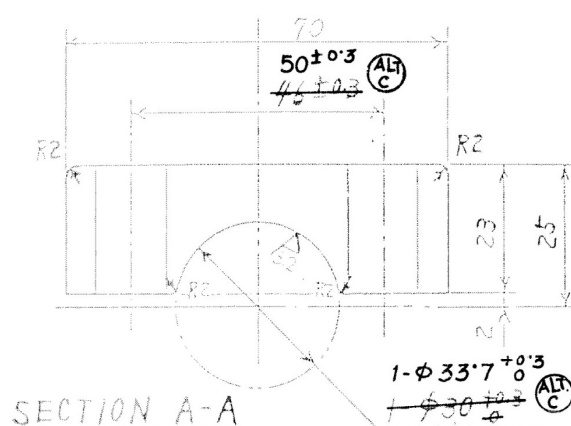


表 面 粗 糙 (ISO, JIS)					
A	R _a	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{5}$	$\frac{1}{7}$
第 1 章	R _{pm, A} (H)	100 S	25 S	6.3 S	0.8 S

SYM	REVISIONS	DATE	REV'D	CHK'D	RE DWG	MTR
A	ADDED ELECTRO FINISHING	28-03-11	11	11	—	—
B	MODEL ALTERNATIVE POTENTIAL	28-05-06	11	11	—	—
C	DIMENSION $\phi 306/46$ CHANGED TO $\phi 337.8/50$ RESPECTIVELY, REF: DY CEE/D-1'S LETTER NO. ELDD/3224/LN DT:20-3-96.	28-03-96	2	9	—	—
				DY CEE/TMD		
D	NOTE. 1 ADDED, REF. L. NO. EL/TM/2013 DT. 08.06. 2001	23.6.01	1	1	—	—
				DY CEE/TMD		
E	NOTE-2 ADDED, REF. L. NO. EL/TM/2013 DT. 29-8-02	04-9-02	1	1	—	—
F	JIS-5 III AND IS:305 DELETED, REF. L. NO. EL/TM/2013 DT. 4.12.02	2.6.03	1	1	—	—
G	NOTE 1E'2 DELETED AND "NB" ADDED VIDE NOTE NO. EL/TM/ 2013.DT.11.03.2005	11.03.05	1	1	—	—



BORE WITH DWG. NO.
105813-675

④ ALT. "NB" SPECIFICATION NO. 4TMS.095.030 SHALL FROM THE PART OF THIS DRAWING.

ALT. F	IS: 305-81-Gv.A31	1	TERMINAL	4	PCF ALC22	PCF JISB304	1.9 kg	1.2 kg	
	ALT. MATL.	ITEM NO.	PARTS NAME	QTY REQ	NAME OF MATERIAL	SPECIFICATION	RAW WEIGHT OF MATERIAL	FINISHED WEIGHT OF MATERIAL	REMARKS

DWN	<i>H. Hara</i>	38-01-27	THIRD	TITLE	HG152504
CHKD	<i>H. Hara</i>	88-02-05	AND PROJ.		
APPR	<i>H. Hara</i>	88-02-05	REGD. SCALE		TERMINAL
			11-02-11	1	



