

MATERIAL TEST CERTIFICATE

EN10204:2004 3.1

YONGJIA TONG BALL Valve Co., Ltd.

Address: Anfeng Industrial Zone, Oubei Town, Wenzhou City, Zhejiang Province, China

Purchaser: JC VALVULAS INDIA PVT LTD	Material Specification: ASTM A182 F51-Edition 2024A	NO: R25010014
Order No.: JCCMP-2425001581	Date: 2025-01-07	

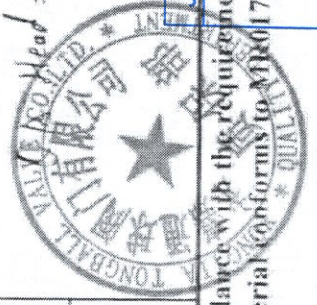
Chemical Composition (%)										
Heat No.	C	Mn	Si	S	P	Cr	Mo	Ni	N	Forging
Specification	≤ 0.03	≤ 2.00	≤ 1.00	≤ 0.02	≤ 0.03	21.0-23.0	2.50-3.50	4.5-6.5	0.08-0.20	≥ 3: 1
Actual	0.021	1.748	0.358	0.0022	0.0263	22.52	3.072	4.63	0.1665	4: 1.9

Mechanical Property Test

H.T Batch No.	Test Temp.	Tensile Test			Impact Test			Hardness (HRC(max))
		Tensile (Mpa)	Yield (Mpa)	Elongation (%)	Reduction of Area (%)	Temp. (C)	Specimen Size	
BD032412162	Ambient Temp.	Min 620	Min 450	Min 25	Min 40			
		752	496	47	82	(1)	(2)	(3)
Heat No.								20,22

Heat No.	Other Test		Visual and Dimensional		Heat Treatment	Remarks
	PT	UT	ASME BPVC SECTION VIII, DIVISION I UF-45 & UF-46	Accepted		
SP9207	Accepted	Accepted	Accepted	Accepted	solution treat 1040°C, 2.5h, Quenching below 260 °C, water cold	

PO.SR.No.	Drawing No.	Item Description	Qty	Heat No.	Remarks
15	X2B-100-2590MN REV.1	BALL DN100 CL.900-1500 METAL SEATED ASTM A182 F51+TCC (150-250microns) SP-009 MDS No. JC-MDS-346,101 Rev. 6,3	2	SP9207	
27	XSA-100-2590MN-45 REV.0	SEAT CARRIER DN100 CL.900-1500 ASTM A182 F51+TCC (150-250 microns) WITH SPRING HOLES/ SP-009 MDS No. JC-MDS-346,101 Rev.6,3	4	SP9207	



Head: Zhongji Hu

We hereby certify that the parts listed above are manufactured and inspected, tested in accordance with the requirements in the specification JC-MDS-346 REV.6&JC-MDS-101 REV.3&SP-009 ASTM A182 F51-Edition 2024A the material conforms to ASME B1.75 for forged steel. Accepted

JC Valvulas India Pvt. Ltd.

Q.A. R. Dik f

Heat treatment record report 热处理记录报告

委托单位 (Entrust Company): 永嘉通球阀有限公司

NO: TQ02412161

Material trademark 材料牌号		F51		Process name 工艺名称		固溶	
Equipment number 设备编号	BD1701-7	Thermocouple number 热电偶编号	70387	Recorder number 记录仪编号	18090356	Order number 炉序号	BD032412162
Procedure content 工序内容	Holding temperature 保温温度	Soaking time 保温时间 h		Cooling medium 冷却介质	Pre-quenching temperature (介质) 淬前温度℃	Quenching temperature (介质) 淬后温度℃	
固溶	1040	2.5		水冷	30	39	
product name 产品名称	Production number 生产编号	Description 型号规格	Quantity 数量	Heat NO. 炉号	Mechanical property 机械性能		
固定球	1YD2412019	315*192*245.5	2	SF9207			
固定球	1YD2412026-1	180*100*147	2	SF9207			
阀座	1YD2412026-2	145*100*44	4	SF9207			
试样	1YD2412026-3	30*360	1	SF9207			
Test item 实验项目					EMIR	σ_b MPa	$\delta\%$
							$\psi\%$
						AK/J/Cm ²	硬度值
<p style="font-size: 2em; font-weight: bold; color: blue;">Q.A. Heat: zhongli hu</p> <p style="text-align: right;">Yongjia Boda machinery heat treatment co., Ltd 永嘉县博大机械热处理有限公司</p>							
<div style="border: 1px solid blue; padding: 5px; display: inline-block;"> <p style="margin: 0;">JC Valvulas India Pvt. Ltd.</p> <p style="margin: 0;">Chennai, Tamil Nadu, India</p> <p style="margin: 0; font-weight: bold;">Verified & Accepted</p> </div>							
<p style="font-size: 1.5em; font-weight: bold; color: blue;">Q.A. R.R.R.</p>							
				填表人: 叶建玲		审核人: 方建东	
				日期: 2024-12-16			

