

PI 220450004 ANNEXURE-1
TECHNICAL ANNEXURE FOR RATE CONTRACT FOR STATOR FRAME MACHINING [1200
MM to 1800 MM] FOR IMM DEPT.

- 1) Three vendors required for this contract in each item. Quantity Distribution shall be as 50:30:20 ratio.
- 2) Tools, jigs & fixtures will not be provided by BHEL.
- 3) Rate contract will be valid for one year from RC freeze date for placement of PO. RC validity may be extended for further 6 months with mutual consent of both BHEL and the suppliers.
- 4) Material should be lifted within 3 working days from date of intimation. If any error or discrepancy found in rough material dimensions, it should be intimated and returned back to BHEL within 3 working days after lifting of material. If Stator Frame is not lifted in above mentioned time frame, then BHEL reserves the right to cancel / divert the PO to other vendors and same will be as per BHEL norms.
- 5) In every supply against each PO., supplier has to ensure identification on each Stator Frame by hard punch which includes PO no., Drg. No., Sl. no. of lot and supplier identification code prefixed with "MACHINED BY" (Supplier to submit their code for identification). BHEL reserves the right to reject the Stator Frames on account of non-availability of identification by Hard Punch as mentioned above.
- 6) BHEL reserves the right to revise the technological hours on account of Technological improvement / Tooling improvement / Development / Shop feedback. RC will be freezed on Rs./Hr. & PO shall be placed on number basis based on machining technological hours of each Stator Frame.
- 7) Supplier to submit dimension report along with each supply to IMM Planning / QC as well as retain a copy with them for record.
- 8) BHEL reserves the right to reject each Stator Frame subject to unsatisfactory Assembly / Performance of motor on account of Stator Frame.
- 9) Soon after rejection of Stator Frame, it is to be ensured by supplier that Stator Frame should be taken back maximum within 3 working days after communication for rectification / replacement & supply back the rectified / fresh material to BHEL Bhopal within 5 working days from lifting of material.
- 10) Any build up / repairs if required for machining shall be done by vendor as per BHEL specification as mentioned in drawing with prior approval from BHEL.
- 11) Total cost of finished Stator Frame will be recovered by BHEL from vendor on final rejection of Stator Frame as per BHEL norms.
- 12) Supplier to submit name of one competent person along with his / her mobile no. and email ID, to whom all communication (verbal or written) to be made for purpose of status and PDC.
- 13) Issuing of free issue Raw Materials will depend on availability and requirement of items.
- 14) Delivery of Stator Frame shall be as per following details from date of issue of Stator Frame:
 - a. Upto issue of 2 Stator Frames at a time - Delivery will be within 10 days for both the Stator Frames from issue date.

- b. Upto issue of 3 Stator Frames at a time - Delivery will be within 10 days for first 2 Stator Frames and within 15 days for 3rd Stator Frame from issue date.
- c. Upto issue of 4 Stator Frames at a time - Delivery will be within 10 days for first 2 Stator Frames and within 15 days for 3rd Stator Frame and within 20 days for 4th Stator Frame from issue date.
- d. For more than 4 Stator Frames at a time - Delivery will be in same ratio as above to be followed i.e. 5 days per Stator Frame from 5th Stator Frame onwards.