Hitachi, Ltd.
Tokyo Japan

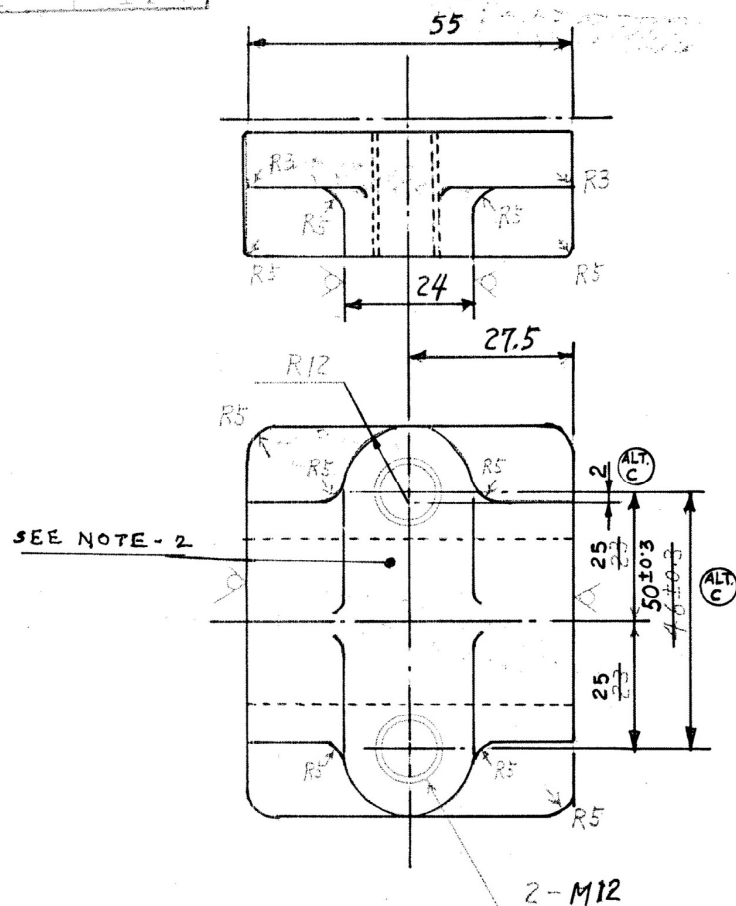
HITACHI WORKS DWG. NO.
10S813-674

SURFACE ROUGHNESS			
			

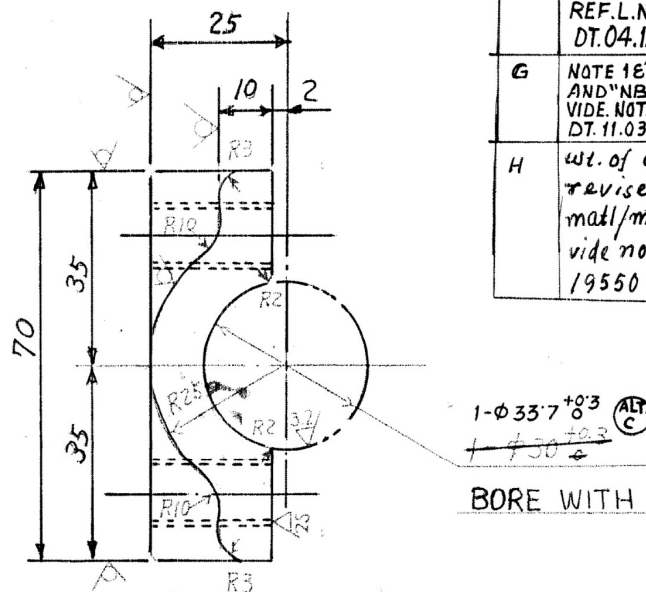
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MACHINING TOLERANCE	
MEASURE	TOLERANCE
≤ 20	± 0.3
$< L \leq 100$	± 0.5
$< L \leq 500$	± 1
$< L \leq 1000$	± 1.5
$< L$	± 2

鋼 板 寸 (ISO, JIS)					
A	R ₀	25	35	45	55
	R _{max}	100S	235	275	355
		▽	▽	▽	▽
		▽	▽	▽	▽
		▽	▽	▽	▽



  ELECTRO TINNING




BORE WITH DWG. NO. 10S 813-674

SYM.	REVISIONS	DATE	REVD.	CHKD.	RE DWG	MTR	RM
A	ADDED ELECTRO TUNNING	88-03-11	HL	HL	-	-	
B	ADDED ALTERNATIVE MATERIAL (P.S.K.)	88-05-06	HL	HL	-	-	
C	DIMENSION Ø30.235/46 CHANGED TO Ø33.725/50 RESPECTIVELY. DIMENSION 2 SHOWN AS SHIFT- ING OF TAPPED HOLE CENTRE. REF. DY.CEE/D-IT'S LETTER NO. ELDD/3224/LN, DT.20-3-96	28-03-96	2-96 DY.CEE/TMD	-	-	-	
D.	NOTE.1 ADDED. REF.L.NO.EL/TM/2013 DT.08.06.2001	23.6.01	2-01 DY.CEE/TMD	-	-	-	
E	NOTE 2 ADDED. REF. L/NO. EL/TM/2013 DT- 29.8.02	04-9-02	HE	-	-	-	
F	JIS-H5 III AND IS: 305 DELETED REF.L.NO.EL/TM/2013 DT.04.12.2002	2.6.03	SS	-	-	-	
G	NOTE 1&2 DELETED AND "NB" ADDED VIDE. NOTE NO.EL/TM/2013 DT.11.03.2005	11.03.05	SN	-	-	-	
H	wt. of clamps revised & wt of matl/motor corrected vide note no. CLW/TM 19550 dt 16.05.12	16.5.12	Am	-	-	-	

NOTE


1. METALLURGICAL TESTING FOR BOTH PROTOTYPE AND BULK
SUPPLIES SHALL BE CARRIED OUT BY: DY. C.E.M./CLW/CRJ.
2. MANUFACTURER TO PROVIDE THEIR METAL PURCH/EMBOSS
IDENTIFICATION MARK AT THE LOCATION SHOWN
- "NB" SPECIFICATION NO.4TMS.095.Q30 SHALL FORM THE PART

ALT. F 15. 305' 81, G. AB1. 


