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Report No. : 200862PC200068(2)A

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REPORT ON TESTING OF COPPER ALLOY (BRASS) SWING CHECK VALVE WITH SCREWED ENDS

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
Sample Description : 40mm(1-1/2") Copper Alloy (Brass) Swing Check Valve With Screwed Ends
Model : WH027
Brand : WAH HUNG
Body Marking : 
Country of Origin : China
Manufacturer : Wah Nan Fire Fighting Equipment Co., Ltd.

Laboratory Information

Lab. Sample I.D. : PC200068/3
Date Received : 07 April 2020
Date Test Started : 20 April 2020
Date Test Completed : 21 May 2020
Test Method : BS 5154 : 1991, BS EN 1982 : 2008 and BS EN 10088-1 : 2014

Test Results

1. Dimensions

BS 5154 : 1991 clause 8 and Manufacturer Requirement

Lab. Sample I.D.	Nominal Size (DN)	BS Requirement	L (mm)	H (mm)	Manufacturer Requirement (mm)		Result
					L	H	
PC200068/3	40 mm (1-1/2")	40 mm (1-1/2")	92	63	92	63	PASS

The Female thread comply with BS21 : 1985

2. Shell and Seat Tightness to Internal Pressure

BS 5154 : 1991, Clause 11

Lab Sample I.D.	Shell Test				
	Nominal Pressure PN (bar)	Test Pressure (bar)	Duration (sec)	Observation	Result
PC200068/3	16	24	15	No leakage	Pass
BS 5154 : 1991 Clause 11 Table 11 Requirement	16	16 X 1.5 = 24	15	No leakage during the test period	

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BS 5154 : 1991, Clause 11

Lab Sample I.D.	Seat Test				
	Nominal Pressure PN (bar)	Test Pressure (bar)	Duration (sec.)	Observation	Result
PC200068/3	16	17.6	15	No leakage	Pass
BS 5154 : 1991 Clause 11 Table 11 Requirement	16	16 X 1.1 = 17.6	15	No leakage during the test period	

3. Chemical Composition (Body)

BS 5154 : 1991 clause 10

Testing items	Results	Specification according to BS EN 1982 : 2008 Grade CC754S castings
1. Aluminium (Al) content, %	0.21	0.8 max.
2. Copper (Cu) content, % ¹⁾	62.0	58.0 – 63.0
3. Nickel (Ni) content, %	0.38	1.0 max.
4. Lead (Pb) content, %	2.4	0.5 – 2.5
5. Tin (Sn) content, %	0.63	1.0 max.
6. Zinc (Zn) content, %	34.2	Remainder
7. Iron (Fe) content, %	0.43	0.7 max.
8. Manganese (Mn) content, %	0.03	0.5 max.
9. Phosphorus (P) content, %	<0.02	0.02 max.
10. Silicon (Si) content, %	0.05	0.05 max.

Remark: ¹⁾ Including 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. The chemical composition results are obtained from our test report no. 200862EN201096.

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4. Chemical Composition (Disc)

BS 5154 : 1991 clause 10

Testing items	Results	Specification according to BS EN 1982 : 2008 Grade CC754S castings
1. Aluminium (Al) content, %	0.43	0.8 max.
2. Copper (Cu) content, % ¹⁾	60.7	58.0 – 63.0
3. Nickel (Ni) content, %	0.39	1.0 max.
4. Lead (Pb) content, %	2.5	0.5 – 2.5
5. Tin (Sn) content, %	0.6	1.0 max.
6. Zinc (Zn) content, %	35.2	Remainder
7. Iron (Fe) content, %	0.48	0.7 max.
8. Manganese (Mn) content, %	0.03	0.5 max.
9. Phosphorus (P) content, %	<0.02	0.02 max.
10. Silicon (Si) content, %	0.04	0.05 max.

Remark: ¹⁾ Including 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. The chemical composition results are obtained from our test report no. 200862EN201096.

5. Chemical Composition (Hinge Pin)

BS 5154 : 1991 clause 10

Testing items	Results	Specification according to BS EN 10088-1:2014 Grade X5CrNi18-10 (1.4301)
1. Carbon (C) content, %	0.04	0.07 max
2. Silicon (Si) content, %	0.43	1.00 max.
3. Manganese (Mn) content, %	1.12	2.00 max.
4. Phosphorus (P) content, %	0.019	0.045 max.
5. Sulfur (S) content, %	<0.011	0.015 max.
6. Chromium (Cr) content, %	17.7	17.5 – 19.5
7. Nickel (Ni) content, %	8.2	8.0 – 10.5

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 X5CrNi18-10 (1.4301). The chemical composition results are obtained from our test report no. 200862EN201096(1).

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6. Chemical Composition (Bonnet)

BS 5154 : 1991 clause 10

Testing items	Results	Specification according to BS EN 1982 : 2008 Grade CC754S castings
1. Aluminium (Al) content, %	0.11	0.8 max.
2. Copper (Cu) content, % ¹⁾	59.2	58.0 – 63.0
3. Nickel (Ni) content, %	0.34	1.0 max.
4. Lead (Pb) content, %	2.3	0.5 – 2.5
5. Tin (Sn) content, %	0.83	1.0 max.
6. Zinc (Zn) content, %	37.0	Remainder
7. Iron (Fe) content, %	0.41	0.7 max.
8. Manganese (Mn) content, %	0.03	0.5 max.
9. Phosphorus (P) content, %	<0.02	0.02 max.
10. Silicon (Si) content, %	0.05	0.05 max.

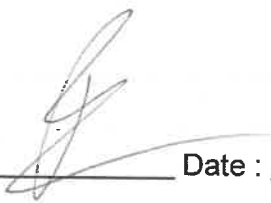

Remark: ¹⁾ Including nickel

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. The chemical composition results are obtained from our test report no.200862EN201676

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

Dimensions	-- Pass
Shell and Seat Tightness to Internal Pressure	-- Pass
Chemical Composition (Body)	-- Pass
Chemical Composition (Disc)	-- Pass
Chemical Composition (Hinge Pin)	-- Pass
Chemical Composition (Bonnet)	-- Pass

- Remarks :
- 1.) The test results relate only to the samples tested.
 - 2.) No coating was visible on the visual internal water contact surface of the sample.
 - 3.) The test sample is shown in the photograph on page 5 of this report.
 - 4.) This report is to supersede our previous test report no.200862PC200068(2).

Checked by :  Date : 28 JUL 2020 Certified by :  Date : 28 JUL 2020
Ng Shu Shing Chris
Assistant Manager (Plumping Components)

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Test Sample



Body Marking



Body Marking

****End of Report****