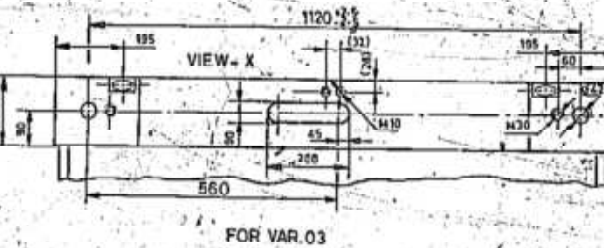
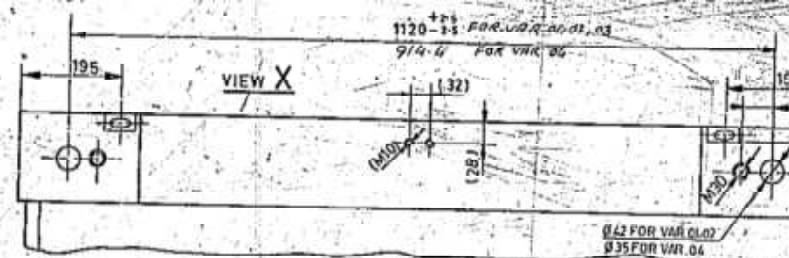
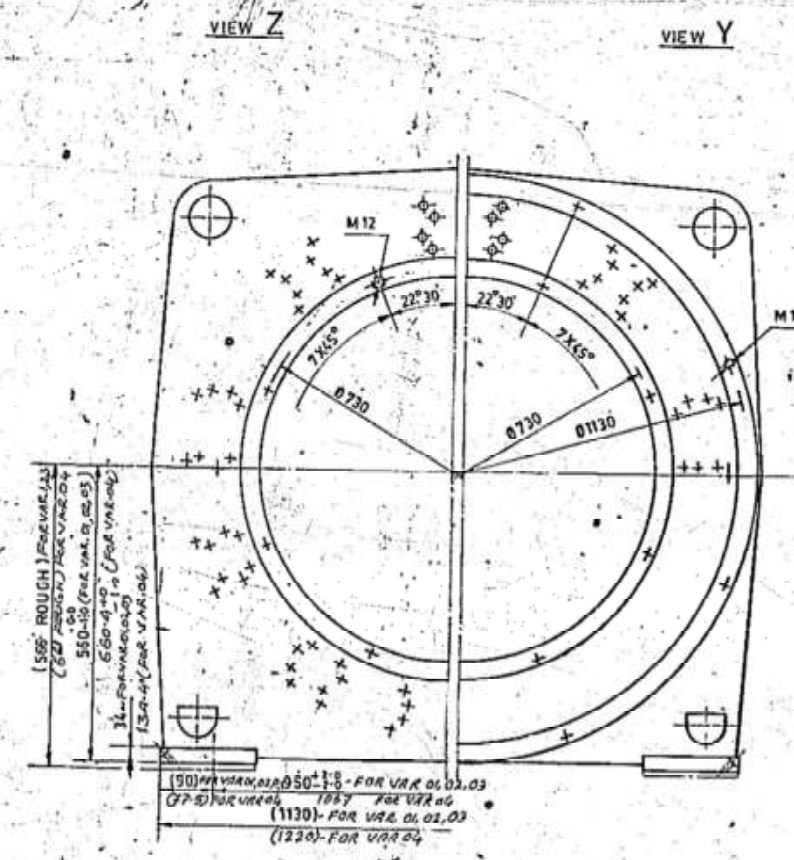
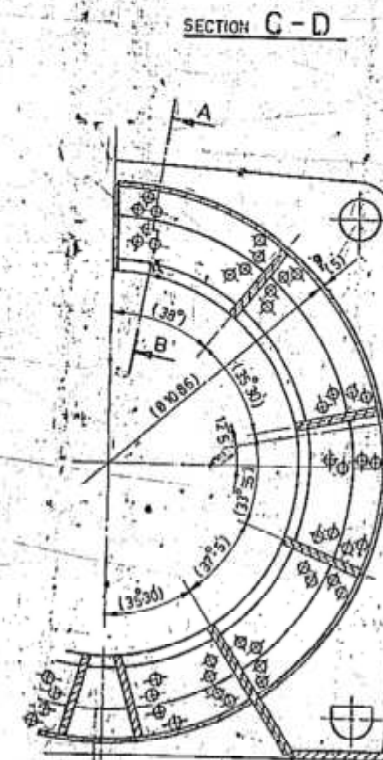
If not delivered, BHEL reserves the right to divert the quantity to meet urgent need of production schedule to other supplier and no claim / correspondence in this regard will be entertained.

- 15) In labour basis jobs, delivery is governed from the date of lifting of material. The manufacturing cycles for IMM Motors are very short and IMM is receiving short contract delivery from customers. Also inventory is not maintained for these Stator Frames. Hence as soon as requirement for these Stator Frames comes and material is received in IMM from FBM, Stator Frames will be machined in-house or offloaded against this RC as applicable. Hence, offer of firms not meeting BHEL requirements will not be considered.
- 16) Inspection will be done by BHEL approved TPIA / QIX at supplier work as per QAP No. QA/MT/BOI/005 Rev.00. dt. 14-9-10.
- 17) Offloading will be done only after full utilisation of shop capacity.
- 18) Total variation in quantity may be +/-20%.
- 19) Scrap generated during machining will be retained by vendor and corresponding cost will be deducted from invoice. Scrap Rate will be taken from Finance.

Sr. MGR [IMM-PLG]

QM
22-5-25
SUMEET KHADAKKAR
MGR [IMM-PLG]

Sr. DGM [IMM] - HOD



LIMIT	NOM. SIZE	SYMBOL	NO.	VAR.	TYPE
100-75/97-25	100-00	—		01	
1158-105/1158-00	1158-00	H7	150 8356	01	CALIFER GAUGE
1350-00/1749-60	1350-00	—		01	
689-97/689-90	689-90	—	15084 85	01	PIN GAUGE
700-50/730-30	700-30	—	1508353	01	PIN GAUGE
705-080/705-00	705-00	H7	150 84 84	01	PIN GAUGE

TOOL LIST		
W.R.	TOOL	DESCRIPTION
01	1508357	SPOT PLATE #75-08 TO 5/11 6"YB
01	1508380	ALL SETTING BARRELS 150-50 WALL SPOT PLATE
01	1508359	HALF MOON GAUGE 550-00 / 559-00
01		
02	1508360	DRIFT SHOES W/ 4 INCHES W/ AT PCD 100
01	1508361	DR FOR REMOVAL WORKS 4 INCHES W/ 13

