

# TEST REPORT

on behalf of

ZHEJIANG YUNDA FLUID INTELLIGENT  
CONTROL CO.,LTD.

Angle valve series

M/N: See Annex

Prepared For: ZHEJIANG YUNDA FLUID INTELLIGENT CONTROL CO.,LTD.  
NO.17 QINGHUA NORTH ROAD QINGGANG TOWN, YUHUAN,  
ZHEJIANG,CHINA

Prepared By: Shanghai Global Testing Services Co., Ltd.  
Floor 2nd, Building D-1, No. 128, Shenfu Road, Minhang District,  
Shanghai, China.

Report No.: TPZJ18081415141  
Date of Test: Sep. 09, 2018 to Sep. 13, 2018  
Date of Report: Sep. 13, 2018



## Test Report

No. TPZJ18081415141

Date: Sep. 13, 2018

The following sample(s) was/were submitted and identified by the client as:

<b>Sample Description</b>	<b>: Angle valve series</b>
<b>Style/Item No.</b>	<b>: See Annex</b>
<b>Manufacturer</b>	<b>: ZHEJIANG YUNDA FLUID INTELLIGENT CONTROL CO.,LTD. NO.17 QINGHUA NORTH ROAD QINGGANG TOWN, YUHUAN, ZHEJIANG,CHINA</b>
<b>Sample Receiving Date</b>	<b>: Sep. 09, 2018</b>
<b>Testing Period</b>	<b>: Sep. 09, 2018 to Sep. 13, 2018</b>
<b>Testing Performed</b>	<b>: SELECTED TEST(S) AS REQUESTED BY APPLICANT</b>
<b>Test Requested</b>	<b>: EN 331:2015 Manually operated ball valves and closed bottom taper plug valves for gas installations in buildings</b>
<b>Test Result(s)</b>	<b>: FOR FUTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)</b>
<b>Conclusion</b>	<b>: THE SUBMITTED SAMPLE MET THE TEST REQUIREMENT</b>



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<b>Possible test case verdicts :</b>	
test case does not apply to the test object .... :	N(.A.)
test object does meet the requirement ..... :	P(ass)
test object does not meet the requirement.....:	F(ail)
<b>Name and address of the testing laboratory :</b> Shanghai Global Testing Services Co., Ltd. Floor 2nd, Building D-1, No. 128, Shenfu Road, Minhang District, Shanghai, China.	
<b>Reported by :</b>	<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;">             Signature         </div> <div style="text-align: right;">           _____            Date: 2018-09-13         </div> </div> <div style="margin-top: 20px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>Linda lin / Project Engineer</p>           Name and Title         </div> <div style="text-align: center;">  </div> </div> </div>
<b>Approved by :</b>	<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;">             Signature         </div> <div style="text-align: right;">           _____            Date: 2018-09-13         </div> </div> <div style="margin-top: 20px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>Sophia / Manger</p>           Name and Title         </div> </div> </div>



