

 Ranipet	Technical Delivery Conditions (TDC) For BLADE SHAFT BUSH COPPER BASE (SINTERED BRONZE)	Doc.Ref.	TDC:RTF:321
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1.0 SCOPE

1.1 This TDC specifies the requirements for supply of Blade Shaft Bush.

1.2 Ref: DIN 1705-Cast material 2.1052, BHEL APPROVED Drawing.

Base: Copper –Tin

The self lubricating properties of this alloy are obtained by the addition of solid lubricant. The solid lubricant is homogeneously and finely distributed throughout the structure. The material has low ductility. The material is suitable for use with conventional lubricants.

2.0 Chemical properties

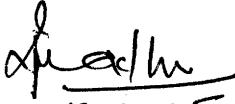
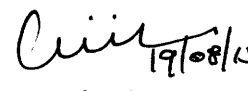
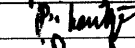
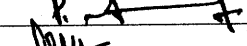
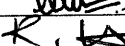
Element	C	Sn	P	Sn	Pb	Zn	Ni	Fe	CU
Required Value (%)	0.8-1	12-13	0.15-0.2	12-13	0.010-0.05	0.030-0.05	0.010-0.05	0.033-0.05	Remaining value

3.0 Mechanical properties

Tensile strength (N/mm ²)	80 (Min)
Compressive strength (N/mm ²)	360 (Min)
Young's Modulus (N/mm ²)	49000 (Min)
Hardness	60 HB (Min)

4.0 Physical properties

Coefficient of linear thermal expansion (1/K)	18X10 ⁻⁶
Density (g/cm ³)	Approx. 6.8
Temperature range (°C)	-100 to 350

Prepared by  19.08.2015	Reviewed by	Signature	Approved by
	ENGG(Fans)		 19/08/15 (Head / QA)
	QC (Proc)		
	MPL		
	Purchase		
	QA		
Issued by Quality Assurance			

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5.0 Tribological Properties

Solid lubricant, graphite	% By weight	6
	% By volume	18 to 19
Limit value pU (dry running)		1.5 W/mm ²
Coefficient of friction	Dry	0.15 to 0.22
	Water	0.13 to 0.18

6.0 Inspection

- 6.1 Dimension and surface finish should be as per approved Drawing.
- 6.2 Weight of the individual Bush shall be submitted by the vendor, to be checked for drawing requirement.
- 6.3 Visual inspection: No linear crack is permitted.

7.0 Surface requirement, marking and painting.

- 7.1 Surface to be protected.
- 7.2 Melt No./Heat No., specification and maker's emblem shall be stamped or Stenciled on each component.

8.0 Test Certificate

- 8.1 Guarantee and Test Certificate are to be submitted by the vendor.
- 8.2 Test certificate in English shall be submitted for following properties as per 3.1 of EN 10204 (PI see Cl.2.0 above) Melt No. / Heat No. wise.

Record of revisions

Rev No.	Clause revised	Revision made	Date
00	--	Original Issue	19 08 15