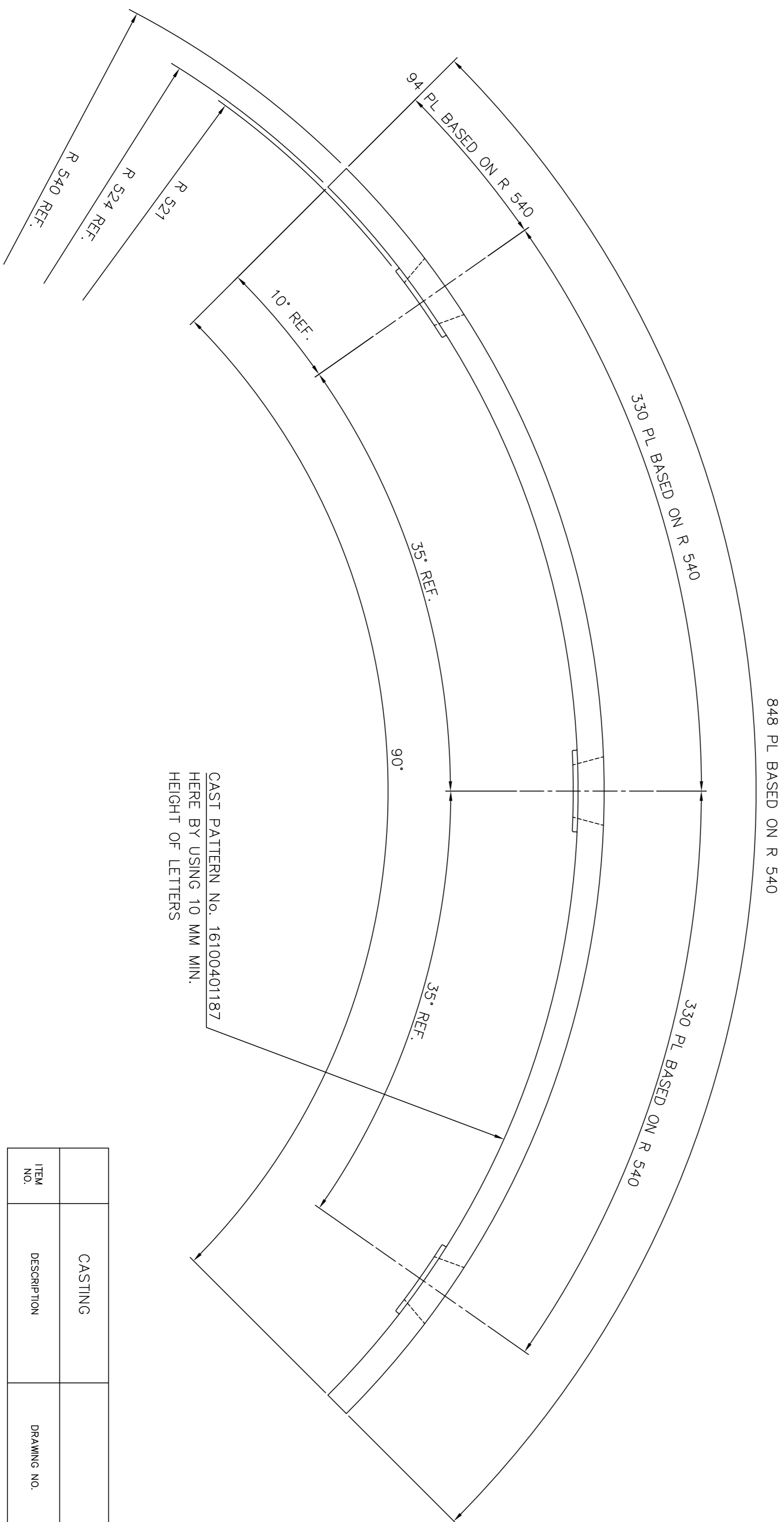
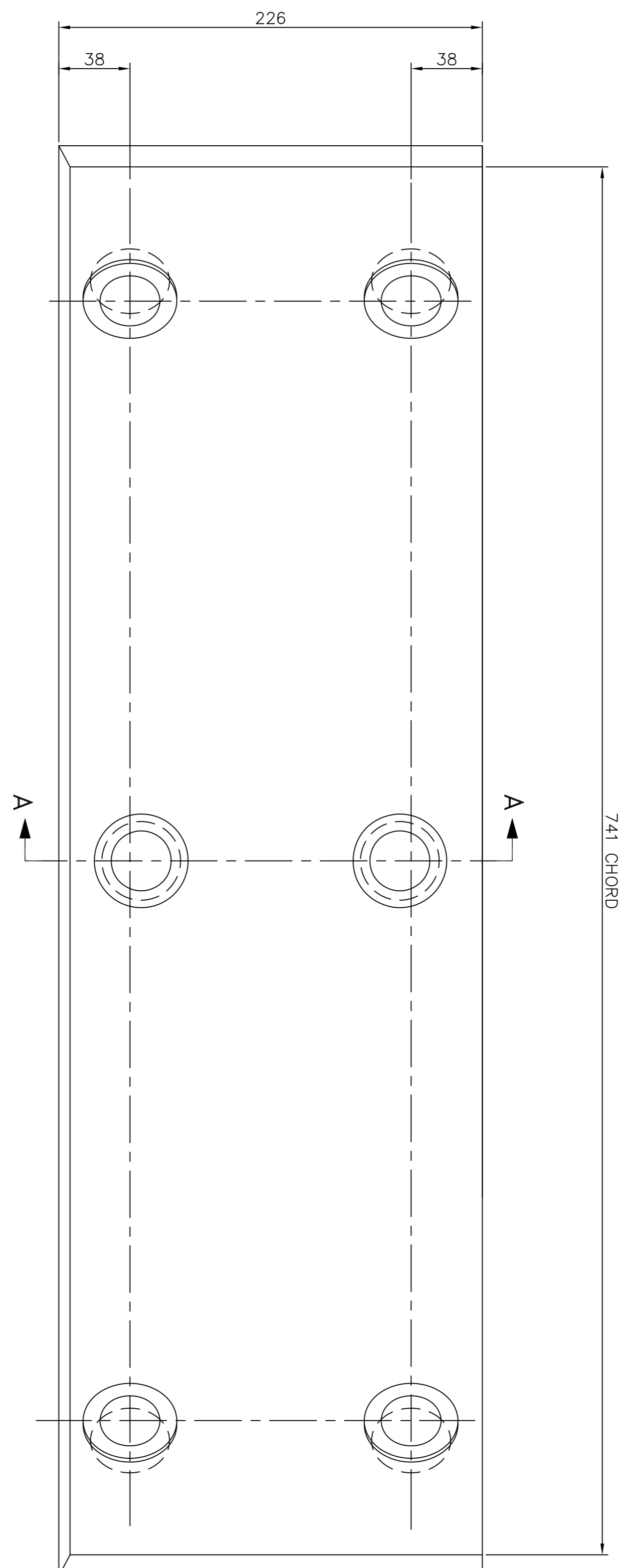


SECTION A-A



CAST PATTERN NO. 16100401187  
HERE BY USING 10 MM MIN.  
HEIGHT OF LETTERS

ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL SPEC.	QUANTITY	NET WT.	GROSS WT.
	CASTING						24.00	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

- REF. TO HY0230281 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/C/D. SHARP EDGES 1:2 TO 1:0 AT 45°.
- INTERNAL M/C/D. CORNER RADI 1 TO 0.7
- THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT  
NAME OF CUSTOMER/PROJECT

1103 BOWL MILL

DEPT. PULL V. INTOL. DIM. OR CODE 4/6/7

SCALE WEIGHT (KG) 24.00

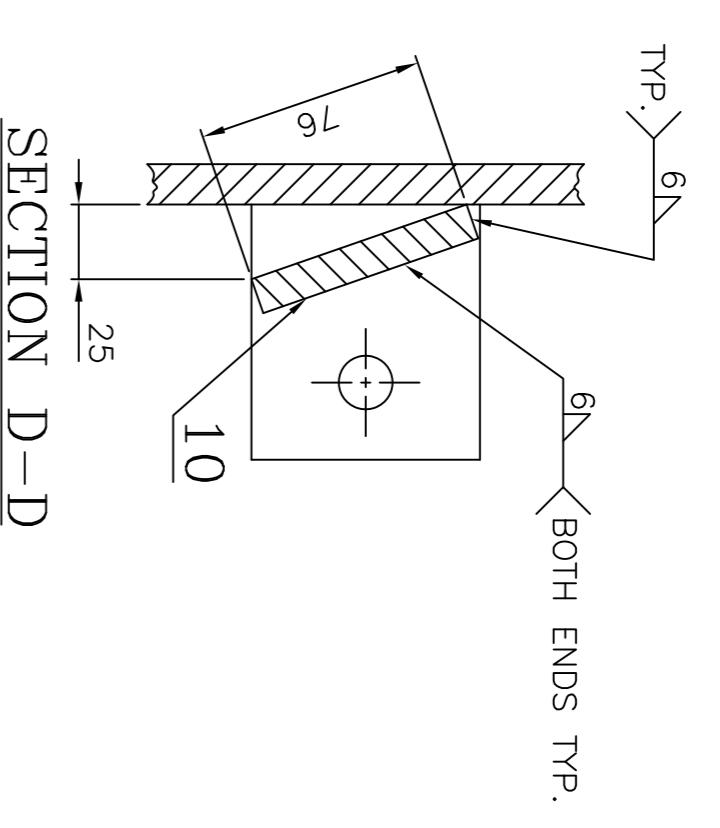
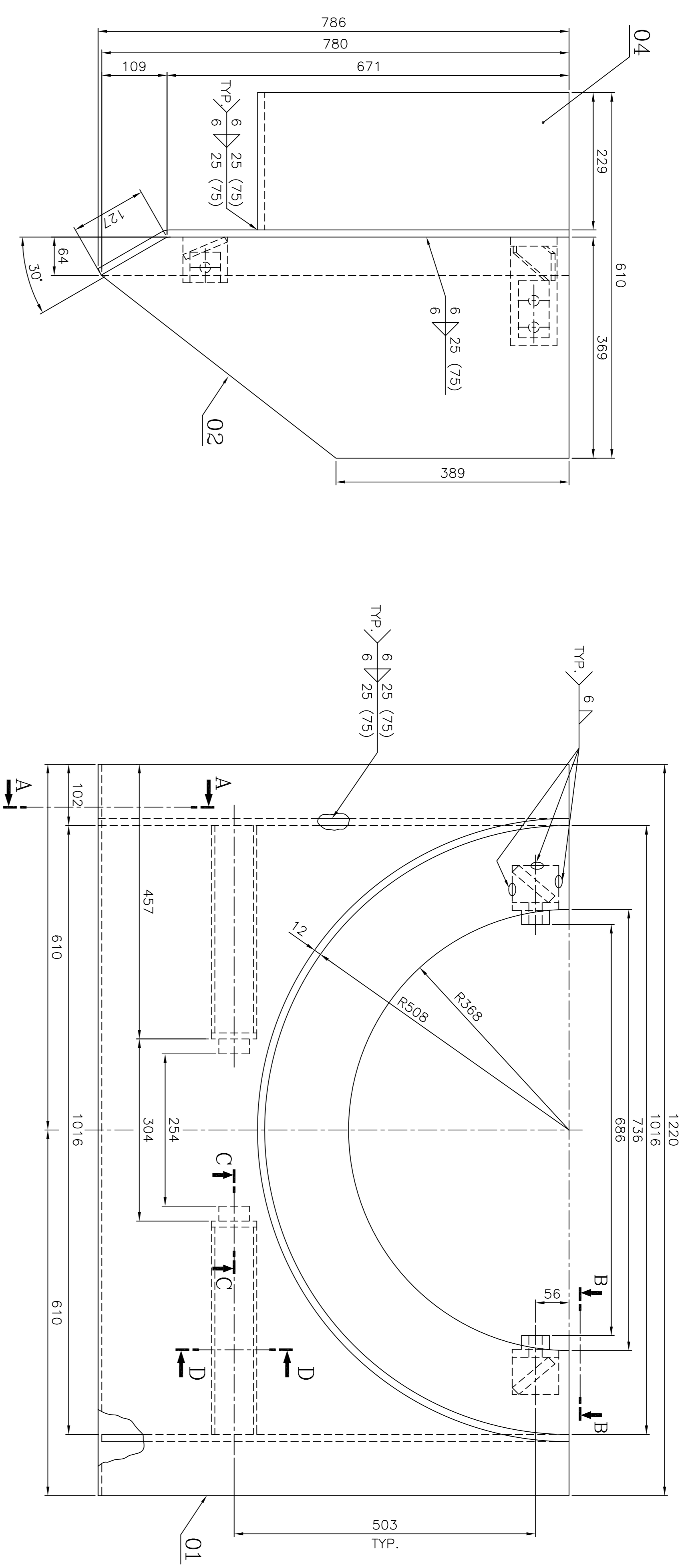
DATE 12.06.99

JOURNAL HEAD LINER

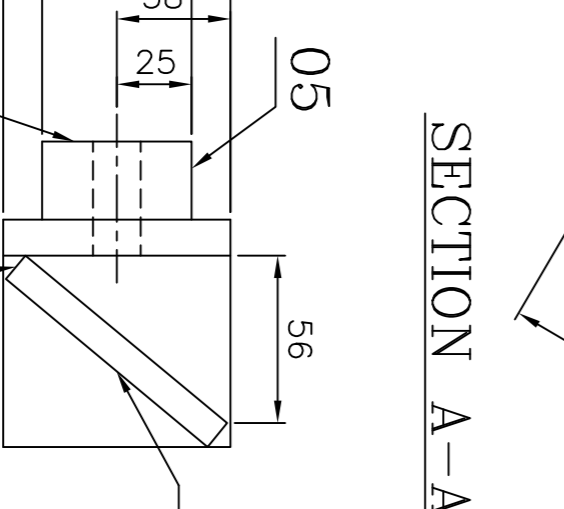
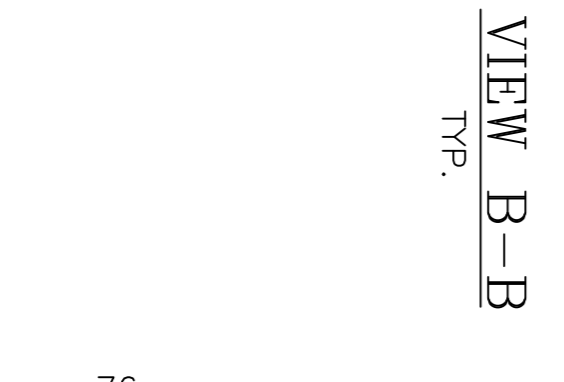
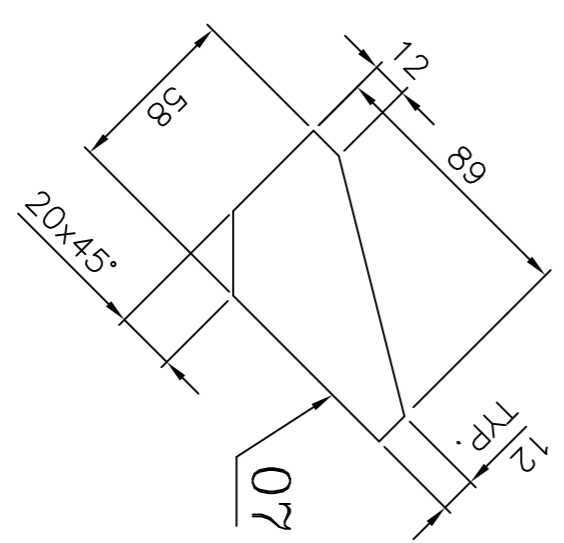
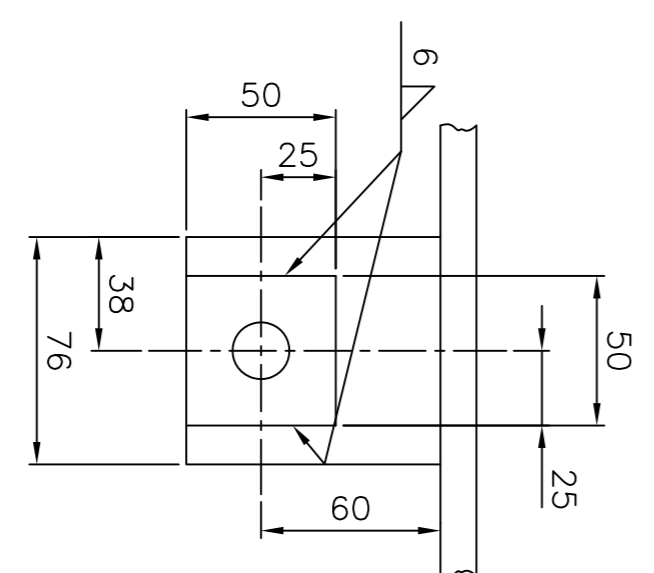
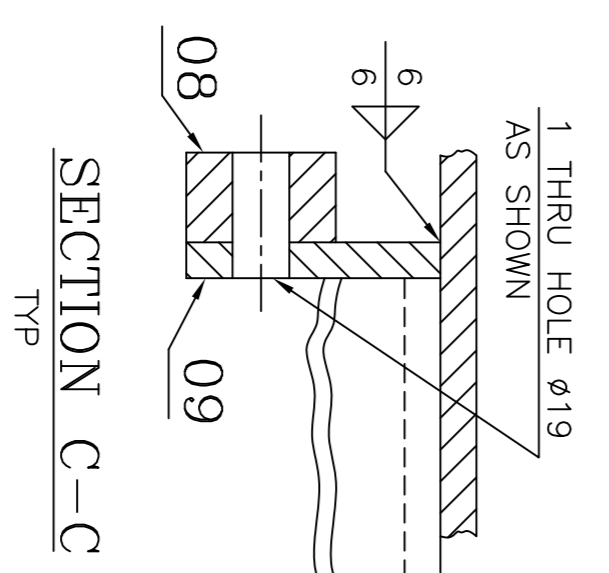
1-61-004-01187

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHD./APPD.			CHD./APPD.			CHD./APPD.			CHD./APPD.

NO. OF SHEETS	NO. OF ITEMS	NO. OF VARS.
01	01	01



NOTE:-  
01. BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.



GENERAL DIMENSIONS LIMITS, FITS & TOLERANCES AS PER P.S. HY0230261

ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FOREIGN DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.	QUANTITY
01	PL. 12x798x1219			AA1011819090	AA10119	71.600		1
02	PL. 12x780x369			AA1011819090	AA10119	12.700		1
03	PL. 12x780x64			AA1011819090	AA10119	4.400		1
04	PL. 12x229x1615			AA1011819090	AA10119	34.800		1
05	PL. 25x50x96			AA1011819155	AA10119	0.940		2
06	PL. 20x76x221			AA1011819139	AA10119	2.630		2
07	PL. 12x58x89			AA1011819090	AA10119	0.320		2
08	PL. 25x50x50			AA1011819155	AA10119	0.500		2
09	PL. 12x85x76			AA1011819090	AA10119	0.600		2
10	PL. 12x76x344			AA1011819090	AA10119	2.500		2

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER W/OD. SHARP EDGES 1.2 TO 1.0 AT 45°
- INTERNAL W/OD. CORNER RADIUS 1 TO 0.7
- THE SURFACE ROUGHNESS WHERE-OVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN ON THE TOP MOST RIGHT CORNER OF THE DRG.

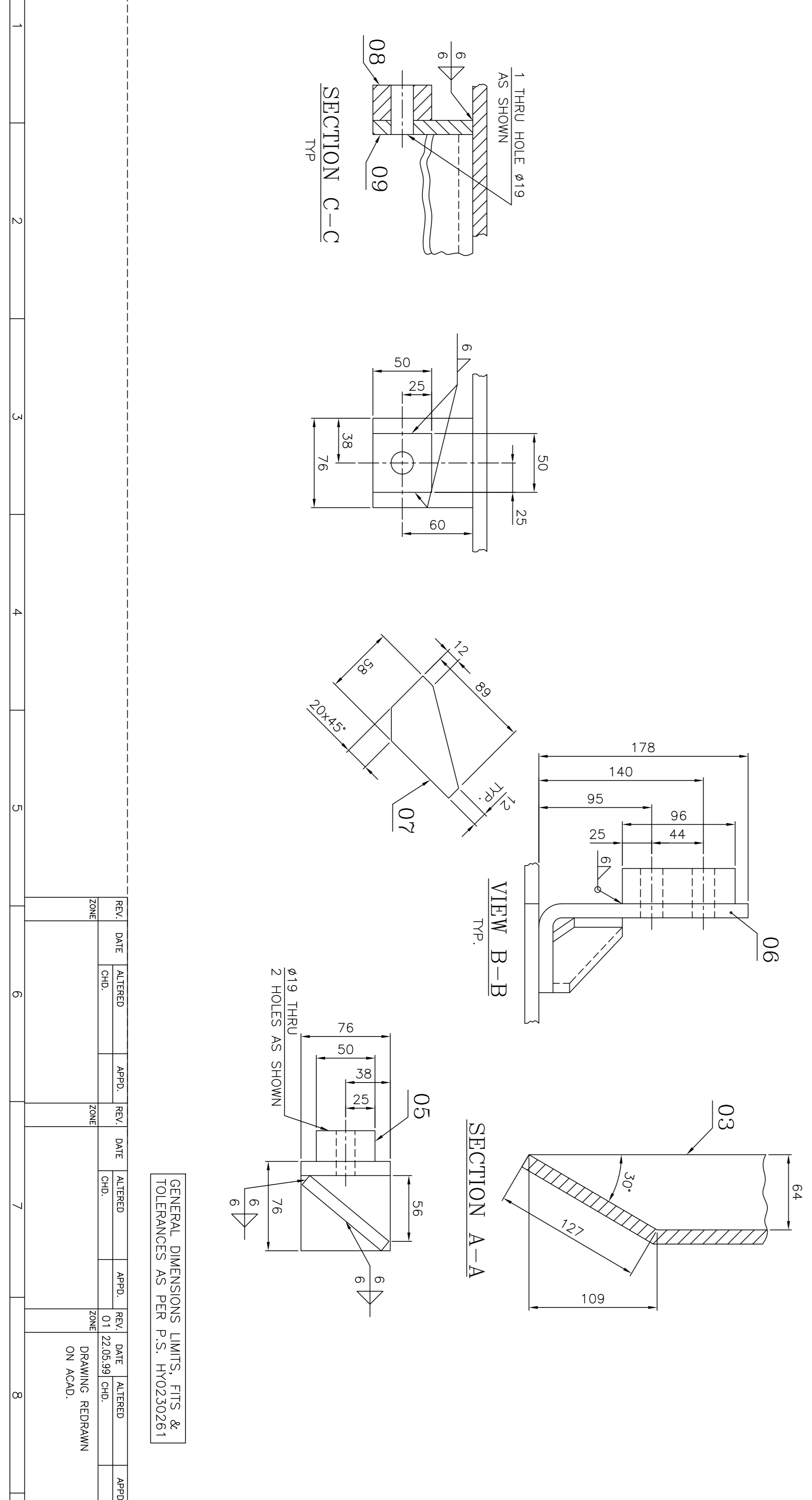
TYPE OF PRODUCT: 1103 XRP BOWL MILL  
NAME OF CUSTOMER/PROJECT: BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD

DEPT. P&L ENGS. CODE	UNTL. DRG. OR E/M/T	SCALE	WEIGHT (KG)	NO. OF SHEETS
446		1:2.5, 1:5, 1:4.5, 2:0	22.05.99	01

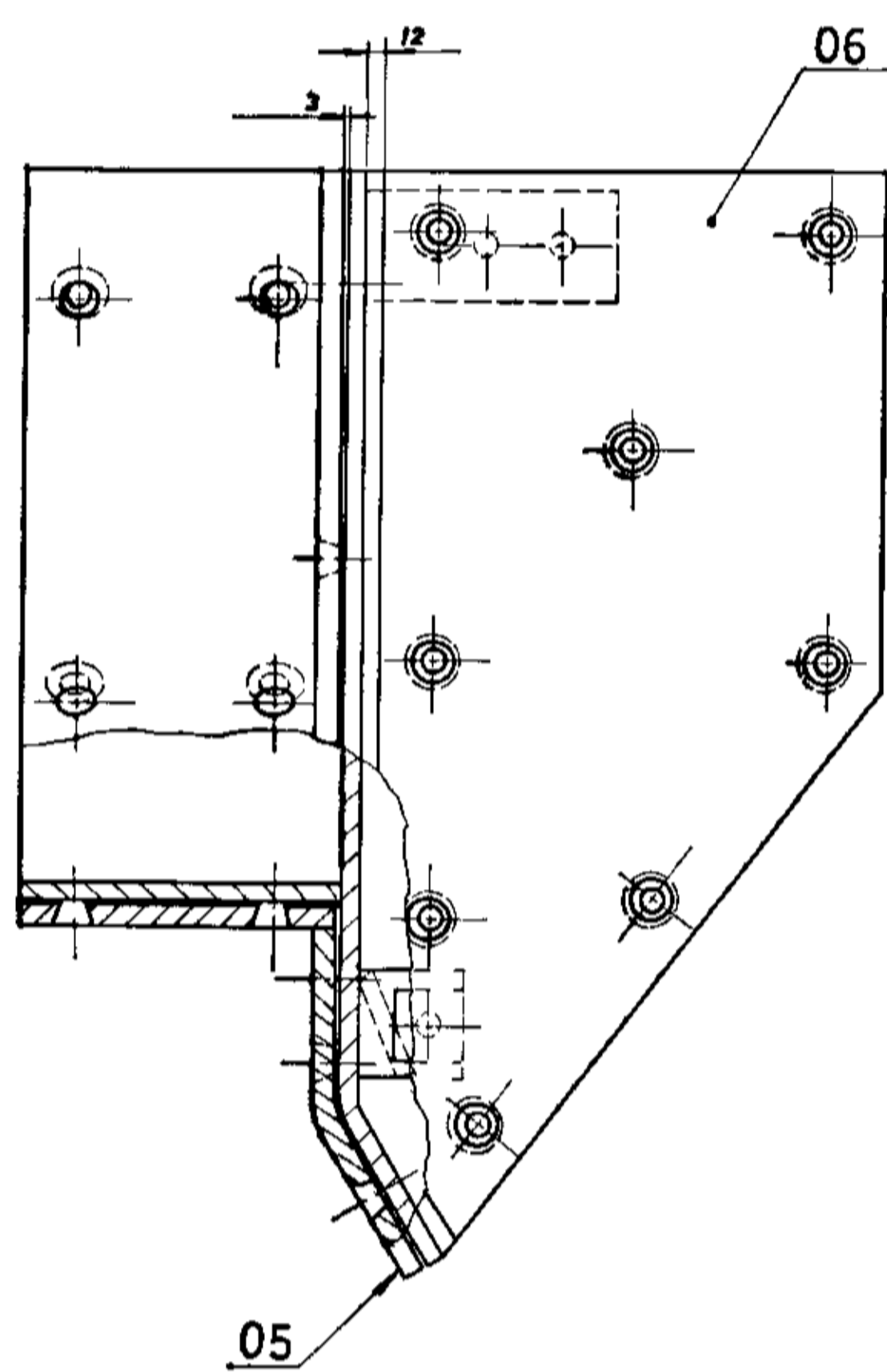
TITLE: JOURNAL HEAD LINER SUPPORT

DATE: 22.05.99

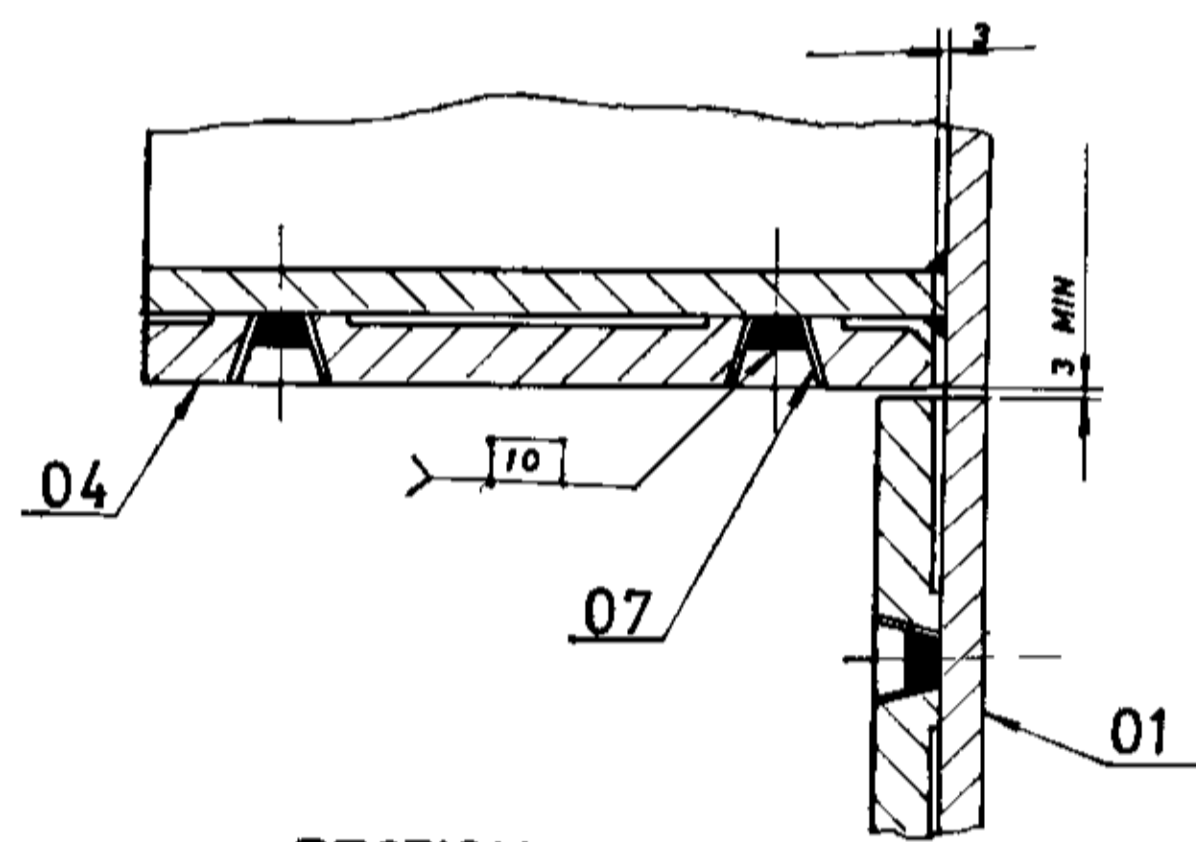
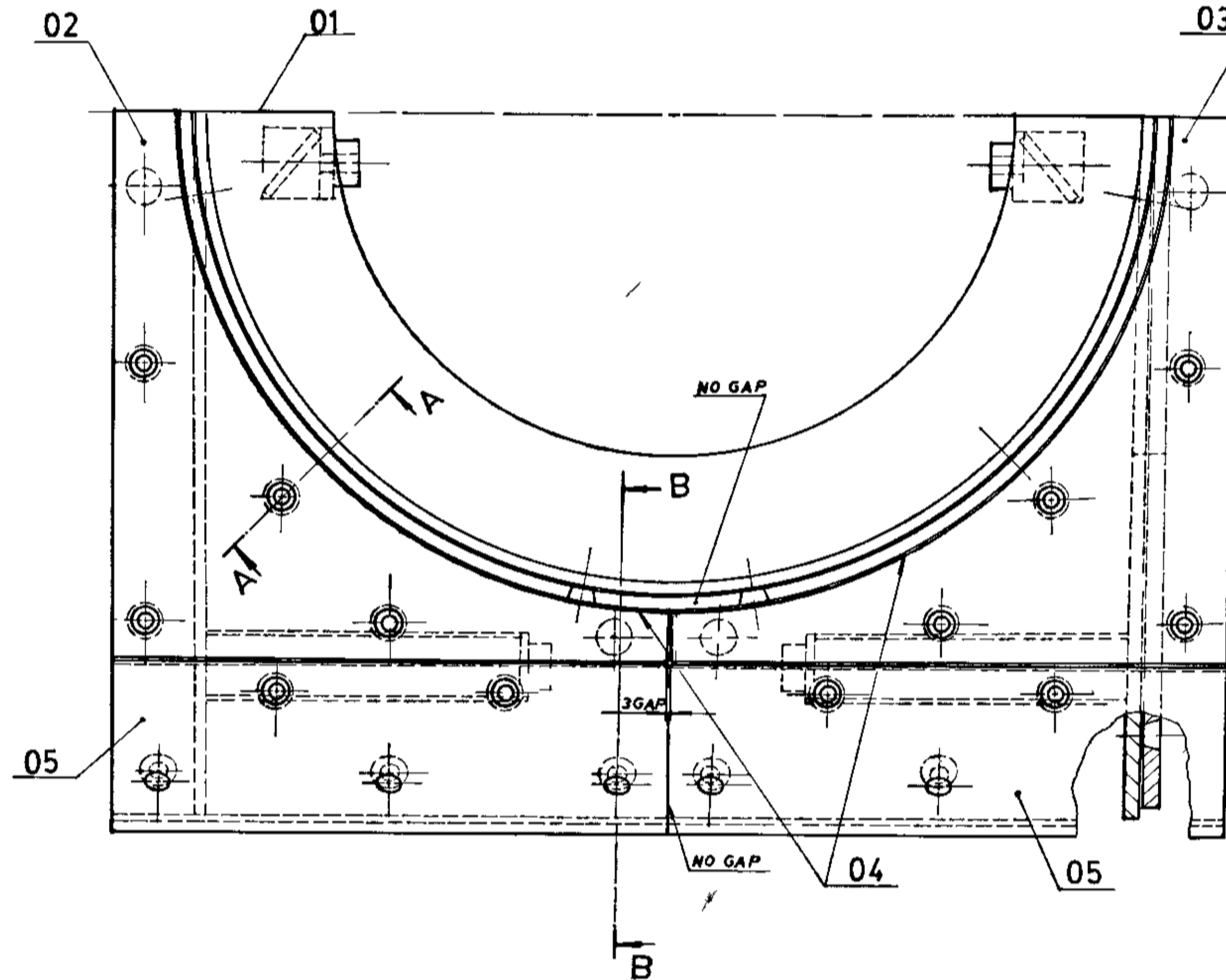
NO. OF SHEETS: 01



REV.	DATE	ALTERED	ZONE	APPD.	REV.	DATE	ALTERED	ZONE	APPD.
					01	22.05.99			



SECTION B B



SECTION A A  
(ROTATED 45 C W)

**NOTES**

- 1 APPLY RTV SEALER TO ALL LINER JOINTS AT ASSEMBLY AFTER WELD PLUG APPLICATION FILL VOID WITH SEALER UNTIL FLUSH WITH LINER SURFACES.
- 2 SEE DWG 4 61 080 00797 FOR APPLICATION OF WELD PLUGS
- 3 CAUTION TO INSTALLER STRICT COMPLIANCE WITH ASSEMBLY PROCEDURE IS MANDATORY FAILURE TO DO SO MAY RESULT IN DAMAGE TO THESE AND OTHER COMPONENTS DURING OPERATION FOR WHICH THE INSTALLER MUST BEAR FULL RESPONSIBILITY

ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE	UNIT WT
07	WELD PLUG	4 61 16 2 00749		0.13
06	JOURNAL HD LINER	2 61 00 4 02259		26.700
05	JOURNAL HD LINER	2 61 00 4 02258		16.200
04	JOURNAL HD LINER	1 61-004 01187		24.00
03	JOURNAL HEAD LINER	2 61-004 02267		17.200
02	JOURNAL HEAD LINER	2 61 00 4 02268		17.200
01	JOUR HD LINER SUPPORT	1 61 00 4 01188		143.480

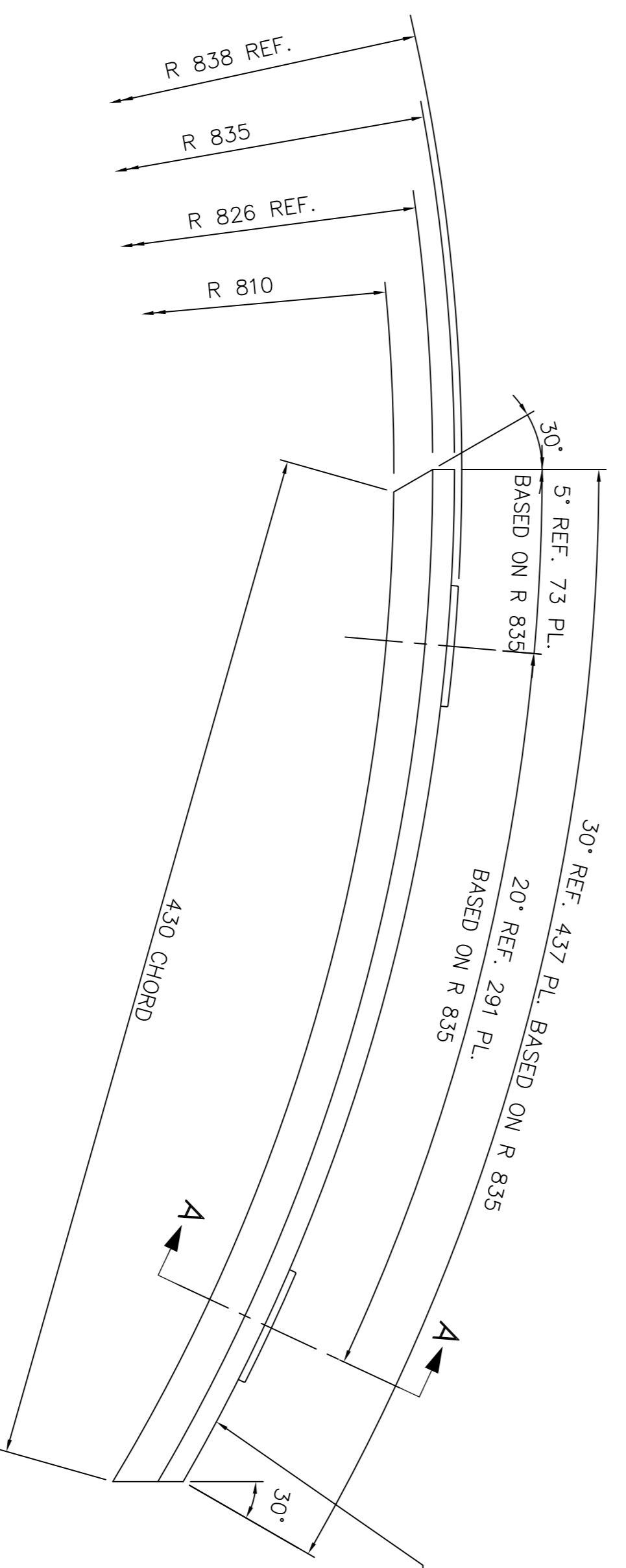
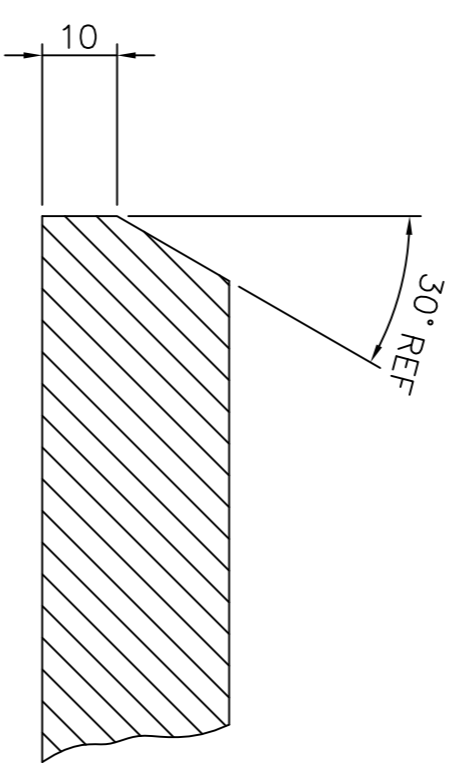
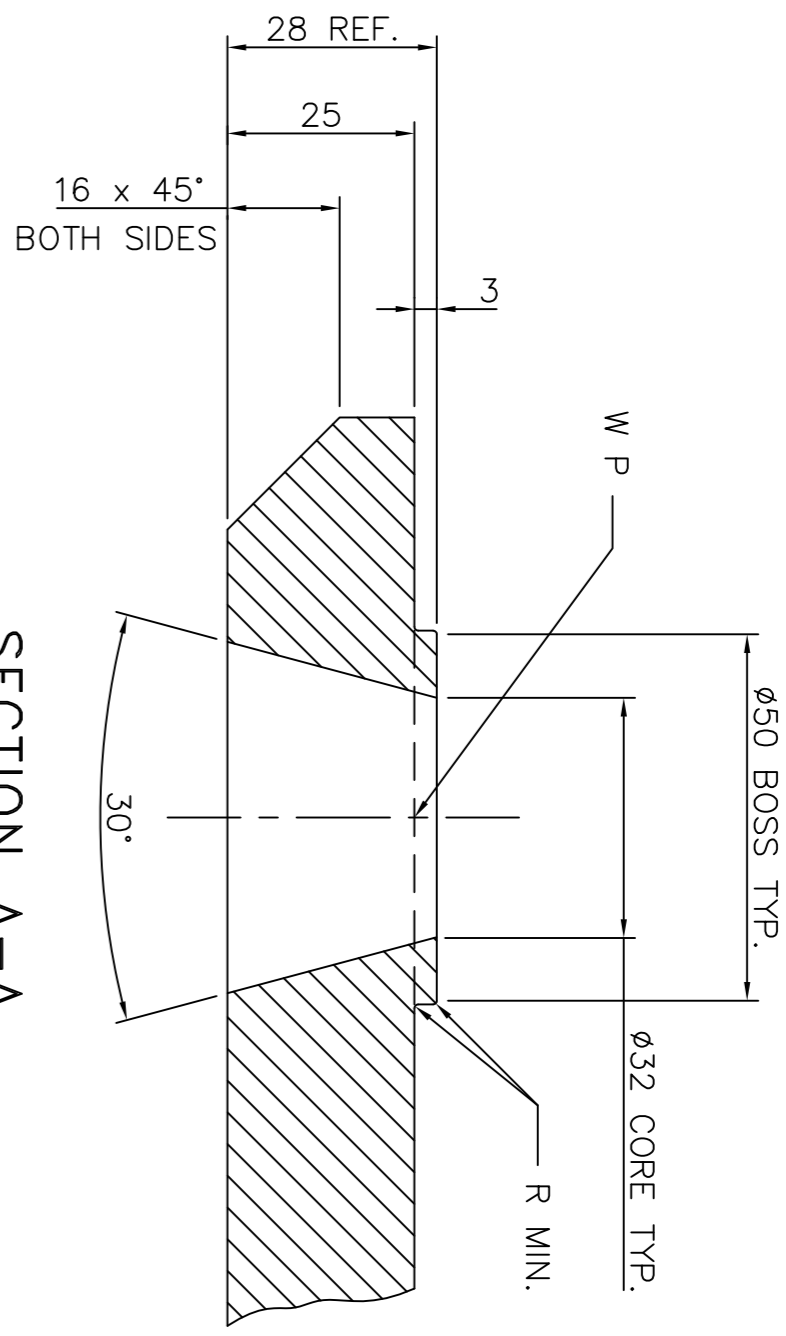
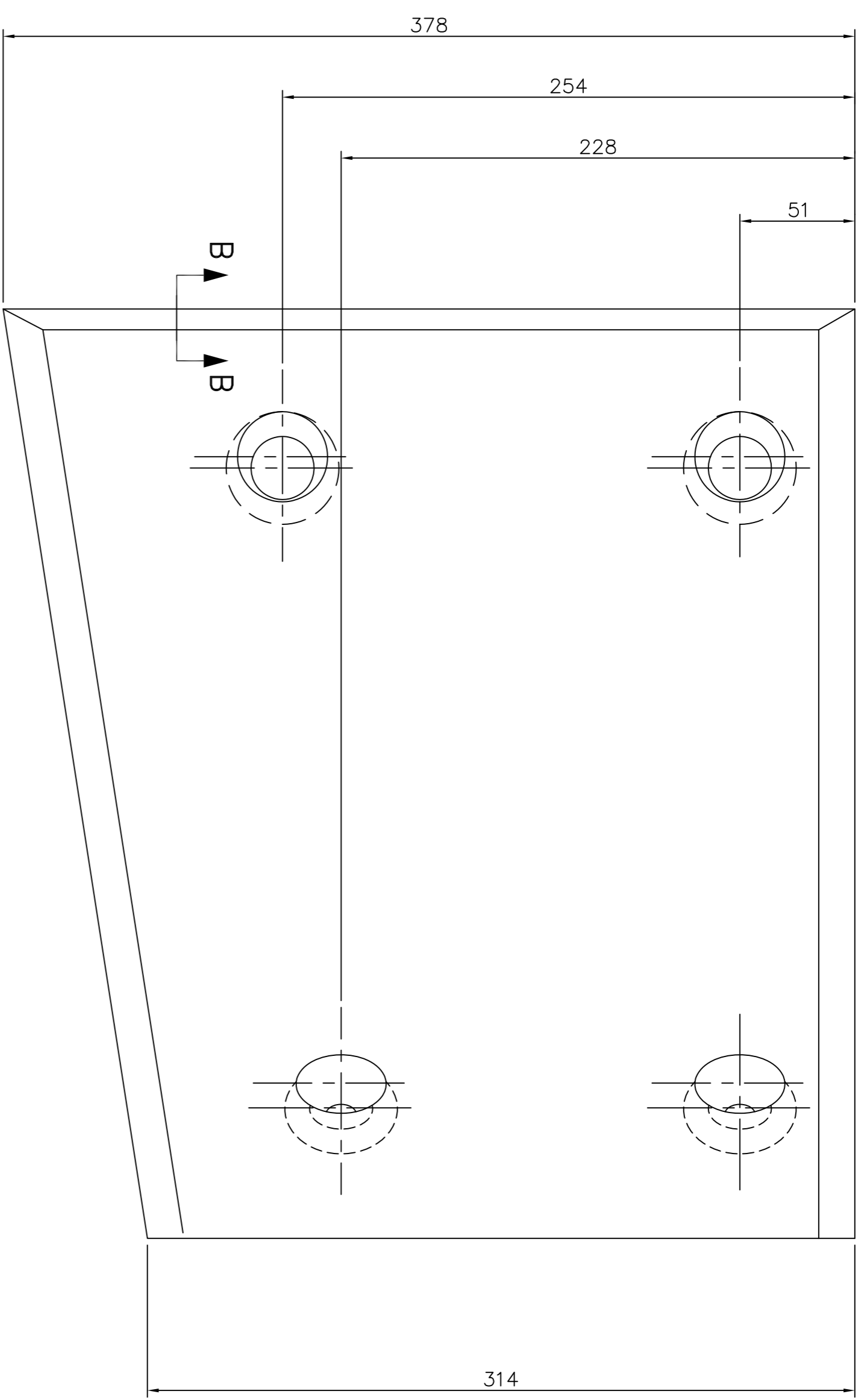
VAR CO REMARKS  
 CAR TYPE 3  
 ADDITIONAL INFORMATION  
 STATUS OF DRAWING  
 DISTRIBUTION OF PRINTS

GENERAL DIMENSIONS LIMITS FITS & TOLERANCES AS PER P S HY 0230261

TYPE OF PRODUCT: 1043 RP BOWL MILL  
 NAME OF CUSTOMER/PROJECT: CHANDRAPUR 500 MW  
 BHARAT HEAVY ELECTRICALS LTD HYDERABAD  
 DEPT: BMD, GRADE OF TOL: 4.6, SCALE: N T S, WEIGHT (kg): 2.90, REF TO ASSY: 0 61 00 4 00570  
**JOURNAL HEAD LINER ASSEMBLY**  
 DRAWING NO: 1 61 00 4 01189  
 SHEET NO: 00

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 INVEN DRY NO. SIGN & DA. E. F. DWG. NO. 10 08827





CAST PATTERN No. 16130401176 ON THIS SURFACE BY USING 10 MM MIN. HEIGHT OF LETTERS

ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.	QUANTITY
	CASTING				BA9114135248 AA 19741	22.00		

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

- REF. TO HY0230281 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/C/D. SHARP EDGES 1:2 TO 1:0 AT 45°.
- INTERNAL M/C/D. CORNER RADI 1 TO 0.7
- THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE SURFACE SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT  
NAME OF CUSTOMER/PROJECT  
1103 XRP BOWL MILL

DEPT. PULL V. INTOL. DIM. OR G/M/P SCALE WEIGHT (KG) 22.00

DATE 17.6.99

J O F LINER

INVENTORY NO	SIGN. AND DATE	REF. DRG. NO.	COMPUTER FILE NAME
		(D-110-00808/1)	16101176.DWG

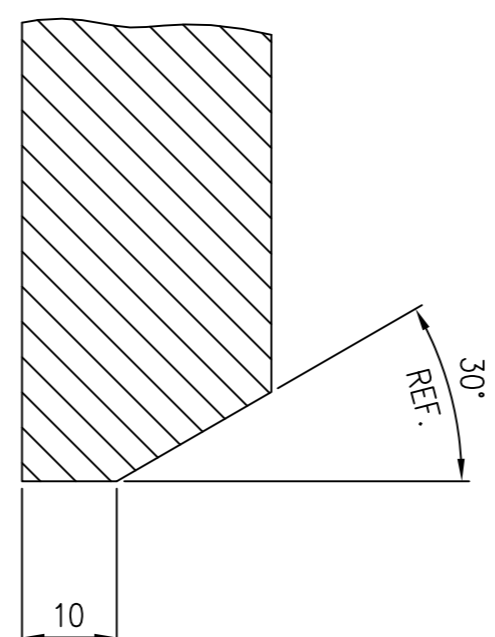
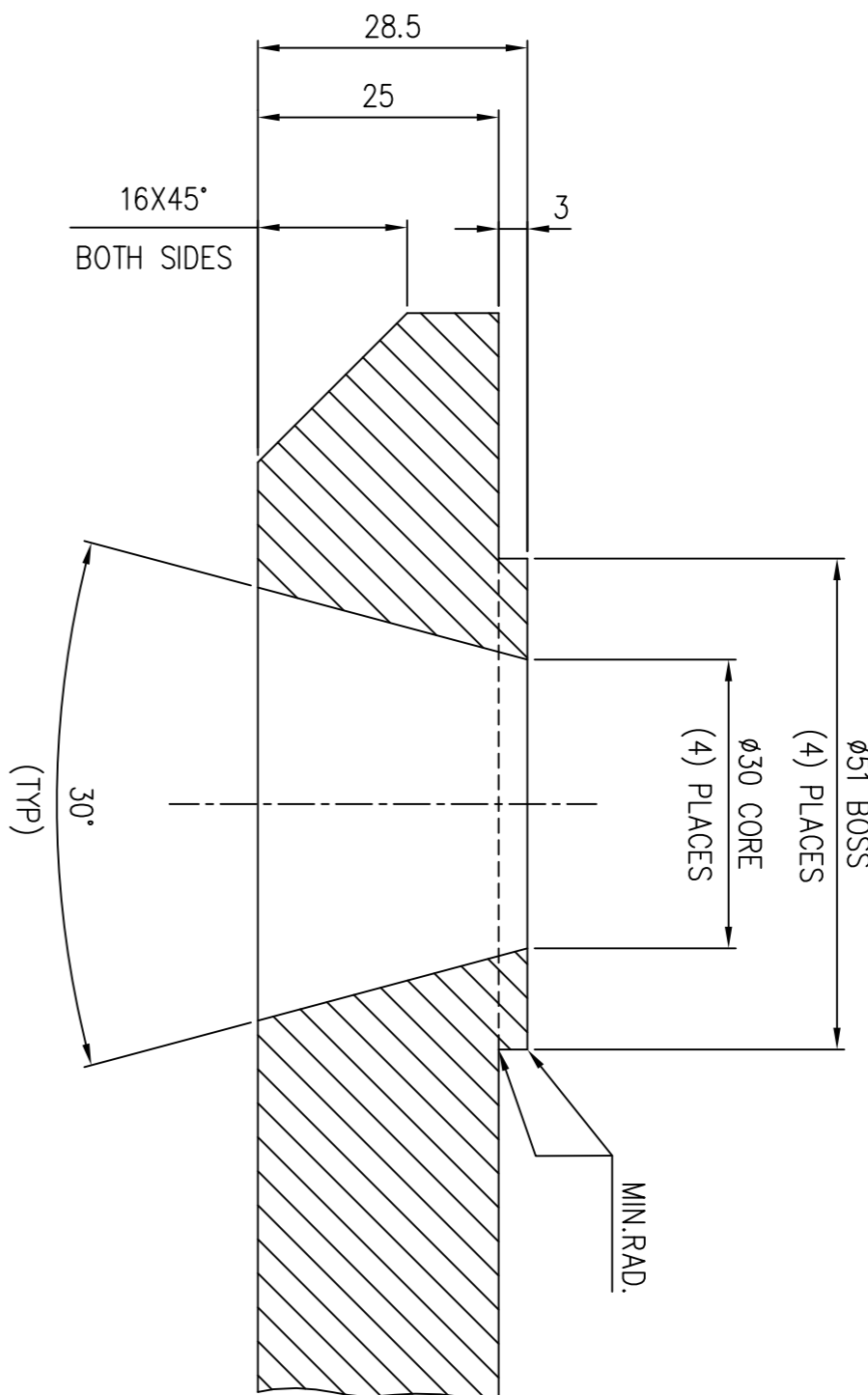
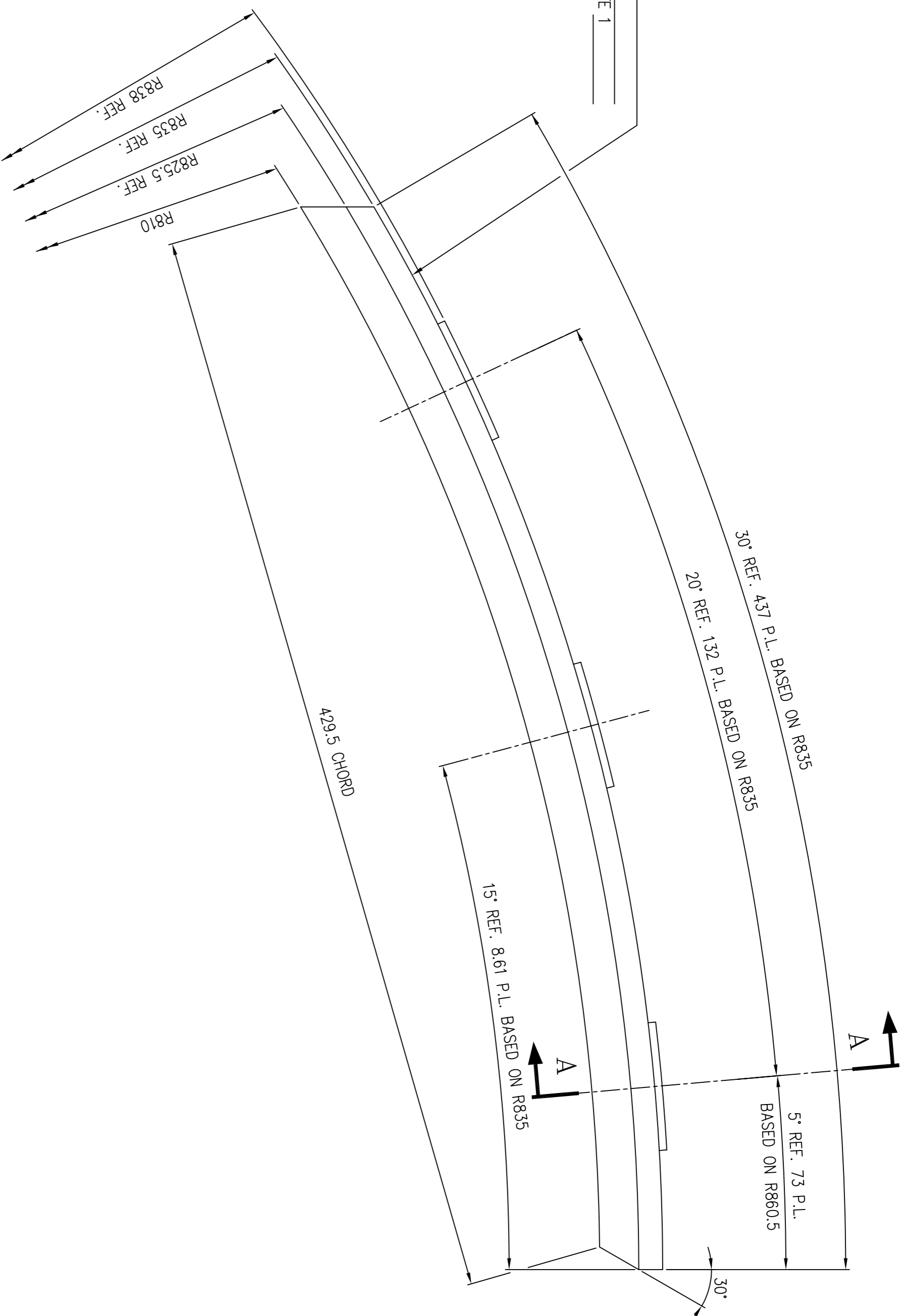
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1 2 3 4 5 6 7 8 9 10 11 12

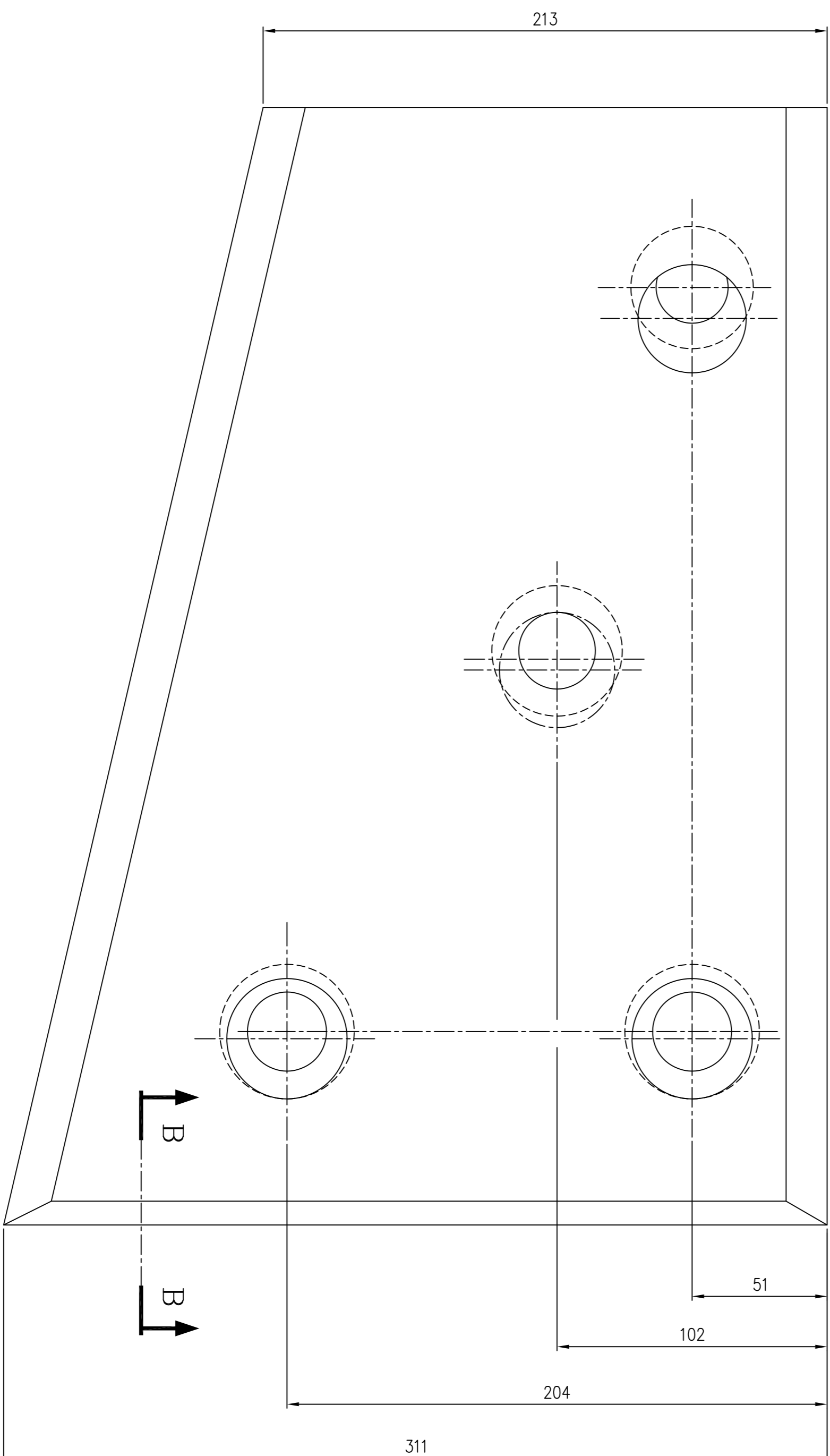


THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED.  
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

CAST PART INFORMATION  
ON THIS SURFACE  
PER NOTE 1



SECTION 'B-B'



NOTE:-  
1. FOLLOWING INFORMATION TO BE CAST INTO PART USING 3MAX HEIGHT IF RAISED LETTERS USED. C.E. 110-00807 (W/CURRENT DWG. REV12) CROWN 700 PAT. PENDING.

ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT. (GROSS WT.)	QUANTITY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...  
1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.  
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.  
3. INTERNAL M/CD CORNER RADIUS 1 TO 0.7.  
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

INVENTORY NO.	SIGN. AND DATE	REF. DRG. NO.	COMPUTER FILE NAME

REV.	DATE	ALTERED	APPRO.	ZONE	REV.	DATE	ALTERED	APPRO.	ZONE	REV.	DATE	ALTERED	APPRO.	ZONE	REV.	DATE	ALTERED	APPRO.	ZONE	REV.	DATE	ALTERED	APPRO.	ZONE	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.		MATERIAL CODE		NET WT. (GROSS WT.)	

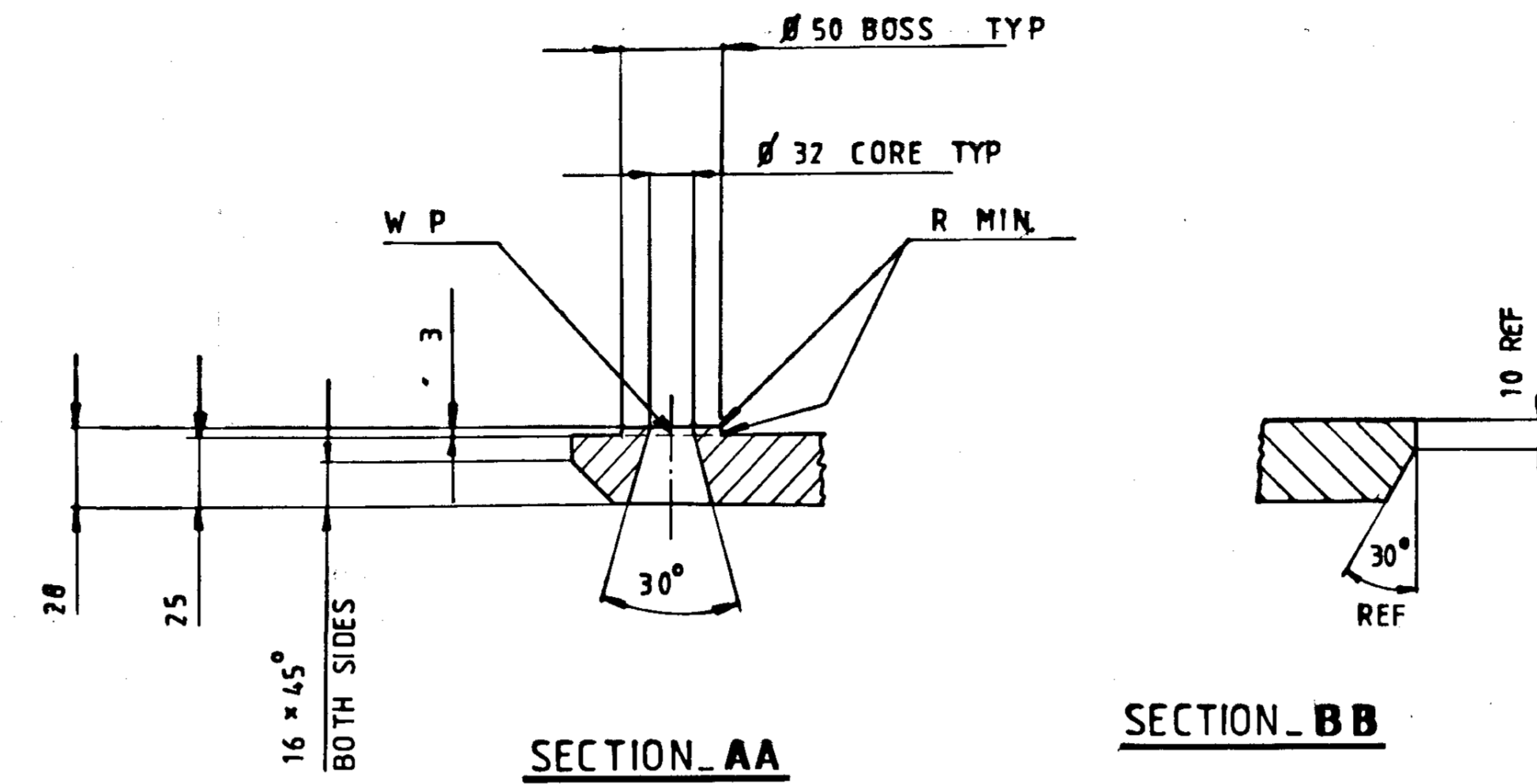
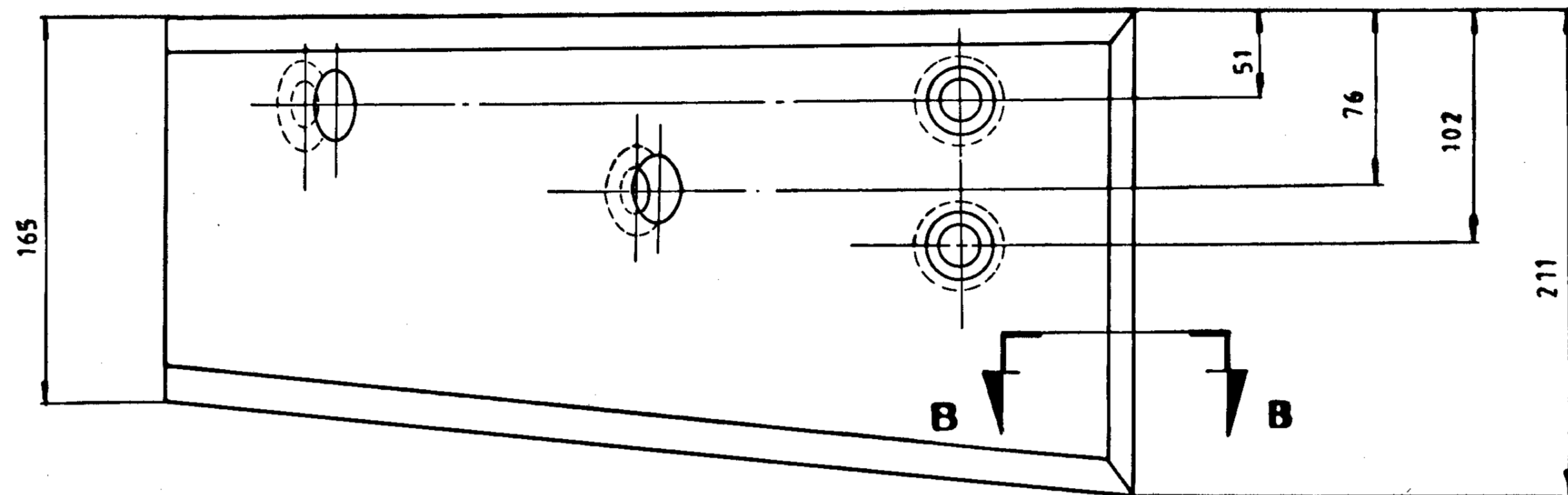
  

DEPT.	SCALE	WEIGHT (KG)	NAME	SIGN.	DATE	NO. OF
BHEL	1:1.5	NA	N.D.SAMUEL		22.5.99	VAR.
			S.GHATGE		22.5.99	VAR.

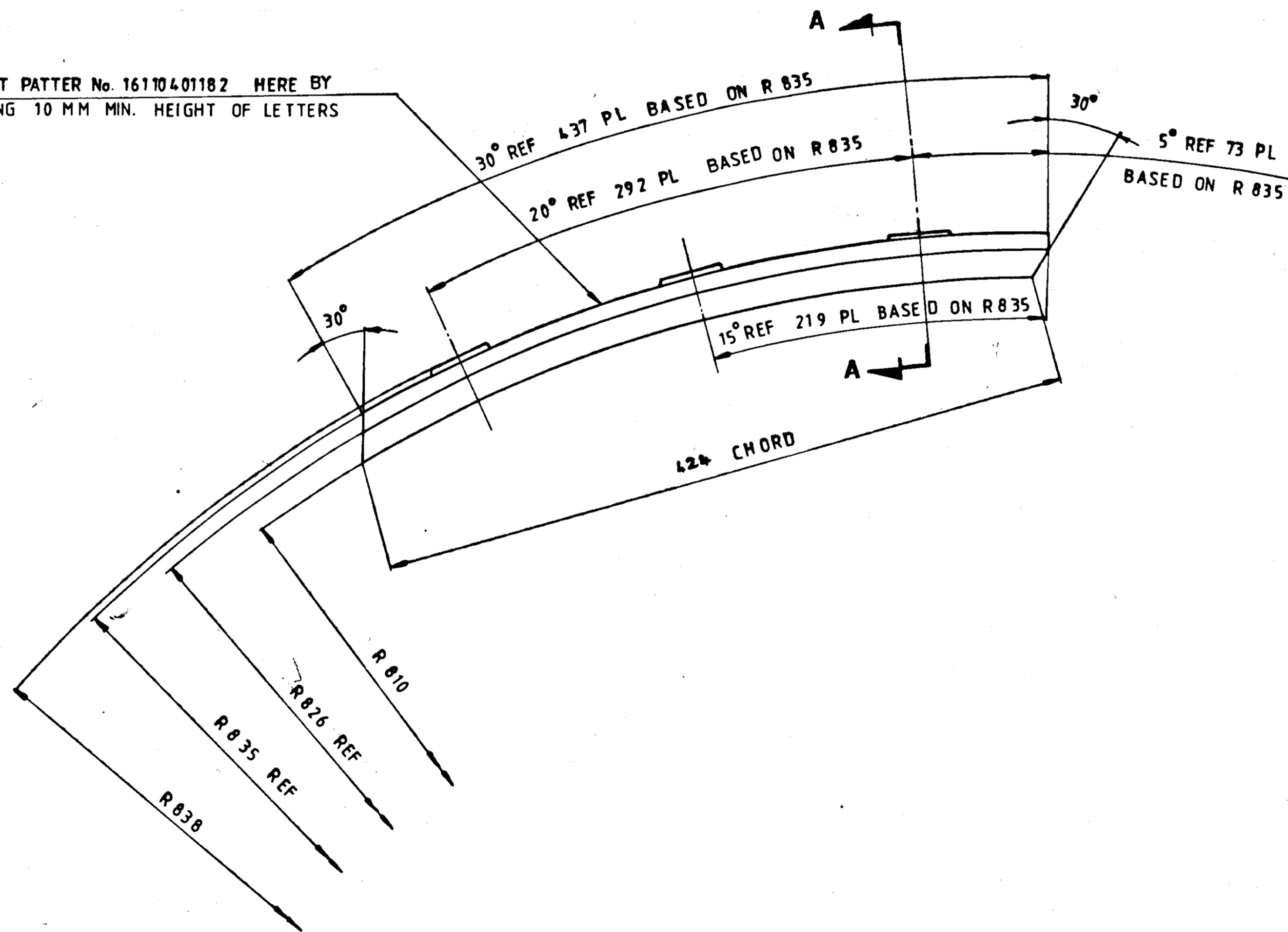
  

TITLE	DRAWING NO.	SHEET NO.	NO. OF SHEETS
JOURNAL OPENING FRAME LINER	1-61-304-01178		

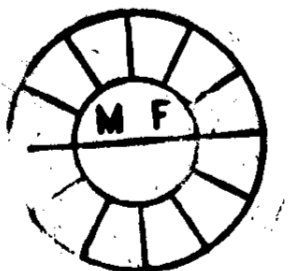
DRG. NO. 1.61.104.01182



CAST PATTERN No. 16110401182 HERE BY USING 10 MM MIN. HEIGHT OF LETTERS



REFER PLANT STANDARD HY 0230261 FOR UNSPECIFIED TOLERANCES



CASTING		AA 19741		20.00	
VAR. NO.	REMARKS	ITEM NO.	DESCRIPTION	DRAWING NO.	UNIT WT.

ADDITIONAL INFORMATION		TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		CHANDRAPUR 500 MW 1043 RP	
STATUS OF DRAWING		DISTRIBUTION OF PRINTS		BHPD	
BHPD		HYDERABAD		DRM. B M R	
CHD		N D S		930329	
APPD		YSBLRAO		25-5-73	
BRIID		GRADE OF TOL. DIM.		SCALE	
CODE 4.6		D.M.F.		N T S	
WEIGHT (kg)		REF. TO ASSY. DRG.		ITEM NO.	
20.00		D-110-00823/1)		76	
TITLE		DRAWING NO.		NO. OF SHEETS	
JOF LINER		1.61.104.01182		01	
CARD CODE		SHEET NO. 01		NO. OF SHEETS 01	

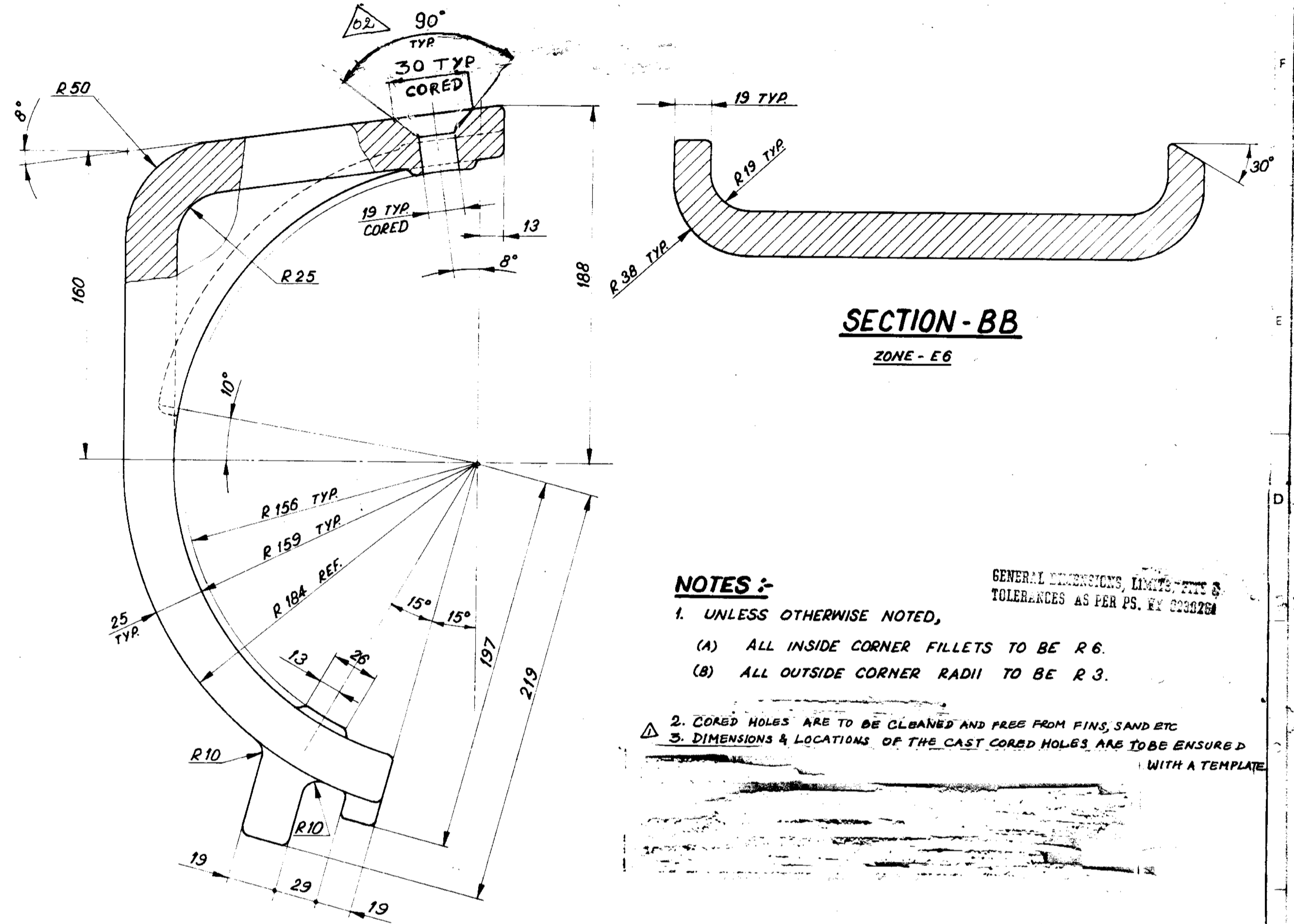
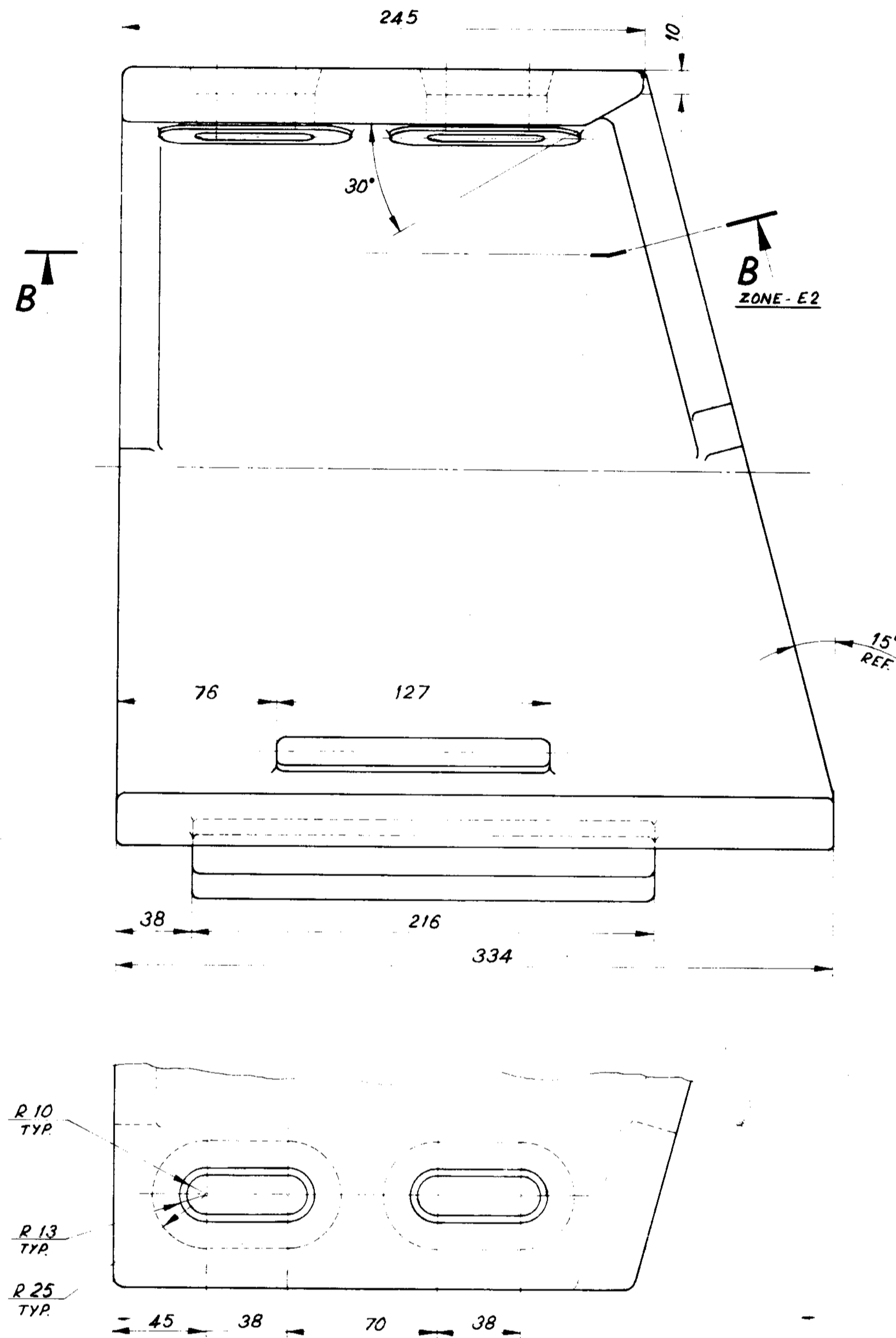
REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED

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INVENTORY NO. SIGN. & DATE REF. DRG. NO.

2-61-000-00409

CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LTD. IT MUST NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.



**SECTION-BB**  
ZONE - E6

**NOTES :-**

1. UNLESS OTHERWISE NOTED,
  - (A) ALL INSIDE CORNER FILLETS TO BE R 6.
  - (B) ALL OUTSIDE CORNER RADII TO BE R 3.
2. CORED HOLES ARE TO BE CLEANED AND FREE FROM FINIS, SAND ETC
3. DIMENSIONS & LOCATIONS OF THE CAST CORED HOLES ARE TO BE ENSURED WITH A TEMPLATE

GENERAL DIMENSIONS, LIMITS & TOLERANCES AS PER IS: 803026

ALLOY CASTING		BA9114153407	34.00
		AA19741	

TYPE OF PRODUCT OR NAME OF CUSTOMER PROJECT: **1003 XRP BOWL MILL**

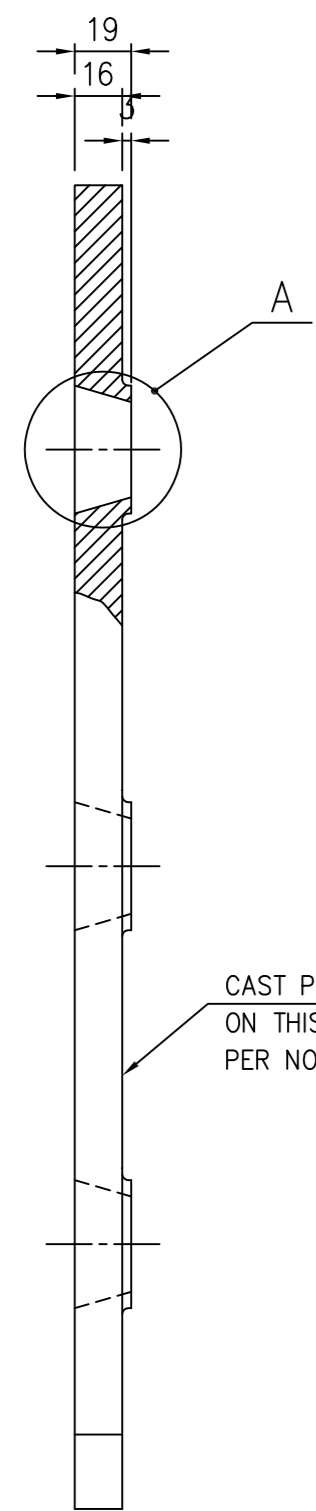
**Bharat Heavy Electricals Ltd.,**  
BOILER PLANT UNIT  
TIRUCHIRAPALLI-620 014

DATE: 06.10.96	APPR: [Signature]	DATE: 11-1-93	ALTRD: [Signature]	DEPT: PULV. ENGG	GRADE: N.T.S	WEIGHT: 34.00	REF TO: C-101-00966/01	ITEM NO: 01
CORED HOLE TAPER		APPD: [Signature]		363			2-61-000-00472	
ANGLE WAS 30°		B-1		AA19741 WAS COMB ALLOY		DRAWING NO: 2-61-000-00409		02
DIM 30 WAS 25		C-3		NOTES 2&3 ADDED.				

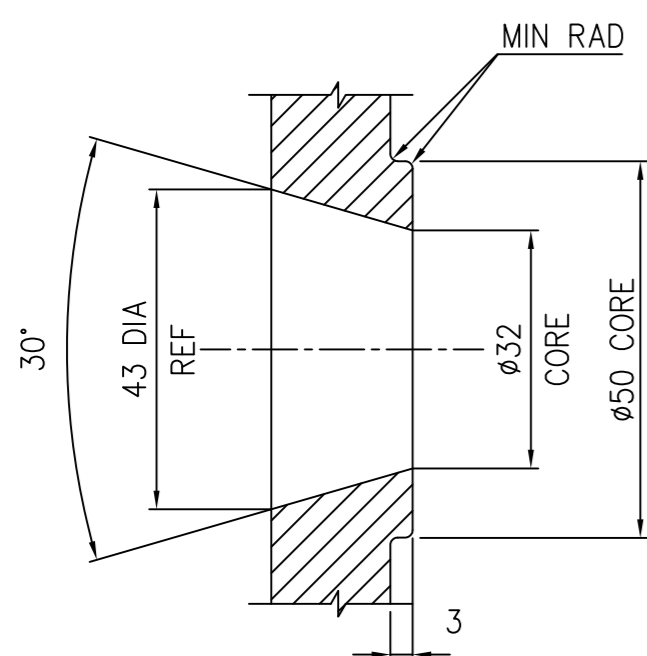
**JOURNAL HEAD LINER**

COMP. FILE NAME: 26100747.DWG  
 REF.DRG.NO.:  
 INVENTORY NO.:

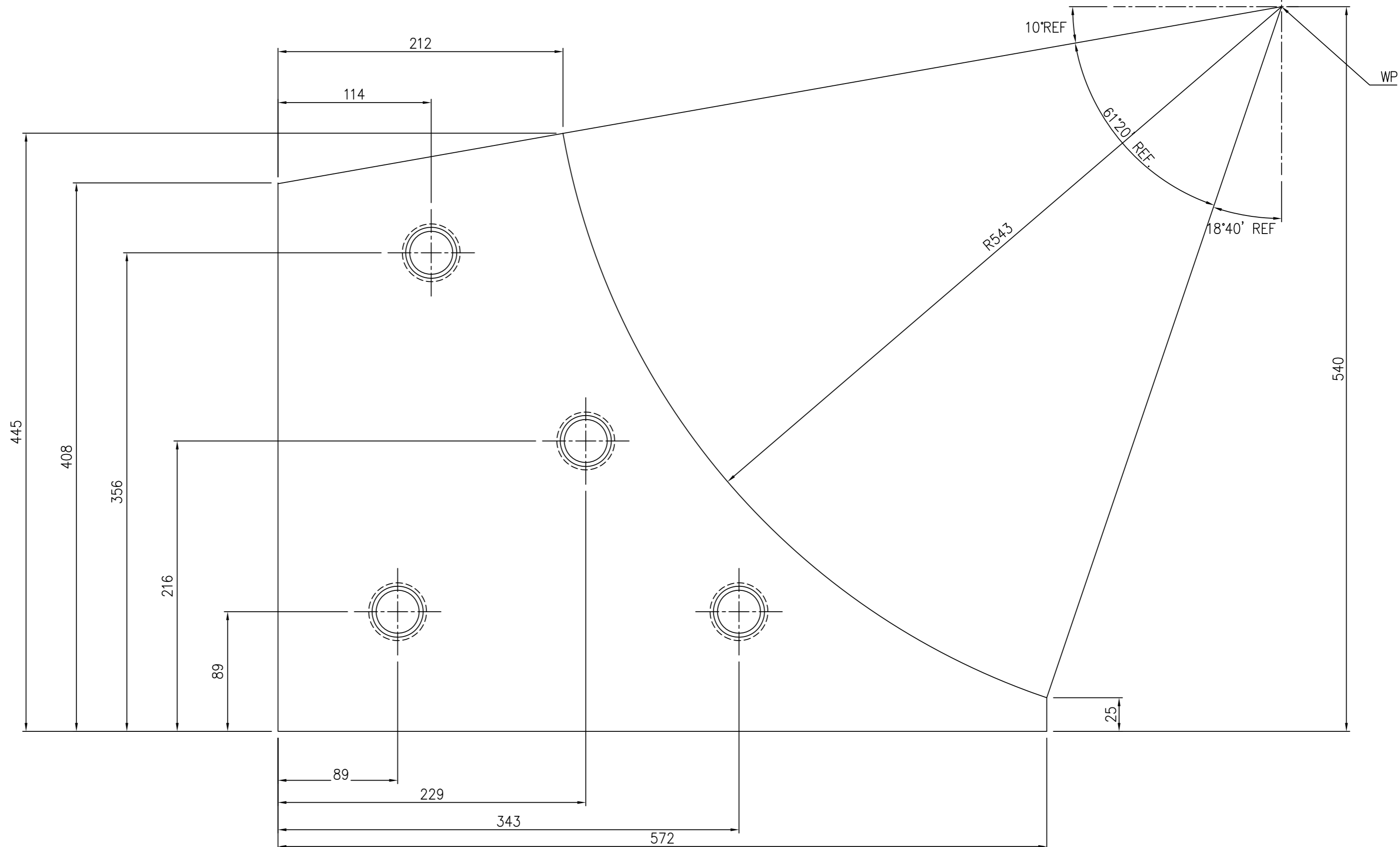
DRG. NO. 2-61-000-00747



CAST PART NO.  
ON THIS SURFACE  
PER NOTE NO.1



**DETAIL - A**  
(TYP - 4 PLACES)



**NOTES:**

- FOLLOWING INFO TO BE CAST INTO PART USING 10 MIN. LETTER SIZE. "2-61-000-00747".
- CORED HOLES ARE TO BE CLEANED AND FREE FROM FINS, SAND ETC
- DIMENSIONS AND LOCATIONS OF CORED HOLES ARE TO BE ENSURED WITH A TEMPLATE.

ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  
1003 XRP BOWL MILL

		NAME	SIGN.	DATE	NO. OF VAR.
DRN.	N.D.S		<i>W.S.</i>	15.4.99.	
CHD.	S.G		<i>LA</i>	15.4.99	
APPD.	K.M.RAO		<i>RS</i>	15.4.99	NA

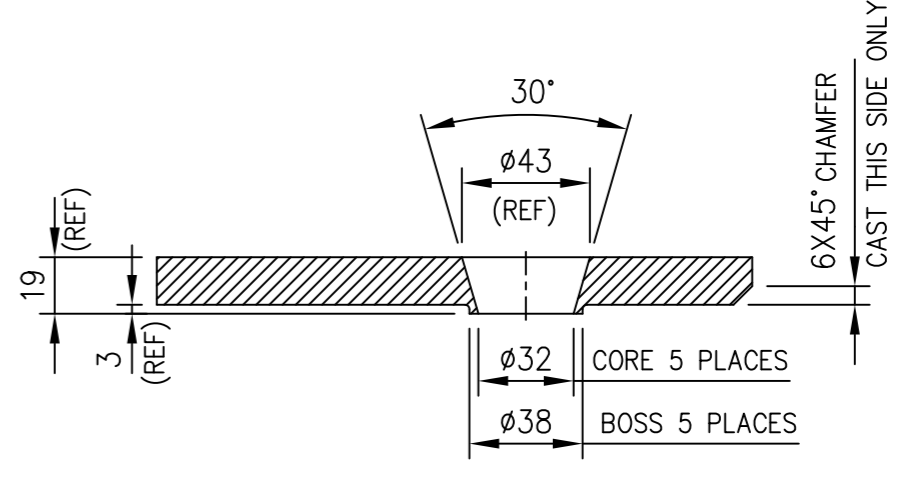
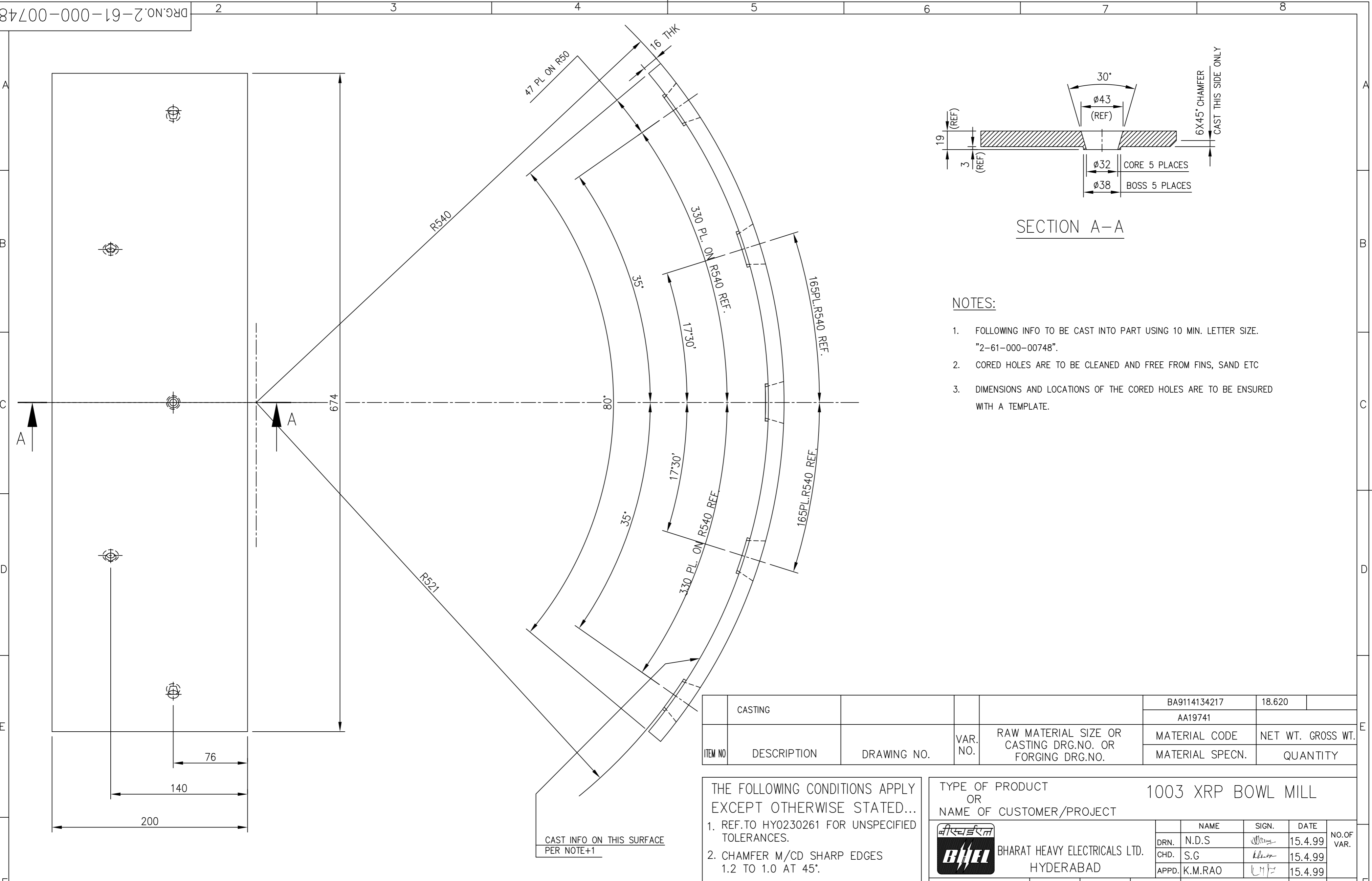
DEPT. PULV ENGG	SCALE	WEIGHT(Kg)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
CODE 446	NTS	20.00	NA	NA	NA

TITLE	DRAWING NO.	REV.
JOURNAL HEAD LINER	2-61-000-00747	04
SHEET NO.	NO OF SHEETS	

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED			CHECKED			CHECKED			CHECKED
						04	18.8.02	<i>W.S.</i>	03	15.4.99	<i>W.S.</i>
ZONE		APPD.	ZONE		APPD.	APPD.		APPD.	APPD.		APPD.
1			2			3		BOSS DIM Ø50 WAS Ø38	4		DRAWING REDRAWN INCORPORATING ALL PREVIOUS REVISIONS.

DRG.NO. 2-61-000-00748

COMP. FILE NAME: 26100748.DWG  
 REF.DRG.NO.  
 INVENTORY NO.



SECTION A-A

NOTES:

- FOLLOWING INFO TO BE CAST INTO PART USING 10 MIN. LETTER SIZE. "2-61-000-00748".
- CORED HOLES ARE TO BE CLEANED AND FREE FROM FINS, SAND ETC
- DIMENSIONS AND LOCATIONS OF THE CORED HOLES ARE TO BE ENSURED WITH A TEMPLATE.

CAST INFO ON THIS SURFACE PER NOTE+1

ITEM NO	CASTING	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	BA9114134217	18.620
					AA19741	
					MATERIAL CODE	NET WT. GROSS WT.
					MATERIAL SPECN.	QUANTITY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

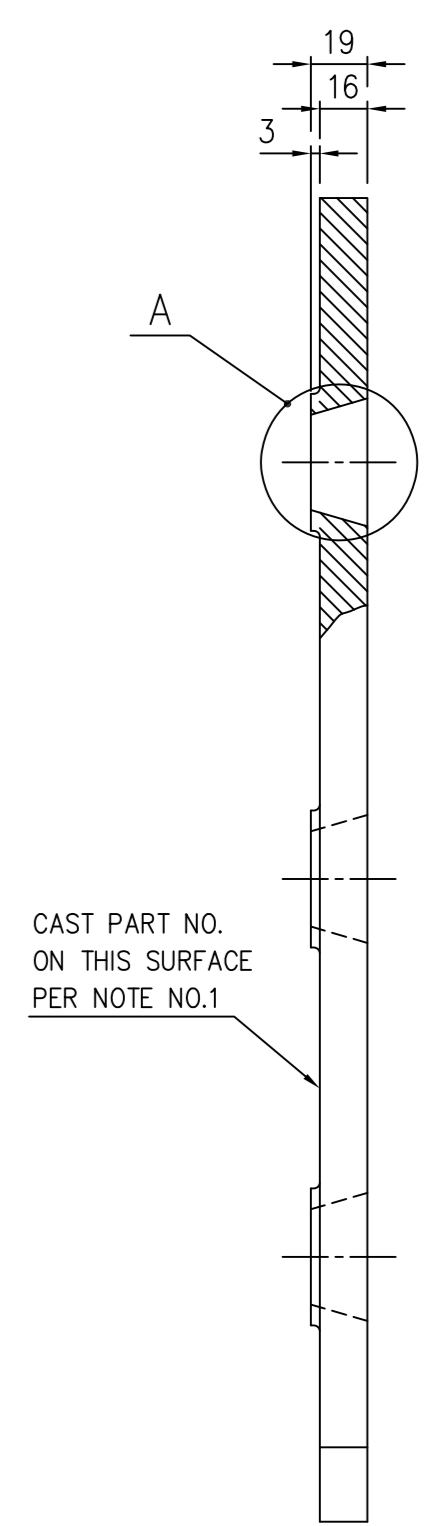
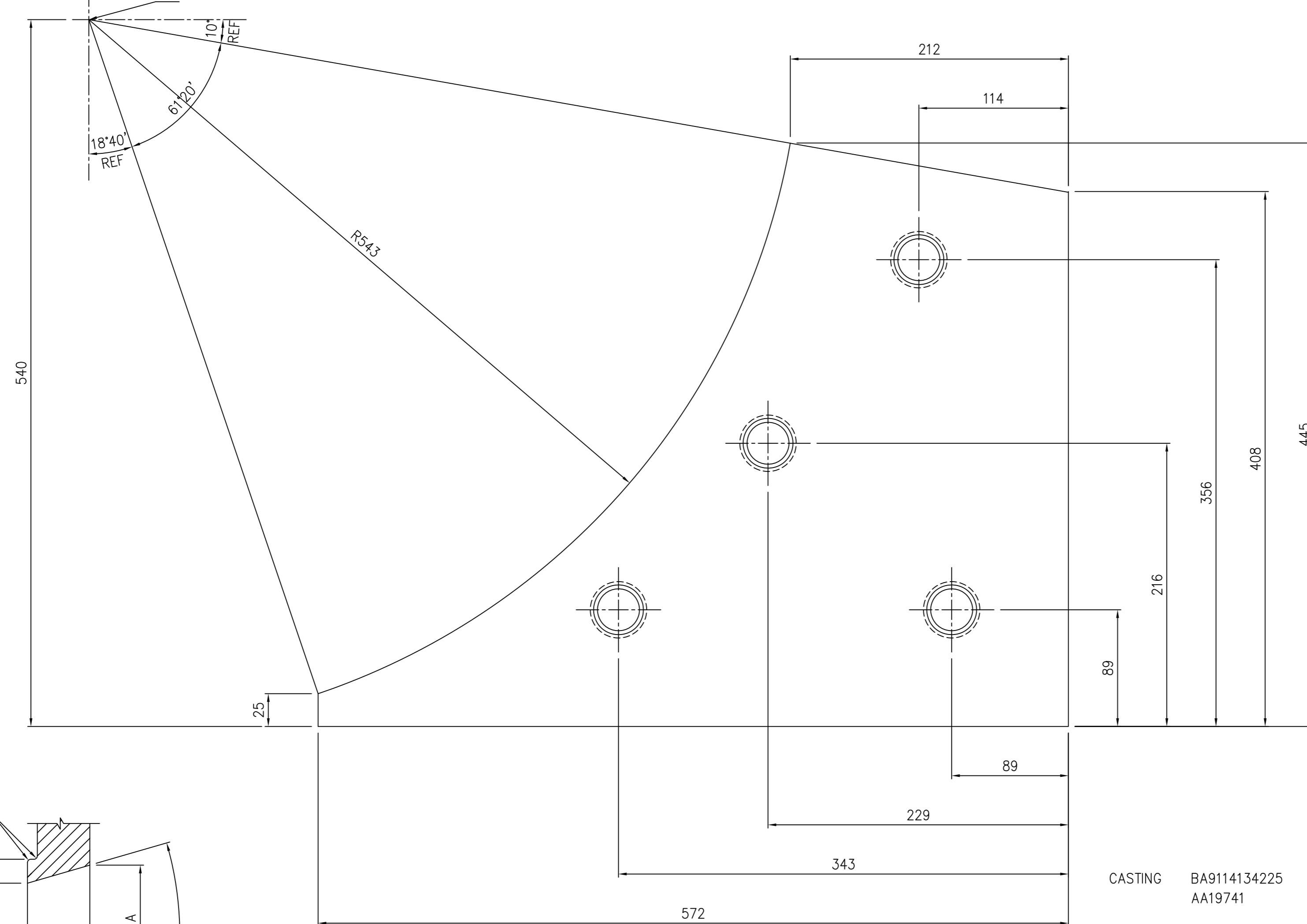
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		1003 XRP BOWL MILL			
DEPT. PULV. ENGG.		SCALE	WEIGHT(Kg)	REF. TO ASSY DRG.	ITEM NO.
CODE 446		1:2.5	18.62	C-101-01445/0	CE PART NO 101-01445
TITLE		DRAWING NO.		REV.	
JOURNAL HEAD LINER		2-61-000-00748		03	
SHEET NO. 1		NO OF SHEETS 1			

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
03	3/3/99	CHECKED APPD.	02	19/1/93	CHECKED APPD.	01	3/7/87	CHECKED APPD.	E2		
DRG REDRAWN			C.E. MATERIAL SPECIFICATION DELETED, NOTES 2 & 3 ADDED.			THE CORED WELD PLUG HOLE CHANGED TO SUIT 1" PLUG.					

COMP. FILE NAME: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

DRG. NO. 2-61-000-00749

WP



CAST PART NO. ON THIS SURFACE PER NOTE NO.1

TOLERANCES UNLESS OTHERWISE NOTED.

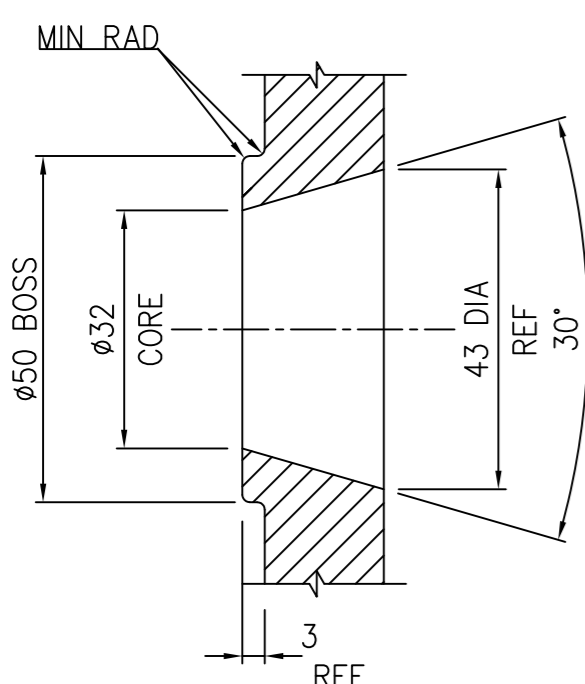
CASTING ±1.6

ANGULAR ± 1/10°

FRACTIONAL ± 0.7

BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.

CASTING BA9114134225 AA19741



DETAIL - A  
(TYP - 4 PLACES)

NOTES :-

- FOLLOWING INFO TO BE CAST INTO PART USING 10 MIN. LETTER HEIGHT "2-61-000-00749."
- CORED HOLES ARE TO BE CLEANED AND FREE FROM FINES, SAND ETC.
- DIMENSIONS AND LOCATIONS OF THE CORED HOLES ARE TO BE ENSURED WITH A TEMPLATE.

ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 1003 X RP BOWL MILL

DEPT. PULV. ENGG. SCALE 1:2.5 WEIGHT (kg) 20.00

TITLE: JOURNAL HEAD LINER

DRAWING NO. 2-61-000-00749

REV. 04

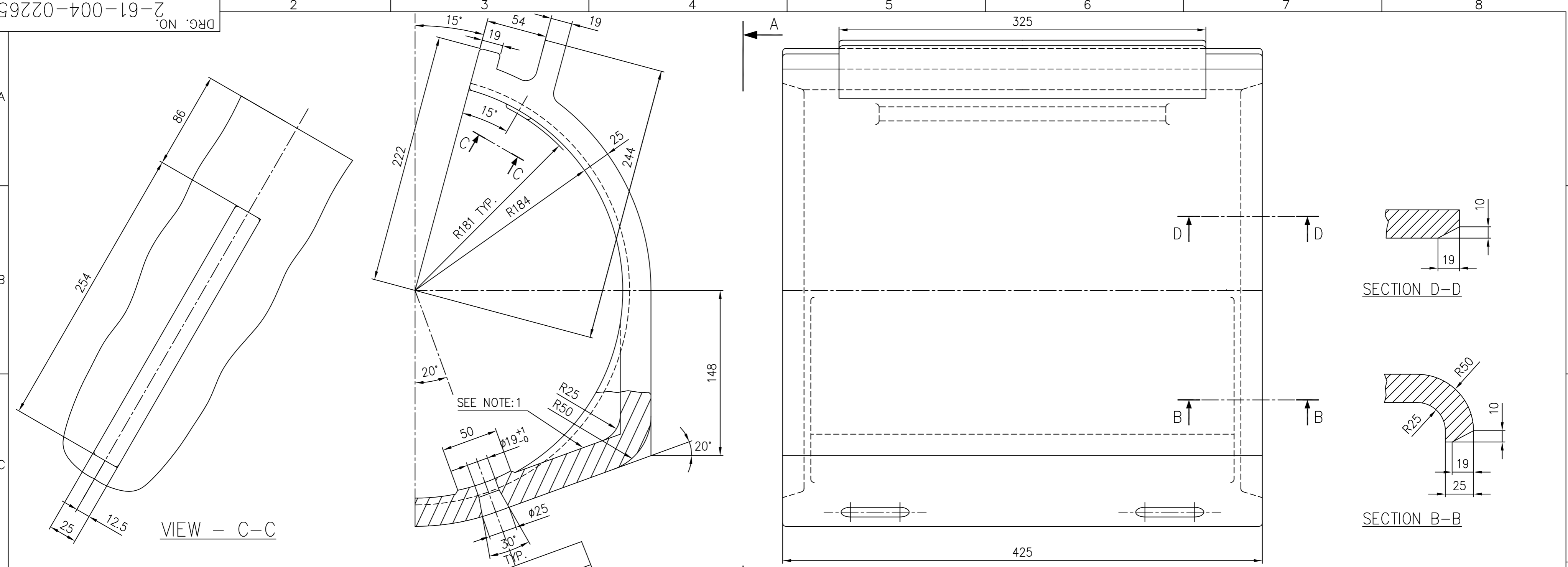
SHEET NO. 1 NO OF SHEETS 1

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	T.A.V.M.
04	18.8.02	CHECKED <i>ld</i> APPD. <i>vsj</i>	03	-	CHECKED <i>ld</i> APPD. <i>vsj</i>	02	18.1.93	CHECKED <i>ld</i> APPD. <i>vsj</i>	01	3.7.87	CHECKED <i>ld</i> APPD. <i>vsj</i>	
ZONE	BOSS DIM. 50 WAS 38.		ZONE	DRAWING REDRAWN		ZONE	C.E. MATERIAL SPECIFICATION DELETED, NOTES 2 & 3 ADDED.		ZONE	THE CORED WELD PLUG HOLE CHANGED TO SUIT 1" PLUG.		



DRG. NO. 2-61-004-02265

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY  
 COMPUTER FILE NAME 26102265.DWG  
 REF. DRG. NO.  
 SIGN. AND DATE  
 INVENTORY NO



**NOTES :-**

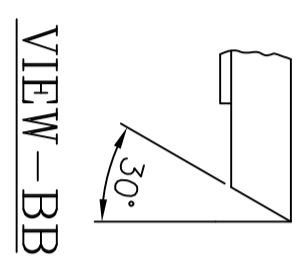
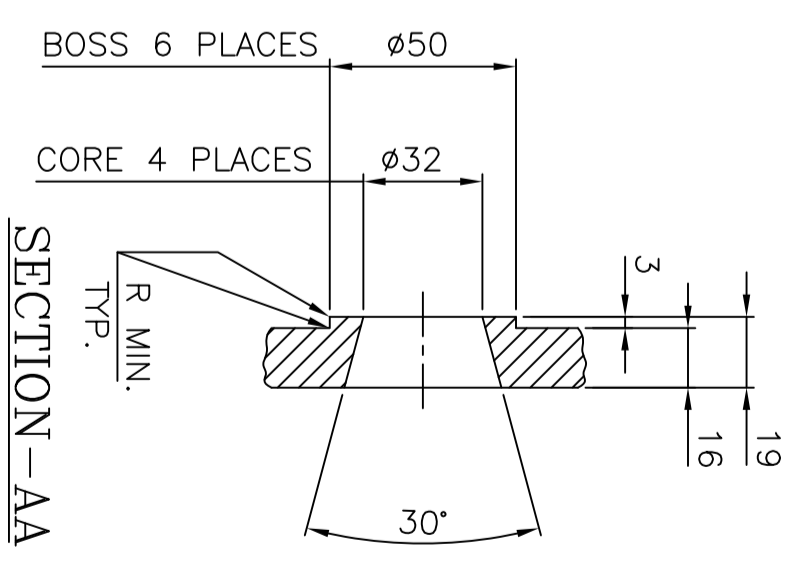
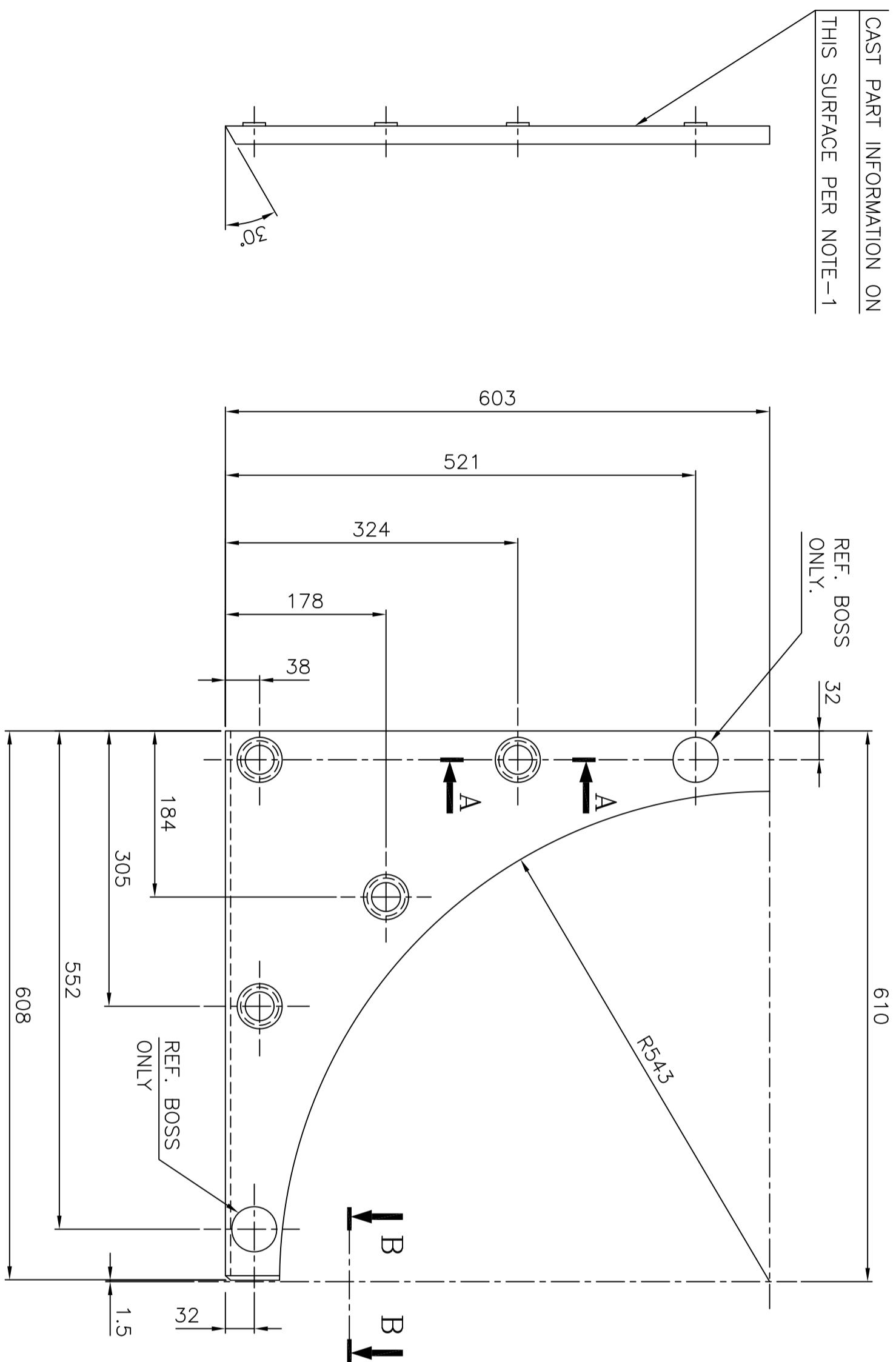
- CAST PART NO. & PATT NO. USING 3 mm HEIGHT CHARACTERS.
- ALL FILLET RADII TO BE 3 mm UNLESS OTHERWISE SHOWN OR NOTED.
- BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
- TOLERANCES UNLESS OTHERWISE NOTED.  
 CASTING  $\pm 1.6$   
 ANGULAR  $\pm 0.1^\circ$

01	CASTING				BA9114135477	49.000
					AA19741	1
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT. GROSS WT.
					MATERIAL SPECN.	QUANTITY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED. 1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES. 2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°. 3. INTERNAL M/CD. CORNER RADII 1 TO 0.7 4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.				TYPE OF PRODUCT NAME OF CUSTOMER/PROJECT 1043 RP BOWL MILL CHANDRAPUR 500 MW			
DEPT. PULV ENGG. CODE 446		UNTOL. DIMS. GR. $\phi/M/\#$		SCALE 1:1		WEIGHT (KG) 49.000	
REF. TO ASSY DRG. 0-61-004-00571		ITEM NO. 26		NO.OF ITEMS 32		NO.OF VAR.	
DRG. REDRAWN IN AUTOCAD.				DRAWING NO. 2-61-004-02265 00			
SHEET NO. 01				NO OF SHEETS 01			

REV.	DATE	ALTERED CHD.	APPD.	REV.	DATE	ALTERED CHD.	APPD.	REV.	DATE	ALTERED CHD.	APPD.
								01	08.07.99		

29920-400-19-2 ON DRG. NO. 2 ON HS



GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. 1-61-004-01189 COMPUTER FILE NAME 26102267.DWG THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

REV.	DATE	ALTD.	APPD.	REV.	DATE	ALTD.	APPD.	REV.	DATE	ALTD.	APPD.
01	10.06.99			01	10.06.99			01	10.06.99		

DRG. REDRAWN ON ACAD.

ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.
01	CASTING				AA19741		17.200

- NOTES:-**
1. FOLLOWING INFORMATION TO BE CAST INTO PART USING 3MM. MAX. HEIGHT LETTERS: 26100402267.
  2. BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
  3. TOLERANCES UNLESS OTHERWISE NOTED: CASTING ±1.6 ANGULAR ±0.1°

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD. CORNER RADI 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE SURFACE SLASH GIVEN ON THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT		NAME OF CUSTOMER/PROJECT		1103 XRP BOWL MILL	
BHARAT HEAVY ELECTRICALS LIMITED		HYDERABAD		DRN. UNIC	DATE 10.06.99
DEPT. PULV ENGD 446		UNTL. DMS. GR. q/m <sup>2</sup>	SCALE 1:5	WEIGHT (KG) 17.200	REF. TO ASSY DRG. 1-61-004-01189
K.M.RAO		APPD. K.M.RAO		ITEM NO. 03	NO.OF ITEMS 07

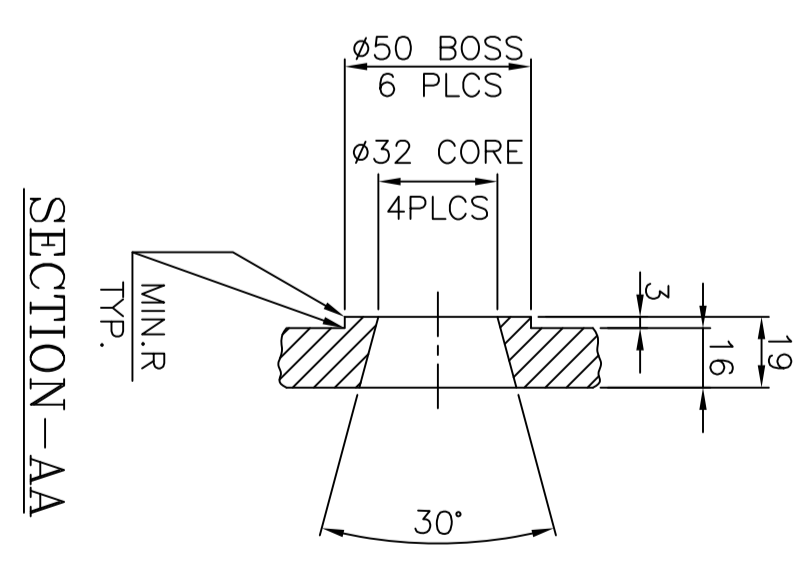
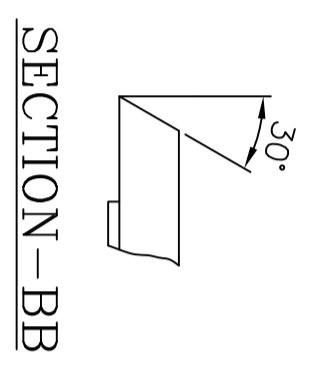
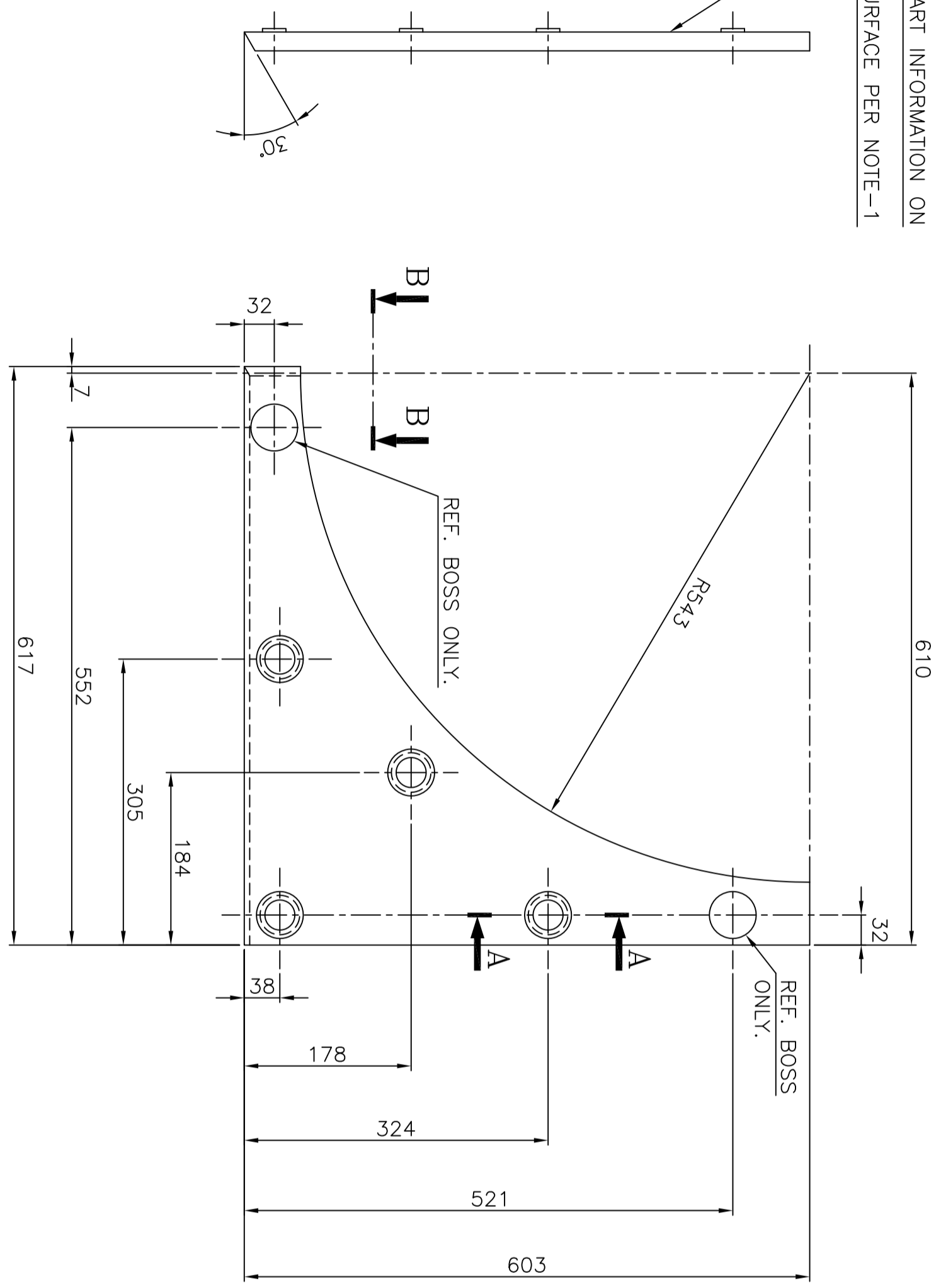
TITLE		CARD CODE	REV.
JOURNAL HEAD LINER		2-61-004-02267	01
		SHEET NO. 01	NO OF SHEETS 01

89220-400-19-2 ON DRG 10 FO 10 HS

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. 1-61-004-01189 COMPUTER FILE NAME 26102268.DWG THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

CAST PART INFORMATION ON THIS SURFACE PER NOTE-1



- NOTES:-**
1. FOLLOWING INFORMATION TO BE CAST INTO PART USING 3MM. MAX. LETTERS: 26100402268.
  2. BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
  3. TOLERANCES UNLESS OTHERWISE NOTED:  
CASTING ±1.6  
ANGULAR ±0.1°

01	CASTING			BA92114135507	17.200
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL SPECN.
				AA19741	1
					NET WT. GROSS WT. QUANTITY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD. CORNER RADI 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN ON THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT: 1103 XRP BOWL MILL  
NAME OF CUSTOMER/PROJECT

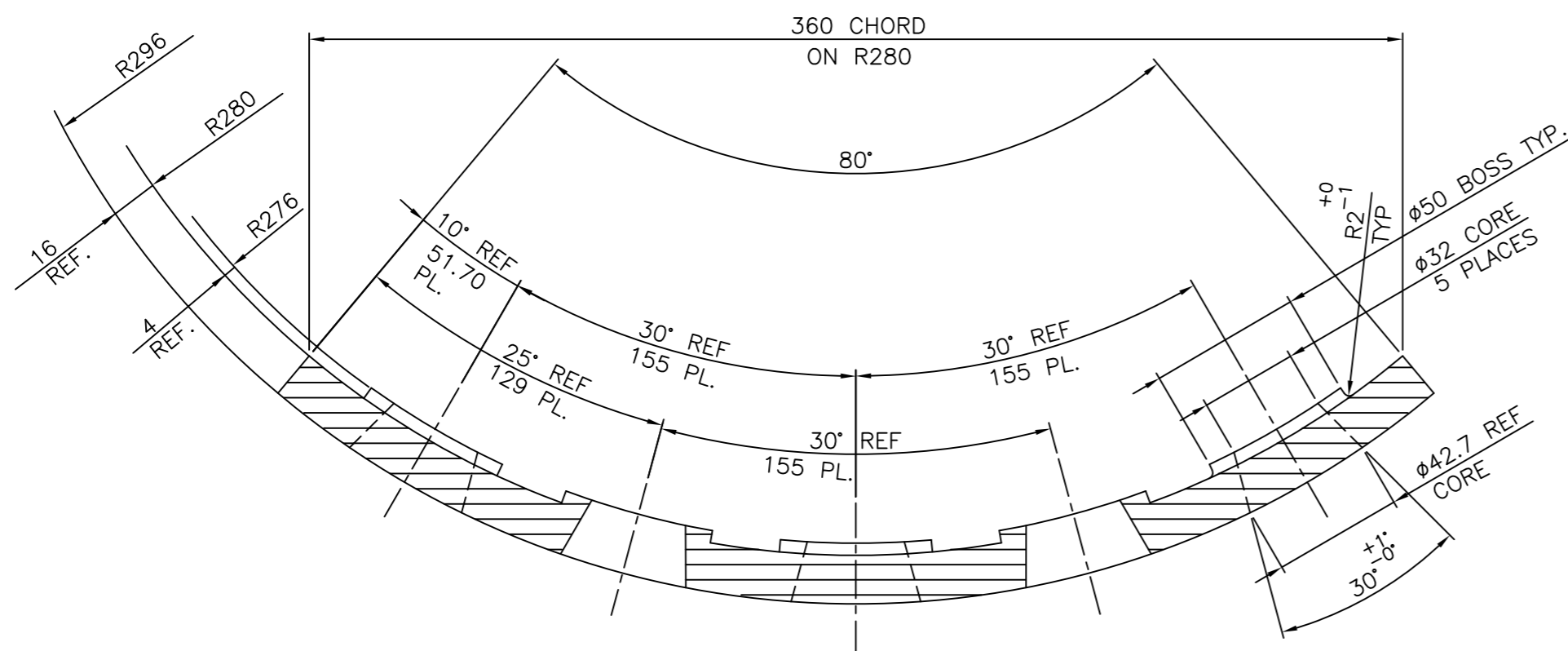
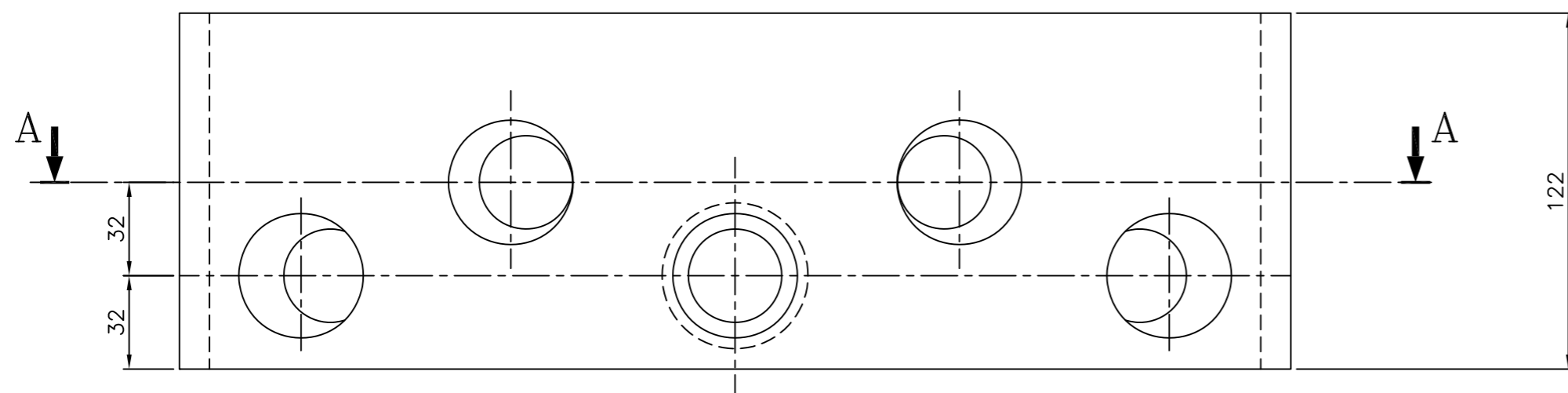
BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD		DRN. UNIC	SIGN.	DATE	NO. OF VAR.
DEPT. PULV ENRG 446	UNTO. DMS. GR. q/m <sup>2</sup>	CHD. E.M.ASHOK		10.06.99	
		APPD. K.M.RAO		10.06.99	

TITLE: JOURNAL HEAD LINER	SCALE: 1:5	WEIGHT (KG): 17.200	REF. TO ASSY DRG. NO.:	ITEM NO.:	NO. OF ITEMS:
			1-61-004-01189	02	07
CARD CODE: 2-61-004-02268					
SHEET NO. 01					NO. OF SHEETS 01

REV.	DATE	ALTD.	APPD.	REV.	DATE	ALTD.	APPD.	REV.	DATE	ALTD.	APPD.
01	10.06.99			01	10.06.99			01	10.06.99		
DRG. REDRAWN ON ACAD.											

DRG. NO. 2-61-080-00420

COMP. FILE NAME: 26100420.DWG  
 REF. DRG. NO.  
 INVENTORY NO.



SECTION A-A

**NOTE:**

1. ALL PERIPHERAL LENGTHS ARE BASED ON R296
2. BREAK ALL SHARP EDGES AND CORNERS.
3. TOLERANCE, UNLESS OTHERWISE SPECIFIED.

CASTING: ±1.5  
 ANGULAR: ±0°6'

	CASTING			BA9114133750	5.20	
				AA19741		
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL SPECN.	NET WT. GROSS WT. QUANTITY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

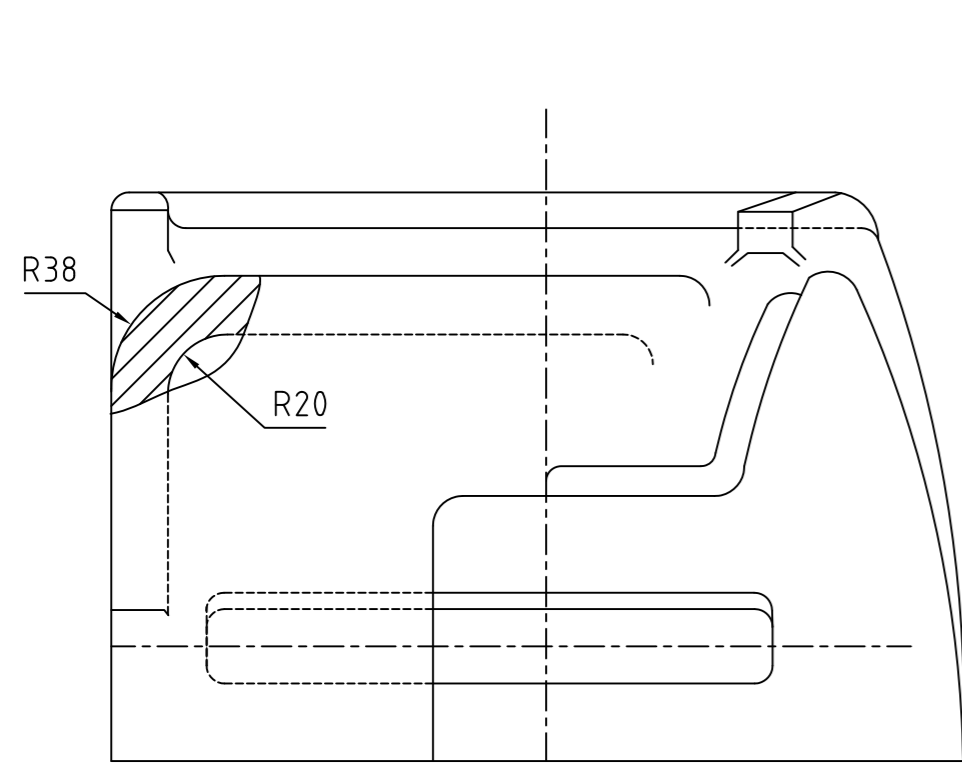
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD		NAME	SIGN.	DATE	NO. OF VAR.	
		DRN. ASHOK		06.06.84		
		CHD. AMAN		02.08.84		
DEPT. PULV-ENGG	SCALE 1:2	WEIGHT(Kg)	5.20	REF. TO ASSY DRG. 1-61-080-00180 (C-80-654-1)	ITEM NO. 02	NO. OF ITEMS
CODE 4460						
TITLE				DRAWING NO.		REV.
JOURNAL HEAD LINER I				2-61-080-00420		03
				SHEET NO. 01		NO OF SHEETS 01

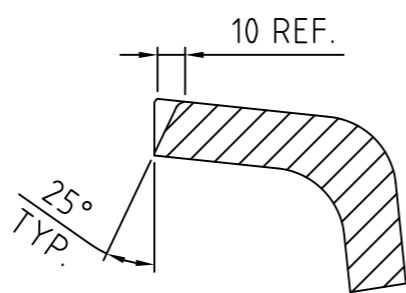
REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED			CHECKED			CHECKED			CHECKED
		APPD.			APPD.			APPD.			APPD.
03	11.05.05										
DRAWING IS REDRAWN ON ACAD INCORPORATING THE ALL PREVIOUS REVISIONS											
1			2			3			4		

DRG. NO. 2-61-088-02057

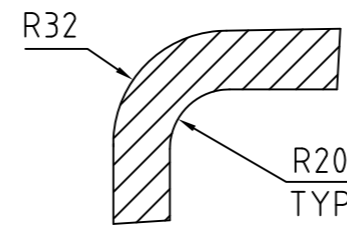
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY  
 COMPUTER FILE NAME 26102057dwg.  
 SIGN. AND DATE REF. DRG. NO.  
 INVENTORY NO



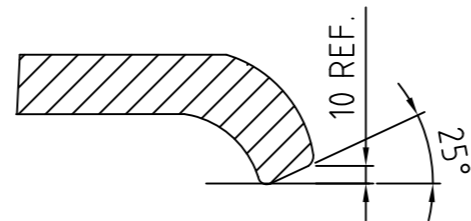
VIEW Q-Q



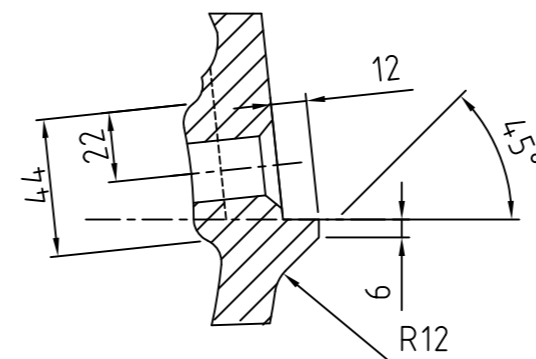
SECTION D-D



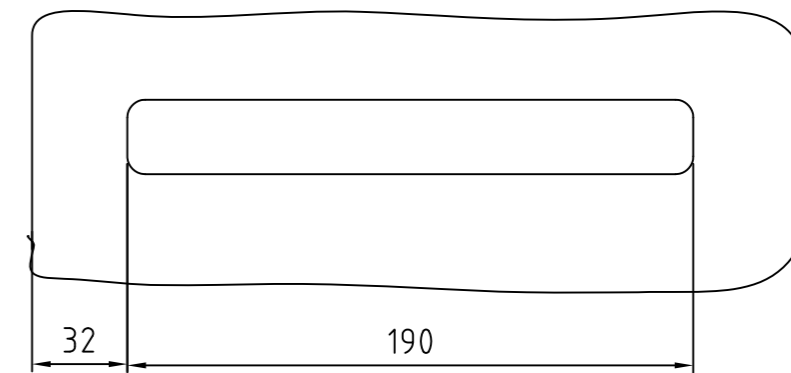
SECTION F-F



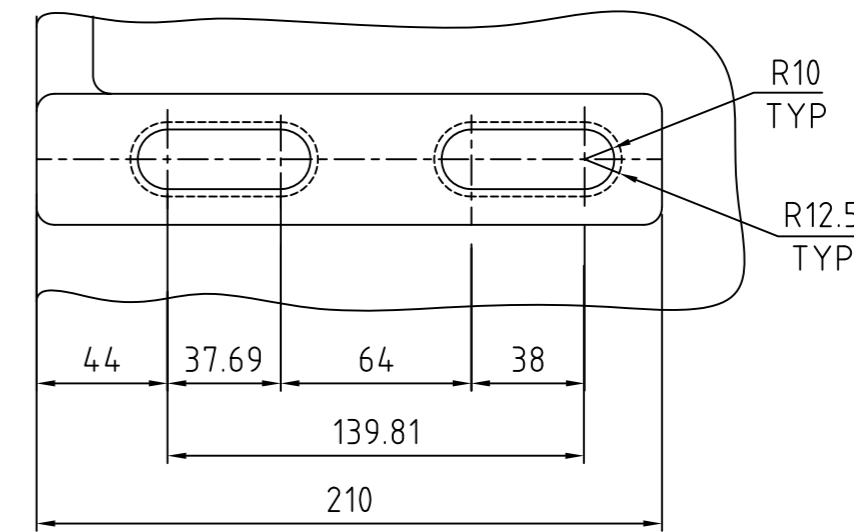
SECTION E-E



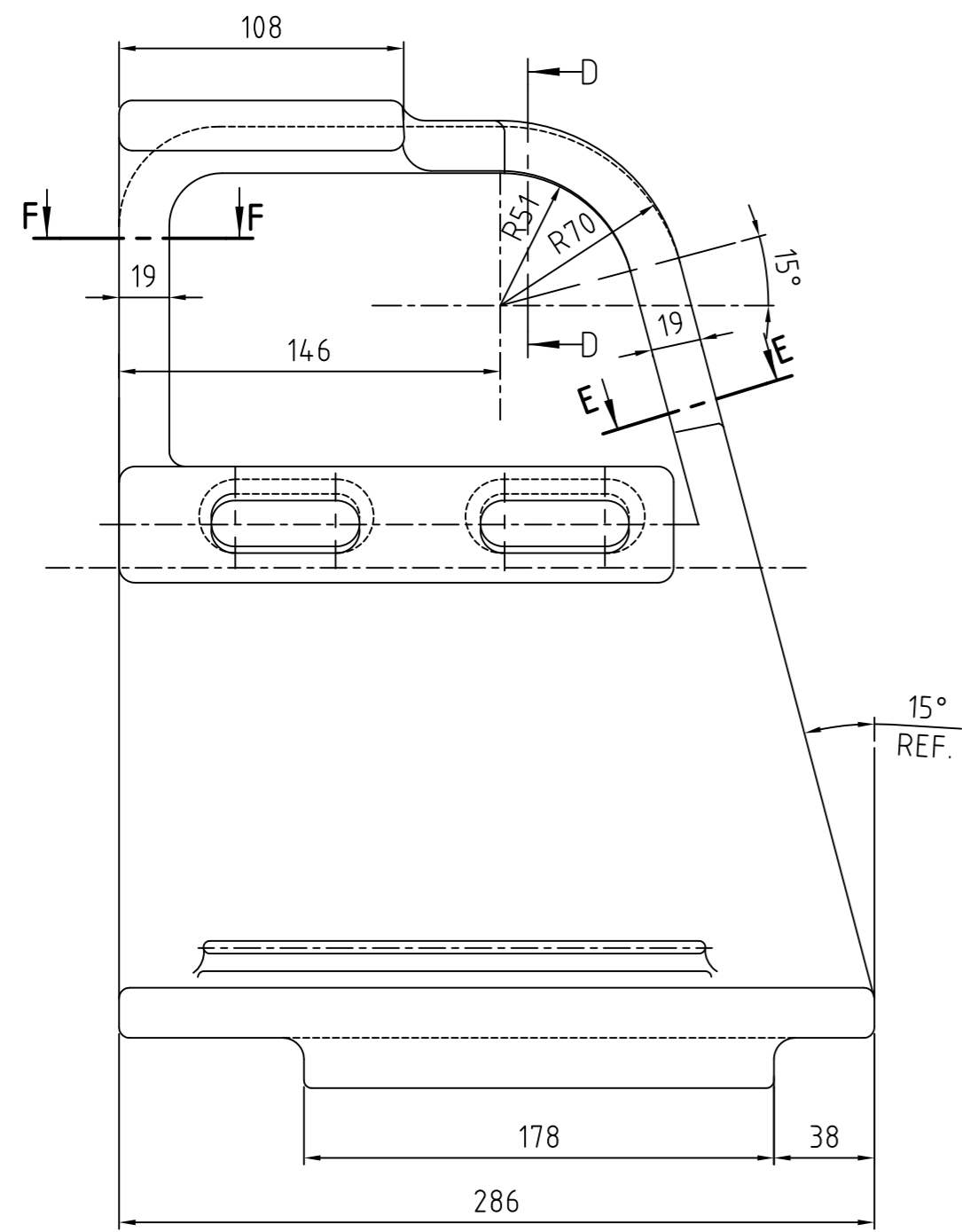
SECTION C-C



VIEW B-B



VIEW A-A



VIEW P-P

NOTE:

1. UNLESS OTHERWISE NOTED:

- A. ALL INSIDE CORNER FILLETS TO BE R6
- B. ALL OUTSIDE CORNER RADII TO BE R3

2. CASTING TOL. SHOULD BE WITH IN ANGULAR 0°6'

+0.00  
-1.6

3. CASTING SHALL BE SUPPLIED AS PER DRAWING DIMENSIONS AS IT IS ASSEMBLED AS IT IS.

01	CASTING				BA9114134721	22.0	
					AA19741		1
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

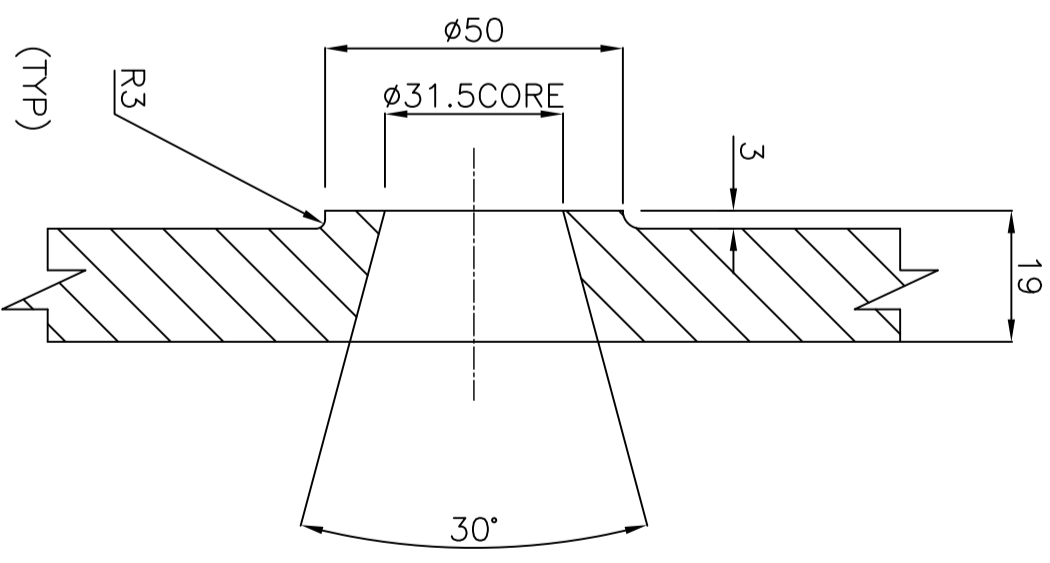
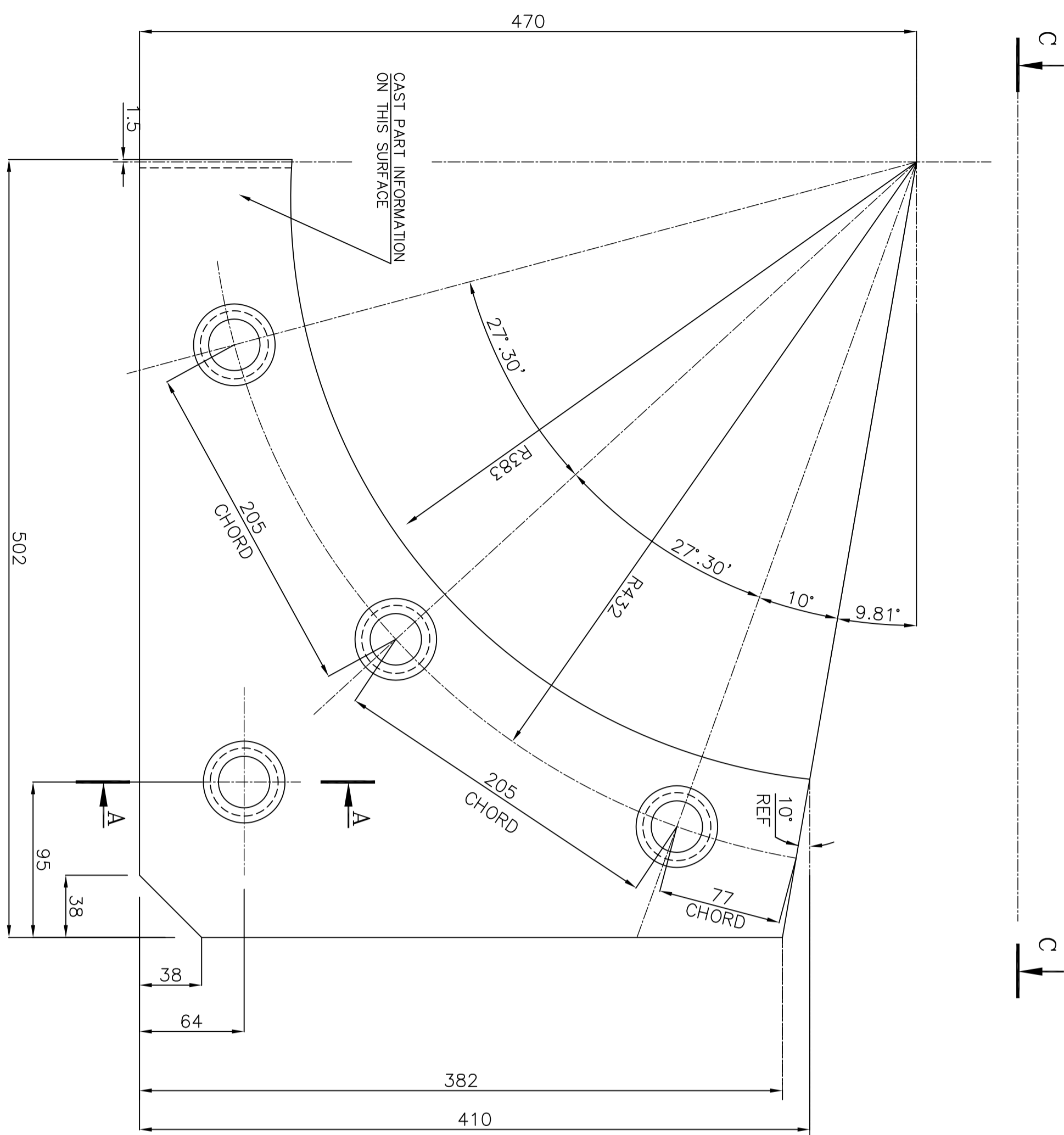
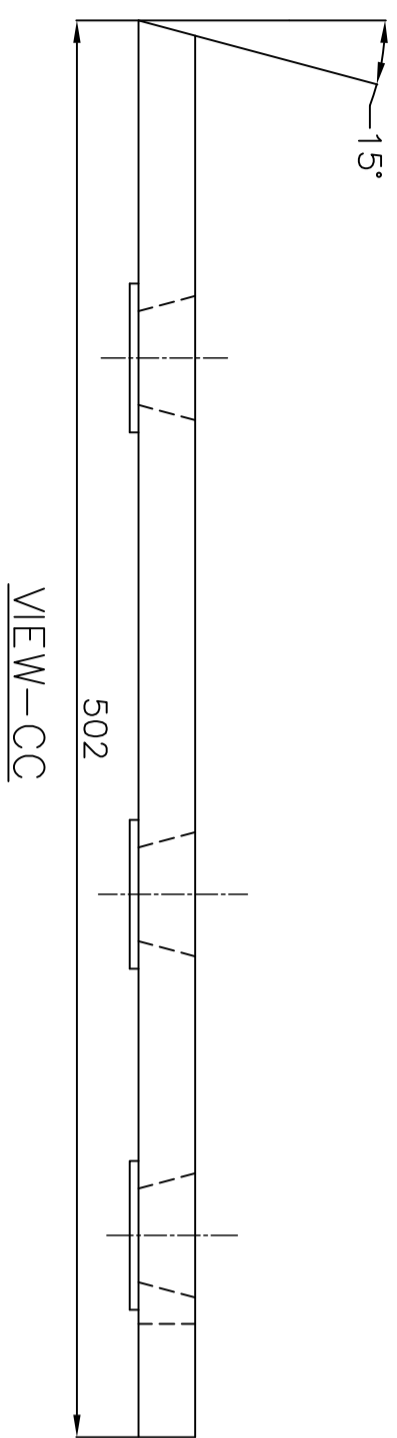
1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD. CORNER RADII 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT  
NAME OF CUSTOMER/PROJECT **883 XRP BOWL MILL**

BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD	DRN.	NAME	SIGN.	DATE	NO. OF VAR.	
	CHD.	KRISHNA		29.11.03		
	APPD.	G.S.N.M.R		29.11.03		
DEPT. PULV ENGG. CODE 446	UNTOL. DIMS. GR. $\phi$ /M/F	SCALE 1:2.5	WEIGHT (KG) 22.0	REF. TO ASSY DRG. 2.61.088.02067	ITEM NO. 01	NO. OF ITEMS 06
TITLE JOURNAL HEAD LINER				DRAWING NO. 2-61-088-02057		REV. 02
				SHEET NO. 01		NO OF SHEETS 01

REV.	DATE	ALTERED CHD.	APPD.	REV.	DATE	ALTERED CHD.	APPD.
02	29.11.03	KRISHNA				G.S.N.M.R	
DRAWING REDRAWN ON AUTOCAD							

09020-880-19-2 ON GRD



SECTION-AA

NOTE:

1. ALL RADII TO BE 1.5mm UNLESS OTHERWISE SPECIFIED.
2. CASTING TOL. SHOULD BE WITHIN  $\pm 0.0$  ANGULAR 0.6'
3. CASTING SHALL SUPPLIED ASPER DRG. DIMENSIONS WITH OUT ANY ALLOWANCES AS THE ITEM IS ASSEMBLD AS IT IS.

01	CASTING			BA9114134764	16.00				
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.	QUANTITY	
				AA19741				1	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD. CORNER RADII 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT  
NAME OF CUSTOMER/PROJECT  
**883 XRP BOWL MILL**

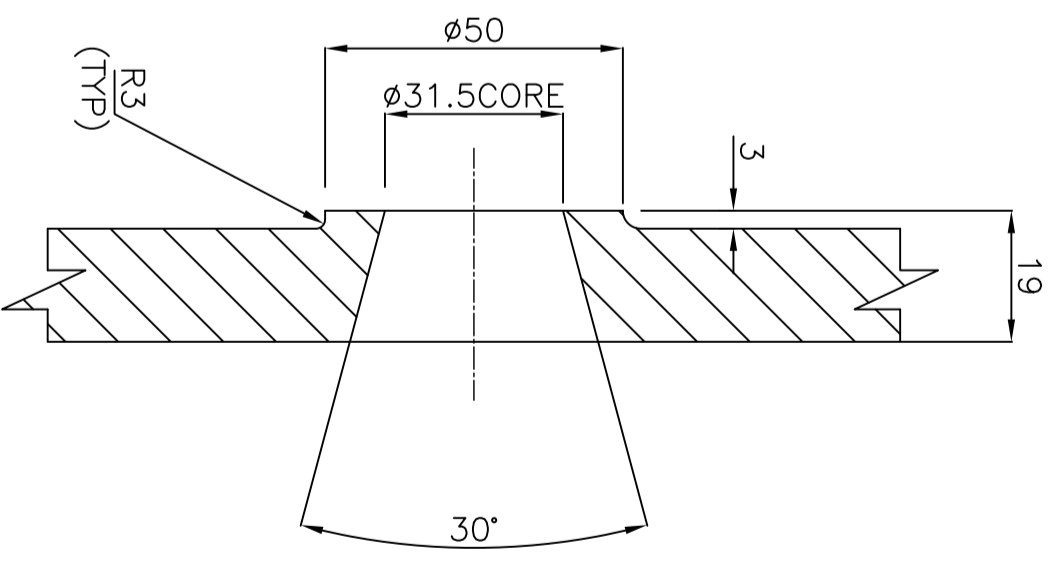
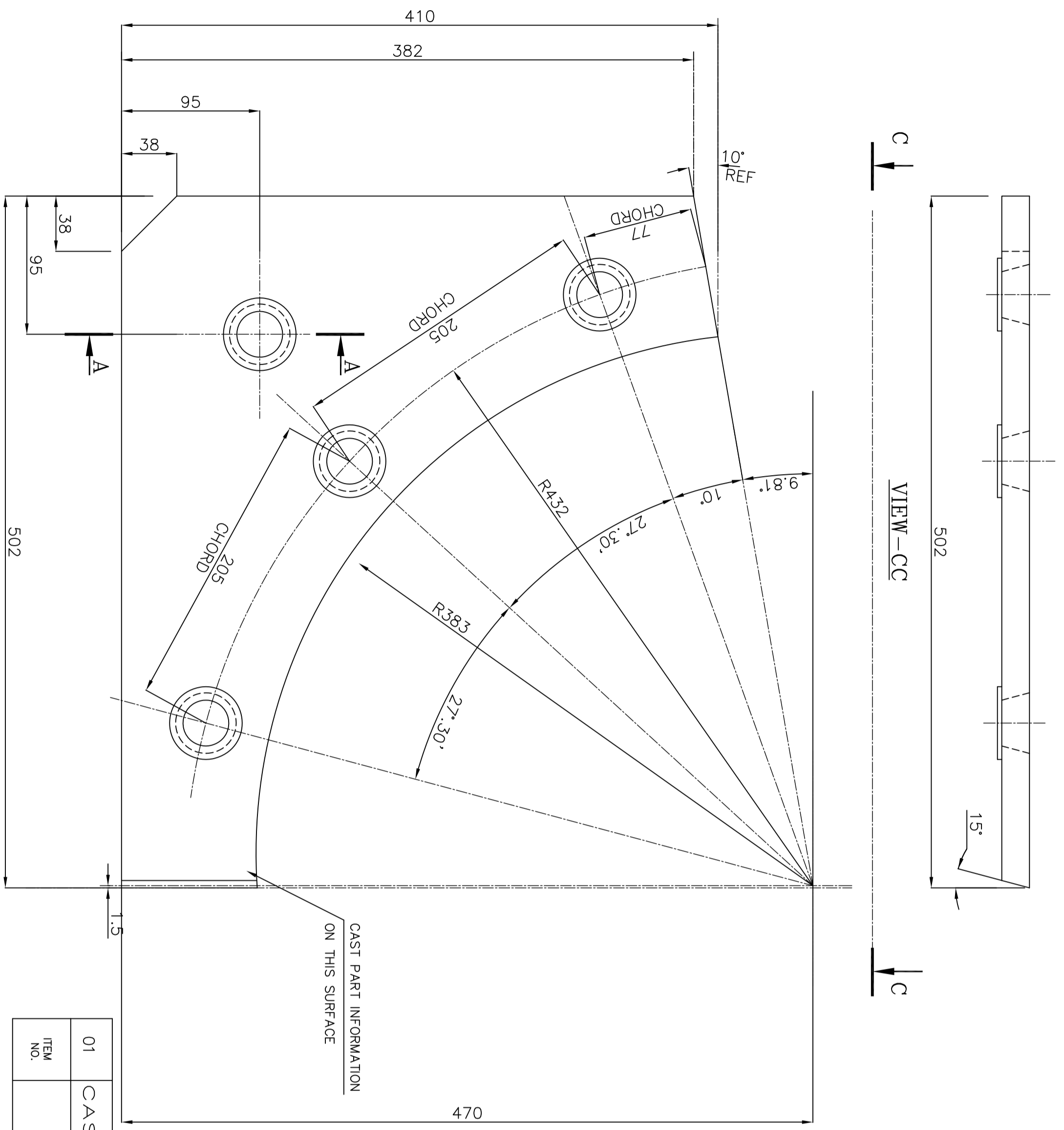
		BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD	
DEPT. P&V ENGG. CODE 446	UNTL. DMS. OR. q/m/y	SCALE 1:2.5	WEIGHT (KG) 16.00
DRN. RAZVI	CHD. G.S.N.M.RAO	REF. TO ASSY DRG. 2.61.088.02060	ITEM NO. 4
DATE 13.11.03			NO. OF ITEMS 5

TITLE <b>JOURNAL HEAD LINER</b>		DRAWING NO. 2-61-088-02060	REV. 03
SHEET NO. 01		NO OF SHEETS 01	

REV.	DATE	ALTERED	APPD.	REV.	DATE	ALTERED	APPD.	REV.	DATE	ALTERED	APPD.
ZONE		CHD.		ZONE		CHD.		ZONE		CHD.	
					12.7.08						

DIM 470 AND ANGLE 9.81° ADDED.

19020-880-19-2 ON GRD



SECTION-AA

NOTE:

1. ALL RADII TO BE 1.5mm UNLESS OTHERWISE SPECIFIED.
2. CASTING TOL. SHOULD BE WITHIN  $\pm 0.0$  ANGULAR 0.6'
3. CASTING SHALL BE SUPPLIED AS PER DRAWING DIMENSIONS WITHOUT ANY ALLOWANCES AS THE ITEM IS ASSEMBLED AS IT IS

01	CASTING				BA9114134772	16.00					
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.	QUANTITY			
					AA19741			1			

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD. CORNER RADII 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT  
NAME OF CUSTOMER/PROJECT  
**883 XRP BOWL MILL**

		BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD		DRN. RAZVI G.S.N.M.RAO	NAME SIGN.	DATE 13.11.03	NO.OF VAR.
DEPT. P&V ENG. CODE 446	UNTL. DIMS. OR. $\phi$ /M/Y	SCALE 1:2.5	WEIGHT (KG) 16.00	REF. TO ASSY DRG. 2.61.088.02068			

TITLE <b>JOURNAL HEAD LINER</b>		DRAWING NO. 2-61-088-02061	NO.OF ITEMS 5	REV. 03
SHEET NO. 01		NO OF SHEETS 01		

REV.	DATE	ALTERED	APPD.	REV.	DATE	ALTERED	APPD.	REV.	DATE	ALTERED	APPD.
03	12.7.08	CHD.		03	12.7.08	CHD.		03	12.7.08	CHD.	
DIM 470 AND ANGLE 9.81° ADDED.											

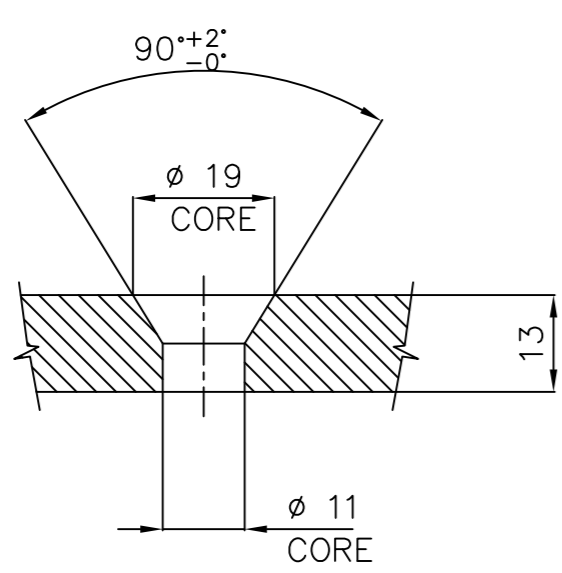
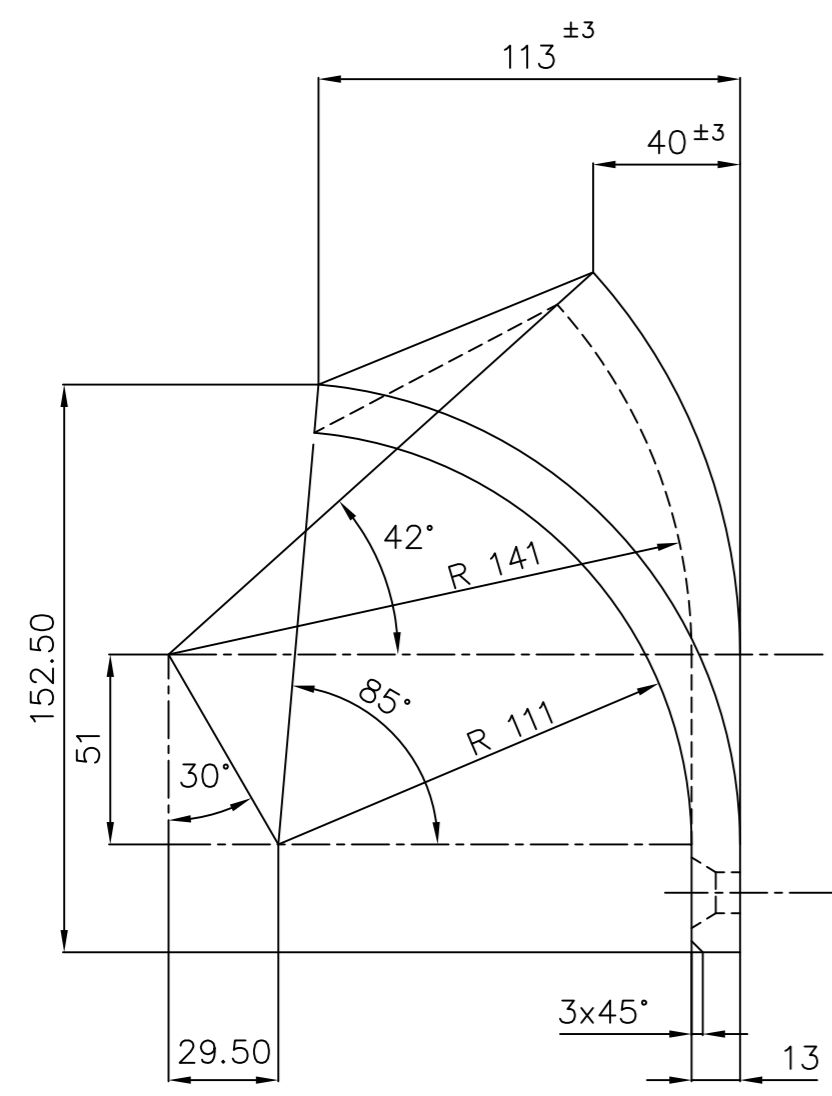


DRG. NO. 2-61-300-00551

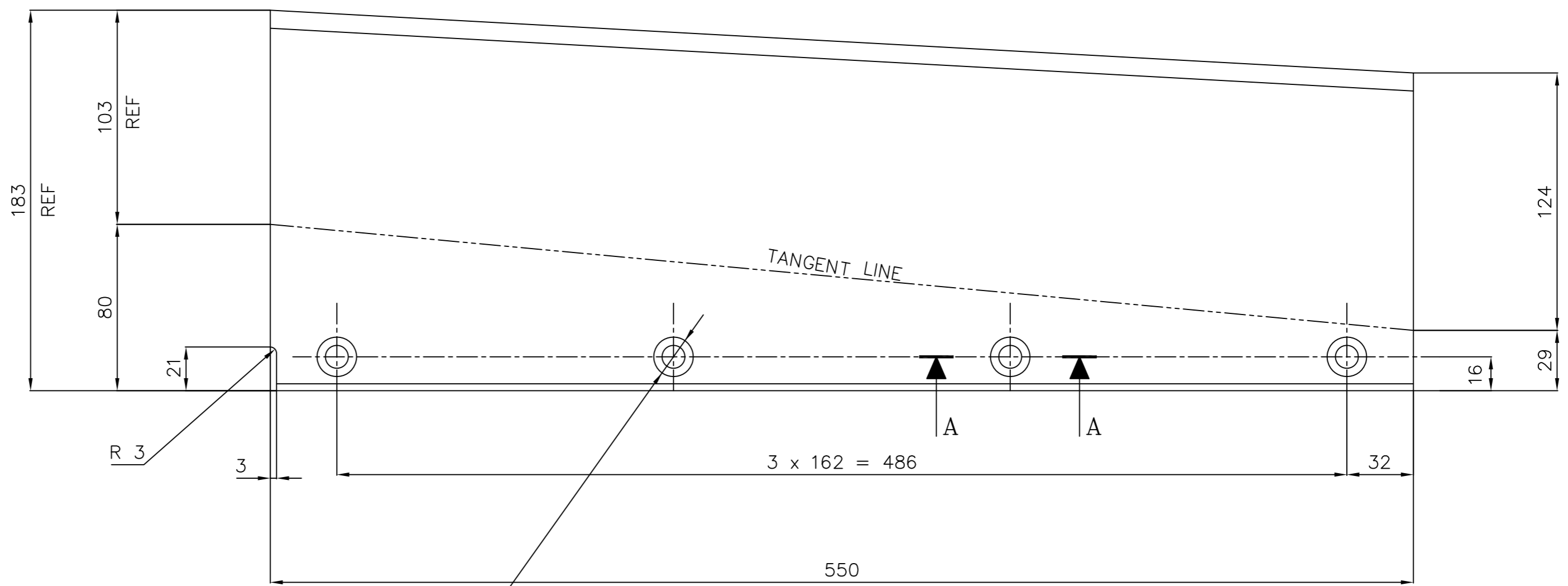
SH OF

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. COMPUTER FILE NAME THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261



SECTION-A-A



4 CORED CTSK HOLES

NOTES :-

- BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE SPECIFIED.
- PATTERN No. 2-61-300-00551.
- CORED HOLES ARE TO BE CLEANED AND FREE FROM FINNS, SAND ETC.
- DIMENSIONS & LOCATIONS OF THE CORED HOLES ARE TO BE ENSURED WITH A TEMPLATE.

ITEM NO.	DESCRIPTION	DRAWING NO	IT NO.	BA9114103044	10.00
				AA19741	
VAR NO	MATL SPCN.	QTY	MATL CODE	UNIT WT.	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°
- INTERNAL M/CD. CORNER RADII 1 TO 0.7
- THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN ON THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT **883,1003 XRP BOWL MILL**

	BHARAT HEAVY ELECTRICALS LIMITED		NAME	SIGN.	DATE	NO. OF VAR.
	HYDERABAD		DRN.	N.D.S	11.03.98	
			CHD.	G.S.N.M.R	16.10.03	
		APPD.	S.G.		29.06.04	

DEPT. BMD	UNTOL. DIMS. GR. ø/M/7	SCALE 1:2 1:1	WEIGHT (KG) 10.00	REF. TO ASSY. DRG. C-101-00215/06	ITEM NO. 1	NO. OF ITEMS 5
DEPT CODE. 446				2-61-388-02133		

TITLE **DEFLECTOR BLADE**

DRAWING NO. **2-61-300-00551** REV. **04**

SHT. No 01 NO. OF SHT. 01

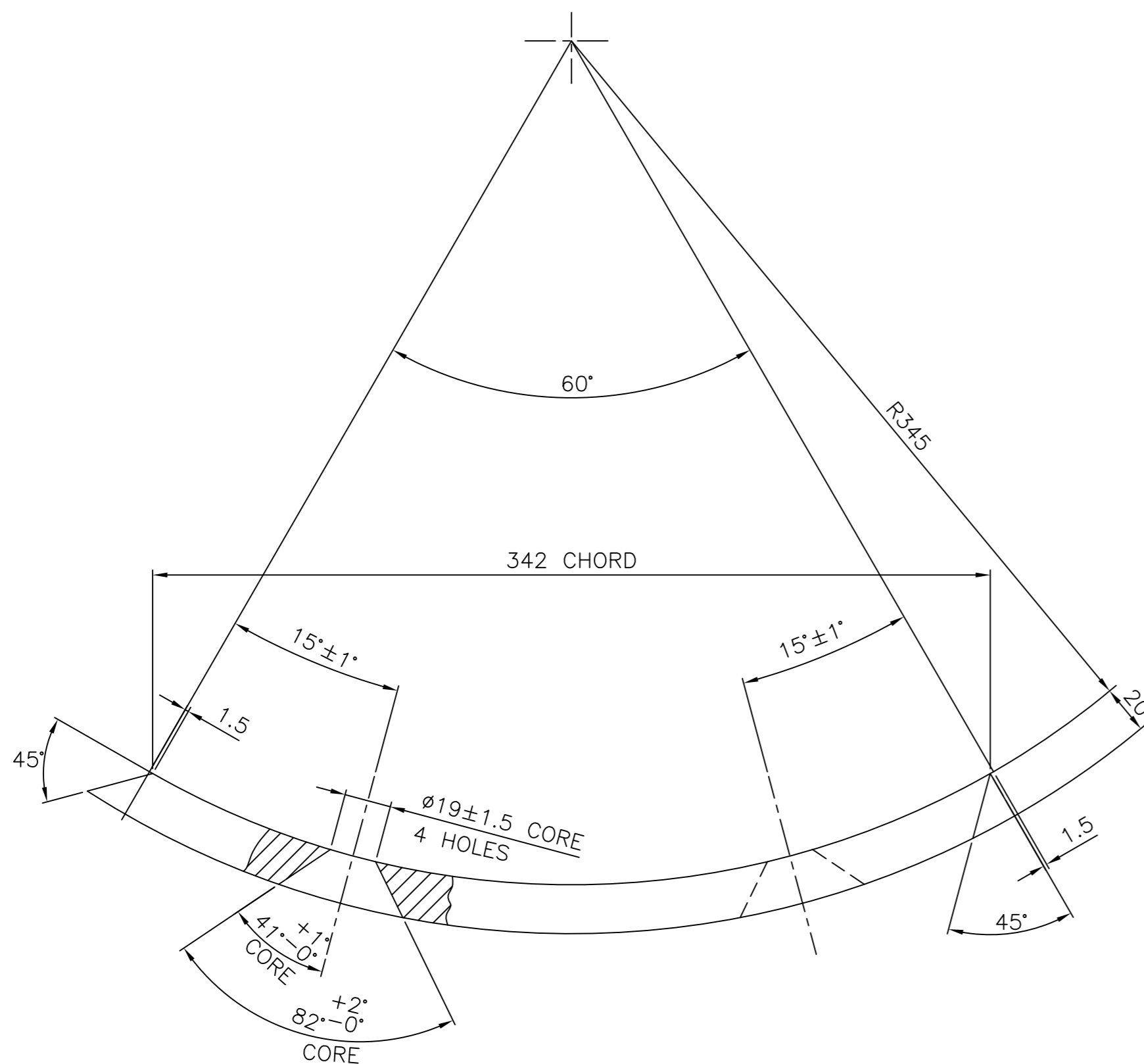
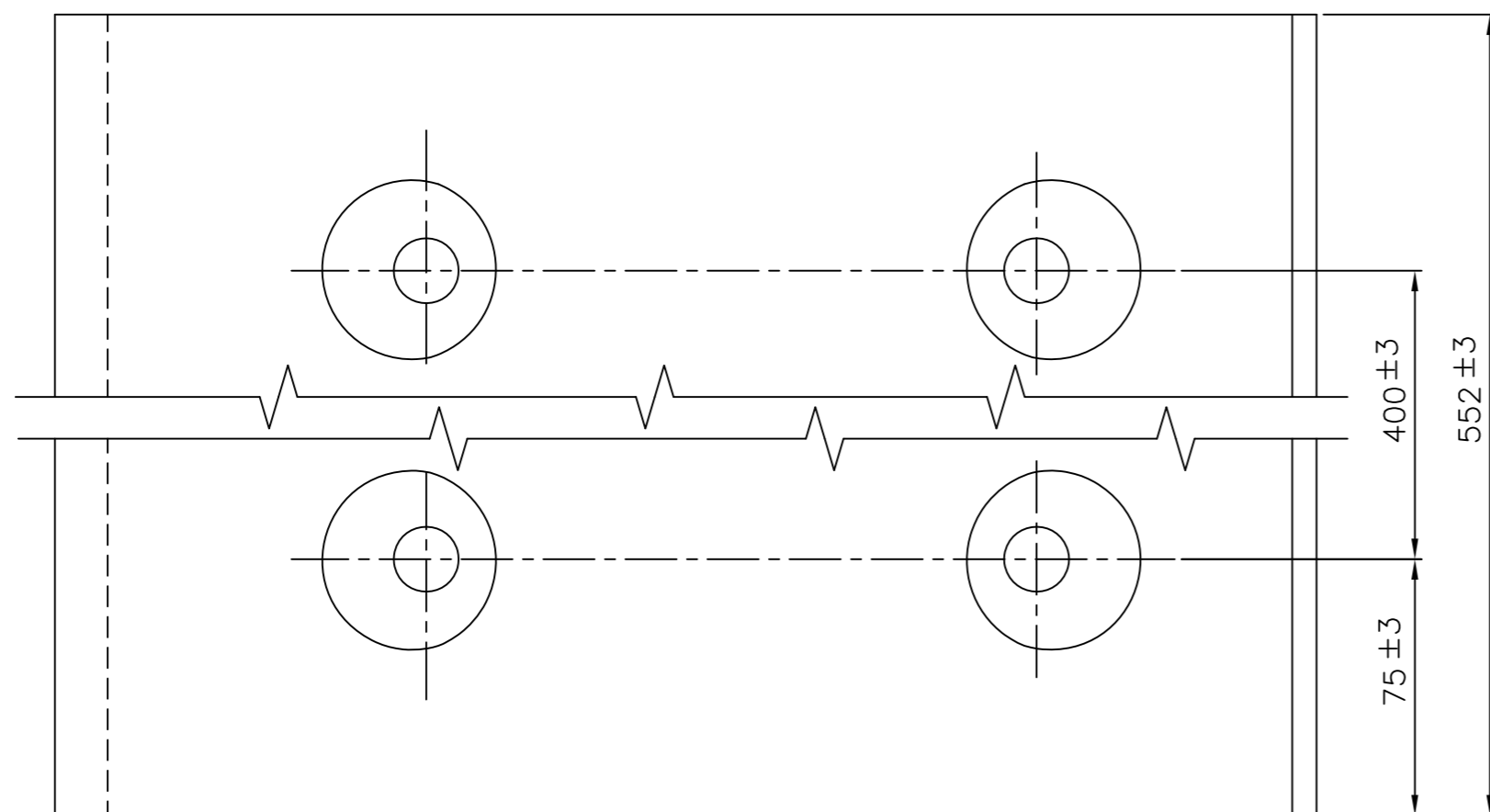
REV.	DATE	ALTERED CHD/APPD	REV.	DATE	ALTERED CHD/APPD	REV.	DATE	ALTERED CHD/APPD	REV.	DATE	ALTERED CHD/APPD
04	29.06.04		03	11.03.98		04	29.06.04		03	11.03.98	

N.D.S S.G. WEIGHT WAS 7.8 NOTE 5 DELETED

N.D.S GSNMR DRG. REDRAWN INCORPORATING ALL PREVIOUS REVISIONS

DRG.NO. 2-61-300-01184

COMP. FILE NAME: 26101184.DWG  
 REF.DRG.NO.  
 INVENTORY NO.