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### Annex

YD101B	1/2"*3/8"	YD301B	1/2"*3/4	YD603	1/2"
YD101B	1/2"*1/2	YD301C	1/2"*3/8	YD604	1/2"
YD101B	1/2"*3/4	YD301A	1/2"*3/8	YD604-C	1/2"
YD101B-M	1/2"*3/8	YD306	1/2"*3/8	YD605	1/2"
YD101B-M	1/2"*1/2	YD306	1/2"*1/2	YD605	1/2"
YD101B-M	1/2"*3/4	YD350B	1/2"*3/8	YD941	1/2"*3/4
YD101B-A	1/2"*3/8	YD350B	1/2"*1/2	YD942	1/2"*150mm
YD101B-A	1/2"*1/2	YD350B	1/2"*3/4	YD942	1/2"*100mm
YD101B-A	1/2"*3/4	YD301C-T	3/8"*3/8*10mm	YD940	1/2"*150mm
YD101B-AM	1/2"*3/8	YD301C-T	1/2"*3/8*10mm	YD940	1/2"*100mm
YD101B-AM	1/2"*1/2	YD351C	1/2"*3/8*10mm	YD912	1/2"*3/4
YD101B-H	1/2"*1/2	YD307-S	1/2"*3/8	YD913A	1/2"*3/4*3/4
YD101B-H	1/2"*1/2	YD307-S	1/2"*1/2	YD913	1/2"*3/4*3/4
YD101B-H	1/2"*1/2	YD307	1/2"*3/8	YD902	1/2"
YD101B-H	1/2"*1/2	YD307	1/2"*1/2	YD911	1/2"
YD101C	1/2"*3/8*10mm	YD308	1/2"*1/2	YD911A	1/2"
YD101A	1/2"*3/8*10mm	YD309	1/2"*1/2	YD905	1/2"
YD101B-L1/2*3/8	YD310	1/2"*3/8	YD905	3/4"	
YD101B-L1/2*1/2	YD310	1/2"*1/2	YD905	1"	
YD131	1/2"*1/2	YD310	1/2"*3/4	YD906	1/2"
YD104	1/2"*3/4	YD360	1/2"*1/2	YD906	3/4"
YD105	1/2"*3/4	YD361	1/2"*1/2	YD906	1"
YD106	1/2"*3/4	YD315-S	1/2"*1/2*1/2	YD908	1/2"
YD108	1/2"*3/8	YD315-Q	1/2"*1/2*1/2	YD908	3/4"
YD108	1/2"*1/2	YD314	1/2"*3/4	YD917-C	1/2"
YD108	1/2"*3/4	YD314-C	1/2"*3/4	YD917-M	1/2"
YD110	1/2"*3/4*3/8	YD361	1/2"*1/2	YD920	1/2"
YD201B	1/2"*3/8	YD311	1/2"*3/4	YD921	1/2"
YD201B	1/2"*1/2	YD365	1/2"*1/2	MINI-101	1/2MM
YD201B	1/2"*3/4	YD331	1/2"*1/2	MINI-101	3/8MM
YD201C	1/2"*3/8	YD331	1/2"*3/4	MINI-101	3/4MM
YD201A	1/2"*3/8	YD318	1/2M*1/2F*1/2M	MINI-102	1/4MF
YD206B	1/2"*3/8	YD318	1/2M*1/2F*3/4M	MINI-102	3/8MF
YD206B	1/2"*1/2	YD319	1/2M*3/4F*3/4M	MINI-102	1/2MF
YD206B	1/2"*3/4	YD320	3/4F*3/4M*3/4M	MINI-102	3/4MF
YD206C	1/2"*3/8	YD321	3/4F*3/4M*3/4M	MINI-103	1/4FF
YD206A	1/2"*3/8	YD316	1/2M*3/4M*3/8M	MINI-103	3/8FF

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YD204B 1/2\*3/4 YD316 1/2M\*3/4M\*1/2M\*10mm MINI-103 1/2FF  
YD204C 1/2\*3/8 YD316 1/2M\*3/4M\*3/8M\*10mm MINI-104 1/4MF  
YD204A 1/2\*3/8 YD316A-C 1/2M\*3/4M\*3/8M\*10mm MINI-104 3/8MF  
YD210D 1/2\*10mm YD316A 1/2M\*3/4M\*3/8M\*10mm MINI-104 1/2MF  
YD213 1/2\*10mm YD317 1/2M\*3/4M\*3/8M\*10mm MINI-104 3/4MF  
YD204D 1/2\*3/8\*10mm YD366 3/8\*3/4\*3/8\*10MM MINI-105 1/4MF  
YD206D 1/2\*3/8\*10mm YD501 1/2\*3/8 MINI-105 3/8MF  
YD208D 1/2\*3/8\*10mm YD501 1/2\*1/2 MINI-105 1/2MF  
YD401 1/2\*3/8 YD501 1/2\*3/4 MINI-105 3/4MF  
YD401 1/2\*1/2 YD502 1/2\*3/8 YD805 1/2\*1/2  
YD401 1/2\*3/4 YD502 1/2\*1/2 YD806 1/2\*1/2  
YD401 1/2\*3/4 YD502 1/2\*3/4 YD807 1/2\*1/2  
YD402 1/2\*1/2 YD522 1/2\*1/2 YD808 1/2\*1/2  
YD402 1/2\*3/4 YD520 1/2\*1/2 YD811 1/2\*1/2  
YD403 1/2\*3/4 YD521 1/2\*1/2 YD812 1/2\*1/2  
YD404 1/2\*3/4 YD503 1/2\*3/8 YD809 1/2\*1/2  
YD405 1/2\*3/8 YD503 1/2\*1/2 YD810 1/2\*1/2  
YD405 1/2\*1/2 YD512 1/2\*1/2 YD813 1/2\*1/2  
YD405 1/2\*3/4 YD501-L 1/2\*3/8\*10MM YD814 1/2\*1/2  
YD430 1/2\*1/2 YD502-L 1/2\*3/8 YD501D 1/2\*1/2\*1/2  
YD430 1/2\*3/4 YD502-L 1/2\*1/2 YD521D 1/2\*1/2\*1/2  
YD407 1/2\*1/2 YD502-L 1/2\*3/4 YD524D 1/2\*1/2\*1/2  
YD411 1/2M\*1/2F\*3/4M YD601 1/2\*3/8\*10MM YD525D 1/2\*1/2\*1/2  
YD409 1/2M\*1/2F\*3/4M YD602 1/2\*3/8\*10MM  
YD410 1/2M\*1/2F\*3/4M YD607-Z 1/2\*1/2  
YD301B 1/2\*3/8 YD607-B 1/2\*1/2  
YD301B 1/2\*1/2 YD608 Diameter:50mm  
F101 F102 F104 F105MM F203 F105 F202 F223 F205 F106  
F207 F107 F225 F221 F222 F120 F109 F108 F215 F113 F214 F112  
F110 F3812 F1212-20 F213 F216 F114 F218 F115

