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Report No. : 200137PC200158(3)

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REPORT ON TESTING OF COPPER ALLOY (BRASS) BALL VALVE WITH SCREW END

Information Supplied by Client

Client : Wah Hung Fire Prevention Equipment Co., Limited
 Client Address : G/F, No.129, Tai Nan Street, Prince Edward, Kowloon, Hong Kong
 Project : Testing of Copper Alloy Ball Valve
 Sample Description : Copper Alloy (Brass) Ball Valve
 Size : DN32 1-1/4"
 Brand : WAH HUNG
 Body Markings :  1 1/4 PN16
 Country of Origin : China
 Model : WH025-B
 Manufacturer : Wah Nan Fire Fighting Equipment Co., Ltd.

Laboratory Information

Lab. Sample I.D. : PC200158/4
 Date Received : 05 June 2020
 Date Test Started : 16 June 2020
 Date Test Completed : 24 June 2020
 Test Method : BS EN 13828 : 2003, BS EN 12164 : 2016 & BS EN 10088-1 : 2014

Test Results

1. Dimensions

BS EN 13828 : 2003 Clause 5.2 and Base on Manufacturer Requirement

Lab. Sample I.D.	Nominal Size (DN)	BS EN Requirement	Result	L (mm)	H (mm)	L1 (mm)	Manufacturer Requirement (mm)			Results
PC200158/4	1-1/4"	1-1/4"	PASS	82	70	138	L	H	L1	Pass
							82	70	138	

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2. Pressure Test

BS EN 13828 : 2003, Clause 7.4.2

Lab Sample I.D.	Shell Test				
	Nominal Pressure PN (bar)	Test Pressure (bar)	Duration (minute)	Observation	Results
PC200158/4	16	25	10	No leakage	Pass
BS EN Requirement	N/A	25±1	10 ⁺¹ ₀	No leakage during the test period	

BS EN 13828 : 2003, Clause 7.4.1

Lab Sample I.D.	Seat Test				
	Nominal Pressure PN (bar)	Test Pressure (bar)	Duration (sec)	Observation	Results
PC200158/4	16	16	60	No leakage	Pass
BS EN Requirement	N/A	16±1	60 ⁺⁵ ₀	No leakage occurs through the valve seat	

Lab Sample I.D.	Seat Test (on the other side)				
	Nominal Pressure PN (bar)	Test Pressure (bar)	Duration (sec)	Observation	Results
PC200158/4	16	16	60	No leakage	Pass
BS EN Requirement	N/A	16±1	60 ⁺⁵ ₀	No leakage occurs through the valve seat	

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3. Chemical Composition (body)

Testing items	Results	Specification according to BS EN 12164 : 2016 Grade CW617N
1. Aluminum (Al) content, %	<0.01	0.05 max.
2. Copper (Cu) content, %	58.1	57.0 - 59.0
3. Nickel (Ni) content, %	0.12	0.3 max.
4. Lead (Pb) content, %	2.0	1.6 - 2.5
5. Tin (Sn) content, %	0.24	0.3 max.
6. Zinc (Zn) content, %	39.3	Remainder
7. Iron (Fe) content, %	0.23	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.

The chemical composition results are obtained from our test report no. 200137EN201517

4. Chemical Composition (Stem)

Testing items	Results	Specification according to BS EN 12164 : 2016 Grade CW617N
1. Aluminum (Al) content, %	<0.01	0.05 max.
2. Copper (Cu) content, %	58.8	57.0 - 59.0
3. Nickel (Ni) content, %	0.13	0.3 max.
4. Lead (Pb) content, %	2.3	1.6 - 2.5
5. Tin (Sn) content, %	0.25	0.3 max.
6. Zinc (Zn) content, %	38.3	Remainder
7. Iron (Fe) content, %	0.19	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.

The chemical composition results are obtained from our test report no. 200137EN201517

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5. Chemical Composition (Ball)

Testing items	Results	Specification according to BS EN 10088-1:2014 Grade X5CrNiMo17-12-2 (1.4401)
1. Carbon (C) content, %	0.04	0.07 max
2. Silicon (Si) content, %	0.45	1.00 max.
3. Manganese (Mn) content, %	0.91	2.00 max.
4. Phosphorus (P) content, %	0.038	0.045 max.
5. Sulfur (S) content, %	<0.005	0.015 max.
6. Chromium (Cr) content, %	16.7	16.5 – 18.5
7. Molybdenum (Mo) content, %	2.00	2.00 – 2.50
8. Nickel (Ni) content, %	10.1	10.0 – 13.0
9. Nitrogen (N) content, %	0.04	0.10 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 10088-1:2014 Grade X5CrNiMo17-12-2 (1.4401).

The chemical composition results are obtained from our test report no. 200137EN201517(1).

6. Summary of Results (apply only to sample tested)

Dimensions -- Pass
Pressure test -- Pass
Chemical composition (Body) -- Pass
Chemical composition (Stem) -- Pass
Chemical composition (Ball) -- Pass

Remarks :
1.) The test results relate only to the samples tested.
2.) The test samples are shown in the photographs on page 5 of this report.
3.) No electroplating materials were observed on the internal water passage surfaces of the sample under a non-destructive and unaided visual inspection.

Checked by :  Date : - 3 AUG 2020 Certified by :  Date : - 3 AUG 2020
Ng Shu Shing Chris
Assistant Manager (Plumping Components)

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Test Sample



Body Marking



Body Marking

****End of Report****