | | FLANGE RF - ANSI B16.5 | |
|--|--------------|---------------------|----------------|------------------------|------------|
| END TO END: | ANSI B16.10 | ANTI BLOW STEM: | EQUIPPED | | |
| FIRE SAFE: | API 6FAAP607 | ANTI STATIC DEVICE: | EQUIPPED | | |
| INSPECTION: | API 598 | LEAKAGE RATE: | | | |
| SOUR SERVICE: | | | | | |
| CLIENT: | | | | | |
| CLIENT REF. NO.: | | | | | |
| PROJECT: Trunnion Ball Valve Full Bore | | | | | |
| JOB NO.: | CP14027KD | Drawing NO.: | KHE-4-14027-12 | REV: | 0 |
| DRAWN: | | CHECK: | | APPROVE: | |
| BY: | | BY: | | DATE: | 2014-05-28 |

KCON SICHUAN KCON VALVE MANUFACTURING CO., LTD.



Industrie Service

CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA Third Edition, April 1999

Certificate No.: 220583

Ref. Test report No.: 220582

Name and postal address of manufacturer: **SICHUAN KCON VALVE MFG. CO., LTD.**
 Section 3, Shenzhen Road, Guanghan Industrial Zone,
 PC: 618300, Guanghan City, Sichuan Province,
 P. R. China

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA Third Edition, April 1999. The testing results of valves meet the requirements of API SPEC 6FA.

1. Description of Test Valve :

| | |
|--------------------------------|--|
| Type of Test Valve | 4" 600LB Full Bore Trunnion Ball Valve |
| Description of Valve | Ball Valve |
| Valve Size (NPS) | 4" |
| Pressure Rating (ANSI Class) | Class 600 |
| Valve Body Material | ASTM A216 WCB |

2. Qualified Range of Valves :

| | |
|---|---|
| Type | 4"-600Lb Ball Valve |
| Description of Valves | Ball Valves |
| Qualified Sizes (NPS) <i>(according to API 6FA Table 2)</i> | 4" , 6" , 8" |
| Qualified Pressure Ratings (Class) <i>(according to API 6FA Table 3)</i> | 600; 900 |
| Qualified Marking <i>(according to API 6FA Para.7)</i> | Qualified valves shall be permanently marked: 6FA |
| Remark: the technical data of test valve see back of this certificate appendix 1. | |

This certificate is issued according to API SPEC 6FA Third Edition, April 1999, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA Third Edition, April 1999, Para.4.8.

Shanghai, July 22, 2014
 (Place, date)


TÜV SÜD-Industrie Service GmbH



Industrie Service

Appendix 1:

Certificate No.: 220583

Ref. Test report No.: 220582

**Name and postal address of manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province,
P. R. China**

Technical Data of Valve

1. Type of Test Valve: 4" 600LB Full Bore Trunnion Ball Valve

2. Description of Test Valve: Ball Valve

3. Details of Valve:

| Part Name | Valves Size (NPS) Material | 4" |
|---------------------|---------------------------------|----------------------|
| Body | | ASTM A216 WCB |
| Closure | | ASTM A216 WCB |
| Ball | | ASTM A105+ENP |
| Upper Stem | | ASTM A29 4140+ENP |
| Lower Sten | | ASTM A29 4140+ENP |
| Bolt | | ASTM A193 B7 |
| Stud | | ASTM A193 B7 |
| Nut | | ASTM A194 2H |
| Spring | | Inconel X750 |
| O Ring | | VITON |
| Seat | | NYLON |
| Seal Ring | | ASTM A105+ENP |
| Gland Packing | | Graphite |
| Design Drawing No.: | | KHE-4-14027-10 Rev.0 |

Shanghai, July 22, 2014

(Place, date)



TÜV SÜD Industrie Service GmbH

TÜV SÜD Industrie Service GmbH
Shanghai Office
No.88 Heng Tong Road,
Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
Fax: + 86 21 6140-8600

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2012002883Z



(2012)国认监认字(349)号

No: 2014FM529

检 验 报 告

Inspection Report



检测
CNAS L1598

TOV SÜD Industrie Service GmbH

reviewed

witnessed

by Chen Guibin

dated 2014-7-10



产品名称: 球 阀

PRODUCT:

委托单位: 四川精控阀门制造有限公司

CLIENT:

生产单位: 四川精控阀门制造有限公司

MANUFACTURER:

检验类别: 委托检验

INSPECTION TYPE:

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告


Inspection Report


No 2014FM529

共 4 页 第 1 页 Page 1 of 4 pages

| | | | | | |
|---|---|---------------------------------|-------------------------|------------------------|---|
| 产品名称 Product | 球 阀 | | 型号规格 Model | 4" -300LB | |
| | | | 商 标 Trademark | / | |
| 委托单位 Client | 四川精控阀门制造有限公司 | | 检验类别 Inspection type | 委托检验 | |
| 生产单位 Manufacturer | 四川精控阀门制造有限公司 | | 样品等级 Grade of sample | / | |
| 生产单位地址 Address | 四川省广汉市深圳路西三段 | | 抽样日期 Sampling date | / | |
| 抽样地点 Sampling location | / | | 到样日期 Reaching date | 2014年7月7日 | |
| 样品数量 Quantity of samples | 1 台 | 抽样基数 Base number of sampling | / | 抽样者 Sampling person | / |
| | | | | | |
| 原样品编号 Serial number of original sample | / | | 样品编号 Sample number | 2014 阀字 1304 | |
| 检验依据 Inspection basis | API 6FA-1999 《阀门耐火试验规范》。 | | | | |
| 检验项目 Inspection items | 耐火试验（火烧试验、低压试验、操作试验）。 | | | | |
| 检验结论 Inspection conclusion | <p>经检验，所检项目的检验结果符合 API 6FA-1999 标准的要求。 测试数据见检验结果（附表）。</p> <p style="text-align: right;">签发日期: 2014年7月15日 Date of issue:</p> | | | | |
| 备注 Remarks | / | | | | |

批准: 
Approver:

审核: 
Reviewer:

主检: 
Chief inspector:

合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

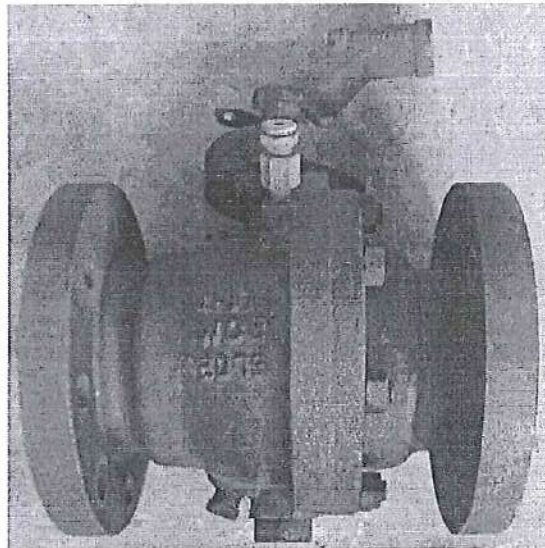
检 验 报 告
Inspection Report

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共 4 页 第 2 页 Page 2 of 4 pages

检验样品外观照片:

Photo of the inspected sample:



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检验报告 Inspection Report

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检验结果 (附表)

检验日期: 2014年7月10日

Inspection results

Date of test:

| 检验项目 Inspection item | 单位 Unit | 铭牌参数 Nameplate parameter | 技术要求 Technical requirements | 检验数据 Inspected data | 单项评价 Single-item evaluation |
|-------------------------|--|-----------------------------|--|--|--------------------------------|
| 耐火试验 | / | / | 阀门进口端水压力 3.7 ± 0.37MPa, 火烧持续时间 30.0min。火烧期间, 阀门密封面泄漏率应 ≤ 400mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率应 ≤ 100mL/in./min。 | 火烧期间, 阀门密封面泄漏率: 29.2mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率: 9.0mL/in./min。 | 符合要求 |
| | | | 阀门进口端水压力 0.34 ± 0.034MPa, 持续 5min 后, 进行 5min 的阀门密封面泄漏试验和阀门外泄漏试验。 阀门密封面泄漏率应 ≤ 40mL/in./min; 阀门外泄漏率应 ≤ 20mL/in./min。 | 阀门密封面泄漏率: 0mL/in./min; 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| | | | 阀门进口端水压力 3.7 ± 0.37MPa, 持续 5min 后, 进行 5min 的阀门密封外泄漏试验, 泄漏率应 ≤ 200mL/in./min。 | 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| 备注 Remarks | 该阀密封副类型为金属/非金属, 公称尺寸为 4", 压力级为 Class300。 | | | | |

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合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告

Inspection Report

No. 2014FM529

共 4 页 第 4 页 Page 4 of 4 pages

检验结果 (附表)