ITEM NO	CASTING	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	BA9114153572	32.000	
					AA19741		
					MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF.TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

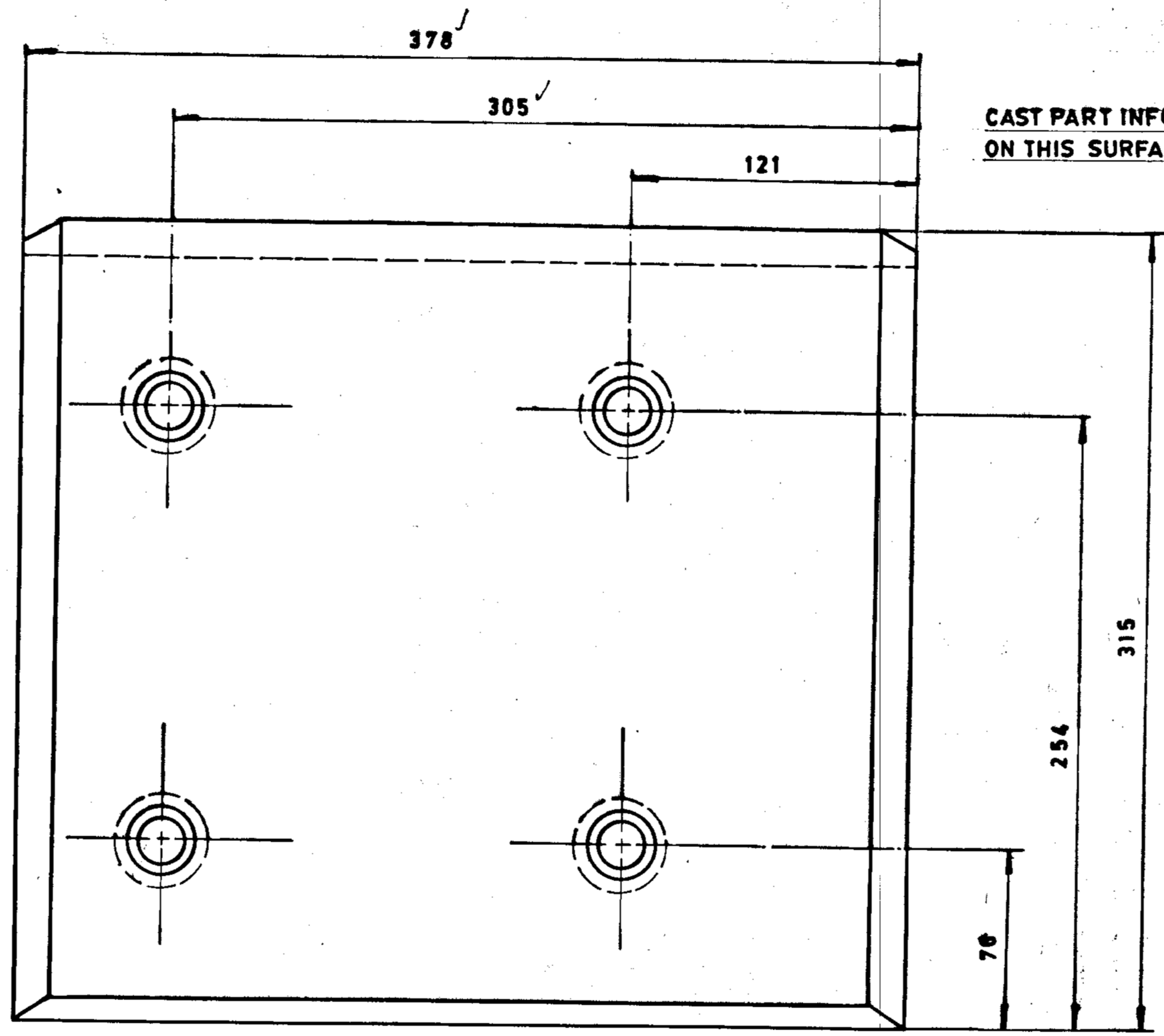
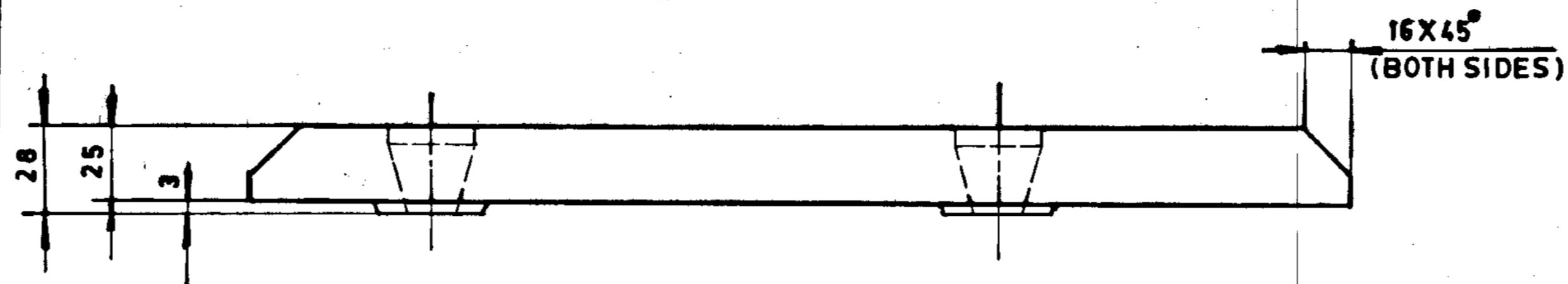
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  
 1003 XRP BOWL MILL

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	NAME	SIGN.	DATE	NO.OF VAR.	
	DRN. N.D.S		17.02.99		
	CHD. S.G		17.02.99	-NA-	
APPD. K.M.R		17.02.99			
DEPT. PULV.ENGG	SCALE 1:2	WEIGHT(Kg) 32.000	REF. TO ASSY DRG. C-GP-4732 P/N. GP-4732	ITEM NO. -NA-	NO.OF ITEMS -NA-
CODE 446			DRAWING NO. 2-61-300-01184	REV. 02	
TITLE INNER CONE SPOUT SEGMENT			SHEET NO. 01	NO OF SHEETS 01	

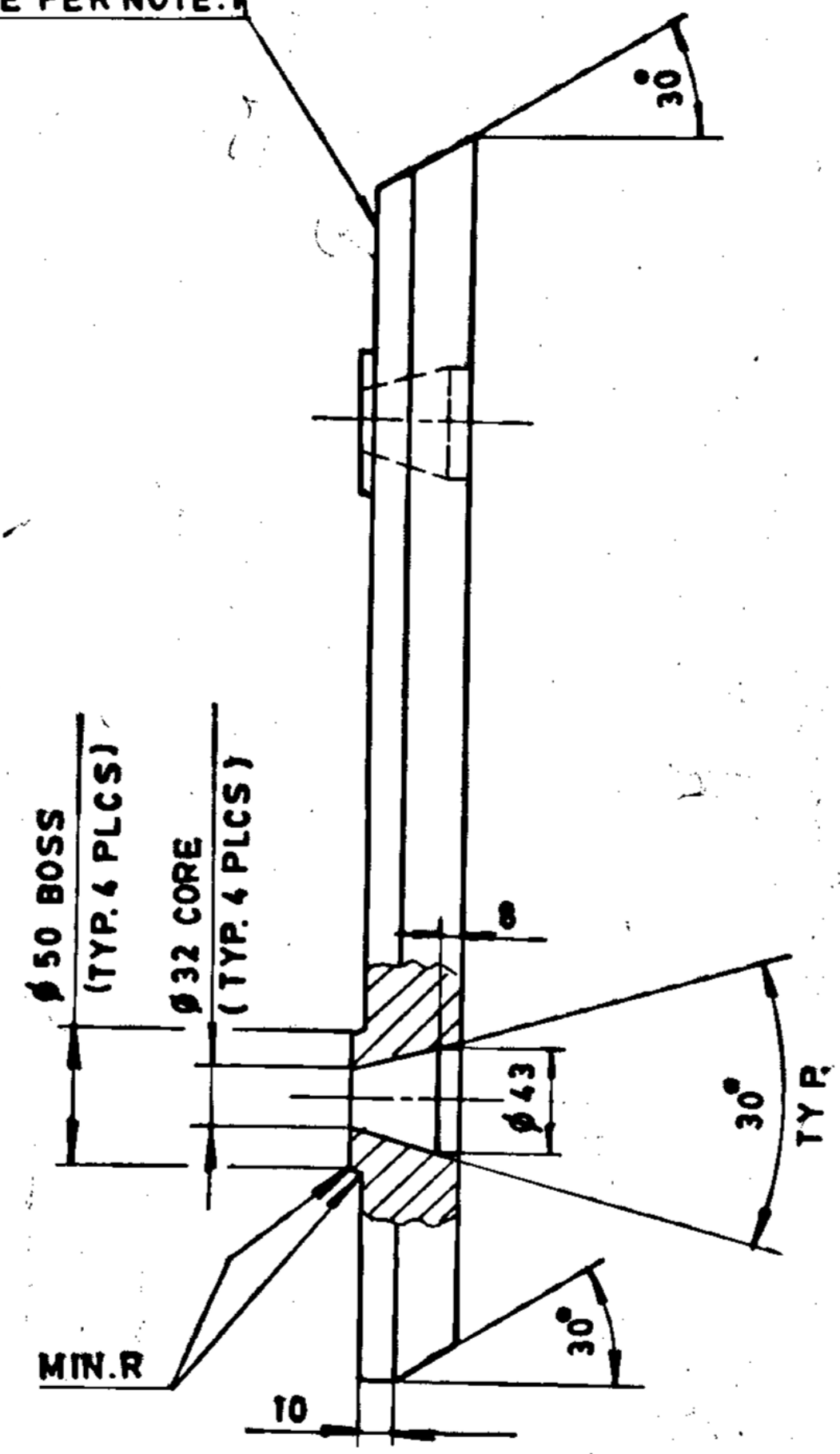
REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED APPD.			CHECKED APPD.			CHECKED APPD.			CHECKED APPD.
1			2			3			4	02	17.02.99
ZONE			ZONE			ZONE			ZONE		DRAWING REDRAWN

2-61-304-02272 ON DMD

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



CAST PART INFORMATION ON THIS SURFACE PER NOTE: 1



NOTES:-

1. FOLLOWING INFORMATION TO BE CAST INTO PART USING 3MM. MAX. HEIGHT LETTERS: 26130402272
2. BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
3. TOLERANCES UNLESS OTHERWISE NOTED:  
CASTING  $\pm 1.6$   
ANGULAR  $\pm 0.1^\circ$

GENERAL DIMENSIONS, LIMITS, FITS & TOLERANCES AS PER P.S HY-0230261.

01	CASTING	BA9114135340	23.000
AA19741			
VAR. NO.	REMARKS	ITEM NO.	DESCRIPTION
			DRAWING NO.
			MATL. CODE
			MATL. SPCN.
			UNIT WT.

ADDITIONAL INFORMATION

STATUS OF DRAWING

DISTRIBUTION OF PRINTS

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 1043 RP BOWL MILL CHANDRAPUR-500 MW

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

DRN. NAME: EOL  
CHD. N.D.S  
APPD. Y.S.B.L.RAO

SIGN. DATE: 15-7-73

REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED
ZONE			ZONE			ZONE		
DEPT. BMD			GRADE OF TOL. DIM. G/M/P			SCALE N.T.S		
CODE 446			WEIGHT (Kg) 23.000			REF. TO ASSY. DRG. C-110-00813/2		
TITLE JOURNAL OPENING FRAME LINER						DRAWING NO. 2-61-304-02272		
CARD CODE						NO. OF SHEETS 100		

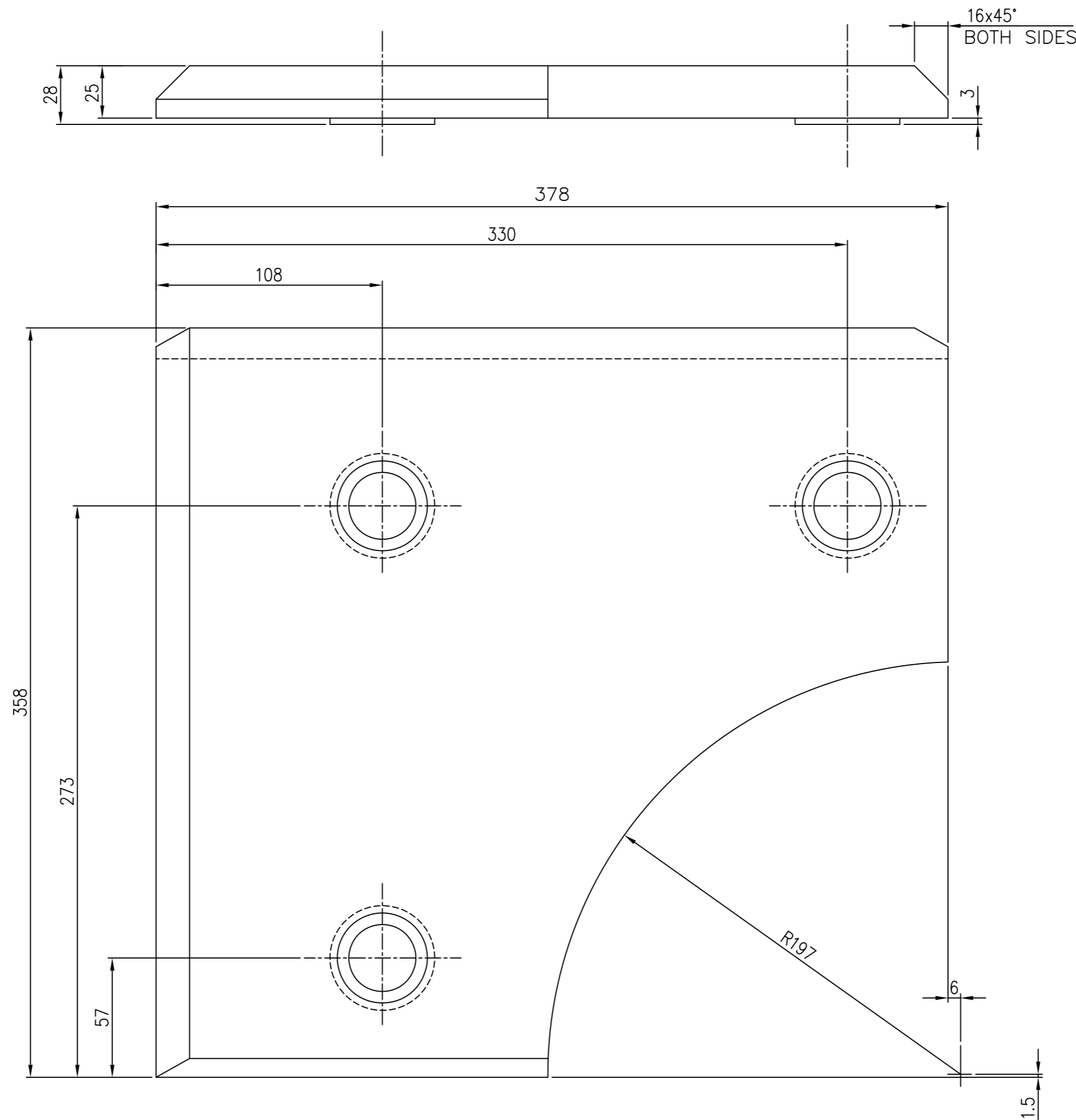
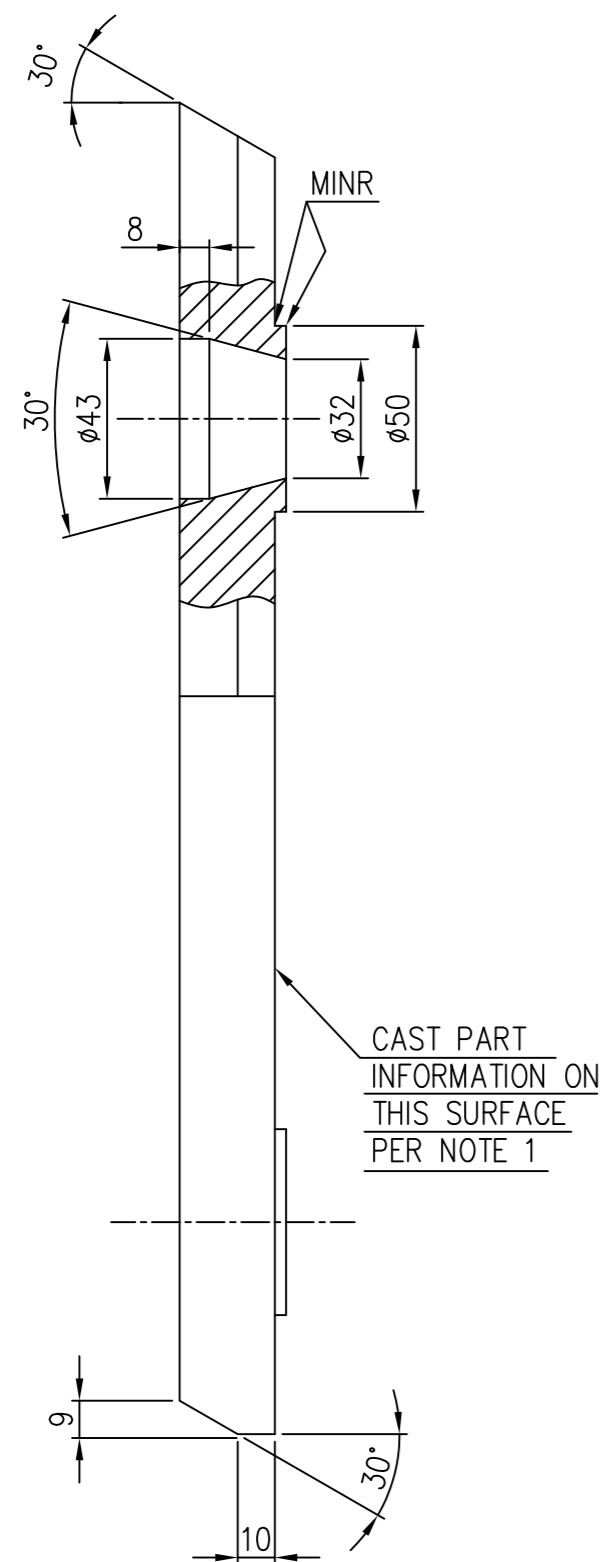
DRG.NO. 2-61-304-02274

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

COMP. FILE NAME  
26102274.DWG

REF.DRG.NO.

INVENTORY NO.



**NOTE:-**

01. FOLLOWING INFORMATION TO BE CAST IN TO PART USING 3MM MAX. HEIGHT LETTERS 2613042274
02. BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
03. TOLERANCES UNLESS OTHERWISE NOTED.  
CASTING ±1.6  
ANGULAR ±0.1°

01	CASTING			BA9114135361	20.500	
				19741		1
ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT. GROSS WT.
					MATERIAL SPECN.	QUANTITY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

1. REF.TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		1043 RP BOWL MILL CHANDRAPUR-500 MW			
BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	NAME	SIGN.	DATE	NO.OF VAR.	
	DRN. n.d.samuel		15.6.99		
	CHD. s.ghatge	<i>[Signature]</i>	15.6.99		-NA-
APPD. k.m.rao	<i>[Signature]</i>	15.6.99			
DEPT. PULV. ENGG.	SCALE	WEIGHT(Kg)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE 446	1:2	20.500	C-110-00818/1	-NA-	-NA-
TITLE			DRAWING NO.		REV.
JOURNAL OPENING FRAME LINER			2-61-304-02274		00
SHEET NO. 01			NO OF SHEETS 01		

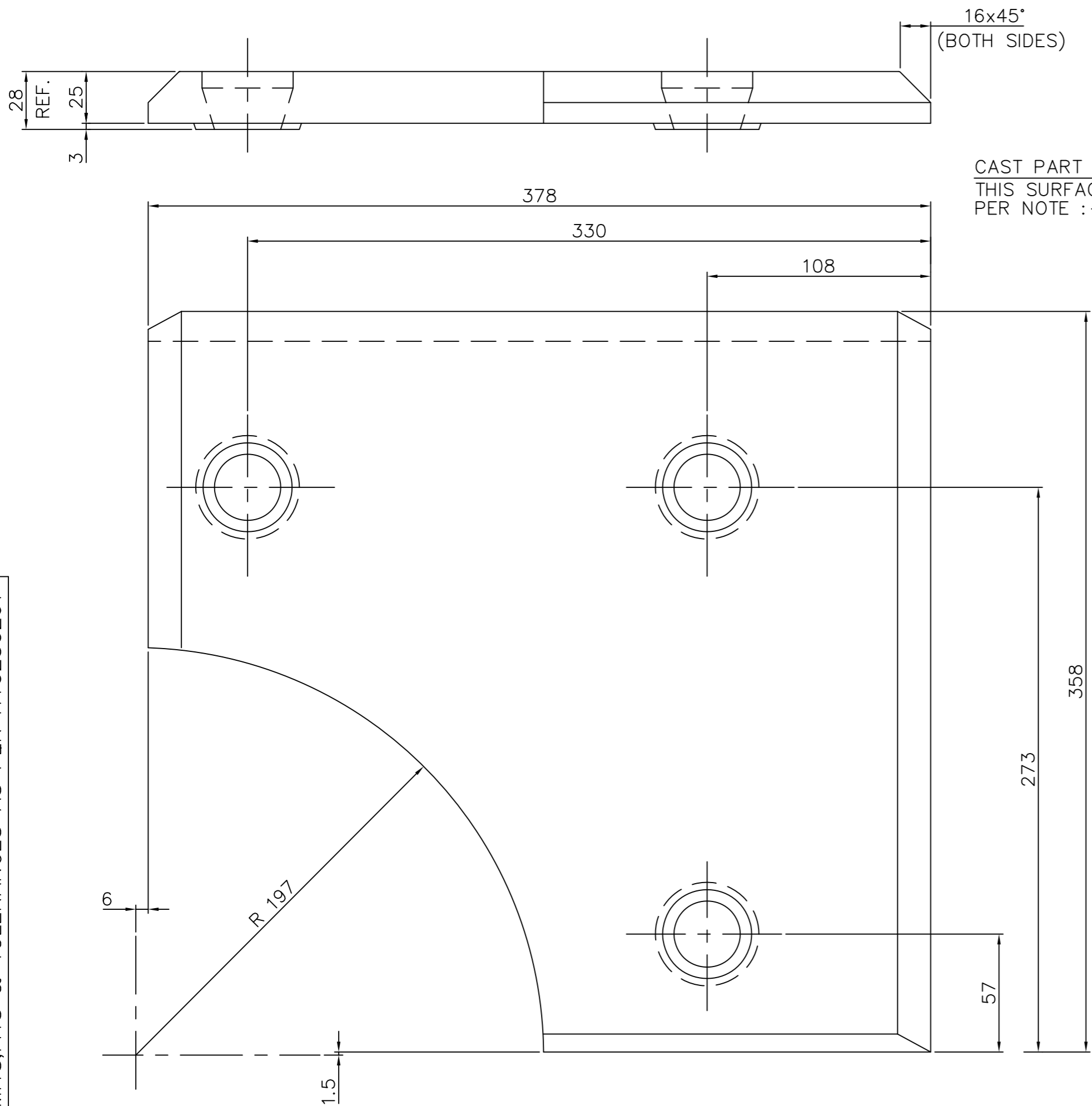
REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED			CHECKED			CHECKED			CHECKED
		APPD.			APPD.			APPD.			APPD.
ZONE			ZONE			ZONE			ZONE		
1			2			3			4		

DRG. NO. 2-61-304-02275

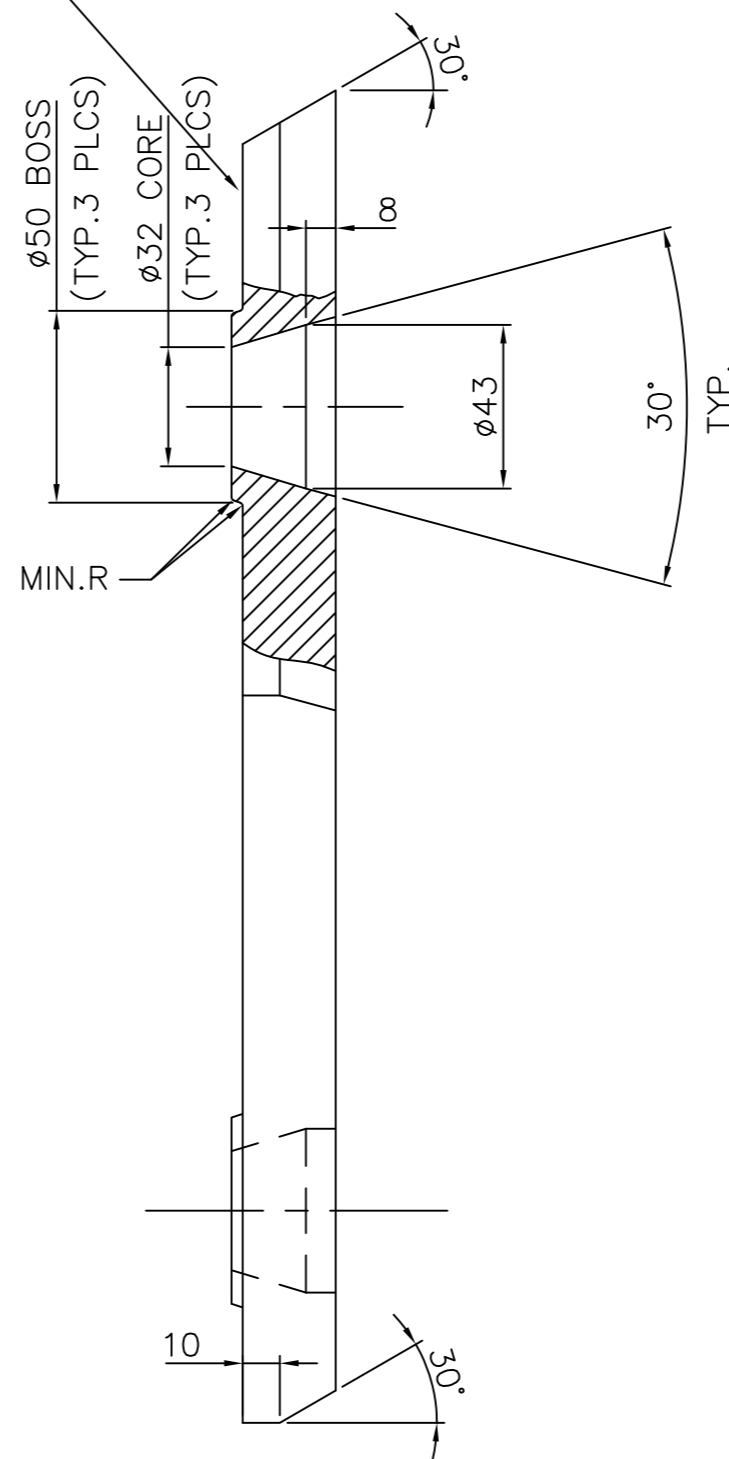
SH. 01 OF 01

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. C-110-00817/1 COMPUTER FILE NAME 26102275.DWG THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261



CAST PART INFO. ON THIS SURFACE PER NOTE :- 1



NOTES:

1. FOLLOWING INFORMATION TO BE CAST INTO PART USING 3mm MAX. HEIGHT LETTERS 26130402275
2. BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
3. TOLERANCES UNLESS OTHERWISE NOTED :-  
CASTING ±1.6  
ANGULAR ±0.1°

01	CASTING			BA9114135370	20.500	
				AA19741		
ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT. GROSS WT.
					MATERIAL SPECN.	QUANTITY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 1103 XRP BOWL MILL

	BHARAT HEAVY ELECTRICALS LTD.		NAME	SIGN.	DATE	NO. OF VAR.
	HYDERABAD		DRN. C.C.S.		15.6.99	
			CHD. E.M.A.	<i>[Signature]</i>	15.6.99	-
		APPD. K.M.RAD	<i>[Signature]</i>	15.6.99		

DEPT. PULV	UNTOL. DIMS. GR.		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS
CODE 446	<i>[Signature]</i>		1:1	20.500	C-110-00817/1	-	-

TITLE: JOURNAL OPENING FRAME LINER

CARD CODE N.A.	DRAWING NO. 2-61-304-02275	REV. 01
SHT. No 01	NO. OF SHT. 01	

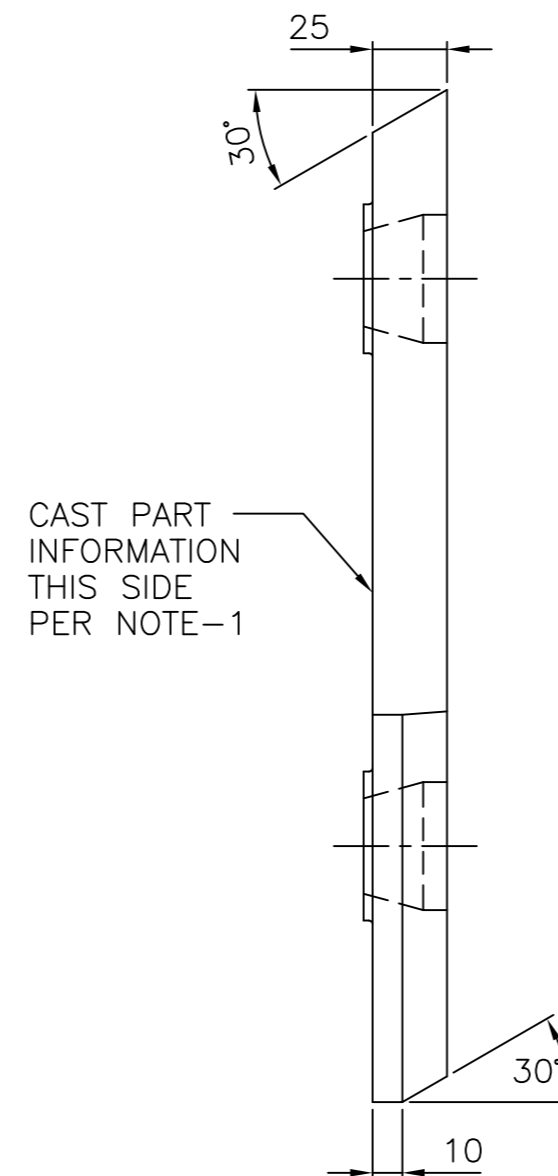
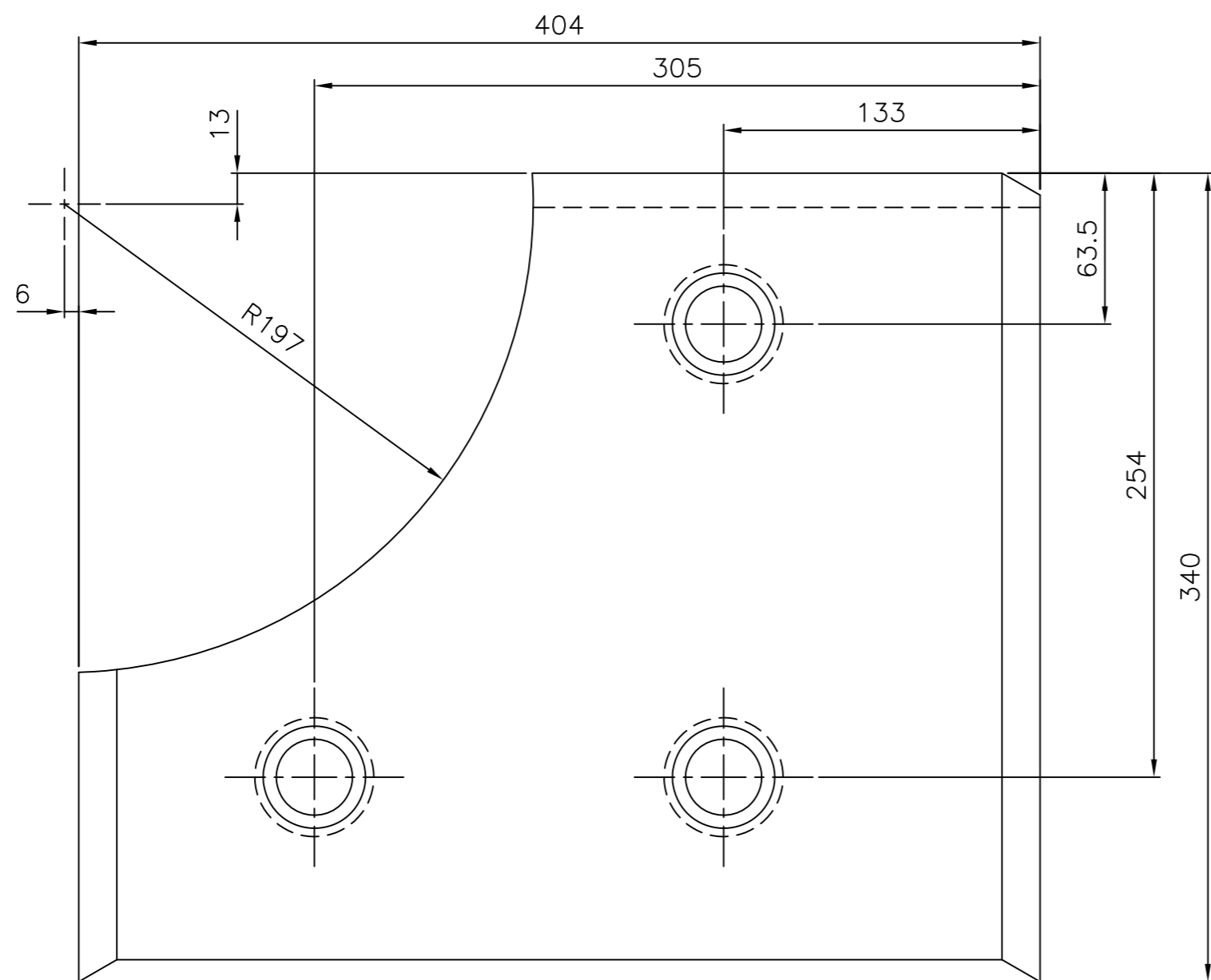
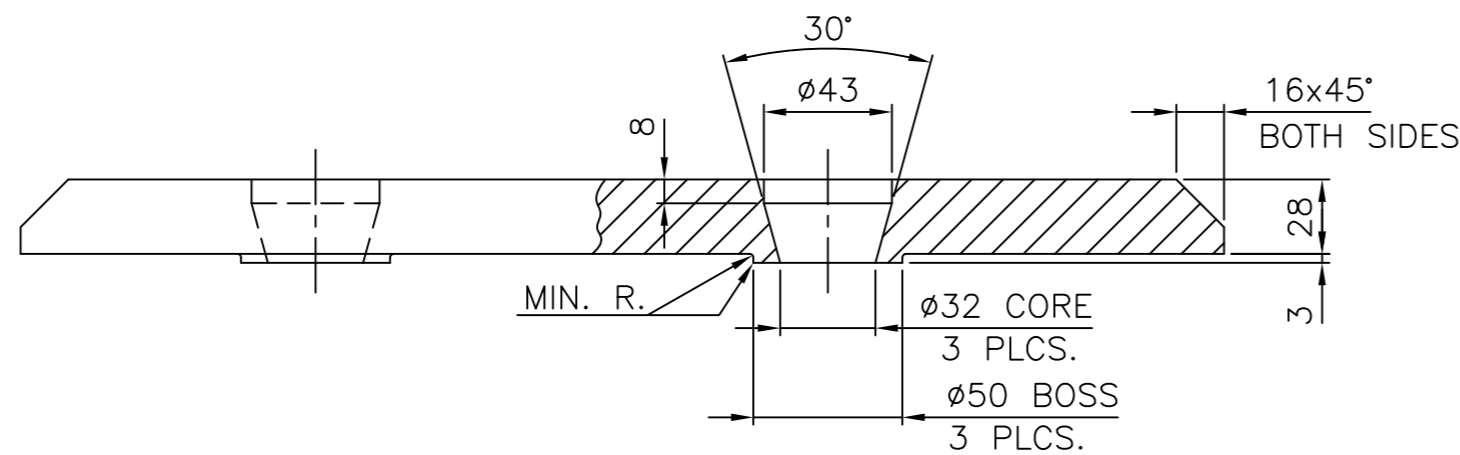
REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHD/APPD			CHD/APPD			CHD/APPD	01	15.6.99	CHD/APPD
ZONE			ZONE			ZONE			ZONE		DRAWING REDRAWN IN AUTOCAD

DRG. NO. 2-61-004-02276

SH. 01 OF 01

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. COMPUTER FILE NAME 26102276.DWG THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261



**NOTES:-**

- FOLLOWING INFORMATION TO BE CAST INTO PART USING 3mm MAX. HEIGHT LETTERS. 26100402276.
- BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
- TOLERANCES UNLESS OTHERWISE NOTED.  
 CASTING  $\pm 1.6$   
 ANGULAR  $\pm 0.1^\circ$

01	CASTING				BA9114135388	21.000	
					AA19741	1	
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD. CORNER RADII 1 TO 0.7
- THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN ON THE TOP MOST RIGHT CORNER OF THE DRG.

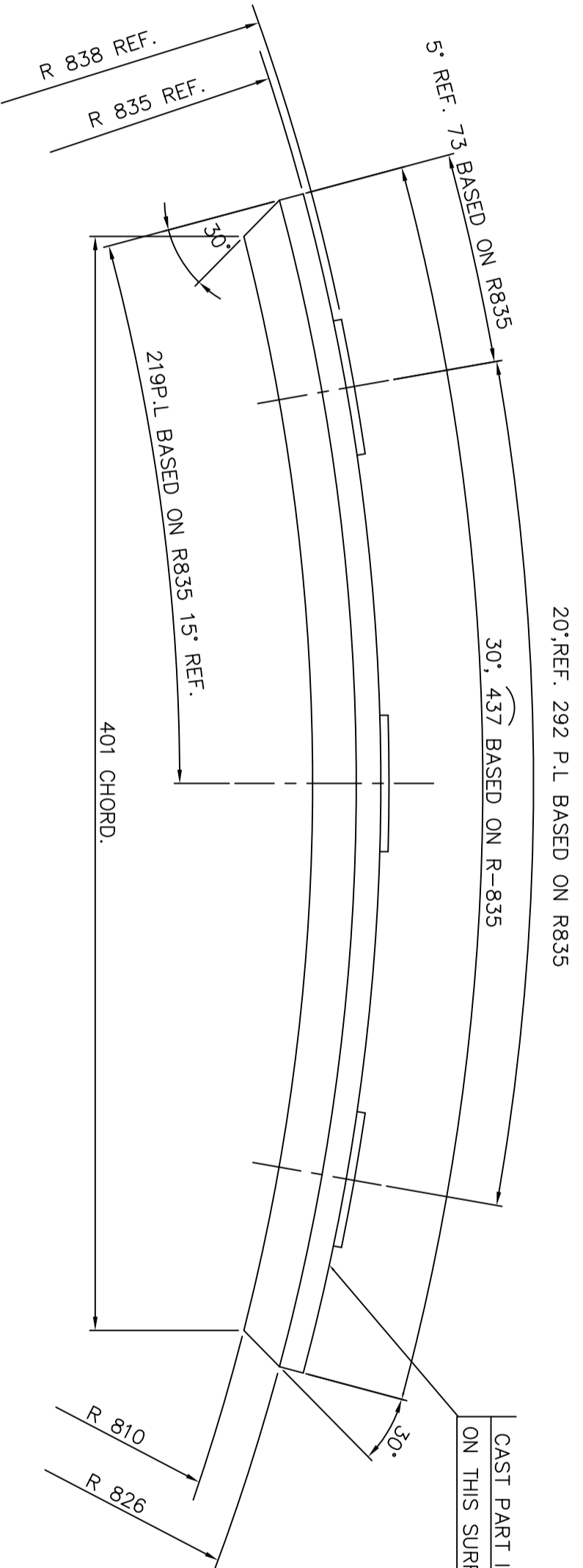
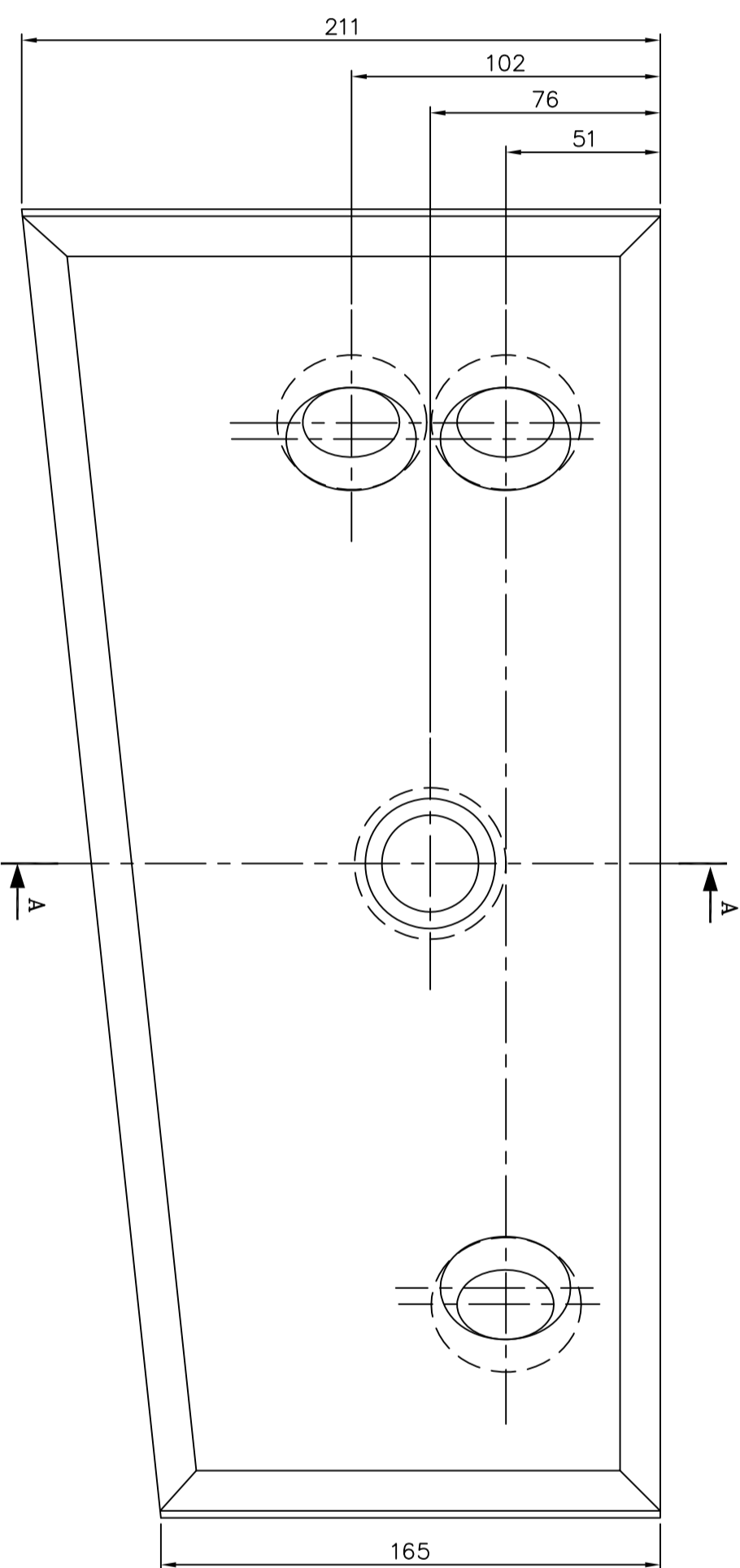
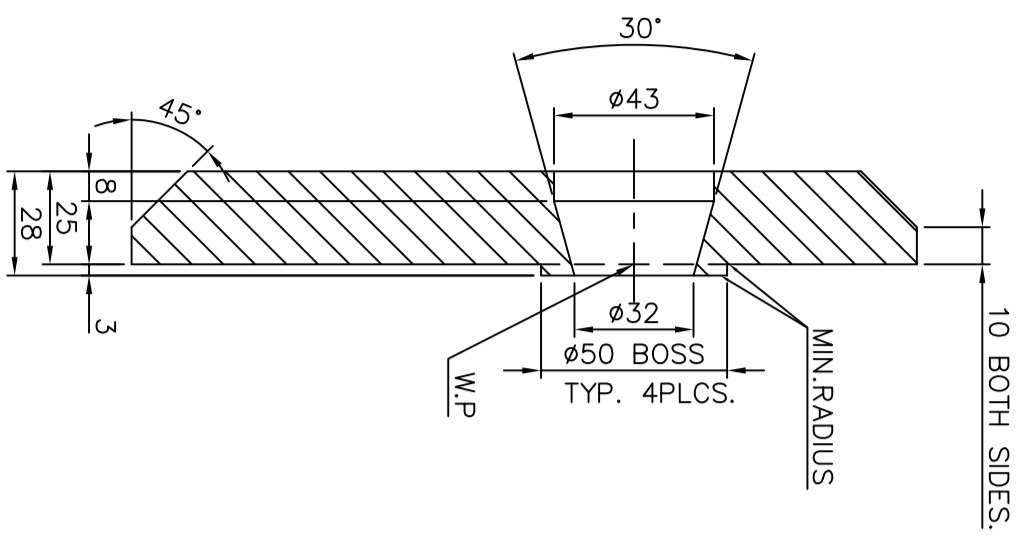
TYPE OF PRODUCT  
 NAME OF CUSTOMER/PROJECT  
**1103 XRP BOWL MILL**

 BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD	DRN.	NAME	SIGN.	DATE	NO.OF VAR.	
	CHD.	S.GHATGE	<i>[Signature]</i>	22.5.99	-	
	APPD.	K.M.RAO	<i>[Signature]</i>	22.5.99	-	
DEPT. PULV ENGG. CODE 446	UNTOL. DIMS. GR. $\phi/M/F$	SCALE 1:2.5	WEIGHT (KG) 21.000	REF. TO ASSY DRG. C-110-00814/1	ITEM NO. -	NO.OF ITEMS -
TITLE <b>JOURNAL OPENING FRAME LINER</b>				CARD CODE	DRAWING NO. <b>2-61-304-02276</b>	REV. <b>01</b>
				SHEET NO. 01	NO OF SHEETS 01	

REV.	DATE	ALTERED CHD.	APPD.	REV.	DATE	ALTERED CHD.	APPD.
01	22.05.99						

DRAWING REDRAWN ON ACAD.

62220-403-19-2 ON GRD 10 FO 10 HS



CAST PART INFORMATION  
ON THIS SURFACE PER NOTE:1

- NOTES:
1. FOLLOWING INFORMATION TO BE CAST IN TO PART USING 3MM. MAX. HEIGHT LETTERS : 261304 02279
  2. BREAK SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
  3. TOLERANCES UNLESS OTHERWISE NOTED : -  
CASTING ±1.6  
ANGULAR ±0.1°

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. COMPUTER FILE NAME THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
ZONE		CHD/APPD	ZONE		CHD/APPD	ZONE		CHD/APPD	ZONE		CHD/APPD
1			2			3			4	15.6.99	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...  
1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.  
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.  
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.  
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.		MATERIAL CODE	NET WT. (GROSS WT.)	MATERIAL SPECN.	QUANTITY
1103 XRP BOWL MILL		AA19741		BA9114135418	16.100		

DEPT.	PULL V	UNTO. DIMS.	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS
446		GR. ±0.04	1:2	16.100	C-110-00805/1		

NAME	SIGN.	DATE	NO. OF VAR.
C.C.S.		15.6.99	
E.M.A.		15.6.99	
K.M.RAD		15.6.99	

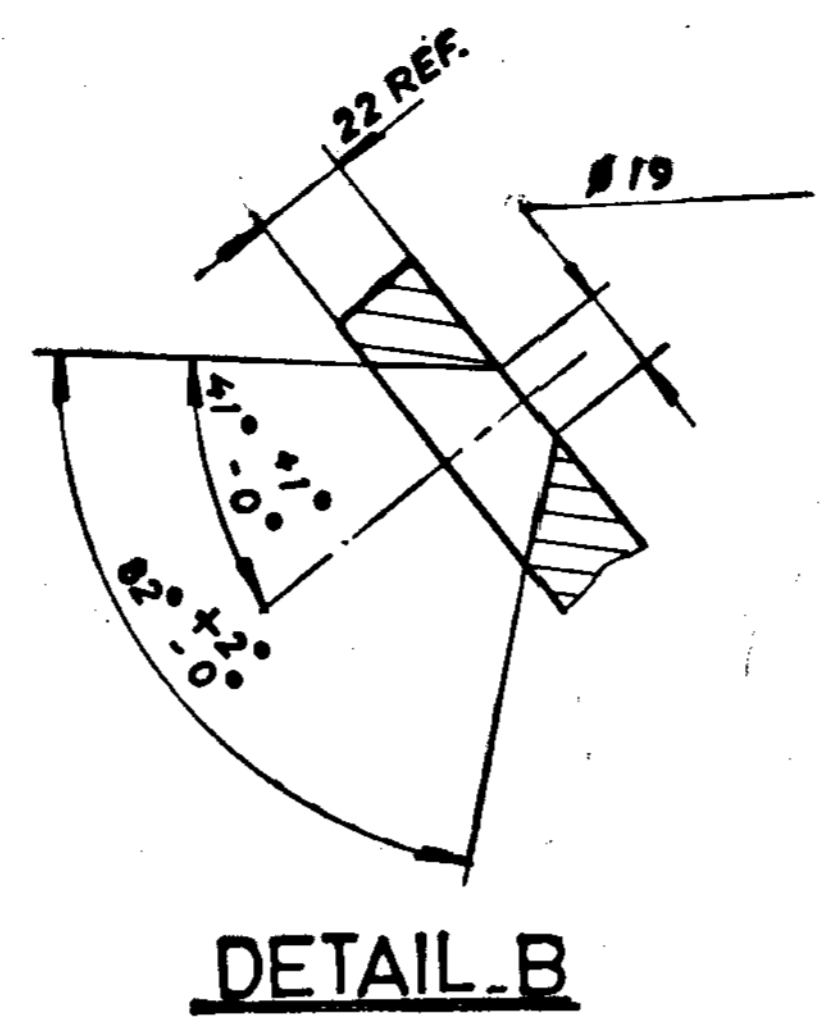
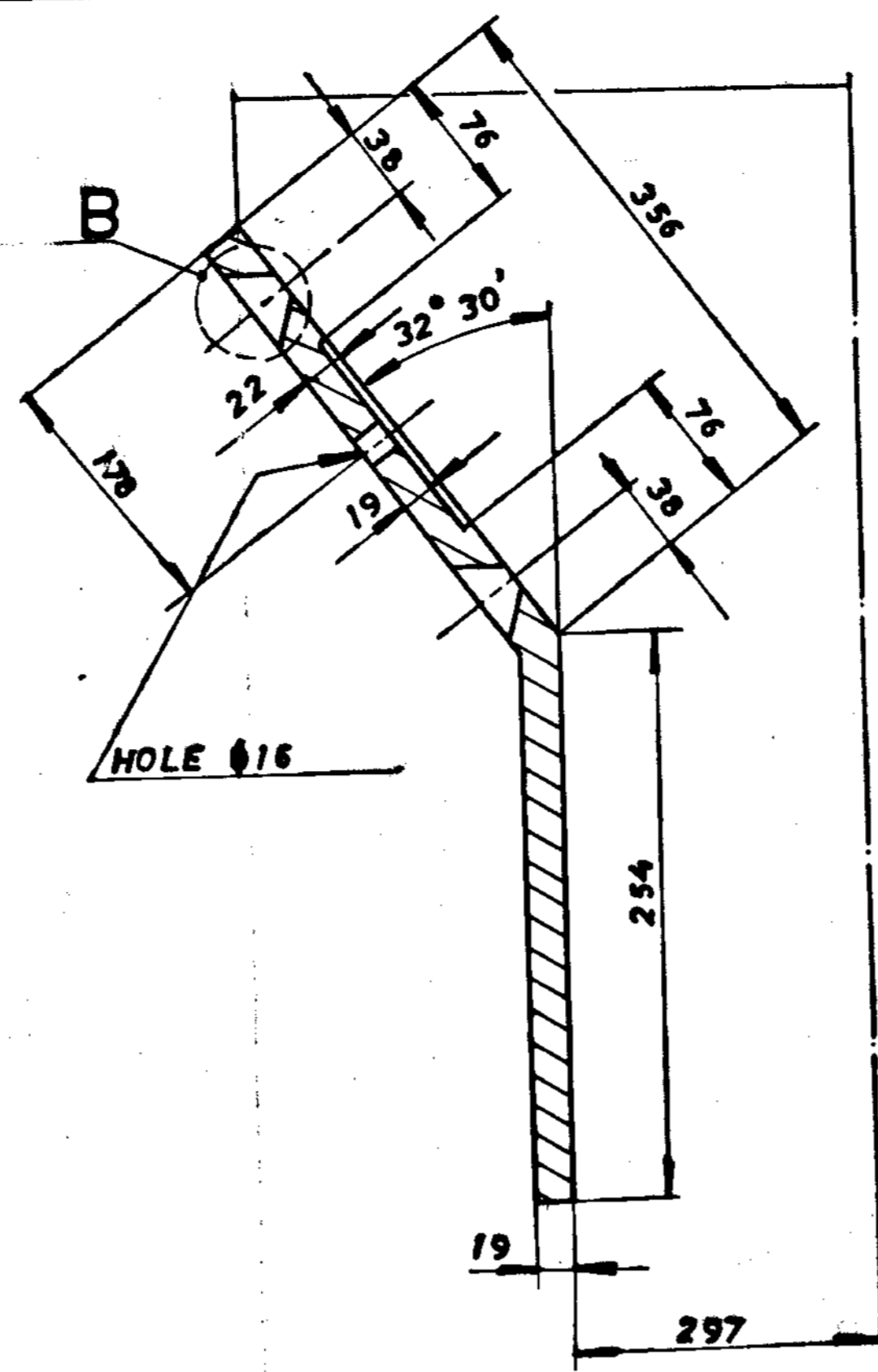
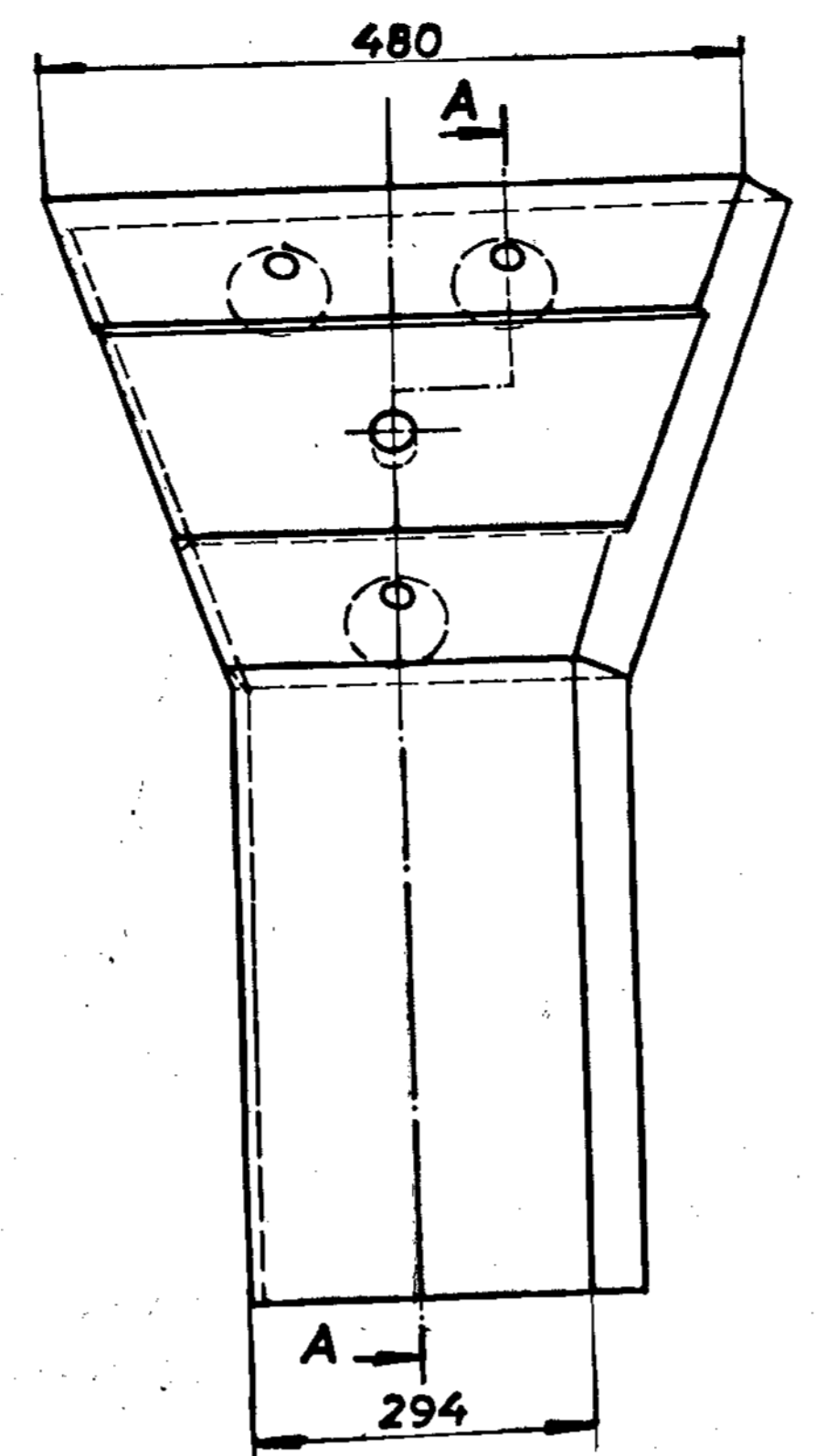
  

TITLE	CARD CODE	DRAWING NO.	REV.
JOURNAL OPENING FRAME LINER	N.A.	2-61-304-02279	01

(ALL DIMENSIONS ARE IN mm)

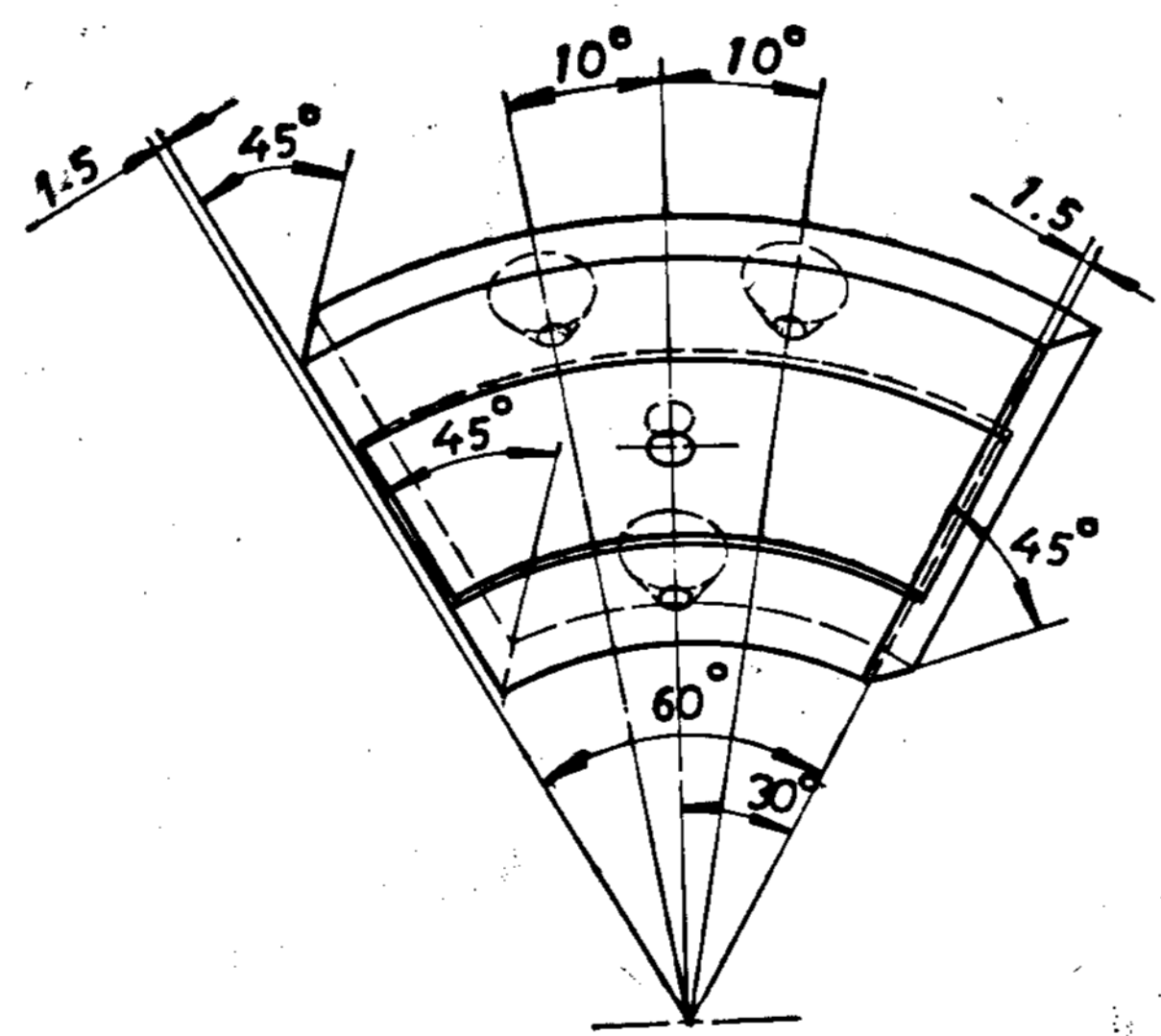
FIRST ANGLE PROJECTION

DRG. NO. 2-61-404-02281



SECTION - A-A

DETAIL B



NOTES:

- BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
- TOLERANCES UNLESS OTHERWISE NOTED.  
CASTING  $\pm 1.6$   
ANGULAR  $\pm 0.1^\circ$

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

VAR. NO.	REMARKS	ITEM NO.	DESCRIPTION	DRAWING NO.	89114-153610	43.200
01			CASTING		AA19741	
77	125	31	34	MATL. CODE	45	55
32	33	48	54	MATL. SPCN.	54	57
				UNIT WT.	65	72
				QTY.	73	74
				ZONE	75	77

ADDITIONAL INFORMATION  
STATUS OF DRAWING  
DISTRIBUTION OF PRINTS

TYPE OF PRODUCT 1043 RP BOWL MILL  
OR  
NAME OF CUSTOMER/PROJECT CHANDRAPUR - 500 MW

**BHARAT HEAVY ELECTRICALS LTD.**  
HYDERABAD

DRN. E.O.L.  
CHD. N.D.S.  
APPD. Y.S.B.L.RAO

SIGN. DATE  
15/7/73

GENERAL DIMENSIONS LIMITS, FITS & TOLERANCES AS PER P.S.HY 02302 61

REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED

DEPT. BMD  
CODE 446

GRADE OF TOL. DIM.  $\phi$ /M/F

SCALE N.T.S

WEIGHT (Kg) 43.200

REF. TO ASSY. DRG. C.GP-4064/06

TITLE INNER CONE SPOUT SEGMENT

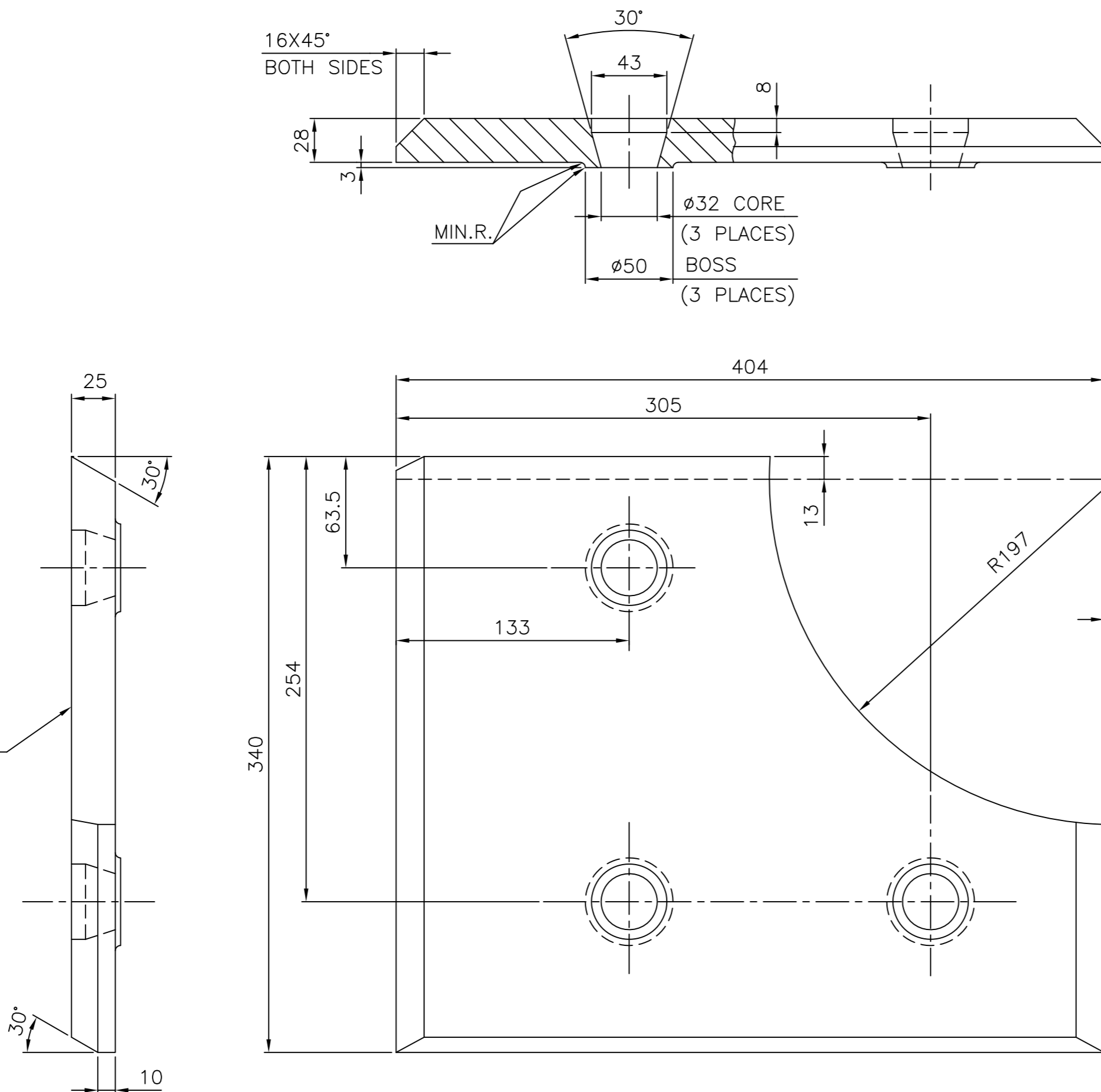
DRAWING NO. 2-61-304-02281/00

SHEET NO. NO. OF SHEETS

DRG.NO. 2-61-304-02287

COMP. FILE NAME: 26102287.DWG  
 REF.DRG.NO.  
 INVENTORY NO.