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## Artwork of Marking Label





## Test Report

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**Test Conducted:**

**EN 331:2015 Manually operated ball valves and closed bottom taper plug valves for gas installations in buildings**

Test Property	Test Method	Test Principle / Requirements	The Result
<b>4 Classification</b>			
Pressure classes	EN 331:2015 Clause 4.1	The valves are divided into three classes	<b>P</b>  5 MPO
Temperature classes	EN 331:2015 Clause 4.2	The valves are divided into three temperature classes	<b>P</b>  -40°C
<b>5 Construction requirements</b>			
<b>5.1 General</b>			
<b>5.1.1 Materials</b>			
	EN 331:2015 Clause 5.1.1.1	Any part in contact with the gas or the surrounding atmosphere, shall be manufactured from corrosion-resistant materials or shall be suitably protected and shall withstand the humidity test in 7.6.5 and the paint scratch test in 7.6.4.	<b>P</b>
	EN 331:2015 Clause 5.1.1.2	For welded valves, the tests in 7.6.5 and 7.6.4 shall apply only to moving parts in contact with the gas and to any part in contact with the surrounding atmosphere.	<b>P</b>
	EN 331:2015 Clause 5.1.1.3	Surfaces which are protected by a coating, shall withstand the test of 7.6.4 before and after the humidity test of 7.6.5, without the ball penetrating the protective coating to expose bare metal.	<b>P</b>
	EN 331:2015 Clause 5.1.1.4	Springs and other moving parts which shall be suitably protected against corrosion and shall retain their protective coating despite any	<b>P</b>



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Test Property	Test Method	Test Principle / Requirements	The Result
		movement resulting from the operation of the valve. After the test of 6.6 these parts shall withstand the test of 7.6.5.	
	EN 331:2015 Clause 5.1.1.5	All markings shall be durable and resistant to atmospheric conditions. Labels and their markings shall neither deteriorate nor lift nor become unreadable by humidity and temperature.	<b>P</b>
	EN 331:2015 Clause 5.1.1.6	Rubber materials shall conform to EN 549.	<b>P</b>
	EN 331:2015 Clause 5.1.1.7	Lubricants shall conform to EN 377.	<b>P</b>
	EN 331:2015 Clause 5.1.1.8	The valve shall be made in one of the following materials: —copper alloy excluding aluminium-bronze —ductile cast iron excluding laminar cast iron —forged steel and cast steel	<b>P</b> copper alloy
<b>5.1.2 Construction</b>			
General	EN 331:2015 Clause 5.1.2.1	Valves shall be designed such that, once installed, it is impossible to remove the closure member or a seal without damaging the valve or leaving clear signs of tampering on it.	<b>P</b> Be impossible to remove the closure member after be installed
Product appearance	EN 331:2015 Clause 5.1.2.2	All valve components shall be free from burrs and clean (e.g. free from swarf and core-sand), and shall be of sound manufacture. All valve components shall be free from sharp edges and corners which could cause damage, injury or incorrect operation, when viewed with the naked eye.	<b>P</b> Be free from burrs, clean, sharp edges and corners