检验日期: 2014 年 7 月 10 日

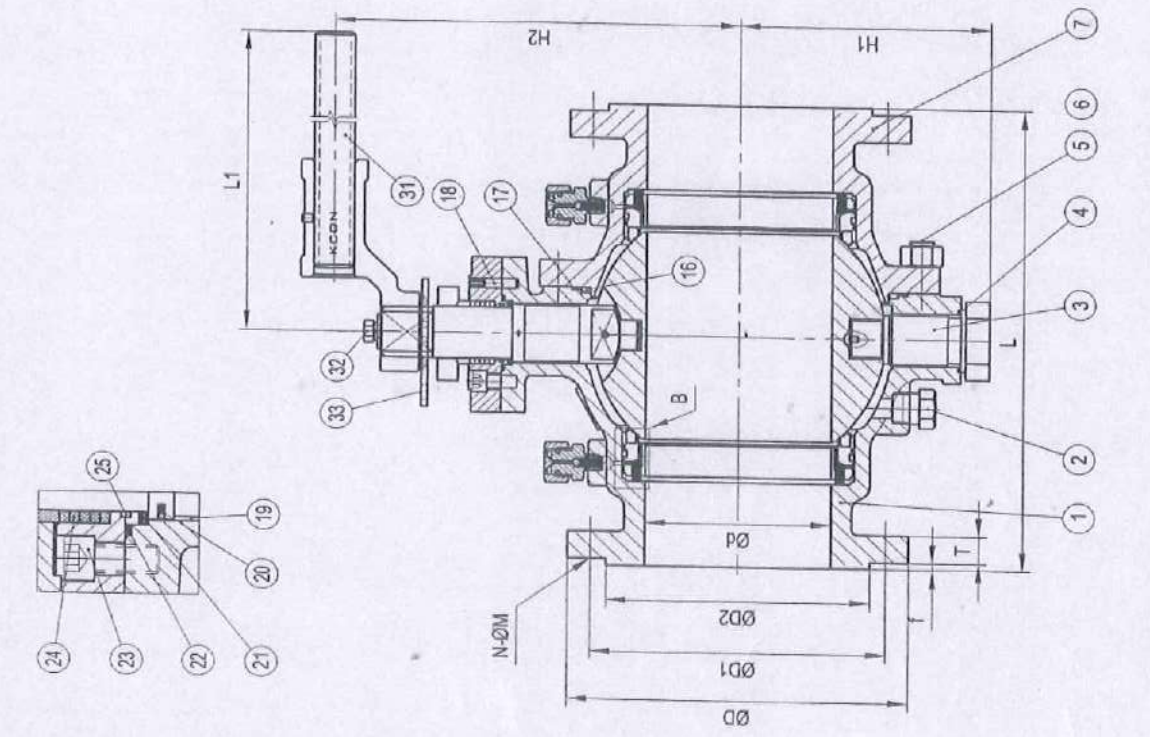
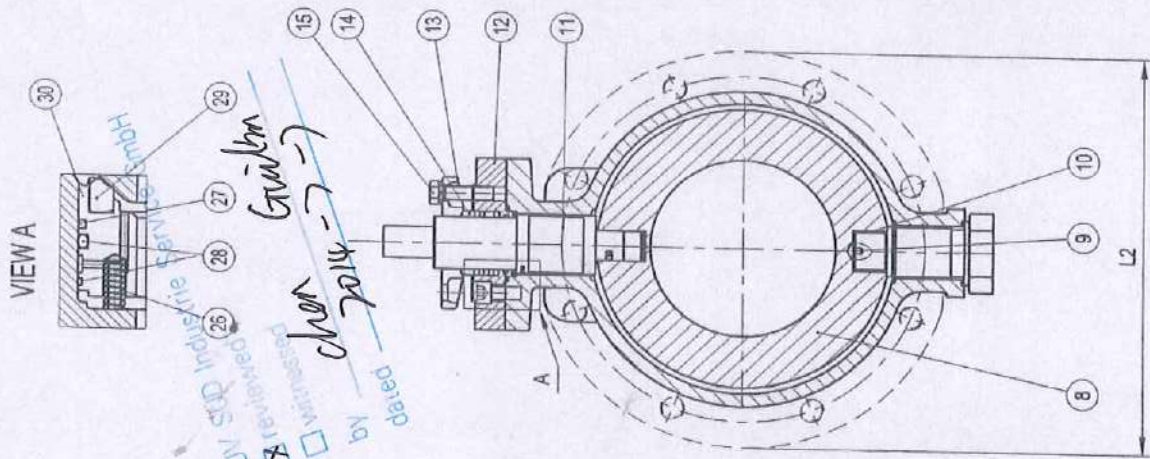
Inspection results

Date of test:

| 试验项目 Inspection item | 试验操作情况 Test operating conditions |
|---------------------------|---|
| 火烧试验 Fire test | 1、热电偶和测温块 阀门处于关闭位置且水平安装, 阀杆处于水平位置, 在阀门外共布置了 2 个测量火焰温度的热电偶和 2 个测温块。阀门的下侧和阀杆两处各布置 1 个热电偶和 1 个测温块。 |
| | 2、热电偶温度 点火后, 阀门下侧处火焰热电偶在火烧 2 分钟时温度达到 770.1℃; 阀杆处火焰热电偶在火烧 2 分钟时温度达到 800.1℃。 在火烧剩余期间, 阀门下侧处火焰热电偶的温度保持在 765.9℃~954.7℃ 之间; 阀杆处火焰热电偶的温度保持在 803.4℃~852.2℃ 之间。 |
| | 3、测温块温度 点火后, 阀门下侧处测温块的温度在 8.5 分钟时升至 650℃ 以上; 阀杆处测温块的温度在 8.0 分钟时升至 650℃ 以上。 |
| | 4、试验期间水压力 阀门进口端水压力保持在 3.67MPa~3.75MPa, 无瞬时压力损失。 |
| | 5、冷却 喷水强制冷却, 在火烧结束后 4 分钟, 阀门表面温度降到 100℃ 以下。 |
| 低压试验 Low pressure test | 阀门进口端水压力保持在 0.34MPa, 阀门处于关闭状态, 保持压力 5 分钟后进行检漏。 |
| 操作试验 Operational test | 在 3.7MPa 压差下打开试验阀门, 阀门达到半开启状态, 排空管道和试验阀门体腔内的空气和水蒸汽, 再保持试验阀和管道中压力 3.7MPa, 5 分钟后检测试验阀门的外部泄漏。 |

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| Dimensions in Millimetres | | | | | | | | | | | | | |
|---------------------------|-------|-----|-----|-----|-----|-------|------|-----|-------|-----|-----|-----|-----|
| Size | Class | Ød | L | ØD | T | J | N-ØM | H1 | H2 | L1 | L2 | | |
| 4" | 300LB | 102 | 305 | 255 | 200 | 157.2 | 30.2 | 1.6 | 3-Ø52 | 140 | 245 | 700 | 262 |



| NO. | PART NAME | MATERIAL | CONDITION |
|-----|-------------------------|----------------|-------------|
| 40 | | | |
| 39 | | | |
| 38 | | | |
| 37 | | | |
| 36 | | | |
| 35 | | | |
| 34 | | | |
| 33 | Stopper | Carbon Steel | Zinc Plated |
| 32 | Blot | A193 B7 | |
| 31 | Lever | Carbon Steel | Zinc Plated |
| 30 | Seal Ring | A105-ENP | |
| 29 | Seat | PTFE | |
| 28 | O Ring | VITON | |
| 27 | Gasket | Graphite | |
| 26 | Spring | Inconel X750 | |
| 25 | O Ring | VITON | |
| 24 | Gland Packing | Graphite | |
| 23 | Bolt | A193 B7 | |
| 22 | Sprial Wound Gasket | SS316+Graphite | |
| 21 | Thrust Bearing | A276 304 | PTFE Coated |
| 20 | Anti-Static Spring/Ball | A276 304 | |
| 19 | Stem Bearing | A276 304 | PTFE Coated |
| 18 | Pin | A276 304 | |
| 17 | Sprial Wound Gasket | SS316+Graphite | |
| 16 | O Ring | VITON | |
| 15 | Bolt | A193 B7 | |
| 14 | Gland | A276 304 | |
| 13 | Gland Flange | A216 WCB | |
| 12 | Operator Flange | A105 | Zinc Plated |
| 11 | Upper Stem | A29 4140-ENP | |
| 10 | Lower Stem Bearing | A276 304 | PTFE Coated |
| 9 | Thrust Bearing | A276 304 | PTFE Coated |
| 8 | Ball | A105-ENP | |
| 7 | Closure | A216 WCB | |
| 6 | Nut | A194 2H | |
| 5 | Stud | A193 B7 | |
| 4 | Sprial Wound Gasket | SS316+Graphite | |
| 3 | Lower Stem | A29 4140-ENP | |
| 2 | Drain Plug | Carbon Steel | Zinc Plated |
| 1 | Body | A216 WCB | |

| DESIGN : | | API 6D | END CONNECTION : | FLANGE RF - ANSI B16.5 |
|-------------------|--|--------------|----------------------|------------------------|
| END TO END : | | ANSI B16.10 | ANTI BLOW STEM : | EQUIPPED |
| FIRESAFE : | | API 6FAFP907 | ANTI STATIC DEVICE : | EQUIPPED |
| INSPECTION : | | API 598 | LEAKAGE RATE : | |
| SCOUR SERVICE : | | | | |
| CLIENT : | | | | |
| CLIENT REF. NO. : | | | | |
| PROJECT : | | | | |

| JOB NO. : | | CP14027KD | Drawing NO. : | KHE-4-14027-11 | REV. : | 0 |
|---|---------|-----------|---------------|----------------|--------|---|
| DRAWN : | CHECK : | | APPROVE : | | DATE : | |
| BY : | BY : | | DATE : | | | |
| <p style="text-align: center;">KCON SICHUAN KCON VALVE MANUFACTURING CO., LTD.</p> | | | | | | |

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Test Report

(Valve fugitive emission test according to ISO15848-1: 2015+Amd.1:2017)