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



CAST PART INFORMATION THIS SURFACE PER NOTE.1

**NOTES:-**

- FOLLOWING INFORMATION TO BE CAST INTO PART USING 3mm MAXIMUM LETTER HEIGHT 26130402287
- BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
- TOLERANCES UNLESS OTHERWISE NOTED:-  
 CASTING ±1.6  
 ANGULAR ±0.1°

01	CASTING				BA9114135434	21.000	
					AA19741		1
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL SPECN.	NET WT.	GROSS WT.
							QUANTITY

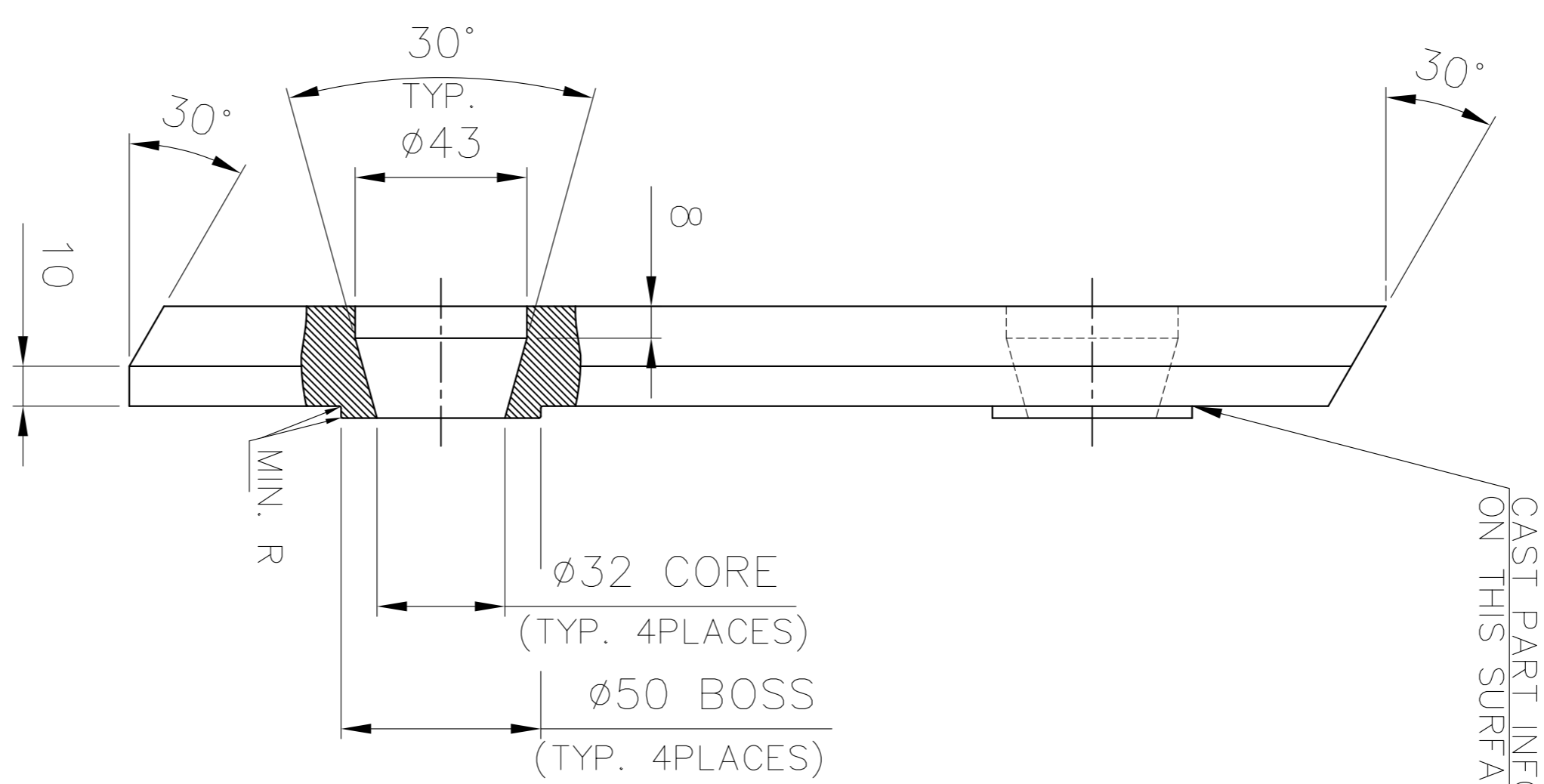
THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF.TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

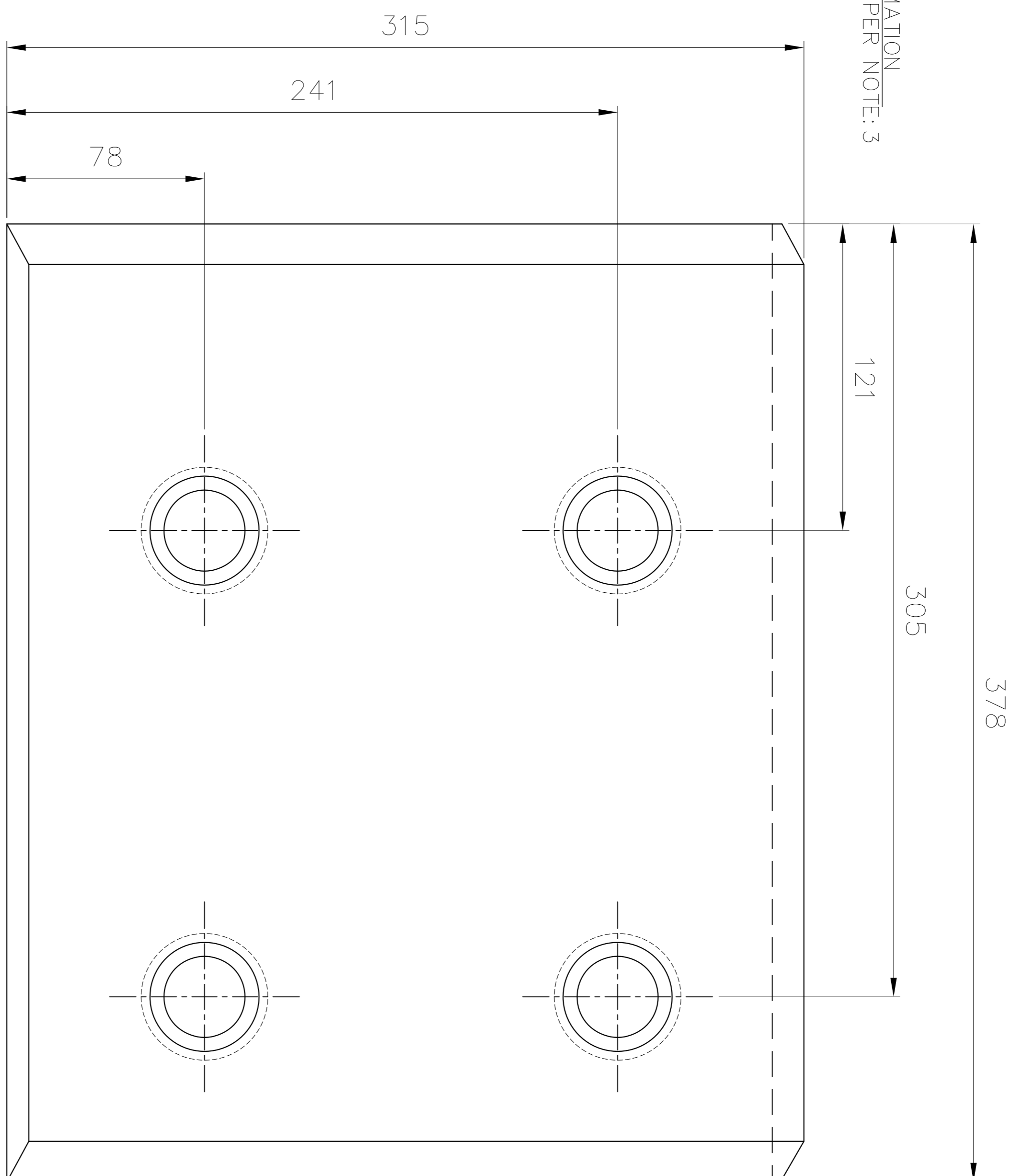
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  
 1043 RP. BOWL MILL

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	NAME	SIGN.	DATE	NO.OF VAR.	
	DRN.	N.D.SAMUEL			
	CHD.	S.GHATGE	22.5.99		
APPD.	K.M.RAO		22.5.99		
DEPT. PULV.ENGGE.	SCALE	WEIGHT(Kg)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE 446	N.T.S	21.000	C-110-00800/1	-	-
TITLE			DRAWING NO.		REV.
JOURNAL OPENING FRAME LINER			2-61-304-02287		01
			SHEET NO. 01		NO OF SHEETS 01

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED			CHECKED			CHECKED	01	22.5.99	CHECKED
		APPD.			APPD.			APPD.			APPD.
ZONE			ZONE			ZONE			ZONE		DRAWING REDRAWN
1			2			3			4		



CAST PART INFORMATION ON THIS SURFACE PER NOTE: 3



16X45°  
BOTH SIDES

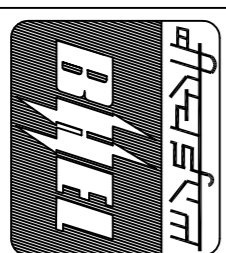
NOTES:

1. FOLLOWING INFORMATION TO BE CAST INTO PART USING 3MM MAX. HEIGHT LETTERS: 26130402344.
2. BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
3. TOLERANCES UNLESS OTHERWISE NOTED:  
CASTING: ±1.6  
ANGULAR ±0.1°

01	CASTING	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	BA9114135540	23.00	23.00
					AA19741	1	
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD. CORNER RADIUS 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.



BHARAT HEAVY ELECTRICALS LIMITED  
HYDERABAD

DEPT. P.L.V ENGG  
CODE 446

UNTOOL. DIMS. GR  
Ø/M/Y  
SCALE 1:2  
WEIGHT (KG) 23.00

DRN. EOL	NAME	SIGN.	DATE	NO. OF VAR.
CHD. N.D.S	EOL		15.07.93	
APPD. Y.S.B.L.RAQ	N.D.S		16.07.93	
	REF. TO ASSY DRG.		16.07.93	

TITLE  
JOURNAL OPENING  
FRAME LINER

DRAWING NO.  
2-61-304-02344

SHEET NO. 01 NO. OF SHEETS 01

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. COMPUTER FILE NAME

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

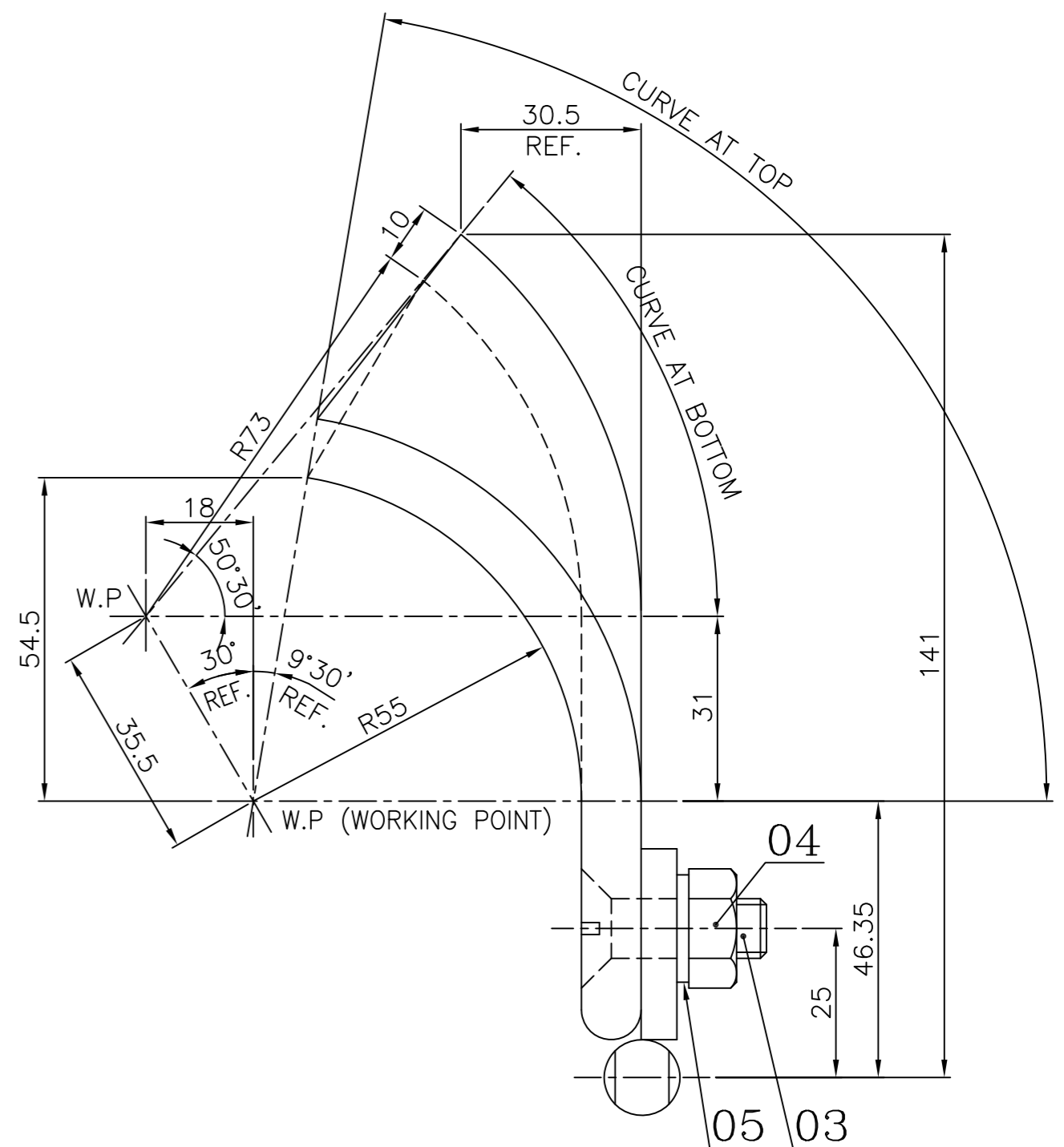
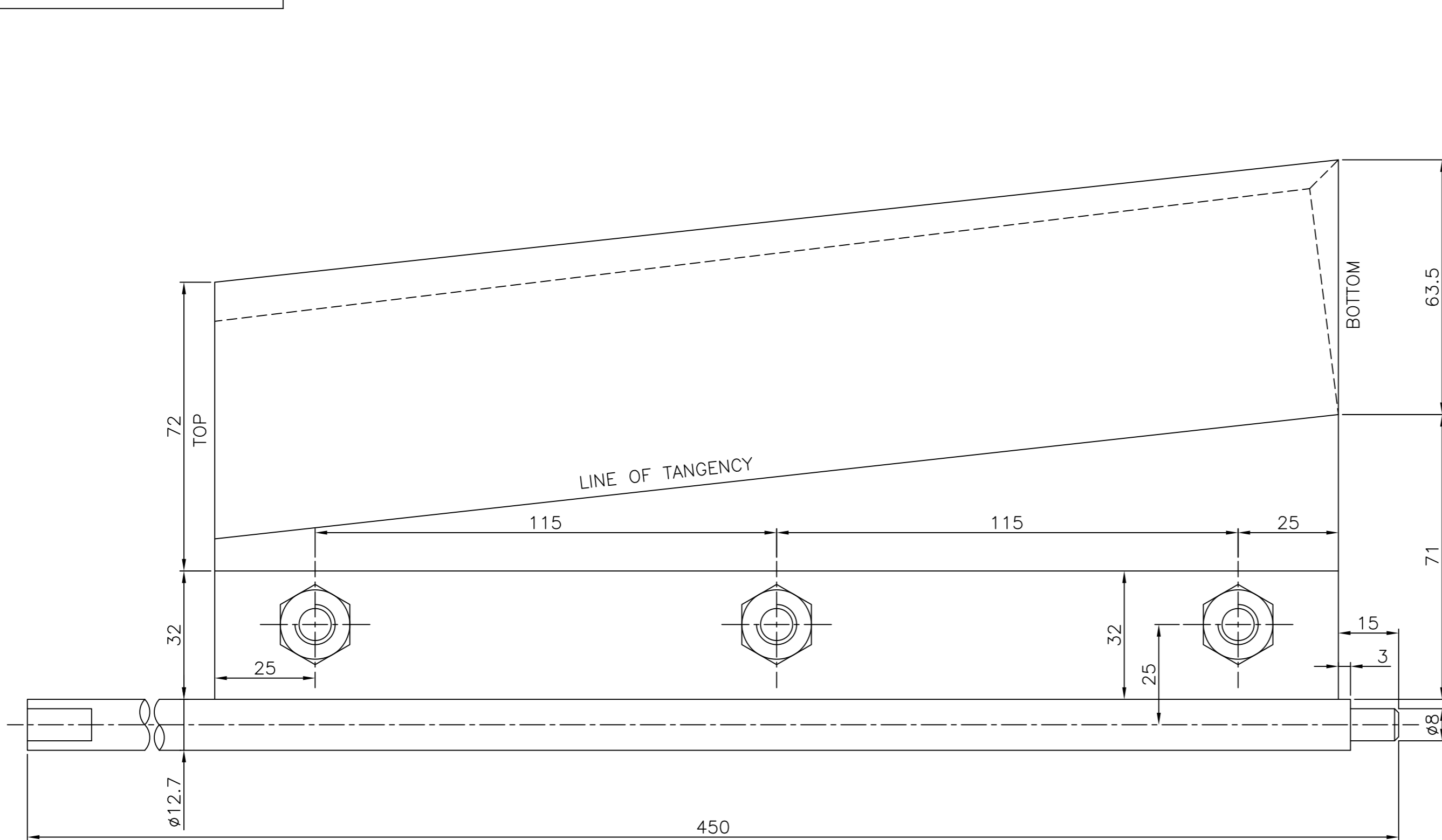
REV.	DATE	ALTERED	APPD.	REV.	DATE	ALTERED	APPD.	REV.	DATE	ALTERED	APPD.
ZONE		CHD.		ZONE		CHD.		ZONE		CHD.	
					25.02.12	AMAN	SG				

REDRAWN TO SCALE IN AUTOCAD.



DRG. NO. 2-61-362-00715

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.  
 COMP. FILE NAME: 26100715.DWG  
 REF. DRG. NO.:  
 INVENTORY NO.:



ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
05	SPRING WASHER	41405-10000		M10	41405-00010	0.010	
						3	
04	HEX. NUT	41320-10000		M10	41320-00010	0.010	
						3	
03	CSK HD. SCREW	41205-10030		M10x30	41205-10030	0.020	
						3	
02	DEFLECTOR BLADE (CASTING)	2-BM-362-00003			41205-10030	2.900	
					NI-HARD	1	
01	DEFLECTOR HINGED SHAFT	3-61-362-00653				0.860	
					WELDMENT	1	
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		NAME		SIGN.	DATE	NO. OF VAR.
BHARAT HEAVY ELECTRICALS LTD. HYDERABAD		DRN.	POORNIMA		06.12.85	
		CHD.			28.12.85	
		APPD.			28.12.85	
DEPT.	PULV-ENGG	SCALE	1:1	WEIGHT(Kg)	3.880	NO. OF ITEMS
CODE	4460	REF. TO ASSY DRG.	NA	ITEM NO.	NA	NA
TITLE				DRAWING NO.		REV.
DEFLECTOR ASSEMBLY				2-61-362-00715		01
				SHEET NO.	01	NO OF SHEETS
				01		

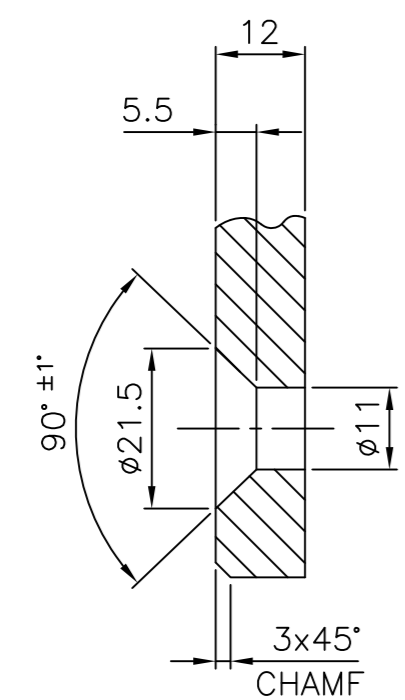
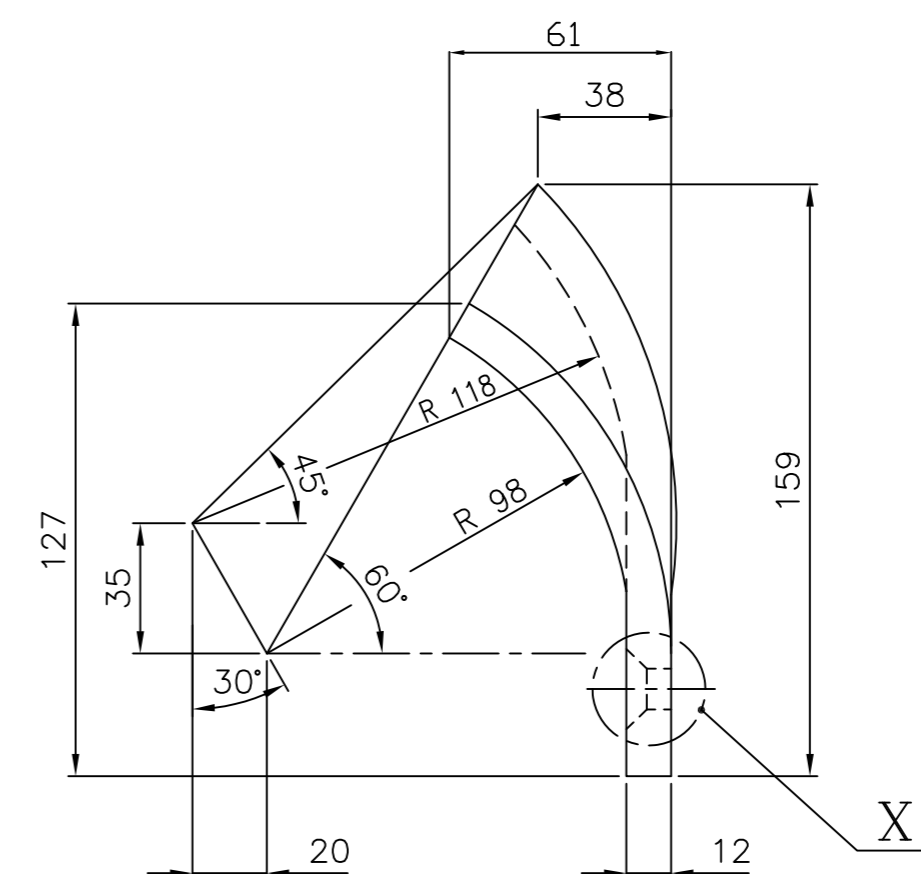
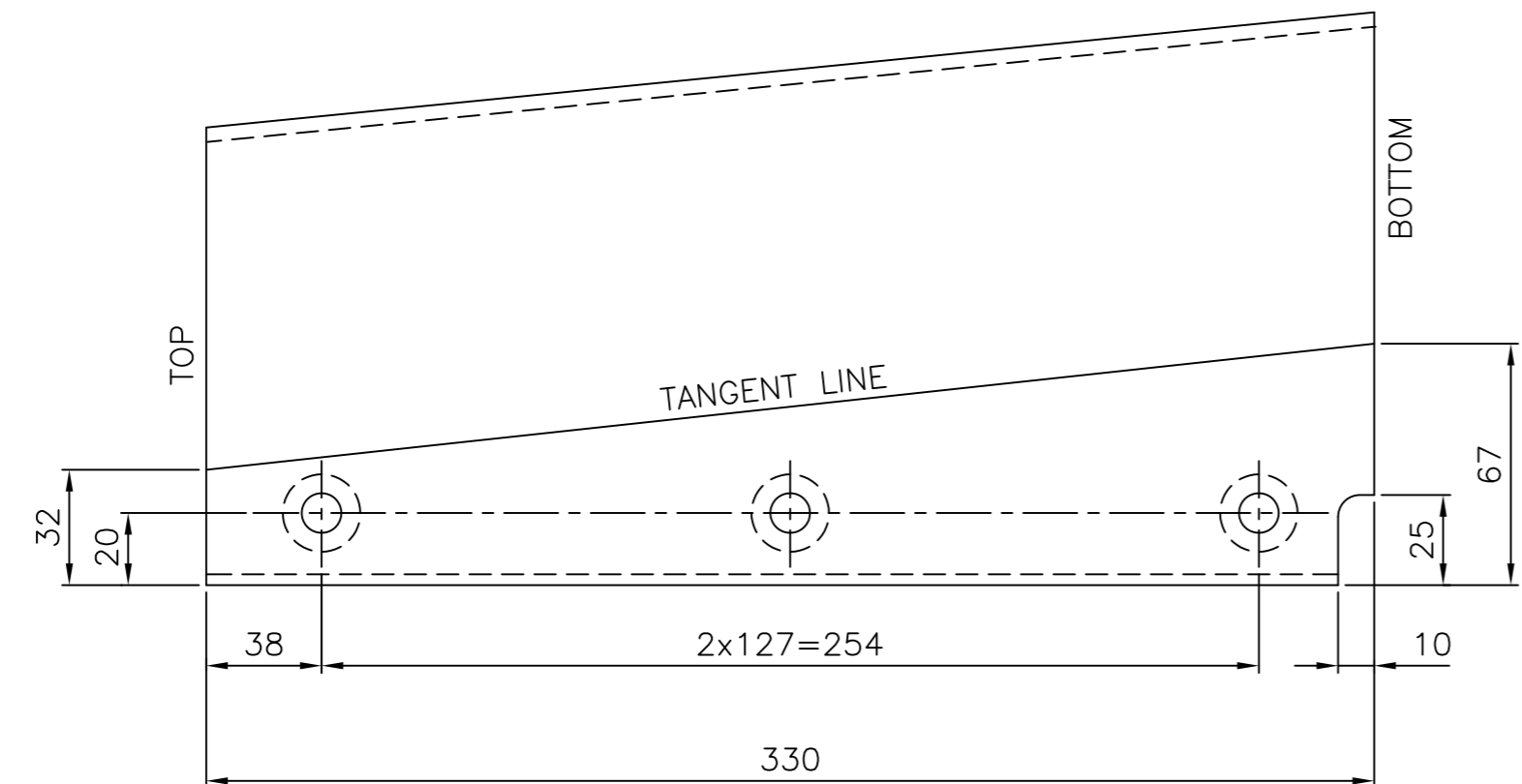
REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED			CHECKED			CHECKED	01	28.06.04	CHECKED
		APPD.			APPD.			APPD.			
ZONE			ZONE			ZONE			ZONE		DRAWING IS REDRAWN ON ACAD
1			2			3			4		

08800-07-61-2-2-00880

SH.01 OF 01

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. C-GP-3500/1 COMPUTER FILE NAME 26100880.DWG THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261



**DETAIL-X**  
SCALE 1:1

**NOTES:-**

- 01. MATERIAL: ~~ALLOY CASTING CE CROWN 700.~~
- 02. PATTERN No. 2-61-370-00880.
- 03. BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE SPECIFIED.

ITEM NO.	CASTING	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	BA9114103052	5.000	
					AA19741		
					MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

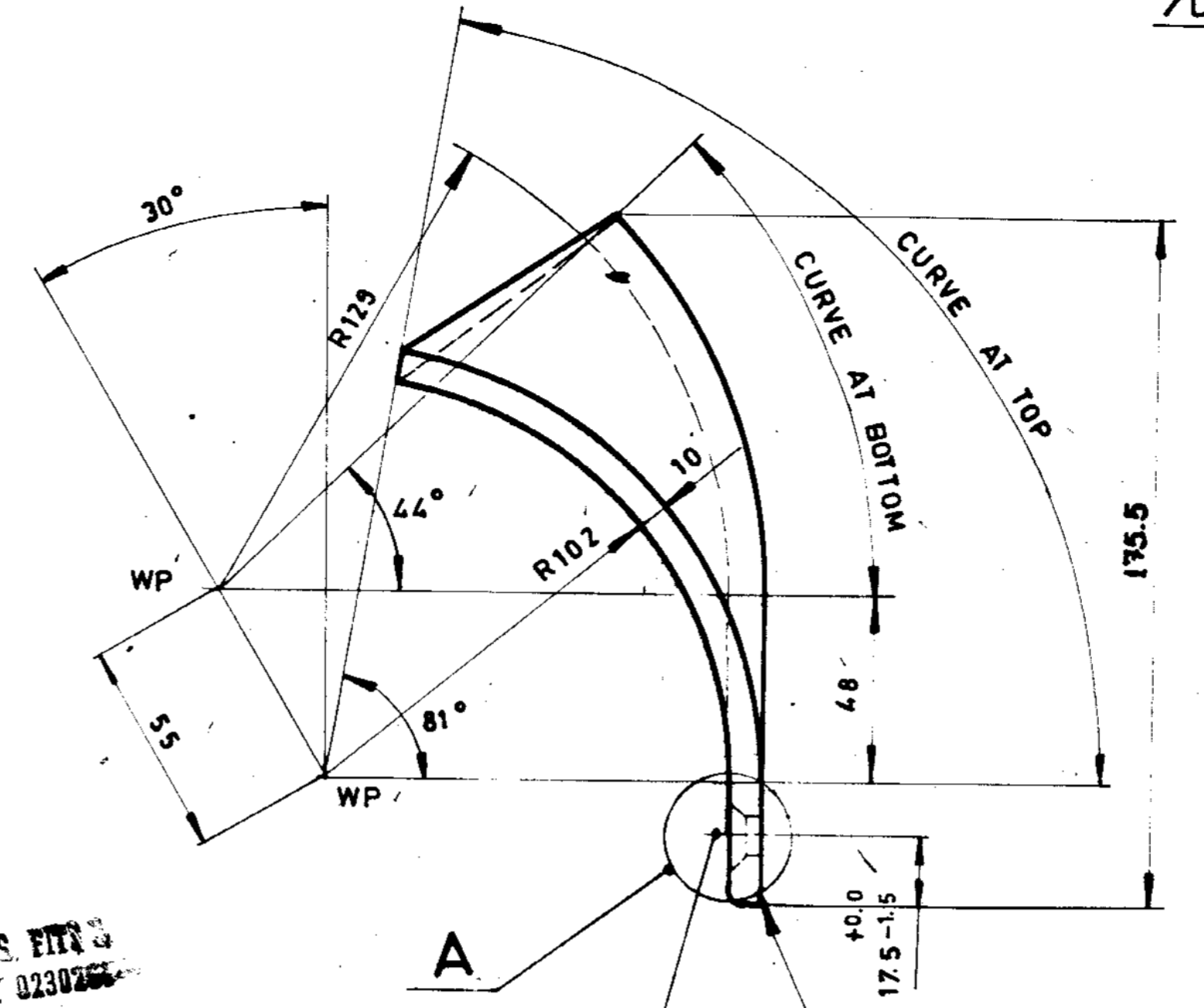
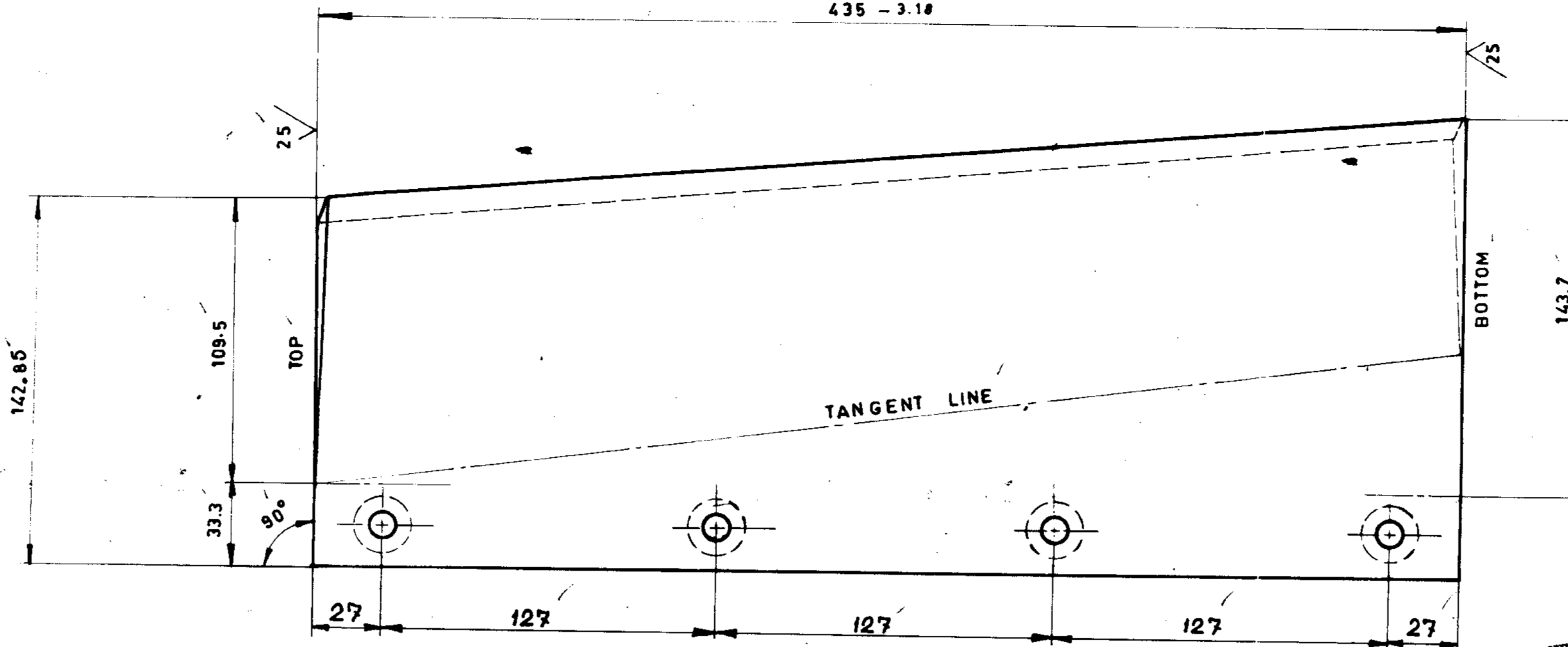
THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.				TYPE OF PRODUCT			
1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.				NAME OF CUSTOMER/PROJECT			
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.				BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD			
3. INTERNAL M/CD. CORNER RADII 1 TO 0.7				DEPT. PULV ENGG	UNTOL. DIMS. GR.	SCALE	WEIGHT (KG)
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN ON THE TOP MOST RIGHT CORNER OF THE DRG.				446	Q/M/F	1:2 1:1	5.000
DRAWING REDRAWN BY INCORPORATING ALL PREVIOUS REV. NOTE 01 DELETED. DIM 61 WAS 56.				REF. TO ASSY DRG.		ITEM NO.	NO.OF ITEMS
				C-GP-3500/01		/	/
REV. DATE ALTERED CHD. APPD.				TITLE			
REV. DATE ALTERED CHD. APPD.				DEFLECTOR BLADE			
REV. DATE ALTERED CHD. APPD.				CARD CODE	DRAWING NO.		REV.
REV. DATE ALTERED CHD. APPD.				UD-1	2-61-370-00880		03
REV. DATE ALTERED CHD. APPD.				SHEET NO. 01		NO OF SHEETS 01	

90700-976-19-2

DRAWING NO

+0.00  
435 - 3.18

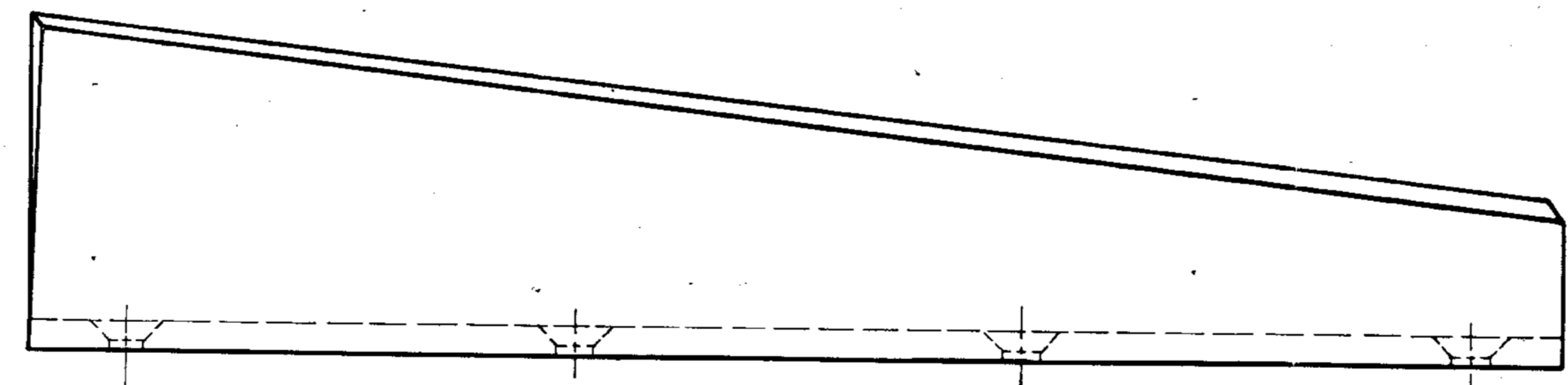
2/25/



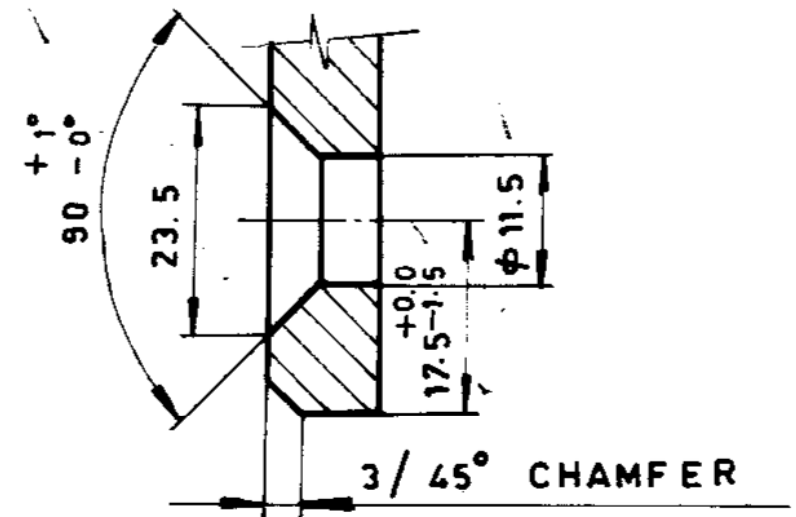
GENERAL DIMENSIONS, LIMITS, FITS & TOLERANCES AS PER IS. BY 023025

4 CORED CSK HOLES AS SHOWN IN DETAIL - 'A'

ENSURE THE FLATNESS ON THE STRAIGHT PORTION ON THE CASTING



NOTE:-  
BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.



DETAIL - A

REV	DATE	DESCRIPTION	ITEM NO.	MATL CODE	UNIT WT	QTY
01	25-9-86	ALTERED S. SHANKAR				
02		CHECKED Y. S. R.				
03		MAT. SPEC. WAS NI HARD. MAT. CODE ADDED.				

DEFLECTOR BLADE	BA9114103028	6.20
	AA19747	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

**Bharat Heavy Electricals Ltd.,**  
BOILER PLANT UNIT  
TIRUCHIRAPALLI-620 014

DRN	EC-002/WM	SIGN	W. S. R.	DATE	29-11-85
CHD	J. SOOSAINATH			DATE	29-11-85
APPD	K. SHARANAN			DATE	29-11-85

REV	01	DATE	25-9-86	DEPT	MILLS	GRADE OF UNTOOL DIM	C/M/P	SCALE	1:2 1:1	WEIGHT (KG)	6.200	REF TO ASBY / OLD DRG	2-61-176-00357	ITEM NO.	02
ZONE	BI			TITLE	DEFLECTOR BLADE			CARD CODE	U 01	DRAWING NO.	2-61-376-00706		REV	01	

DEFLECTOR BLADE

CORE CODE NO 6180186

EC-002 Size A2

05-228/C

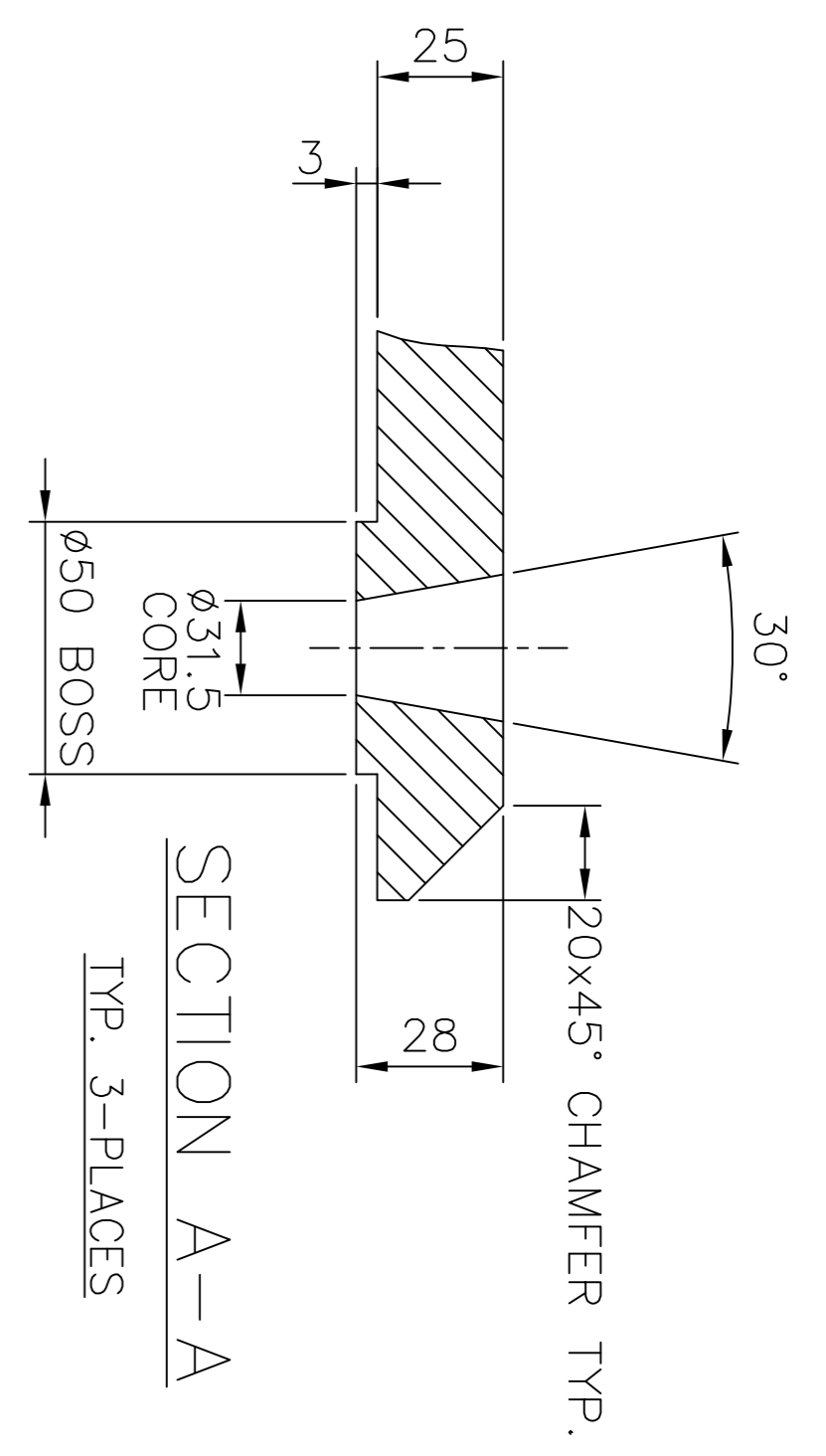
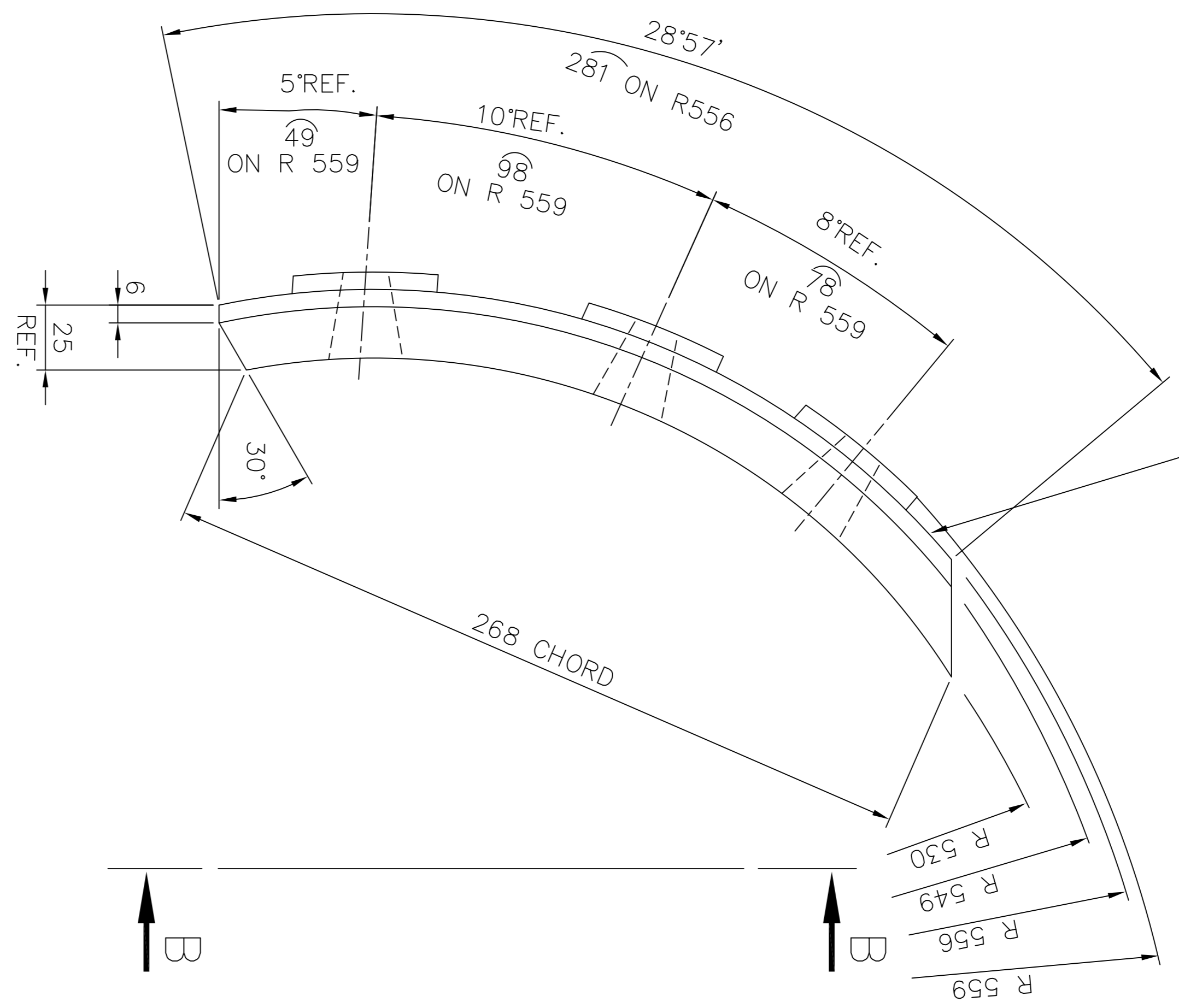
REF. DRG 2-61-376-00039

CAUTION THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LTD. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

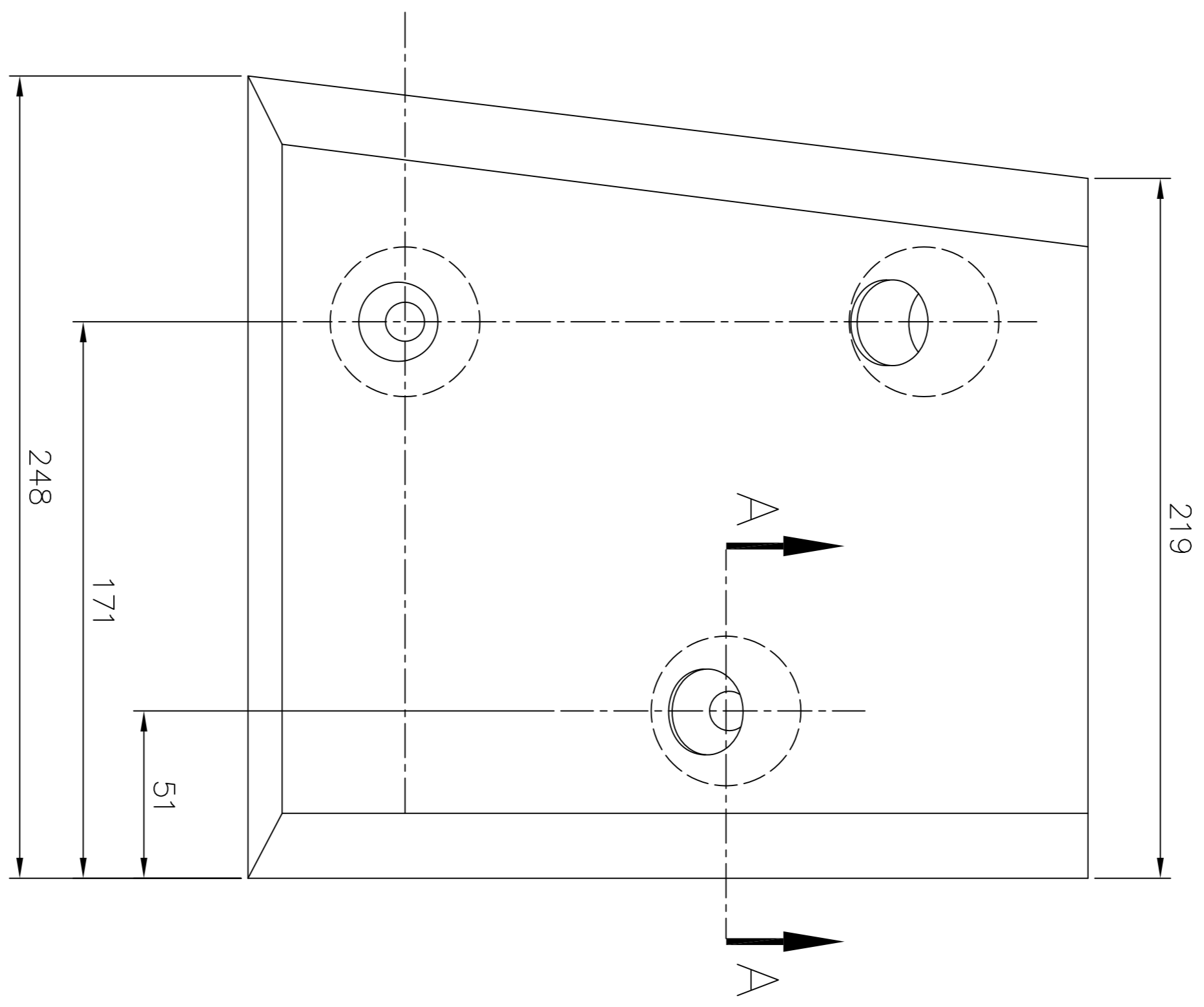


22020-882-19-2 ON GRD

CAST PART INFORMATION AT THIS SIDE WITH 10MM. HEIGHT OF RAISED LETTERS (SEE NOTE4)



VIEW B-B



NOTE:-

1. ALL RADII TO BE 1.5 UNLESS OTHERWISE SPECIFIED. +0.0
2. CASTING TOL. SHOULD BE WITHIN -1.6 ANGULAR 0.6'
3. PATTERN NO. 2-61-388-02033
4. CAST PART INFORMATION(VENDOR NAME,MELT NO.,HEAT NO., DRAWING NO.)ON THIS SURFACE