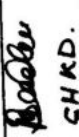


ALT. MATL.

[illegible]

DWN.	H. Ibara	88-01-27	THIRD	TITLE	HSI5250A	<div>ALL H</div>	<div>H G F E</div>
CHKD.	H. Ibara	88-02-05	ANG. PROJ.	CLAMPER			
APPD.	H. Ibara	88-02-05	<div>REC'D FEB 10 1988</div>			SCALE	1 1
<div> Hitachi, Ltd. Tokyo Japan</div>				<div>HITACHI WORKS DWG. NO. 10S813-675</div>		<div>RE Δ e</div>	

SURFACE ROUGHNESS			
			
WELD OR	ROUGH	FINISHED	FINE FINISHED

**SPECIFICATION FOR
ALUMINIUM BRONZE ITEMS
OF
HITACHI TRACTION MOTOR
TYPE : HS15250A**

 DR.N.	 CHKD.	 SEE/TMM
Specification for Aluminium Bronze items of Hitachi Traction Motor (HS 15250A).		
 DY.CEE/TMD		CHITTARANJAN LOCOMOTIVE WORKS (W.B) No. 4TMS.095.030 DATE: 11-03-2005

Signature Not Verified

Digitally signed by
BYOMKES MANDAL
Date: 2022.07.31
13:27:56 +05'30'

Reason: JREPS-CRIS
Location: New Delhi

ALTERATION SHEET

ALT. NO	AUTHORITY	DESCRIPTION	DESIGN.	INITIAL	DATE
REV-0	EL/TM/2013 dtd.11.03.05	Specification for Aluminium Bronze items of Hitachi Traction Motor (HS 15250A).	DY.CEE/TMD	<i>poly</i>	11.03.05

<i>poly</i>	SEE/TMM
<i>poly</i>	CHKD.
<i>poly</i>	DRN.

Specification for Aluminium Bronze items of Hitachi Traction Motor (H\$ 15250A).

poly
DY.CEE/TMD

CHITTARANJAN
LOCOMOTIVE WORKS
(W.B)

No. 4TMS.095.030
DATE: 11-03-2005

1.0 FOREWARD: This specification covers manufacture, machining, dressing, testing, inspection, packing and supply of Aluminium Bronze items for Hitachi Traction Motor (HS 15250A) for Electric Locomotives built at CLW.

2.0 THE DETAILS OF ITEMS COVERED IN THIS SPECIFICATION ARE INDICATED BELOW:

2.1 The requirement of items in set taking the following items together under stocking C&D No. 5560/633 is indicated below.

Sl. No.	C&D No.	Description	Drg. reference	Qty/ TM
(i)	5560/627	Clamper	10S813-675 ALT-G	4 Nos.
(ii)	5560628	Terminal	10S813-674 ALT-G	4 Nos.

NB (i) All the Items shall be supplied as per the latest version of drgs. and specifications.
(ii) The tenderer(s) shall quote their rates 'per set' ; otherwise the offers are liable to be summarily rejected.

3.0 RAW MATERIAL: Aluminium Bronze Grade : ALBC2 of JIS: H5114.

4.0 MANUFACTURING PROCESS:

- 4.1 All the items shall be gravity die cast and machined to relevant Drgs.
- 4.2 After die casting and machining, all the unmachined surfaces and sharp edges due to machining shall be suitably cleaned and radiused.
- 4.3 All the items supplied shall be hot electrotinned.
- 4.4 Holes, wherever to be provided, shall be jig drilled and chamfered.

5.0 DIMENSIONS AND TOLERANCES:

- 5.1 All dimensions are in mm.
- 5.2 The dimensions and tolerances shall be as per relevant drawings.
- 5.3 Tolerance of ± 0.5 mm shall be applicable wherever not specified.

6.0 ACCEPTANCE TEST:

- 6.1 The supplier shall have to inform Dy.Chief C&M/CLW or Inspection wing of CLW, the date of casting of each lot of the material in advance so that authorized representative either of Dy. Chief C&M/CLW or CLW Inspecting wing is able to stamp and seal the Integral test bars.
- 6.2 A minimum of three nos. of test bars for each cast shall be offered for conducting Physical and one test bar for Chemical analysis test as per JIS: H5114 either from Dy. Chief C&M's Lab at CLW or RITES Regional Laboratories.
- 6.3 It is expected that the firms should have the required Inspection/Testing facilities as per relevant Specn./Drg.in their works in addition to requirement at para 6.2 above.
- 6.4 Firm shall provide all the necessary assistance to CLW Inspecting officials at their works during Prototype/routine Inspection.

