

MATERIAL TEST CERTIFICATE

EN10204:2004 3.1

YONGJIA TONG BALL Valve Co., Ltd.

Address: Dongou Industrial Zone, Qubei Street, Yongjia County, Zhejiang Province(1st Floor Plant of Wenzhou Hualiang Industrial Co., Ltd)

Purchaser: JC VALVULAS INDIA PVT LTD Material Specifications: ASTM A182 Gr F60-Edition 2024A NO: R24120223

Order No.: JCCNP-2425001581 Date: 2025-01-05

Chemical Composition (%)

	C	Mn	Si	S	P	Cr	Mo	Ni	N	Forging Ratio
Specification	≤0.03	≤2.00	≤1.00	≤0.020	≤0.030	22.0-23.0	3.00-3.50	4.5-6.5	0.1±0.20	≥3: 1
Actual	0.027	0.96	0.410	0.001	0.024	22.77	3.02	5.03	0.167	4.22:1

Mechanical Property Test

Tensile Test

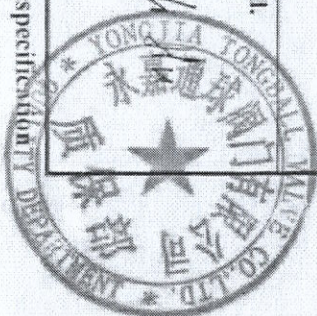
Heat No.	Test Temp.	Tensile σ _b (Mpa)	Yield σ _{0.2} (Mpa)	Elongation (%)	Reduction of Area (%)	Temp. (°C)	Specimen Size	Impact Test			Hardness (HRC)		
								Avg	Min	Max			
LK9005	Ambient Temp.	STD	Min655	Min450	Min25	Min45	20	10*10*55	(1)	(2)	(3)	21.23	
									241	250	237		
									Avg				242.67
									Average of Three Specimens(60J)				
BD032412106	Actual	731	508	47	59	-30	10*10*55	(1)	(2)	(3)	21.23		
								221	239	205			
								Avg				221.67	
								Minimum of Single Specimen(40J)					

Heat No.	PT	UT	Other Test		ASME BPVC SECTION VIII, DIVISION 1 UF-45 & UF-46	Heat Treatment	Remarks
			Accepted	Accepted			
LK9005	Accepted	Accepted			Accepted	solution treat 1040°C, 2h, Quenching below 260 °C, water cold	
PO.SR.No.	Drawing No.		Item Description		Qty	Heat No.	YONGJIA TONG BALL Valve Co., Ltd. Q.A. Head: Zhongji Hu
1	00810311 REV.1		BALL DN100 ASTM A182 Gr. F60 SP-561 MDS No. JC-MDS-353 Rev.6		18	LK9005	

QC Valvulas India Pvt. Ltd.
Chennai, Tamil Nadu, India
Verified & Accepted

We hereby certify that the parts listed above are manufactured and inspected, tested in accordance with the requirements of material specifications.

Q.A. Head: Zhongji Hu



Q.A. ASTM A182 Gr F60-Edition 2024A&JC-MDS-353 REV.6&SP-561 the material conforms to MIR0175 for hardness.