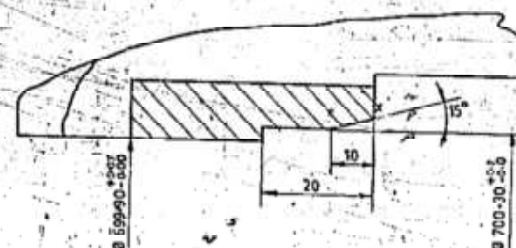
TECHNICAL REQUIREMENTS

1. EDGES MARKED "X" TO BE CHAMFERED OFF
2. DIMS OF SPIGOT FORM & TOLERANCES ARE SAME FOR BOTH DRIVE & NON-DRIVE ENDS
3. AS PEG TOOL RUN - OUT
4. UNLESS OTHERWISE SPECIFIED SURFACE ROUGHNESS TO BE R_z WHEREVER INDICATED
5. WCR- CRUCIAL DIMENSION REFER AM 54168

D. O. NOTE:-

1. FOR EQUIVALENT ALTERNATIVE CONVENTIONAL DESIGN REFER DRG. 14027140025.

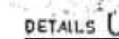
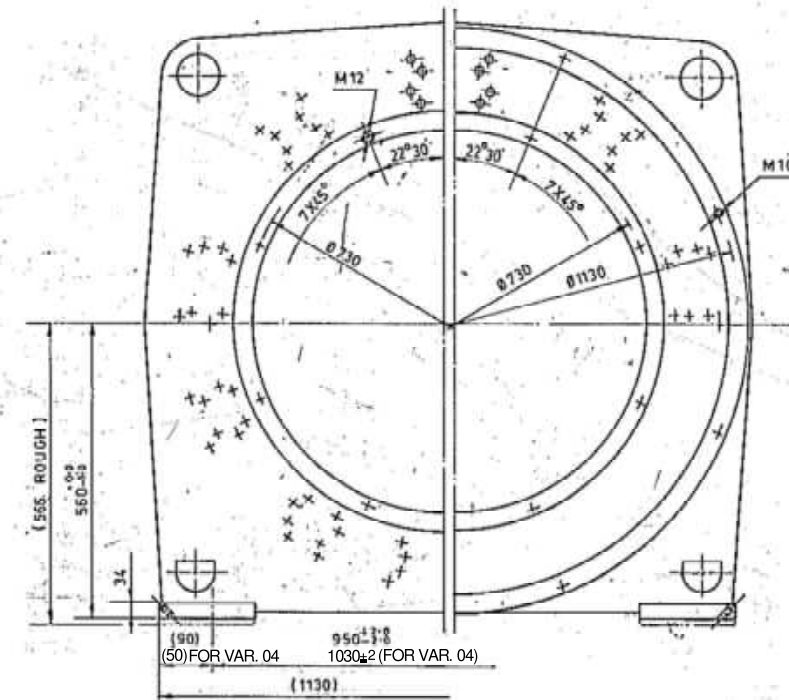
DETAILS U



404556556 - VAR.03 M.S.TUBE									
01	01	01	01	01	01	01	01	01	01
004	STATOR FRAME (FAB)	14027140093	001	1368					
003	STATOR FRAME FAB	14027140093	01	1368					
002	STATOR FRAME FABRICATED	14027140093	02	1368					
001	STATOR FRAME FABRICATED	14027140093	01	1368					
VAR 04	VAR.03	VAR.02	VAR.01	REMARKS	ITEM NO.	DESCRIPTION	DRAWING NO.	MAIL CODE	UNIT WT.
04	03	02	01						

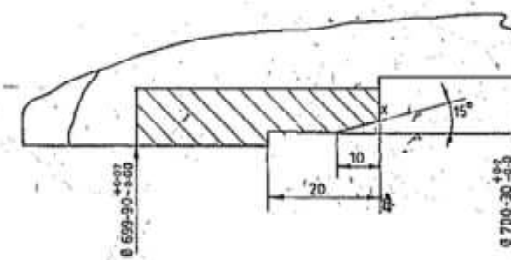
[illegible]

VIEW Y



TOOL LIST		
VAR.	TOOL	DESCRIPTION
01	1508357	SPIGOT PLATE Ø705-08 TO SUIT 8" V/B
01	1508372	TOOL SETTING BAR Ø1480-00 1673-80 WRT SPIGOT PLATE
01	1508359	HALF MOON GAUGE 560-00 / 559-00
01	1508375	B.P FOR VIEW "K" (4HOLES Ø42 & 4HOLES M30)
01	1508360	B.P FOR 8HOLES M12 & 2HOLES M10