Specification for Aluminium Bronze items of Hitachi Traction Motor (HS 15250A).

DY.CEE/TMD

CHITTARANJAN
LOCOMOTIVE WORKS
(W.B)

No. 4TMS.095.030
DATE: 11-03-2005

7.0 PROTOTYPE INSPECTION:

- 7.1 In case of prototype clause in P.O., the successful tenderer(s) shall offer a minimum quantity required to manufacture at least two Traction motors to the Dy. Chief Electrical Engineer/TMD, CLW/Chittaranjan for approval before starting bulk manufacture.
- 7.2 Routine inspection of the Items shall be carried out only after the approval of Prototype sample.
- 7.2 Any shortcomings / defects in the design and workmanship of the Items shall be pointed out to the supplier after prototype tests to enable him to incorporate necessary improvements before bulk supply is commenced.
- 7.4 Any Testing and approval by the purchaser of the design, drawing and prototype shall in no way absolve the supplier of his responsibilities under the terms and conditions of the contract.

8.0 MARKING :

- 8.1 Manufacturer's identification mark shall be punched/engraved/embossed on the individual Item at the location shown in the Drg. or at appropriate location if not shown in the Drg.

9.0 PACKING:

- 9.1 Each Item shall be properly packed individually in a corrugated paper or durable polythene packet, and then a quantity of one motor set or in multiple thereof shall be packed in a wooden box. The vacant space in the wooden box shall be filled up properly with straws/paper shreds to avoid damage during handling and transportation. Two cards indicating description of items, C&D Nos., Drg./specn. No, No. of items, Order reference and Qty per set duly signed by CLW's Inspection authority shall be tagged – one inside and another out side of the Wooden box.

10.0 FREE REPLACEMENT OF DEFECTIVE MATERIAL:

Items found defective during assembly at CLW shall be replaced by the firm free of cost on intimation from Stores Deptt. /User shops.

11.0 INFORMATION TO BE FURNISHED BY THE TENDERER IN THEIR OFFERS:

- 11.1 A list of Plant and Machinery available with tenderer for Manufacture, Testing and Inspection.
- 11.2 Deviation, if any, shall be clearly brought out from the drawing/specification. Even if the tenderer has no particular deviation in their offer, a NIL statement shall be submitted.
- 11.3 Tenderers alongwith their quotation shall furnish documents regarding performance of their past supplies of such Items to Railways.

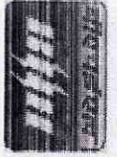
SEE/TMM
CHKD.
DRN.

Specification for Aluminium Bronze
items of Hitachi Traction Motor
(HS 15250A).

DY.CEE/TMD

CHITTARANJAN
LOCOMOTIVE WORKS
(W.B)

No. 4TMS.095.030
DATE: 11-03-2005



BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL
QUALITY ASSURANCE PLAN FOR TERMINAL AND CLAMPER ASSY TO BHEL ORDERING
SPECIFICATION/DRAWING AS PER PO

QUALITY PLAN NO. – QAP/QTM/VENDOR QAP/2021-22/TERMINAL AND CLAMPER ASSY DTD 10.03.2022 REV 00
Reference Document- PO DRAWING/SPECIFICATION

Page : 1 of 1

SL. NO	COMPONENT	CHARACTERISTICS	TYPE OF CHECK	QUANTAM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	INSPECTION AGENCY	REMARKS
				TP	TP/A					
1)	Raw material	All tests	TC verification	100%	100%	TM10417	As per drawing & Specification	MTC	BHEL/TP/A	TEST LAB NABL/EQUIVALENT ACCREDITED/SOURCE MILL/Supplier to get the raw material correlated with material TC..
2)	Dimension	Dimension	TC verified & Measurement	100%	20%	As per drawing	As per drawing & Specification	Supplier record	BHEL/TP/A	Witness
3)	Identification	Identification vendor name, PO & job serial no.	Visual	100%	10%	As per drawing & specification	As per drawing & Specification	Supplier record	BHEL/TP/A	Witness
4)	Packing	Packing to avoid transit damage	Visual	100%	20%	As per drawing & specification	As per drawing & specification		BHEL/TP/A	Packing to be such that no damages should occur during transit

Prepared By
 गजेन्द्र सिंह राठौर / Gajendra Singh Rathour
 बरि. अभियंता (क्यू.एफ.डी.) / Sr. Engineer (QFD)
 गुणता नियंत्रण-सी.आई.एम. / Quality Control-CIM
 बी.एस.ई.एल., भोपाल / BHEL, BHOPAL

Approved By

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 प्रबंधक / Manager
 क्यू.टी.एम. विभाग / QTM Division
 बी.एस.ई.एल., भोपाल / BHEL, Bhopal