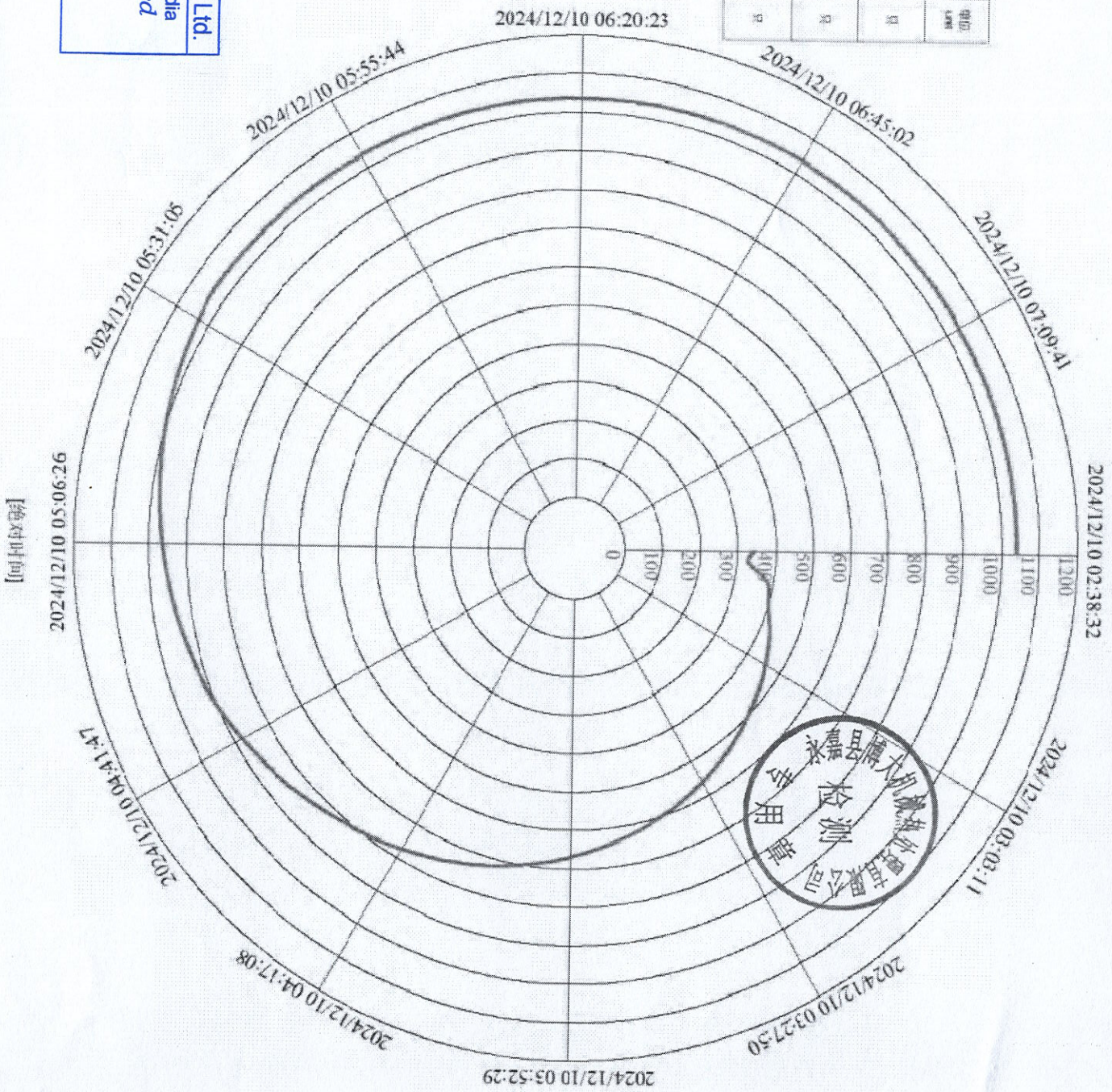
圆图曲线打印

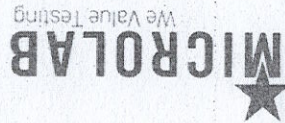
设备名称: 总貌
 打印通道: 通道04[作] ■
 记录间隔: 2 秒
 开始时间: 2024/12/10 02:38:32
 结束时间: 2024/12/10 07:34:20
 数据数量: 8875

生产单号 Production Number	材料特征 Material Treatment	设备规格 Description	产品名称 Product Name	炉号 Heat No.	炉号 Order Number	数量 Quantity	单位 Unit
YD2412031	A12Z F80	180*100*115 S	2.4.2.2	128025	202304-2106	10	只
YD2412031-1	A12Z F80	20 3#0	1.4.4	128025	202304-2106	1	只
YD2412032	A12Z F80	180*100*115 S	2.4.2.2	128025	202304-2106	2	只

O.A. Head: Zhangyuh Hu

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 O.A. *R. S. S. S. S.*





TC-14728

TC1472825000022982F

Report No.:	TR/24-25/7363-1
Report Date:	25-03-2025
Customer Ref. No.:	DC2425002014
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: LK9005, Material: F60, SP-Code: SP-561, PO No: SC-2425002574

Discipline : Chemical, Group : CORROSION TESTING

PITTING CORROSION TEST (A923-METHOD-C)

