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

Client Ref. : --
Report No. : 202519PC200090(3)

REPORT ON TESTING OF FLOAT OPERATED GUNMETAL VALVE

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 Float Operated Gunmetal Valve
Sample Description	:	Float Operated Gunmetal Valve
Brand	:	WAH HUNG
Model	:	WH024-80
Boby Marking	:	 DN 80
Country of Origin	:	China
Manufacturer	:	Wah Nan Fire Fighting Equipment Co., Ltd.

Laboratory Information

Lab. Sample I.D.	:	PC200090/4
Date Received	:	07 May 2020 & 05 June 2020
Date Test Started	:	17 June 2020
Date Test Completed	:	16 July 2020
Test Method	:	BS 1212 : part 1 : 1990, BS EN 12164 : 2016 and BS EN 1982 : 2008

Test Results

1. Dimensions

BS 1212 : part 1 : 1990 (Section 3) and Base on Manufacturer Requirement

Lab. Sample I.D.	Nominal Size (DN)	BS Requirement (Nominal Size) (DN)	H1 (mm)	H2 (mm)	Manufacturer Requirement		Results
					H1 (mm)	H2 (mm)	
PC200090/4	80mm (3")	80mm (3")	90	130	90	130	Pass

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2. HYDRAULIC PRESSURE TEST

(BS 1212 : Part 1 : 1990,cluase 24)

Lab Sample I.D.	Hydraulic pressure test			
PC200090/4	Test Pressure (bar)	Duration (min.)	Observation	Remark
	20	15	No leakage was detected during the test	Pass
BS Requirement	20	15 $^{+1}_{-0}$	No leakage or sweating	--

3. SHUT-OFF TEST

(BS 1212 : Part 1 : 1990,cluase 24)

Lab Sample I.D.	Shut-off test				
PC200090/4		Test Pressure (bar)	Duration (sec.)	Observation	Remark
	1st test	3	60	No leakage was detected during the test	Pass
	2nd test	7			
	3rd test	14			
BS Requirement	for low pressure valve	3	--	No leakage	--
	for medium pressure valve	7			
	for high pressure valve	14			

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4. Chemical Composition (Body)

Testing items	Results	Specification according to BS EN 1982 : 2008 Grade CC491K castings
1. Copper (Cu) content, %	86.1	83.0 – 87.0 [1)]
2. Nickel (Ni) content, %	0.27	2.0 max.
3. Phosphorus (P) content, %	<0.03	0.10 max.
4. Lead (Pb) content, %	4.8	4.0 – 6.0
5. Tin (Sn) content, %	4.5	4.0 – 6.0
6. Zinc (Zn) content, %	4.5	4.0 – 6.0
7. Aluminium (Al) content, %	<0.01	0.01 max.
8. Iron (Fe) content, %	<0.04	0.3 max.
9. Sulfur (S) content, %	<0.04	0.10 max.
10. Antimony (Sb) content, %	0.04	0.25 max.
11. Silicon (Si) content, %	<0.01	0.01 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 CC491K castings.
The chemical composition results are obtained from our test report no. 20259EN201532

5. Chemical Composition (Piston)

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, %	58.2	57.0 – 59.0
3. Nickel (Ni) content, %	<0.08	0.3 max.
4. Lead (Pb) content, %	1.8	1.6 – 2.5
5. Tin (Sn) content, %	0.13	0.3 max.
6. Zinc (Zn) content, %	39.7	Remainder
7. Iron (Fe) content, %	0.13	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. 202519EN201714.

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6. Chemical Composition (Lever)

Testing items	Results	Specification according to BS EN 1982 : 2008 Grade CC491K castings
1. Copper (Cu) content, %	86.4	83.0 – 87.0 [1)]
2. Nickel (Ni) content, %	0.27	2.0 max.
3. Phosphorus (P) content, %	<0.03	0.10 max.
4. Lead (Pb) content, %	4.5	4.0 – 6.0
5. Tin (Sn) content, %	4.6	4.0 – 6.0
6. Zinc (Zn) content, %	4.3	4.0 – 6.0
7. Aluminium (Al) content, %	<0.01	0.01 max.
8. Iron (Fe) content, %	<0.04	0.3 max.
9. Sulfur (S) content, %	<0.04	0.10 max.
10. Antimony (Sb) content, %	0.05	0.25 max.
11. Silicon (Si) content, %	<0.01	0.01 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 CC491K castings.
The chemical composition results are obtained from our test report no. 20259EN201532

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

Dimensions	-- Pass
Hydraulic Pressure Test	-- Pass
Shut-off Test	-- Pass
Chemical composition (Body)	-- Pass
Chemical composition (Piston)	-- Pass
Chemical composition (Lever)	-- Pass

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

Checked by : _____ Date : 21 JUL 2020 Certified by : _____ Date : 21 JUL 2020

Ng Shu Shing Chris
Assistant Manager (Plumping Components)

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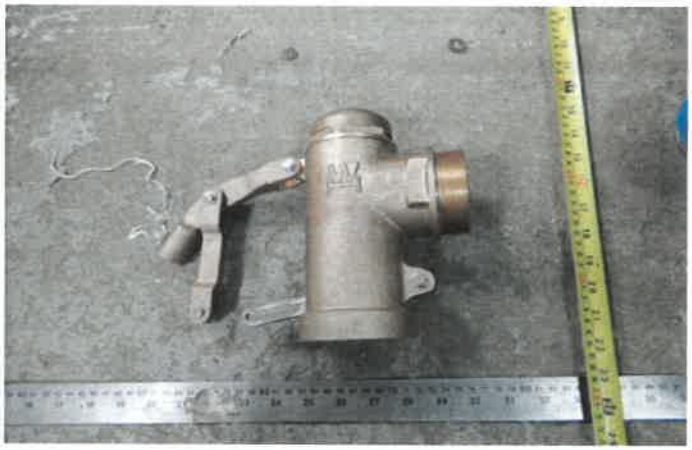
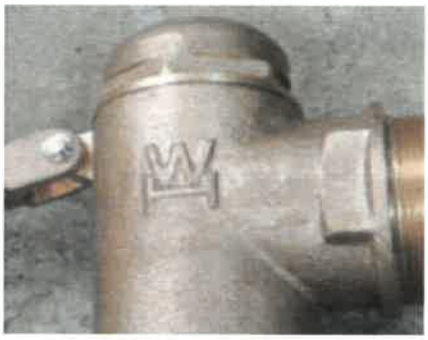


Test Sample

Test Sample



Body Marking

** End of Report **

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