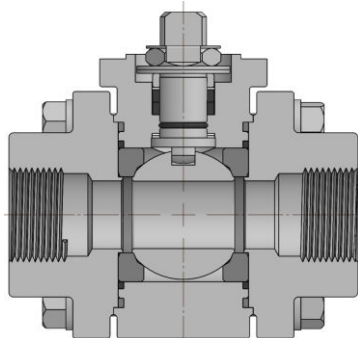


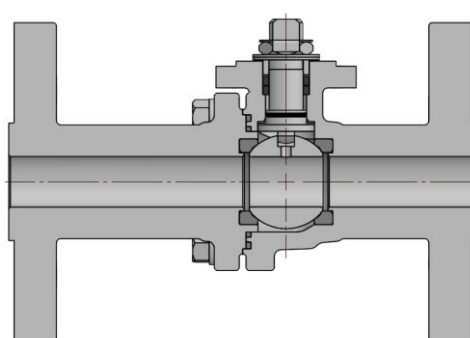
## QUALIFICATION CERTIFICATE

| FUGITIVE EMISSIONS           |                   |                                                                                                                                                  |                                                                      |
|------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Testing Standard Compliance  |                   | ISO 15848-1<br>2006                                                                                                                              | TA LUFT<br>VDI 2440                                                  |
| Extended Standard Compliance |                   | ISO 15848-1:2015 & TA LUFT:2021                                                                                                                  |                                                                      |
| Report n°                    |                   | 201500280-C001                                                                                                                                   | 201500280-C002                                                       |
| Certification Body           |                   | TÜV SÜD                                                                                                                                          |                                                                      |
| Series                       |                   | Floating ball valves design<br>XF / CF / BF / SF / DF / QF<br>XFH / CFH / BFH / SFH / DFH / QFH<br>XFM-A / CFM-A / BFM-A / SFM-A / DFM-A / QFM-A |                                                                      |
| Size                         |                   | DN100 and below                                                                                                                                  |                                                                      |
| Design Type                  |                   | FS – Fire Safe                                                                                                                                   |                                                                      |
| Applicable pressure          |                   | Up to CL800                                                                                                                                      |                                                                      |
| Packing                      |                   | GRAPHITE + PEEK + FKM                                                                                                                            |                                                                      |
| Seals                        |                   | C-RPTFE + GRAPHITE                                                                                                                               |                                                                      |
| Temperature Class            |                   | - 46°C to RT                                                                                                                                     |                                                                      |
| Performance Class            |                   | 500 cycles (BH CO1)                                                                                                                              | 500 cycles                                                           |
| Stem diameter                |                   | M16: 8 to 32 mm                                                                                                                                  |                                                                      |
| Stem seal                    | Measured leakage  | $4 \times 10^{-6} \text{ atm} \cdot \text{cm}^3 \cdot \text{s}^{-1}$                                                                             |                                                                      |
|                              | Allowable leakage | $2,8 \times 10^{-5} \text{ atm} \cdot \text{cm}^3 \cdot \text{s}^{-1}$                                                                           | $5 \times 10^{-6} \text{ atm} \cdot \text{cm}^3 \cdot \text{s}^{-1}$ |
| Body parts                   | Measured leakage  | < 50 ppmV                                                                                                                                        | NA                                                                   |
|                              | Allowable leakage | $\leq 50 \text{ ppmV}$                                                                                                                           | NA                                                                   |

