

Ref: SAI-400257 (CR28523)

15 Aug 2016

REV 17 Aug 2016

REV 26 Sep 2016

REV 28 Sep 2016

Mr Michael Lin

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ABN 67 050 611 642

Dear Michael,

Re: **SAI Global 'Gas Safety Certification Scheme' SAI-400257 Tubomart Manual shut of valve Models: TM-308 (Gas Pex pipe joint fitting x Gas Pex pipe joint fitting)**

TM-308BM (Gas Pex pipe joint fitting x Male thread type connection)

TM-308BF (Gas Pex pipe joint fitting x Female thread type connection)

TM-307B (Gas Pex pipe joint fitting x Gas Pex pipe joint fitting)

TM-307BM (Gas Pex pipe joint fitting x Male thread type connection)

TM-307BF (Gas Pex pipe joint fitting x Female thread type connection)

TM-319 (Female x Female thread type connection)

TM-302BFF (Female x Female thread type connection)

Size: TM-308 (1216x1216, 1418x1418, 1620x1620, 2025x2025, 2632x2632)

TM-308BM (1216x1/2" DN15, 1418x1/2" DN15, 1620x1/2" DN15, 2025x3/4" DN20, 2632x1" DN25)

TM-308BF (1216x1/2" DN15, 1418x1/2" DN15, 1620x1/2" DN15, 2025x3/4" DN20, 2632x1" DN25)

TM-307B (1216x1216, 1418x1418, 1620x1620, 2025x2025, 2632x2632)

TM-307BM (1216x1/2" DN15, 1418x1/2" DN15, 1620x1/2" DN15, 2025x3/4" DN20, 2632x1" DN25)

TM-307BF (1216x1/2" DN15, 1418x1/2" DN15, 1620x1/2" DN15, 2025x3/4" DN20, 2632x1" DN25)

TM-319 (1/2" x 1/2" DN15, 3/4" x 3/4" DN20, 1" x 1" DN25)

TM-302BFF (1/2" x 1/2" DN15, 3/4" x 3/4" DN20, 1" x 1" DN25)

Thank you for your application for the manual shut-off valves to be covered by SAI Global 'Gas Safety Certification Scheme'. I am pleased to provide the following test program, which must be satisfactorily completed by an SAI Global recognised test laboratory to enable our assessment of the appliance for the **Gas Safety Certification Scheme** Certification.

TEST PROGRAM

Standard: *AS 4617-2004 (including Amendment 1): Manual Shut-off Valves*

Model TM-308 sizes: 1216x1216 and 2632x2632 *Full Test – including review of specifications, technical drawings, instructions and markings.*

Section 2: 2.1, 2.2, 2.3, 2.4, 2.5

Section 3: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6

Model TM-307B sizes: 1418x1418 and 2025x2025 *Part Test – including review of specifications, technical drawings, instructions and markings.*

Section 2: 2.1.4, 2.2, 2.3.3, 2.3.5, 2.3.10, 2.3.13, 2.4, 2.5

Section 3: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6

Model TM-308BM sizes: 1216x1/2" DN15 and 1620x1/2" DN15 *Part Test – including review of specifications, technical drawings, instructions and markings.*

Section 2: 2.3, 2.4

Section 3: 3.1, 3.3

Model 307BF sizes: 2025x3/4" DN20 and 2632x1" DN25 *Part Test – including review of specifications, technical drawings, instructions and markings.*

Section 2: 2.3.3, 2.4

Section 3: 3.3

Model TM-319 size: 1/2" x 1/2" DN15 *Part Test – including review of specifications, technical drawings, instructions and markings.*

Section 2: 2.2.9, 2.4, 2.5

Section 3: 3.2, 3.3, 3.4, 3.5

Model TM-302BFF: 3/4" x 3/4" DN20 *Part Test – including review of specifications, technical drawings, instructions and markings.*

Section 2: 2.3.3, 2.4

Section 3: 3.3

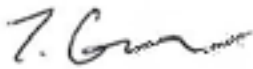
Notes:

1. The above test program is based on the following:
 - i. Model TM308, TM308BM, TM308BF and TM319 are with Straight through Levers. And Model TM307, TM307BM, TM307BF and TM302BFF are with 'T' handles Levers. In addition, the design, material and construction of valve body are same for TM308 series and TM307 series, & also same for TM319 and TM302BFF as per client's confirmation.
 - ii. Testing is to be principally conducted on the above model samples with an RWP of 800kPa @ max temperature 100°C, with the understanding these components are representative of the product range.
 - iii. Laboratory is to immediately advise SAI Global if there is any variation which may influence the above.
2. Gas PEX joint fitting and pipe use for testing must be selected and provided from current certification SMK40185 coverage.

3. Provide 3 fully assembly production samples of each valve submitted for testing to the laboratory. Also provide one un-assembled TM308 valve for testing in accordance with Clause 2.1.5 for AS2136.
4. Please provide the SAI Global recognised laboratory with a copy of this correspondence, technical specification (including drawings) and product instructions in accordance with AS4617-2004, AS/NZS5601 and SAI Global guidelines.
5. The test laboratory must attach copies of the above documents with the laboratory report. Incomplete reports may not be accepted and returned to the applicant.
6. SAI Global reserves the right to consult with the relevant testing laboratory during the certification process.
7. Your attention is drawn to the application and installation requirements as detailed in the relevant installation standards e.g. AS/NZS5601, AS4176.8 etc.
8. Electrical components, and their installation in the appliance, shall comply with the relevant requirements of the appropriate electrical authority. Documentary evidence of the suitability of electrical components shall be provided to the Certifying body.
9. For all future correspondence related to this project, please quote reference number SAI-400257.

We look forward to certifying your product. Do not hesitate to contact us if you have any questions.

Yours sincerely



Thomas Guan

Gas Client Manager – Product Services

SAI Global

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Test Report

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REPORT NUMBER: 161110081GZU-001 Page 1 of 27 pages

DATE OF ISSUE: 26 January 2017

REVISION DATE: 2 March 2017

ITEM TESTED: Gas ball valves

MODEL NO(s): Expand the models on page 4

CLIENT: TUBOMART ENTERPRISE CO., LTD.

