

H.A.T. Engineering

We are Supply and job Works of Finish Precision Machined S.S. Ball For Ball Valve, As Per Drawing Size : 1/2" (15mm) to 16" (400mm)

Survey No.209/2, Plot No.7, Balaji Industrial Area, Near Shivam Industrial Area, Opp. Protec. Kalavad High-way, Beyond Metoda G.I.D.C. Village Chhapra, Ta. Lodhika, Dist. Rajkot-360 021 (Gujarat,India). E-mail : hatengineering1981@gmail.com :: Mo. +91-9879458981

MATERIAL TEST CERTIFICATE - EN 10204 - 3.1

JC Valvulas India Private Limited

143 Industrial Estate, 1st Main Road , Perungudi Chennai - 600 096

T.C.NO. : 392/24-25/01

DT.:- 09.01.2025

Specification : - ASTM A 351 Gr. CF3M/CF8M - 24

CHEMICAL ANALYSIS

Ref. SHAHSVAT INVESTMENT CASTING T.C. NO: SIC/2161 - 09.01.2025

| Heat No. | C.% | Mn.% | Si.% | S.% | P.% | Cr.% | Ni.% | Mo.% | | |
|----------|-------|-------|-------|-------|-------|--------|--------|-------|--|--|
| MIN. | | | | | | 17.000 | 9.000 | 2.000 | | |
| MAX. | 0.030 | 1.500 | 1.500 | 0.040 | 0.040 | 21.000 | 13.000 | 3.000 | | |
| G800 | 0.024 | 1.190 | 0.930 | 0.007 | 0.023 | 18.360 | 9.630 | 2.180 | | |
| | | | | | | | | | | |

HEAT TREATMENT: Solution annealed (Soaking Temperature 1050°C & Water Quenched 2 hrs.)

MECHANICAL PROPERTIES

| Heat No. | Tensile Strength Mpa | Yield Strength Mpa | Elongation % | Hardness (BHN) |
|----------|----------------------|--------------------|--------------|----------------|
| MIN. | 485 | 205 (0.2% Offset) | 30 | |
| MAX. | | | | 237 |
| G800 | 554.95 | 374.40 | 48.30 | 161 |
| | | | | |

DESPATCH DETAILS

| Heat No: | P.O. No. | Item Description | Item Code | Qty. | Invoice No. & Date. | Product No. |
|----------|--------------------|------------------|----------------------|------|---------------------------------|-------------|
| G800 | JCCMP - 2425001603 | BALL DN65 6803 | X0B-065-6803-307-314 | 43 | HAT/24-25/552 DT. 09.01.2025 | 17017 |
| | | | | | | |

1. Material confirms to NACE MR0175/ISO -15156-2015 and NACE MR0103-2015

2. Materials Free From Radioactive contamination

3. Visual and Dimensional Found satisfactory as per drawing

4. Markings done according to MSS-SP-25

5. No weld Repair performed

6. We hereby certify that the items above have been tested and inspected in our presence in accordance with drawings and satisfy the requirements of ASTM A 351/A351M-24 Gr. CF8M/CF3M (Ed. 2024) The results comply with product description.

7. MDS No. JC-MDS-307 REV.2

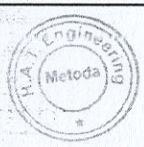
JC Valvulas India Pvt. Ltd.

Chennai, Tamil Nadu, India

Verified & Accepted

P. Sankar

Yogesh Kamani



Prepared By: Yogesh Kamani (QA Engineer.)

S.M. Meswaniya

Apporved By: Shailesh Meswaniya (Asst. Manager QA)



Shashvat

INVESTMENT CASTING



Shreeji industrial area, plot No.8,9 Survy No. 55p1p5 Nr. Bharudi Tall Plaza,8-B, At. Sadak Pipaliya Village Tal Godal, Dist Rajkot. (guj.) India

MATERIAL TEST CERTIFICATE

EN 10204:2004, Type 3.1

FQC 13(00/01.04.17)

| | | | | | |
|-----------------|--|-------------|------------|--------------|------------|
| Customer | H.A.T ENGINEERING | T.C. No. | SIC/2161 | T.C. Date | 09/01/2025 |
| Material Specn. | ASTM A351 Gr. CF3M/CF8M-24 | P.O. No. | 9122024081 | P.O. Date | 09/12/2024 |
| Material Grade | ASTM A351 Gr. CF3M/CF8M-24 | Invoice No. | 502 | Invoice Date | 09/01/2025 |
| Heat Treatment | Solution Annealing Heated 1080°C 2 hour Soaking then Water Quench, | | | | |
| P.O. No. & Date | 9122024081-09.12.2024 | | | | |