Test Method : ASTM A923:2023- Method C

Verified By: N THINESH KANNAN

Tested on : 12-03-2025 to 13-03-2025

Test Parameters	Result
Sample preparation	All the machined surfaces of the specimen were ground finished using 120 grit paper
Test Solution	Dissolve 100 g of reagent grade ferric chloride FeCl ₃ 6H ₂ O in 900 ml of Distilled water
pH of test solution	1.30
Size (mm)	L:55.45 x W:25.15 x Thk:7.95
Total surface area of the specimen (dm ²)	0.4071
Initial Weight of the specimen (g)	86.1327
Start of Test	12.03.2025 (05.00 pm)
End of Test	13.03.2025 (05.00 pm)
Duration of Test (Hours)	24 Hours
Test Temperature (Degree Celsius)	24°C
Final weight of the specimen (g)	86.1322
Weight Loss (mg)	0.5000
Corrosion rate (mdd)	1.2283
Observation	Pitting not Observed at 20x magnification
Photographs	The Macro photograph is enclosed

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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.

Format No: MTP/LQMS/TR/03

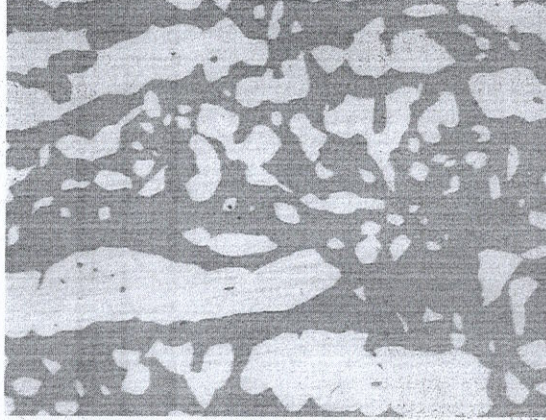


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Chennai, Tamil Nadu, India
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K. S. K. J.

Mag-500x



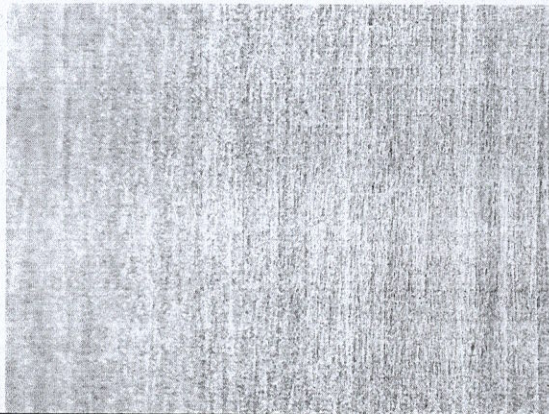
Micro examination of the specimen revealed uniform ferrite and austenite phase distribution and no continuous precipitates at the grain boundaries. The structure is free from intermetallic phases (like sigma, chi, laves) & other precipitates (Nitrides) and carbides. No deleterious secondary phases. This microstructure is classified as "Unaffected structure" as per section 6.3.1 of ASTM A923 Method A & is an Acceptable microstructure.

Test Parameters	Result
Mag/Etchant	500X/40% NaOH Electro Etched
Observation	

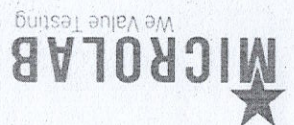
Verified By: KARTHIK
Test Method : ASTM A923:2022- Method A
Tested on : 11-03-2025

Discipline : Mechanical, Group : METALLOGRAPHY TEST

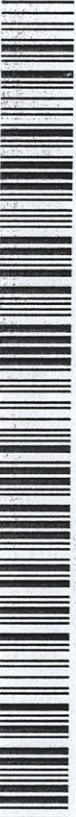
20X



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TR/24-25/7363-1 Dt- 25-03-2025



MICROLAB TESTING PRIVATE LIMITED
An ISO/IEC 17025 MATERIAL TESTING LABORATORY
Accredited by NABL vide Certificate Number TC-14728
D25, Ambattur Industrial Estate, Chennai - 600058
Ph: 044-26242525/044-26244399,
Email: cre@microlabtesting.com
Web: www.microlabtesting.com



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Test Parameters	Result
Field 1%	54.0
Field 2%	54.5
Field 3%	54.0
Field 4%	54.5
Field 5%	54.0
Field 6%	53.5
Field 7%	54.0
Field 8%	54.5
Field 9%	54.0
Field 10%	54.5
Field 11%	53.5
Field 12%	54.0
Field 13%	53.0
Field 14%	53.5
Field 15%	53.0
Field 16%	54.0
Field 17%	53.0
Field 18%	53.5
Field 19%	54.0
Field 20%	53.0
Field 21%	53.5
Field 22%	54.0
Field 23%	54.5
Field 24%	54.0
Field 25%	53.5
Field 26%	54.5
Field 27%	53.5
Field 28%	54.5
Field 29%	54.0