Certificate No. :267733
Test Report No.:267732

Applicant / Manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province, P. R. China

Inspection body: TÜV SÜD Industrie Service GmbH
Floor 3-13, No.151, Heng Tong Road, Shanghai, P. R. China

Lab of test: SICHUAN KCON VALVE MFG. CO., LTD. (Test Laboratory)

Test Date: December 12-13 2019

Description of valves: JKD115-L002N1-3" A150 RTJ Forged Steel Ball Valve

Size: 3"

Pressure Rating: Class 1500

Drawing No.: QSD03007-0000 REV.0

Test Witnessed By: CHEN Gullin / TÜV SÜD Inspector

Inspection and Tests

1. Conformity of Equipment

The test equipment was verified by TÜV SÜD inspector according to requirements of ISO15848-1:2015+Amd.1:2017 and found satisfactory. The detailed arrangement of the fugitive emission test equipment is shown below:

Figure 1 Typical stem seal leakage measurement system with Vacuum Method

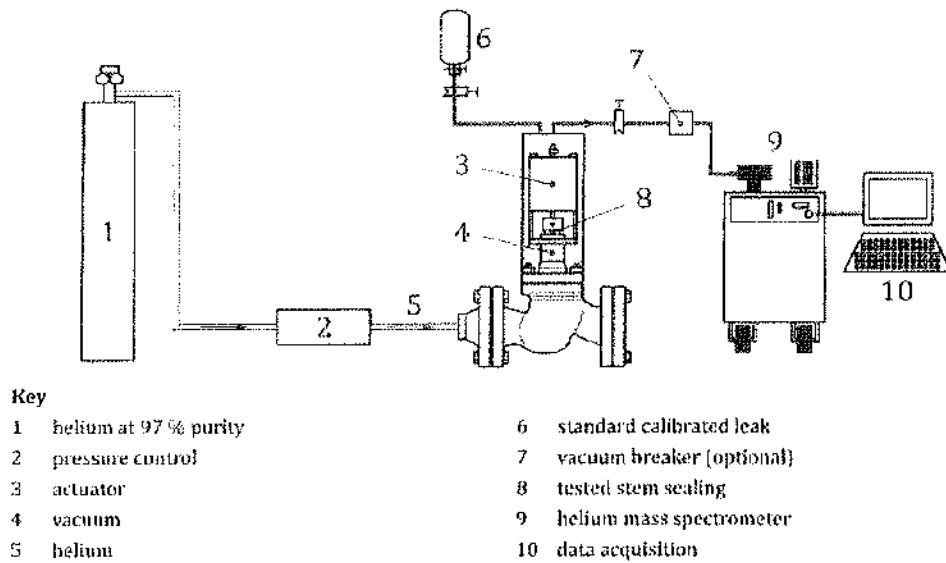
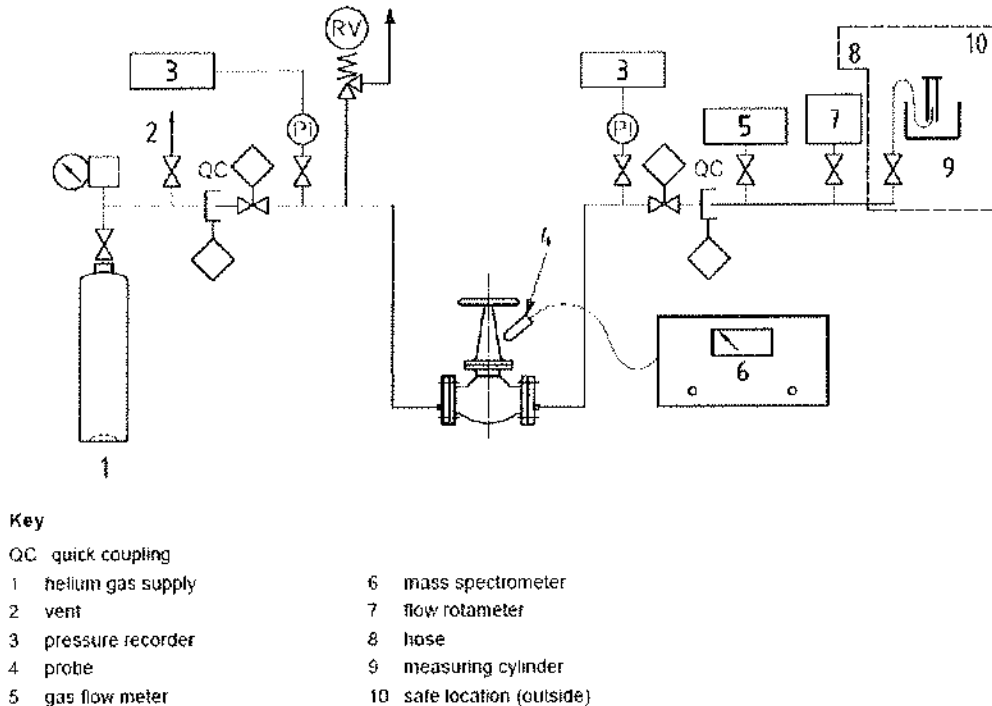


Figure 2 Typical body seal leakage measurement system with Sniffing Method



Test Report No.:267732

2. Document review

The specific product data file provided by the valve manufacturer includes:

- a) cross sectional valve assembly drawing;
- b) bill of valve material
- c) stem or shaft seal description, dimension and specifications;
- d) body seal description, dimension and specifications;
- e) material specifications of stem or shaft seal components;
- f) hydrostatic test certificate.

The above documents are reviewed with no objection.

3. Technical Data of Test Valve:

a) General description of test valve

| | |
|----------------------------|---|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD115-L002N1-3" A150 RTJ Forged Steel Ball Valve |
| Valve size | 3" |
| Pressure rating | Class 1500 |
| Stem size | Ø35 mm |
| Body/bonnet material | ASTM A350 LF2 |
| Seal material | Graphite + VITON AED O-Ring |
| Valve assembly drawing no. | QSD03007-0000 REV.0 |

4. Visual and dimensional check of the test valve:

The test valve was chosen at random by the manufacturer in its workshop and submitted to the laboratory. The visual and dimensional check was performed according to drawing No.: QSD03007-0000 REV.0 and results found satisfactory. The mark was verified on valve as following:

| | | | |
|---------------------|-----------|-------------|------------|
| <u>KCON</u> | <u>3"</u> | <u>1500</u> | <u>LF2</u> |
| Manufacturer' Brand | Size | Class | Material |

The stem size was measured as Ø35mm.

5. Preparation of the test valve:

Before the fugitive emission test, the test valve was hydrostatic tested under 384bar, the test showed no visible leakage or deformation. Then the valve was cleaned and dried.

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Test Report No.:267732

6. Calibration of test instrument

The test instrument was turned on, warmed up at the minimum time according to the requirements of the equipment manufacturer and calibrated with the standard calibrated leak 100% helium according to the procedure specified in Annex A, Para.A.1.4.2 of ISO15848-1:2015+Amd.1:2017.

7. Fugitive emission test and measurement

The test valve was mounted on a test rig with the stem positioned vertical. And the fugitive emission test is carried out as per requirement of ISO15848-1:2015+Amd.1:2017 Para.5.

7.1 Preliminary tests at room temperature (test 1)

The valve was pressurized with test fluid Helium to 25.6MPa according to manufacturer's requirements in the partly opened position, the temperature at locations "X"/"Y"/"Z" are measure and recorded as room temperature.

The stem seal leakage measurement was performed by the Vacuum method as described in ISO15848-1 Annex A.

The body seal leakage measurement was performed by the sniffing method as described in ISO15848-1 Annex B.

The test results are as follows:

Test results of preliminary tests

| Item | ISO15848-1 Required Value | Actual Value |
|-------------------------|----------------------------|----------------------|
| Stem leakage (mbar.l/s) | $\leq 6.24 \times 10^{-6}$ | 0.2×10^{-6} |
| Body seal leakage(ppmv) | ≤ 50 | 0.1 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017.

7.2 Mechanical cycle test at the room temperature (test 2/3/4/5/6)

A total of 1500 mechanical cycles was performed on the test valve while it was kept pressurized under a differential pressure of 25.6MPa according to the manufacturer's requirements at room temperature. The pressure should be improved and kept at 25.6MPa to measure the leakage, and then the leakage from the stem seal and from the valve body seal were both measured with following results:

Test results of final tests

| Item | ISO15848-1 Required Value | Actual Value |
|--|----------------------------|----------------------|
| Stem leakage (mbar.l/s)after 50 cycles | $\leq 6.24 \times 10^{-6}$ | 0.2×10^{-6} |
| Stem leakage (mbar.l/s)after 100 cycles | $\leq 6.24 \times 10^{-6}$ | 0.2×10^{-6} |
| Stem leakage (mbar.l/s)after 150 cycles | $\leq 6.24 \times 10^{-6}$ | 0.4×10^{-6} |
| Stem leakage (mbar.l/s)after 200 cycles | $\leq 6.24 \times 10^{-6}$ | 0.4×10^{-6} |
| Stem leakage (mbar.l/s)after 205 cycles | $\leq 6.24 \times 10^{-6}$ | 0.4×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 0.1 |
| Stem leakage (mbar.l/s)after 1000 cycles | $\leq 6.24 \times 10^{-6}$ | 0.8×10^{-6} |
| Stem leakage (mbar.l/s)after 1500 cycles | $\leq 6.24 \times 10^{-6}$ | 0.8×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 0.1 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017

8. Post test examination

Test Report No.:267732

After all the above tests completed, the test valve was disassembled and all sealing components visually examined. It is found that no notable wear and any other significant observations.