CLIENT ADDRESS: Rm 1401-1410, Block A1, Guangzhou Greenland Central Plaza, Shenzhou Rd, Huangpu District, Guangzhou, China

DATE SAMPLE RECEIVED: Refer to Test Summary

DATE OF TESTS: Refer to Test Summary

TEST LOCATION: Intertek Guangzhou

COMPLIANCE TESTS PERFORMED

Examination of the above appliance to the requirements and test methods of AS 4617-2004 + A1-2011 to demonstrate the products' suitability.

CONCLUSION

The appliance after modification was found to show compliance with the above requirements as detailed on pages 2 to 27 of this report.

The results only refer to those products tested, the details of which are contained within the main body of this report.

Examined by:


 Daniel Chen
 Project Engineer-Gas

Reviewed by:


 Steve Zhu
 Supervisor - Gas



Revision summary

DD/Month/YYYY	Project Engineer/ Reviewer	Page #	Project No	Reason for revision
26/Jan/2017	Daniel Chen/ Steve Zhu	All	161110081GZU	First Issue
10/Feb/2017	Daniel Chen/ Steve Zhu	All	161110081GZU	Note 1
2/Mar/2017	Daniel Chen/ Steve Zhu	1, 10, 13, 14, 19	161110081GZU	Note 2

Note 1:

As the external leakage was unclear in the report, re-testing was conducted on below models:

BENDING MOMENT:

TM-308 1216x1216
TM-307B 1418x1418
TM-319 1/2" x 1/2"

IMPACT RESISTANCE:

TM-307B 1418x1418
TM-307B 2025x2025

DURABILITY:

TM-307B 1418x1418

Note 2:

1. Add manufacturer information on the front page in this report.
2. Add statement 'No cracked, corrosion, disfunction or leakage after the tests within the standard.' in clauses 2.1.2/3/6 for Model TM-308 sizes: 1216x1216 and 2632x2632.
3. Add test summary of 2.1.4 and 2.1.5 for Model TM-308 sizes: 1216x1216 and 2632x2632.
4. Add temperature range remark in test summary 3.6.1 for Model TM-308 sizes: 1216x1216 and 2632x2632 and Model TM-307B sizes: 1418x1418 and 2025x2025.

End of note.

Test Program: Per Ref SAI-400257 dated at REV 28/Sep/2016:

Standard:	AS 4617-2004: Manual Shut-off Valves
Model TM-308 sizes: 1216x1216 and 2632x2632	Full Test – including review of specifications, technical drawings, instructions and markings. Section 2: 2.1, 2.2, 2.3, 2.4, 2.5 Section 3: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6
Model TM-307B sizes: 1418x1418 and 2025x2025	Part Test – including review of specifications, technical drawings, instructions and markings. Section 2: 2.1.4, 2.2, 2.3.3, 2.3.5, 2.3.10, 2.3.13, 2.4, 2.5 Section 3: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6
Model TM-308BM sizes: 1216x1/2" DN15 and 1620x1/2" DN15	Part Test – including review of specifications, technical drawings, instructions and markings. Section 2: 2.3, 2.4 Section 3: 3.1, 3.3
Model 307BF sizes: 2025x3/4"DN20 and 2632x1" DN25	Part Test – including review of specifications, technical drawings, instructions and markings. Section 2: 2.3.3, 2.4 Section 3: 3.3
Model TM-319 size: 1/2" x 1/2" DN15	Part Test – including review of specifications, technical drawings, instructions and markings. Section 2: 2.2.9, 2.4, 2.5 Section 3: 3.2, 3.3, 3.4, 3.5
Model TM-302BFF: 3/4" x 3/4"DN20	Part Test – including review of specifications, technical drawings, instructions and markings. Section 2: 2.3.3, 2.4 Section 3: 3.3

Note: After being checked with the applicant, the working pressure is 500 KPa or 800 KPa and the temperature range is (-20 - 110)°C.

Description of appliance

The ball valve consists of two pieces body with lever/butterfly handle.

The valves have two threaded connections, which can either be compression fitting for aluminum plastic tube or pipeline

The ball with routeway is built-in the two section of valve body and be controlled by spindle with handle.

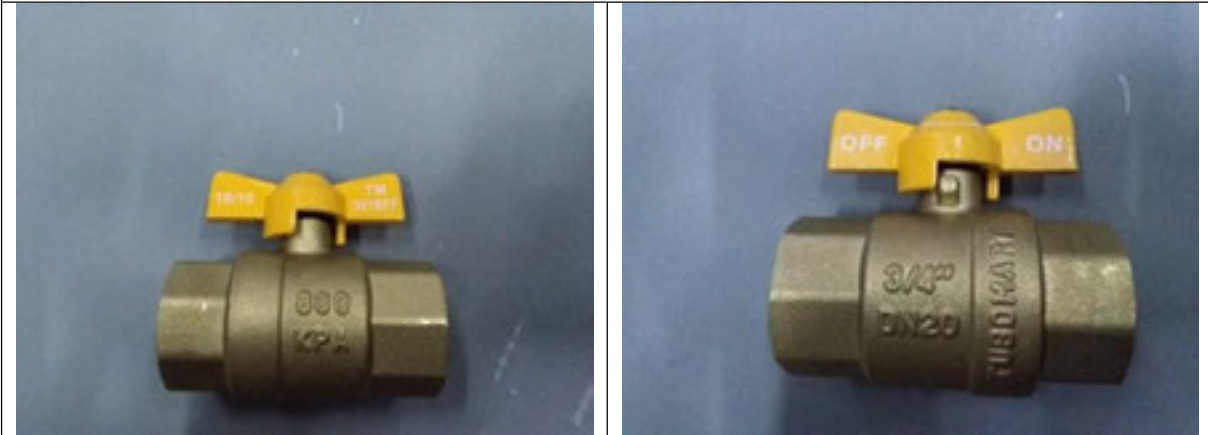
The valve body, spindle and obturator are manufactured of brass, the handle is aluminum alloy (butterfly) or iron (iron), and the seat part between the obturator and valve body is PTFE, the "O" ring on the spindle is NBR.