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Test Property	Test Method	Test Principle / Requirements	The Result
Valve maintenance	EN 331:2015 Clause 5.1.2.3	Valves designed to be maintained shall be such that it is difficult to remove parts serving to seal against gas without specialist knowledge and that any tampering is evident and incorrect reassembly is impossible. Seals for moving parts which separate gas ways from the atmosphere, shall maintain their original leak-tightness without any manual adjustment.	<b>P</b>
Springs	EN 331:2015 Clause 5.1.2.4	If a spring is used, the two end-faces of the spring shall be parallel and perpendicular to the axis of the spring. The end coils of a spring shall not damage their mating faces.	<b>N</b>
Wall thickness	EN 331:2015 Clause 5.1.2.5	The wall thickness from any gas way to atmosphere or to holes connected to the atmosphere, shall not be less than 1 mm.	<b>P</b> > 1mm
Plug valves	EN 331:2015 Clause 5.1.2.6		<b>N</b>
Angular seal	EN 331:2015 Clause 5.1.2.7	With the valve in the fully closed position, the angular distance between the gas port in the closure member and both the inlet port and outlet port in the valve body, shall be at least 8° uncertainty of 1°, when measured according to 7.7 with a measurement	<b>P</b> At least 8°
<b>5.1.3 Connections</b>			
<b>5.1.3.1 Threads</b>			
	EN 331:2015 Clause 5.1.3.1.1	Threaded inlet and outlet connections for valves with pressure-tight joints made on the threads, shall conform to ISO 7.	<b>P</b>
	EN 331:2015 Clause	Where threads for non pressure-tight joints are required, they shall conform	<b>N</b>



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Test Property	Test Method	Test Principle / Requirements	The Result
	5.1.3.1.2	to ISO 228 or ISO 261.	
	EN 331:2015 Clause 5.1.3.1.3	Valves with threaded connections shall have flats on the body which, when used for fitting, shall accommodate commercially available tools.	<b>P</b>
Flanges	EN 331:2015 Clause 5.1.3.2		<b>N</b>
Capillary joints	EN 331:2015 Clause 5.1.3.3		<b>N</b>
Union connections	EN 331:2015 Clause 5.1.3.4		<b>N</b>
Compression joints	EN 331:2015 Clause 5.1.3.5		<b>N</b>
Weld ends	EN 331:2015 Clause 5.1.3.6		<b>N</b>
Seals	EN 331:2015 Clause 5.1.4	Sealing on the closure member shall be constructed so that tightness is achieved by mechanical means. This excludes all sealing materials such as liquids, pastes, and tapes.	<b>P</b>
<b>5.2 Operation</b>			
	EN 331:2015 Clause 5.2.1	Valves shall be constructed so that they can be operated by means of a manual actuator such as a handle, key or similar device.	<b>P</b>
Valves operated by turning shall close in a clockwise direction.	EN 331:2015 Clause 5.2.2	The rotation from open to closed shall be a quarter turn. If the manual actuator is detachable then the end of the operating shaft shall be marked so that the open and closed positions are clearly indicated.	<b>P</b>  By a handle, close in a clockwise direction
Stops	EN 331:2015 Clause 5.3	On valves, the end positions "open" and "closed" shall be clearly identified	<b>P</b>  <b>S</b>



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Test Property	Test Method	Test Principle / Requirements	The Result
		and limited by fixed, non-adjustable stops. The manual actuator shall be designed so that it is: —at right angles to the direction of the flow for the closed position; —parallel with the direction of the flow for the open position.	“ON” and “OFF” be clearly identified
High temperature resistance	EN 331:2015 Clause 5.4	See annex C.	<b>P</b>  EN 1775 be used
<b>6 Performance requirements</b>			
General	EN 331:2015 Clause 6.1	The maximum operating temperature shall be at least 60 8C and the minimum operating temperature not higher than 25 8C or 220 8C or 240 8C, as declared by the manufacturer.	<b>P</b>  The max. operating Temperature more than 60°C, the min. not higher than -40°C
Leak-tightness	EN 331:2015 Clause 6.2	The valve shall be leak-tight. Valves which may be serviced shall be leak-tight after dismantling and reassembling of the closure parts.	<b>N</b>
Rated flow rate	EN 331:2015 Clause 6.3	The rated flow rate shall not be less than the value specified in Table 3 when tested in accordance with 7.3.	<b>P</b>  Straight: 6.5 m <sup>3</sup> /h
Operating torque	EN 331:2015 Clause 6.4	The torque required for the preliminary cycle shall not be greater than three times the maximum value at the ambient temperature given for the size of the valve. The operating torque shall not exceed the values given in Table 4, when tested in accordance with 7.4.	<b>P</b>  Ambient temperature : 5.8N.m Low temperature: 12.6N.m



