

ANNEXURE 2

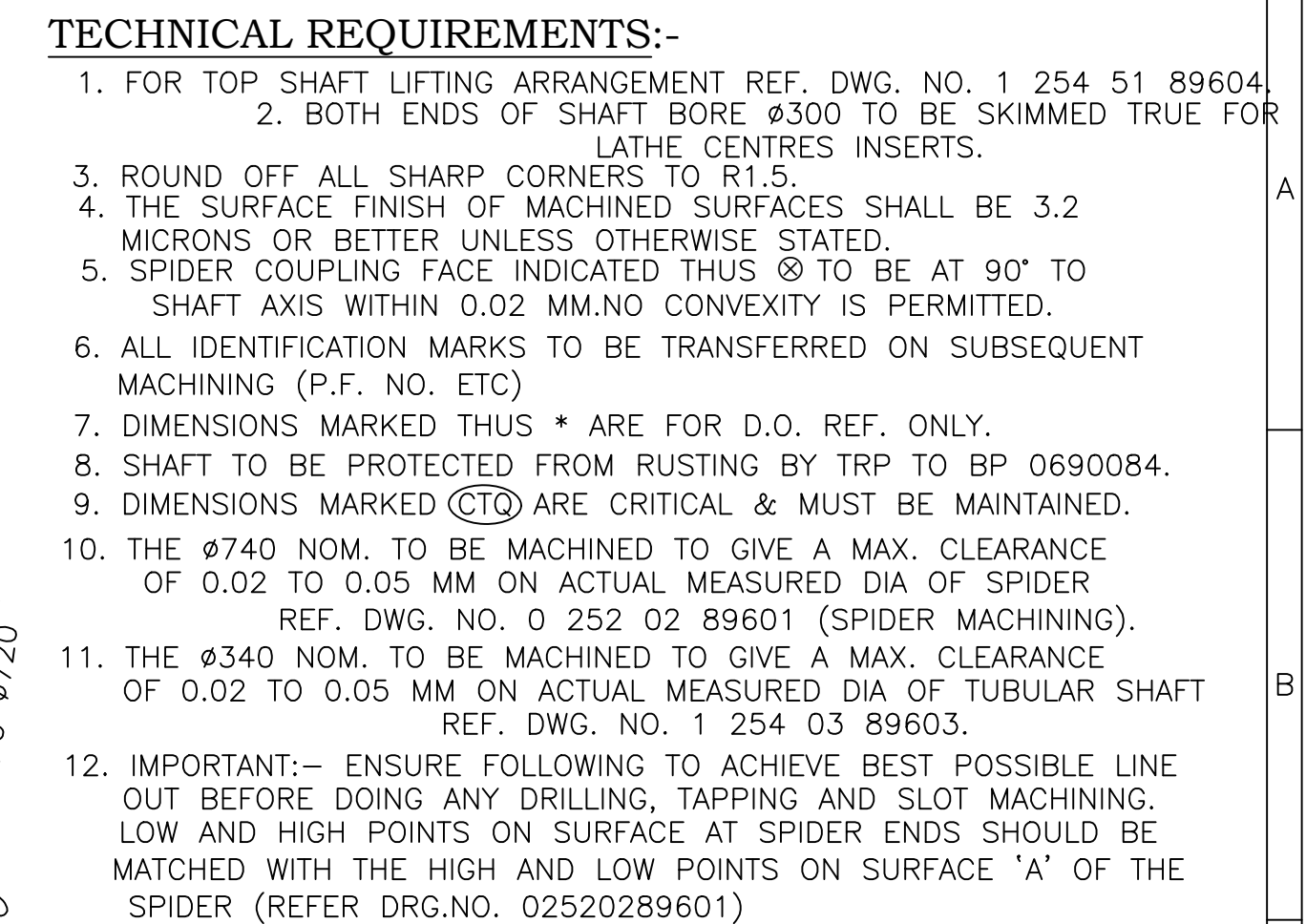
Date: 16-09-2022

Subject: The drawings / sketches of the jobs / components to be machined on the proposed CNC Horizontal Boring Machine

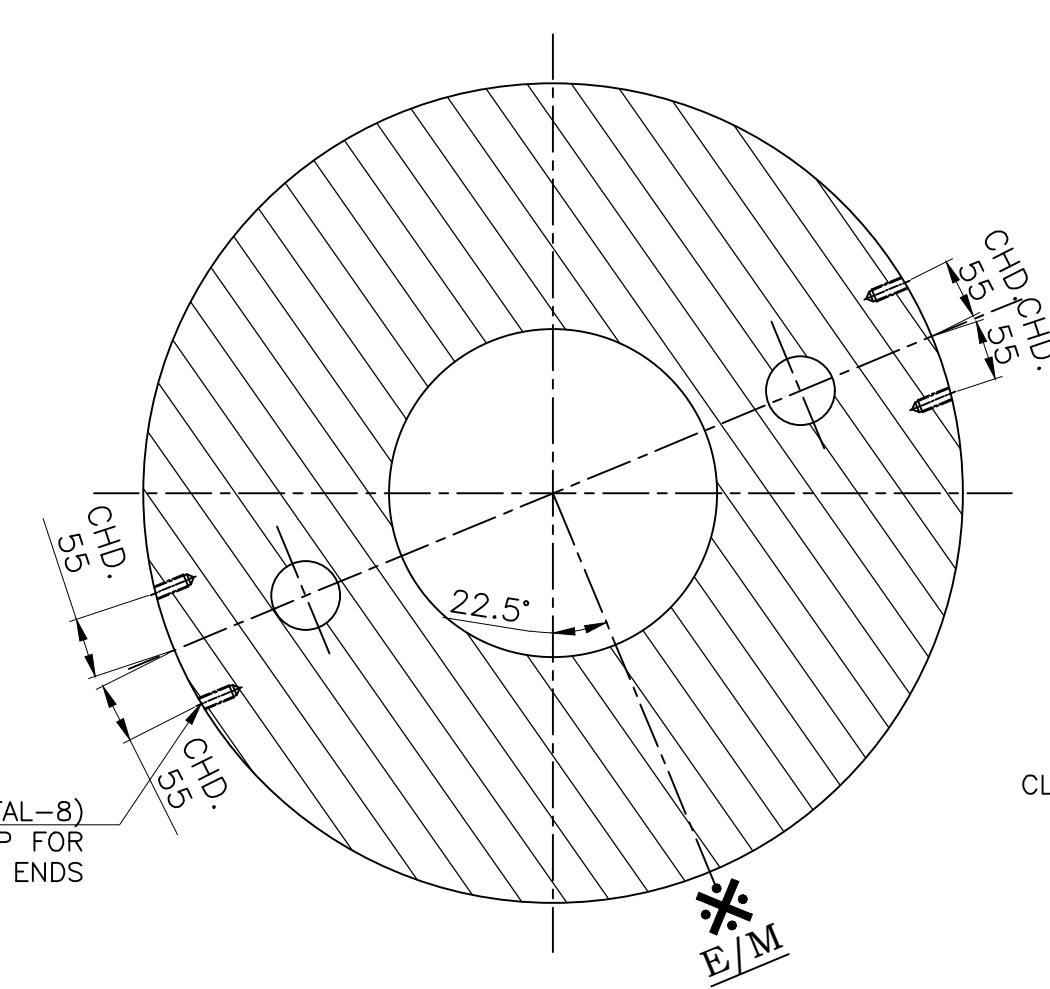
Reference: Annexure-I (Specification Number - **TEX/EOI/CNC-H. Boring/2022/01**)

Contents: Drawings / Sketches as given below

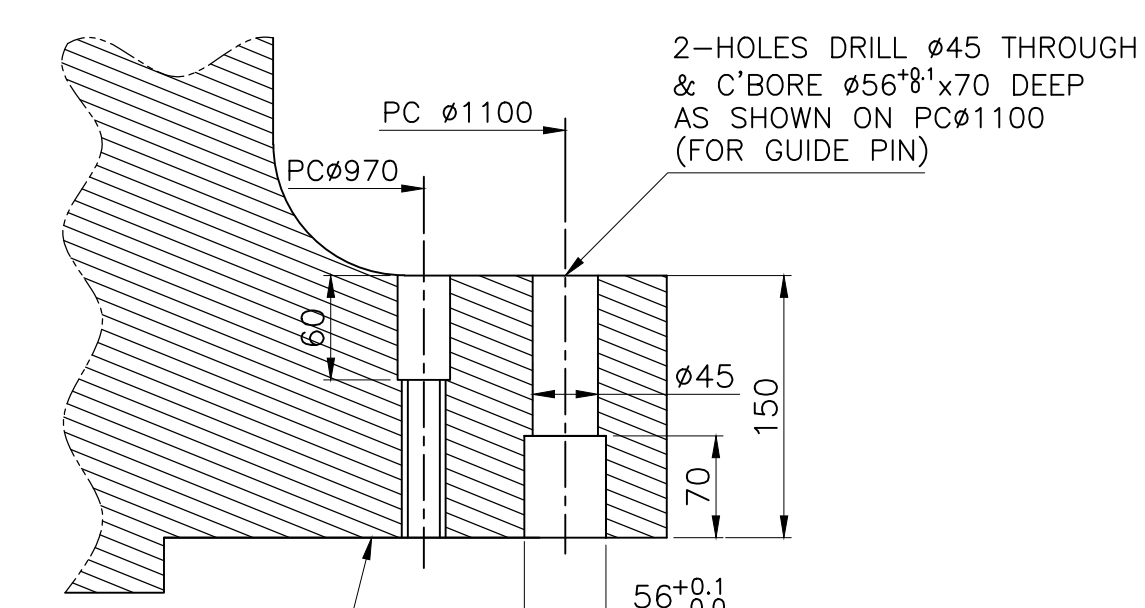
- Top Shaft M/c
- Base Plate
- Spider Assy
- Bottom Bracket



<u>TOOL LIST</u>		
<u>SL. NO.</u>	<u>TOOL NO.</u>	<u>DESCRIPTION</u>
01	1598477 (EXISTING)	DRILL JIG FOR 12 HOLES $\phi 72$ & 2 HOLES $\phi 25$ ON PCD 1100. (COMMON WITH SPIDER ASSY.)
02	1598487 (EXISTING)	DRILL JIG FOR 6 HOLES M30 ON PCD 720. (COMMON WITH TUBULAR SHAFT)
03	1598483 (EXISTING)	DRILL $\phi 72$.
04	SFB130/072 (EXISTING)	BACK SPOT FACE CUTTER $\phi 130$ WITH $\phi 72$ PILOT.
05	1597807 (EXISTING)	DRILL $\phi 11.8 \times 150$ LONG CUTTING FLUTE.
06	1598480 (EXISTING)	SHALL END MIL CUTTER $\phi 128$ (ROUGHER)
07	1598481 (EXISTING)	SHALL END MIL CUTTER $\phi 130$ (FINISHER)

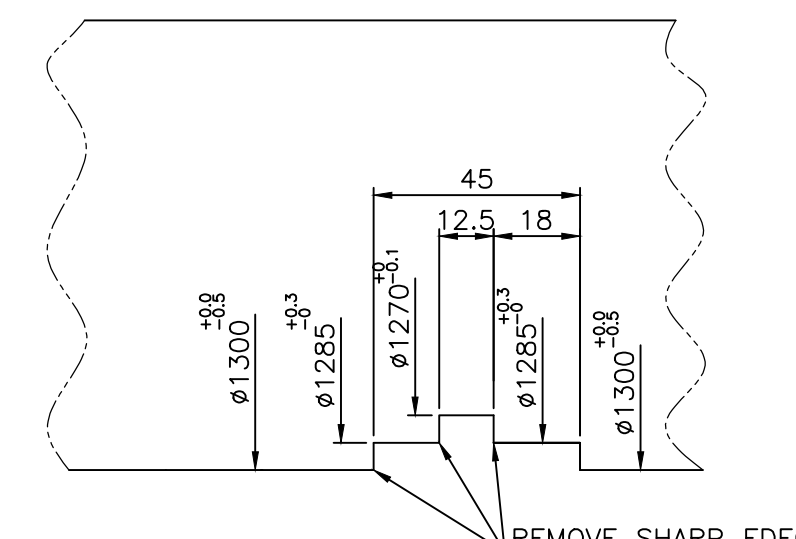


SECTION J1-J1



SECTION-SS

CLOCK GAUGE TOLERANCE TABLE	
POSITION	MAXIMUM RUNOUT IN MM
A	0.025
B	0.025
C	0.05
D	0.05
E	0.05
F	0.02
G	0.025
B1	0.05
B2	0.05



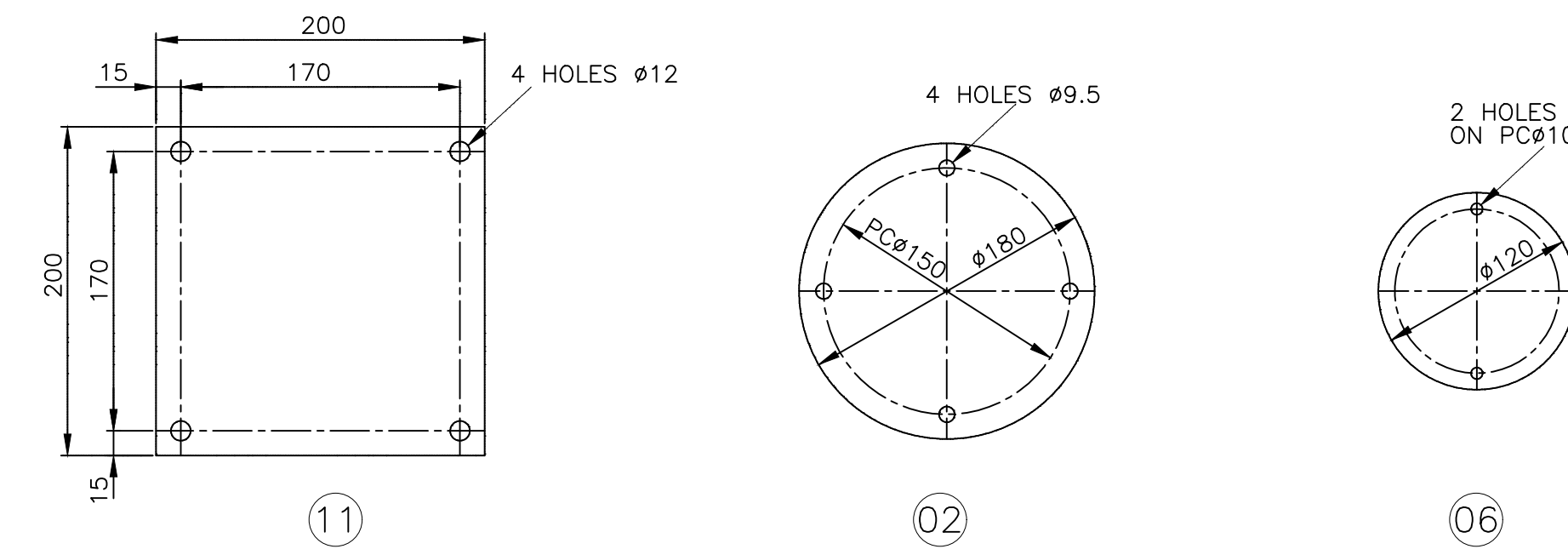
Technical drawing of a shaft detail. The drawing shows a cross-section of a shaft with a diameter of $\phi 340$ (CTQ) SEE T.R.11. The end of the shaft is chamfered with a 1X45° chamfer. A radius R1 is indicated at the transition. A section line 12 is shown.

ENLARGED DETAIL-Z
(FOR TUBULAR SHAFT FIXING)
(ZONE - B4)

001						001			TOP SHAFT FORGING										3 254 01 89602										001													NA			NA			10600.00																G		
59	QTY VAR00		64	REMARKS		75	78	25	27	29	DESCRIPTION										58	59	60	DRAWING NO.										77	78	31	34	MATL. CODE		45	55	56	57	58	UNIT WT.		65	72	ZONE																	
	VAR.						VAR. NO.		ITEM NO.													STD														32	33	46	MATL. SPCL.		54	C.I.A.	UNIT	68	QTY.		71	75																		
2R → CARD TYPE = 1										2R → CARD TYPE = 1										2R → CARD TYPE = 2																																														

CARD TYPE-3		28 → CARD TYPE-1		28 → CARD TYPE-5	
ADDITIONAL INFORMATION W.O. NO. 36201 TO 09-A-23154-STAGE2 W.O. NO. 36210 TO 18-A-23154-STAGE3 STATUS OF DRAWING		mRikri in-dkj;k xk--gdgBrikstok uk uke PALAMURU TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		HMS-713/170-24K RANGAREDDY LIS STAGE-2&3 (MEIL/TSGCNO)	
DISTRIBUTION OF PRINTS		HAKrg gsho bysfdVdYI fyfveVsk HAKSIKY BHARAT HEAVY ELECTRICALS LTD. BHOPAL		ukse NAME glrk SIGN mauka DATE Csk DRN. Wtkpk GKD. Wskfrk APPD. SSC/NS RG 17.10.20 17.10.20 en d-- item No.	
HCE - 1	HGM - 2	foHAKX DEPT. g. B. N. UNTOOL. DIMS. GR. 32500001404 dskm CODE 403		wqurk SCALE 10074 HAKg WEIGHT (K.G.) NTS	
TEX - 1		'Ah' AZULE		M&kbox dBRWING NO. 1 254 01 89601 SHF.	
TOP SHAFT (M/C)				i="B d--NO. 01 i="Bkso dk iq; NO. OF SHT. 01	


PROPERTY NO.	SIGN & DATE	DEF DOC NO
		14034740258 (404574086)

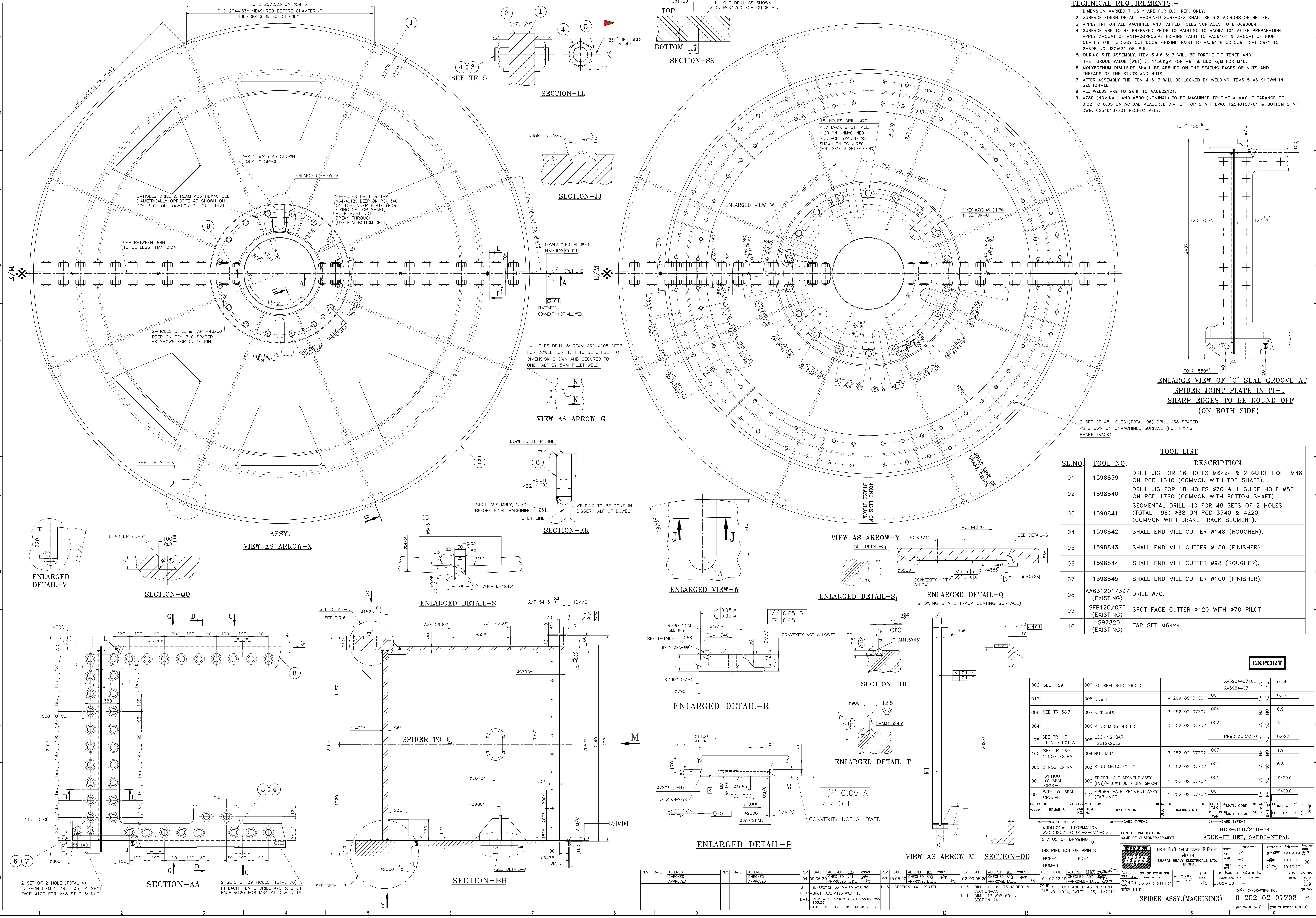


1	2 HOLES DRILL Ø5X20 DEEP AS CONTROL HOLES BEFORE THE MACHINING.
2	2 DOWEL HOLES Ø25 AFTER THE ALIGNMENT OF STATOR.
3	2 DOWEL DRILL Ø25 AFTER THE ALIGNMENT OF BEARING PEDESTAL.
4	4 SETS OF 4 HOLES M8X15 DEEP FOR COVER ITEM 02.
5	13+15 HOLES M10 MARK OFF FROM PIT COVER ASSEMBLIES (DE & NDE).
6	MACHINING ON THE BASE FRAME UPTO WELDS OF SUPPORT.
7	2 HOLES FOR DOWEL Ø16 AS PER STATOR OF EXCITER.
8	2 SETS 2 HOLES M6 AS PER IT. 06.
9	4 HOLES M10X30 DEEP FOR IT. 7.
10	2 SETS OF 4 HOLES M10X20 DEEP MARK OFF FROM COVER IT. 11.
11	2 SETS OF 6 HOLES M16 FOR SHAFT SEALING COVER.
12	4 HOLES M42 FOR FIXING OF BEARING PEDESTAL.
13	4 HOLES M42 FOR FIXING OF STATOR HOUSING .
14	6 HOLES M16 FOR SHAFT SEALING COVERS.
15	4 HOLES M24 FOR FIXING OF EXCITER STATOR FRAME.
16	1 HOLES 3/4" FOR BTD WIRING.
17	DIMENSION IN BRACKET ARE FOR REFERENCE ONLY.
18	2 HOLES M12 FOR MOUNTING OF SLIPRING (REQD. FOR EARTH FAULT PROTECTION).
19	BOTTOM PADS TO BE MACHINED UPTO 10mm THK.

GES NO. 404574113 VAR.00

[illegible]

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	DEPT.	GRADE OF UNTOOL		SCALE	WEIGHT (kg)	REF. TO ASSY. DRG.	ITEM NO.	78 NO. OF ITEMS	
		APPROVED			APPROVED			APPROVED	AME	D.M. C/M/P		N.T.S.	3100				
ZONE			ZONE			ZONE			CODE								
									404								
									TITLE				DRAWING NO.				79 REV.
									BASE PLATE (MACHINING)				14034740266				00
													SHEET NO. 01				NO. OF SHEET 01



TECHNICAL REQUIREMENTS:-

1. DIMENSION MARKED THIS * ARE FOR D.O. REF. ONLY.
2. SURFACE FINISH OF ALL MACHINED SURFACES SHALL BE 3.2 MICRONS OR BETTER.
3. APPLY TOP ON ALL MACHINED AND TAPPED HOLES SURFACES TO BP0690084.
4. SURFACE ARE TO BE PREPARED PRIOR TO PAINTING TO A46074101 AFTER PREPARATION APPLY 2-COAT OF ANTI-CORROSIVE PRIMING PAINT TO A456101 & 2-COAT OF HIGH QUALITY FULL GLOSSY OUT DOOR FINISHING PAINT TO A456126 COLOUR LIGHT GREY TO SHADE NO. ISO-651 OF /IS/.
5. DURING SITE ASSEMBLY, ITEM 3,4,6 & 7 WILL BE TORQUE TIGHTENED AND THE TORQUE VALUE (WET) : 1150kgm FOR M64 & 860 kgm FOR M48.
6. MOLYBDENUM DISULFIDE SHALL BE APPLIED ON THE SEATING FACES OF NUTS AND THREADS OF THE STUDS AND NUTS.
7. AFTER ASSEMBLY THE ITEM 4 & 7 WILL BE LOCKED BY WELDING ITEMS 5 AS SHOWN IN SECTION-LL.
8. ALL WELDS ARE TO GRJ11 TO A0622101.
9. #780 (NOMINAL) AND #900 (NOMINAL) TO BE MACHINED TO GIVE A MAX. CLEARANCE OF 0.02 TO 0.05 ON ACTUAL MEASURED DIA. OF TOP SHAFT DWG. 12540107701 & BOTTOM SHAFT DWG. 02540107701 RESPECTIVELY.

ENLARGE VIEW OF 'O' SEAL GROOVE A
SPIDER JOINT PLATE IN IT-1
SHARP EDGES TO BE ROUND OFF
(ON BOTH SIDE)

TOOL LIST		
SL.NO.	TOOL NO.	DESCRIPTION
01	1598839	DRILL JIG FOR 16 HOLES M64x4 & 2 GUIDE HOLE M48 ON PCD 1340 (COMMON WITH TOP SHAFT).
02	1598840	DRILL JIG FOR 18 HOLES Ø70 & 1 GUIDE HOLE Ø56 ON PCD 1760 (COMMON WITH BOTTOM SHAFT).
03	1598841	SEGMENTAL DRILL JIG FOR 48 SETS OF 2 HOLES (TOTAL- 96) Ø38 ON PCD 3740 & 4220 (COMMON WITH BRAKE TRACK SEGMENT).
04	1598842	SHALL END MILL CUTTER Ø148 (ROUGHER).
05	1598843	SHALL END MILL CUTTER Ø150 (FINISHER).
06	1598844	SHALL END MILL CUTTER Ø98 (ROUGHER).
07	1598845	SHALL END MILL CUTTER Ø100 (FINISHER).
08	AA6312017397 (EXISTING)	DRILL Ø70.
09	SFB120/070 (EXISTING)	SPOT FACE CUTTER Ø120 WITH Ø70 PILOT.
10	1597820 (EXISTING)	TAP SET M64x4.

EXPORT

[illegible]