9. Performance classes

As a result of the above tests, the test valve covered performance classes as follows:

ISO FE AH – CO2 –SSA 0 – tRT – CL1500 – ISO 15848-1

10. Extension of qualification to untested valves shall be according to ISO15848-1:2015+Amd.1:2017 paragraph 8.

We, hereby declare that I have checked test valve and witnessed the fugitive emission test on the tested valve according to ISO15848-1:2015+Amd.1:2017. The test results are as mentioned in this report.

TÜV SÜD Industrie Service GmbH


Chen Guilin



Date: February 17, 2020

Annexes:

- 1) Copy of Drawing No.: QSD03007-0000 REV.0;
- 2) Test Report of Fugitive Emission Test No. JK20191213-01.



Test Report

(Valve fugitive emission test according to ISO15848-1: 2015+Amd.1:2017)

Certificate No. :267735

Test Report No.:267734

Applicant / Manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.

Section 3, Shenzhen Road, Guanghan Industrial Zone,

PC: 618300, Guanghan City, Sichuan Province, P. R. China

Inspection body: TÜV SÜD Industrie Service GmbH

Floor 3-13, No.151, Heng Tong Road, Shanghai, P. R. China

Lab of test: SICHUAN KCON VALVE MFG. CO., LTD. (Test Laboratory)

Test Date: December 10-12, 2019

Description of valves: JKD115-C002N1-8" A150 RTJ Forged Steel Ball Valve

Size: 8"

Pressure Rating: Class 1500

Drawing No.: QTD08007-0000 REV.0

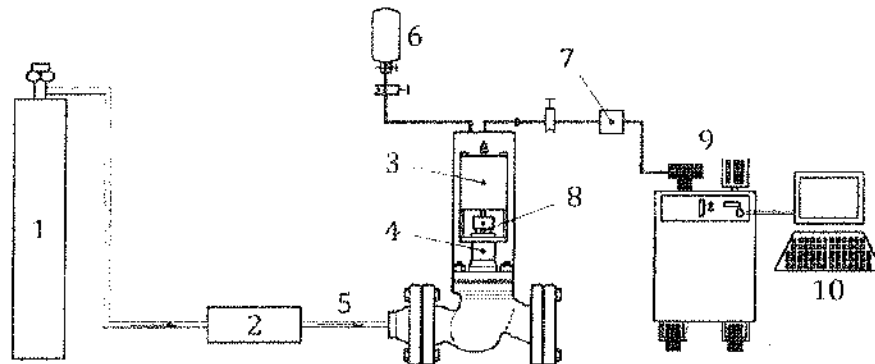
Test Witnessed By: CHEN Guilin / TÜV SÜD Inspector

Inspection and Tests

1. Conformity of Equipment

The test equipment was verified by TÜV SÜD inspector according to requirements of ISO15848-1:2015+Amd.1:2017 and found satisfactory. The detailed arrangement of the fugitive emission test equipment is shown below:

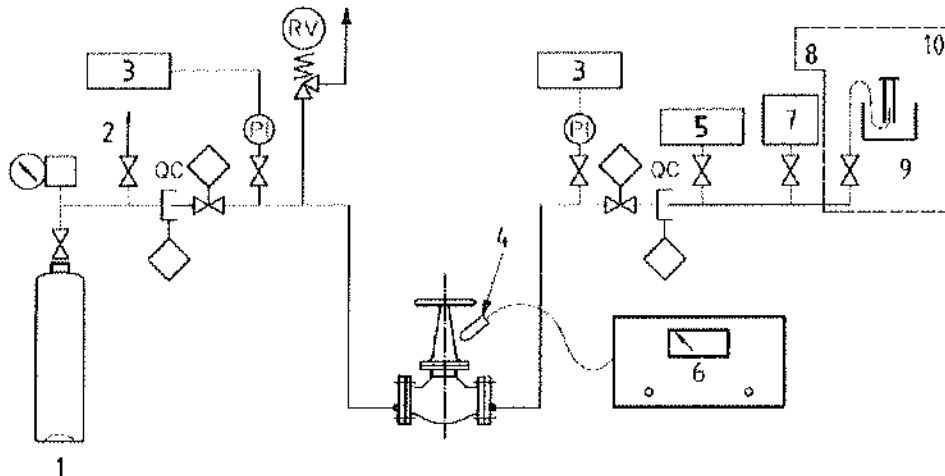
Figure 1 Typical stem seal leakage measurement system with Vacuum Method



Key

- | | |
|-------------------------|-----------------------------|
| 1 helium at 97 % purity | 6 standard calibrated leak |
| 2 pressure control | 7 vacuum breaker (optional) |
| 3 actuator | 8 tested stem sealing |
| 4 vacuum | 9 helium mass spectrometer |
| 5 helium | 10 data acquisition |

Figure 2 Typical body seal leakage measurement system with Sniffing Method



Key

- | | |
|---------------------|----------------------------|
| QC quick coupling | 6 mass spectrometer |
| 1 helium gas supply | 7 flow rotameter |
| 2 vent | 8 hose |
| 3 pressure recorder | 9 measuring cylinder |
| 4 probe | 10 safe location (outside) |
| 5 gas flow meter | |



Test Report No.:267734

2. Document review

The specific product data file provided by the valve manufacturer includes:

- a) cross sectional valve assembly drawing;
- b) bill of valve material
- c) stem or shaft seal description, dimension and specifications;
- d) body seal description, dimension and specifications;
- e) material specifications of stem or shaft seal components;
- f) hydrostatic test certificate.

The above documents are reviewed with no objection.

3. Technical Data of Test Valve:

a) General description of test valve

| | |
|----------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD115-C002N1-8" A150 RTJ Forged Steel Ball Valve |
| Valve size | 8" |
| Pressure rating | Class 1500 |
| Stem size | Φ70 mm |
| Body/bonnet material | ASTM A105 |
| Seal material | Graphite + VITON AED O-Ring |
| Valve assembly drawing no. | QTD08007-0000 REV.0 |

4. Visual and dimensional check of the test valve:

The test valve was chosen at random by the manufacturer in its workshop and submitted to the laboratory. The visual and dimensional check was performed according to drawing No.: QTD08007-0000 REV.0 and results found satisfactory. The mark was verified on valve as following:

| | | | |
|---------------------|-----------|-------------|-------------|
| <u>KCON</u> | <u>8"</u> | <u>1500</u> | <u>A105</u> |
| Manufacturer' Brand | Size | Class | Material |

The stem size was measured as Ø70mm.

5. Preparation of the test valve:

Before the fugitive emission test, the test valve was hydrostatic tested under 384bar, the test showed no visible leakage or deformation. Then the valve was cleaned and dried.

Test Report No.:267734

6. Calibration of test instrument

The test instrument was turned on, warmed up at the minimum time according to the requirements of the equipment manufacturer and calibrated with the standard calibrated leak 100% helium according to the procedure specified in Annex A, Para.A.1.4.2 of ISO15848-1:2015+Amd.1:2017.

7. Fugitive emission test and measurement

The test valve was mounted on a test rig with the stem positioned vertical. And the fugitive emission test is carried out as per requirement of ISO15848-1:2015+Amd.1:2017 Para.5.

7.1 Preliminary tests at room temperature (test 1)

The valve was pressurized with test fluid Helium to 25.6MPa according to manufacturer's requirements in the partly opened position, the temperature at locations "X"/"Y"/"Z" are measure and recorded as room temperature.

The stem seal leakage measurement was performed by the Vacuum method as described in ISO15848-1 Annex A.

The body seal leakage measurement was performed by the sniffing method as described in ISO15848-1 Annex B.

The test results are as follows:

Test results of preliminary tests

| Item | ISO15848-1 Required Value | Actual Value |
|-------------------------|----------------------------|----------------------|
| Stem leakage (mbar.l/s) | $\leq 1.25 \times 10^{-5}$ | 3.2×10^{-6} |
| Body seal leakage(ppmv) | ≤ 50 | 0.1 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017.

7.2 Mechanical cycle test at the room temperature (test 2/3/4/5/6)

A total of 1500 mechanical cycles was performed on the test valve while it was kept pressurized under a differential pressure of 25.6MPa according to the manufacturer's requirements at room temperature. The pressure should be improved and kept at 25.6MPa to measure the leakage, and then the leakage from the stem seal and from the valve body seal were both measured with following results:

Test results of final tests

| Item | ISO15848-1 Required Value | Actual Value |
|--|----------------------------|----------------------|
| Stem leakage (mbar.l/s)after 50 cycles | $\leq 1.25 \times 10^{-5}$ | 3.2×10^{-6} |
| Stem leakage (mbar.l/s)after 100 cycles | $\leq 1.25 \times 10^{-5}$ | 3.2×10^{-6} |
| Stem leakage (mbar.l/s)after 150 cycles | $\leq 1.25 \times 10^{-5}$ | 4.2×10^{-6} |
| Stem leakage (mbar.l/s)after 200 cycles | $\leq 1.25 \times 10^{-5}$ | 4.0×10^{-6} |
| Stem leakage (mbar.l/s)after 205 cycles | $\leq 1.25 \times 10^{-5}$ | 4.2×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 0.2 |
| Stem leakage (mbar.l/s)after 1000 cycles | $\leq 1.25 \times 10^{-5}$ | 6.0×10^{-6} |
| Stem leakage (mbar.l/s)after 1500 cycles | $\leq 1.25 \times 10^{-5}$ | 8.0×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 0.3 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017

8. Post test examination



Test Report No.:267734

After all the above tests completed, the test valve was disassembled and all sealing components visually examined. It is found that no notable wear and any other significant observations.

