
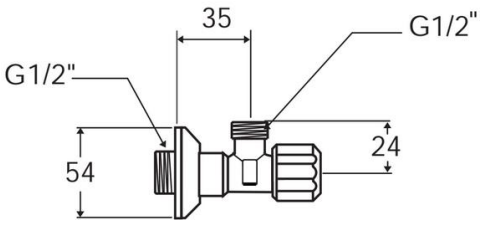




PROJECT		REF		REV	ITEM CODE	
LOCATION		DATE			PAGE	

SANITARY WARE SPECIFICATION SHEET

<p>Item Descriptions</p> <p>Dimensions</p> <p>Model</p> <p>Finish</p> <p>Manufacturer</p> <p>Source</p> <p>Contact Tel/Fax</p> <p>E-mail</p> <p>Website</p>	<p>American Standard (Thailand) Chrome plated angle Stop 1/2 inch. x 1/2 inch; tested on BS EN 200:2008, BS EN 12164:2016, BS EN 1982:2008, AS/NZS 4020:2018 and World Health Organisation in international standards for drinking water quality-Fourth Edition 2011; test report 231081PC230206</p> <p>1/2" x 1/2"</p> <p>A-4400S</p> <p>Chrome Plated</p> <p>American Standard (Thailand)</p> <p>Acme Sanitary Ware Co. Ltd Mr. Eric Wong / Mr. Wilson Hung</p> <p>(852) 2388-7171 / (852) 2710-8012 acme@acmesanitary.com.hk www.acmesanitary.com.hk</p>	<p align="center">Illustration/ Drawing</p>  
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Note:

* All information of the above is for the reference only. No prior notice is made if any changes.



水務署
Water Supplies Department

總部 Headquarters

香港灣仔告士打道七號入境事務大樓 48 樓

7 Gloucester Road, Wan Chai, Hong Kong



本署檔號
Our ref.
來函檔號
Your ref.

2024 T/J(818/2024)

電話 :
Tel. :
傳真 : 2824 0578
Fax.

7 November 2024



Dear Madam,

**Approval of “AMERICAN STANDARD” Angle Valve
(General Acceptance No. C20240796)**

Your E-Application [file-id: ETJ-GA-20240817-231] dated 20 August 2024 and subsequent submissions received by this department up to 12 October 2024 refer.

Having considered the test report ref. 231081PC230206 issued on 9 January 2024 by Fugro Technical Services Limited, this Authority accepts that the fitting described below complies with, and its use when correctly installed does not contravene, the Waterworks Ordinance and Regulations.

Name of Manufacturer: LIXIL (Thailand) Public Company Limited

Country of Origin: Thailand

Brand: American Standard

Details of Fitting: 1/2" Copper alloy angle valve

Model: A-4400S

Body Markings: *American Standard*

Expiry Date: 28 August 2028



This Authority hereby permits the use of the above fitting in fresh water plumbing systems subject to full adherence to Waterworks installation requirements.

A condition of this acceptance is that the fitting to be installed shall be replicas of the sample as certified by the testing agent mentioned above and without modifications. This acceptance may be withdrawn at any time if the standard of the fitting installed fails to meet that of the approved sample or if the fitting is found to be unsuitable for use in fresh water plumbing systems.

For the use of the fitting in any project, the General Acceptance Number of this letter must be quoted as a means of identification of acceptance of the fitting by this Authority.

Should you have any enquiries, please contact our Engineer Mr Albert CHOW at tel. no. 3583 4086.

Yours faithfully,



(Terry KUNG)

for Director of Water Supplies

Encl.

c.c. WSD 3321/1/82] - without catalogue
 ME/MC] - with soft copy only



FUGRO TECHNICAL SERVICES LIMITED
 Fugro Development Centre
 5 Lok Yi Street, Tai Lam
 Tuen Mun, NT
 Hong Kong



Client Ref. : D/0049/23/FOMH
 Report No. : 231081PC230206

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REPORT ON TESTING OF TAP

Information Supplied by Client

Client :
 Client Address :
 Project : Testing of Copper Alloy Angle Valve
 Sample Description : 1/2" Copper Alloy Angle Valve
 Brand : American Standard
 Body Marking : *American Standard*
 Model : A-4400S
 Country of Origin : Thailand
 Manufacturer : LIXIL (Thailand) Public Company Limited



Laboratory Information

Lab. Sample I.D. : PC230206/1-2
 Date Received : 18 May 2023
 Date Test Started : 08 June 2023
 Date Test Completed : 29 August 2023
 Test Method : BS EN 200 : 2008 , BS EN 12164 : 2016, BS EN 1982 : 2008, AS/NZS 4020: 2018 and World Health Organisation in international standards for drinking water quality- Fourth Edition 2011.