Mag/Etchant 100X/20% NaOH Electro Etched

Tested on : 11-03-2025

Test Method : ASTM E562:2019e1

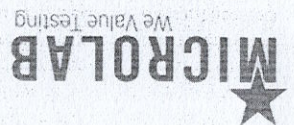
Verified By: KARTHIK

FERRITE CONTENT TEST (30 FIELDS)

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TR/24-25/7363-1 Dt- 25-03-2025



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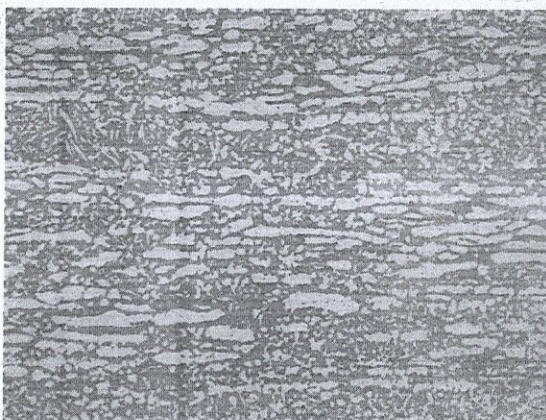
End of Test Report

Authorized Signatory

Head, Metallurgy Department Head, Corrosion & Polymer Department

A. Karthik K. Mathan Kumar
For MICROLAB

Mag-100x

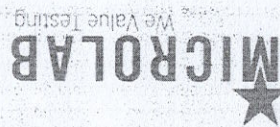


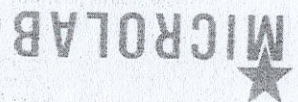
Field 30%	54.5
Average %	53.88
RA %	0.34
Volume Estimate (VV+)%	54.07
Volume Estimate (VV-)%	53.69

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Test Report

Report No.:	TR/24-25/7363-1-2
Report Date:	25-03-2025
Customer Ref. No.:	DC2425002014
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: LK9005, Material: F60, SP-Code: SP-561, PO No: SC-2425002574

Discipline : Chemical, Group : CORROSION TESTING

INTERGRANULAR CORROSION TEST (PRACTICE-C)

Test Method : ASTM A262:2015 (2021)

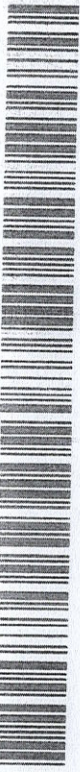
Verified By: N THINESH KANNAN

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:25.17 x W:21.89 x Thk:7.97 & 18.5208	
Test start date & time	12.03.2025 (05.00 pm)	
Test end date & time	24.03.2025 (09.30 am)	
Duration of Test (Hours)	240	
Period	1st 48 hours	
Initial wt.of specimen in g	34.0087	
Final wt.of specimen in g	33.9917	
Weight Loss in g	0.0170	
Corrosion rate (mils/month)	0.6868	
Period	2nd 48 hours	
Initial wt.of specimen in g	33.9917	
Final wt.of specimen in g	33.9766	
Weight Loss in g	0.0151	
Corrosion rate (mils/month)	0.6101	
Period	3rd 48 hours	
Initial wt.of specimen in g	33.9766	
Final wt.of specimen in g	33.9545	
Weight Loss in g	0.0221	
Corrosion rate (mils/month)	0.8929	

JC Valvias India Pvt. Ltd
Chennai, Tamil Nadu, India
Verified & Accepted
C. Sathya

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TR/24-25/7363-1-2 Dt- 25-03-2025

Period	Initial wt. of specimen in g	Final wt. of specimen in g	Weight Loss in g	Corrosion rate (mils/month)
4th 48 hours	33.9545	33.9289	0.0256	1.0343
5th 48 hours	33.9289	33.8955	0.0334	1.3494
				Average Corrosion Rate (mils/month)
				0.9147

4.0 max.

For MICROLAB

[Signature]

K. Methan Kumar
 Head, Corrosion & Polymer Department

Authorized Signatory

End of Test Report

JC Valvias India Pvt. Ltd.
 Chennai, Tamil Nadu, India
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[Signature]

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