



ZHEJIANG HAIVO ELECTRICAL CO., LTD.

Test report

Experimental unit: ZHEJIANG HAIVO ELECTRICAL CO., LTD.

Test products: SURGE ARRESTERS

Product model: YH10W-15kV

Inspection time: 2024.12.21

Inspection sites: Chongshi Industrial Zone, Panshi, Beibaixiang, Yueqing, Zhejiang, China



ZHEJIANG HAIVO ELECTRICAL CO., LTD.		Survey report	YH10W-15kV SURGE ARRESTERS
General			
Test category	Factory Report		
Type and name of the samples	YH10W-15kV		
Test Parties	Zhejiang Haivo Electrical Co., Ltd.		
Test site	Chongshi industrial zone, panshi, yueqing, wenzhou, zhejiang, china		
Manufacturer	Zhejiang Haivo Electrical Co., Ltd.		
Inspection time	2024.12.21		
Production quantity	300		
Number of tests	5		
Main technical parameters	Rated voltage (kV)	15	
	Max continuous Operating Voltage (kV)	12.7	
	Structure height	177±10mm	
	Minimum creepage distance	390mm	
	Nominal discharge current	10kA	
	Maximum residual voltage at lightning current impulse 8/20 μ S (kV)	49KV	

ZHEJIANG HAIVO ELECTRICAL CO., LTD.		Survey report	YH10W-15kV SURGE ARRESTERS
Test conclusion			
Client	Zhejiang Haivo Electrical Co., Ltd.		
Type of the samples	YH10W-15kV		
Name of the sample	SURGE ARRESTERS		
Manufacturer	Zhejiang Haivo Electrical Co., Ltd.		
Test items and results	Visual inspection		PASS
	Dimensional verification		PASS
	1 mA DC reference voltage test	26±0.3kV	PASS
	0.75 mA Leakage current	< 15μA	
	Power frequency Reference voltage test[voltage at resistive current of 1mA≥15kV(peak/√2)]		PASS
	Partial discharge < 10pc		PASS
Maximum residual voltage at lightning current impulse		PASS	
8/20 μ S≤49kV			
Test standard	IEC 60099-4:2014 Surge arresters-Part 4: Metal-oxide surge arresters without gaps for a.c. systems		
Test conclusion	The factory acceptance are carried out on YH10W-15kV surge arresters without gaps,Zhejiang Haivo Electrical Co.,Ltd.,the test items meet the above test standard and technical specifications,and the sample has passed the tests.		



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Visual examination			
Test date:2024.12.21			
1.Test result			
Number	Appearance inspection standard of test specimen		Test result
1	Single defect area of appearance surface less than 25mm² Depth is not greater than 1.0mm Protruding height is not greater than 0.8mm Bond joint Protruding height is not greater than 1.2mm Total defect area is less than 0.2% of total area of housing		Pass
2			Pass
3			Pass
4			Pass
5			Pass
Note:/			



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Dimensional verification

Test date:2024.12.21

1.Test result

Number	Structural height 177±10mm	Creepage distance 390mm	Umbrella diameter 1 Ø107mm	Rod diameter Ø52mm
1	178	395	107.03	51.75
2	177	393	106.97	51.88
3	178	398	107.10	51.92
4	178	395	107.05	51.87
5	178	398	106.92	51.90

Note:Unless otherwise agreed, a tolerance of
 $\pm (0,04 \times d + 1,5)$ mm when $d \leq 300$ mm,
 $\pm (0,025 \times d + 6)$ mm when $d > 300$ mm with a maximum tolerance of ± 50 mm,
 Shall be allowed on all dimensions for which specific tolerances are not requested or given on the insulator drawing (d being the dimension in millimetres) .
 The measurement of creepage distances shall be related to the design dimensions and tolerances as determined from the insulator drawing,even if this dimension is greater than the value originally specified. When a minimum creepage is specified,the negative tolerance is also limited by this value.



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1 mA DC reference voltage test/0.75 mA Leakage current

Test date:2024.12.21

1.result

Number	1 mA DC reference voltage 26±0.3kV	0.75 mA Leakage current < 15 μA
1	26.1	3
2	26.0	2
3	26.2	3
4	26.1	1
5	26.0	2

Note:measure the leakage current through the sample. If the leakage current is related by polarity, the higher value is reported,



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Power frequency Reference voltage test

Test date:2024.12.21

1.result

Number	Voltage at resistive current of 1mA (kV)	
	Required value	Measured value
1	≥15kV	18.12
2	≥15kV	18.05
3	≥15kV	18.44
4	≥15kV	18.23
5	≥15kV	18.02

Note:power-frequency voltage is applied to the surge arrester.When resistive current flowing through the sample is equal to 1mA,peak of power-frequency voltage of the sample should be measured.The reference voltage is equal to peak value of power-frequency voltage divided by $\sqrt{2}$,when the reference voltage is correlated with polarity, it should be adopted the min.value.



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Partial discharge		
Inspection Date: 2024.12.21		
1.result		
Test serial number	Partial discharge < 10 PC	
1	1.8	
2	2.0	
3	1.9	
4	1.8	
5	1.8	
<p>Note: The power frequency voltage increases to the rated voltage of the sample, maintains 2S~10S, and then drops to 1.05 times the continuous operating voltage of the sample. At this voltage, the internal partial discharge measurement value does not exceed 10 PC(IEC 60270)</p> <div style="text-align: right; margin-top: 200px;">  </div>		

ZHEJIANG HAIVO ELECTRICAL CO., LTD.	Survey report	YH10W-15kV SURGE ARRESTERS
Maximum residual voltage at lightning current impulse 8/20 μ S		
<p style="text-align: right;">Inspection Date: 2024.12.21</p>		
1.result		
Test serial number	RESIDUAL VOLTAGE≤49kV	
<p style="text-align: center;">1</p>	<p style="text-align: center;">48</p>	
<p style="text-align: center;">2</p>	<p style="text-align: center;">48</p>	
<p style="text-align: center;">3</p>	<p style="text-align: center;">48</p>	
<p style="text-align: center;">4</p>	<p style="text-align: center;">48</p>	
<p style="text-align: center;">5</p>	<p style="text-align: center;">48</p>	
additional remarks: NO		