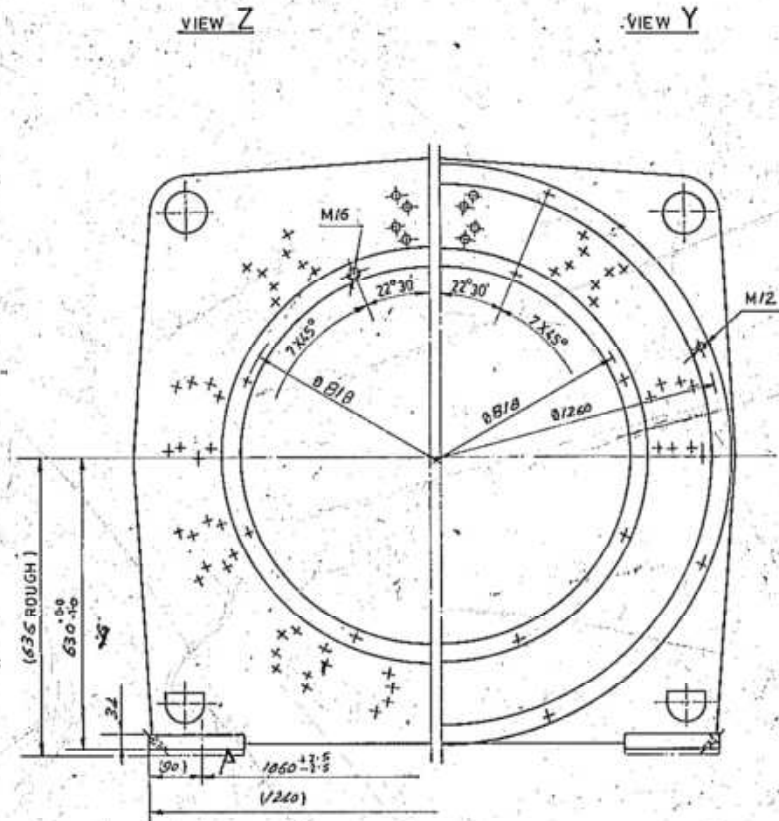
1. FOR EQUIVALENT ALTERNATIVE CONVENTIONAL DESIGN REFER DRG. 14027140022.



VAR	VAR	VAR		VAR	ITEM	DESCRIPTION	DRAWING NO.	UNIT WT.	ZONE
04	03	02	01	NO.	NO.				
-	-	-	WITH INS TUBE	003		STATOR FRAME (FAB)	14027140955	04	
-	-	-	WITH ENG TUBE	003		STATOR FRAME (FAB)	14027140985	03	
-	-	1	WITH S.E. TUBES	003		STATOR FRAME FAB	14027140995	02	
-	-	-	WITH MS TUBES	001		STATOR FRAME FABRICATED	14027140995	01	
VAR 04	VAR 03	VAR 02	VAR 01	REMARKS	VAR NO.	ITEM NO.	DESCRIPTION	DRAWING NO.	UNIT WT.
								MATL. CODE	UNIT
								MATL. SPECN.	QTY.

ADDITIONAL INFORMATION STATUS OF DRAWING			TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT			DATE 22/9/89		
DISTRIBUTION OF PRINTS AKE 1 1 IMH 3 STG (IMH) 1			 BHARAT HEAVY ELECTRICALS LIMITED BHOPAL			NAME SPV CHD. RMS/VHT APPD. VRS		
REV. DATE ALTERED 27/2/89 1-14-89 CHECKED VAR 02 ADDED, FOR W/O 43019-51			DEPT. AKE CODE 604			SCALE NTS		
TITLE STATOR FRAME M/CD. WITH KEY AT BOTTOM 11427-564/566			GRADE OF MIN. TOL. DIM/ANF			WEIGHT (kg) 1547		
CARD CODE 14027140096			REF. TO ASSY. CHG. 3 402 71 40 0 3 402 71 40			NO. OF SHEETS 01		

FIRST ANGLE PROJECTION



File No. HEP-JMM01IMP/33/2025-HEP-JMM20400 (Computer No. 186224)