Three pieces



Two pieces



José Jacinto  
Technical Responsible

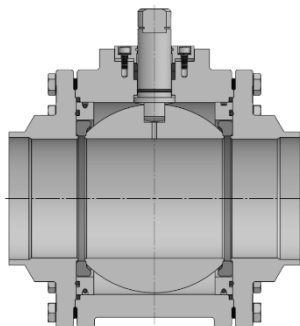


## QUALIFICATION CERTIFICATE

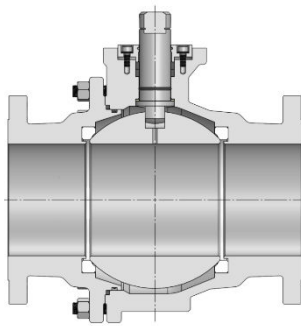
### FUGITIVE EMISSIONS

|                                       |                                                                              |                                             |                   |
|---------------------------------------|------------------------------------------------------------------------------|---------------------------------------------|-------------------|
| <b>Applicable Standard Compliance</b> |                                                                              | <b>ISO 15848-1:2015</b>                     |                   |
| <b>Extended Standard Compliance</b>   |                                                                              | <b>TA LUFT:2021</b>                         |                   |
| <b>Report n°</b>                      |                                                                              | PTC24.04176.5308                            |                   |
| <b>Certification Body</b>             |                                                                              | SGS                                         |                   |
| <b>Series</b>                         | Floating ball valves design                                                  | Trunnion ball valves design                 |                   |
|                                       | BF / BFH / BFM-A<br>CF / CFH / CFM-A<br>SF / SFH / SFM-A<br>XF / XFH / XFM-A | CTR / CTH / CTM-A                           | VTR / VTH / VTM-A |
| <b>Size</b>                           | DN150 to DN200                                                               | DN65 to DN300                               | DN65 to DN100     |
| <b>Design Type</b>                    |                                                                              | FS – Fire Safe                              |                   |
| <b>Applicable pressure</b>            |                                                                              | Up to CL300                                 |                   |
| <b>Packing</b>                        |                                                                              | FKM + GRAPHITE                              |                   |
| <b>Seals</b>                          |                                                                              | FKM + GRAPHITE                              |                   |
| <b>Temperature Class</b>              |                                                                              | RT to 200°C                                 |                   |
| <b>Performance Class</b>              |                                                                              | 205 cycles (AH CO1)                         |                   |
| <b>Stem diameter</b>                  |                                                                              | M42: 21 to 84 mm                            |                   |
| <b>Stem seal</b>                      | <b>Measured leakage</b>                                                      | $7,1 \times 10^{-6} \text{ mbar.l.s}^{-1}$  |                   |
|                                       | <b>Allowable leakage</b>                                                     | $7,49 \times 10^{-6} \text{ mbar.l.s}^{-1}$ |                   |
| <b>Body parts</b>                     | <b>Measured leakage</b>                                                      | 22 ppmV                                     |                   |
|                                       | <b>Allowable leakage</b>                                                     | $\leq 50 \text{ ppmV}$                      |                   |

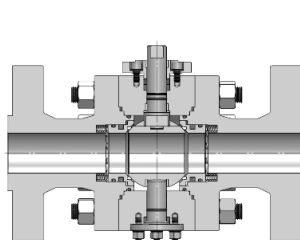
**Floating (Three pieces)**



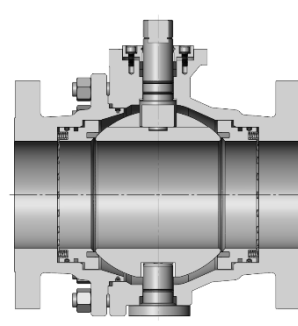
**Floating (Two pieces)**



**Trunnion (Three pieces)**



**Trunnion (Two pieces)**



José Jacinto  
Technical Responsible



The tests were carried out in accordance with ISO 15848-1:2006/2015 and TA Luft:2002, as indicated in the referenced “**testing standard compliance**”. Since these standards have been updated – the latest editions being ISO 15848-1:2015+A1:2017 and TA Luft:2021 – it is necessary to evaluate the differences to confirm compliance with the current requirements. Based on the assessment presented in the following table, it can be confirmed that the tests performed remain in compliance with ISO 15848-1:2015+A1:2017 and TA Luft:2021.

