

**BHARAT HEAVY ELECTRICALS LIMITED
IVP GOINDWAL SAHIB
MM DEPARTMENT**

Date: 12.09.2018


Corrigendum

- 1. Reference: Tender Enquiry no. 1819-078E Dated 05.09.2018 for Machined SG Iron Yoke Bushes.**

There is following amendment to this Tender enquiry.

1. TDC:0:438_Rev:00 has been added for specification of raw material

All other terms shall remain unchanged.

	BHEL – Tiruchirappalli - 620014, India. Quality Assurance Department TECHNICAL DELIVERY CONDITIONS	DOC No: TDC:0:438 Rev: 00 Effective Date: 22/01/2015 Page: 1 of 1
	Product: Spheroidal Graphite (SG)/Ductile Cast Iron-IS 1865	

1. MATERIAL

Specification : IS 1865 {Latest on date of Purchase Order (PO)}: SG 400/15
Additional Requirement : As listed below (supplementary to Specification)
Size, Qty., Grade/Class : As per Purchase order & Drawing / Pattern.

2. CHEMICAL COMPOSITION

Ladle analysis required for each heat.

3. DIMENSIONS AND TOLERANCES

Dimensions and Tolerances as per applicable BHEL Drawings (latest) mentioned in PO.

4. HEAT TREATMENT

As cast/heat treatment as per manufacturer's practice to meet mechanical properties.

5. MECHANICAL TESTING (including Hardness)

One sample per batch/heat. **Acceptance:** TS: 400 MPa, YS: 250 MPa, %Elong: 15 min. Hardness: 130-180 HBS.

6. FETTLING, DRESSING, CLEANING & REPAIR

As per Cl 8 of IS:1865. Additionally, castings shall be dressed to be free from risers, ingates, notches, under cuts, deep marks etc. Fused wires, parting line fins, chills etc. to be removed by grinding. Visual inspection for surface quality: MSS-SP-55. Repairs involving fusion welding are prohibited. Castings to be supplied in proof machined condition wherever specified in the PO / Drawing.

7. MICROSTRUCTURE

Microstructure shall contain 80% graphite and in the form VI of IS: 7754 & to be checked for each heat/heat treatment batch, as applicable.

8. NON DESTRUCTIVE EXAMINATION (NDE)

Radiography Examination (RT): 100% - as per ASME B16.34 Appendix I, ASTM E94. **Sensitivity:** 2-2T for all thicknesses. **Acceptance:** ASTM E 446/186 Level 2 for Gas porosity, Sand and slag inclusions, Shrink Type 1 to 3; Crack, hot tears & unfused inserts are not acceptable.

9. SAMPLE CASTINGS

Foundry to ensure that first sample pieces meet dimensional & quality requirements in this TDC, before starting bulk production. First 3 castings to be inspected (proof machined) wherever necessary at BHEL for dimensions & quality. Supplier to be appraised of acceptability or modifications to castings required. In case of deviations, Supplier to submit further samples if required. Accepted sample castings may be considered for fixing the nominal weight of the castings.


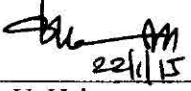
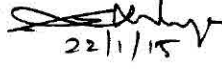
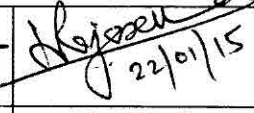
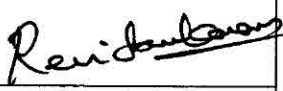
10. MARKING AND PACKING

The following details to be marked on each casting, using embossing/low stress stamps on raised pads: 1. Foundry code, 2. Specification, grade & Melt/Heat number, 3. Identification as given in drawing, 4. RT number. Castings shall be suitably packed to avoid damage during transit.

11. INSPECTION AND CERTIFICATION

Test certificate for each product with following details shall accompany the product –

1. Purchase Order No.(BHEL),TDC No., Drawing & Test certificate number,
2. Specification and Grade with applicable year of code, Heat Number, Quantity & Size
3. Melting process, Chemistry including incidental elements - Heat wise.
4. Dimensional Inspection Report
5. Microstructure
6. Mechanical test results including hardness, NDE results with reference & acceptance standards.
7. Any other information like clearance of sample casting.

 22/01/2015	 22/01/15	 22/1/15	 22/01/15	
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