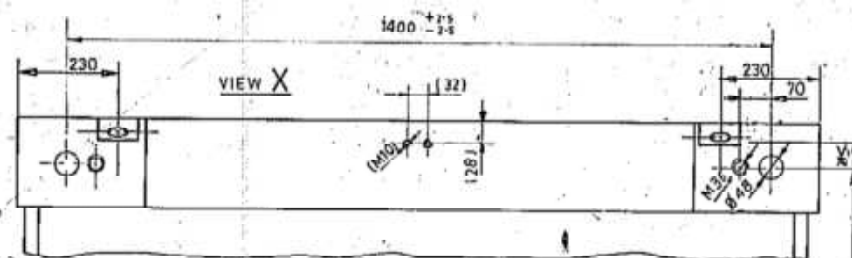
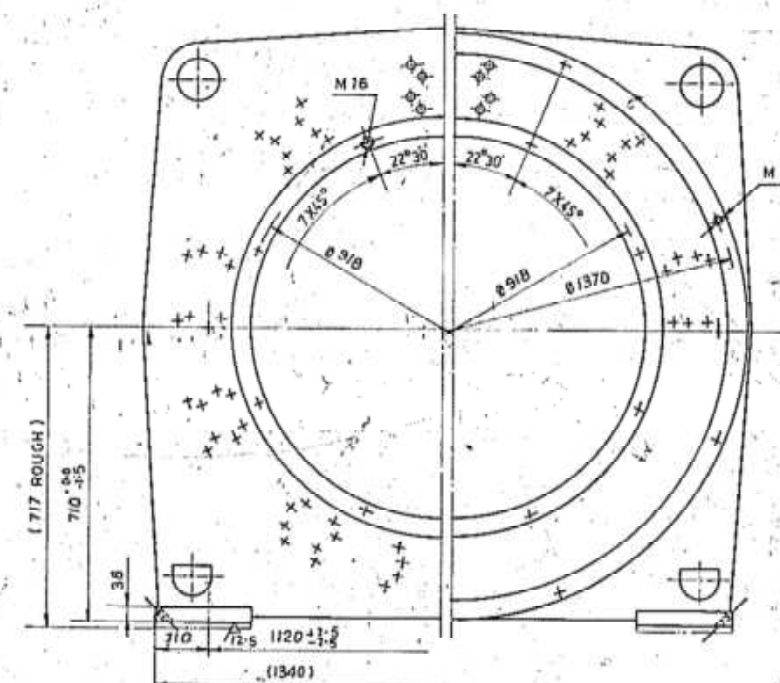
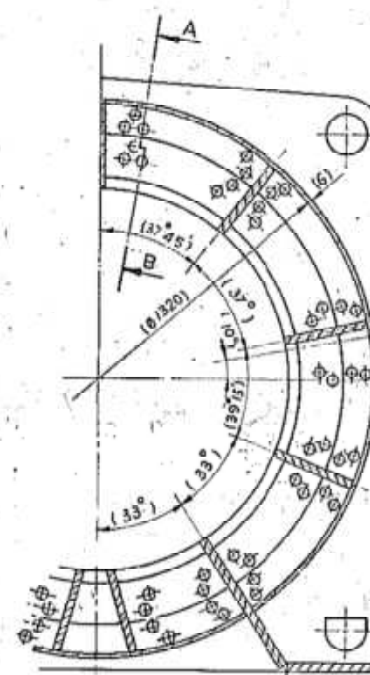
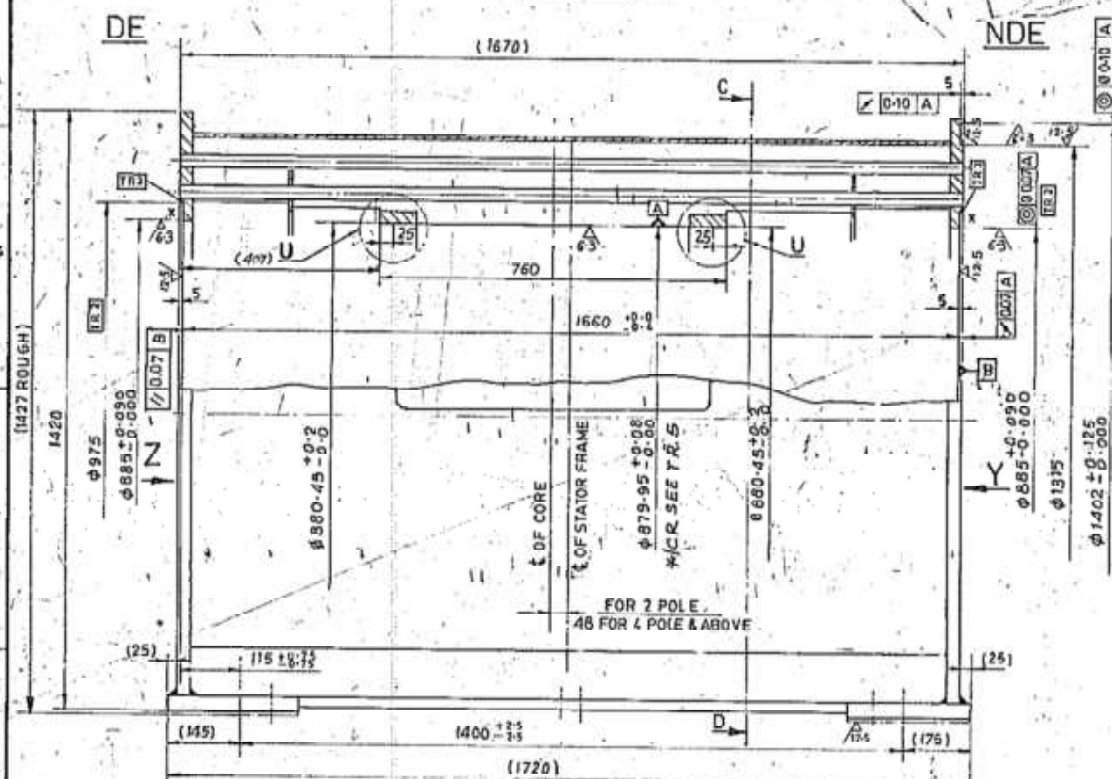
Generated from eOffice by Sandeep Kumar Saxena , DE(SKS)-ASC34203-HEP-DE, BHARAT HEAVY ELECTRICAL LTD on 28/05/2025 11:52 am

SECTION A-B

SECTION C-D

VIEW 2

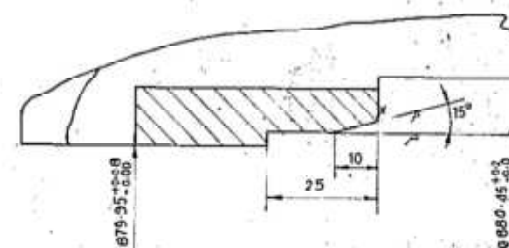
VIEW Y



1. EDGES MARKED "X" TO BE CHAMFERED OFF
2. DIMS OF SPIGOT FORM & TOLERANCES ARE SAME FOR BOTH DRIVE & NON-DRIVE ENDS
3. AS PER TOOL RUN OUT
4. UNLESS OTHERWISE SPECIFIED SURFACE ROUGHNESS TO BE $R_{\sqrt{a}}$ WHEREVER INDICATED
5. * $\sqrt{CR}$ CRUCIAL DIMENSION REFER AM 54168

1. FOR EQUIVALENT ALTERNATIVE CONVENTIONAL DESIGN REFER DRG. 1A027140041.

DETAILS U



GAUGE LIST					
LIMIT	NOM-SIZE	SYMBOL	NO.	VAR	TYPE
Φ 880-03/879.95	879.95		1507810	01	PIN GAUGE
Φ 880-65/880.45	880.45	-	1507691	01	PIN GAUGE
Φ 885-09/885.00	885.00	H7	1507806	01	PIN GAUGE
Φ 1402-125/1402.00	1402.00	H7	1507685	01	CAL. GAUGE
1660.00/1659.60	1660.00	-		01	
		-		01	PIN GAUGE
		H7		01	PIN GAUGE

TOOL LIST		
VAR.	TOOL	DESCRIPTION
01	1507608	SPIGOT-PLATE 8825-09 TO SUIT 8"VB 485-00
01	1508292	TOOL SETTING BAR 81660 1659-6 WRT.SPIGOT PLATE
01	1507712	HALF MOON GAUGE
01		
01	1507687	G.P. FOR 8 HOLES 1/4" & SHOLE 1/2" AT RCD 378 & 1370
01	1508293	G.P. FOR VIEW HOLE 8-2 & 4 HOLES 8-1361

TABLE FOR WIGHT AND GES.			
VAR	GES NO.	WEIGHT	DESCRIPTION
01	404096533	2277	WEIGH WITH OUT T.B. WITH N.S. SLIDE

1		001		STATOR FRAME FABRICATED		1 402 71 40101		01			
VAR 01		REMARKS		ITEM NO.		DESCRIPTION		DRAWING NO.		MATERIAL CODE	
										UNIT WEIGHT	
										GTY.	

ADDITIONAL INFORMATION			TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT			CARD TYPE-1		
STATUS OF DRAWING						CARD TYPE-2		
DISTRIBUTION OF PRINTS			BHARAT HEAVY ELECTRICALS LIMITED BHOPAL			NAME V.K. KHANNA		
AME	1	IMH			SCALE NTS	WEIGHT (kg) SEE TABLE	DRN.	SIGN.
TEX (IMH)	1	F&M-D					CPD.	DATE
REV. 01	DATE 15/11/91	CHANGED BY	DEPT. AME	GRADE OF UNK	SCALE	WEIGHT (kg)	REF. TO ASSY. SHEET	DATE
01	15/11/91	ALOK K	CODE 404	CMC/MF	NTS	SEE TABLE	3 402 71 401/48	15/11/91
IN GAUGE LIST DIM. 880-03/879.95 WAS 880-03/880-95.			TITLE			DRAWING NO.		
			STATOR FRAME M/C/D			14027140102		
			WITH KEY AT BOTTOM					
			1LA7-7101/712 B3					

BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL															
		QUALITY ASSURANCE PLAN						Singed by  संस्था के प्रमुख निदेशिका उत्तर, पूर्व, मध्य, दक्षिण प्र. सं. ६, १०१, भोपाल							
		Item: Stator/ Base frame machining for IMM & LEM				QAP NO.: QA/MT/BOI/005									
						REV : 00 DATE : 14.09.10									
						PAGE : Page 1 of 2									
SL. NO	COMPONENT/ OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY				REMARKS	
					M	C					D	M	C	N	
1	2	3	4	5	6		7	8	9	10				11	
1	RAW MATERIAL INSPECTION														
1.1	Fabricated stator frame	Free issue material, details of hard punch identification & previous SRV No shall be mentioned in													
2	IN-PROCESS INSPECTION														
2.1	For Machining operation														
2.1.1		Identification of vertical boring machine No., tools, jig & fixture	Maj	Vis	100%	100%	Drg.	Drg.	Dimn. Report		P	W			
2.1.2		Check machine operator qualification & experience.	Maj	Vis	100%	100%	Drg.	Drg.	Dimn. Report	✓	P	R			
2.1.3		Check marking for machining	Maj	Dim	100%		Drg.	Drg.	Dimn. Report		P	--			
2.1.4		Check flatness and verticality of stator frame on vertical boring machine & setting of job on machine	Maj	Vis	100%		Drg.	Drg.	Dimn. Report		P	--			
2.1.5		Check dimension of bores on machine (Concentricity/run out shall be witness by TPIA)	Maj	Vis	100%	100%	Drg.	Drg.	Dimn. Report	✓	P	W			
2.1.6		Check flatness of stator frame for foot machining, & Marking of centre height at DE & NDE side	Maj	Vis	100%		Drg.	Drg.	Dimn. Report		P	--			
2.1.7		Verify calibration of measuring instrument (Calibration shall be done by NABL accredited Lab)	Maj	Vis	100%	100%	----	----	Dimn. Report		P	R		Instrument No & calibration status shall be mentioned in dimension report	
2.1.8		Check finish of machined surface & center height	Maj	Vis	100%	100%	Drg.	Drg.	Dimn. Report	✓	P	W			
2.1.9		Check marking for foundation holes (distance between foundation hole to centre of the Bore (shaft centre) in both DE and NDE,	Maj	Vis	100%		Drg.	Drg.	Dimn. Report		P	--			

Legend: - Record identified with "tick" shall be essentially included by contractor in QA document, M = Manufacturer, C= Contractor/ Nominated inspection Agency, P= Perform, W=witness, V=Verifications as appropriate, CHP = Indicated 'W' in column 'N'

BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL															
		QUALITY ASSURANCE PLAN						Singed by							
		Item: Stator/ Base frame machining for IMM & LEM				QAP NO.: QA/MT/BOI/005		 Sandeep Kumar Saxena Quality Assurance Manager BH.EL.ED. Ltd., Bhopal							
						REV : 00 DATE : 14.09.10									
						PAGE : Page 2 of 2									
SL. NO	COMPONENT/ OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY				REMARKS	
					M	C					D	M	C	N	
1	2	3	4	5	6		7	8	9	10				11	
2.1.10		Check drilling & tapping of holes.	Maj	Vis	100%	100%	Drg.	Drg.	Dimn. Report	√	P	W			
3	Final inspection														
3.1		Check critical dimensions after machining operation (distance between the foundation holes and diagonally, tapping, Centre height, distance of foundation holes from shaft centre shall be witness by TPIA)	Maj	Vis	100%	100%	Drg.	Drg.	Dimn. Report	√	P	W		Critical dimension shall be witness by TPIA	
3.2		Check cleaning of chips & burrs on machined surface and drilling & tapping	Maj	Vis	100%	100%	Drg.	Drg.	Report	√	P	W			
3.3		Hard Punch & white paint identification on top corner of DE side face (WO, Drg. No., and Vendor name, SI nO., Lot No.) For base frame identification on adjacent to the bollard by hard punch	Maj	Vis	100%	100%	Drg.	Drg.	Report	√	P	W			
3.4		Check loose items if any called in Drg & PO	Maj	Vis	100%	100%	Drg.	Drg.	Report	√	P	R		Shall be mentioned in Challan	
4	Dispatch clearance	Documentation as per QAP clause column No. 10 D (tick Mark)	Maj	Doc.	100%	100%	Drg.	Drg.	Report	√	P	R			

Legend: - Record identified with "tick" shall be essentially included by contractor in QA document, M = Manufacturer, C= Contractor/ Nominated inspection Agency, P= Perform, W=witness, V=Verifications as appropriate, CHP = Indicated 'W' in column 'N'

ANNEXURE – T**TECHNICAL REQUIREMENTS FOR MACHINING OF FABRICATED STATOR
FRAMES ON LABOUR BASIS AS PER BHEL DRAWINGS & OTHER
SPECIFICATIONS**

Complete Machined Stator Frames to be supplied on LABOUR basis as per BHEL drawings as mentioned in enquiry and QA plan as applicable.

01. The raw material /sub-assemblies shall be issued as Free Issue Material (FIM) by BHEL.
02. Supplier to use only latest revision of the drawings. Before start of job, supplier should obtain the concurrence from concerned engineering division regarding the drawing version to be referred.
03. Proof-marking to be carried out by the supplier both on NDE side and DE side (or TOP side and BOTTOM side) compulsorily before final machining.
04. Following identification marks (by hard punch) to be punched as well as by white paint by supplier on every job at Non-Drive End (Top Corner).
 - (a) Supplier's Name
 - (b) PO No. & PO Date
 - (c) Drawing No./Rev./Var.
 - (d) W.O No. / M.O. No
05. Supplier to submit Guarantee / Test certificate and other required documents as per QA Plan and drawing along with material supply.
06. Tools, jigs & fixtures will not be provided by BHEL.
07. While machining, vendor has to maintain critical dimensions all geometrical and linear tolerances, viz. concentricity, parallelism, perpendicularity, run out etc. as mentioned in the drawing and technical requirements. All dimensions which are critical to quality (CTQ) must be complied by Vendor.
08. Inspection at supplier's works will be done by Third Party inspection agency (TPIA) / BHEL as per QA plan QA/MT/BOI/202, Rev.00 after Final Stator Frame machining.
09. Supplier to submit critical dimensions' data along with and prior to each supply of Machined Stator Frame.
10. BHEL reserves the right to reject any Machined Stator Frame subject to unsatisfactory Assembly / Performance of motor on account of the Machined Stator Frame.
11. TRP shall be applied on all machined surfaces.

(Seal and Sign of Authorized signatory of Supplier)

**Minimum technical requirement /Criteria (PQR/PQC) for supply of Stator
Frame machining As per BHEL Drawings and other specifications**

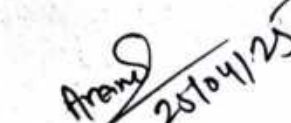
Ref: AME/PQR/Stator frame

Sl. NO	Description of Pre-Qualification Requirements (only manufacturers are eligible. Traders/Agents not acceptable.)	Vendor response											
		Complied / Not Complied	Bidders to submit following documents in compliance to PQR										
1	Manufacturers must have successfully machined and supplied at least 3 machined Stator frame of Traction/Industrial/power plant motors or alternators application in the last 10 years. Out of this stator frame, at least one stator frame must have following dimensions: 1. Stator Bore $\geq 500mm$. 2. Frame height $\geq 1200 mm$ 3. Weight of frame ≥ 0.9 Ton Orders executed and supplied by vendors may be of BHEL, Indian Railway or any other motor/alternator Manufacturer.	Yes/No	a. In support of above vendor has to furnish at least 3 machined stator frames supplied in following formats. <table border="1"> <tr> <th rowspan="4">Stator Frame</th><th colspan="2">Dimensions (in mm)</th><th rowspan="4">Name of clients</th></tr> <tr> <th>Bore/ID</th><th></th></tr> <tr> <th>Height</th><th></th></tr> <tr> <th>Weight</th><th></th></tr> </table> b. Copy of unpriced PO and Completion Certificate/ Invoice copy / third party inspection report to be provided as a proof of its successful execution for PO supplied in the last 10 years as on the date of opening of enquiry to be furnished. c. In case of BHEL Bhopal supply, vendor has to furnish only BHEL PO.	Stator Frame	Dimensions (in mm)		Name of clients	Bore/ID		Height		Weight	
Stator Frame	Dimensions (in mm)		Name of clients										
	Bore/ID												
	Height												
	Weight												
3	The design feature, dimensions, size, Geometrical tolerances, material used, QAP and technical requirements shall be strictly as per BHEL drawings, specifications and annexure-T	Yes/No	Supplier to give self-declaration (seal signed by authorized signatory) confirming that design feature, dimensions, size, material used, QAP, annexure and technical requirements shall be as per BHEL enquiry, drawings and specifications. Any deviation shall be clearly spelt.										
4.	Vendor must have in house manufacturing facilities to execute the order as per BHEL drawings, QAP and technical requirements.	Yes/No	Compliance to be provided with details manufacturing facilities available.										
5.	Vendors must have details manufacturing plan.	Yes/No	Manufacturing process plan to be submitted by vendors.										

Notes:

1. Compliance to above Pre-qualification requirements are mandatory. In the absence of compliance of above requirement vendor PQ application is liable to be rejected. **Since the nature of item is critical, no relaxation from compliance to above PQR (technical term) shall be given to MSE and Start up organisations.**
2. BHEL reserves the right to accept the offer in part or in full or cancel the tender enquiry without assigning any reason.
3. BHEL has right to verify information / confirmation furnished by asking additional documents, proofs etc.


M.K Maravi 25.04.25
AGM/AME, ISE & SSM


Anand Kr Modi
Sr. Manager/AME