圆图曲线打印

设备名称: 总泵
 打印通道: 通道02 [c] 1
 记录间隔: 2 秒
 开始时间: 2024/12/15 22:08:26
 结束时间: 2024/12/16 05:06:12
 数据数量: 12534

生产号 Production No.	日期时间 Date/Time	流量曲线 Flow Curve	产量名称 Product Name	时间 Time	流量 Capacity	单位 Unit
1704-229	4/12/25	18°23'44"	磁球	5:20:00	2	个
1704-230	4/12/25	18°23'44"	磁球	5:20:00	2	个
1704-231	4/12/25	18°23'44"	磁球	5:20:00	4	个
1704-232	4/12/25	18°23'44"	磁球	5:20:00	1	个

O.S. Head: Zhongh Hu



JC Valvulas India Pvt. Ltd.
 Chennai, Tamil Nadu, India
 Verified & Accepted
 O.A. *[Signature]*

温州汇远科技有限公司
WenZhou Huiyuan Technology Co.Ltd
喷涂检测报告
HVOF INSPECTION REPORT

MATERIAL CERTIFICATE According to EN 10204 Type:3.1,JC-MDS-101 REV 2

客户名称 customer				版本号 version number				
永嘉通球阀门有限公司				2020-Q1.1				
生产编号: Production No.		1YD2412026-1		图号/数量 Drawing No./quantity		2		
零件名称/规格: Part name/specification		BALL 180*100*147		涂层材料: Coating material		86%WC14%CO		
涂层材料批号: Coating material batch number		H5230622		基材材料/炉号: Ball material/heat number		A182 F51/5F9207		
项目编号	检测项目	参考标准	检验记录		参考值			
Item number	Test item	Reference standard	Inspection record		Reference value			
1	喷涂材料检测 Painting material inspection	成份 Material Composition	GB19356/ISO14232	Co:10.06,Cr:3.90,Ct:5.42,Cf:0.03,O:0.039,Fe:0.0210,W:Balance	Co:9.00-11.00,Cr:3.50-4.50,Ct:5.00-5.80,Cf<0.12,O<0.1000,Fe<0.5000,W:Balance			
2	喷涂材料检测 Coating examination	显微硬度 Microhardness	ISO4516	1150 HV	1000			
3		涂层厚度 coating thickness	ISO2064	310µm	250-300µm			
4		孔隙率 porosity	E2109	0.95%	1.0%			
5		结合强度 adhesive strength	ASTM C633 Ø25.4x38.1	10600PSI(断在胶中)(glue broken)		>10000PSI		
		弯曲实验 Bend test	100*25*1.5mm	150µm		150µm		
6	涂层组织形貌 Micrographic Examination 25 x 25 x 1.5	外观形貌 Micrographic Examination 25 x 25 x 1.5	OK	交界面 Interface:	良好 good:	可用 usable: K		
				氧化物 Oxide:	0.43%	2%		
				未熔颗粒 Not melted powder:	0.2%	1%		
				显微硬度 Microhardness:	1283.7HV	1000HV300 min		
7	工件表面检测 Workpiece surface examination	尺寸检测 (机械量具) dimensional gauging(mechanical measuring tool)	工艺要求 process requirements	直径 diameter:	≤0.05mm			
				涂层厚度 coating thickness:	150-300µm			
8	外观检测 appearance inspection	目测, 检验指导书 visual testing, inspection instruction		良好 good:	色泽一致, 无凹坑、裂纹、气孔、孔隙、剥落及其他 Consistent color, smooth, without pits, cracks, pores, spalling, etc.			
				可用 usable:				

本批次产品经检验合格准予出厂。 This batch products are qualified according to the delivery inspection.

检验 inspector: 陈东生

审核 auditor: 朱神会

日期 date: 2025.1.3

JC Valvas India Pvt. Ltd.
Chennai, Tamil Nadu, India
Verified & Accepted
Q.A. P. S. S. J.