9. Performance classes

As a result of the above tests, the test valve covered performance classes as follows:

ISO FE AH – CO2 –SSA 0 – tRT – CL1500 – ISO 15848-1

10. Extension of qualification to untested valves shall be according to ISO15848-1:2015+Amd.1:2017 paragraph 8.

We, hereby declare that I have checked test valve and witnessed the fugitive emission test on the tested valve according to ISO15848-1:2015+Amd.1:2017. The test results are as mentioned in this report.

TÜV SÜD Industrie Service GmbH


Chen Guilin



Date: February 17, 2020

Annexes:

- 1) Copy of Drawing No.: QTD08007-0000 REV.0;
- 2) Test Report of Fugitive Emission Test No. JK20191212-01.



Test Report

(Valve fugitive emission test according to ISO15848-1: 2015+Amd.1:2017)

Certificate No. :279983

Test Report No.:279982

Applicant / Manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province, P. R. China

Inspection body: TÜV SÜD Industrie Service GmbH
Floor 3-13, No.151, Heng Tong Road, Shanghai, P. R. China

Lab of test: SICHUAN KCON VALVE MFG. CO., LTD. (Test Laboratory)

Test Date: August 16-20, 2021

Description of valves: JKD125FW-L0053R4-16" A250 RTJ Ball Valve

Size: 16"

Pressure Rating: Class 2500

Drawing No.: HTD16008-0000 Rev.0

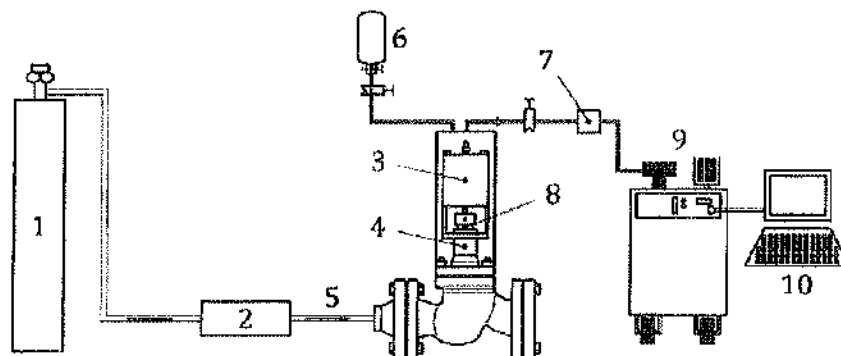
Test Witnessed By: CHEN Guilin / TÜV SÜD Inspector

Inspection and Tests

1. Conformity of Equipment

The test equipment was verified by TÜV SÜD inspector according to requirements of ISO15848-1:2015+Amd.1:2017 and found satisfactory. The detailed arrangement of the fugitive emission test equipment is shown below:

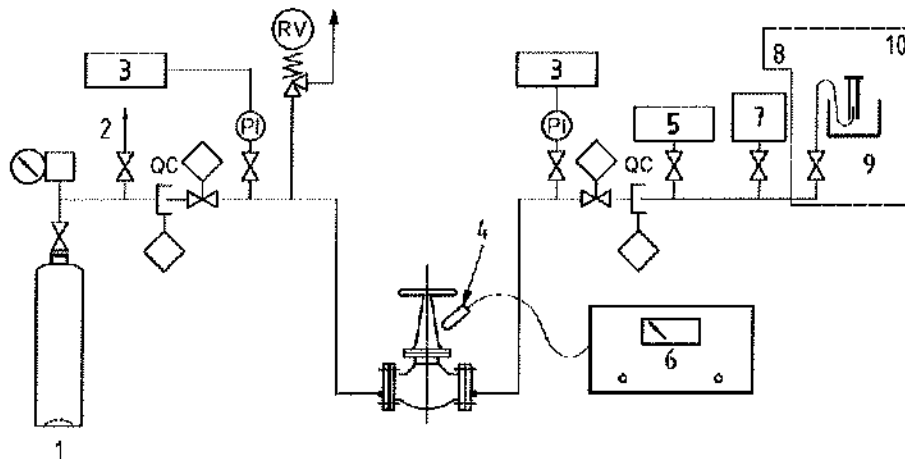
Figure 1 Typical stem seal leakage measurement system with Vacuum Method



Key

- | | |
|-------------------------|-----------------------------|
| 1 helium at 97 % purity | 6 standard calibrated leak |
| 2 pressure control | 7 vacuum breaker (optional) |
| 3 actuator | 8 tested stem sealing |
| 4 vacuum | 9 helium mass spectrometer |
| 5 helium | 10 data acquisition |

Figure 2 Typical body seal leakage measurement system with Sniffing Method



Key

- | | |
|---------------------|----------------------------|
| QC quick coupling | 6 mass spectrometer |
| 1 helium gas supply | 7 flow rotameter |
| 2 vent | 8 hose |
| 3 pressure recorder | 9 measuring cylinder |
| 4 probe | 10 safe location (outside) |
| 5 gas flow meter | |



Test Report No.:279982

2. Document review

The specific product data file provided by the valve manufacturer includes:

- a) cross sectional valve assembly drawing;
- b) bill of valve material
- c) stem or shaft seal description, dimension and specifications;
- d) body seal description, dimension and specifications;
- e) material specifications of stem or shaft seal components;
- f) hydrostatic test certificate.

The above documents are reviewed with no objection.

3. Technical Data of Test Valve:

a) General description of test valve

| | |
|----------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD125FW-L0053R4-16" A250 RTJ Ball Valve |
| Valve size | 16" |
| Pressure rating | Class 2500 |
| Stem size | Φ120 mm |
| Body/bonnet material | ASTM A350 LF2 CL1 |
| Seal material | VITON AED O-Ring and Graphite |
| Valve assembly drawing no. | HTD16008-0000 Rev.0 |

4. Visual and dimensional check of the test valve:

The test valve was chosen at random by the manufacturer in its workshop and submitted to the laboratory. The visual and dimensional check was performed according to drawing No.: HTD16008-0000 Rev.0 and results found satisfactory. The mark was verified on valve as following:

| | | | |
|---------------------|------------|-------------|------------|
| <u>KCON</u> | <u>16"</u> | <u>2500</u> | <u>LF2</u> |
| Manufacturer` Brand | Size | Class | Material |

The stem size was measured as Ø120mm.

5. Preparation of the test valve:

Before the fugitive emission test, the test valve was hydrostatic tested under 646bar, the test showed no visible leakage or deformation. Then the valve was cleaned and dried.

6. Calibration of test instrument

The test instrument was turned on, warmed up at the minimum time according to the requirements of the equipment manufacturer and calibrated with the standard calibrated leak 100% helium according to the procedure specified in Annex A, Para.A.1.4.2 of ISO15848-1:2015+Amd.1:2017.





Test Report No.:279982

7. Fugitive emission test and measurement

The test valve was mounted on a test rig with the stem positioned vertical. And the fugitive emission test is carried out as per requirement of ISO15848-1:2015+Amd.1:2017 Para.5.

7.1 Preliminary tests at room temperature (test 1)

The valve was pressurized with test fluid Helium to 42.6MPa according to manufacturer's requirements in the partly opened position, the temperature at locations "X"/"Y"/"Z" are measure and recorded as room temperature.

The stem seal leakage measurement was performed by the Vacuum method as described in ISO15848-1 Annex A.

The body seal leakage measurement was performed by the sniffing method as described in ISO15848-1 Annex B.

The test results are as follows:

Test results of preliminary tests

| Item | ISO15848-1 Required Value | Actual Value |
|-------------------------|----------------------------|----------------------|
| Stem leakage (mbar.l/s) | $\leq 8.91 \times 10^{-6}$ | 1.4×10^{-6} |
| Body seal leakage(ppmv) | ≤ 50 | 2.8 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017.

7.2 Mechanical cycle test at the room temperature (test 2/3/4/5/6)

A total of 205 mechanical cycles was performed on the test valve while it was kept pressurized under a differential pressure of 42.6MPa according to the manufacturer's requirements at room temperature. The pressure should be improved and kept at 42.6MPa to measure the leakage, and then the leakage from the stem seal and from the valve body seal were both measured with following results:

Test results of final tests

| Item | ISO15848-1 Required Value | Actual Value |
|--|----------------------------|----------------------|
| Stem leakage (mbar.l/s)after 50 cycles | $\leq 8.91 \times 10^{-6}$ | 1.8×10^{-6} |
| Stem leakage (mbar.l/s)after 100 cycles | $\leq 8.91 \times 10^{-6}$ | 3.3×10^{-6} |
| Stem leakage (mbar.l/s)after 150 cycles | $\leq 8.91 \times 10^{-6}$ | 3.8×10^{-6} |
| Stem leakage (mbar.l/s)after 200 cycles | $\leq 8.91 \times 10^{-6}$ | 4.8×10^{-6} |
| Stem leakage (mbar.l/s)after 205 cycles | $\leq 8.91 \times 10^{-6}$ | 4.9×10^{-6} |
| Body seal leakage(ppmv) after 205 cycles | ≤ 50 | 5.2 |

The test results meet the requirements of ISO15848-1:2015+Amd.1:2017

8. Post test examination

After all the above tests completed, the test valve was disassembled and all sealing components visually examined. It is found that no notable wear and any other significant observations.