Test Results

1. Dimensions

BS EN 200 : 2008 clause 6

Dimension	Value	BS EN Requirement	Test Results
Nominal Size	1/2"	1/2"	Pass

2. Leaktightness Characteristics

2.1 Leak-tightness of the Tap Upstream of the Obturator Closed

(BS EN 200 : 2008, Clause 8.3)

Applied Pressure (bar)	BS EN Requirement (bar)	Duration (sec)	BS EN Requirement (sec)	Observation	BSEN Requirement	Test Results
16	16±0.5	60	60±5	- No leakage or seepage through the walls	The duration of the test there shall be no leakage or seepage through the walls	Pass

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2.2 Leak-tightness of the Tap Downstream from the Obturator Open

(BS EN 200 : 2008, Clause 8.4)

Applied Pressure (bar)	BS EN Requirement (bar)	Duration (sec)	BS EN Requirement (sec)	Observation	BS EN Requirement	Test Results
4	4±0.2	60	60±5	No leakage or seepage	The duration of the test there shall be no leakage or seepage through the walls	Pass
0.2	0.2±0.02	60	60±5	No leakage or seepage	The duration of the test there shall be no leakage or seepage through the walls	Pass

3. Pressure Resistance Characteristics

3.1 Mechanical Behaviour Upstream of the Obturator - Obturator in the Closed Position

(Bs EN 200 : 2008, Clause 9.4)

Applied Pressure (bar)	BS EN Requirement (bar)	Duration (sec)	BS EN Requirement (sec)	Observation	BS EN Requirement	Test Results
25	25±0.5	60	60±5	- No permanent deformation	The duration of the test there shall be no permanent deformation in any part of the tapware	Pass

3.2 Mechanical Behaviour Downstream of the Obturator - Obturator in the Open Position

(BS EN 200 : 2008, Clause 9.5)

Flow rate	BS EN Requirement	Duration (sec)	BS EN Requirement (sec)	Observation	BS EN Requirement	Test Results
0.4 l/s	0.4 ±0.04 l/s	60	60±5	- No permanent deformation	The shall be no permanent deformation in any part of the tapware	Pass

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4. Determination of Flow Rate

(BS EN 200 : 2008, Clause 10.1)

Type 1 system (Water supply from mains supply pipe with a pressure range of 0.5 to 10 bar)

Test Position	Running Pressure (bar)	Flow Rate (l/s)
Cold	3.0	0.316

Note: There is no minimum flow requirement as advised by WSD in Circular Letter no. 1/2010

Type 2 system (Gravity water supply from water storage cistern with a pressure range of 0.1 to 10 bar)

Test Position	Running Pressure (bar)	Flow Rate (l/s)
Cold	0.1	0.072

Note: There is no minimum flow requirement as advised by WSD in Circular Letter no. 1/2010

5. Chemical Composition (Body)

Testing items	Results	Specification according to BS EN 12164 : 2016 Grade CW617N
1. Aluminium (Al) content, %	<0.01	0.05 max.
2. Copper (Cu) content, %	57.4	57.0 - 59.0
3. Nickel (Ni) content, %	0.17	0.3 max.
4. Lead (Pb) content, %	1.7	1.6 - 2.5
5. Tin (Sn) content, %	0.27	0.3 max.
6. Zinc (Zn) content, %	40.2	Remainder
7. Iron (Fe) content, %	0.22	0.3 max.
Hence, others content, %	<0.2	0.2 max.

Note : Based on the test results of the submitted sample, it is found that the sample complies with the chemical composition specification of BS EN 12164 : 2016 Grade CW617N.