温州汇远科技有限公司
WenZhou Huiyuan Technology Co.Ltd
喷涂检测报告
HVOF INSPECTION REPORT

MATERIAL CERTIFICATE According to EN 10204 Type:3.1,JC-MD5-101 REV 2

客户名称 customer			版本号 version number		
永嘉通球阀门有限公司			2020-Q1.1		
生产编号: Production No.	1YD2412026-2	图号/数量 Drawing No./quantity	4		
零件名称/规格: Part name/specification	SEAT 145*100*44	涂层材料: Coating material	86%WC14%CO		
涂层材料批号: Coating material batch number	HS230622	基体材料/炉号: Seat material/heat number	A182 F51/SF9207		
项目编号	检测项目	参考标准	检验记录	参考值	
Item number	Test item	Reference standard	Inspection record	Reference value	
1	喷涂材料检测 Painting material inspection	成分 Material Composition	GB19356/ISO14232	Co:10.06,Cr:3.90,Ct:5.42,Cf:0.03,O:0.039,Fe:0.0210,W:Balance Co:9.00-11.00,Cr:3.50-4.50,Ct:5.00-5.80,Cf<0.12,O<0.1000,Fe<0.5000,W:Balance	
2	喷涂材料检测 Coating examination	显微硬度 Microhardness	ISO4516	1150 HV	1000
3		涂层厚度 coating thickness	ISO2064	310µm	250-300µm
4		孔隙率 porosity	E2109	0.95%	1.0%
5		结合强度 adhesive strength	ASTM C633 Ø25.4x38.1	10600PSI新在胶中(glue broken)	>10000PSI
		弯曲实验 Bend test	100*25*1.5mm	150µm	150µm
6		涂层组织形貌 Micrographic Examination 25 x 25 x 1.5	OK	交界面 Interface:	良好 good:
			氧化物 Oxide:	0.43%	2%
			未熔颗粒 Not melted powder:	0.2%	1%
			显微硬度 Microhardness:	1283.7HV	1000HV300 min.
7	工件表面检测 Workpiece surface examination	尺寸检测 (机械量具) dimensional gauging(mechanical measuring tool)	工艺要求 process requirements	直径 diameter:	Ø<0.05mm
				涂层厚度 coating thickness:	150-300µm
8	外观检测 appearance inspection	目视. 检验指导书 visual testing,inspection instruction	良好 good:	可用 usable:	色泽一致,无凹坑,裂纹,疏松,孔眼,剥落及其他 Consistent color,smooth,without pits,cracks,pores,spalling,etc.

本批次产品经检验合格准予出厂。 This batch products are qualified according to the delivery inspection.

检验 inspector: 顾东生

审核 auditor: 朱坤仑

日期 date: 2025. 1. 3

JC Valvulas India Pvt. Ltd.
Chennai, Tamil Nadu, India
Verified & Accepted
Q.A. R. Dink J

Test Report

Customer: M/s. JC Valvulas India Private Limited No: 143, 1st Main Road, Industrial Estate, Perungudi ,City:Chennai ,600096	Report No.:	TR/24-25/7365-1
	Report Date:	25-03-2025
	Customer Ref. No.:	DC2425002013
	Ref. Date	07-03-2025
	Sample Received Date:	10-03-2025
	Date Of Completion:	24-03-2025

Samples drawn by Customer

Sample Description: Test Bar, Heat No: SF9207, Material: F51, SP-Code: SP-009, PO No: SC-2425002566

Discipline : Chemical, Group : CORROSION TESTING

INTERGRANULAR CORROSION TEST (PRACTICE-C)

Test Method : ASTM A262:2015 (2021)

Verified By: N THINESH KANNAN

Tested on : 12-03-2025 to 24-03-2025

Test Parameters	Result	Requirement
Test Solution	Nitric Acid Test Solution	
Volume of test solution (ml/cm ²)	1000	
Size (mm) and total surface area (cm ²)	L:27.27 x W:20.07 x Thk:8.14 & 18.6531	
Test start date & time	12.03.2025 (04.00 pm)	
Test end date & time	24.03.2025 (09.30 am)	
Duration of Test (Hours)	240	
Period	1st 48 hours	
Initial wt.of speciman in g	34.1989	
Final wt.of speciman in g	34.1849	
Weight Loss in g	0.0140	
Corrosion rate (mils/month)	0.5616	
Period	2nd 48 hours	
Initial wt.of speciman in g	34.1849	
Final wt.of speciman in g	34.1744	
Weight Loss in g	0.0105	
Corrosion rate (mils/month)	0.4212	
Period	3rd 48 hours	
Initial wt.of speciman in g	34.1744	
Final wt.of speciman in g	34.1586	
Weight Loss in g	0.0158	
Corrosion rate (mils/month)	0.6338	

JC Valvulas India Pvt. Ltd.
Chennai, Tamil Nadu, India
Verified & Accepted
C. Dattaraj

NOTE : This report relates only to the particular sample submitted for test * Any correction is not attested shall invalidate this certificate * Sample will be destroyed after 15 days from the date of testing unless instructed otherwise * Any complaints about this report should be communicated in writing within 7 days of this report * This report not to be produced wholly or in parts and cannot be used as an evidence in a court of law and shall not be used in advertising Media without prior permission in writing * Sample description is not verified in all cases and is given as described by the customers * Sample are not drawn by us unless otherwise stated * Laboratory reports the statements of Conformity to material specification as per Decision Rule 1, Non Conformity as per Decision Rule 4 & For Rule 2 & 3 Customer provides feedback.




TR/24-25/7365-1 Dt- 25-03-2025

Period	4th 48 hours
Initial wt.of speciman in g	34.1586
Final wt.of speciman in g	34.1382
Weight Loss in g	0.0204
Corrosion rate (mils/month)	0.8183
Period	5th 48 hours
Initial wt.of speciman in g	34.1382
Final wt.of speciman in g	34.1111
Weight Loss in g	0.0271
Corrosion rate (mils/month)	1.0871
Average Corrosion Rate (mils/month)	0.7044

4.0 max.

For MICROLAB



K. Mathan Kumar
Head, Corrosion & Polymer Department

Authorized Signatory

----- End of Test Report -----

JC Valvulas India Pvt. Ltd.
Chennai, Tamil Nadu, India
Verified & Accepted
C. Senthil

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