CHEMICAL ANALYSIS

| Heat No. | Pouring Date | C | | | | | | | | | | |
|----------|--------------|-------|-------|-------|-------|-------|--------|--------|-------|-----|----|----|
| | | C% | Mn% | Si% | S% | P% | Cr% | Ni% | Mo% | Cu% | V% | W% |
| Min. | | | | | | | 18.000 | 9.000 | 2.000 | | | |
| Max. | | 0.030 | 1.500 | 1.500 | 0.030 | 0.040 | 20.000 | 12.000 | 3.000 | | | |
| G800 | 07.01.2025 | 0.024 | 1.190 | 0.930 | 0.007 | 0.023 | 18.360 | 9.630 | 2.180 | | | |
| G801 | 07.01.2025 | 0.025 | 1.082 | 1.006 | 0.007 | 0.020 | 18.680 | 9.580 | 2.179 | | | |

MECHANICAL PROPERTIES

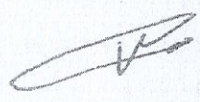
| Heat No. | Y.S. Mpa | T.S. Mpa | EL % | R.A % | Hardn BHN | Test at @ Room temp Impact Joules | | | | Dispatch Details | | |
|----------|----------|----------|-------|-------|-----------|-----------------------------------|---|---|-----|------------------|-----------------------------|------|
| | | | | | | 1 | 2 | 3 | Avg | TOOL NO. | Description | Qty. |
| Min. | 210 | 485 | 30% | | | | | | | | | |
| Max. | 640 | | | | 237 | | | | | | | |
| G800 | 374.4 | 554.95 | 48.3 | | 161 | | | | | | HAT-65 2" (50MM) SOLID BALL | 80 |
| G801 | 352.7 | 560.77 | 49.71 | | 168 | | | | | | HAT-65 2" (50MM) SOLID BALL | 82 |

We confirm that the material has been manufactured, inspected, and tested in accordance with ASTM A351 Gr. CF3M/CF8M-24, NACE MR-0175/ISO15156 SPECIFICATION

- [1] Casting Process : INDUCTION MELTING FURNACE
- [2] Visual Inspection : AS PER MSS-SP-55
- [3] Dim. Inspection : ACCEPTABLE
- [4] Surface Condition : SHOT BLASTED,
- [5] Other : All Casting Are Free From Radioactive Contamination.



Authorised sign,



Mehul M Chauhan
(Q.C incharge)

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



Q.A. R. Diksh



Unitech Laboratories Services
 16, Samrat Industrial Area, B/h. S. T. Workshop
 Gondal Road, Rajkot-360 004 Gujarat, INDIA
 M +91-84600 60450, 99742 01090, 79901 74169
 E unitech_lab@yahoo.com



TEST REPORT

| | |
|---|---|
| ULR -TC732225000004121F | |
| Name of the Customer : H.A.T. ENGINEERING | Lab No. : UE/213/0125 |
| Survey No. 209/2, Plot No. 7, Balaji Ind. Area, Nr. Shivam Ind. Area, Opp. Protec, Kalawad High-way, Beyond G.I.D.C., Village: Chhapra, Ta.Lodhika | Date of Reporting : 16/01/2025 Date of Receipt : 12/01/2025 |
| Group : Metallography test | |
| Sub Group : Ferrous materials and alloys product | |
| #Customer Reference No. : Challan No. : 111 Letter Date-12/01/2025 | |
| Condition of Sample : Test Piece | |
| #Material Specification : ASTM A351/A351M-24 Gr. CF3M/CF8M | |
| #Identification of Sample : Heat No. : G800 | |
| #Type of Test : Detecting Susceptibility To Intergranular Attack | |
| Date of Testing : 15/01/2025 | |
| Test Method : ASTM A-262 Practice "E" | |
| Test Solution : Copper-Copper Sulfate-16 % Sulfuric Acid | |
| RESULT | |
| Specimen Size (mm) : Survey No. 209/2 |  MACRO GRAPH-20X |
| Length (mm) : 99.24 | |
| Width (mm) : 19.09 | |
| Thickness (mm) : 6.93 | |
| Sensitization Heat treatment : 675 °C for one hrs | |
| Loading Time & Date : 18:15 hrs. Date: 15-01-2025 | |
| Unloading Time & Date : 09:15 hrs. Date: 16-01-2025 | |
| Test Duration : 15 Hrs | |
| Former diameter-1t (mm) : Bend : 180 Degree | |
| Observation at 20X : No ditch of fissures observed. No Crack Observed on the bend surface. | |
| Remarks : Acceptable | |
| End of Report | |
| <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>JC Valvulas India Pvt. Ltd. Chennai, Tamil Nadu, India Verified & Accepted</p> <p>Q.A. <i>R. D. Solanki</i></p> </div> | |
| Tested By: Ravi Hirapara (Technical Manager) | Authorized signatory: Deepak Solanki (Quality Manager) |
| Note : (1) Sample(s) not drawn by ULS. The results relate only to the sample(s) tested. (2) This certificate shall not be reproduced, except in full, without the written approval of ULS. (3) If balance material is available after testing, it will be retained for 15 days maximum. If customer wants to retain it for one month from this date, he has to inform in writing or he can collect the same. (4) While "ULS" has made their best endeavors to provide accurate and reliable information. (5) The conformity statement is given bases of decision rule documented in Quality Manual Annexure-3.# Information Given by Customer | |
|  | |