| Changes                  | ISO 15848-1:2006                                                                                                                                                                                   | ISO 15848-1:2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RT<br>Room temperature   | -29°C to 40°C                                                                                                                                                                                      | 5°C to 40°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| CO1<br>Number of cycles  | 500                                                                                                                                                                                                | 205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Class AH<br>Leakage rate | $1,76 \times 10^{-8} \text{ atm} \cdot \text{cm}^3 \cdot \text{s}^{-1} \text{ mm}^{-1}$<br>$1,78 \times 10^{-8} \text{ mbar} \cdot \text{l} \cdot \text{s}^{-1} \text{ mm}^{-1}$<br>(per diameter) | $1,76 \times 10^{-7} \text{ atm} \cdot \text{cm}^3 \cdot \text{s}^{-1} \text{ mm}^{-1}$<br>$1,78 \times 10^{-7} \text{ mbar} \cdot \text{l} \cdot \text{s}^{-1} \text{ mm}^{-1}$<br>(per diameter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Changes                  | TA LUFT:2002                                                                                                                                                                                       | TA LUFT:2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Leakage rate             | TA LUFT para. 5.2.6.4<br>VDI 2440 para. 3.3.1.3                                                                                                                                                    | TA LUFT para. 5.2.6.4 defines ISO 15848:1 or similar has testing procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                          | $1 \times 10^{-4} \text{ mbar l s}^{-1} \text{ m}^{-1}$<br>(per perimeter)<br>$3,14 \times 10^{-7} \text{ mbar l s}^{-1} \text{ mm}^{-1}$<br>(per diameter)                                        | Leakage rate required:<br>$\leq 40 \text{ bar @ } \leq 200^\circ\text{C}$ :<br>$1 \times 10^{-4} \text{ mg / s}^{-1} \text{ m}^{-1}$ (per perimeter)<br>For other PT conditions<br>$1 \times 10^{-2} \text{ mg / s}^{-1} \text{ m}^{-1}$ (per diameter)<br><br>ISO 15848-1:2015<br><b>BH leakage rate</b><br>$1 \times 10^{-4} \text{ mg / s}^{-1} \text{ m}^{-1}$ (per perimeter)<br>$1,78 \times 10^{-6} \text{ mbar} \cdot \text{l} \cdot \text{s}^{-1} \text{ mm}^{-1}$ (per diameter)<br><b>CH leakage rate</b><br>$1 \times 10^{-2} \text{ mg / s}^{-1} \text{ m}^{-1}$ (per perimeter)<br>$1,78 \times 10^{-4} \text{ mbar} \cdot \text{l} \cdot \text{s}^{-1} \text{ mm}^{-1}$ (per diameter) |



Industrie Service

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ITIS Certificate  
201500280-C001



# ISO 15848-1 QUALIFICATION CERTIFICATE

This certificate is to certify that the valve below has been tested according to standard: Industrial valves - Measurement, test and qualification procedures for fugitive emissions - Part 1: Classification system and qualification procedures for type testing of valves (ISO 15848-1:2006)

## Test valve details

Manufacturer : Vinco Valvulas S.A.  
Address : Rua do Progresso, Lote 15, 4760-841, Vilarinho das Cambas, Portugal  
Nominal size : 1 1/4 inch  
Pressure rating : 800lbs  
Valve Type : FL Ball Valve  
Valve Serial number : 2015LF220029002  
Drawing number : E059-01-50 (17-06-2015)  
Body material : F316/316L  
Body gaskets mat. : 1<sup>st</sup> Soft carbon, 2<sup>nd</sup> Graphite  
Stem material : F316/316L  
Stem seal material : Graphite + PEEK  
Stem seal brand : Vinco  
Stem diameter (OD<sub>stem</sub>) : 16.2mm  
Gland torque : 25Nm at start of the tests.

## Valve qualification range: (see par. 8 of ISO 15848-1)

| Description                                                                                      | Tested valve                                          | Scope                                                 |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| Stem Seal Material Type                                                                          | Graphite+PEEK                                         | Graphite+PEEK                                         |
| Gland torque                                                                                     | 25Nm                                                  | 25Nm                                                  |
| Stem Diameter                                                                                    | 16.2mm                                                | 8.1mm to 32.4mm                                       |
| Body seal                                                                                        | 1 <sup>st</sup> Soft carbon, 2 <sup>nd</sup> Graphite | 1 <sup>st</sup> Soft carbon, 2 <sup>nd</sup> Graphite |
| Class                                                                                            | 800                                                   | 800 and below                                         |
| Temperature Class                                                                                | RT to -46°C                                           | RT to -46°C                                           |
| Tightness Class                                                                                  | BH                                                    | BH                                                    |
| <b>Performance class:</b><br><b>ISO FE BH — CO1 — SSA 0 — t(RT, -46°C) — CL800 — ISO 15848-1</b> |                                                       |                                                       |

This certificate must be read in conjunction with the full ITIS BV test report number 201500280-R001

| Name (ITIS)                                                                                                    | Name authority (TÜV SÜD)                                                                                        |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <br>J. Meijer<br>13-07-2015 | <br>P. Deleu<br>13-07-2015 |



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ITIS Certificate  
201500280-C002



Industrie Service

# VALVE TEST QUALIFICATION CERTIFICATE

This certificate is to certify that the measured leak rates during the endurance test at room temperature and at -46°C on the test valve below, were within the limits according to the requirements of TA LUFT (Technische Anleitung zur Luft par. 5.2.6.4) Vom 24. Juli 2002 and VDI 2440 par. 3.3.1.3 November 2000, for 500 cycles at room temperature and 46°C.

