



Industrie Service

Attestation of TA-LUFT VDI2440

Attestation No.:253945 Rev.1

Ref. report No. :253944 Rev.1

Manufacturer : Antiwear (Suzhou) Industrial Intelligent Technology Co., Ltd.**Postal address of manufacturer** :No.988, Yuexiu Road, Fenhua Economic Development Zone,**PC:** 215200, Suzhou City, Jiangsu Province, P. R. China**Tested Product Description:**

Item	AB-1-T22-1500-RJ-01-C-16-W-C Ball Valve
Valve size (DN)	1"
Pressure rating	Class 1500
Stem size	Φ24 mm
Body/bonnet material	ASTM A182 F304
Seal material	PTFE and FKM
Valve assembly drawing no.	10020609 VER. 1.0

Test Condition:

Testing principles are according to Technical Instructions on Air Quality Control-TA Luft (July 2002) and VDI guideline 2440 (November 2000) and the key test conditions have been specified according to the following information:

Test Fluid	Helium
Test Temperature(°C)	Room Temperature
Test Pressure(bar):	248
No. of Switching Cycles	1500
Specific Leakage Rate λ mbar•l/(s•m)	$\lambda \leq 10^{-4}$

Hereby, It is certified that the tested valve of the above mentioned company have been tested and the test results are accepted according to above mentioned specification. Details could be taken from the associated report with the No.:253944 Rev.1

Shanghai, August 31, 2022

(Place, date)

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TÜV SÜD
Industrie
Service GmbH
Shanghai Office

REPORT OF THIRD PARTY INSPECTION

Client: Antiwear (Suzhou) Industrial Intelligent Technology Co., Ltd.

No.988, Yuexiu Road, Fenhu Economic Development Zone,

PC: 215200, Suzhou City, Jiangsu Province, P. R. China

Contact Person: Mr. Wu Bin

Manufacturer Name: Antiwear (Suzhou) Industrial Intelligent Technology

Co., Ltd.

No.988, Yuexiu Road, Fenhu Economic Development Zone,

PC: 215200, Suzhou City, Jiangsu Province, P. R. China

Inspection Place: Hefei General Machinery & Electrical Products Inspection

Institute National Quality Supervision and Inspection Centre of Pump and Valve Products

Contact Person: Mr. Wu Bin

Inspection Date: September 1-2, 2017

Inspector: Chen Guilin

Quality System Status: Acceptable

Order Number: 7482135944

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The test results refer exclusively
to the units under test.

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1. Witness relevant tests

Nature Of Inspection:

This is to report that we, TÜV SÜD Industry Service GmbH Shanghai Office on September. 1-2, 2017 at the request of Antiwear (Suzhou) Industrial Intelligent Technology Co., Ltd. conducted the following inspection:

1. Witness relevant tests

1.1 General Information

Antiwear (Suzhou) Industrial Intelligent Technology Co., Ltd. commissioned us to witness valve fugitive emission test according to TA-LUFT 2002, Sec. 5.2.6.3 & 5.2.6.4, guideline VDI 2440 Nov.2000, Sec. 3.3.1.3 & 3.3.1.4 to verify whether the test result can meet the specific leakage rate according to the German Clean Air Act($\lambda \leq 10^{-4}$ mbar·l/(s·m)) and for the test valve the leakage is $\leq 7.50 \times 10^{-6}$ mbar.l/s.

1.2 Tested Product Description:

The test samples have been chosen and the details of test samples can be seen in the following information. Details of the test sample can be seen in the annex.

Item	AB-1-T22-1500-RJ-01-C-16-W-C Ball Valve
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Pressure rating	Class 1500
Stem size	Φ24 mm
Body/bonnet material	ASTM A182 F304
Seal material	PTFE and FKM
Valve assembly drawing no.	10020609 VER. 1.0

1.3 Test Condition:

The test has been referred to the method of ISO15848-2015 annex B and carried out according to the requirements of the customer. The key test conditions have been specified according to the following information:

Test Fluid	Helium
Test Temperature(°C)	Room Temperature
Test Pressure(bar):	248
No. of Switching Cycles	1500

1.4 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.: 10020609 VER. 1.0 and results found satisfactory.

1.5 Preparation of the test valve

Before the fugitive emission test, the test valve was hydrostatic tested under 390bar, the test showed no visible leakage or deformation. Then the valve was cleaned and dried.

1.6 Calibration of test instrument

The test instrument was turned on, warmed up according to the requirements of the equipment

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manufacturer and calibrated with the standard.

1.7 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 according to above mentioned requirements.

1.7.1 Preliminary tests at room temperature

The valve was pressurized with test fluid Helium to 24.8MPa according to manufacturer's requirements in the partly opened position, the temperature is measured and recorded at room temperature.

The test results are as follows and details can be seen in the annex:

Test results of preliminary tests

Item	Required Value	Actual Value
Stem leakage (mbar.l/s)	$\leq 7.50 \times 10^{-6}$	2.7×10^{-6}
The test results meet the requirements of VDI2440 Nov.2000.		

1.7.2 Mechanical cycle test at the room temperature

A total of 1500 mechanical cycles was performed on the test valve while it was kept pressurized under a differential pressure of 24.8MPa according to the manufacturer's requirements at room temperature. The pressure should be improved and kept at 24.8MPa to measure the leakage, and then the leakage from the stem seal were measured with following results:

Test results of final tests

Item	VDI 2440 Required Value	Actual Value
Stem leakage (mbar.l/s) after 50 cycles	$\leq 7.50 \times 10^{-6}$	2.7×10^{-6}
Stem leakage (mbar.l/s) after 100 cycles	$\leq 7.50 \times 10^{-6}$	4.0×10^{-6}
Stem leakage (mbar.l/s) after 150 cycles	$\leq 7.50 \times 10^{-6}$	4.0×10^{-6}
Stem leakage (mbar.l/s) after 200 cycles	$\leq 7.50 \times 10^{-6}$	2.7×10^{-6}
Stem leakage (mbar.l/s) after 205 cycles	$\leq 7.50 \times 10^{-6}$	2.7×10^{-6}
Stem leakage (mbar.l/s) after 1000 cycles	$\leq 7.50 \times 10^{-6}$	2.7×10^{-6}
Stem leakage (mbar.l/s) after 1500 cycles	$\leq 7.50 \times 10^{-6}$	3.2×10^{-6}
The test results meet the requirements of VDI2440 Nov.2000.		

1.7.3 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.

We, hereby declare that the inspector has checked test valve and witnessed the fugitive emission test on the tested valve. The test results are as mentioned in this report.

Annex:

Annex 1: Drawings with assembly drawing No. 10020609 VER. 1.0;



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Annex 2: Test Report of Fugitive Emission Test No. 2017FM690A;

Chen Guilin

A circular blue stamp with the text 'TÜV SUD Industrie Service GmbH' around the perimeter and the TÜV SÜD logo in the center.

Inspected by: Chen Guilin

Date of issue: August 31, 2022

Industrie Service GmbH