




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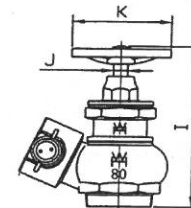
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REPORT ON TESTING OF HYDRANT VALVE

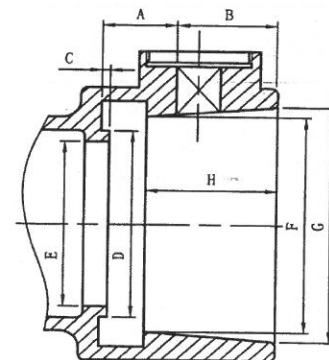
Information Supplied by Client

Client : Wah Hung Fire Prevention Equipment Co., Limited
 Address : G/F, No.129, Tai Nan Street, Prince Edward, Kowloon, Hong Kong
 Sample Description : 80mm Gunmetal hydrant outlet valve with built-in pressure reducing function (2:1), 3" BSP male inlet and 2 1/2" female instantaneous type outlet ; for high pressure application
 Brand : WAH HUNG
 Country of Origin : China
 Model : WH008
 Body Marking :  108
 Bonnet Marking : 2x1
 Manufacturer : Wah Nan Fire Fighting Equipment Co., Ltd.



Laboratory Information

Lab. Sample I.D. : PC200277/7
 Date Received : 21 September 2020, 06 October 2020 & 28 November 2020
 Date Test Started : 21 September 2020
 Date Test Completed : 02 December 2020
 Test Method : BS 5041: Part 1 : 1987 : BS336 : 2010 ,
 BS EN 1982 : 2008 & BS EN 12164 : 2016



Test Results

1. DIMENSIONS

(Clause 9 Figure 5a of 336 : 2010)

		Sample (mm)	BS Requirement (mm)	Remark
Nominal size (mm)		80	-	--
Diameter of handwheel (K) (mm)		135	-	
Height of valve (I)	fully open (mm)	241	-	
	fully closed (mm)	221	-	
Minimum wall thickness (mm)		4.4	min.3.6 (BS5154 PN20)	Pass
Stem diameter		19.05	min.19 (BS5041)	

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	Results	BS Requirement	Remark
A (mm)	22.1	22±0.25	Pass
B (mm)	29.1	29±0.25	
C (mm)	3.1	3±0.25	
D (mm)	60.0	60±0.25	
E (mm)	53.0	53max.	
F (mm)	71.0	71±0.1	
G (mm)	74.8	74.8±0.1	
H (mm)	37.1	37±0.25	

2. Water Flow Rate and Outlet Pressure Test (High Pressure Valve)

(BS5041 part 1 clause 22)

Valve type	Inlet pressure (bar)	Flow rate (L/s)	Outlet pressure (bar)	BS Requirement		Result
				Flow rate (L/s)	Outlet pressure (bar)	
High Pressure	7.50	8.58	2.44	8.5±0.5	--	Pass
	12.54	8.87	4.76	8.5±0.5	4.5±0.5	
	17.84	8.77	4.50	8.5±0.5	4.5±0.5	
	19.99	8.62	4.36	8.5±0.5	4.5±0.5	
	14.88	8.51	4.54	--	--	
	9.93	8.68	3.57	--	below 4.0 bar	

3. Hydraulic pressure test (High Pressure Valve)

(BS5041 part 1 clause 19)

	Body Test			Seat Test		
	Test Pressure (bar)	Duration (min)	Remark	Test Pressure (bar)	Duration (min)	Remark
Sample	30	2	Pass	22	2	Pass
BS Requirement for low pressure valve	30	2	-	22	2	-

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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, %	85.1	83.0 - 87.0 ¹⁾
2. Nickel (Ni) content, %	0.28	2.0 max.
3. Phosphorus (P) content, %	<0.03	0.10 max.
4. Lead (Pb) content, %	5.3	4.0 - 6.0
5. Tin (Sn) content, %	4.9	4.0 - 6.0
6. Zinc (Zn) content, %	4.4	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, %	0.07	0.25 max.
11. Silicon (Si) content, %	<0.01	0.01 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 CC491K castings

The chemical composition results are obtained from our test report no. 205153EN202845(2)

5. Chemical Composition (Disc)

Testing items	Results	Specification according to BS EN 1982 : 2008 Grade CC491K castings
1. Copper (Cu) content, %	85.8	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, %	5.1	4.0 - 6.0
5. Tin (Sn) content, %	4.7	4.0 - 6.0
6. Zinc (Zn) content, %	4.1	4.0 - 6.0
7. Aluminium (Al) content, %	<0.01	0.01 max.
8. Iron (Fe) content, %	0.05	0.3 max.
9. Sulfur (S) content, %	<0.04	0.10 max.
10. Antimony (Sb) content, %	0.07	0.25 max.
11. Silicon (Si) content, %	<0.01	0.01 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 CC491K castings

The chemical composition results are obtained from our test report no. 205153EN202845(2)

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6. Chemical Composition (Bonnet)

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, %	57.8	57.0 – 59.0
3. Nickel (Ni) content, %	<0.08	0.3 max.
4. Lead (Pb) content, %	1.9	1.6 – 2.5
5. Tin (Sn) content, %	0.11	0.3 max.
6. Zinc (Zn) content, %	40.0	Remainder
7. Iron (Fe) content, %	0.16	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. 205153EN203033.

7. Chemical Composition (Stem)

Testing items	Results	Specification according to BS EN 12164 : 2016 Grade CW614N
1. Aluminium (Al) content, %	0.02	0.05 max.
2. Copper (Cu) content, %	57.5	57.0 – 59.0
3. Nickel (Ni) content, %	<0.08	0.3 max.
4. Lead (Pb) content, %	2.7	2.5 – 3.5
5. Tin (Sn) content, %	0.18	0.3 max.
6. Zinc (Zn) content, %	39.3	Remainder
7. Iron (Fe) content, %	0.16	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 CW614N.

The chemical composition results are obtained from our test report no. 205153EN203033.

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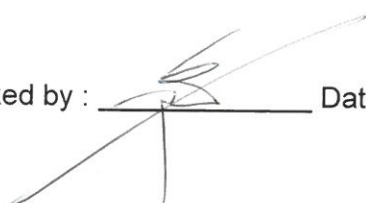

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8. Summary of Results

Dimension	-- Pass
Water Flow Rate and Outlet Pressure Test	-- Pass
Hydraulic pressure test	-- Pass
Chemical Composition (Body)	-- Pass
Chemical Composition (Disc)	-- Pass
Chemical Composition (Bonnet)	-- Pass
Chemical Composition (Stem)	-- Pass

Remarks : The test results relate only to the samples tested.

Checked by :  Date : - 8 DEC 2020 Certified by :  Date : - 8 DEC 2020
Ng Shu Shing Chris
Assistant Manager (Plumbing Components)

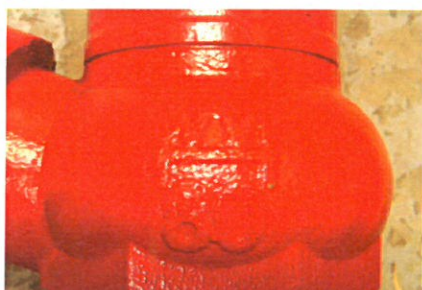
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Test Sample



Body Marking



Body Marking



Bonnet Marking

****End of Report****