Technical Data for the appliance

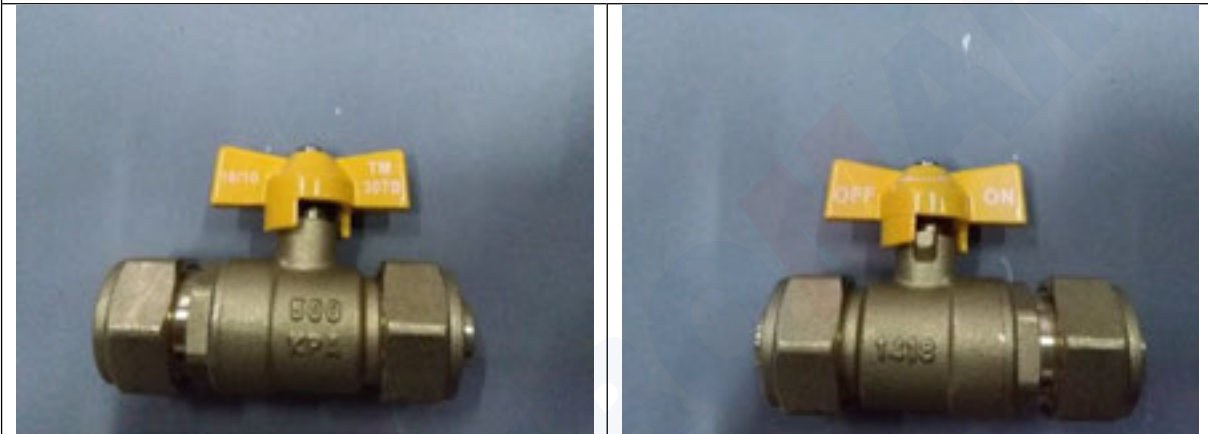
Model	Thread	Thread	Handle	W.P.	Temperature range
TM-308 1216 x 1216	G1/2 and compression fitting	G1/2 and compression fitting	Lever	500 kPa	(-20 - 110)°C
TM-308 2632 x 2632	M39 x 1.5 and compression fitting	M39 x 1.5 and compression fitting	Lever	500 kPa	(-20 - 110)°C
TM-307B 1418 x 1418	M24 x 1.5 and compression fitting	M24 x 1.5 and compression fitting	Butterfly	500 kPa	(-20 - 110)°C
TM-307B 2025 x 2025	M32 x 1.5 and compression fitting	M32 x 1.5 and compression fitting	Butterfly	500 kPa	(-20 - 110)°C
TM-308BM 1216 x 1/2"	G1/2 and compression fitting	1/2"-14NPT	Lever	500 kPa	(-20 - 110)°C
TM-308BM 1620 x 1/2"	G3/4 and compression fitting	1/2"-14NPT	Lever	500 kPa	(-20 - 110)°C
TM-307BF 2025 x 3/4"	M32 x 1.5 and compression fitting	3/4"-14NPT	Butterfly	500 kPa	(-20 - 110)°C
TM-307BF 2632 x 1"	M39 x 1.5 and compression fitting	1"-11.5NPT	Butterfly	500 kPa	(-20 - 110)°C
TM-319 1/2" x 1/2"	1/2"-14NPT	1/2"-14NPT	Lever	800 kPa	(-20 - 110)°C
TM-302BFF 3/4" x 3/4"	3/4"-14NPT	3/4"-14NPT	Butterfly	800 kPa	(-20 - 110)°C

Photograph for the valves

TM-302BFF 3/4" x 3/4"



TM-307B 1418 x 1418



None

Photograph for the valves

TM-307B 2025 x 2025



TM-307BF 2025 x 3/4"

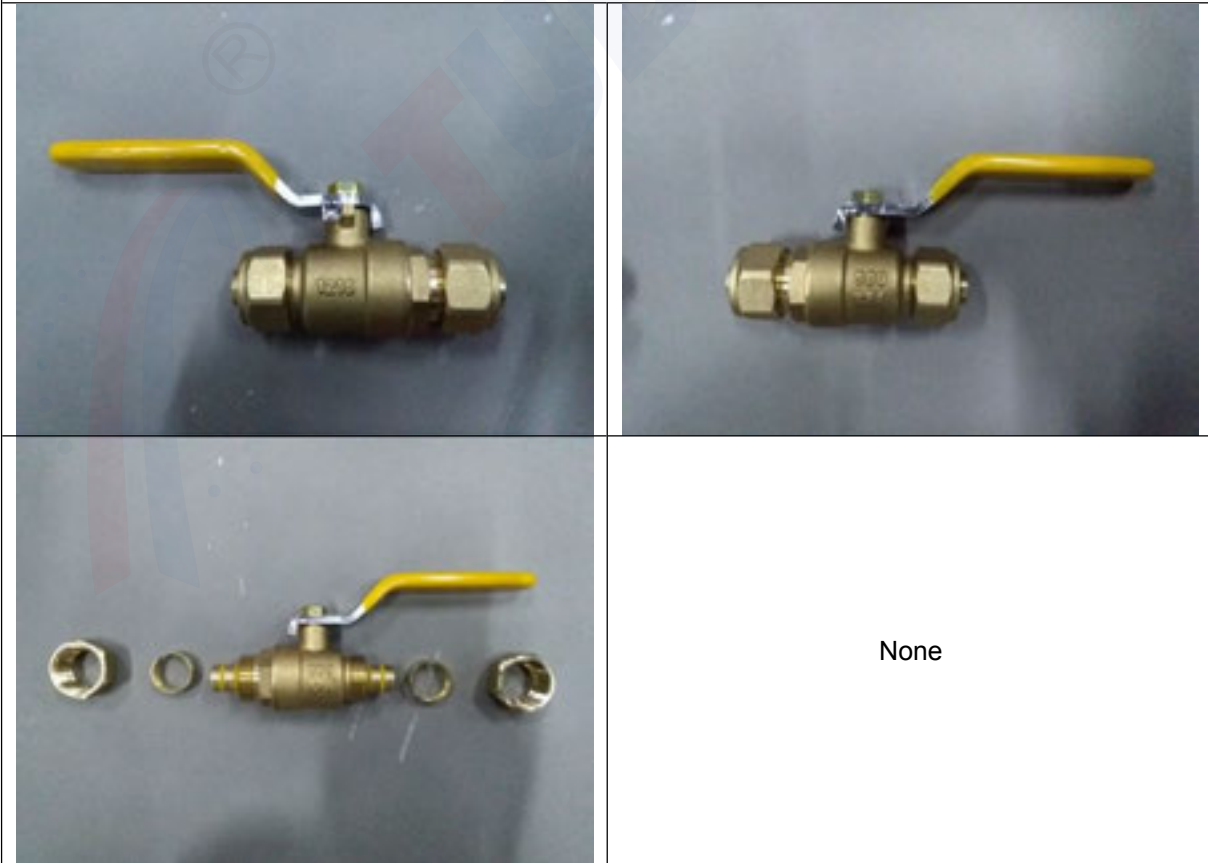


Photograph for the valves

TM-307BF 2632 x 1"