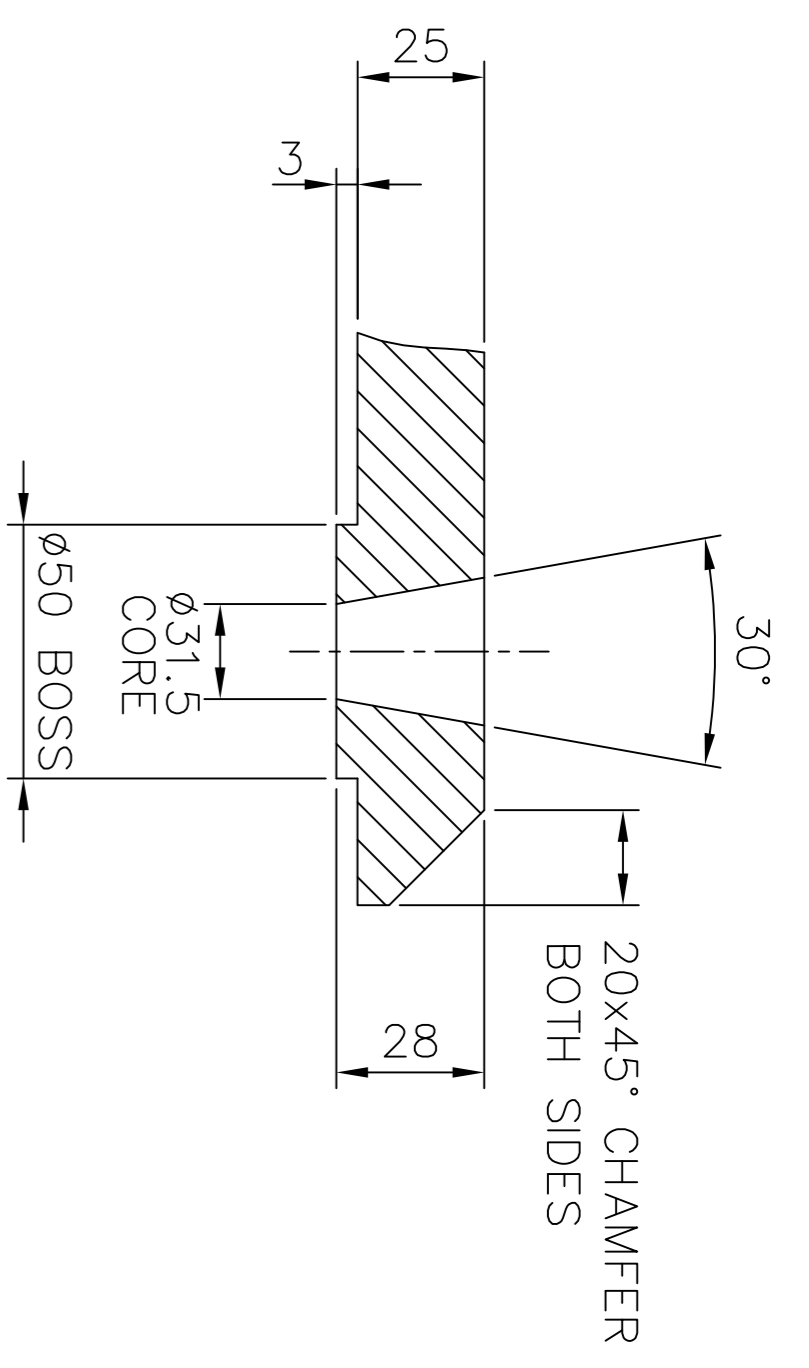
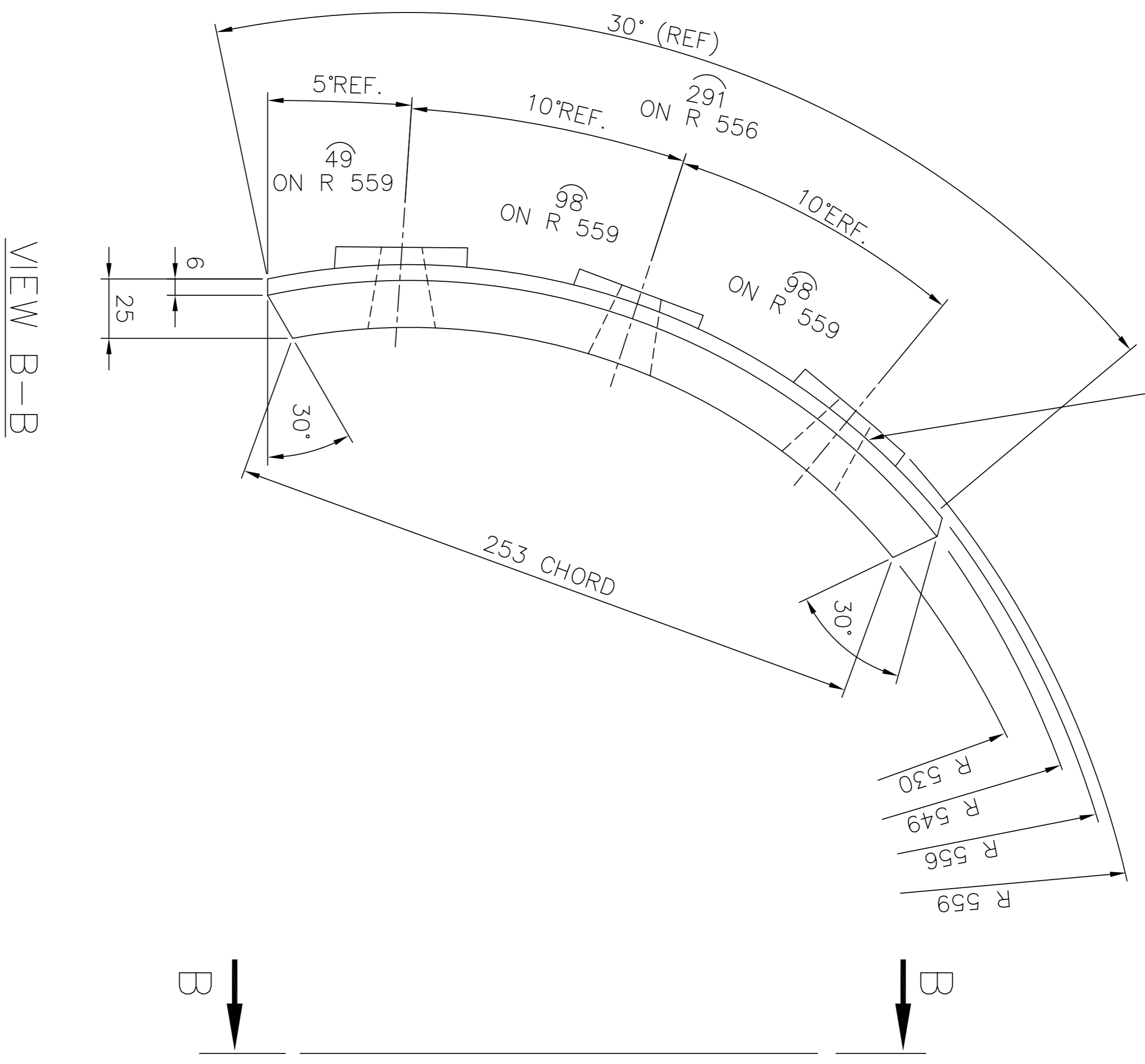
REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
CHECKED			CHECKED			CHECKED			CHECKED		
		Appd.			Appd.			Appd.			Appd.
ZONE			ZONE			ZONE			ZONE		

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...  
 1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.  
 2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.  
 3. INTERNAL M/CD CORNER RADII 1 TO 0.7.  
 4. THE SURFACE ROUGHNESS WHENEVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

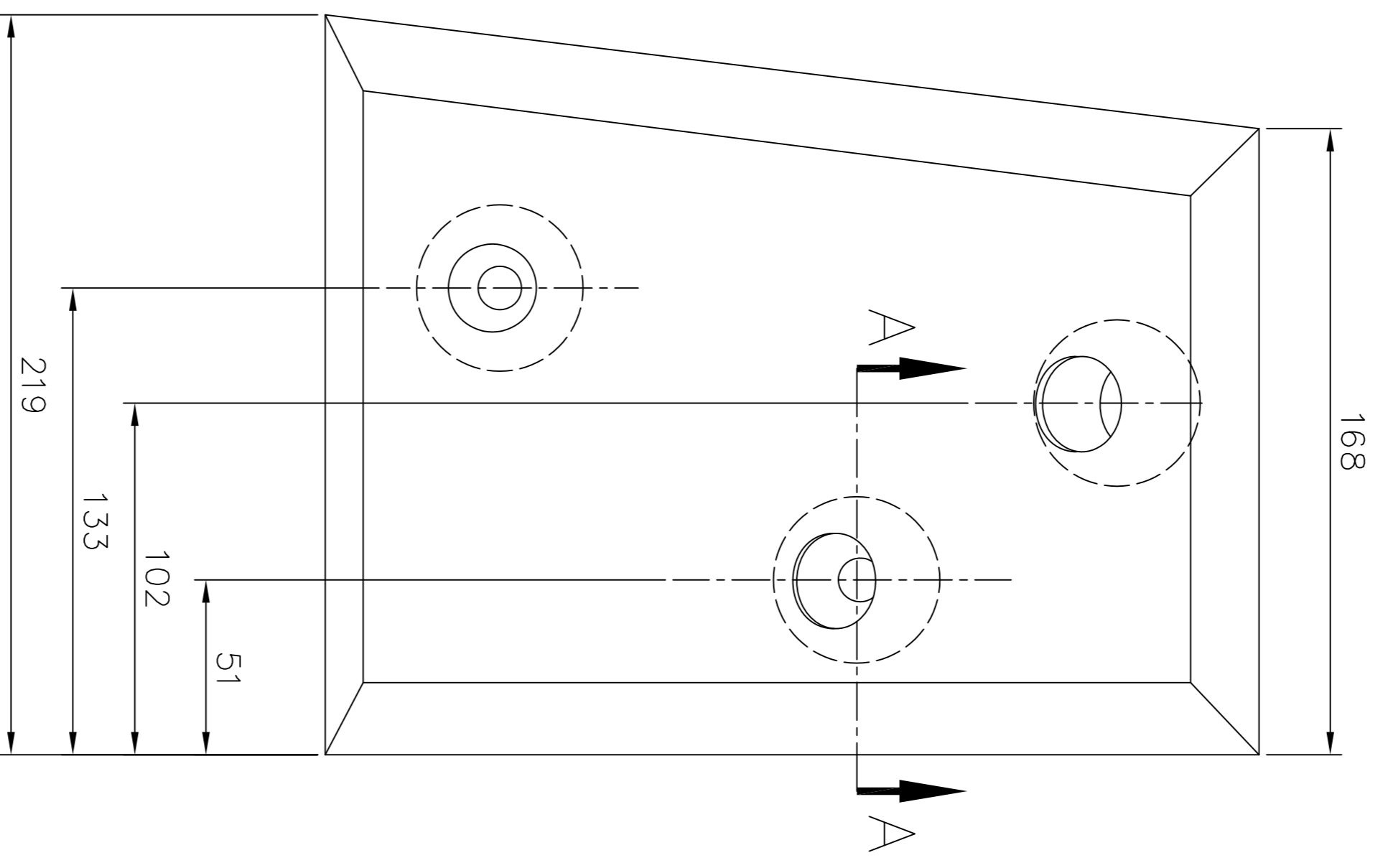
SNO.		01		CASTING	BA9114134608	AA 19741	11.00	000	
DESCRIPTION									
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		883 XRP BOWL MILL		Bharat Heavy Electricals Ltd. Hyderabad		DRN. B.S.E.S. 18.10.98		G.S.N.M.R. 15.10.03	
DEPT. BMD		DRG. REDRAWN ON AUTO CAD		SCALE N.T.S.		WEIGHT(Kg) 11.00		REF. TO ASSY DRG. 2.61.388.02109	
CODE 446		TITLE JOURNAL OPENING FRAME LINER - IV		N.T.S.		11.00		DRAWING NO. 2 61 388 02033	
SHEET NO. 01		NO OF SHEETS 01		REV. 01		NO OF ITEMS 15		DATE 18.10.98	

42020-882-19-2 ON GRD

CAST PART INFORMATION ON THIS SIDE WITH 10MM. HEIGHT IF RAISED LETTERS



SECTION A-A  
TYP. 3-PLACES



NOTE:-

1. ALL RADII TO BE 1.5 UNLESS OTHERWISE SPECIFIED. +0.0
2. CASTING TOL. SHOULD BE WITHIN -1.6 ANGULAR 0.6°
3. PATTERN NO. 2-61-388-02034
4. CAST PART INFORMATION (VENDOR NAME, HEAT NO., MELTING NO., DRG NO.) ON THIS SURFACE.

SNO.	DESCRIPTION	DESIGNATION	QTY.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	REMARKS	NET WT.	GROSS WT.	QUANTITY
	CASTING	AA 19741		BA9114134616		10.0		

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...  
1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.  
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.  
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.  
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

		BHARAT HEAVY ELECTRICALS LTD. HYDERABAD		NAME: B.S.E.S. SIGN: G.M.R.		DATE: 18.10.98 15.10.03		NO. OF VARS: 15	
DEPT. BMD CODE 446		DRG. OF INTOL. DIM. 10.0		SCALE N.T.S.		WEIGHT (kg) 10.0		REF. TO ASSY DRG. 2.61.388.02109	

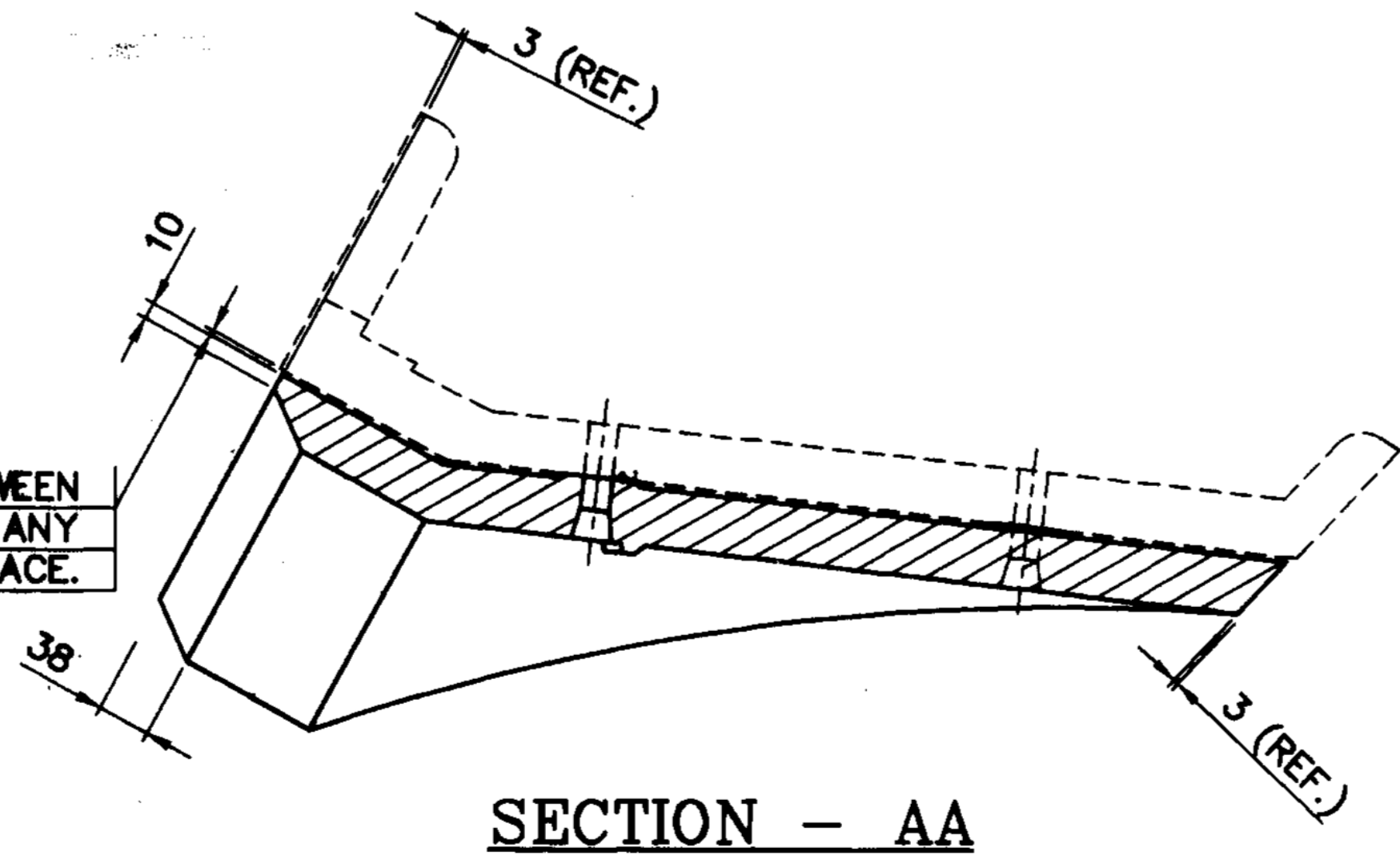
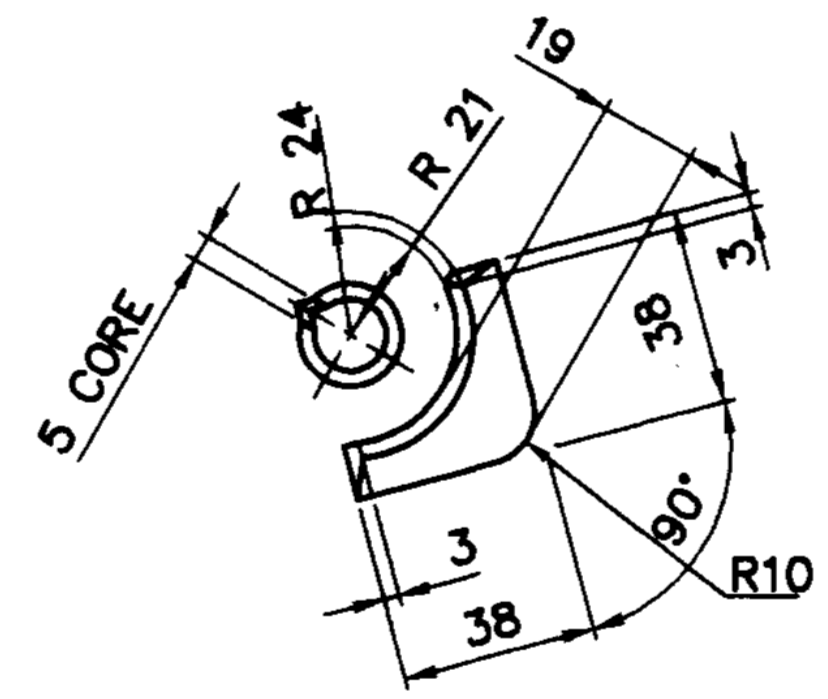
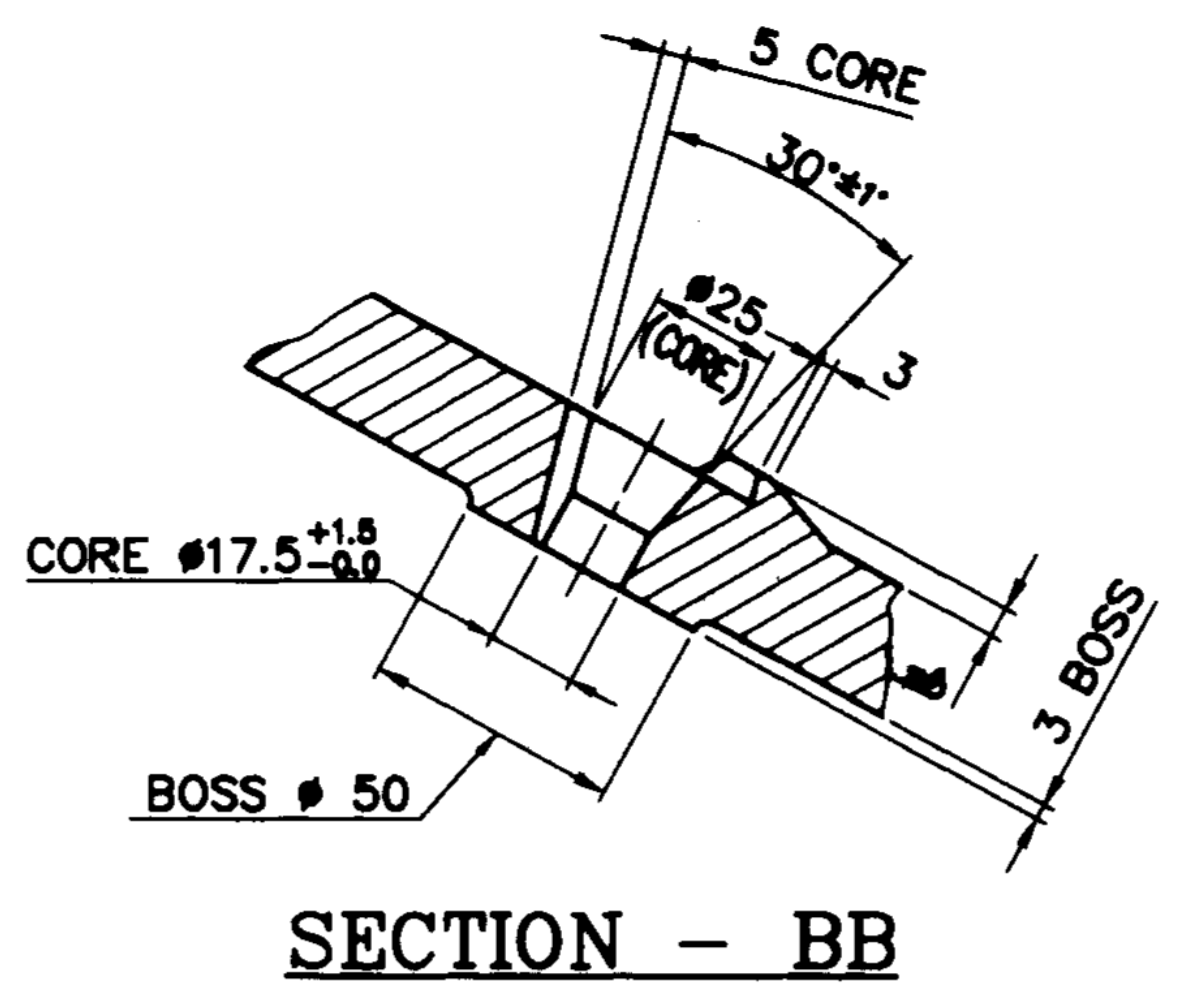
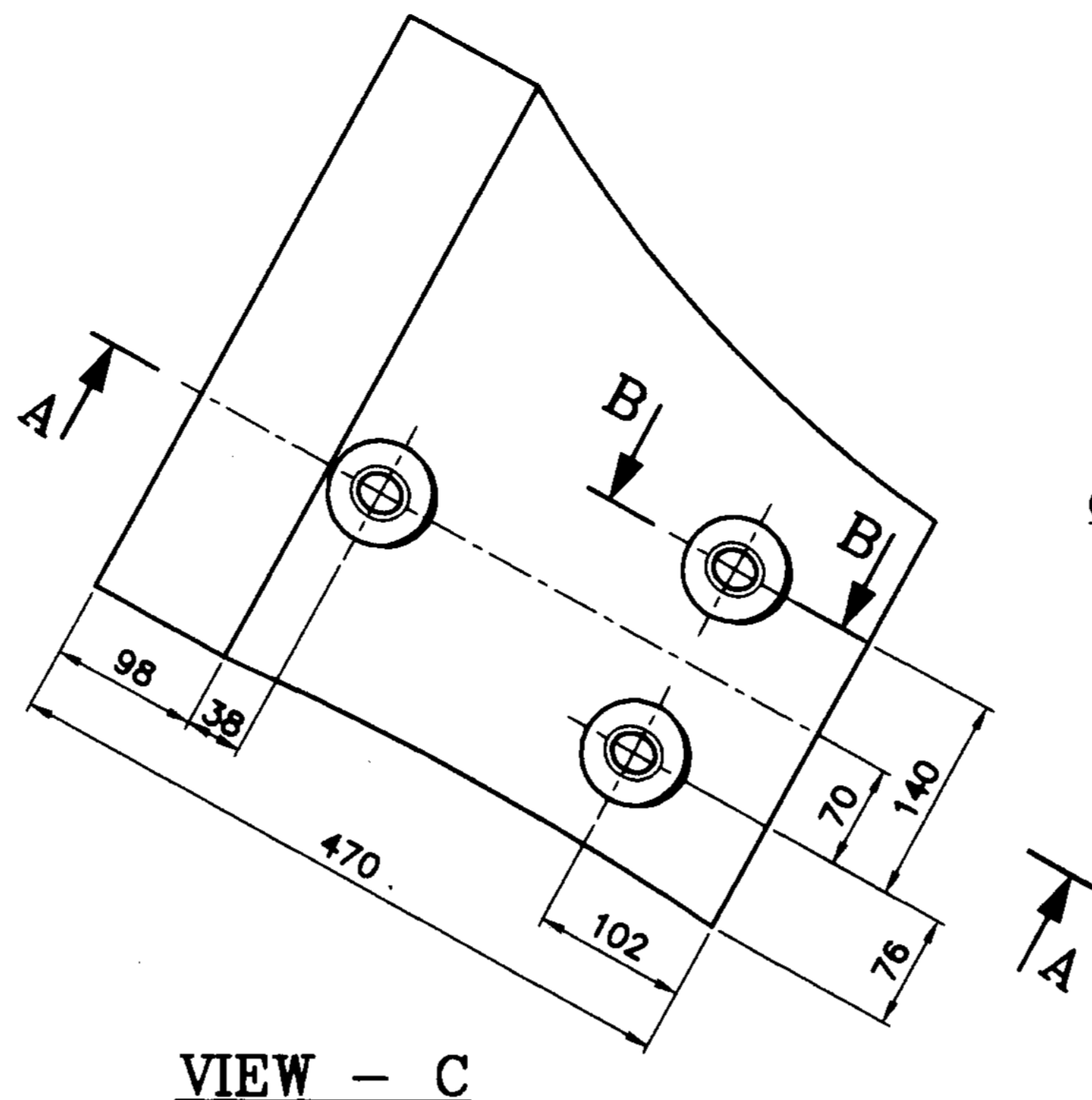
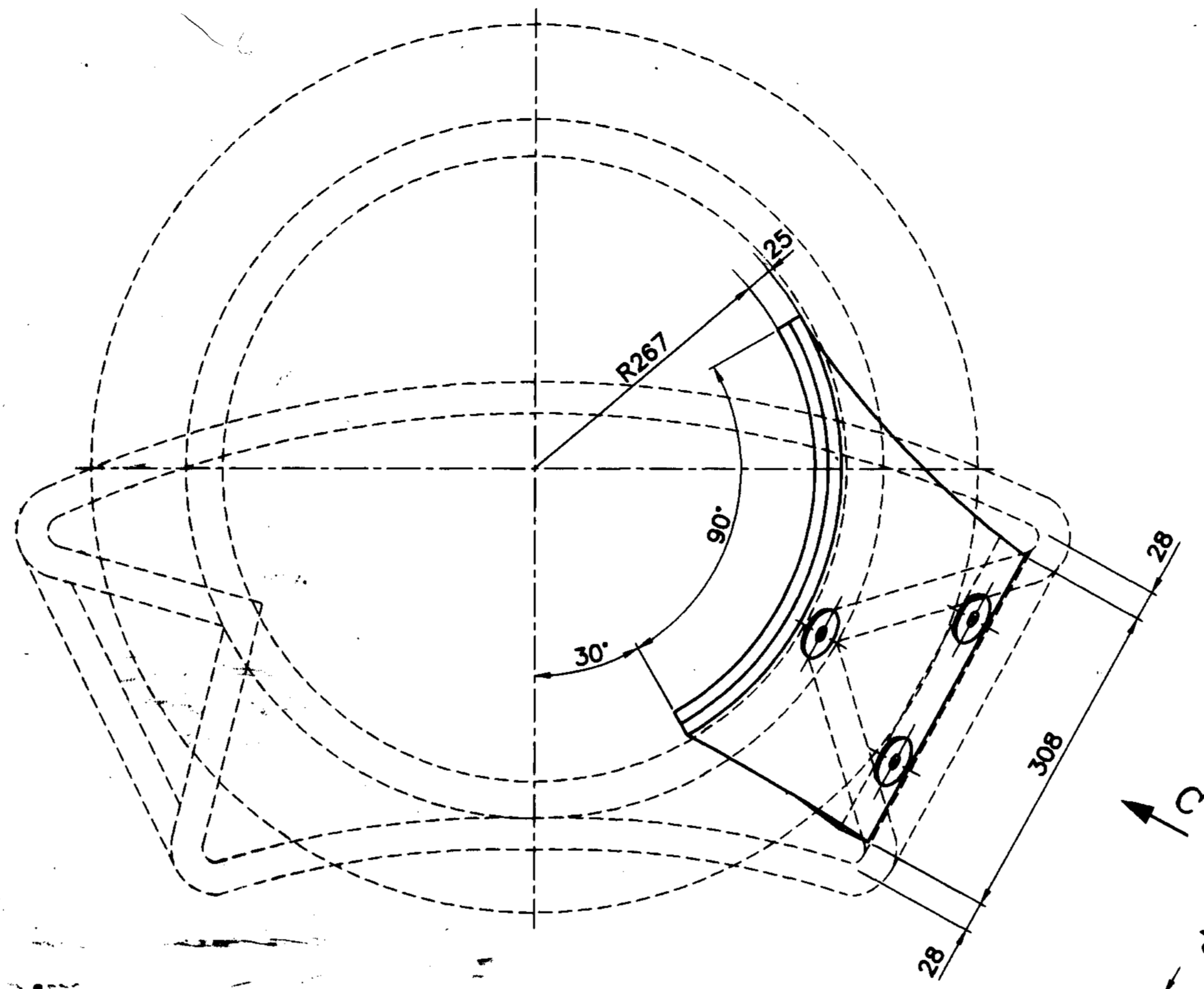
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT 883 XRP BOWL MILL		TITLE JOURNAL OPENING FRAME LINER - V		DRAWING NO. 2.61.388.02034		SHEET NO.		NO. OF SHEETS	
--	--	---------------------------------------	--	----------------------------	--	-----------	--	---------------	--

INVENTORY NO. REF. DRG. NO. C-94-1192/0 COMP. FILE NAME 26102034.DWG THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

REV.	DATE	ALTERED	DATE	ALTERED	DATE	ALTERED	DATE	ALTERED	DATE	ALTERED
1		CHECKED		CHECKED		CHECKED		CHECKED		CHECKED
2		APPD.		APPD.		APPD.		APPD.		APPD.
3		APPD.		APPD.		APPD.		APPD.		APPD.
4	18/10/98	CHECKED		CHECKED		CHECKED		CHECKED		CHECKED

DRG. NO. 2-61-400-02467

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



3 TO 6 (MAX) SPACE BETWEEN LINER & OUTLET CASTING AT ANY POINT ON BACK SURFACE.

**NOTES: -**

1. MAKE PATTERN SO THAT FINISHED LINER WILL CONFORM TO INSIDE SURFACE OF CASTING MULT. PORT OUTLET.
2. INSPECTION SHALL BE ON THE BASIS OF CONFORMITY TO CASTING MULT. PORT OUTLET DRG. NO. 1-61-400-00251 (RANDOM SELECTION)
3. CORED HOLES ARE TO BE CLEANED AND FREE FROM FINNS, SAND ETC.
4. DIMENSIONS & LOCATIONS OF THE CAST CORED HOLES ARE TO BE ENSURED WITH A TEMPLATE.
5. PATTERN NO - M-67-483 FOR NTPC SIMHADRI ONLY AND THE MATCHING M.P.O PATTERN NO IS M-67-710

*Dr. to be checked*

ITEM NO.	CASTING	DESCRIPTION	DRAWING NO.	BA9114133393	35.00
				AA19741	
				MATL CODE	UNIT WT.
				MATL SPECN	QTY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

1. REFER TO HY0230281 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER MACHINED SHARP EDGES 1.2 TO 1.0 AT 45°
3. INTERNAL MACHINE RADII 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACKSLASH GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRAWING.

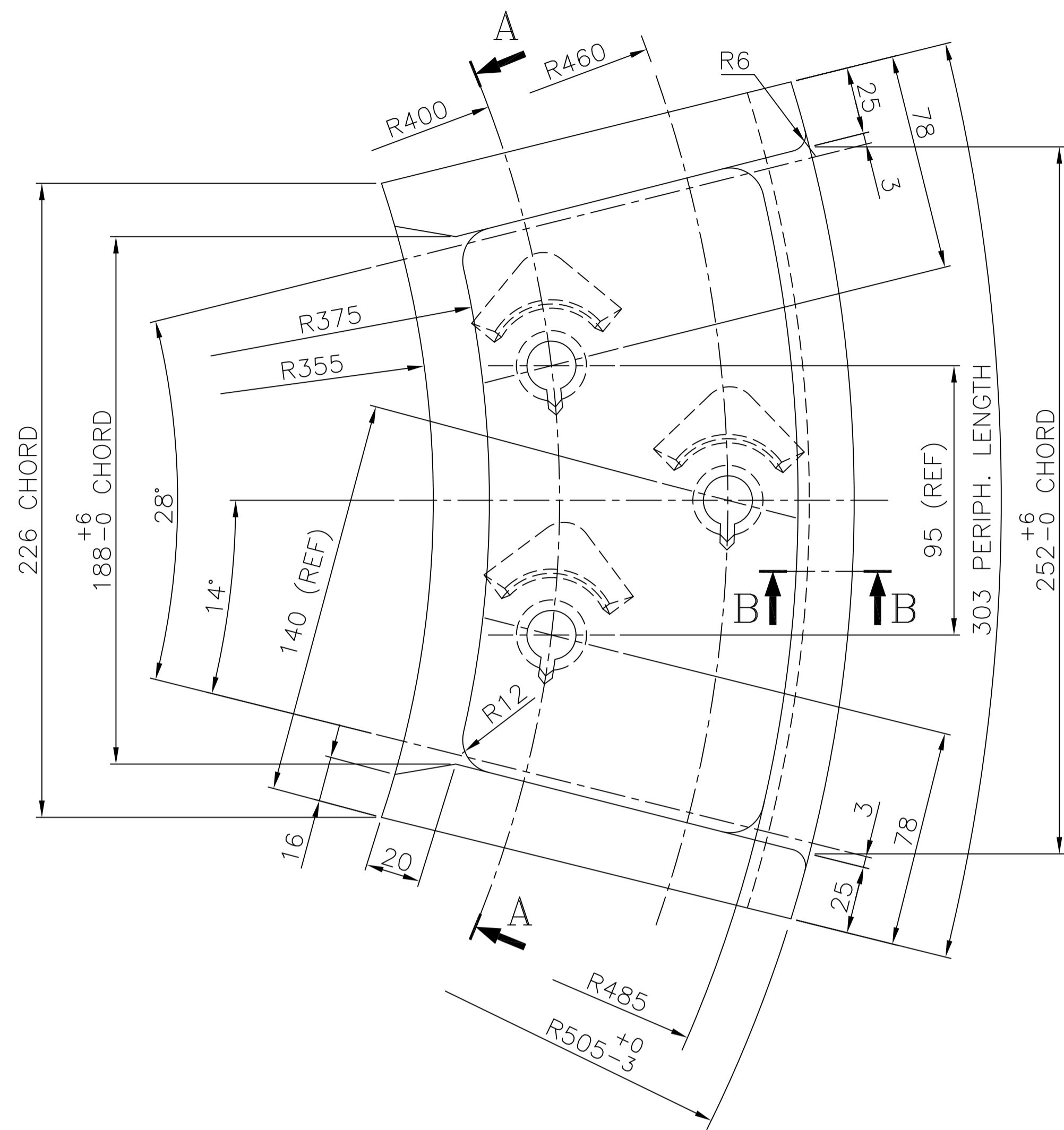
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		1003 XRP BOWL MILL			
BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD		DRN. NAME	SIGN.	DATE	NO. OF VAR.
		CHD. R. JAGANNATH		15.1.97	NA
		APPD. G. KISTIAH		15.1.97	
DEPT. PULV-ENGG	GRADE OF TOL. DIM. S/M/T	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO. NO. OF ITEMS
4480		1:5	35.00	2-61-400-00528	01 04
TITLE		CARD CODE	DRAWING NO.	REV.	
MULTIPLE PORT OUTLET LINER			2-61-400-02467	01	
			SHEET NO. 01	NO OF SHEETS 01	

REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	
ZONE					ZONE					ZONE					ZONE					

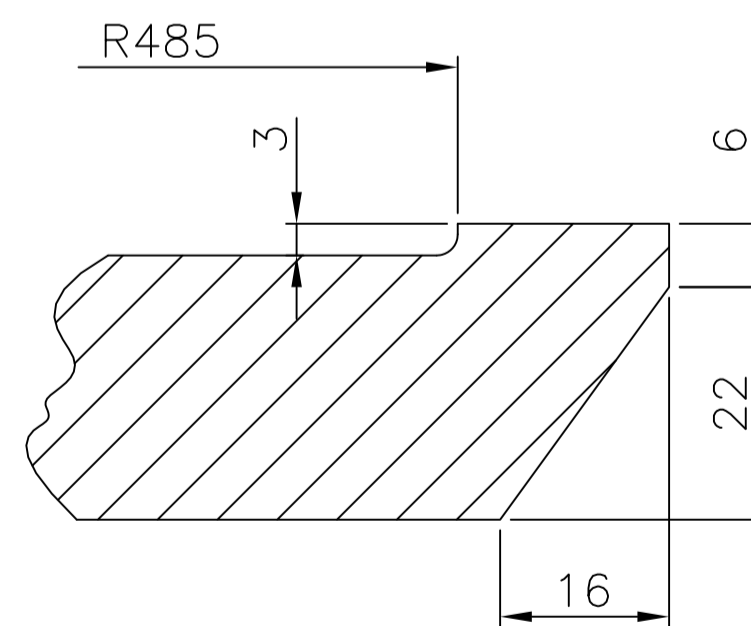
NOTE-5 ADDED

DRG. NO. 2-61-462-00593

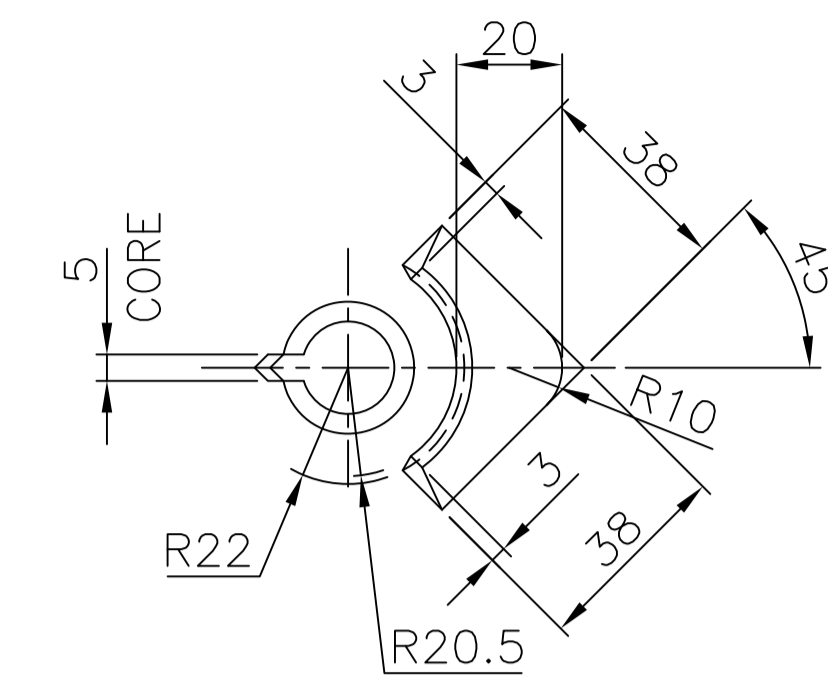
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY TO THE INTEREST OF THE COMPANY.  
 COMP. FILE NAME: 26100593.DWG  
 REF. DRG. NO.:  
 INVENTORY NO.:



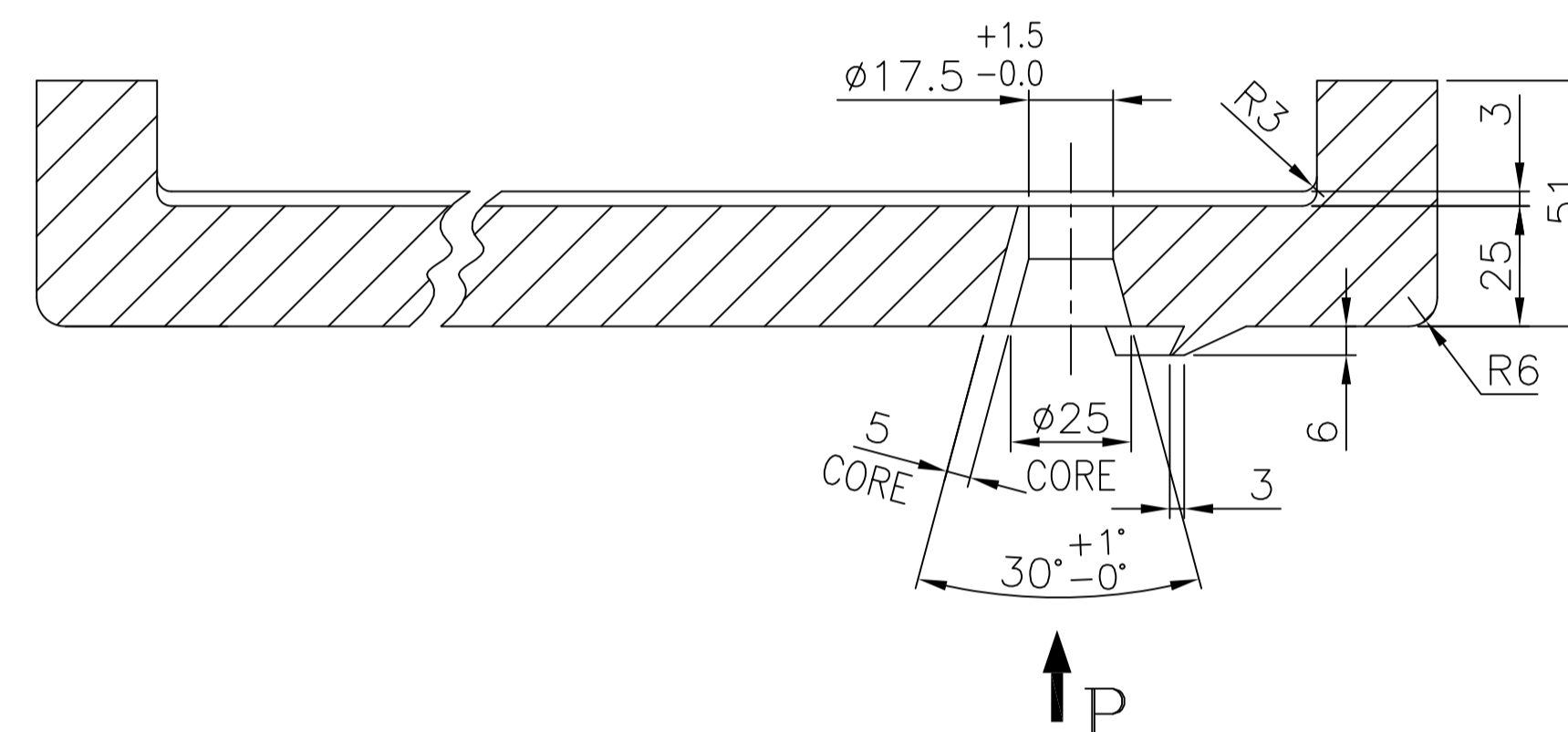
PATTERN No. 2-61-462-00593



SECTION B-B



VIEW-P



SECTION A-A

ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL SPECN.	NET WT.	GROSS WT.	QUANTITY
	CASTING				BA9114133792	9.144		
					AA19741		1	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **623 XRP BOWL MILL**

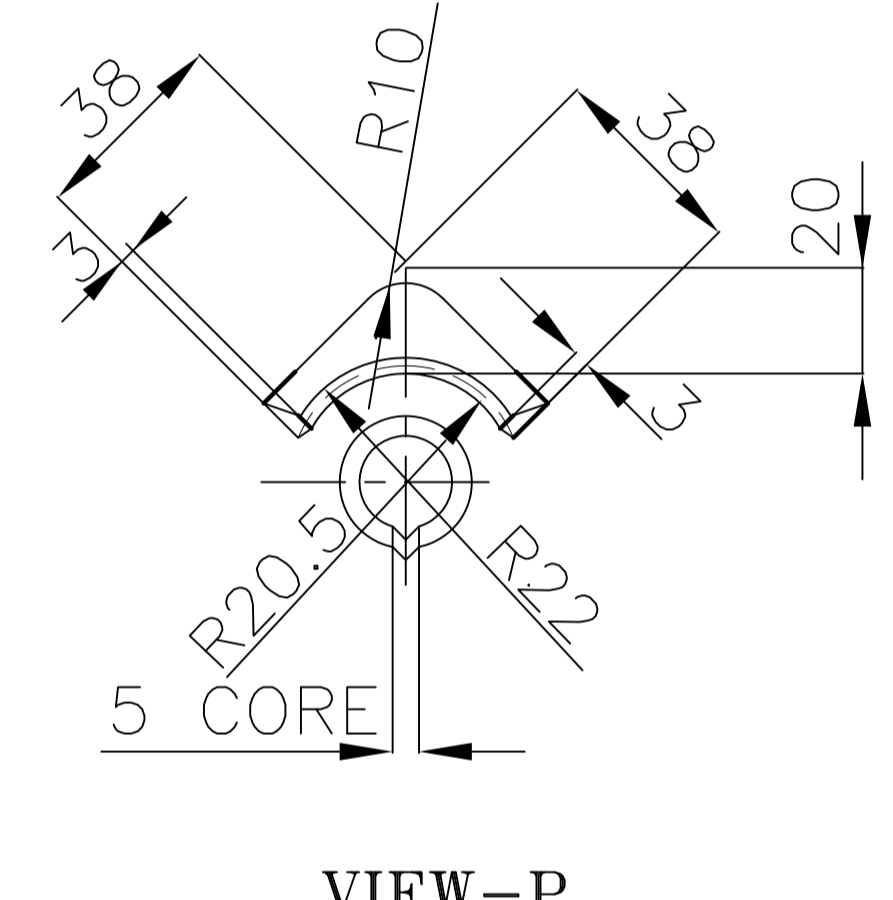
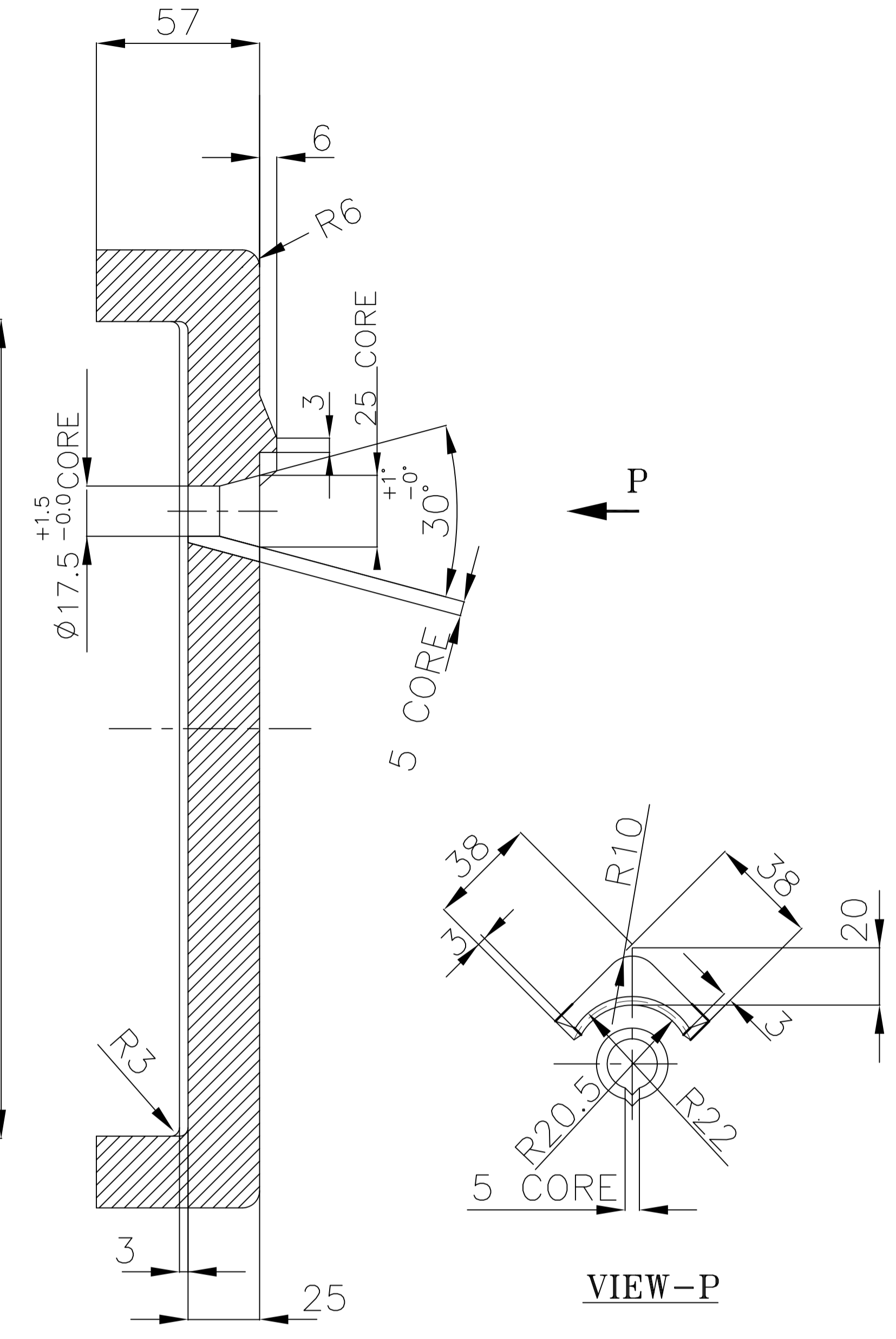
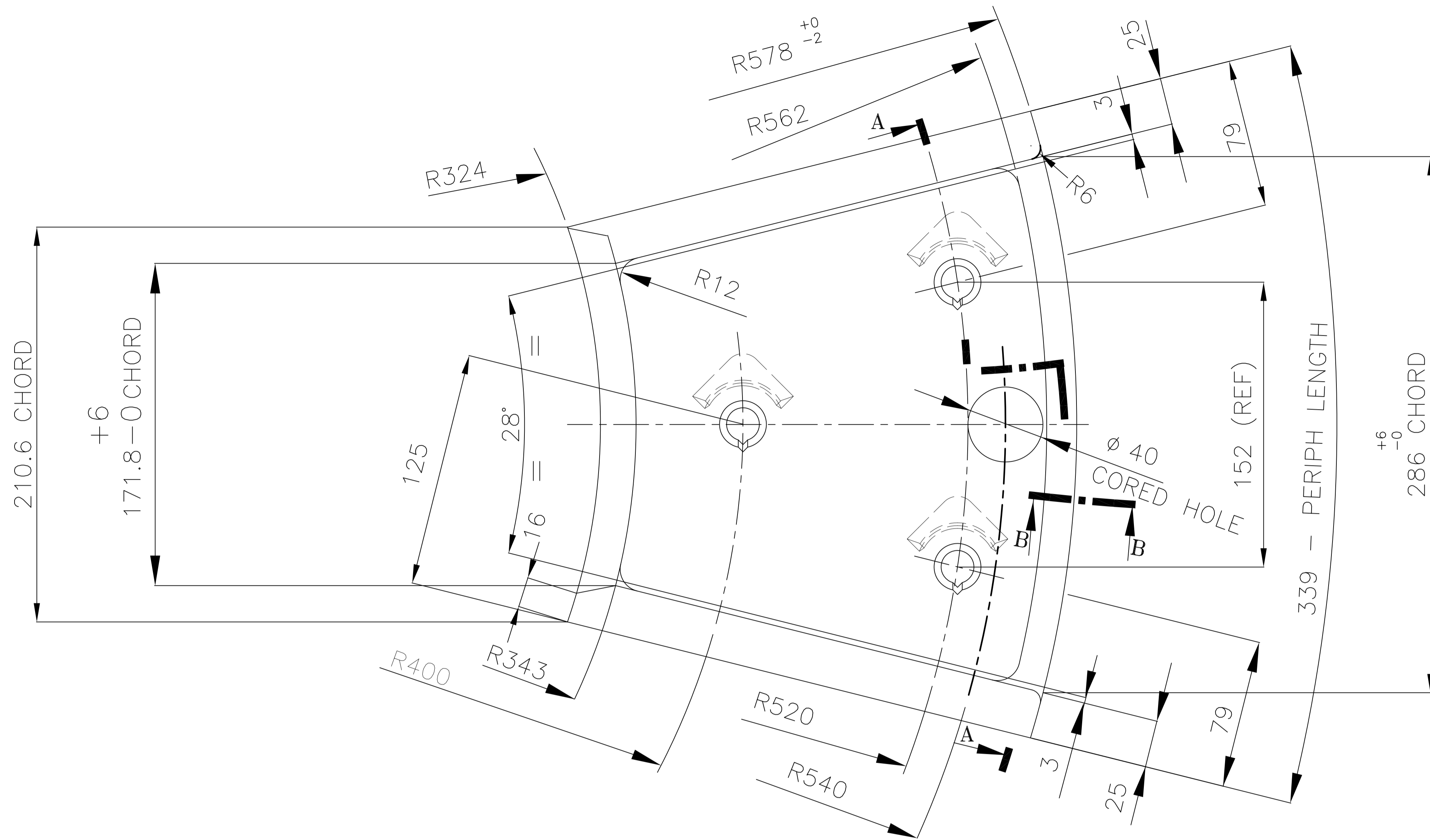
DEPT. HE-DESIGN	SCALE 1:2 / 1:1	WEIGHT(Kg) 9.144	REF. TO ASSY DRG. 2-61-462-00189	ITEM NO. NA	NO. OF ITEMS NA
CODE 446	TITLE: <b>M.P.O PLATE LINER</b>		DRAWING NO. <b>2-61-462-00593</b>	REV. <b>02</b>	
			SHEET NO. 01	NO OF SHEETS 01	

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
01		CHECKED	02	10.02.03	CHECKED	03		CHECKED	04		CHECKED
ZONE		APPD.	ZONE		APPD.	ZONE		APPD.	ZONE		APPD.

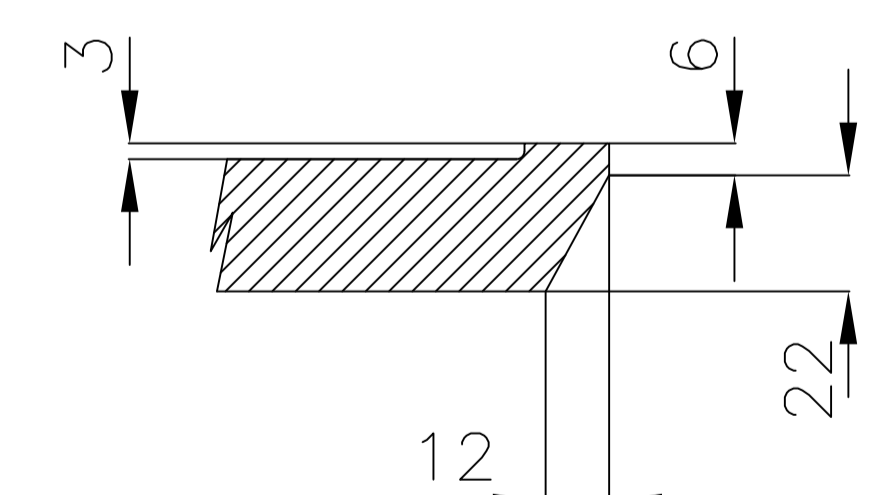
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 2-61-476-00118

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SECTION-AA



SECTION-BB

ITEM NO.	CASTING	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	BA9114133091	15.00
					AA19741	1
					MATERIAL CODE	NET WT.
					MATERIAL SPECN.	QUANTITY

- THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.
- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
  - CHAMFER M/CD. SHARP EDGES 1:2 TO 1:0 AT 45°.
  - INTERNAL M/CD. CORNER RADII 1 TO 0.7
  - THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT		803 XRP BOWL MILL			
NAME OF CUSTOMER/PROJECT		BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD			
DRN.	E.M.ASHOK	SIGN.	DATE	NO.OF VAR.	
CHD.	S.GHATGE		27-9-97		
APPD.	K.M.RAO		28-9-97		
DEPT. 446	UNTL. DIMS. GR.	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.
	Q/M/A	1:2	15.00		
TITLE		OUTLET PLATE LINER		CARD CODE	REV.
				DRAWING NO.	2-61-476-00118
				SHEET NO. 01	NO OF SHEETS 01

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHD./APPD.			CHD./APPD.	04	27-9-97	E.M.ASHOK KUMAR
ZONE			ZONE					CHD./APPD. S.GHATGE
								DRG RETRACED WITH ALL PREVIOUS REVISIONS.

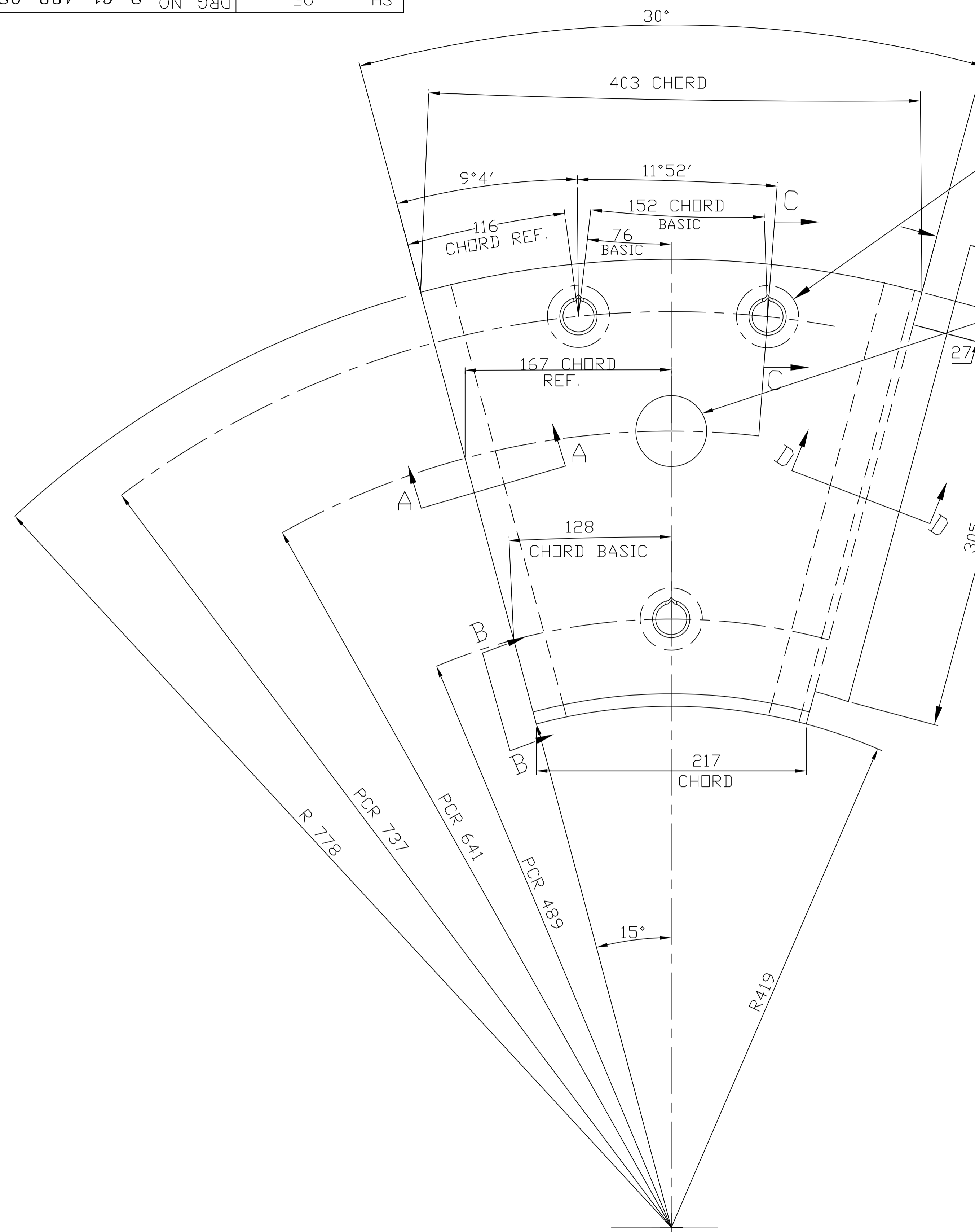
INVENTORY NO | SIGN. AND DATE | REF. DRG. NO. | 26100118

DRG. NO. 2-61-488-02055

SH. OF 2

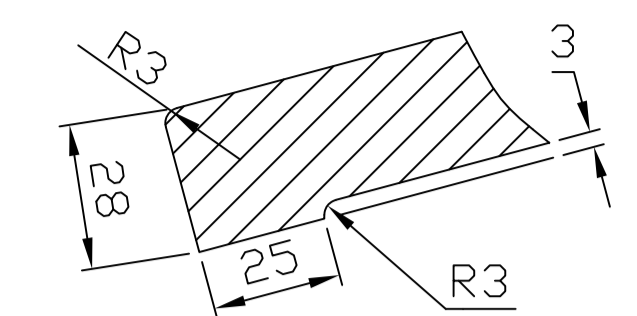
INVENTORY NO. SIGN. AND DATE REF. DRG. NO. COMPUTER FILE NAME 26102055.DWG THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

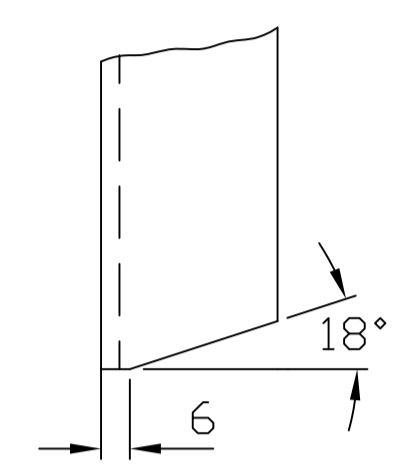


CORED HOLE 3 PLACES (SEE SEC-CC)  
 $\varnothing 0.800M$

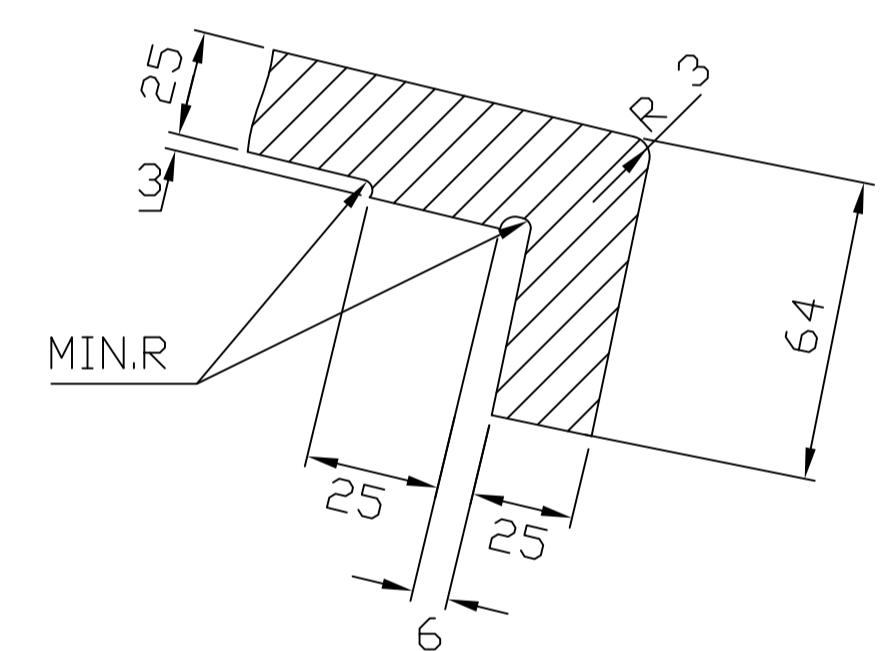
DIA 57 CORED HOLE  
 $\varnothing 3.00M$



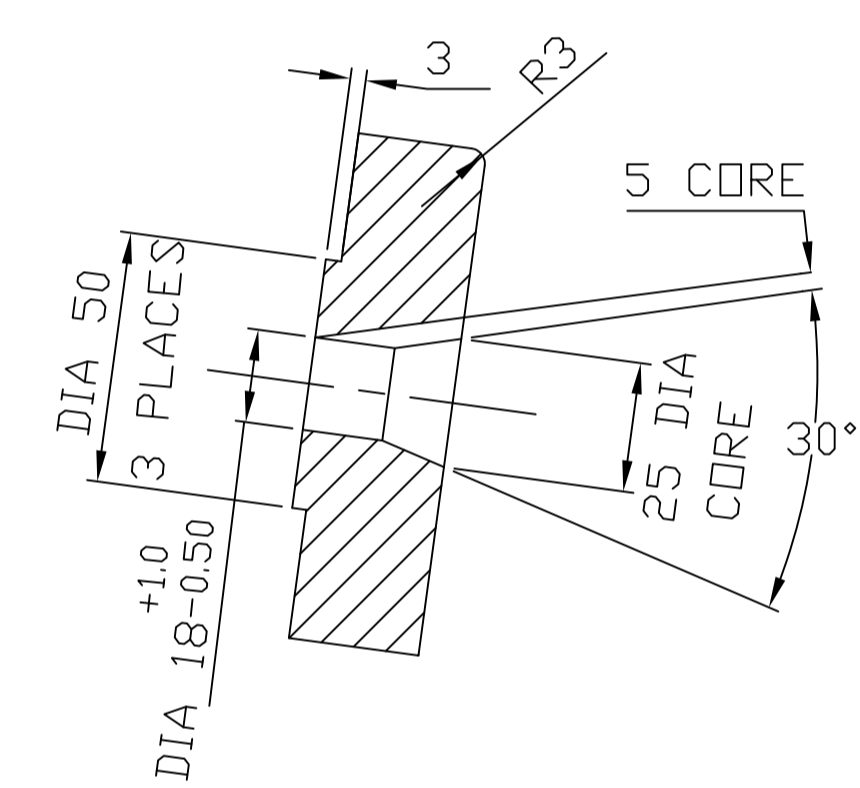
SECTION-AA



VIEW-BB



SECTION-DD



SECTION-CC

VAR. NO.	ITEM NO.	DESCRIPTION	UTS	DRG. NO.	ITEM NO. VAR. NO.	MATL. CODE BA9114135035 AA19741	A C	UNIT DI	UNIT WT. 25.000	GS	ZONE
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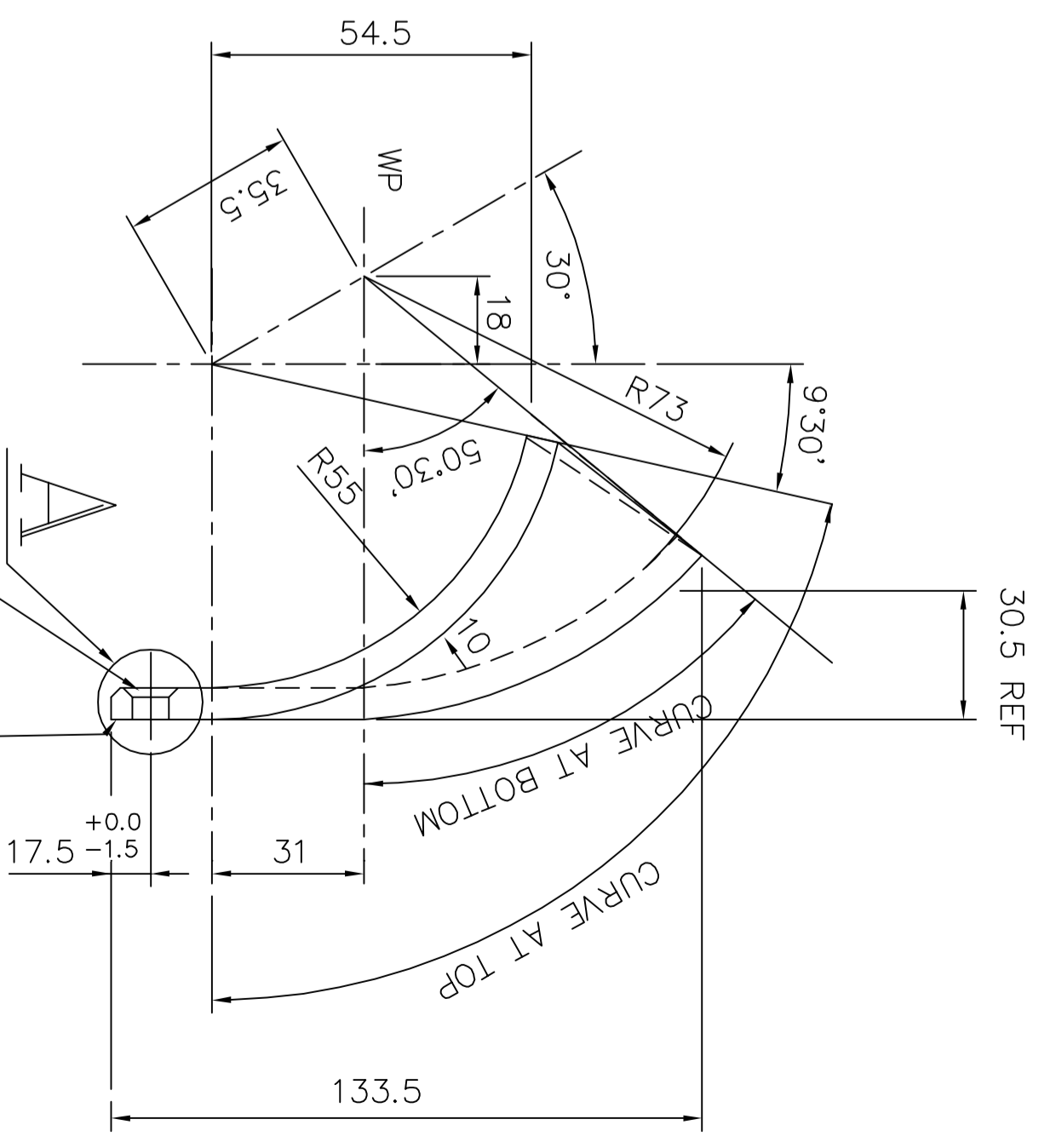
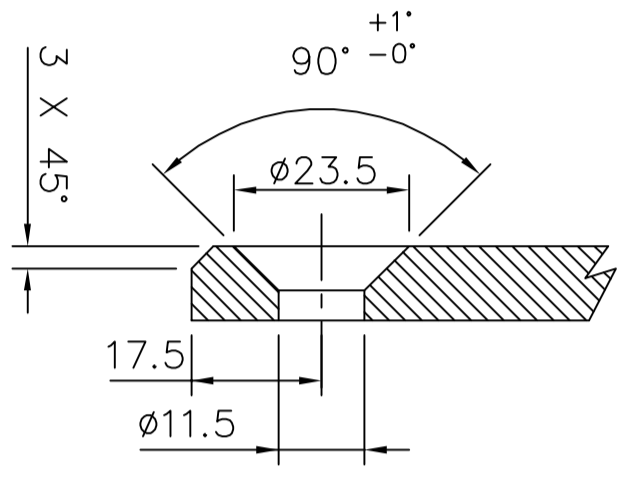
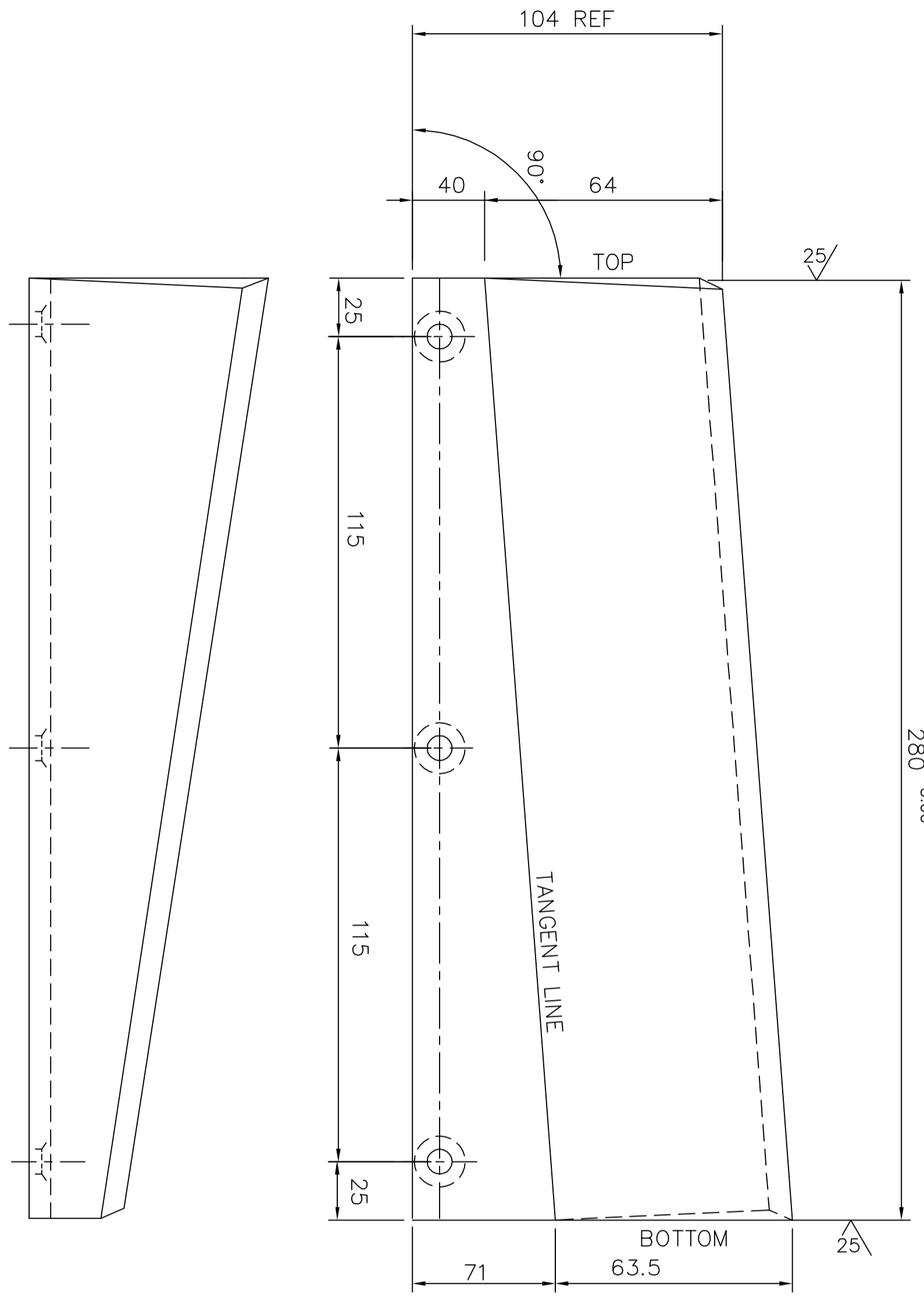
THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°
- INTERNAL M/CD. CORNER RADII 1 TO 0.7
- THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN ON THE TOP MOST RIGHT CORNER OF THE DRG.

REV.	DATE	ALTERED
01		CHD/APPD
ZONE		
DRG. REDRAWN		

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 883 XRP BOWL MILL

BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD	NAME	SIGN.	DATE	NO. OF VAR.
	DRN.	ANURADHA	21.10.02	
	CHD.	N.D.SAMUEL	21.10.02	
APPD.	G.KISTAIAH	21.10.02		
DEPT. PULV. ENGG. DEPT. CODE: 446	UNTOL. DIMS. GR. /M/	SCALE NTS	WEIGHT (KG) 25.000	REF. TO ASSY. DRG. 0-61-488-0515 (C-94-810/0)
TITLE: OUTLET PLATE LINER		CARD CODE	DRAWING NO. 2-61-488-02055	REV. 01
SHT. No		NO. OF SHT.		

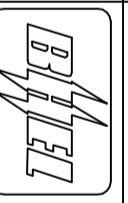


3 CORED CSK HOLES AS SHOWN IN DETAIL "A"

ENSURE THE FLATNESS STRAIGHT PORTION OF THE CASTING

DETAIL - A

REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES



BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

ITEM NO.	DEFLECTOR BLADE	DRAWING NO.	BA9114103028
DESCRIPTION		MATL. CODE	AA19741
		MATL. SPECN	
		QTY	1

DRN. S. STEWARI	SIGN. -sd-	DATE 23.6.05
CHD. S. STEWARI	SIGN. -sd-	DATE 23.6.05
APPD. V. KUMAR	SIGN. -sd-	DATE 23.6.05

DEPT. PULV-ENGS	GRADE OF TOL. DIM. & M/P	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
4460		NTS		2-61-362-00715	02	

TITLE	DEFLECTOR BLADE	CARD CODE	2-BM-362-00003
REV.		DRAWING NO.	2-BM-362-00003
ZONE		SHEET NO.	01
		NO. OF SHEETS	01

1

2

3

4

5

2

3

4

5

6

7

8

U/25/1

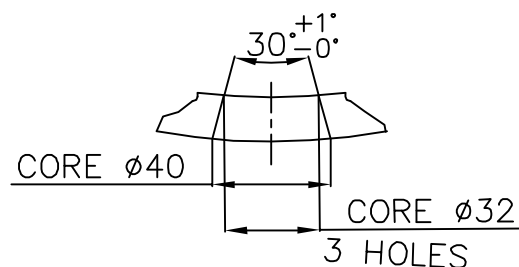
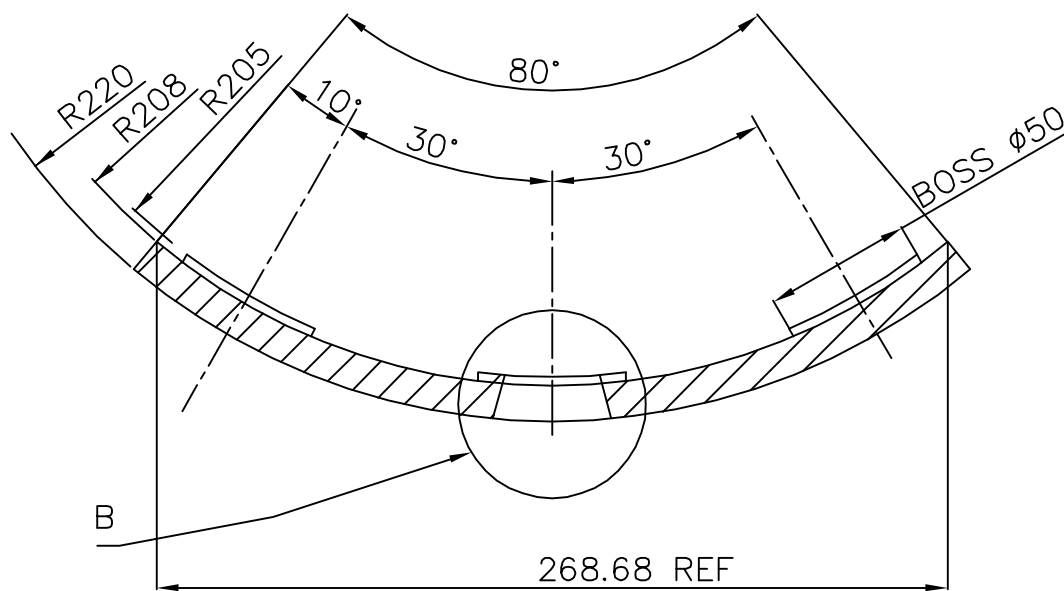
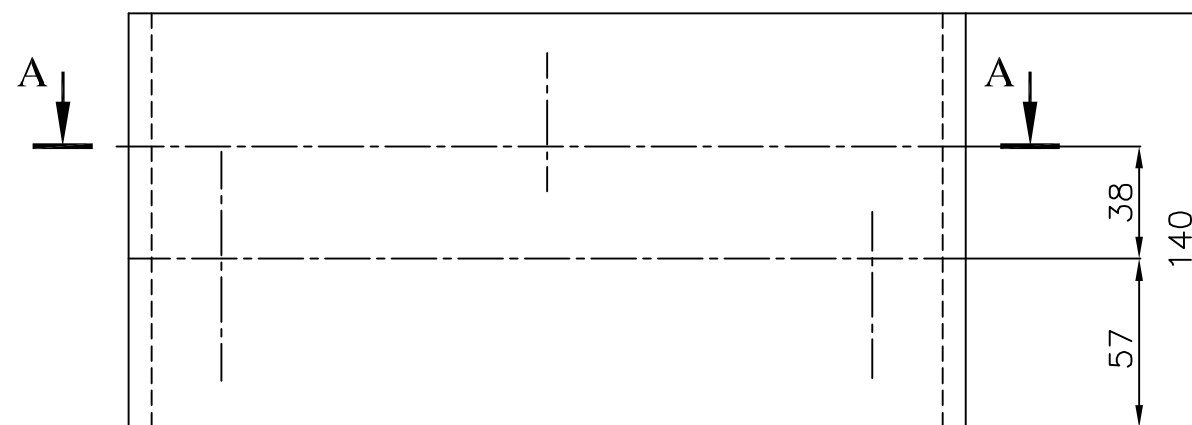
DRG.NO.3-61-062-00579

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COMP. FILE NAME  
36100579.DWG

REF.DRG.NO.

INVENTORY NO.



**DETAIL-B**

**SECTION - AA**

**NOTES**

1. BREAK ALL SHARP EDGES UNLESS OTHERWISE NOTED
2. PATTERN NO.3-61-062-00579
3. CASTING TOLERANCE UNLESS OTHERWISE NOTED ±1.6

01	CASTING				—	3.95	
					COMBALLOY		1
ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

1. REF.TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

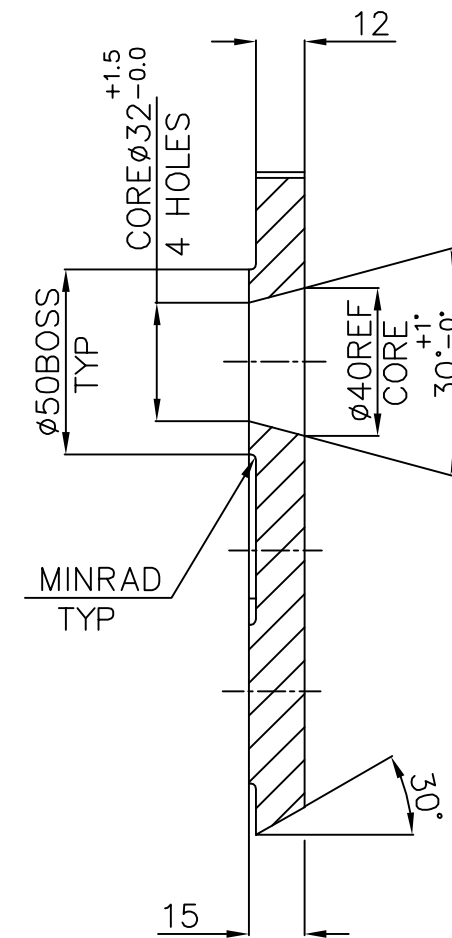
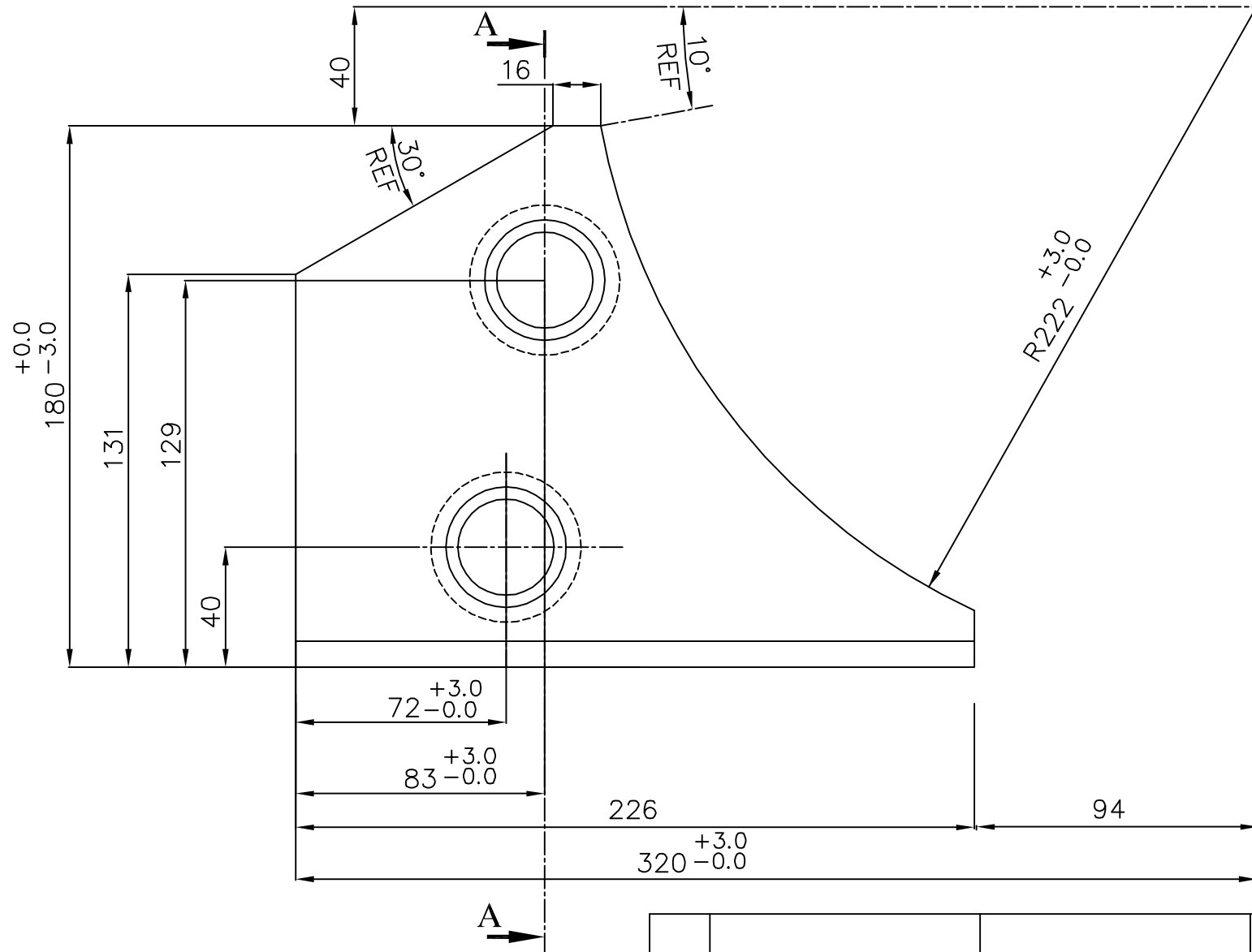
	भारत हेवी इलेक्ट्रिकल्स लिमिटेड हैदराबाद		NAME	SIGN.	DATE	NO.OF VAR.
	DRN.	RAZVI			9.11.02	
	CHD.	NDSAMUEL			9.11.02	
APPD.	S.GHATGE			9.11.02		

DEPT.	PULVE	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE	443	1:2.5	3.95	—	—	—

TITLE	DRAWING NO.	REV.
<b>JOURNAL HEAD LINER-I</b>	3-61-062-00579	03
	SHEET NO. 01	NO OF SHEETS 01

REV. 03	DATE 17.10.03	ALTERED	APPD.	REV. 02	DATE 9.11.02	ALTERED	APPD.
2 CORED HOLES DELETED.				DRAWING REDRAWN ON AUTOCAD.			

DRG.NO. 3-61-062-00580



SECTION-AA

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36100580.DWG FILE NAME

REF.DRG.NO.

INVENTORY NO.

NOTE.

- BREAK ALL SHARP EDGES UNLES OTHERWISE NOTED.
- PATTERN NO.: 3-61-062-00580.
- CASTING TOLERANCE UNLESS OTHERWISE NOTED ±1.6.

01	CASTING				BA9114133997	2.70	
					AA10741		1
ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF.TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

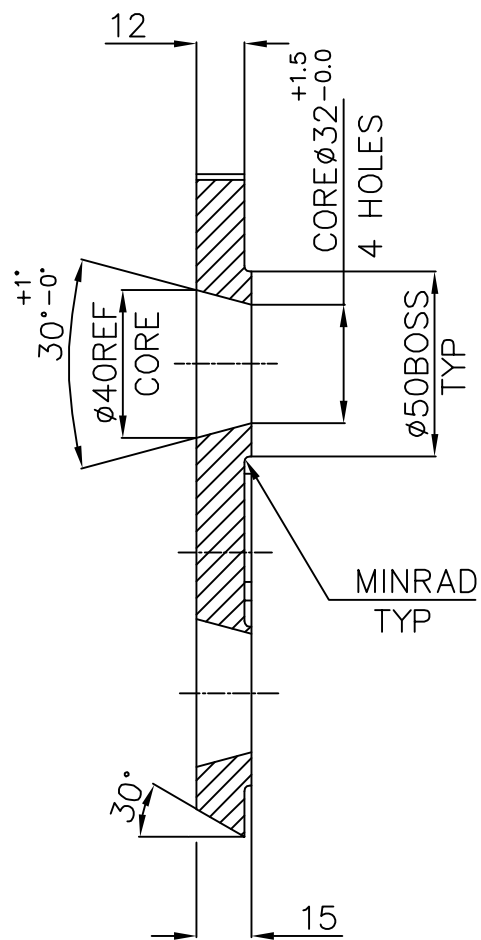
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT **623 XRPBM**

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	DRN.	NAME	SIGN.	DATE	NO.OF VAR.	
	CHD.	RAZVI		11.11.02		
	APPD.	NDSAMUEL	<i>[Signature]</i>	11.11.02		
DEPT.	PULVE.ENGG	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE	446	1:2	2.70	1-61-062-00314	03	-
TITLE				DRAWING NO.	REV.	
JOURNAL HEAD LINER-II				3-61-062-00580	04	
				SHEET NO. 01	NO OF SHEETS 01	

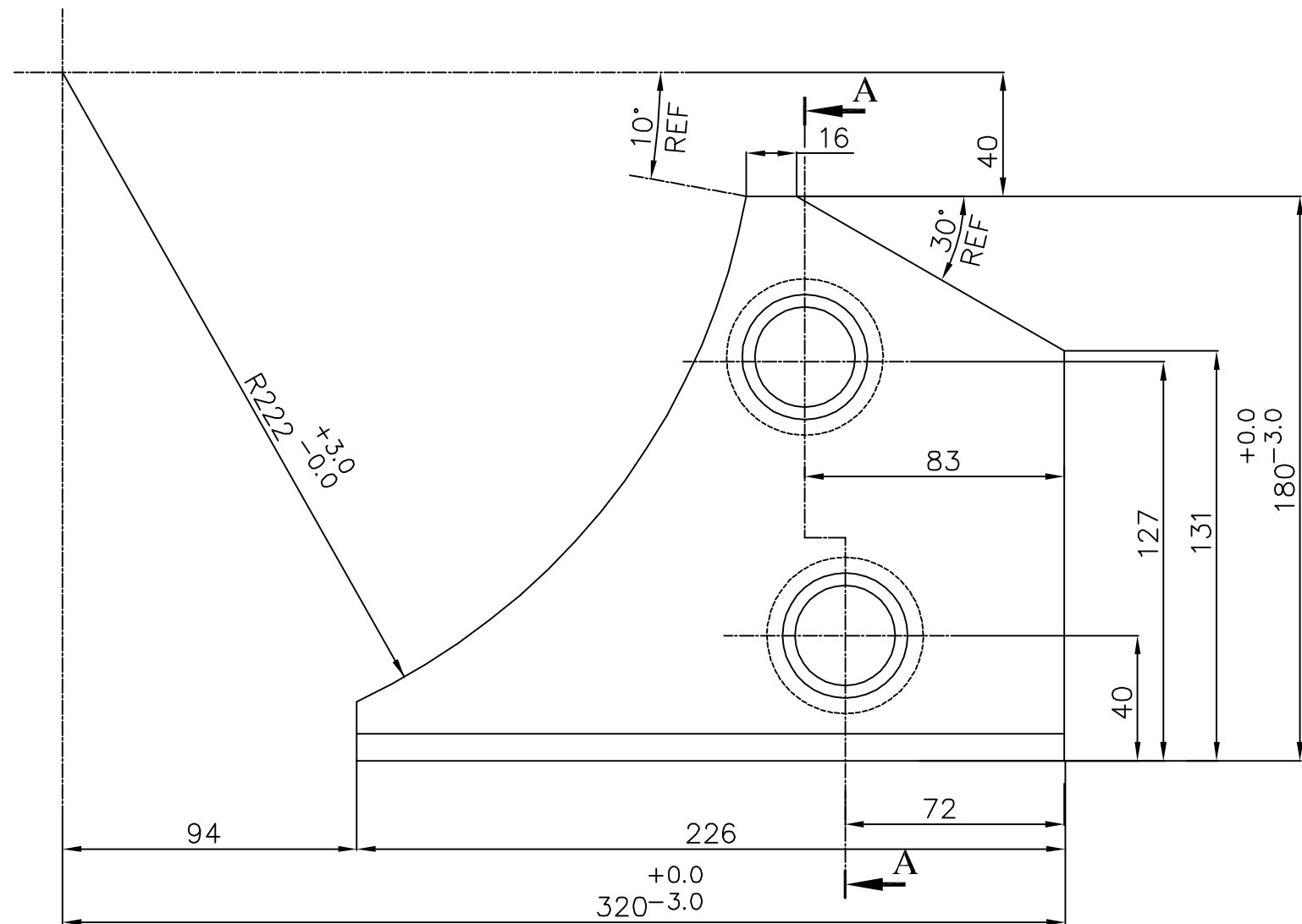
REV.	DATE	ALTERED	REV.	DATE	ALTERED
04	17.10.03	CHD. APPD.	03	11.11.02	CHD. APPD.
ZONE 2	CORED HOLES REMOVED		ZONE	DRAWING REDAWN ON AUTOCAD.	

DRG.NO. 3-61-062-00581

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SECTION-AA



NOTE.

1. BREAK ALL SHARP EDGES UNLES OTHERWISE NOTED.
2. PATTERN NO.: 3-61-062-00581.
3. CASTING TOLERANCE UNLESS OTHERWISE. NOTED ±1.6

01	CASTING				BA9114134004	2.70	
					AA19741		1
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

1. REF.TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  
623 XRPBM



BHARAT HEAVY ELECTRICALS LTD.  
HYDERABAD

DEPT. PULVE.ENGG	SCALE 1:2	WEIGHT (KG) 2.70	REF. TO ASSY DRG. 1-61-062-00314	ITEM NO. 04	NO.OF ITEMS -
CODE 446			DRAWING NO. 3-61-062-00581	04	REV. -
TITLE JOURNAL HEAD LINER-III			SHEET NO. 01	NO OF SHEETS 01	

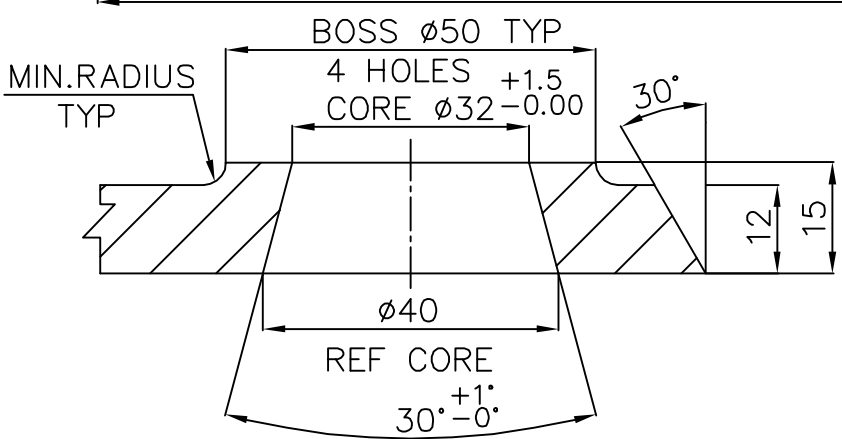
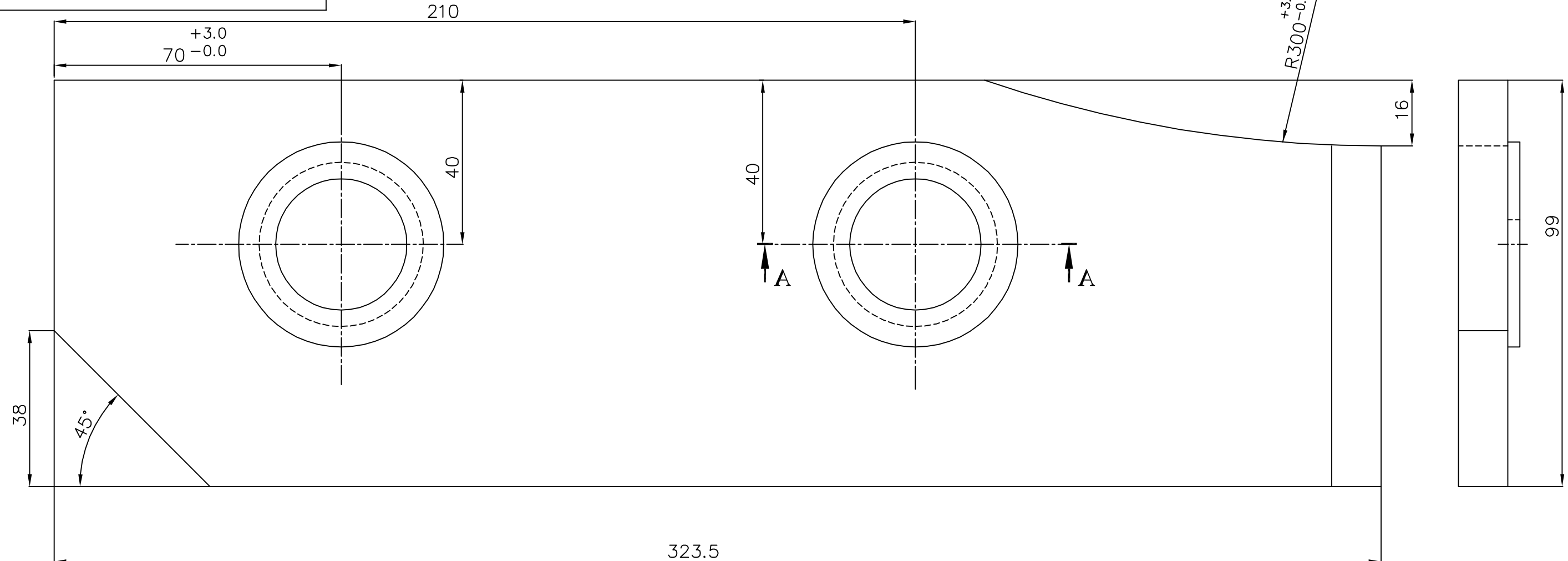
REV.	DATE	ALTERED	REV.	DATE	ALTERED
04	7.10.03	CHD. APPD.	03	11.11.02	CHD. APPD.
ZONE	2 CORED HOLES DELETED.		ZONE	DRAWING REDAWN ON AUTOCAD.	

36100581.DWG  
FILE NAME

REF.DRG.NO.

INVENTORY NO.

DRG.NO. 3-61-062-00582



**SECTION-AA**

**NOTE**

1. BREAK ALL SHARP EDGES UNLESS OTHERWISE NOTED.
2. PATTERN NO. 3-61-062-00582
3. CASTING TOLERANCE UNLESS OTHERWISE NOTED ±1.6

01	CASTING				BA9114134012	2.60	
					AA19741		1
ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				623 XRPBM			
		भारत हेवी इलेक्ट्रिकल्स लिमिटेड हैदराबाद BHARAT HEAVY ELECTRICALS LTD. HYDERABAD		NAME	SIGN.	DATE	NO. OF VAR.
DEPT.		SCALE	WEIGHT (KG)	DRN.	RAZVI	8.11.02	
CODE		1:1	2.60	CHD.	NDSAMUEL	8.11.02	
TITLE				APPD.	SGHATGE	8.11.02	
				REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS	
				1.61.062.00314		05	
				DRAWING NO.	REV.		
				3-61-062-00582	05		
				SHEET NO.	NO OF SHEETS		

REV. 05	DATE 17.10.03	ALTERED	APPD.	REV. 04	DATE 8.11.02	ALTERED	APPD.
2 CORED HOLES DELETED				DRAWING REDRAWN.			

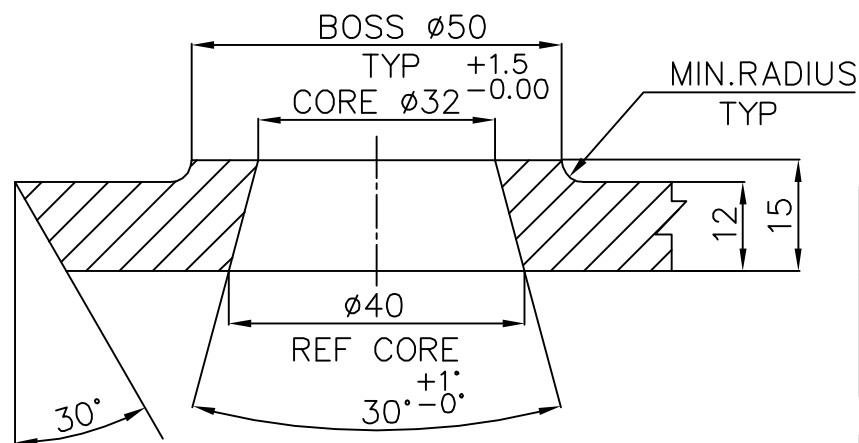
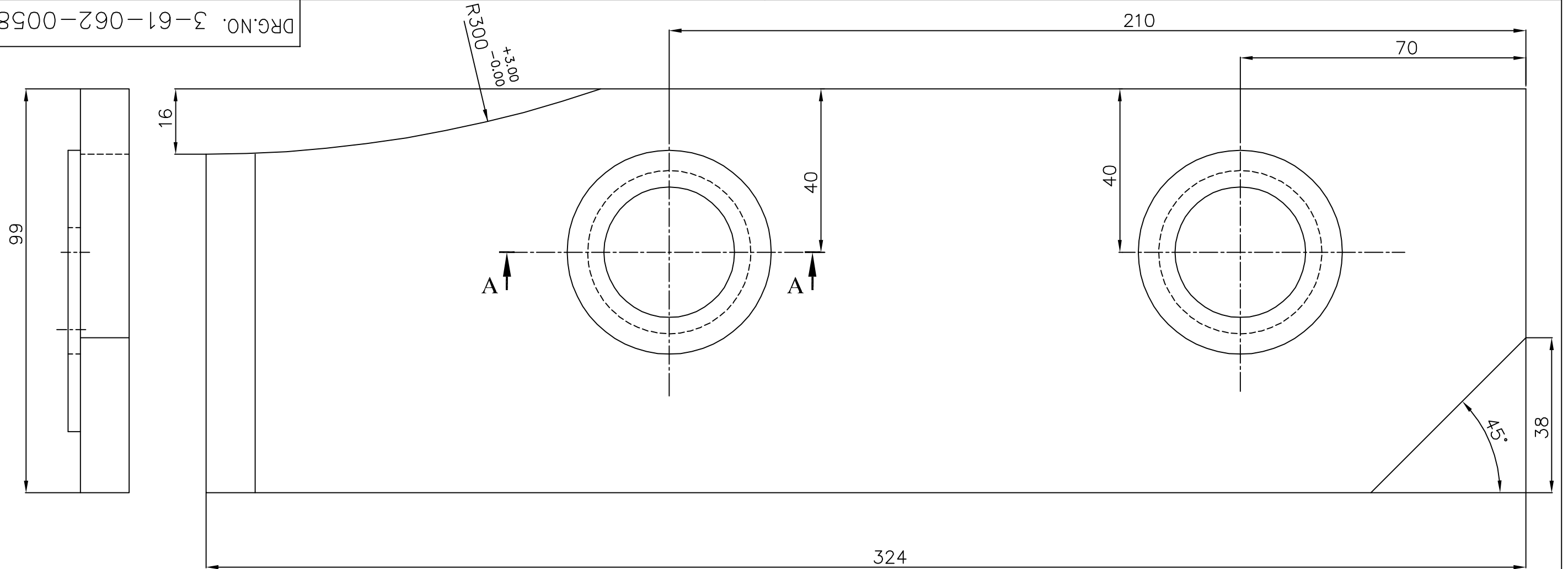
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COMP. FILE NAME 36100582.DWG

REF.DRG.NO.

INVENTORY NO.

DRG. NO. 3-61-062-00583



**SECTION-AA**

**NOTE**

1. BREAK ALL SHARP EDGES UNLESS OTHERWISE NOTED.
2. PATTERN NO. 3-61-062-00583
3. CASTING TOLERANCE UNLESS OTHERWISE NOTED ±1.6

01	CASTING				BA9114134020	2.60	
					AA19741		1
ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

भारत हेवी इलेक्ट्रिकल्स लिमिटेड हैदराबाद BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	DRN.	RAZVI	SIGN.	DATE	NO. OF VAR.
	CHD.	NDSAMUEL		8.11.02	
	APPD.	SGHATGE		8.11.02	

DEPT.		SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
CODE		1:1	2.60	1.61.062.00314		06

TITLE	DRAWING NO.	REV.
<b>JOURNAL HEAD LINER V</b>	3-61-062-00583	05
	SHEET NO.	NO OF SHEETS

REV. 05	DATE 17.10.03	ALTERED	APPD.	REV. 04	DATE 8.11.02	ALTERED	APPD.
2 CORED HOLES DELETED.				DRAWING REDRAWN.			

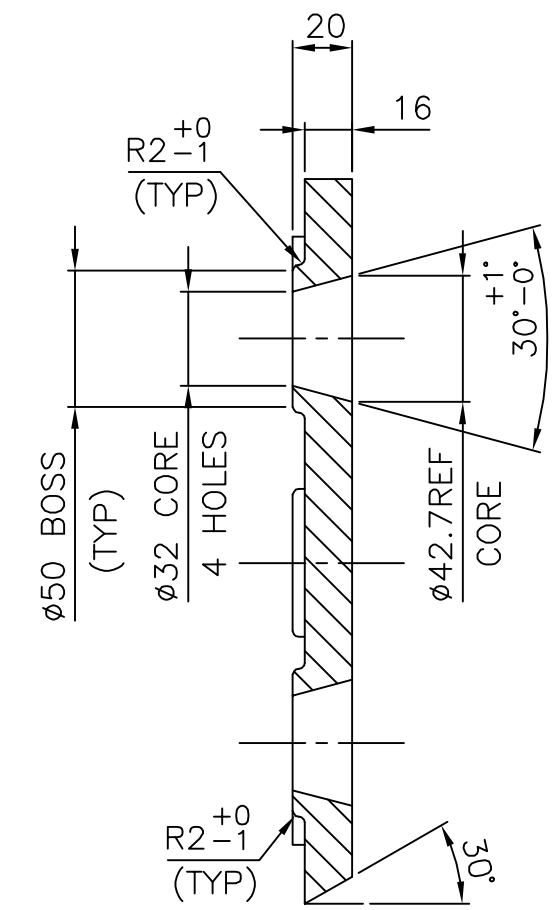
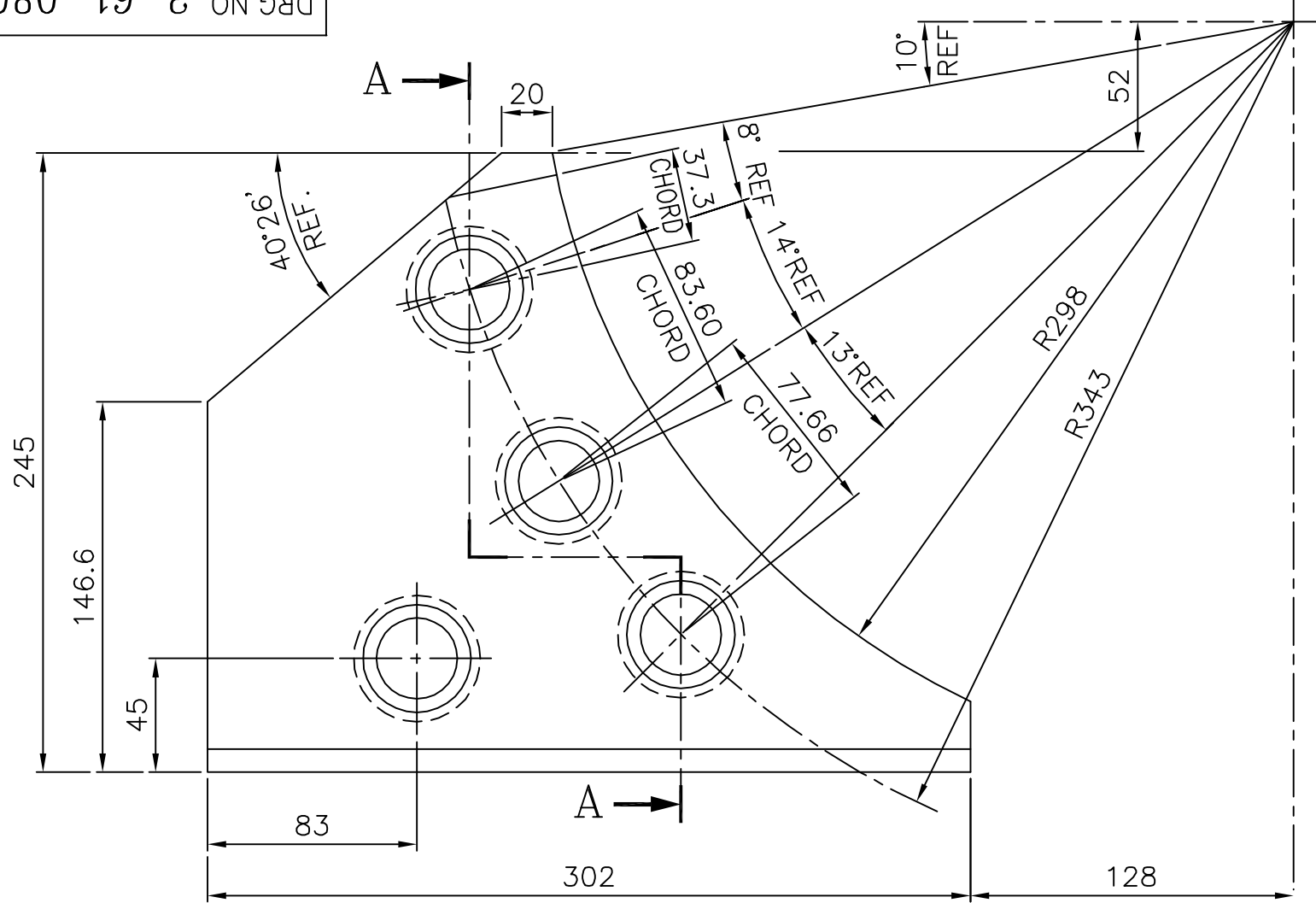
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COMP. FILE NAME 36100583.DWG

REF. DRG. NO.

INVENTORY NO.

DRG. NO. 3-61-080-00390



NOTES:- SECTION-AA  
01. BREAK ALL SHARP EDGES AND CORNERS.

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36100390.DWG FILE NAME


REF.DRG.NO.

INVENTORY NO.

ITEM NO	CASTING	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	BA9114133717	5.60	
					AA19741		
					MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

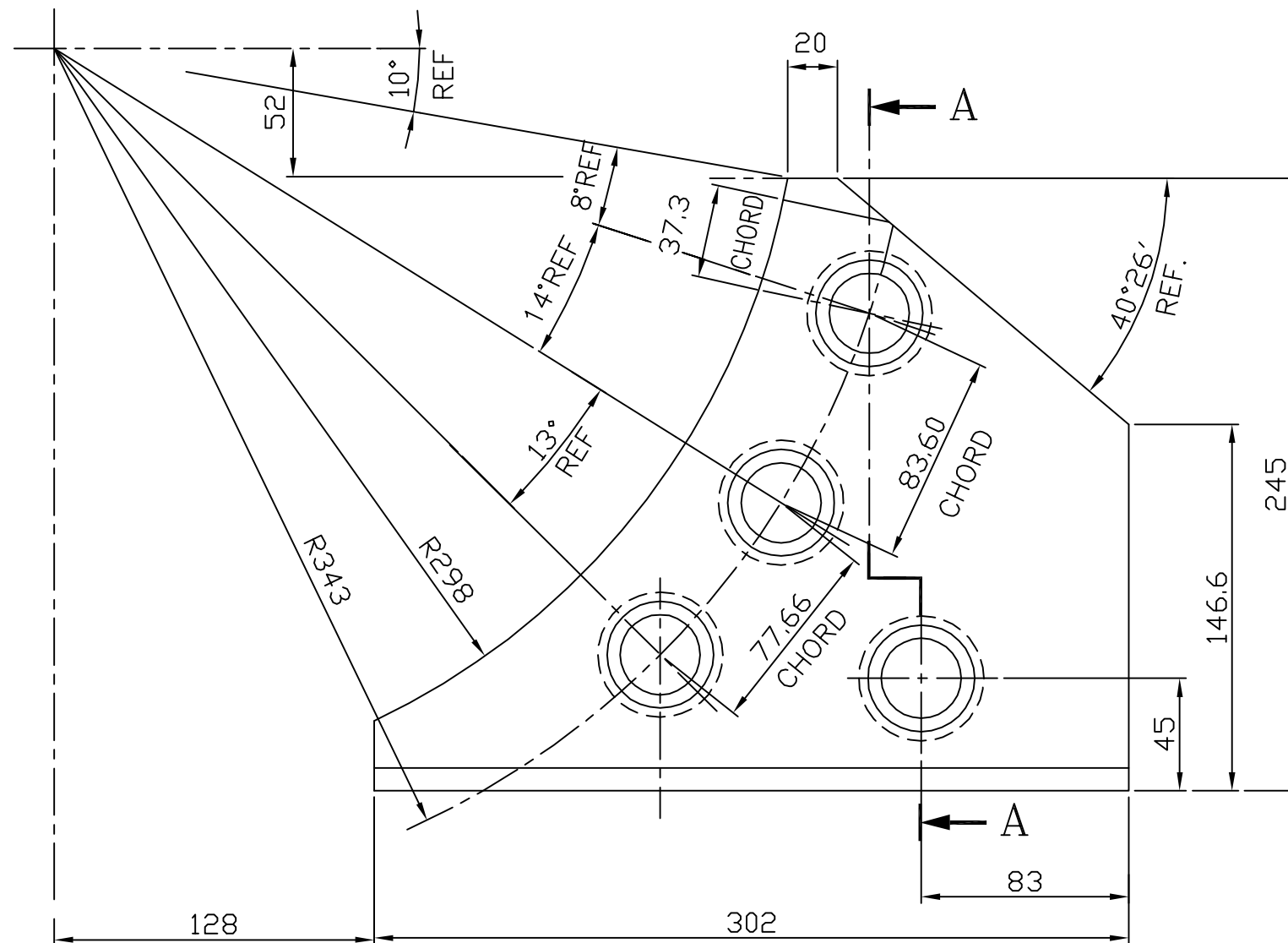
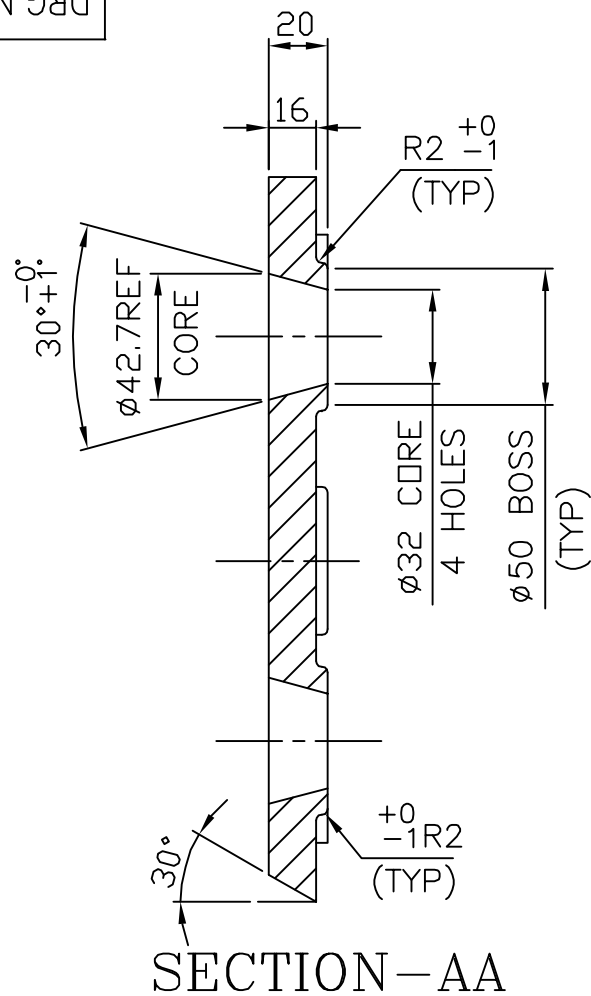
1. REF.TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT			
 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD			
DEPT. PULV ENGG.	SCALE	WEIGHT (KG)	REF. TO ASSY DRG. (B-80-653-0)
CODE 446	1:2.5	5.60	1-61-080-00180
TITLE		DRAWING NO.	REV.
<b>JOURNAL HEAD LINER II</b>		<b>3-61-080-00390</b>	<b>03</b>
		SHEET NO. 01	NO OF SHEETS 01

REV.	DATE	ALTERED	REV.	DATE	ALTERED UC
		CHD. APPD.	03	24.1.97	CHD. APPD.
ZONE			ZONE		DRAWING REDRAWN BY INCORPORATING ALL PREVIOUS REV.

DRG. NO. 3-61-080-00391

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36100391.DWG  
FILE NAME

REF. DRG. NO.

INVENTORY NO.

**NOTES:-**

- 01. BREAK ALL SHARP EDGES AND CORNERS.
- 02. TOLERANCE UNLESS OTHER WISE NOTED.  
CASTING:  $\pm 1.6$   
ANGULAR:  $\pm 0^{\circ}6'$

REV.	DATE	ALTERED	REV.	DATE	ALTERED
			03	23.3.04	RAZVI
ZONE		CHD. APPD.	ZONE		CHD. APPD.


DRAWING REDRAWN ON AUTOCAD INCORPORATING EARLIER CHANGES

ITEM NO.	CASTING	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	BA9114133717	5.60	
					AA19741		
					MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

**THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...**

- 1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- 2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- 3. INTERNAL M/CD CORNER RADII 1 TO 0.7.
- 4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

**TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT**

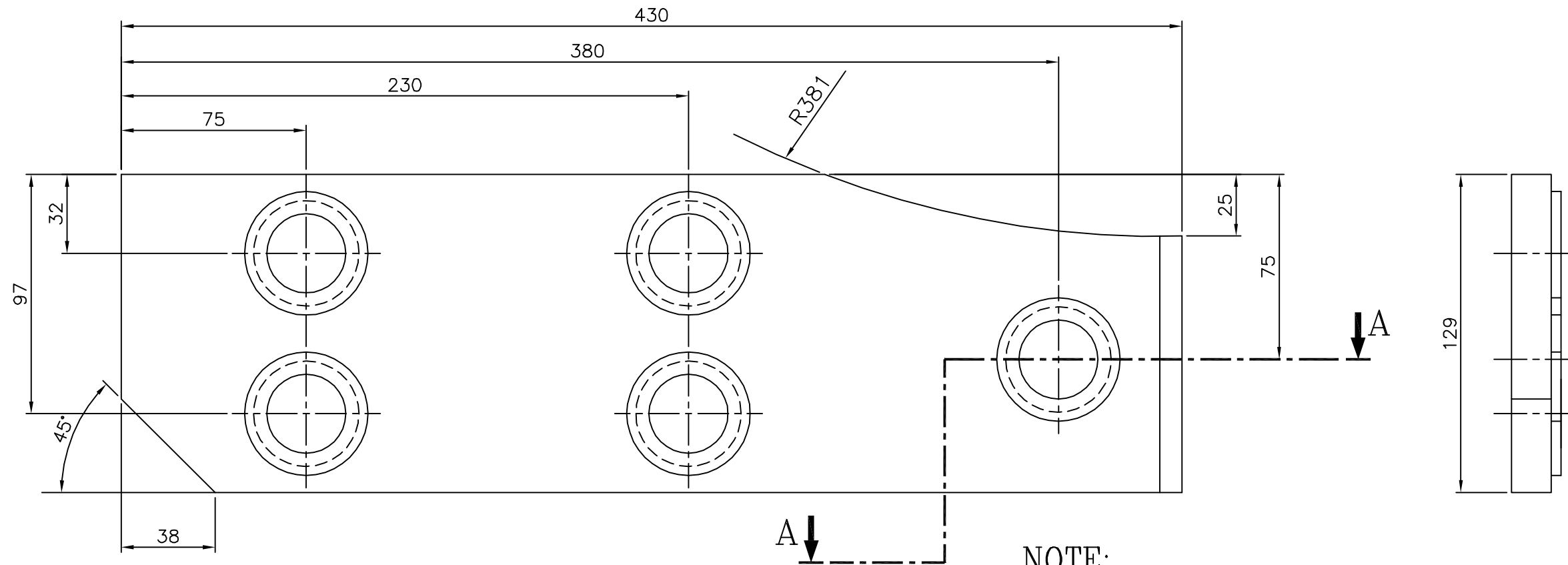
 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	NAME	SIGN.	DATE	NO. OF VAR.
	DRN. RAZVI		23.3.04	
	CHD. AMMAN		23.3.04	NA
APPD. S.GHATH		23.3.04		

DEPT. PULV ENGG.	SCALE	WEIGHT (KG)	REF. TO ASSY DRG. (B-80-652-0)	ITEM NO.	NO. OF ITEMS
CODE 446	1:2.5	5.60	1-61-080-00180	NA	03

TITLE	DRAWING NO.	REV.
<b>JOURNAL HEAD LINER III</b>	<b>3-61-080-00391</b>	<b>03</b>
	SHEET NO. 01	NO OF SHEETS 01

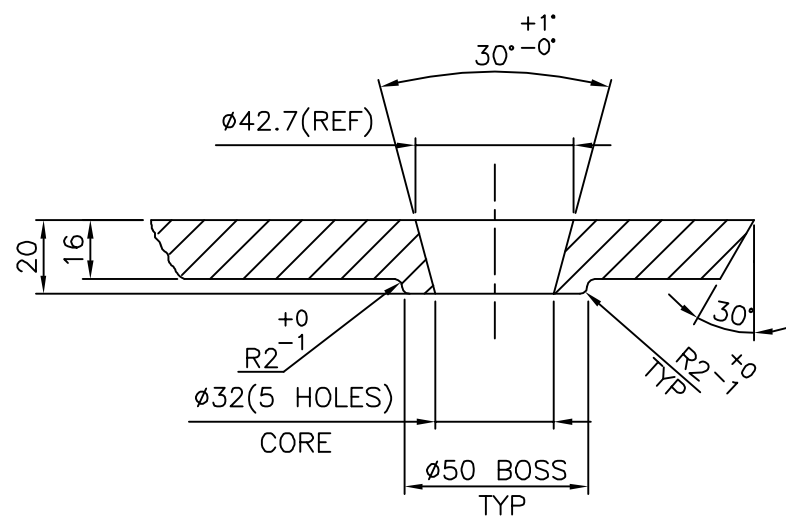
DRG. NO. 3-61-080-00392

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**NOTE:**

- BREAK ALL SHARP EDGES AND CORNERS.
- TOLERANCE, UNLESS OTHERWISE NOTED,  
 CASTING : ±1.5  
 ANGULAR : ±0.6'



**SECTION A-A**  
(SCALE 2:5)

1	CASTING				BA9114133733	7.20	
					AA19741		1
ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

**THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...**

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

**TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT**

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	NAME	SIGN.	DATE	NO. OF VAR.
	DRN. ASHOK		06.06.84	
	CHD. AMAN		02.08.84	
APPD. S.G		12.11.84	NA	

DEPT. PULV-ENGG	SCALE 1:2 2:5	WEIGHT (KG)	REF. TO ASSY DRG. (B-80-651-0)	ITEM NO.	NO. OF ITEMS
CODE 4460		7.20	1-61-080-00180	05	NA

TITLE	DRAWING NO.	REV.
<b>JOURNAL HEAD LINER IV</b>	<b>3-61-080-00392</b>	<b>04</b>
SHEET NO. 01	NO OF SHEETS 01	

REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED	04	10.05.05	CHECKED
		APPD.			APPD.
DRAWING IS REDRAWN ON ACAD INCORPORATING ALL PREVIOUS REVISIONS.					

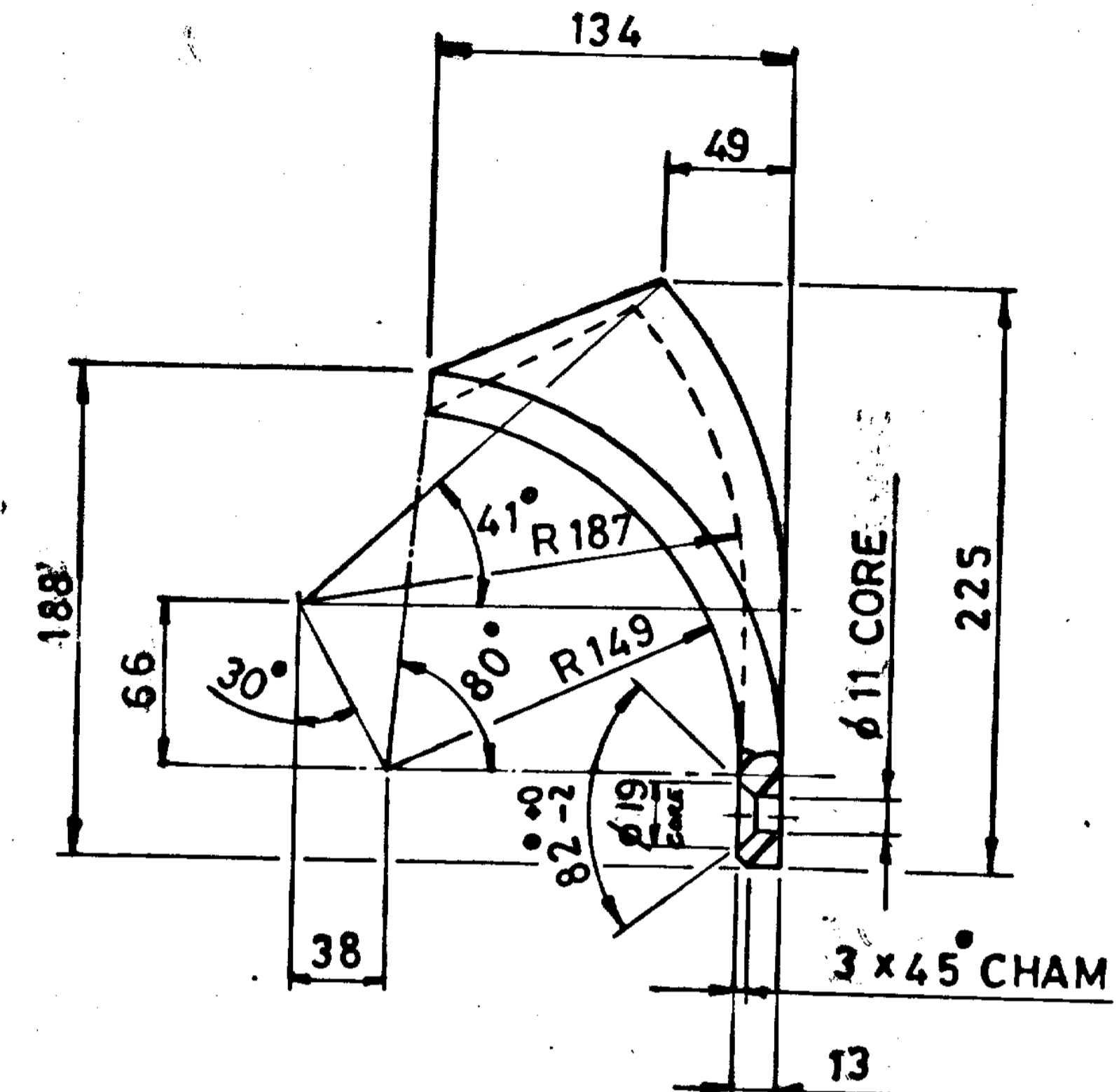
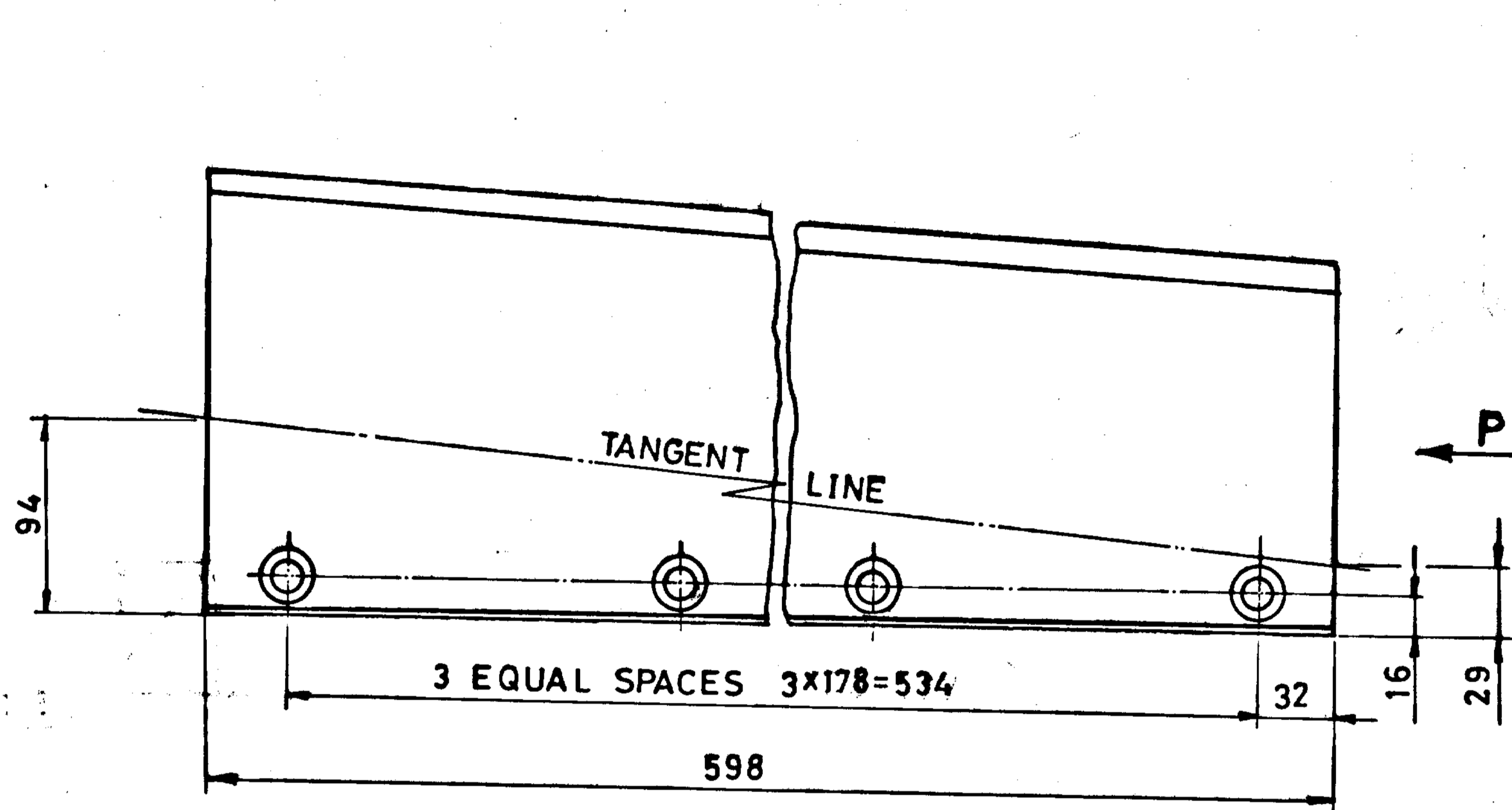


FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG NO 3-61-304-02337

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY



VIEW-P

NOTE:

1. BREAK ALL SHARP EDGES AND CORNERS.
2. CORED HOLES ARE TO BE CLEANED AND FREE FROM FINNS AND SAND.
3. DIMENSIONS & LOCATIONS OF THE CORED HOLES ARE TO BE ENSURED WITH A TEMPLATE.

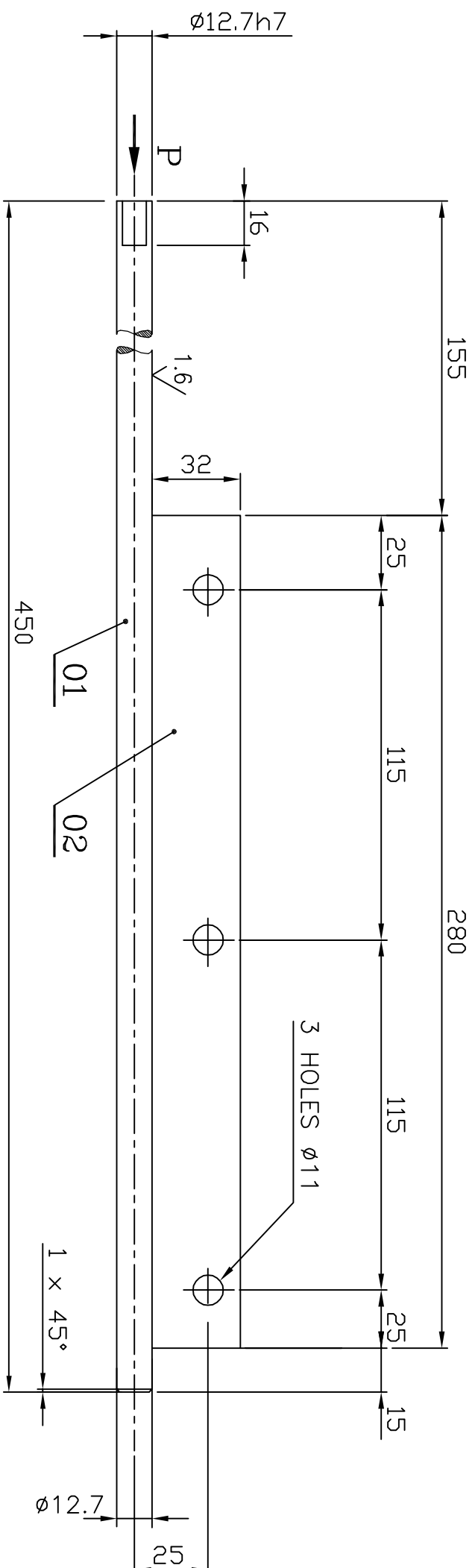
REFER PLANT STANDARD HY 0230261 FOR UNSPECIFIED TOLERANCES

VAR. 00		REMARKS		ITEM NO.		CASTING		BA9114-103079		13.00	
DESCRIPTION		DRAWING NO.		MATERIAL CODE		MATERIAL SPEC.		UNIT WT.		QTY.	
AA19741		77		49		54		65		72	
CARD TYPE-3		CARD TYPE-2		CARD TYPE-1		CARD TYPE-1		CARD TYPE-1		CARD TYPE-1	
ADDITIONAL INFORMATION						TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT					
STATUS OF DRAWING						CHANDRAPUR 500 MW					
DISTRIBUTION OF PRINTS						BHARAT HEAVY ELECTRICALS LTD. HYDERABAD					
REV. DATE		ALTERED CHECKED		REV. DATE		ALTERED CHECKED		DRN. NAME		SIGN. DATE	
ZONE		ZONE		ZONE		ZONE		DC		30-8-93	
DEPT. PULV ENG		GRADE OF TOL. DIM.		SCALE		WEIGHT (Kg)		REF. TO ASSY. DRG.		ITEM NO. NO. OF ITEMS	
CODE 446		C/M/F		NTS		13.00		CGP-2959		75 77	
TITLE						DRAWING NO.		REV.		NO. OF SHEETS	
DEFLECTOR BLADE						3-61-304-02337		100		01	
						SHEET NO. 01		NO. OF SHEETS 01			

36100653.DWG

WPS No. WE 006

12.5 / 6.3 / 1.6



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INVENTORY NO.	REF.DRG.NO.	FILE NAME
		36100653.DWG

REV.	DATE	ALTERED	CHD.	N.D.S	APPD.	S.G	ZONE
02	22.12.05	CHD.	N.D.S	APPD.	S.G		Ø8X12 STEP REMOVED. Ø12.7 h7 WAS Ø12.7±0.01.
REV.	DATE	ALTERED	CHD.	N.D.S	APPD.	S.G	ZONE
01	2.11.02	CHD.	N.D.S	APPD.	S.G		DRG.RETRACED.

VIEW-P

ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.	QUANTITY
02	PL. 6x32x280				AA 10108		0.420	1
01	ROD Ø16x455				HY 1010299086	0.440		1
					HY 10199			1

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...  
 1. REF.TO HY0230261 FOR UNSPECIFIED TOLERANCES.  
 2. CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.  
 3. INTERNAL M/CD CORNER RADII 1 TO 0.7.  
 4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT		NAME OF CUSTOMER/PROJECT	
OR		BHARAT HEAVY ELECTRICALS LTD.	
DEPT. B.M.D		HYDERABAD	
CODE 446	SCALE N.T.S	WEIGHT (KG) 0.860	
TITLE		DEFLECTOR HINGED SHAFT	
DRAWING NO.		3-61-362-00653	
SHEET NO. 01		NO OF SHEETS 01	

DRG. NO. 3-61-380-00375

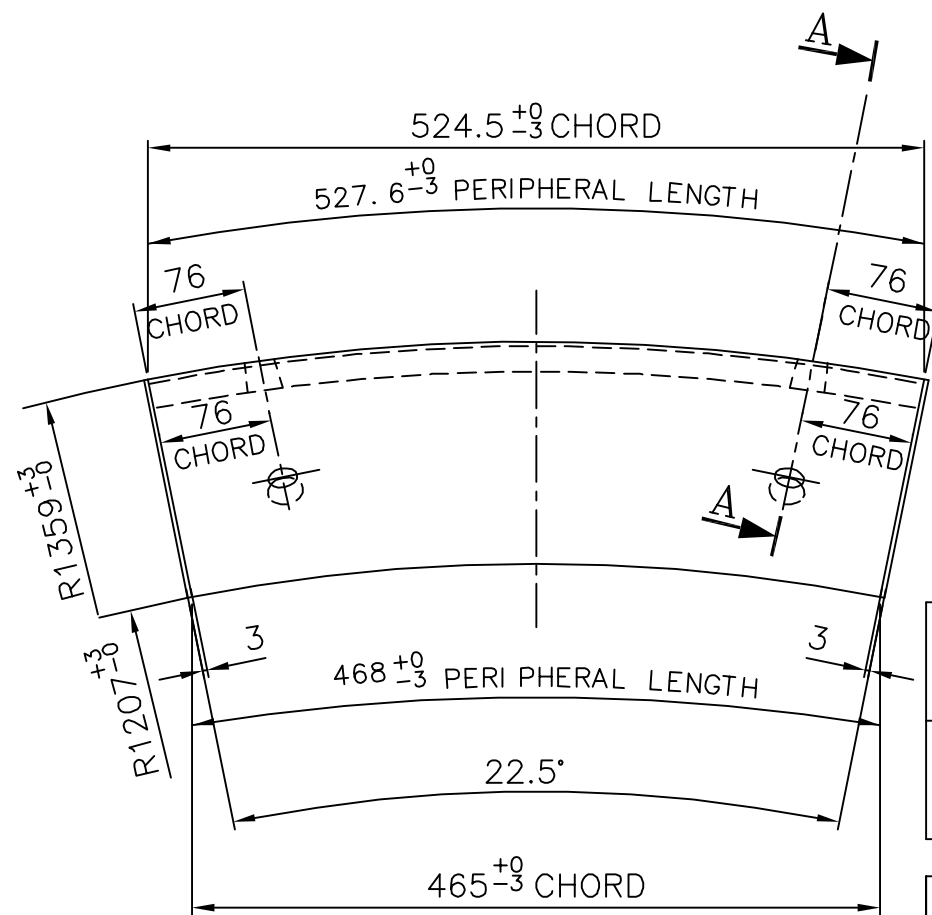
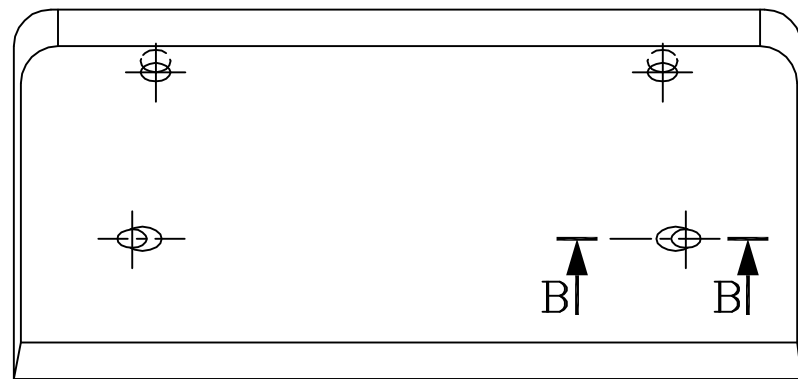
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LTD. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

36100375.DWG  
FILE NAME

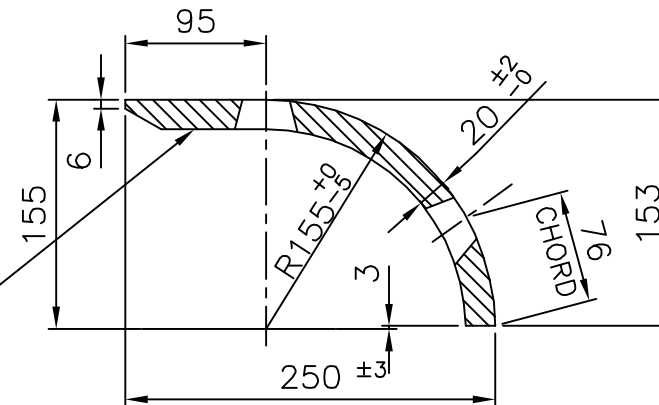
3-61-380-00376  
REF. DRG. NO.

INVENTORY NO.

REV.	DATE	ALTERED	REV.	DATE	ALTERED UC
		CHD. APPD.	03	06.08.97	CHD. APPD.
ZONE			ZONE		DRAWING REDRAWN BY INCORPORATING THE PREVIOUS REV.



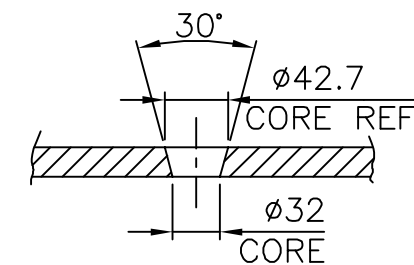
CAST PATTERN NO. 3-61-380-00375  
THIS SIDE 3mm MAX. HEIGHT  
IF RAISED LETTERS ARE USED



SECTION-AA

NOTES:-

- 01. BREAK ALL SHARP EDGES & CORNERS UNLESS OTHERWISE NOTED.



SECTION-BB  
(4 PLACES)

ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
	SEPARATOR TOP LINER (CASTING)				BA9114133474	25.10	
					AA19741		
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT



BHARAT HEAVY ELECTRICALS LTD.  
HYDERABAD

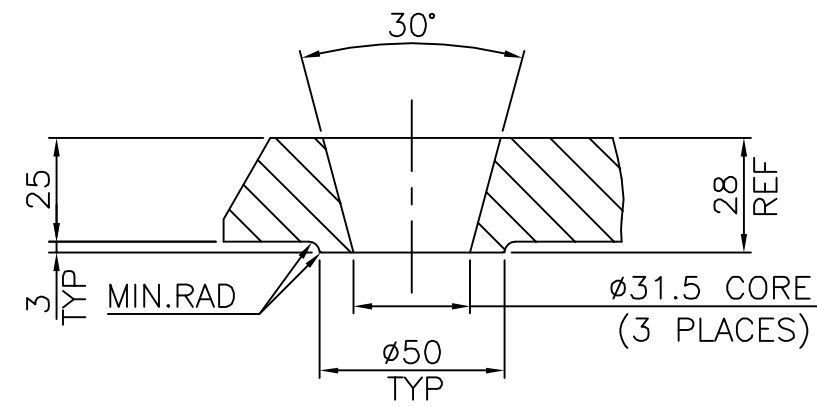
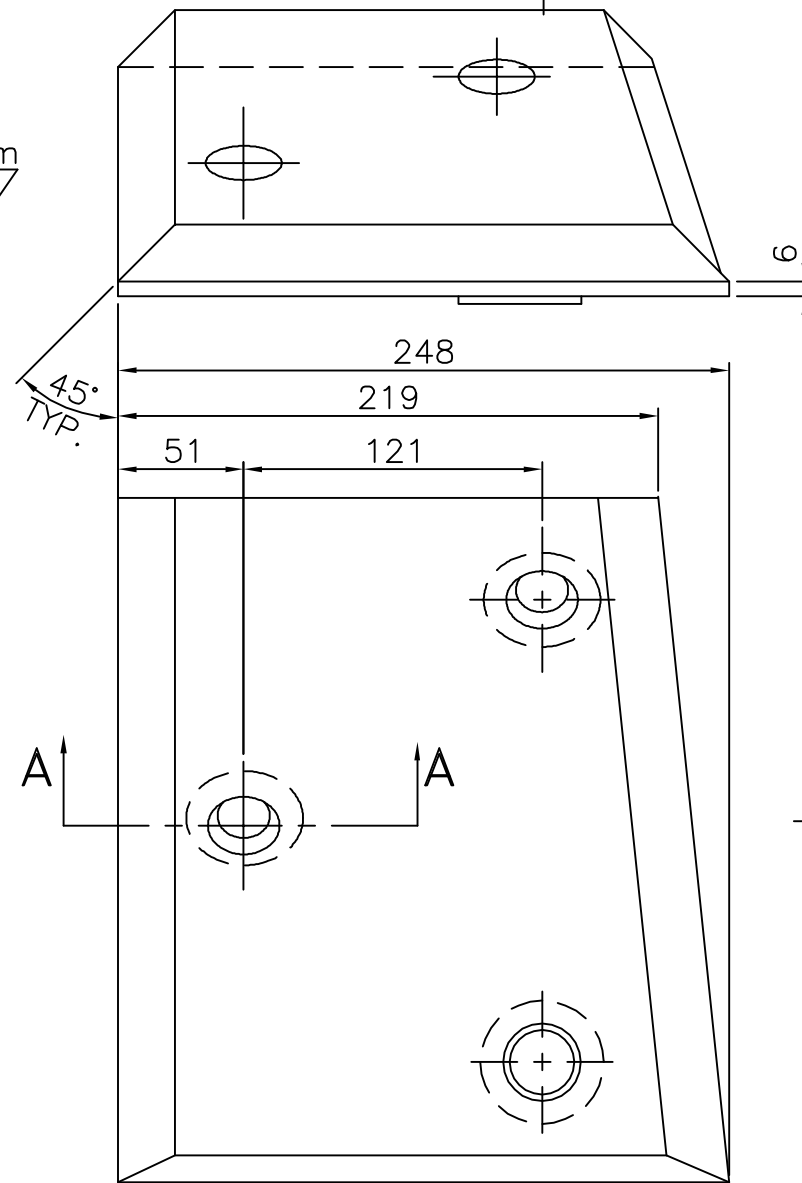
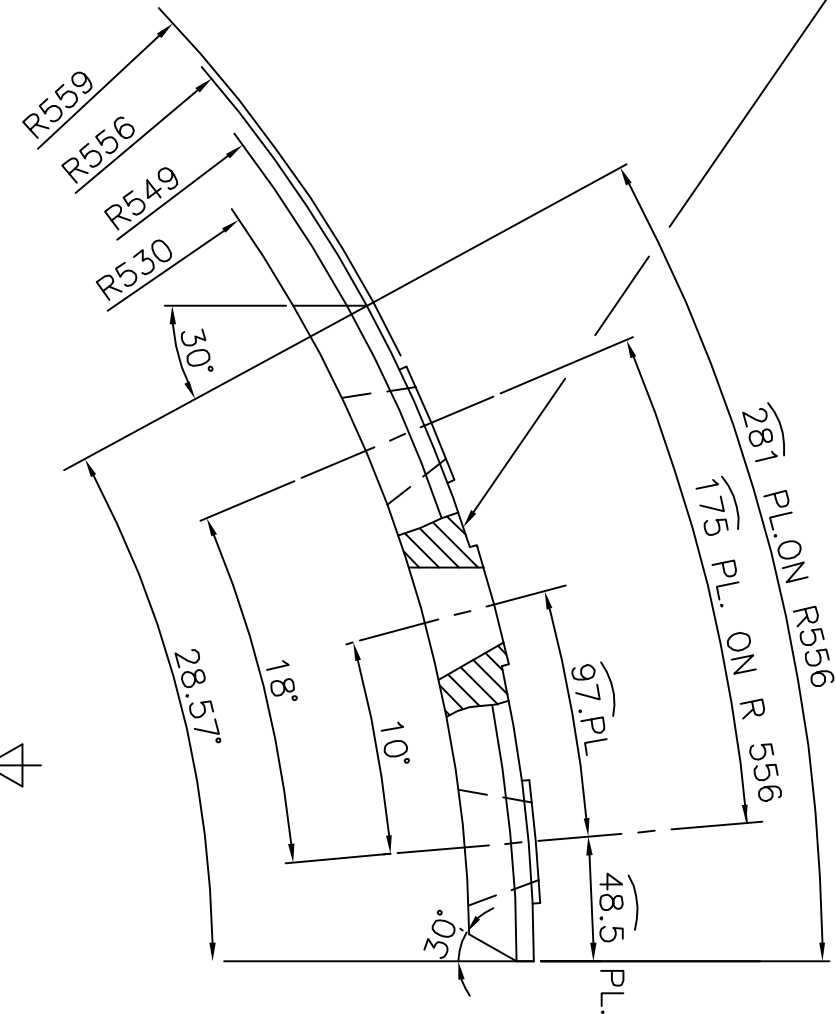
DEPT. PULV ENGG.	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
CODE 446	1:5	2510	(C-80-481-0)		01
TITLE			DRAWING NO.	REV.	
SEPARATOR TOP LINER			3-61-380-00375	03	
			SHEET NO. 01	NO OF SHEETS	01

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-61-388-02015

CAST PART INFORMATION ON THIS SURFACE LETTER SIZE 10mm



SECTION-AA

NOTE:-

1. ALL RADII TO BE R1.5 UNLESS OTHERWISE SPECIFIED
2. CASTING TOL.SHOULD BE WITHIN  $\pm 0.0$  /  $-1.6$  ANGULER 0°6'
3. PATTERN NO.3-61-388-02015
4. BREAK ALL SHARP EDGES & CORNERS UNLESS OTHERWISE NOTED.

01	CASTING				BA9114134802	12.60
					AA19741	1
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	GROSS WT.
					MATERIAL SPECN.	QUANTITY

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD. CORNER RADII 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT

883 XRP BOWL MILL

NAME OF CUSTOMER/PROJECT

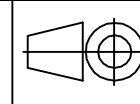


BHARAT HEAVY ELECTRICALS LIMITED  
HYDERABAD

DRN.	NAME	SIGN.	DATE	NO.OF VAR.
	SCS/ACAD		30.09.03	
	GSNMR		30.09.03	
	TMRAO			

DEPT. PULV ENGG. CODE 446

UNTOL. DIMS. GR.  $\phi$ /M/F



SCALE NTS

WEIGHT (KG) 12.6

REF. TO ASSY DRG. 2-61-388-02109

ITEM NO. 9 NO.OF ITEMS 15

TITLE JOURNAL OPENING FRAME LINER

DRAWING NO. 3-61-388-02015 01  
SHEET NO. 01 NO OF SHEETS 01

COMPUTER FILE NAME THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

36138802015.DWG B-94-552/2

SIGN. AND DATE REF. DRG. NO. INVENTORY NO

REV.	DATE	ALTERED	SCS
01	30.09.03	CHD/APPD	GSNMR/TMRAO

DRG.REDRAW IN ACAD.

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-61-388-02019

COMPUTER FILE NAME 36138802019.DWG

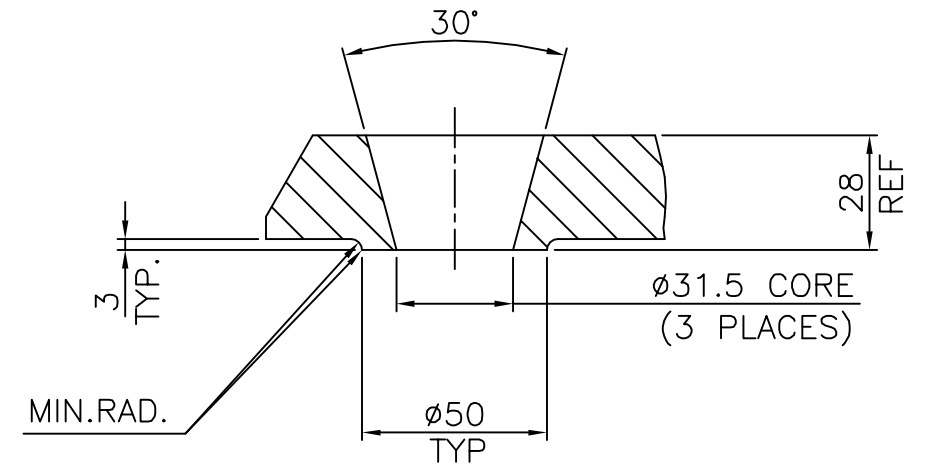
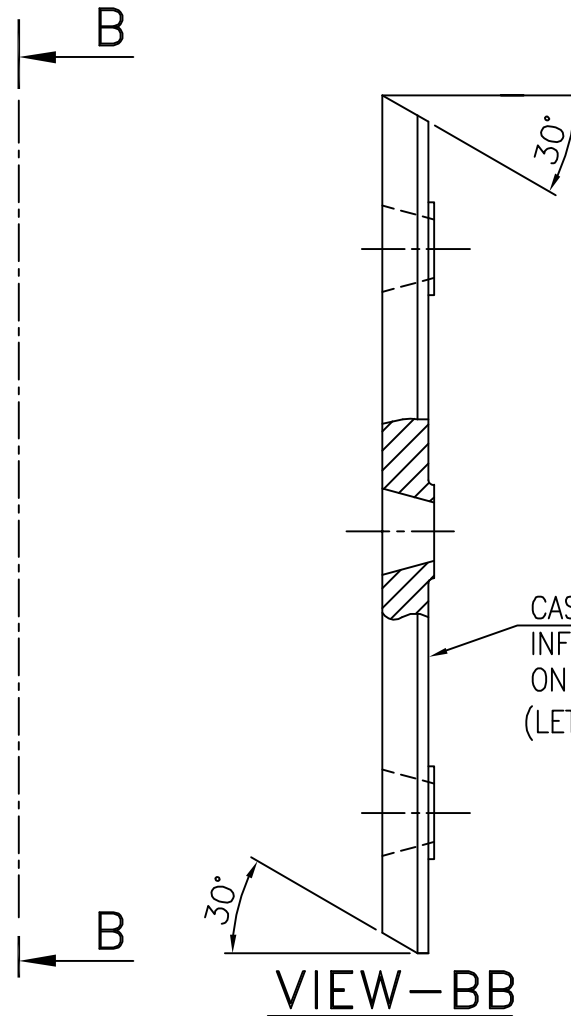
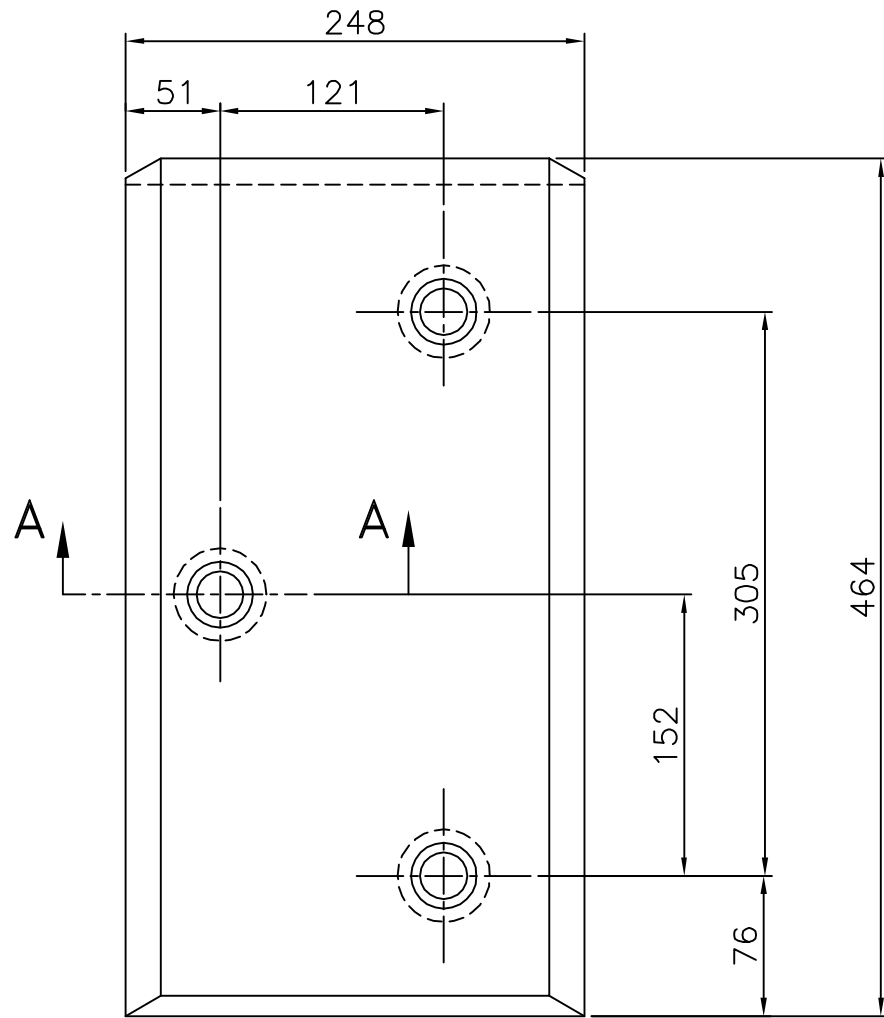
SIGN. AND DATE REF. DRG. NO. B-94-1045/0

INVENTORY NO

REV. DATE ALTERED SCS

01 30.09.03 CHD/APPD GSNMR/TMRAO

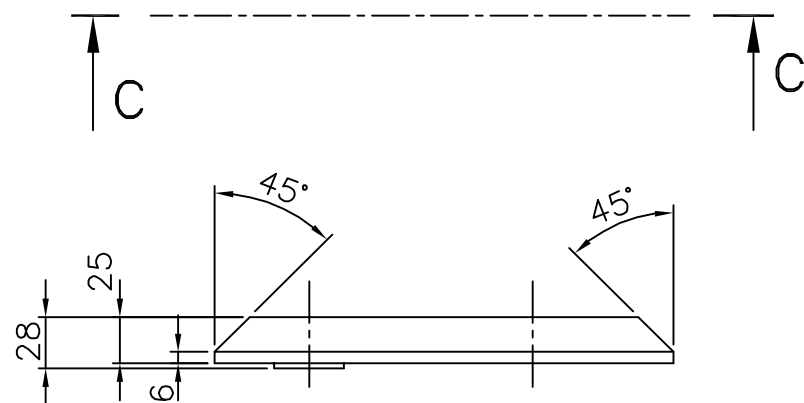
DRG. REDRAWN IN CAD.



SECTION-AA

NOTE:-

1. ALL RADII TO BE R1.5 UNLESS OTHERWISE SPECIFIED.
2. CASTING TOL. SHOULD BE WITH IN +0.0 -1.6 ANGULER 0°6'
3. PATTERN NO. 3-61-388-02019.
4. BREAK ALL SHARP EDGES & CORNERS UNLESS OTHERWISE NOTED.



VIEW-CC

01	CASTING				BA9114134845	22.0	
					AA19741		1
ITEM NO.	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG. NO. OR FORGING DRG. NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED.

1. REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
2. CHAMFER M/CD. SHARP EDGES 1.2 TO 1.0 AT 45°.
3. INTERNAL M/CD. CORNER RADII 1 TO 0.7
4. THE SURFACE ROUGHNESS WHERE-EVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE THE BACK SLASH GIVEN OR THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT

883 XRP BOWL MILL

NAME OF CUSTOMER/PROJECT



BHARAT HEAVY ELECTRICALS LIMITED HYDERABAD

NAME	SIGN.	DATE	NO. OF VAR.
SCS/ACAD		30.09.03	
CHD.	GSNMR	30.09.03	
APPD.	TMRAO		

DEPT. PULV ENGG. CODE 446	UNTOL. DIMS. GR. $\phi$ /M/ $\phi$	SCALE 1:4	WEIGHT (KG) 22.00
---------------------------	------------------------------------	-----------	-------------------

TITLE JOURNAL OPENING FRAME LINER-III

REF. TO ASSY DRG. 2-61-388-02109	ITEM NO. 3	NO. OF ITEMS 15
----------------------------------	------------	-----------------

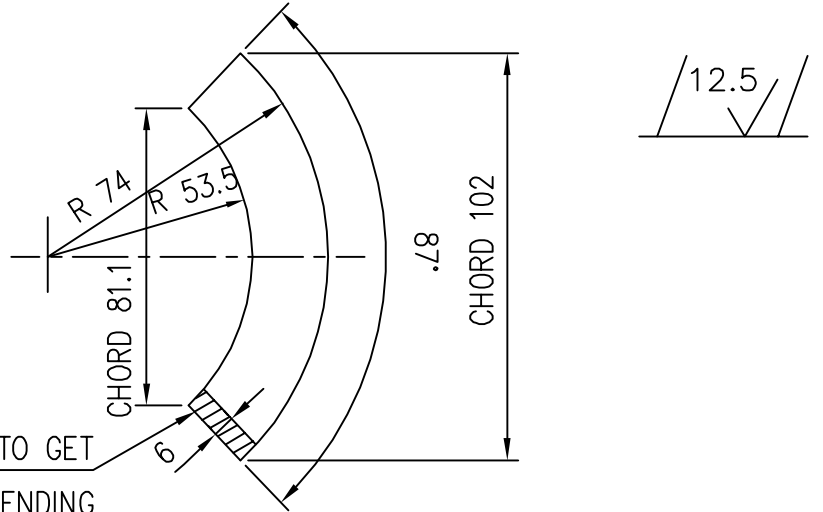
DRAWING NO. 3-61-388-02019 01

SHEET NO. 01 NO OF SHEETS 01

REV. 03	DATE 09.10.98	ALTERED CHECKED APPROVED	REV. 04	DATE 19.10.05	ALTERED CHECKED APPROVED V.KUMAR	REV.	DATE	ALTERED CHECKED APPROVED
DRAWING REDRAWN ON CAD INCORPORATING ALL THE PREVIOUS REVISIONS.			Ø30 WAS Ø33. AND Ø40 WAS Ø43.7 ANGLE 28° WAS 30°. DEV. LENGTH CHANGED. REVISION MADE AS PER SHOP FEEDBACK					

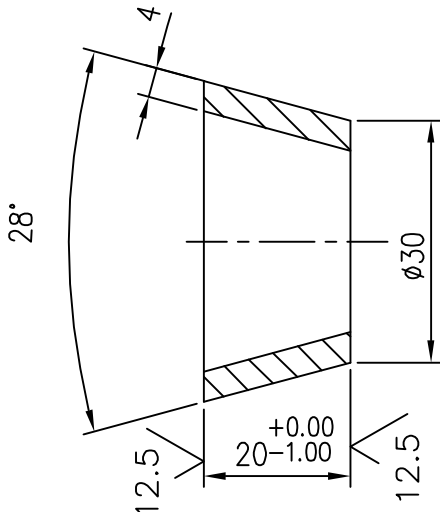
**NOTES:-**

- BREAK ALL SHARP EDGES AND CORNERS UNLESS OTHERWISE NOTED.
- TOLERANCES UNLESS OTHERWISE UNLESS OTHERWISE SPECIFIED  
DECIMAL ± 0.13 mm.  
ANGULAR ± 0°-6'

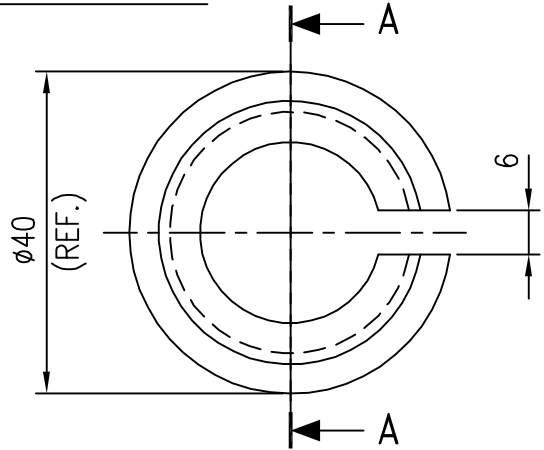


CUT OFF THE HATCHED PORTION TO GET A GAP OF 6 mm. AFTER BENDING

**DEVELOPED VIEW**



**SECTION A-A**



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SHEET		4 x 38 x 102	AA1011711168	0.13	
			AA10111		1
DESCRIPTION & DRG. No.	VAR No.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATL. CODE	NET.WT.	GROSS WT
			MATL. SPECN.	QTY.	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.			BHARAT HEAVY ELECTRICALS LTD. HYDERABAD		NAME	SIGN	DATE	NO.OF VAR.
	DRN.	N.D.S.					09.10.98	
	CKD.	S.G					09.10.98	
	APPD.	K.M.R					09.10.98	
DEPT. PULV. ENGG.	GRADE OF TOL. DIM.		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM No.	No.OF ITEM	
CODE 446	Ø/M/F		1:1 & 1:2	0.13	-	-	-	
TITLE					DRAWING No.			REV.
<b>WELDING PLUG - 1"</b>					<b>4-61-162-00749</b>			<b>04</b>
					SHT. No. 1	No. OF SHT. 1		



## CORPORATE PURCHASING SPECIFICATION

AA 197 41

Rev. No. 03

PAGE : 1 OF 5

### ABRASION RESISTANT IRON CASTINGS

#### 1.0 GENERAL:

This specification governs the quality requirements of Abrasion Resistant Iron Castings, having good resistance to both low and high stress abrasion.

#### 2.0 APPLICATION:

Used as liners and segments for wear resistance.

#### 3.0 CONDITION OF DELIVERY:

Stress relieved.

As cast unless otherwise specified in BHEL order/drawing.

Castings shall not be painted.

#### 4.0 COMPLIANCE WITH NATIONAL STANDARDS:

The material shall comply with the requirement of the following national standard and also meet the requirements of this specification.

IS: 4771 – 1985 | Abrasion resistance iron castings.  
Type 1A: NiCr 34/550

#### 5.0 DIMENSION AND TOLERANCES:

Castings shall be true to the pattern / drawing.

Holes for machining up to including 50mm in diameter are to be cast solid, unless otherwise stated on BHEL order / drawing.

Unless otherwise specified on BHEL order/ drawing, untoleranced dimensions for the casings shall be as per tolerance class 4 of BHEL standard AA 023 04 02.

#### 6.0 MANUFACTURE:

The iron for the castings shall be melted in an electric furnace or by any other suitable melting process as may be agreed to between BHEL and manufacturer.

Revisions :  
Refer 28.8.38 of MOM of MRC-FCF+ HTM

APPROVED :  
INTERPLANT MATERIAL RATIONALISATION  
COMMITTEE-MRC (FCF + HTM)

Rev. No. 03	Amd.No.	Reaffirmed	Prepared	Issued	Dt. of 1 <sup>st</sup> Issue
Dt:15.01.2004	Dt :	Year :	TRICHY	Corp. R&D	JANUARY, 1978

**7.0 HEAT TREATMENT:**

All castings shall be stress relieved at a temperature of 210 - 235<sup>0</sup> C for a minimum soaking period of 4 hours.

Test pieces shall also be stress relieved along with the castings they represent.

**8.0 FINISH:**

All castings shall be properly fettled and dressed and all surfaces shall be thoroughly cleaned. Whenever specified, the machined surfaces shall have the surface finish as indicated in the drawing.

**9.0 FREEDOM FROM DEFECTS:**

Castings shall be free from defects such as porosity, blow holes, sand inclusions, shrinkage, cavities, hard spots, cold shuts, cracks, etc., which may adversely affect machining and utility of castings.

**10.0 CHEMICAL COMPOSITION:**

The melt analysis of the iron shall be as follows:

Element	<u>Melt analysis, Percent</u>	
	Min.	Max
Carbon	3.2	3.6
Silicon	0.3	0.6
Manganese	0.3	0.6
Nickel	3.0	5.5
Chromium	1.5	2.5
Molybdenum	--	0.5
Sulphur	--	0.150
Phosphorus	--	0.300
Iron	Remainder	

**Note:**

The amount of silicon, chromium and nickel shall be balanced depending upon the carbon content and the thickness of the castings to ensure of free graphite and coarse bainite. Graphite carbon should not exceed 0.1 percent.



## CORPORATE PURCHASE SPECIFICATION

AA 197 41

Rev. No. 03

PAGE: 3 OF 5

### 11.0 TEST SAMPLES:

#### 11.1 Chemical Analysis:

The foundry shall analyse each heat for chemical composition. A simple way to obtain chips is to dip a cooled mild steel bar in the liquid metal and withdraw quickly. The solidified iron can be easily knocked off the bar with a hammer. The chips must be free from sand, carbon and other contaminations.

#### 11.2 Hardness Test:

The foundries shall pour the test bar of size 150 X 150 X 25 mm for each heat representing each heat treatment batch. When possible, the test bar shall be cast integrally with the castings so as to receive the same cooling rate. All the test specimens shall be identified with heat numbers by proper painting.

### 12.0 MECHANICAL PROPERTIES:

#### Hardness (Brinell):

Hardness shall be measured as per IS:1500 on the test blocks and on castings at random by a hardness tester using 10 mm diameter tungsten carbide ball. The hardness shall not be less than 550 HB.

**Note:** Minimum hardness value upto 50 Brinell points lower than specified shall be permitted for castings having sectional thickness above 125 mm.

### 13.0 MICROSTRUCTURE:

This shall consist of carbides in a matrix of martensite, bainite and austenite and shall be free from graphite, pearlite and ferrite.

### 14.0 ADDITIONAL TESTS:

#### 14.1 Magnetic particle inspection:

As per BHEL standard AA 085 01 33 and norms of acceptance as per BHEL standard AA 085 01 34.

#### 14.2 If specified on the drawing/order, castings shall be subjected to non-destructive testing.

Norms of acceptance shall be as per mutual agreement between BHEL and the manufacturer.

### 15.0 REPAIR OF CASTINGS:

Repair of castings shall not be carried out by the manufacturer without the prior permission of BHEL.

**16.0 TEST CERTIFICATES:**

Three copies of test certificates shall be supplied unless otherwise stated on BHEL order, preferably in the test certificate format annexed to this specification (Annexure -1).

In addition, the supplier shall ensure to enclose one copy of the test certificate along with their despatch documents to facilitate quick clearance of the material.

The test certificate shall bear the following information:

Dimensional inspection.

Details of heat treatment.

Reduction ratio

Chemical composition

Results of mechanical tests

Results of additional tests called for in the order / drawing.

**17.0 PACKING AND MARKING:**

Castings shall be suitably packed to prevent corrosion and damage during transit. Machined surfaces shall be properly protected with anticorrosive compounds.

Each package or casting (when supplied separately) shall be legibly marked with the following information.

AA 197 41: Abrasion resistant iron castings

BHEL Order No.

Consignment/Identification No.

Melt No.

Weight

Supplier's Name

**18.0 REFERRED STANDARDS (Latest Publications Including Amendments):**

1. AA 023 04 02

2. AA 085 01 33

3. AA 085 01 34

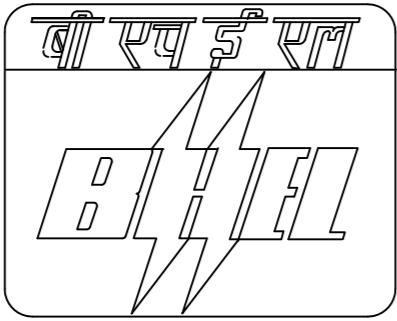
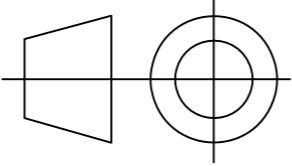
4. IS : 1500

5. IS:4771



**ANNEXURE 1 - RECOMMENDED TEST CERTIFICATE FORMAT FOR CASTINGS**

SUPPLIERS'S NAME AND ADDRESS												
1. Customer :						6. Cast No. & Date :						
2. TC No. & Date :						7. Batch No. :						
3. PO No. :						8. Heat Code :						
4. Process of Melting :						9. Spec.. No. :						
5. Deoxidisation Process						10. Test Bar Size						
II. CASTING COVERED BY T.C.												
Sl. No.	Drawing No. & Item No.					Description	Quantity & Weight					
12. CHEMICAL COMPOSITION (PERCENT)												
Element	C	Si	Mn	S	P							
As per Min.												
Spec. Max..												
Actual Values.												
13. HEAT TREATMENT (To be accompanied by Recorder Chart, wherever called for)												
Condition	Temp. °C				Soaking Time. Hrs..				Cooling Medium			
14. MECHANICAL PROPERTIES												
	T.S. N/mm2	Y.S. 0.50,2% Proof N/mm2	% E on GL 5.65 SO	% R.A. Mn	Hardness BHN Min. 3 Values	Impact Value, Joules	Bend					
As per Min.												
Spec. Max.												
Actual Values.												
15. Surface Finish (When called for in the order/drg)												
16. DIMENSIONAL INSPECTION												
17. NON-DESTRUCTIVE TESTS												
Nature of Test	Acceptance Level	Instrument used	Range	Results	Any other details							
Ultrasonic												
Radiographic												
Dye Penetrant/ Magnetic Particle												
18. OTHER TESTS, IF ANY (MICRO- Scope, Hydraulic, Etc.)												
19. IDENTIFICATION ON CASTING AS PER CPS.												
We hereby certify that the items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specifications and purchase order.												
Signature & Seal of the Inspecting Officer (Purchase Representative)						Signature and Seal of the Chief of Quality Control Chief Metallurgist of the Supplier.						
Date :						Date :						
<b>INSTRUCTION:</b>												
a) If steel is produced by LD or Oxygen process, Nitrogen content should be furnished and shall not exceed 0.009%												
b) Test Certificates are to be furnished as per Purchase Order and Specifications, in A4 Size transparent paper.												
c) All the entries including signature should be in black ink.												
d) If testing is done by outside agencies, the original TCs shall be furnished.												
e) The actual Test Certificate may run into more than one A4 size paper, if needed, to facilitate filling up of details.												

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	
		CHECKED			CHECKED			CHECKED	
		APPROVED			APPROVED			APPROVED	
JR.HEAD LINER-V		5	3-61-080-00393		AA19741	1			
JR.HEAD LINER-IV		4	3-61-080-00392		AA19741	1			
JR.HEAD LINER-III		3	3-61-080-00391		AA19741	1			
JR.HEAD LINER-II		2	3-61-080-00390		AA19741	1			
JR.HEAD LINER-I		1	2-61-080-00420		AA19741	4			
DESCRIPTION		S.NO.	DRAWING NO.		MATL. CODE	UNIT WT.(Kg.)			
					MATL. SPECN.	QTY.			
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
INVENTORY NO.	SIGN. & DATE	REF. DRG. NO.	COMPUTER NO.	 BHARAT HEAVY ELECTRICALS LTD. VARANASI		NAME	SIGN	DATE	NO.OF VAR.
				DRN.	D.BASAK		04.12.03		
				CKD.	S.TEWARI		04.12.03		
				APPD.	V.KUMAR		04.12.03		
DEPT. P&D			NTS	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM		
CODE									
TITLE SET OF JR. HEAD LINERS					DRAWING NO. HY-204.00			REV. 00	
					SHT.NO. 01	NO.OF SHT. 01			

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Rv1920250673

S.NO.	DESCRIPTION	DRG.NO.	QTY.	WEIGHT(KG.)
1	JR. HEAD LINER	2-61-088-02062	2	10
2	JR. HEAD LINER	2-61-088-02061	1	16
3	JR. HEAD LINER	2-61-088-02060	1	16
<b>JR. HEAD LINER SET</b> Matl. AA19741				
<b>HY-901.09.01.A</b>				

*Vikas*

(VIKAS VERMA)

Dy. Manager  
P&D.

BHEL- Varanasi



**PLANT STANDARD  
HYDERABAD**

**HY0230261**

**REV. NO. 03**

**PAGE 1 OF 2**

**LIST OF APPLICABLE STANDARDS ON LIMITS, FITS AND TOLERANCES**

**1.0 SCOPE:**

The standard covers the list of applicable standards on Limits, Fits and Tolerances. These standards are applicable unless or otherwise specified.

**2.0 LIST OF APPLICABLE STANDARDS:**

SL. NO.	STANDARD NO.	TITLE
1.	AA0230201 -	Limits and Fits (Tolerance grade, Position and Class).
2.	AA0230202 -	Limits and sizes for commercial bolts and nuts.
3.	AA0230204 -	Guide for selection of Fits.
4.	AA0230206 -	Standard limits for Shafts (upto 500 mm).
5.	AA0230207 -	Standard limits for Shafts (above 500 mm and upto 3150 mm).
6.	AA0230208 -	Allowable deviations for dimensions without specified tolerances (linear and angular).
7.	AA0230402 -	Permissible deviations for untoleranced dimensions of castings.
8.	AA0230403 -	Tolerancing system ISO Metric Screw Threads
9.	AA0621101 -	Tolerances and Machining allowances for Flame cutting.
10.	AA0621104 -	General tolerances for welding constructions for length and angles.
11.	AA0621105 -	General tolerances for welded structures – form and position.

**Revisions:**

**Issued :**

**Withdrawn standards deleted (2 Nos.).**

**STANDARDS ENGINEERING DEPARTMENT**

**Rev. No. 03**

**Amd. No.**

**Reaffirmed:**

**Prepared:  
MANAGER  
(STDS. ENGG.)**

**Approved:**

**AGM (E&CC)**

**Date of 1<sup>st</sup> issue:**

**Dt. OCT. 06**

**Dt.**

**Year:**

**MAY, 1992**

**HY0230261**

**REV. NO. 03**

**PAGE 2 OF 2**

**PLANT STANDARD  
HYDERABAD**



NOTE:

1) AA 023 02 08

Medium class of deviation is applicable, if the same is not mentioned on the drgs./specs.

2) AA 023 04 02

Tolerance class 5 is applicable, if the same is not mentioned on the drgs./specs.

3) AA 062 11 04

Accuracy class A is applicable if the same is not mentioned on the drgs.

4) AA 062 11 05

Accuracy class E is applicable, if the same is not applicable on drgs.

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**BHEL-HERP, VARANASI**  
QUALITY PLAN

NIHARD Casting

AA19741 (IS:4771-1985, Type 1A: NiCr 34/550)

SI.No.	Component/ Operation	Characteristic Checked	Type/Method of Check	Extent of Check	Reference Documents	Acceptance Norm	Format of Record	Agency			Remarks
								P	W	V	
1.0	Casting	i. Composition	Chemical Analysis	1 Sample per melt.	Tech.Specn. AA19741	Tech.Specn. AA19741	TC	3	-	2	
		ii. Hardness	Hardness Testing	03 Sample per melt.	-do-	-do-	TC	3	2	-	
		iii. Heat Treatment	H.T. Chart	1 Sample per HT batch	-do-	-do-	HT	3	-	2	
		iv. Mechanical Properties	Mechanical Test	-do-	-do-	-do-	TC	3	-	2	
		v. Micro Structure	Micro Scope	-do-	-do-	-do-	IR	3	-	2	
		vi. Surface Defects	Visual	100%	Free from defects	Free from defects	IR	3	2	-	
		vii. Dimensions	Measurement	100% by vendor Random 10% by BHEL Representative	Drawings	Drawings	DR	3/2	2	-	
		viii. Weight	Measurement	100% by vendor Random 10% by BHEL Representative	---	---	Wt report/ Piece	3/2	2	-	
		ix. Identification & Marking	Punching Heat, PO No., Drg.No. & Inspector seal	100%	---	---	IR	3/2	2	-	
Q.P.No.	RV/C&F/03 Rev-02	Approved by		Legend	P=Perform W=Witness V=Verify 2=BHEL 3=Vendor/Supplier 2=Inspection Agency nominated by BHEL HERP	TC=Test Certificate HT=Heat Treatment DR=Dimension Report IR=Inspection Report					
Date	11-01-2019	Signature & Date									
Page No.	1 of 1	BHEL									

Rev-02: Witness of Hardness Testing Added.

*Prajapati*  
11/01/19  
**प्रदीप कुमार प्रजापति/P.K. Prajapati**  
उप० प्रबंधक (अ० एवं वि०)/Dy. Manager (E&M)  
भारत हेवी इलेक्ट्रिकल्स लि० / BHEL-HERP  
तरना, शिवपुर, वाराणसी/Tarna, Shivpur, Varanasi