## Test valve details

Manufacturer : Vinco Valvulas S.A.  
Address : Rua do Progresso, Lote 15, 4760-841, Vilarinho das Cambas, Portugal  
Nominal size : 1 ¼ inch  
Pressure rating : 800lbs  
Valve Type : FL Ball Valve  
Valve Serial number : 2015LF220029002  
Drawing number : E059-01-50 (17-06-2015)  
Body material : F316/316L  
Body gaskets mat. : 1<sup>st</sup> Soft carbon, 2<sup>nd</sup> Graphite  
Stem material : F316/316L  
Stem seal material : Graphite + PEEK  
Stem seal brand : Vinco  
Stem diameter (OD<sub>stem</sub>) : 16.2mm  
Gland torque : 25Nm at start of the tests.

| Description                 | Tested valve                                          |
|-----------------------------|-------------------------------------------------------|
| Stem seal material          | Graphite + PEEK                                       |
| Stem Ø/circumference        | Ø0.0162m / 0.051m                                     |
| Body/Bonnet gasket material | 1 <sup>st</sup> Soft carbon, 2 <sup>nd</sup> Graphite |
| Class                       | 800lbs                                                |
| Temperature Class           | Room temperature and -46°C                            |
| Operational Cycles          | 500                                                   |

This certificate is only valid in conjunction with the full ITIS BV test report number 201500280-R002

|                    |                                                                                                                                       |                                                                                                                |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Name (ITIS)</b> | <input checked="" type="checkbox"/> TESTED<br><input type="checkbox"/> REVIEW<br><input type="checkbox"/> WITNESSED<br>Date/Signature | <b>Name Authority (TÜV SÜD)</b>                                                                                |
| P. van Tol         | <br>15-07-2015                                     | <br>P. Deleu<br>15-07-2015 |

Certificado Nº: **PTC24.04176.5308**  
Certificate no

**Job** J24.0527.I&E.111  
**Manufacturer** VINCO Válvulas, S.A.  
**Test Place** Rua do Progresso, Lote 15, Vilarinho das Cambas  
**Test Date** 03/07/2024 to 05/07/2024  
**Standard(s) Used** ISO 15848-1: 2015  
**Type** TR – Trunnion Ball Valves  
**DN** 150  
**Class** 300  
**Reference Nº** CT.T R01/2024.R00  
**Material** Body/End: A216 WCB  
Ball: A479 316/L  
Stem: A479 316/L  
Body Seals: FKM + GRAPHITE  
Stem Packing System: FKM + GRAPHITE  
**Stem dimension** M42 (42 mm)  
**Test Report Nº** CT.03/2024.R00

*All the following values were determined and recorded together  
with temperatures, cycles nº and pressures on fugitive emissions test report*

|                                                                      |                                                                                                                                                                          |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Result of Tests</b>                                               | <b>Satisfactory</b>                                                                                                                                                      |
| <i>It was performed by Vinco Válvulas, S.A. the following tests:</i> | 1- Production tests<br>2- Mechanical cycles at RT and $T_{Test}$<br>3- Leakage measurement through stem and body during mechanical cycles period<br>4- Visual inspection |
| <b>Packing Torque</b>                                                | <b>10 Nm at start of the tests</b>                                                                                                                                       |
| <b>Endurance class</b>                                               | <b>CO1</b>                                                                                                                                                               |
| <b>Temperature class</b>                                             | <b>t(RT, 200 °C)</b>                                                                                                                                                     |
| <b>Tightness class</b>                                               | <b>AH</b>                                                                                                                                                                |
| <b>Performance class</b>                                             | <b>ISO FE AH – CO1 – SSA 0 – t(RT, 200 °C) – CL300 – ISO 15848-1</b>                                                                                                     |

**This is to certify that the type test has performed by VINCO Válvulas, S.A., under our witness as above, and the results are SATISFIED with the requirements of ISO 15848-1 for the above product, so SGS PORTUGAL, S.A. hereby confirm the qualification as follows:**  
**STEM DIMENSION: M21 to M84**  
**CLASS RATING: 300 and below**

**Date:** 10/07/2024

  
**Carlos Felgueiras**  
 Technical Responsible

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