TM-308 1216 x 1216



Photograph for the valves

TM-308 2632 x 2632



None

TM-308BM 1216 x 1/2"



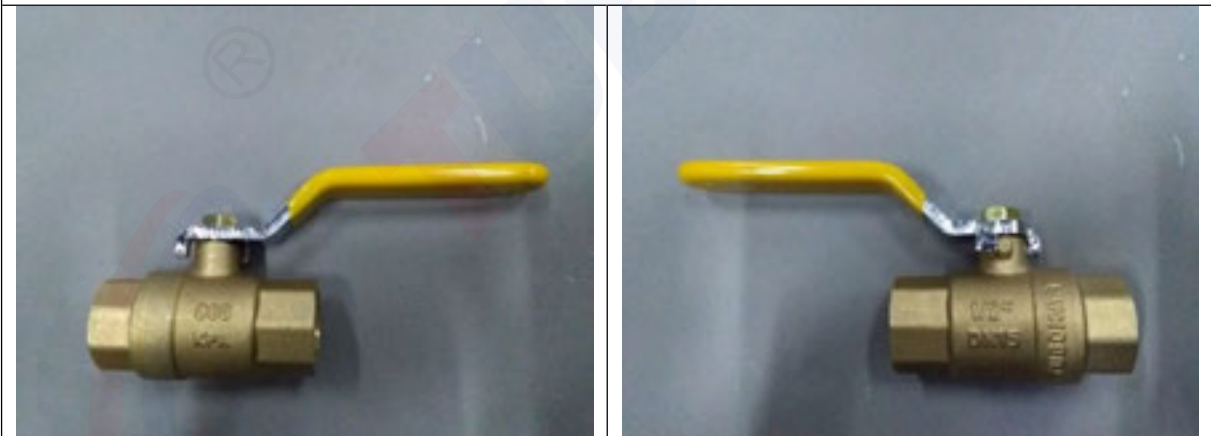
None

Photograph for the valves

TM-308BM 1620 x 1/2"



TM-319 1/2" x 1/2"



Findings of examination to AS4617 manual shut off gas valves

Note: P=Pass, F=Fail, NA=Not applicable, NT=Not tested, NR=Not requested, ?=Review may be necessary.

For Model TM-308 sizes: 1216x1216 and 2632x2632

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
SECTION 2 DESIGN AND CONSTRUCTION			
2.1	MATERIALS		
2.1.1	Continuity of satisfactory operation	Complies	P
2.1.2	Suitability for the conditions of use	No cracked, corrosion, disfunction or leakage after the tests within the standard. Complies	P
2.1.3	Materials in contact with gas	No cracked, corrosion, disfunction or leakage after the tests within the standard. Complies	P
2.1.4	Melting point of materials	See Test summary	P
2.1.5	Copper containing alloys	See Test summary	P
2.1.6	Component parts materials selected to appropriate Standard	No cracked, corrosion, disfunction or leakage after the tests within the standard. Complies	P
2.2	CONSTRUCTION		
2.2.1	Continuity of satisfactory operation	Complies	P
2.2.2	Castings and hot pressings	Complies	P
2.2.3	Sealing of porous castings or cracks	Complies	P
2.2.4	Assembled valves to be clean	Complies	P
2.2.5	Accidental displacement of parts	Complies	P
2.2.6	Attachment of knobs, handles, dials and pointers	Lever handle is secured at spindle	P
2.2.7	Springs	No spring	NA
2.2.8	Securing of parts together	Complies	P
2.2.9	Sharp edges	Complies	P
2.2.10	Valves incorporating a means of ignition	No incorporating ignition	NA
2.2.11	Means of limiting the travel of manual valves	It has stop on OFF or FULL ON position	P
2.2.12	Holes for assembly or mounting	No holes	NA
2.2.13	Permanent sealing of non-functional holes	No holes	NA
2.2.14	Self tapping screws	No self tapping screws	NA
2.2.15	Application of lubricant or sealant	Complies	P
2.2.16	Construction of parts not covered by this Standard		NA
2.2.17	Tightening of a gland or any other adjustments	No adjustments	NA
2.3	DESIGN		
2.3.1	Components requiring servicing	No parts is required servicing during use	NA
2.3.2	Special tools not required for servicing or replacement	No special tools required by service	NA
2.3.3	Connections	The compression fitting are supplied with the valve. The threads are compliant with AS ISO 7.1	P
2.3.4	Operation of valves	Close the valve in a clockwise direction and it has stop at OFF position	P
2.3.5	Stop positions on valves Stop positions on valves	It has stop on OFF or FULL ON position	P
2.3.6	Provision of check or detent in place of positive stop	It has stop on OFF or FULL ON position	NA

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
2.3.7	Screw down valves	Not screw down valve	NA
2.3.8	Screws and nuts not to loosen	No screws	NA
2.3.9	Lubricant—blockage or effect on gas flow	Complies	P
2.3.10	Lever—'OFF' position	Complies	P
2.3.11	Means of compensating for wear	Complies	P
2.3.12	Valves with associated electrical device	No electrical components	NA
2.3.13	Type 1 valves		
2.3.13.1	Metallic materials	Complies	P
2.3.13.2	Angle between the fully open and fully closed positions	Complies	P
2.3.13.3	Single action lever to close valve	Complies	P
2.3.13.4	Valve to be sealed and gas tight—travel angle	Complies	P
2.3.13.5	Operation or gas tightness of valves greater than 25mm	Complies	P
2.3.14	Type 2 valves	Type 1	NA
2.3.14.1	Metallic materials	Type 1	NA
2.3.15	Type 3 valves	Type 1	NA
2.3.15.1	Plastic valves—appropriate Standards	Type 1	NA
2.3.15.2	Angle between the fully open and fully closed positions	Type 1	NA
2.3.15.3	Single action lever to close valve	Type 1	NA
2.3.15.4	Valve to be sealed and gas tight – travel angle	Type 1	NA
2.3.15.5	Operation or gas tightness of valves greater than 25mm	Type 1	NA
2.4	MARKINGS		
2.4.1	General Markings shall be provided and shall include: (a) Manufacturer's name or trademark. (b) Model designation. (c) Month and year of manufacture or serial number. (d) Rated working pressure in kPa. (e) Direction of flow, if necessary.	Complies "TUBOMART" Complies "xx/xx" means production date Complies Both directions are available	P P P P NA
2.4.2	Marking of electrical connections	No electrical components	NA
2.4.3	Durability of markings	Complies	P
2.5	INSTRUCTIONS		

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
2.5.1	General Instructions in English shall be available, which shall include: (a) Model designation(s) and alternative forms. (b) Size and rated working pressure in kPa. (c) Flow rate for a given pressure loss. (d) Bypass rate if applicable. (e) Temperature limitations. (f) Mounting limitations. (g) Type of valve. (h) Wiring diagram showing external connections. (i) Electrical ratings i.e. voltage, frequency, current. (j) Method of operation, adjustments and applications. (k) Fault diagnosis and servicing. (l) Thread or flange specifications as applicable or jointing procedure in accordance with the appropriate standard (e.g. AS/NZS 1477, AS 2944.1, AS 2944.2, AS 3723). (m) Type of lubricant and/or sealant as applicable. (n) Details of assembly and/or adjustments to be carried out by installer.	Complies Complies Flow rate at fully open without pressure loss No bypass Complies Complies Complies No wire No electrical components No adjustments. Complies Complies Complies No assembly adjustments	P P P NA P P P NA NA NA P P P NA
SECTION 3 PERFORMANCE REQUIREMENT			
3.1	GENERAL		
3.1.1	Satisfactory performance in all mounting positions	Complies	P
3.1.2	Satisfactory performance over declared temperature range	(-20 – 110) °C	P
3.2	LEAKAGE		
3.2.1	External Leakage	See Test summary	P
3.3.2	Internal leakage	See Test summary	P
3.3	FLOW RATE		
3.3.1	Flow rate for a given pressure	See Test summary	P
3.4	OPERATING EFFORT		
3.4.1	Opening and closing of valves	See Test summary	P
3.4.2	Maximum instantaneous torque or force—opening or closing	See Test summary	P
3.4.3	Self-latching valves	Not self-latching valve	NA
3.5	MECHANICAL STRENGTH		
3.5.1	Resistance to applied torque	See Test summary	P
3.5.2	Valves with two piece bodies	See Test summary	P
3.5.3	Resistance to applied bending moments	See Test summary	P
3.5.4	Resistance to applied impacts	See Test summary	P
3.6	DURABILITY		
3.6.1	Cycling tests for valves	See Test summary	P

TEST SUMMARY					
Evaluation Period	10/Jan/2017 – 9/Feb/2017			Project No.	161110081GZU
Sample Rec. Date	10/Nov/2016	Condition	Prototype	Sample ID.	S161110081-001~002
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Block E, No,7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, CETDD Guangzhou)				
Test Procedure	Testing Lab				

Test Data Results:2.1.4 Melting point

Model	Heating temp.	Result	Pass or Fail
TM-308 1216x1216	430°C	No sign of melting	Pass
TM-308 2025x2025	430°C	No sign of melting	Pass

2.1.5 Copper containing alloys

Model	Time for examination	Result	Pass or Fail
TM-308 1216x1216	Immediate and 24 h later	No sign of cracks	Pass
TM-308 2025x2025	Immediate and 24 h later	No sign of cracks	Pass

3.2 Leakage

Model	External Leakage (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-308 1216x1216	0.75	0.31	≤1	Pass
TM-308 2632x2632	0.90	0.63	≤1	Pass

3.3 Flow rate

Model	Flow rate (m ³ /h)	Limit (m ³ /h)	Pass or Fail
TM-308 1216 x 1216	81.3	80	Pass
TM-308 2632 x 2632	115	110	Pass

3.4 Operating effort

Model	Maintain movement (N.m)	Limit (N.m)	Initial movement (N.m)	Limit (N.m)	Pass or Fail
TM-308 1216x1216	0.70	2.8	1.50	4.2	Pass
TM-308 2632x2632	1.96	30.0	3.00	45.0	Pass

3.5.1/2 Torque

Model	Torque (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-308 1216x1216	50 x 2	0.77	≤1	0.45	≤2	Pass
TM-308 2632x2632	200 x 2	0.84	≤1	0.55	≤2	Pass

3.5.3 Bending moment

Model	Bending moment (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-308 1216x1216	105 or 10°	0.73	≤1	0.71	≤2	Pass
TM-308 2632x2632	610 or 10°	0.56	≤1	1.04	≤2	Pass

3.5.4 Impacts

Model	Impact (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-308 1216x1216	25	0.83	≤1	0.99	≤2	Pass
TM-308 2632x2632	25	0.61	≤1	1.09	≤2	Pass

3.6.1 Durability

Model	Cycles	External Leakage (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-308 1216x1216	4000	0.95	0.69	≤2	Pass
TM-308 2632x2632	2000	0.68	0.88	≤2	Pass

Model	Maintain movement (N.m)	Limit (N.m)	Initial movement (N.m)	Limit (N.m)	Pass or Fail
TM-308 1216x1216	1.24	2.8	2.35	4.2	Pass
TM-308 2632x2632	3.45	30.0	3.04	45.0	Pass

Remark: Half cycles at 110°C another half cycles at -20°C

For Model TM-307B sizes: 1418x1418 and 2025x2025

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
SECTION 2 DESIGN AND CONSTRUCTION			
2.1	MATERIALS		
2.1.4	Melting point of materials	See Test summary	P
2.2	CONSTRUCTION		
2.2.1	Continuity of satisfactory operation	Complies	P
2.2.2	Castings and hot pressings	Complies	P
2.2.3	Sealing of porous castings or cracks	Complies	P
2.2.4	Assembled valves to be clean	Complies	P
2.2.5	Accidental displacement of parts	Complies	P
2.2.6	Attachment of knobs, handles, dials and pointers	Butterfly handle is secured at spindle	P
2.2.7	Springs	No spring	NA
2.2.8	Securing of parts together	Complies	P
2.2.9	Sharp edges	Complies	P
2.2.10	Valves incorporating a means of ignition	No incorporating ignition	NA
2.2.11	Means of limiting the travel of manual valves	It has stop on OFF or FULL ON position	P
2.2.12	Holes for assembly or mounting	No holes	NA
2.2.13	Permanent sealing of non-functional holes	No holes	NA
2.2.14	Self tapping screws	No self tapping screws	NA
2.2.15	Application of lubricant or sealant	Complies	P
2.2.16	Construction of parts not covered by this Standard		NA
2.2.17	Tightening of a gland or any other adjustments	No adjustments	NA
2.3	DESIGN		
2.3.3	Connections	The compression fitting are supplied with the valve. The threads are compliant with AS ISO 7.1	P
2.3.5	Stop positions on valves Stop positions on valves	It has stop on OFF or FULL ON position	P
2.3.10	Lever—'OFF' position	Complies	P
2.3.11	Means of compensating for wear	Complies	P
2.3.13	Type 1 valves		
2.3.13.1	Metallic materials	Complies	P
2.3.13.2	Angle between the fully open and fully closed positions	Complies	P
2.3.13.3	Single action lever to close valve	Complies	P
2.3.13.4	Valve to be sealed and gas tight—travel angle	Complies	P
2.3.13.5	Operation or gas tightness of valves greater than 25mm	Not greater than 25 mm	NA
2.3.14	Type 2 valves		
2.3.14.1	Metallic materials	Type 1	NA
2.3.15	Type 3 valves		
2.3.15.1	Plastic valves—appropriate Standards	Type 1	NA
2.3.15.2	Angle between the fully open and fully closed positions	Type 1	NA
2.3.15.3	Single action lever to close valve	Type 1	NA
2.3.15.4	Valve to be sealed and gas tight – travel angle	Type 1	NA
2.3.15.5	Operation or gas tightness of valves greater than 25mm	Type 1	NA

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
2.4	MARKINGS		
2.4.1	General Markings shall be provided and shall include: (a) Manufacturer's name or trademark. (b) Model designation. (c) Month and year of manufacture or serial number. (d) Rated working pressure in kPa. (e) Direction of flow, if necessary.	Complies "TUBOMART" Complies "xx/xx" means production date Complies Both directions are available	P P P P NA
2.4.2	Marking of electrical connections	No electrical components	NA
2.4.3	Durability of markings	Complies	P
2.5	INSTRUCTIONS		
2.5.1	General Instructions in English shall be available, which shall include: (a) Model designation(s) and alternative forms. (b) Size and rated working pressure in kPa. (c) Flow rate for a given pressure loss. (d) Bypass rate if applicable. (e) Temperature limitations. (f) Mounting limitations. (g) Type of valve. (h) Wiring diagram showing external connections. (i) Electrical ratings i.e. voltage, frequency, current. (j) Method of operation, adjustments and applications. (k) Fault diagnosis and servicing. (l) Thread or flange specifications as applicable or jointing procedure in accordance with the appropriate standard (e.g. AS/NZS 1477, AS 2944.1, AS 2944.2, AS 3723). (m) Type of lubricant and/or sealant as applicable. (n) Details of assembly and/or adjustments to be carried out by installer.	Complies Complies Flow rate at fully open without pressure loss No bypass Complies Complies Complies No wire No electrical components No adjustments. Complies Complies Complies No assembly adjustments	P P P NA P P P P NA NA P P P NA
SECTION 3 PERFORMANCE REQUIREMENT			
3.1	GENERAL		
3.1.1	Satisfactory performance in all mounting positions	Complies	P
3.1.2	Satisfactory performance over declared temperature range	(-20 – 110) °C	P
3.2	LEAKAGE		
3.2.1	External Leakage	See Test summary	P
3.3.2	Internal leakage	See Test summary	P
3.3	FLOW RATE		
3.3.1	Flow rate for a given pressure	See Test summary	P
3.4	OPERATING EFFORT		
3.4.1	Opening and closing of valves	See Test summary	P

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
3.4.2	Maximum instantaneous torque or force—opening or closing	See Test summary	P
3.4.3	Self-latching valves	Not self-latching valve	NA
3.5	MECHANICAL STRENGTH		
3.5.1	Resistance to applied torque	See Test summary	P
3.5.2	Valves with two piece bodies	See Test summary	P
3.5.3	Resistance to applied bending moments	See Test summary	P
3.5.4	Resistance to applied impacts	See Test summary	P
3.6	DURABILITY		
3.6.1	Cycling tests for valves	See Test summary	P

TEST SUMMARY					
Evaluation Period	10/Jan/2017 - 9/Feb/2017			Project No.	161110081GZU
Sample Rec. Date	10/Nov/2016	Condition	Prototype	Sample ID.	S161110081-003~004
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Block E, No,7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, CETDD Guangzhou)				
Test Procedure	Testing Lab				

Test Data Results:2.1.4 Melting point

Model	Heating temp.	Result	Pass or Fail
TM-307B 1418x1418	430°C	No sign of melting	Pass
TM-307B 2025x2025	430°C	No sign of melting	Pass

3.2 Leakage

Model	External Leakage (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-307B 1418x1418	0.51	0.52	≤1	Pass
TM-307B 2025x2025	0.66	0.09	≤1	Pass

3.3 Flow rate

Model	Flow rate (m ³ /h)	Limit (m ³ /h)	Pass or Fail
TM-307B 1418 x 1418	87.3	85	Pass
TM-307B 2025 x 2025	98.7	95	Pass

3.4 Operating effort

Model	Maintain movement (N.m)	Limit (N.m)	Initial movement (N.m)	Limit (N.m)	Pass or Fail
TM-307B 1418x1418	1.26	5.0	2.40	7.5	Pass
TM-307B 2025x2025	2.14	10.0	2.98	15.0	Pass

3.5.1/2 Torque

Model	Torque (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-307B 1418x1418	125 x 2	0.81	≤1	0.51	≤2	Pass
TM-307B 2025x2025	160 x 2	0.56	≤1	0.63	≤2	Pass

3.5.3 Bending moment

Model	Bending moment (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-307B 1418x1418	340 or 10°	0.63	≤1	0.51	≤2	Pass
TM-307B 2025x2025	475 or 10°	0.83	≤1	1.08	≤2	Pass

3.5.4 Impacts

Model	Impact (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-307B 1418x1418	25	0.84	≤1	0.77	≤2	Pass
TM-307B 2025x2025	25	0.91	≤1	0.45	≤2	Pass

3.6.1 Durability

Model	Cycles	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-307B 1418x1418	2000	0.73	≤1	0.81	≤2	Pass
TM-307B 2025x2025	2000	0.51	≤1	0.72	≤2	Pass

Model	Maintain movement (N.m)	Limit (N.m)	Initial movement (N.m)	Limit (N.m)	Pass or Fail
TM-307B 1418x1418	2.24	5.0	3.05	7.5	Pass
TM-307B 2025x2025	3.14	10.0	5.56	15.0	Pass

Remark: Half cycles at 110°C and another half cycles at -20°C

For Model TM-308BM sizes: 1216x1/2" DN15 and 1620x1/2" DN15

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
SECTION 2 DESIGN AND CONSTRUCTION			
2.3	DESIGN		
2.3.1	Components requiring servicing	No parts is required servicing during use	NA
2.3.2	Special tools not required for servicing or replacement	No special tools required by service	NA
2.3.3	Connections	The compression fitting are supplied with the valve. The threads are compliant with AS ISO 7.1	P
2.3.4	Operation of valves	Close the valve in a clockwise direction and it has stop at OFF position	P
2.3.5	Stop positions on valves Stop positions on valves	It has stop on OFF or FULL ON position	P
2.3.6	Provision of check or detent in place of positive stop	It has stop on OFF or FULL ON position	NA
2.3.7	Screw down valves	Not screw down valve	NA
2.3.8	Screws and nuts not to loosen	No screws	NA
2.3.9	Lubricant—blockage or effect on gas flow	Complies	P
2.3.10	Lever—'OFF' position	Complies	P
2.3.11	Means of compensating for wear	Complies	P
2.3.12	Valves with associated electrical device	No electrical components	NA
2.3.13	Type 1 valves		
2.3.13.1	Metallic materials	Complies	P
2.3.13.2	Angle between the fully open and fully closed positions	Complies	P
2.3.13.3	Single action lever to close valve	Complies	P
2.3.13.4	Valve to be sealed and gas tight—travel angle	Complies	P
2.3.13.5	Operation or gas tightness of valves greater than 25mm	Not greater than 25 mm	NA
2.3.14	Type 2 valves		
2.3.14.1	Metallic materials	Type 1	NA
2.3.15	Type 3 valves		
2.3.15.1	Plastic valves—appropriate Standards	Type 1	NA
2.3.15.2	Angle between the fully open and fully closed positions	Type 1	NA
2.3.15.3	Single action lever to close valve	Type 1	NA
2.3.15.4	Valve to be sealed and gas tight – travel angle	Type 1	NA
2.3.15.5	Operation or gas tightness of valves greater than 25mm	Type 1	NA
2.4	MARKINGS		
2.4.1	General Markings shall be provided and shall include: (a) Manufacturer's name or trademark. (b) Model designation. (c) Month and year of manufacture or serial number. (d) Rated working pressure in kPa. (e) Direction of flow, if necessary.	Complies "TUBOMART" Complies "xx/xx" means production date Complies Both directions are available	P P P P NA
2.4.2	Marking of electrical connections	No electrical components	NA
2.4.3	Durability of markings	Complies	P
SECTION 3 PERFORMANCE REQUIREMENT			

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
3.1	GENERAL		
3.1.1	Satisfactory performance in all mounting positions	Complies	P
3.1.2	Satisfactory performance over declared temperature range	(-20 – 110) °C	P
3.3	FLOW RATE		
3.3.1	Flow rate for a given pressure	See Test summary	P

TEST SUMMARY					
Evaluation Period	17/Jan/2017			Project No.	161110081GZU
Sample Rec. Date	10/Nov/2016	Condition	Prototype	Sample ID.	S161110081-005~006
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Block E, No,7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, CETDD Guangzhou)				
Test Procedure	Testing Lab				

Test Data Results:

3.3 Flow rate

Model	Flow rate (m ³ /h)	Limit (m ³ /h)	Pass or Fail
TM-308BM 1216 x ½"	78.5	75	Pass
TM-308BM 1620 x ½"	106.2	105	Pass

For Model 307BF sizes: 2025x3/4"DN20 and 2632x1" DN25

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
SECTION 2 DESIGN AND CONSTRUCTION			
2.3	DESIGN		
2.3.3	Connections	The compression fitting are supplied with the valve. The threads are compliant with AS ISO 7.1	P
2.4	MARKINGS		
2.4.1	General Markings shall be provided and shall include: (a) Manufacturer's name or trademark. (b) Model designation. (c) Month and year of manufacture or serial number. (d) Rated working pressure in kPa. (e) Direction of flow, if necessary.	Complies "TUBOMART" Complies "xx/xx" means production date Complies Both directions are available	P P P P NA
2.4.2	Marking of electrical connections	No electrical components	NA
2.4.3	Durability of markings	Complies	P
SECTION 3 PERFORMANCE REQUIREMENT			
3.3	FLOW RATE		
3.3.1	Flow rate for a given pressure	See Test summary	P

TEST SUMMARY					
Evaluation Period	17/Jan/2017			Project No.	161110081GZU
Sample Rec. Date	10/Nov/2016	Condition	Prototype	Sample ID.	S161110081-007~008
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Block E, No,7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, CETDD Guangzhou)				
Test Procedure	Testing Lab				

Test Data Results:3.3 Flow rate

Model	Flow rate (m ³ /h)	Limit (m ³ /h)	Pass or Fail
TM-307BF 2025 x 3/4"	107	105	Pass
TM-307BF 2632 x 1"	116	115	Pass

For Model TM-319 size: 1/2" x 1/2" DN15

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
SECTION 2 DESIGN AND CONSTRUCTION			
2.2.9	Sharp edges	Complies	P
2.4	MARKINGS		
2.4.1	General Markings shall be provided and shall include: (a) Manufacturer's name or trademark. (b) Model designation. (c) Month and year of manufacture or serial number. (d) Rated working pressure in kPa. (e) Direction of flow, if necessary.	Complies "TUBOMART" Complies "xx/xx" means production date Complies Both directions are available	P P P P NA
2.4.2	Marking of electrical connections	No electrical components	NA
2.4.3	Durability of markings	Complies	P
2.5	INSTRUCTIONS		
2.5.1	General Instructions in English shall be available, which shall include: (a) Model designation(s) and alternative forms. (b) Size and rated working pressure in kPa. (c) Flow rate for a given pressure loss. (d) Bypass rate if applicable. (e) Temperature limitations. (f) Mounting limitations. (g) Type of valve. (h) Wiring diagram showing external connections. (i) Electrical ratings i.e. voltage, frequency, current. (j) Method of operation, adjustments and applications. (k) Fault diagnosis and servicing. (l) Thread or flange specifications as applicable or jointing procedure in accordance with the appropriate standard (e.g. AS/NZS 1477, AS 2944.1, AS 2944.2, AS 3723). (m) Type of lubricant and/or sealant as applicable. (n) Details of assembly and/or adjustments to be carried out by installer.	Complies Complies Flow rate at fully open without pressure loss No bypass Complies Complies Complies No wire No electrical components No adjustments. Complies Complies Complies No assembly adjustments	P P P NA P P P NA NA P P P NA
SECTION 3 PERFORMANCE REQUIREMENT			
3.2	LEAKAGE		
3.2.1	External Leakage	See Test summary	P
3.3.2	Internal leakage	See Test summary	P
3.3	FLOW RATE		
3.3.1	Flow rate for a given pressure	See Test summary	P
3.4	OPERATING EFFORT		
3.4.1	Opening and closing of valves	See Test summary	P
3.4.2	Maximum instantaneous torque or force—opening or closing	See Test summary	P
3.4.3	Self-latching valves	Not self-latching valve	NA

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
3.5	MECHANICAL STRENGTH		
3.5.1	Resistance to applied torque	See Test summary	P
3.5.2	Valves with two piece bodies	See Test summary	P
3.5.3	Resistance to applied bending moments	See Test summary	P
3.5.4	Resistance to applied impacts	See Test summary	P

TEST SUMMARY			
Evaluation Period	10/Jan/2017 - 9/Feb/2017		Project No. 161110081GZU
Sample Rec. Date	10/Nov/2016	Condition Prototype	Sample ID. S161110081-009
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Block E, No,7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, CETDD Guangzhou)		
Test Procedure	Testing Lab		

Test Data Results:

3.3 Flow rate

Model	Flow rate (m ³ /h)	Limit (m ³ /h)	Pass or Fail
TM-319 1/2" x 1/2"	165	160	Pass

3.4 Operating effort

Model	Maintain movement (N.m)	Limit (N.m)	Initial movement (N.m)	Limit (N.m)	Pass or Fail
TM-319 1/2" x 1/2"	1.92	2.8	2.08	4.2	Pass

3.5.1/2 Torque

Model	Torque (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-319 1/2" x 1/2"	50 x 2	0.79	≤1	0.81	≤2	Pass

3.5.3 Bending moment

Model	Bending moment (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-319 1/2" x 1/2"	105 or 10°	0.65	≤1	0.88	≤2	Pass

3.5.4 Impacts

Model	Impact (N.m)	External Leakage (mL/min)	Limit (mL/min)	Internal Leakage (mL/min)	Limit (mL/min)	Pass or Fail
TM-319 1/2" x 1/2"	25	0.72	≤1	1.04	≤2	Pass

For Model TM-302BFF: 3/4" x 3/4"DN20

AS4617:2004+A1:2011			
Clause	Requirement – Test	Result – Remark	Verdict
SECTION 2 DESIGN AND CONSTRUCTION			
2.3	DESIGN		
2.3.3	Connections	The compression fitting are supplied with the valve. The threads are compliant with AS ISO 7.1	P
2.4	MARKINGS		
2.4.1	General Markings shall be provided and shall include: (a) Manufacturer's name or trademark. (b) Model designation. (c) Month and year of manufacture or serial number. (d) Rated working pressure in kPa. (e) Direction of flow, if necessary.	Complies "TUBOMART" Complies "xx/xx" means production date Complies Both directions are available	P P P P NA
2.4.2	Marking of electrical connections	No electrical components	NA
2.4.3	Durability of markings	Complies	P
2.5	INSTRUCTIONS		
SECTION 3 PERFORMANCE REQUIREMENT			
3.3	FLOW RATE		
3.3.1	Flow rate for a given pressure	See Test summary	P

TEST SUMMARY					
Evaluation Period	17/Jan/2017	Project No.	161110081GZU		
Sample Rec. Date	10/Nov/2016	Condition	Prototype	Sample ID.	S161110081-010
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Block E, No,7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, CETDD Guangzhou)				
Test Procedure	Testing Lab				

Test Data Results:

3.3 Flow rate

Model	Flow rate (m ³ /h)	Limit (m ³ /h)	Pass or Fail
TM-302BFF 3/4" x 3/4"	164	160	Pass

Actions arising during examination

AS 4617-2004+ A1-2011

Clause **Comment**

NIL



Appliance markings:

It is checked and found compliant.

Instructions:

It is checked and found compliant.

Manufacturers Engineering Drawings:

It is checked and found compliant.

*****END OF REPORT*****