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6. Chemical Composition (Valve Cartridge)

Testing items	Results	Specification according to BS EN 1982 : 2008 Grade CC754S castings
1. Aluminium (Al) content, %	0.12	0.8 max.
2. Copper (Cu) content, % ¹⁾	58.5	58.0 – 63.0
3. Nickel (Ni) content, %	0.22	1.0 max.
4. Lead (Pb) content, %	1.8	0.5 – 2.5
5. Tin (Sn) content, %	0.45	1.0 max.
6. Zinc (Zn) content, %	38.6	Remainder
7. Iron (Fe) content, %	0.40	0.7 max.
8. Manganese (Mn) content, %	<0.02	0.5 max.
9. Phosphorus (P) content, %	<0.02	0.02 max.
10. Silicon (Si) content, %	0.03	0.05 max.

Remark : ¹⁾ Include nickel

Note : Based on the test results of the submitted sample, it is found that the sample complies with the chemical composition specification of BS EN 1982 : 2008 Grade CC754S castings.

7. Metals Extraction Test for Non-metallic Materials (Plastic Parts of Valve Cartridge)

Test method used : The non-metallic material was immersed in boiling de-ionized water for 5±1 minutes in accordance with Clause 7.3 in BS 6920-3:2000.

The concentration of arsenic, lead, cadmium, chromium, selenium, nickel and antimony of extract were determined by the method specified in BS 6920-2.6:2000+A2:2014 against the maximum allowable values in WHO's Guidelines for Drinking Water Quality - Fourth Edition 2011.

Analyte	Unit	Measurement	Requirement
Arsenic	µg / L	<1	≤ 10
Lead	µg / L	2	≤ 10
Cadmium	µg / L	<0.5	≤ 3
Chromium	µg / L	<1	≤ 50
Selenium	µg / L	<1	≤ 40
Nickel	µg / L	<1	≤ 70
Antimony	µg / L	<2	≤ 20

Overall Result: Pass

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8. Extraction of Metals from the Tapware
 (AS/NZS 4020-2018 Appendix H - In-of-line fittings)
 Extracted at 20°C

Concentration of metals in the final extract	Test Results			Acceptance criteria by AS/NZS 4020:2018 Testing of products for use in contact with drinking water
	Test water blank	PC230206/1	PC230206/2	
1. Chromium content, µg/L	<1	<1	<1	max.50
2. Nickel content, µg/L	<1	<1	<1	max.20

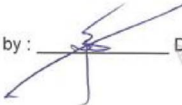

Note

The test results of the submitted sample do meet the acceptance criteria by AS/NZS 4020 : 2018
 Testing of products for use in contact with drinking water.

9. Summary of Results

Dimensions	-- Pass
Leaktightness Characteristics	-- Pass
Pressure Resistance Characteristics	-- Pass
Determination of Flow Rate	-- As shown in section 4
Chemical composition (Body)	-- Pass
Chemical Composition (Valve Cartridge)	-- Pass
Metals extraction test for Non-metallic materials (Plastic Parts of Valve Cartridge)	-- Pass (No adverse physical effect or no toxic hazard to human beings)
Extraction of Metal from the tapware	-- Pass

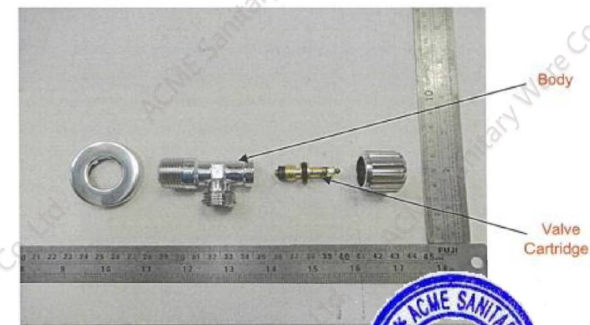
Remarks : 1) This report refers only to the sample(s) tested and the result(s) applied to the sample(s) as received.
 2) Electroplating materials were observed on the internal water passage surfaces of the sample under a non-destructive and unaided visual inspection.

Checked by :  Date : -9 JAN 2024 Certified by :  Date : -9 JAN 2024
 Ng Shu Shing Chris
 Assistant Manager (Plumbing Components)

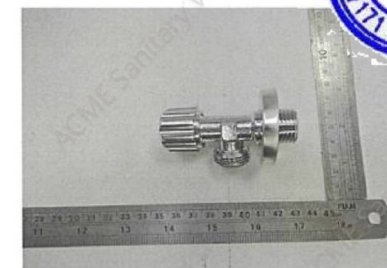


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Test Sample



Test Sample





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Valve Cartridge



Valve Cartridge



Body Marking



Inlet



Outlet

** End of Report **