9. Performance classes

As a result of the above tests, the test valve covered performance classes as follows:

ISO FE AH – CO1 –SSA 0 – tRT – CL2500 – ISO 15848-1

10. Extension of qualification to untested valves shall be according to ISO15848-1:2015+Amd.1:2017 paragraph 8.





Test Report No.:279982

We, hereby declare that I have checked test valve and witnessed the fugitive emission test on the tested valve according to ISO15848-1:2015+Amd.1:2017. The test results are as mentioned in this report.

TÜV SÜD Industrie Service GmbH

Chen Guilin



Chen Guilin

Date: August 26, 2021

Annexes:

- 1) Copy of Drawing No.: HTD16008-0000 Rev.0;
- 2) Test Report of Fugitive Emission Test No. JK20210820-03.

ISO 15848-1 QUALIFICATION CERTIFICATE



Certificate No.: 279983
Ref. Test report No.: 279982

We hereby certify that the valve below has passed the fugitive emission test successfully according to Class AH of ISO15848-1:2015+Amd.1:2017 for a total of 205 cycles.

| | |
|-----------------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD125FW-L0053R4-16" A250 RTJ Ball Valve |
| Valve size | 16" |
| Pressure rating | Class 2500 |
| Stem size | Φ120 mm |
| Body/bonnet material | ASTM A350 LF2 CL1 |
| Seal material | VITON AED O-Ring and Graphite |
| Valve assembly drawing no. | HTD16008-0000 Rev.0 |

The tested valve covers performance class (para.6.6):

ISO FE AH – CO1 – SSA 0 – tRT – CL2500 – ISO 15848-1

Extension of qualification (in particular) to untested valves in accordance with paragraph 8 of ISO15848-1.

Other stem sizes qualified: 60 mm up to 240 mm

Other pressure ranges qualified: Class 2500 and lower

This certificate must be read in conjunction with test report No.:279982

Shanghai, August 26, 2021
(Place, date)

Guilin Chen

TÜV SÜD Industrie Service GmbH
 Westendstr. 199
 80686 München Germany

TÜV SÜD Industrie Service GmbH
 Shanghai Office
 Floor 3-13, No.151, Heng Tong Road,
 Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
 Fax: + 86 21 6140-8600

ISO 15848-1 QUALIFICATION CERTIFICATE



Certificate No.: 267733
Ref. Test report No.: 267732

We hereby certify that the valve below has passed the fugitive emission test successfully according to Class AH of ISO15848-1:2015+Amd.1:2017 for a total of 1500 cycles.

| | |
|-----------------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD115-L002N1-3" A150 RTJ Forged Steel Ball Valve |
| Valve size | 3" |
| Pressure rating | Class 1500 |
| Stem size | Φ35 mm |
| Body/bonnet material | ASTM A350 LF2 |
| Seal material | Graphite + VITON AED O-Ring |
| Valve assembly drawing no. | QSD03007-0000 REV.0 |

The tested valve covers performance class (para.6.6):

ISO FE AH – CO2 – SSA 0 – tRT – CL1500 – ISO 15848-1

Extension of qualification (in particular) to untested valves in accordance with paragraph 8 of ISO15848-1.

Other stem sizes qualified: 17.5 mm up to 70 mm

Other pressure ranges qualified: Class 1500 and lower

This certificate must be read in conjunction with test report No.:267732

Shanghai, February 17, 2020
(Place, date)



Guilin Chen

TÜV SÜD Industrie Service GmbH
 Westendstr. 199
 80686 München Germany

TÜV SÜD Industrie Service GmbH
 Shanghai Office
 Floor 3-13, No.151, Heng Tong Road,
 Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
 Fax: + 86 21 6140-8600

ISO 15848-1 QUALIFICATION CERTIFICATE



Certificate No.: 267735
Ref. Test report No.:267734

We hereby certify that the valve below has passed the fugitive emission test successfully according to Class AH of ISO15848-1:2015+Amd.1:2017 for a total of 1500 cycles.

| | |
|-----------------------------------|--|
| Name of manufacturer | SICHUAN KCON VALVE MFG. CO., LTD. |
| Address of manufacturer | Section 3, Shenzhen Road, Guanghan Industrial Zone, PC: 618300, Guanghan City, Sichuan Province, P. R. China |
| Item | JKD115-C002N1-8" A150 RTJ Forged Steel Ball Valve |
| Valve size | 8" |
| Pressure rating | Class 1500 |
| Stem size | Φ70 mm |
| Body/bonnet material | ASTM A105 |
| Seal material | Graphite + VITON AED O-Ring |
| Valve assembly drawing no. | QTD08007-0000 REV.0 |

The tested valve covers performance class (para.6.6):

ISO FE AH – CO2 – SSA 0 – tRT – CL1500 – ISO 15848-1

Extension of qualification (in particular) to untested valves in accordance with paragraph 8 of ISO15848-1.

Other stem sizes qualified: 35 mm up to 140 mm

Other pressure ranges qualified: Class 1500 and lower

This certificate must be read in conjunction with test report No.: 267734

Shanghai, February 17, 2020
(Place, date)


Guilin Chen
TÜV SÜD Industrie Service GmbH
 Westendstr. 199
 80686 München Germany

TÜV SÜD Industrie Service GmbH
 Shanghai Office
 Floor 3-13, No.151, Heng Tong Road,
 Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
 Fax: + 86 21 6140-8600



Industrie Service

CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA Third Edition, April 1999

Certificate No.: 220571

Ref. Test report No.: 220570

Name and postal address of manufacturer: **SICHUAN KCON VALVE MFG. CO., LTD.**
 Section 3, Shenzhen Road, Guanghan Industrial Zone,
 PC: 618300, Guanghan City, Sichuan Province,
 P. R. China

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA Third Edition, April 1999. The testing results of valves meet the requirements of API SPEC 6FA.

1. Description of Test Valve :

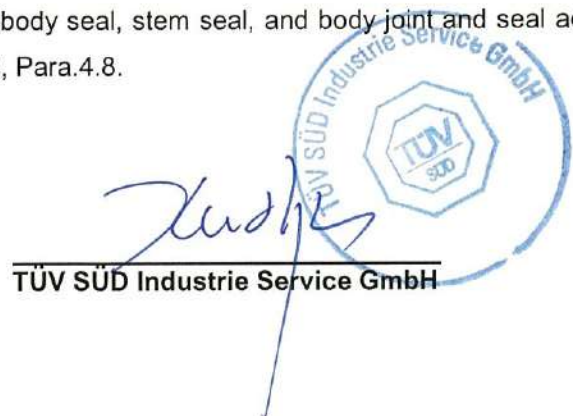
| | |
|--------------------------------|--|
| Type of Test Valve | 2" 150LB Full Bore Trunnion Ball Valve |
| Description of Valve | Ball Valve |
| Valve Size (NPS) | 2" |
| Pressure Rating (ANSI Class) | Class 150 |
| Valve Body Material | ASTM A216 WCB |

2. Qualified Range of Valves :

| | |
|---|---|
| Type | 2"-150Lb Ball valve |
| Description of Valves | Ball valves |
| Qualified Sizes (NPS) <i>(according to API 6FA Table 2)</i> | 2", 2½ ",3",4" |
| Qualified Pressure Ratings (Class) <i>(according to API 6FA Table 3)</i> | 150; 300 |
| Qualified Marking <i>(according to API 6FA Para.7)</i> | Qualified valves shall be permanently marked: 6FA |
| Remark: the technical data of test valve see back of this certificate appendix 1. | |

This certificate is issued according to API SPEC 6FA Third Edition, April 1999, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA Third Edition, April 1999, Para.4.8.

Shanghai, July 22, 2014
 (Place, date)


TÜV SÜD Industrie Service GmbH



Industrie Service

Appendix 1:

Certificate No.: 220571

Ref. Test report No.: 220570

**Name and postal address of manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province,
P. R. China**

Technical Data of Valve

1. Type of Test Valve: 2" 150LB Full Bore Trunnion Ball Valve

2. Description of Test Valve: Ball valve

3. Details of Valve:

| Part Name | Valves Size (NPS) Material |
|---------------------|---------------------------------|
| | 2" |
| Body | ASTM A216 WCB |
| Closure | ASTM A216 WCB |
| Ball | ASTM A105+ENP |
| Stem | ASTM A29 4140+ENP |
| Seat | RPTFE |
| Gland Packing | Graphite |
| Seal Ring | ASTM A105+ENP |
| Seat Ring | ASTM A105 |
| Stud | ASTM A193 B7 |
| Nut | ASTM A194 2H |
| O Ring | VITON |
| Low Stem | ASTM A29 4140+ENP |
| Design Drawing No.: | KHE-4-14027-2 Rev.0 |

Shanghai, July 22, 2014
(Place, date)

TÜV SÜD Industrie Service GmbH
Shanghai Office
No.88 Heng Tong Road,
Shanghai 200070 P. R. China



TÜV SÜD Industrie Service GmbH

Tel.: +86 21 6141-0123
Fax: + 86 21 6140-8600



2012002883Z



(2012)国认监认字(349)号

No: 2014FM524

检 验 报 告

Inspection Report



检测 TÜV SÜD Industrie Service GmbH
CNAS L1598

by Chen Guolin
dated 2014-7-9



产品名称: 球 阀
PRODUCT:

委托单位: 四川精控阀门制造有限公司
CLIENT:

生产单位: 四川精控阀门制造有限公司
MANUFACTURER:

检验类别: 委托检验
INSPECTION TYPE:

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute
 国家泵阀产品质量监督检验中心
 National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告 Inspection Report

No. 2014FM524

共 4 页 第 1 页 Page 1 of 4 pages

| | | | | |
|---|---|---------------------------------|-------------------------|------------------------|
| 产品名称 Product | 球 阀 | | 型号规格 Model | 2" -150LB |
| | | | 商 标 Trademark | / |
| 委托单位 Client | 四川精控阀门制造有限公司 | | 检验类别 Inspection type | 委托检验 |
| 生产单位 Manufacturer | 四川精控阀门制造有限公司 | | 样品等级 Grade of sample | / |
| 生产单位地址 Address | 四川省广汉市深圳路西三段 | | 抽样日期 Sampling date | / |
| 抽样地点 Sampling location | / | | 到样日期 Reaching date | 2014年7月7日 |
| 样品数量 Quantity of samples | 1 台 | 抽样基数 Base number of sampling | / | 抽样者 Sampling person |
| 原样品编号 Serial number of original sample | / | | 样品编号 Sample number | 2014 阀字 1299 |
| 检验依据 Inspection basis | API 6FA-1999 《阀门耐火试验规范》。 | | | |
| 检验项目 Inspection items | 耐火试验（火烧试验、低压试验、操作试验）。 | | | |
| 检验结论 Inspection conclusion | 经检验，所检项目的检验结果符合 API 6FA-1999 标准的要求。 测试数据见检验结果（附表）。 | | | |
| 备注 Remarks | / | | | |

签发日期: 2014年7月15日
 Date of issue:



批准:
 Approver:

[Handwritten signature]

审核:
 Reviewer:

[Handwritten signature]

主检:
 Chief inspector:

[Handwritten signature]

合肥通用机电产品检测院有限公司
 Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
 National Quality Supervision and Inspection Centre of Pump and Valve Products

检 验 报 告
Inspection Report

No 2014FM524

共 4 页 第 3 页 Page 3 of 4 pages

检验结果 (附表)

检验日期: 2014 年 7 月 9 日

Inspection results

Date of test:

| 检验项目 Inspection item | 单位 Unit | 铭牌参数 Nameplate parameter | 技术要求 Technical requirements | 检验数据 Inspected data | 单项评价 Single-item evaluation |
|-------------------------|--|-----------------------------|--|---|--------------------------------|
| 耐火试验 | | / | 阀门进口端水压力 1.5 ± 0.15MPa, 火烧持续时间 30.0min。火烧期间, 阀门密封面泄漏率应 ≤ 400mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率应 ≤ 100mL/in./min。 | 火烧期间, 阀门密封面泄漏率: 6.0mL/in./min; 从火烧开始到阀门冷却到 100℃ 以下, 阀门外泄漏率: 6.3mL/in./min。 | 符合要求 |
| | / | / | 阀门进口端水压力 0.20 ± 0.020MPa, 持续 5min 后, 进行 5min 的阀门密封面泄漏试验和阀门外泄漏试验。 阀门密封面泄漏率应 ≤ 40mL/in./min; 阀门外泄漏率应 ≤ 20mL/in./min。 | 阀门密封面泄漏率: 0mL/in./min; 阀门外泄漏率: 0mL/in./min。 | 符合要求 |
| | / | / | 阀门进口端水压力 1.5 ± 0.15MPa, 持续 5min 后, 进行 5min 的阀门密封外泄漏试验, 泄漏率应 ≤ 200mL/in./min。 | 阀门外泄漏率: 25.0mL/in./min。 | 符合要求 |
| 备注 Remarks | 该阀密封副类型为金属/非金属, 公称尺寸为 2", 压力级为 Class150。 | | | | |

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合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products

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检验结果 (附表)

检验日期: 2014年7月9日

Inspection results

Date of test:

| 试验项目 Inspection item | 试验操作情况 Test operating conditions |
|---------------------------|---|
| 火烧试验 Fire test | 1、热电偶和测温块 阀门处于关闭位置且水平安装, 阀杆处于水平位置, 在阀门外共布置了2个测量火焰温度的热电偶和2个测温块。阀门的下侧和阀杆两处各布置1个热电偶和1个测温块。 |
| | 2、热电偶温度 点火后, 阀门下侧处火焰热电偶在火烧2分钟时温度达到784.2℃; 阀杆处火焰热电偶在火烧2分钟时温度达到782.1℃。 在火烧剩余期间, 阀门下侧处火焰热电偶的温度保持在772.6℃~877.2℃之间; 阀杆处火焰热电偶的温度保持在767.2℃~846.3℃之间。 |
| | 3、测温块温度 点火后, 阀门下侧处测温块的温度在8.5分钟时升至650℃以上; 阀杆处测温块的温度在8.5分钟时升至650℃以上。 |
| | 4、试验期间水压力 阀门进口端水压力保持在1.41MPa~1.58MPa, 无瞬时压力损失。 |
| | 5、冷却 喷水强制冷却, 在火烧结束后5分钟, 阀门表面温度降到100℃以下。 |
| 低压试验 Low pressure test | 阀门进口端水压力保持在0.20MPa, 阀门处于关闭状态, 保持压力5分钟后进行检漏。 |
| 操作试验 Operational test | 在1.5MPa压差下打开试验阀门, 阀门达到半开启状态, 排空管道和试验阀门体腔内的空气和水蒸汽, 再保持试验阀和管道中压力1.5MPa, 5分钟后检测试验阀门的外部泄漏。 |

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| Dimensions in Millimetres | | | | | | | | | | | | | |
|---------------------------|-------|-----|-----|-----|-------|------|------|-----|-------|-----|-----|-----|-----|
| Size | Class | Ød1 | L | ØD | ØD1 | ØD2 | T | f | N-ØM | H1 | H2 | L1 | L2 |
| 2" | 150LB | 49 | 178 | 150 | 120.7 | 92.1 | 17.5 | 1.6 | 4-Ø19 | 116 | 196 | 200 | 400 |

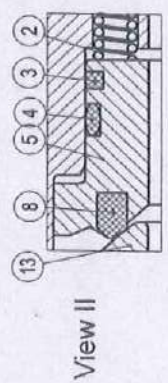
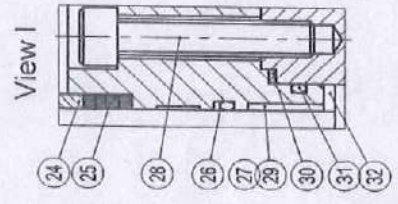
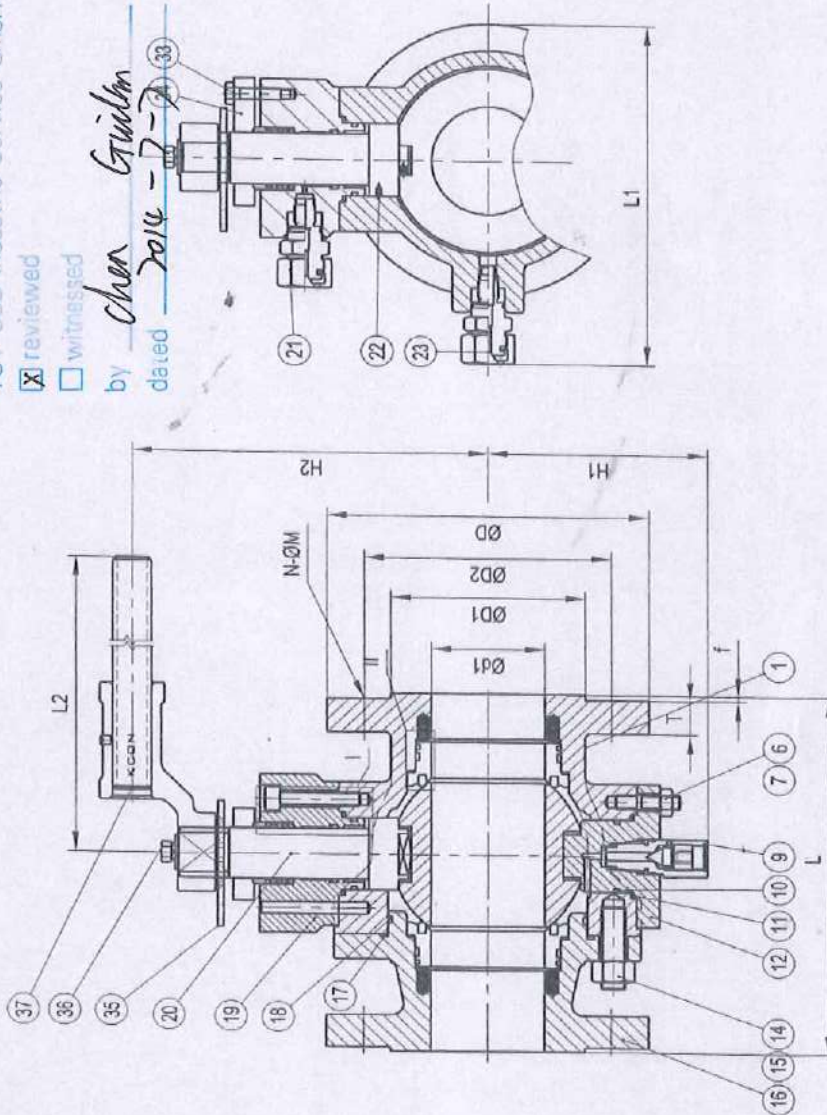
TUV SÜD Industrie Service GmbH