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Test Property	Test Method	Test Principle / Requirements	The Result
Torque and bending resistance	EN 331:2015 Clause 6.5	The valves shall resist the stresses resulting from their installation and during service. They shall also meet the requirements for internal and external leak-tightness and ease of operation.	<b>P</b> MF <sub>1</sub> : 100N.m MF <sub>2</sub> : 52N.m MT <sub>1</sub> : 78N.m MT <sub>2</sub> : 45N.m
<b>6.6 Durability</b>			
Endurance	EN 331:2015 Clause 6.6.1	After the endurance test the valve shall conform to the requirements for external and internal leak-tightness at ambient temperature and at (60 ± 5) 8C in accordance with 6.2. After cooling to ambient temperature it shall conform to the requirements for operating torque in accordance with 6.4.	<b>P</b> Number of operations: 5000
Resistance to low temperature	EN 331:2015 Clause 6.6.2	The valve shall conform to the requirements given in 6.2 and 6.4, when tested in accordance with 7.6.2.	<b>P</b> Ambient temperature : 8.6N.m Low temperature: 30N.m
<b>6.7 Stop resistance</b>			
		When tested in accordance with 7.8, the force required to overcome the stops in the open or closed position shall exceed, at a minimum 1,5 times the maximum operation torque, at ambient temperature (see Table 4).	<b>P</b> Ambient temperature : 5.8N.m Low temperature: 12.6N.m
<b>7 Test methods</b>			
<b>8 Marking, installation and operating</b>			
Marking of the valve	EN 331:2015 Clause 8.1	The following information, at least, shall be durably marked on the valve in a clearly visible position: a) manufacturer's name or	<b>P</b> a) SLD

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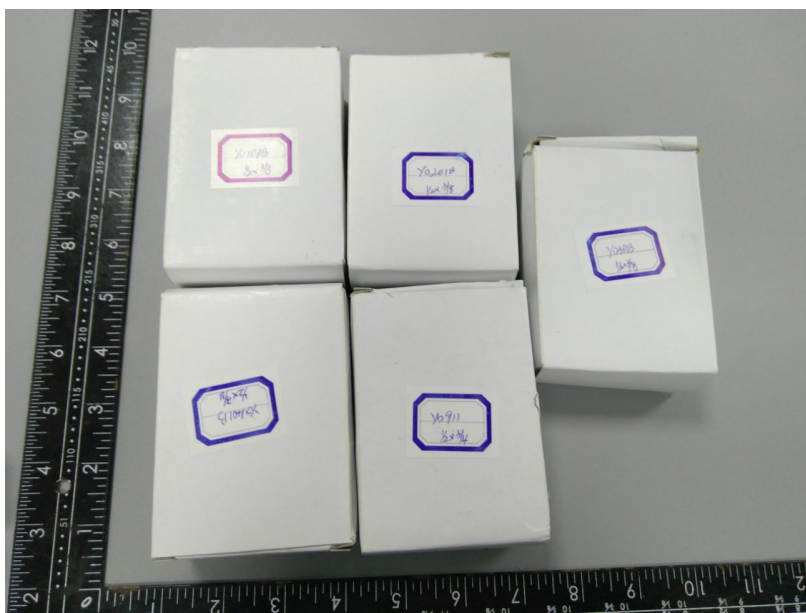
Test Property	Test Method	Test Principle / Requirements	The Result
		identification mark or trade mark; b) nominal size DN; c) pressure class (MOP): 0,2 or 0,5 or 5 or 5-20 where applicable; d) direction of flow (if necessary); e) date of manufacture (at least the year), may be in code.	b) DN15 c) 5
Installation and servicing operating instructions	EN 331:2015 Clause 8.2	For all valves, the installation and servicing operating instructions shall be available and written in the official language of the country into which the valve will be delivered. They shall include all relevant information, in particular: a) installation; b) operation and servicing; c) mounting position (if necessary); d) the maximum and minimum operating temperatures; e) maximum operating pressure.	<b>P</b> See user manual
Packaging	EN 331:2015 Clause 8.3	The type of packaging is selected by the manufacturer and shall provide adequate protection against damage to the valve. The packaging shall contain the installation and operating instructions (see 8.2).	<b>P</b> Provide adequate protection against damage to the valve and contain the installation and operating instructions

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### Sample Photo



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\*\*\* End of Report \*\*\*