reviewed

witnessed

by *chen Guolin*

dated *2014-12-17*



| NO. | PART NAME | MATERIAL | CONDITION |
|-----|-------------------------|----------------|-------------|
| 40 | | | |
| 39 | | | |
| 38 | Lever | Carbon Steel | Zinc Plated |
| 37 | Ball | A193 B7 | |
| 36 | Stopper | Carbon Steel | Zinc Plated |
| 35 | Gland Flange | A216 WCB | |
| 34 | Bolt | A193 B7 | |
| 33 | Thrust Bearing | SS304 | PTFE Coated |
| 32 | O Ring | VITON | |
| 31 | Spiral Wound Gasket | SS316+Graphite | |
| 30 | Bearing | SS304 | PTFE Coated |
| 29 | Ball | A193 B7 | |
| 28 | Back Ring | R, PTFE | |
| 27 | O Ring | VITON | |
| 26 | Gland Packing | Graphite | |
| 25 | Gland | A276 304 | |
| 24 | Seat Greaser | Carbon Steel | Zinc Plated |
| 23 | Anti-Static Spring/Ball | SS304 | |
| 22 | Slam Greaser | Carbon Steel | Zinc Plated |
| 21 | Stem | A2B 4140+ENP | |
| 20 | O Ring | A105+ENP | |
| 19 | Spiral Wound Gasket | VITON | |
| 18 | Close | A216 WCB | |
| 17 | Nut | A194 2H | |
| 16 | Ball | A105+ENP | |
| 15 | Lower Stem | A2B 4140+ENP | |
| 14 | Spiral Wound Gasket | SS316+Graphite | |
| 13 | O Ring | VITON | |
| 12 | Assembly | | |
| 11 | R, PTFE | | |
| 10 | A194 2H | | |
| 9 | A193 B7 | | ENP |
| 8 | A105 | | |
| 7 | VITON | | |
| 6 | Graphite | | |
| 5 | Inconel X750 | | |
| 4 | A216 WCB | | |
| 3 | | | |
| 2 | | | |
| 1 | | | |

| NOTE | | | |
|------------------|-------------------------------|---------------------|------------------------|
| DESIGN: | API 6D | END CONNECTION: | FLANGE RF - ANSI B16.5 |
| END TO END: | ANSI B16.10 | ANTI BLOW STEM: | EQUIPPED |
| FIRESAFE: | API 6A/6B/67 | ANTI STATIC DEVICE: | EQUIPPED |
| INSPECTION: | API 606 | LEAKAGE RATE: | |
| SOUR SERVICE: | | | |
| CLIENT: | | | |
| CLIENT REF. NO.: | | | |
| PROJECT: | Trunnion Ball Valve Full Bore | | |
| JOB NO.: | CP14027KD | Drawing NO.: | KHE-4-14027-2 |
| DRAWN: | CHECK | APPROVE: | DATE |
| BY: | 2014-05-28 | | |

KCON SICHUAN KCON VALVE MANUFACTURING CO., LTD.

合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

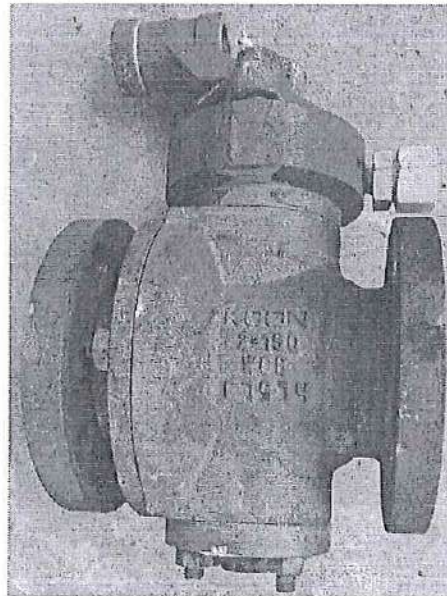
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检验样品外观照片:

Photo of the inspected sample:



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Industrie Service

CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA Third Edition, April 1999

Certificate No.: 220573

Ref. Test report No.: 220572

Name and postal address of manufacturer: **SICHUAN KCON VALVE MFG. CO., LTD.**
 Section 3, Shenzhen Road, Guanghan Industrial Zone,
 PC: 618300, Guanghan City, Sichuan Province,
 P. R. China

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA Third Edition, April 1999. The testing results of valves meet the requirements of API SPEC 6FA.

1. Description of Test Valve :

| | |
|--------------------------------|--|
| Type of Test Valve | 2" 300LB Full Bore Trunnion Ball Valve |
| Description of Valve | Ball valve |
| Valve Size (NPS) | 2" |
| Pressure Rating (ANSI Class) | Class 300 |
| Valve Body Material | ASTM A216 WCB |

2. Qualified Range of Valves :

| | |
|---|---|
| Type | 2"-300Lb Ball valve |
| Description of Valves | Ball valves |
| Qualified Sizes (NPS) <i>(according to API 6FA Table 2)</i> | 2", 2½", 3", 4" |
| Qualified Pressure Ratings (Class) <i>(according to API 6FA Table 3)</i> | 300; 400; 600 |
| Qualified Marking <i>(according to API 6FA Para.7)</i> | Qualified valves shall be permanently marked: 6FA |
| Remark: the technical data of test valve see back of this certificate appendix 1. | |

This certificate is issued according to API SPEC 6FA Third Edition, April 1999, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA Third Edition, April 1999, Para.4.8.

Shanghai, July 22, 2014
 (Place, date)

TÜV SÜD Industrie Service GmbH





Industrie Service

Appendix 1:

Certificate No.: 220573

Ref. Test report No.: 220572

**Name and postal address of manufacturer: SICHUAN KCON VALVE MFG. CO., LTD.
Section 3, Shenzhen Road, Guanghan Industrial Zone,
PC: 618300, Guanghan City, Sichuan Province,
P. R. China**

Technical Data of Valve

1. Type of Test Valve: 2" 300LB Full Bore Trunnion Ball Valve

2. Description of Test Valve: Ball valve

3. Details of Valve:

| Valves Size (NPS) Material Part Name | 2" |
|--|----------------------|
| Body | ASTM A216 WCB |
| Body Cap | ASTM A216 WCB |
| Ball | ASTM A105+ENP |
| Stem | ASTM A29 4140+ENP |
| Seat | RPTFE |
| Gland Packing | Graphite |
| Spring | Inconel X750 |
| Seat Ring | ASTM A105+ENP |
| Stud | ASTM A193 B7 |
| Nut | ASTM A194 2H |
| O Ring | VITON |
| Lower Stem | ASTM A29 4140+ENP |
| Design Drawing No.: | KHE-4-14027-15 Rev.0 |

Shanghai, July 22, 2014
(Place, date)



TÜV SÜD Industrie Service GmbH

TÜV SÜD Industrie Service GmbH
Shanghai Office
No.88 Heng Tong Road,
Shanghai 200070 P. R. China

Tel.: +86 21 6141-0123
Fax: + 86 21 6140-8600



2012002883Z



(2012)国认监认字(349)号

No: 2014FM525

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CNAS L1598

SJD Industrie Service GmbH

reviewed

witnessed

by Chen Guilm
dated 2014-7-9



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产品名称: 球 阀
PRODUCT:

委托单位: 四川精控阀门制造有限公司
CLIENT:

生产单位: 四川精控阀门制造有限公司
MANUFACTURER:

检验类别: 委托检验
INSPECTION TYPE:

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

National Quality Supervision and Inspection Centre of Pump and Valve Products



合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute
 国家泵阀产品质量监督检验中心
 National Quality Supervision and Inspection Centre of Pump and Valve Products

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| | | | | |
|---|---|---------------------------------|-------------------------|------------------------|
| 产品名称 Product | 球 阀 | | 型号规格 Model | 2" -300LB |
| | | | 商 标 Trademark | / |
| 委托单位 Client | 四川精控阀门制造有限公司 | | 检验类别 Inspection type | 委托检验 |
| 生产单位 Manufacturer | 四川精控阀门制造有限公司 | | 样品等级 Grade of sample | / |
| 生产单位地址 Address | 四川省广汉市深圳路西三段 | | 抽样日期 Sampling date | / |
| 抽样地点 Sampling location | / | | 到样日期 Reaching date | 2014年7月7日 |
| 样品数量 Quantity of samples | 1 台 | 抽样基数 Base number of sampling | / | 抽样者 Sampling person |
| 原样品编号 Serial number of original sample | / | | 样品编号 Sample number | 2014 阀字 1300 |
| 检验依据 Inspection basis | API 6FA-1999 《阀门耐火试验规范》。 | | | |
| 检验项目 Inspection items | 耐火试验（火烧试验、低压试验、操作试验）。 | | | |
| 检验结论 Inspection conclusion | 经检验，所检项目的检验结果符合 API 6FA-1999 标准的要求。 测试数据见检验结果（附表）。 | | | |
| 备注 Remarks | / | | | |

签发日期: 2014年7月15日
 Date of issue:



批准:
 Approver:

(Signature)

审核:
 Reviewer:

(Signature)

主检:
 Chief inspector:

(Signature)

合肥通用机电产品检测院有限公司

Hefei General Machinery & Electrical Products Inspection Institute

国家泵阀产品质量监督检验中心

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检验样品外观照片:

Photo of the inspected sample:

