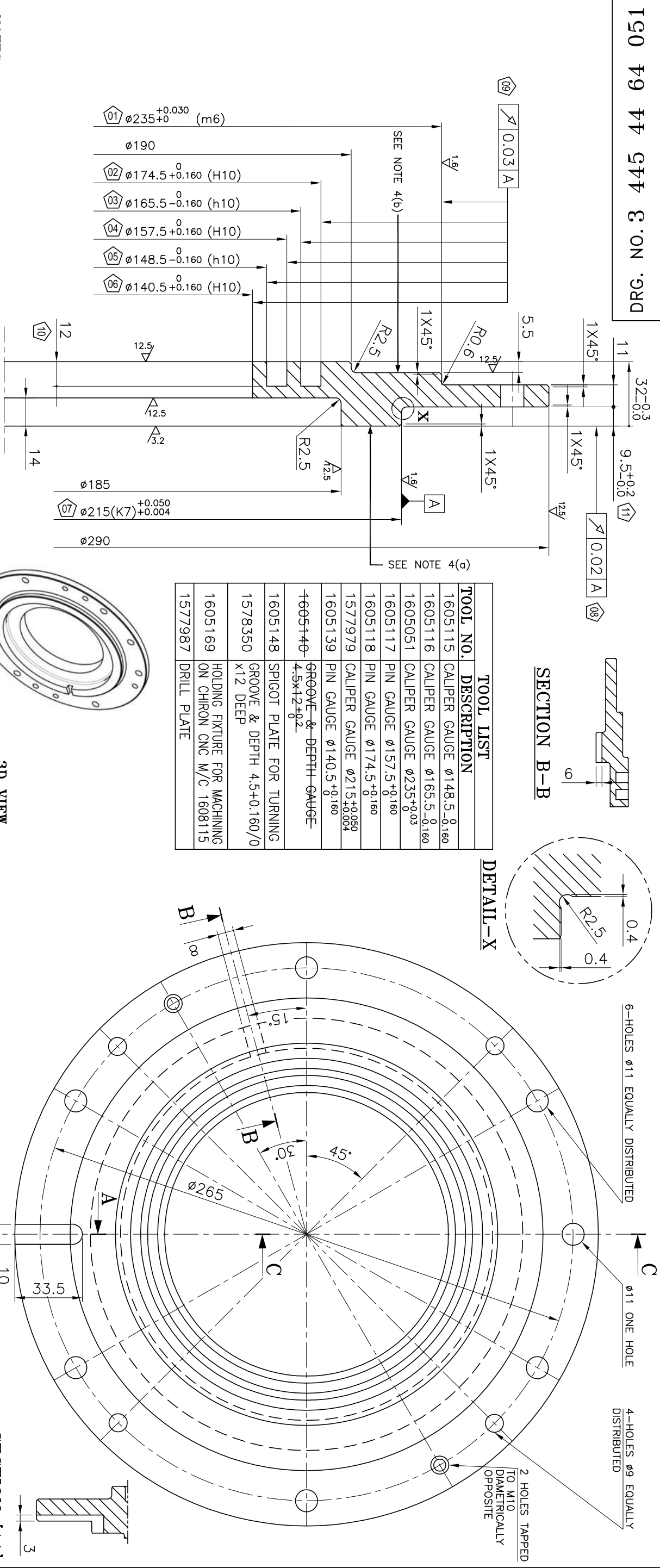


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WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

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



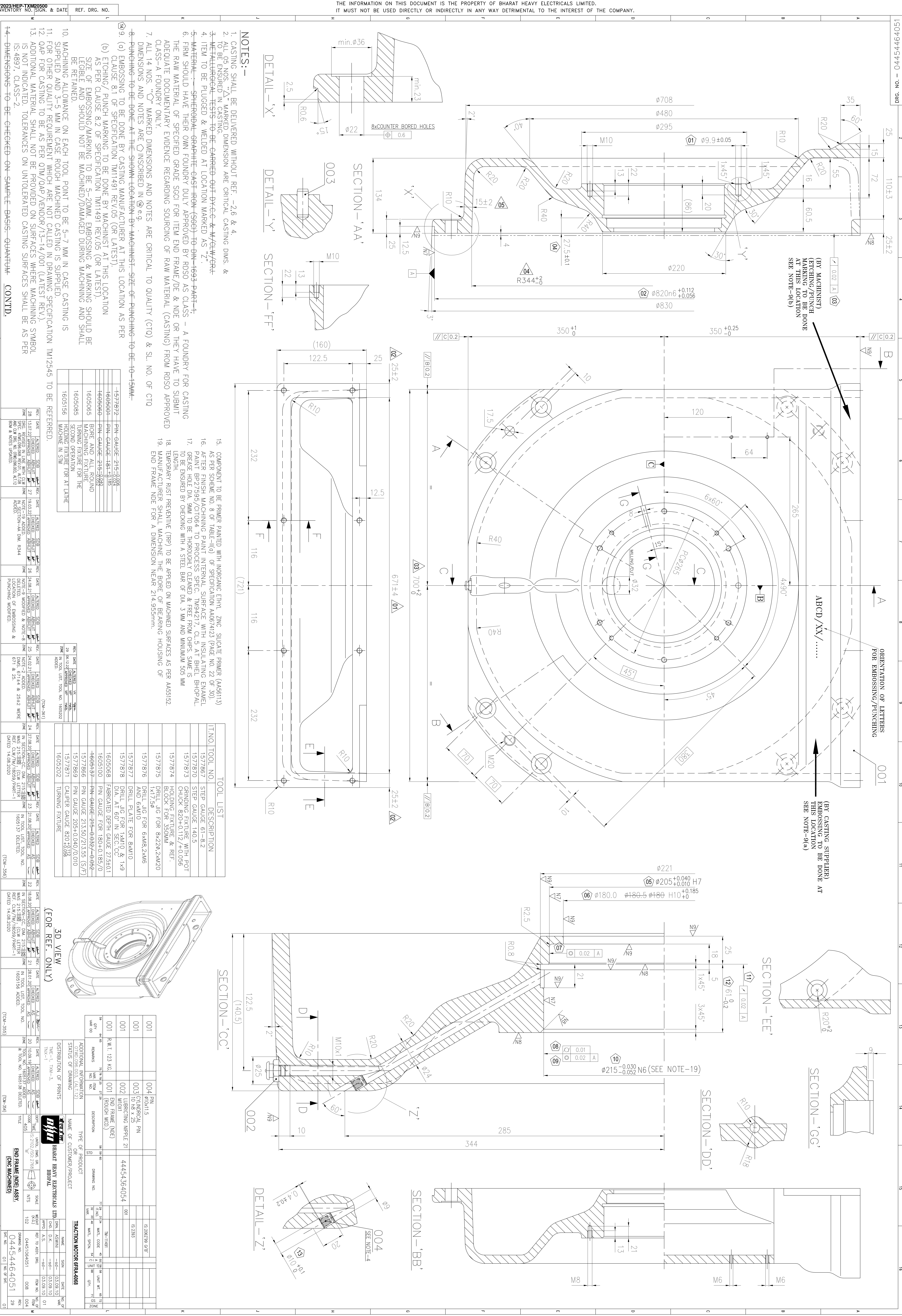
1. REMOVE ALL SHARP EDGES.									
2. MATERIAL:- SPHEROIDAL GRAPHITE CAST IRON (SEG) TO- DN-1693 PART-1 GR.666/40 OR GR-400/18 OF HS-1865-1991 (LATEST VERSION)-									
3. ALL 11 NOS. "◇" MARKED DIMENSION ARE CRITICAL TO QUALITY (CTQ) & SL. NO. OF CTQ DIMENSION ARE INSCRIBED IN ◇e.g.(11).									
4. (D) EMBOSSING TO BE DONE BY CASTING MANUFACTURER AT THIS LOCATION AS PER CLAUSE 8.1 OF SPECIFICATION TM11491 REV.05 (OR LATEST).									
(b) ETCHING/PUNCH MARKING TO BE DONE BY MACHINIST AT THIS LOCATION AS PER CLAUSE 8.2 OF SPECIFICATION TM11491 REV.05 (OR LATEST).									
5. MACHINING ALLOWANCE ON EACH TOOL POINT TO BE 5-7 MM IN CASE CASTING IS SUPPLIED OR 3-5 MM IN CASE ROUGH MACHINED CASTING IS SUPPLIED.									
6. FOR QUALITY REQUIREMENT OF COMPONENT SPECIFICATION TM12545 TO BE REFERRED.									
7. QAP FOR CASTING TO BE AS PER QTM/QAP/VENDOR/13-14/001 (LATEST REV.).									
8. ALL MACHINED/ R.MACHINED SURFACES TO BE PROTECTED WITH TRP.									

REV.		DATE	ALT.	VK	REV.	DATE	ALT.	SDB	REV.		
18	03.01.23	CHK. MP	MP	MP	17	13.07.22	CHK. ABHIJIT	ABHIJIT	17		
ZONE		IN TOOL LIST, TOOL NO. 1577987		ZONE		CTQ ADDED ON DIM. 9.5		DRG. REVISED AS PER CLW SPEC. 4TMS.096.068 REV.01, ALT.8. AND CLW DRG. NO. 3TWD.096.032, ALT.8 & NOTES UPDATED.		ZONE	

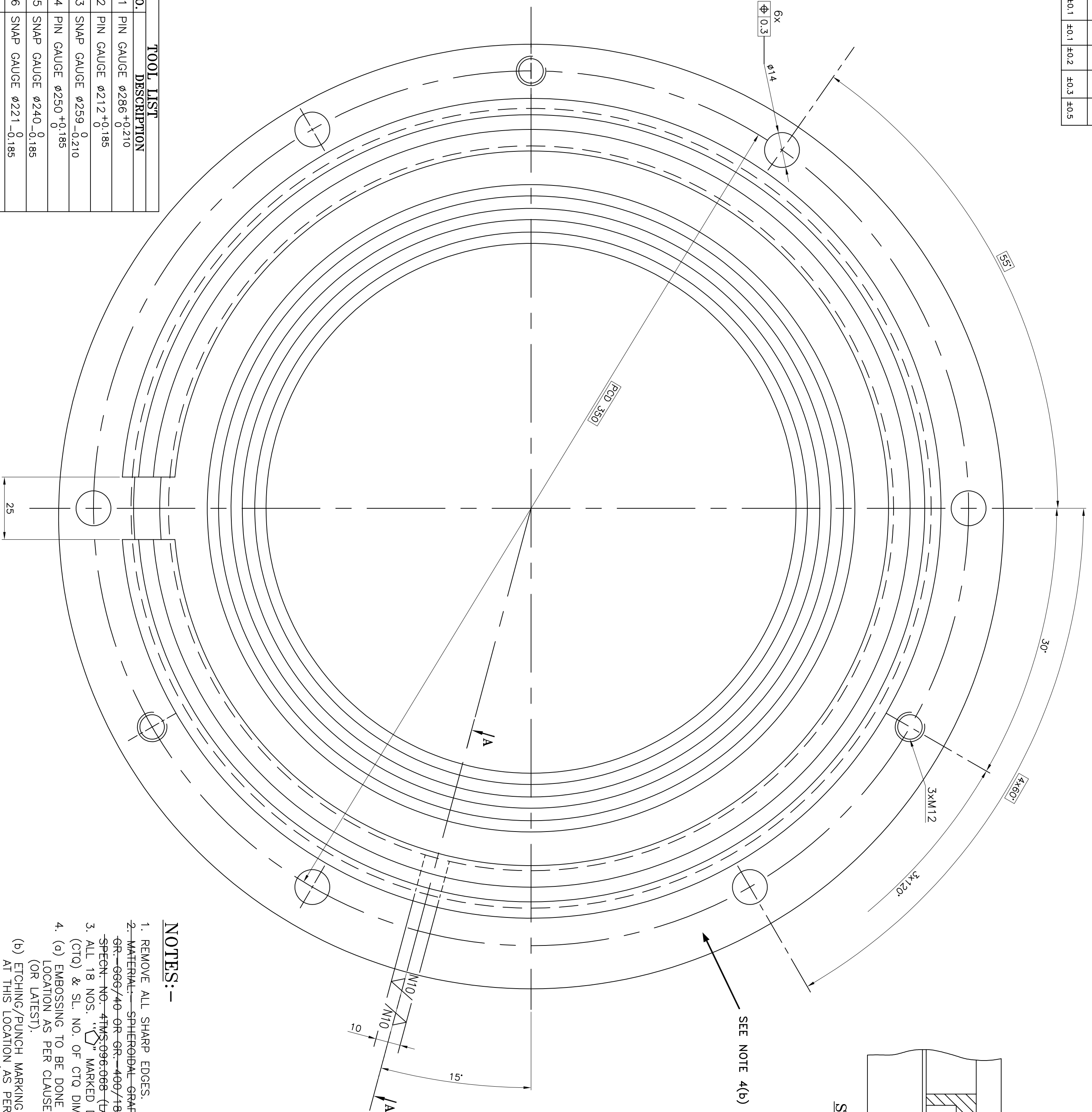
QTY		64		65		75		78		79		25		27		29		DESCRIPTION	
VAR 00				REMARKS		VAR. NO.		ITEM NO.											

ADDITIONAL INFORMATION		3TWD.096.032, (ALT.8)		STATUS OF DRAWING		DISTRIBUTION OF PRINTS		TME-1, TXM-3, TNX-1	
TYPE OF PRODUCT		OR		NAME OF CUSTOMER/PROJECT		BHARAT HEAVY ELECTRICALS LTD.		BOPAL	
6FRA 6068									

DEPT.		TIME		UNTOOL. DIMS. GR.		SCALE		WEIGHT (K.G.)		REF. TO ASSY. DRG.		ITEM NO.		NO. OF	
CODE		405		IS:2102/ISO:2768		N.I.T.S.		6.0		0 445 10 64 051		010		001	
TITLE		BEARING CAP (NDE)		(CNC MACHINED)		DRAWING NO.		3 445 44 64 051		REV.		18			
SHT. NO.		01		NO. OF SHT.		01									

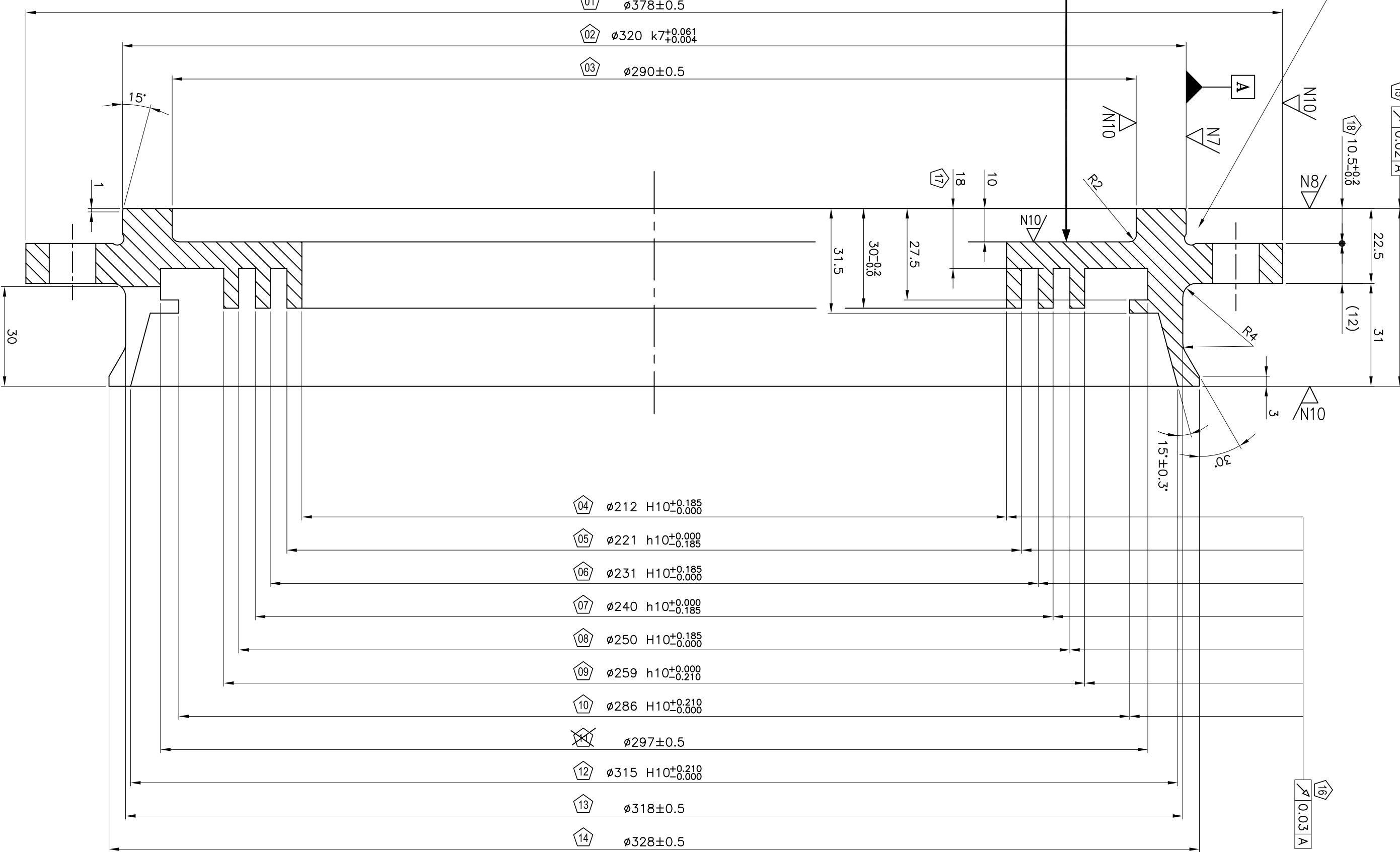


GENERAL TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS FOR MACHINING ACCORDING TO ISO-2768			
RATED DIMENSION	> 0.5	> 3	> 6
FINISH	to 3.0	to 6	to 30
GAUGE	±0.1	±0.1	±0.2



SECTION A-A

3D VIEW
(FOR REF. ONLY)



(ALL DIMENSIONS ARE IN mm)

SURFACE	GRADE	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
ROUGHNESS	SYMBOL	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.12	0.15	0.20	0.25

TOOL NO.	DESCRIPTION
1605101	PIN GAUGE Ø286 ^{+0.210} ₀
1605102	PIN GAUGE Ø212 ^{+0.185} ₀
1605103	SNAP GAUGE Ø259 ^{+0.210} ₀
1605104	PIN GAUGE Ø250 ^{+0.185} ₀
1605105	SNAP GAUGE Ø240 ^{+0.185} ₀
1605106	SNAP GAUGE Ø221 ^{+0.185} ₀
1577886	GROOVE & DEPTH GAUGE 5x12
1605138	PIN GAUGE Ø231 ^{+0.185} ₀
1577879	CALIPER GAUGE Ø320 ^{+0.061} ₀
1577880	TURNING SPIGOT AT 320+0.061
1577881	PROFILE GAUGE 15x315W
1577890	CALIPER GAUGE 31.5mm
1577891	DRILL JIG FOR ALL HOLES
1578291	GROOVE GAUGE 5.5/5.685
1605147	SPIGOT PLATE FOR TURNING
1605162	TEMPERATURE FIXTURE FOR MILLING
1605190	DEPTH GAUGE 10.5(+0.2, 0)
1605191	CALIPER GAUGE DIM. 30(0, -0.2)
1605198	LABRINTHS CHECKING GAUGE

REV.	DATE	ALTERED	SOB
23	13.07.22	APPROVED	AS
22	11.03.22	APPROVED	AS
21	26.06.21	APPROVED	AS

SL.NO.	CHECKING PARAMETER	BHEL	O.C.
001	CTQ DIMS.	20%	20%
002	REMAINING DIMS.	5%	5%

REV.	DATE	ALTERED	SOB
22	11.03.22	APPROVED	AS
21	26.06.21	APPROVED	AS

REV.	DATE	ALTERED	SOB
22	11.03.22	APPROVED	AS
21	26.06.21	APPROVED	AS

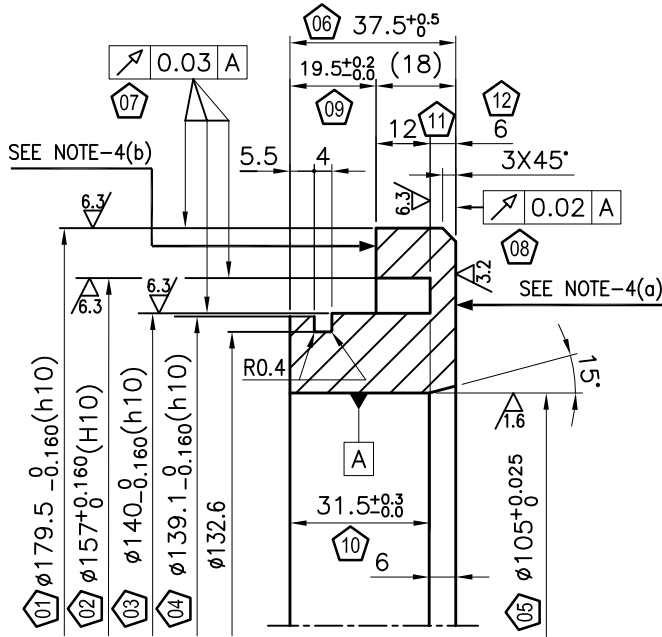
REV.	DATE	ALTERED	SOB
22	11.03.22	APPROVED	AS
21	26.06.21	APPROVED	AS

REV.	DATE	ALTERED	SOB
22	11.03.22	APPROVED	AS
21	26.06.21	APPROVED	AS

REV.	DATE	ALTERED	SOB
22	11.03.22	APPROVED	AS
21	26.06.21	APPROVED	AS

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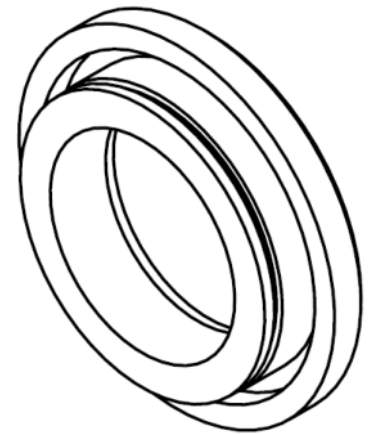
REV.	DATE	ALTERED	SDB	REV.	DATE	ALTERED	SDB	ADDITIONAL INFORMATION
21	13.07.22	CHECKED	ABHIJIT	20	06.07.21	CHECKED	AS	4TWD.096.042 (ALT.7)
		APPROVED	ABHIJIT			APPROVED	AS	
ZONE	DRG. REVISED AS PER CLW SPEC. 4TMS.096.068 REV.01, ALT.8. AND CLW DRG. NO. 4TWD.096.042, ALT.7 & NOTES UPDATED.			ZONE	IN TOOL LIST, TOOL NO. 1605078 DELETED & 1605193 ADDED. (TCM-358)			STATUS OF DRAWING
								DISTRIBUTION OF PRINTS
								TME-1, TXM-3 TNX-1



TOOL LIST	
TOOL NO.	DESCRIPTION
1577956	SNAP GAUGE $\phi 179.5_{-0.160}^{+0}$ (h10)
1605002	PIN GAUGE $\phi 157.5_{-0.160}^{+0}$ (h10)
1605003	SNAP GAUGE $\phi 139.5_{-0.160}^{+0}$ (h10)
1605004	SNAP GAUGE $\phi 139.1_{-0.160}^{+0}$ (h10)
1577960	PIN GAUGE $\phi 105_{-0.025}^{+0}$
1578505	GROOVE CHECKING GAUGE 9x12.2
1605005	GROOVE CHECKING GAUGE 4x5.5
1577962	STEP GAUGE 19.5
1577963	GRINDING FIXTURE
1605078	STEP GAUGE $31.7_{-0.3}^{+0}$
1605079	STEP GAUGE $19.5_{-0.2}^{+0}$
1605088	SNAP GAUGE $\phi 139.1_{-0.160}^{+0}$ (h10)
1605005	GROOVE GAUGE
1605133	PIN GAUGE FOR $157_{-0.160}^{+0}$
1605142	CALIPER GAUGE FOR $140_{-0.160}^{+0}$
1578327	GROOVE GAUGE $8.5_{-0.160}^{+0}$ 0x12 DEEP
1605152	SPIGOT PLATE FOR TURNING
1605193	STEP GAUGE $31.5_{-0.3}^{+0}$

NOTES:-

- REMOVE ALL SHARP EDGES.
- MATERIAL: SPHEROIDAL GRAPHITE CAST IRON (SGCI) TO DIN 1693 PART 1 GR. GGG/40 OR GR 400/18 OF IS 1865-1991 (LATEST VERSION).
- ALL 12 NOS. "12" MARKED DIMENSION ARE CRITICAL TO QUALITY (CTQ) & SL. NO. OF CTQ DIMENSION ARE INSCRIBED IN "12".
- (a) EMBOSING TO BE DONE BY CASTING MANUFACTURER AT THIS LOCATION AS PER CLAUSE 8.1 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
- (b) ETCHING/PUNCH MARKING TO BE DONE BY MACHINIST AT THIS LOCATION AS PER CLAUSE 8.2 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
- MACHINING ALLOWANCE ON EACH TOOL POINT TO BE 5-7 MM IN CASE CASTING IS SUPPLIED OR 3-5 MM IN CASE ROUGH MACHINED CASTING IS SUPPLIED.
- FOR QUALITY REQUIREMENT OF COMPONENT SPECIFICATION TM12545 TO BE REFERRED.
- ALL MACHINED/ R.MACHINED SURFACES TO BE PROTECTED WITH TRP.



3D VIEW
(FOR REF. ONLY)

	RAW WEIGHT 7.0 KG.	001	INNER LABYRINTH NDE (NDE)				KG	3.0
59	64	65	75	25	27	29	58	59
34							45	55
46							54	56
								58
								65
								68
								71

VAR00		REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE	MATL. SPCN.	NAME	SIGN	DATE	NO. OF VAR.
								DRN.	S.D.BHAGAT	-sd-	02.09.10
								CHD.	D.K.	-sd-	02.09.10
								APPD.	A.S.	-sd-	02.09.10

DEPT.	TME	UNTOL. DIMS. GR.	IS:2102/ISO:2768 'M'	SCALE	WEIGHT (K.G.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEM
CODE	405			N.T.S.	3.0	14454564053	002	001
TITLE						DRAWING NO.	REV.	
INNER LABYRINTH (NDE) (STOPPER) (CNC MACHINED) 6FRA6068						4 445 44 64 051	21	
						SHT. NO.	NO. OF SHT.	
						01	01	

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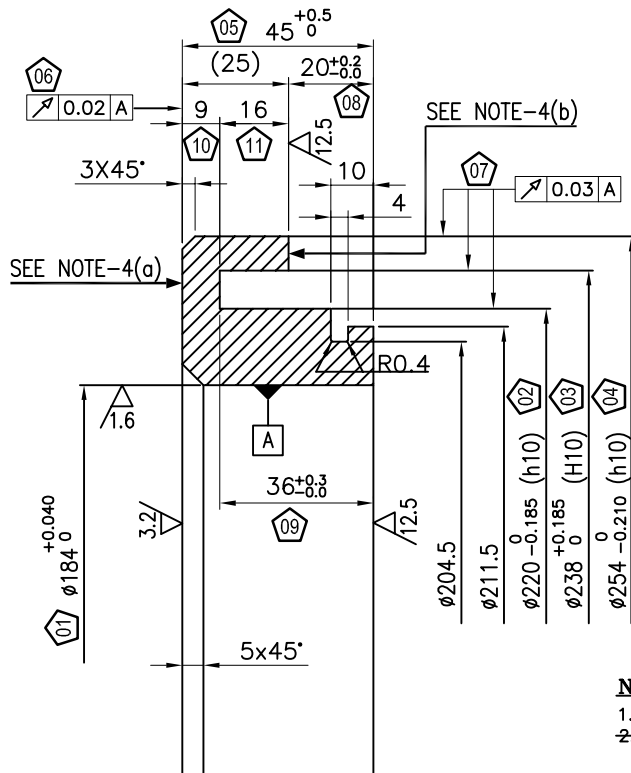
1240216/2023/HEP-TXM20500

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

8/169

REV.	DATE	ALT.	SDB	REV.	DATE	ALT.	SDB	ADDITIONAL INFORMATION
20	06.07.21	CHK.	AS	21	13.07.22	CHK.	ABHIJIT	4TWD.096.043, (ALT.7)
		APPD.	AS			APPD.	ABHIJIT	
ZONE	IN TOOL LIST TOOL NO. 1605074 DELETED & 1605192 ADDED.			ZONE	DRG. REVISED AS PER CLW SPEC. 4TMS.096.068 REV.01, ALT.8. AND CLW DRG. NO. 4TWD.096.043, ALT.7 & NOTES UPDATED.			STATUS OF DRAWING
	(TCM-358)							DISTRIBUTION OF PRINTS
								TME-1, TXM-4 TNX-1



TOOL LIST		
IT. NO.	TOOL NO.	DESCRIPTION
001	1605126	GROOVE & DEPTH GAUGE 9x16
001	1605127	CALIPER GAUGE 220 ⁰ _{-0.185}
001	1605128	PIN GAUGE 238 ^{+0.185} ₀
001	1577942	PIN GAUGE 183.60/183.65
001	1577943	GROOVE GAUGE 9+0.185/0x16
001	1577944	GRINDING FIX.
001	1577945	PIN GAUGE 184 ^{+0.040} ₀
001	1605014	SNAP GAUGE 254 ⁰ _{-0.210} (h10)
001	1605074	STEP GAUGE 36.2+0.3/0
001	1605075	STEP GAUGE 20+0.2/0
001	1605149	SPIGOT PLATE FOR TURNING
001	1605192	STEP GAUGE 36+0.3/0

NOTES:-

- REMOVE ALL SHARP EDGES.
- MATERIAL: SPHEROIDAL GRAPHITE CAST IRON (SGCI) TO DIN 1693 PART 1 GR.GGG/40 OR GR 400/18 OF IS:1865-1991 (LATEST VERSION).
- ALL 11 NOS. MARKED DIMENSION ARE CRITICAL TO QUALITY (CTQ) & SL. NO. OF CTQ DIMENSION ARE INSCRIBED IN e.g. ①.
- (a) EMBOSING TO BE DONE BY CASTING MANUFACTURER AT THIS LOCATION AS PER CLAUSE 8.1 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
- (b) ETCHING/PUNCH MARKING TO BE DONE BY MACHINIST AT THIS LOCATION AS PER CLAUSE 8.2 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
- MACHINING ALLOWANCE ON EACH TOOL POINT TO BE 5-7 MM IN CASE CASTING IS SUPPLIED OR 3-5 MM IN CASE ROUGH MACHINED CASTING IS SUPPLIED.
- FOR QUALITY REQUIREMENT OF COMPONENT SPECIFICATION TM12545 TO BE REFERRED.
- ALL MACHINED/ R.MACHINED SURFACES TO BE PROTECTED WITH TRP.

3D VIEW
(FOR REF. ONLY)

	RAW WEIGHT 12.0 KG.		001	INNER LABYRINTH DE						KG	5.3						
							TM-11491										
59	64	65	75	25	27	29	58	59	34	45	55	56	58	65			
VAR00		REMARKS		ITEM NO.		DESCRIPTION		STD	MATL. CODE		A	UNIT	UNIT WT.				
									46	C			68	71			
									MATL. SPCN.				QTY.				
28 → CARD TYPE-3						28 → CARD TYPE-1						28 → CARD TYPE-2					



BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

NAME	SIGN	DATE	NO. OF VAR.
DRN. ASWINI	-sd-	07.09.10	
CHD. D.K.	-sd-	07.09.10	
APPD. A.S.	-sd-	07.09.10	

DEPT. TME	IS:2102/ISO:2768	SCALE	WEIGHT (K.G.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEM
CODE 405	'M'	N.T.S.	5.3	1 445 45 64 053	003	001
TITLE INNER LABYRINTH (DE) (STOPPER) (CNC MACHINED) 6FRA 6068				DRAWING NO. 4 445 43 64 052	REV. 21	
				SHT. NO. 01	NO. OF SHT. 01	

SIZE A4

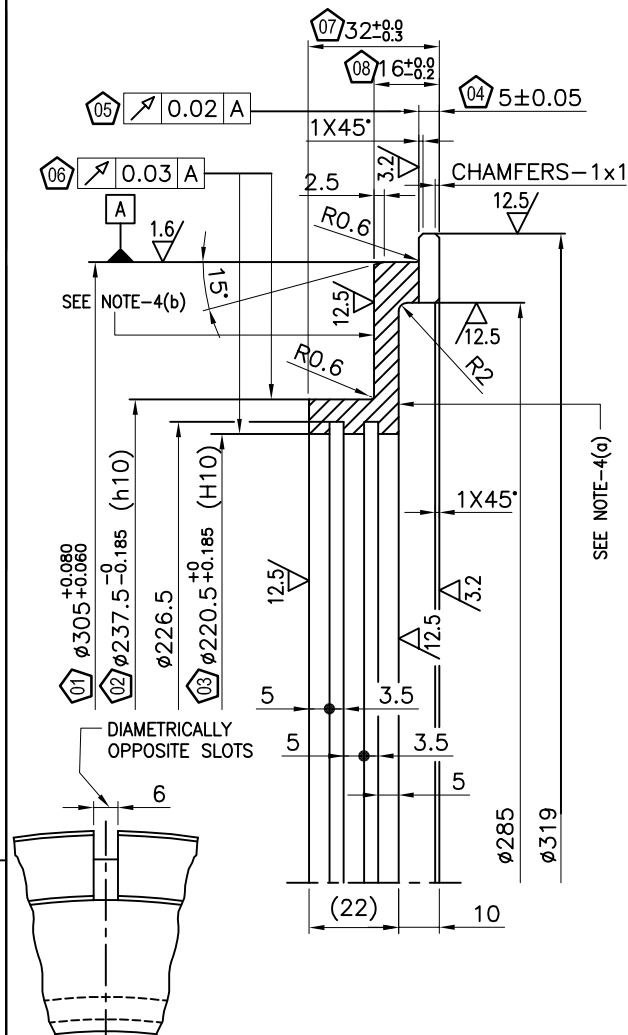
INVENTORY NO. SIGN. & DATE

(ALL DIMENSIONS ARE IN mm)

TOOL LIST

GAUGE LIST

3D VIEW
(FOR REF. ONLY)



- NOTES:—**


1. REMOVE ALL SHARP EDGES.
2. MATERIAL: SPHERULOID GRAPHITE CAST IRON (SGCI) TO DIN 1693 PART 1- GR.000/40 OR GR.400/18 OF IS-1865-1991 (LATEST VERSION).
3. ALL 8 NOS. "⬡" MARKED DIMENSION ARE CRITICAL TO QUALITY (CTQ) & SL. NO. OF CTQ DIMENSION ARE INSCRIBED IN ⬡ e.g. 008.
4. (a) EMBOSSING TO BE DONE BY CASTING MANUFACTURER AT THIS LOCATION AS PER CLAUSE 8.1 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
(b) ETCHING/PUNCH MARKING TO BE DONE BY MACHINIST AT THIS LOCATION AS PER CLAUSE 8.2 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
5. MACHINING ALLOWANCE ON EACH TOOL POINT TO BE 5-7 MM IN CASE CASTING IS SUPPLIED OR 3-5 MM IN CASE ROUGH MACHINED CASTING IS SUPPLIED.
6. FOR QUALITY REQUIREMENT OF COMPONENT SPECIFICATION TM12545 TO BE REFERRED.
7. ALL MACHINED/ R.MACHINED SURFACES TO BE PROTECTED WITH TRIPOL.

	RAW WEIGHT 11.0 KG.		001	INNER LABYRINTH DE						KG	3.30				
								TM11491							
59	64	65	75	25	27	29	58	59	34	45	55	A	56	58	65
VAR00		REMARKS		ITEM NO.		DESCRIPTION		STD	MATL. CODE			C	UNIT	UNIT WT.	
									46	MATL. SPCN.		54		68	75
														QTY.	

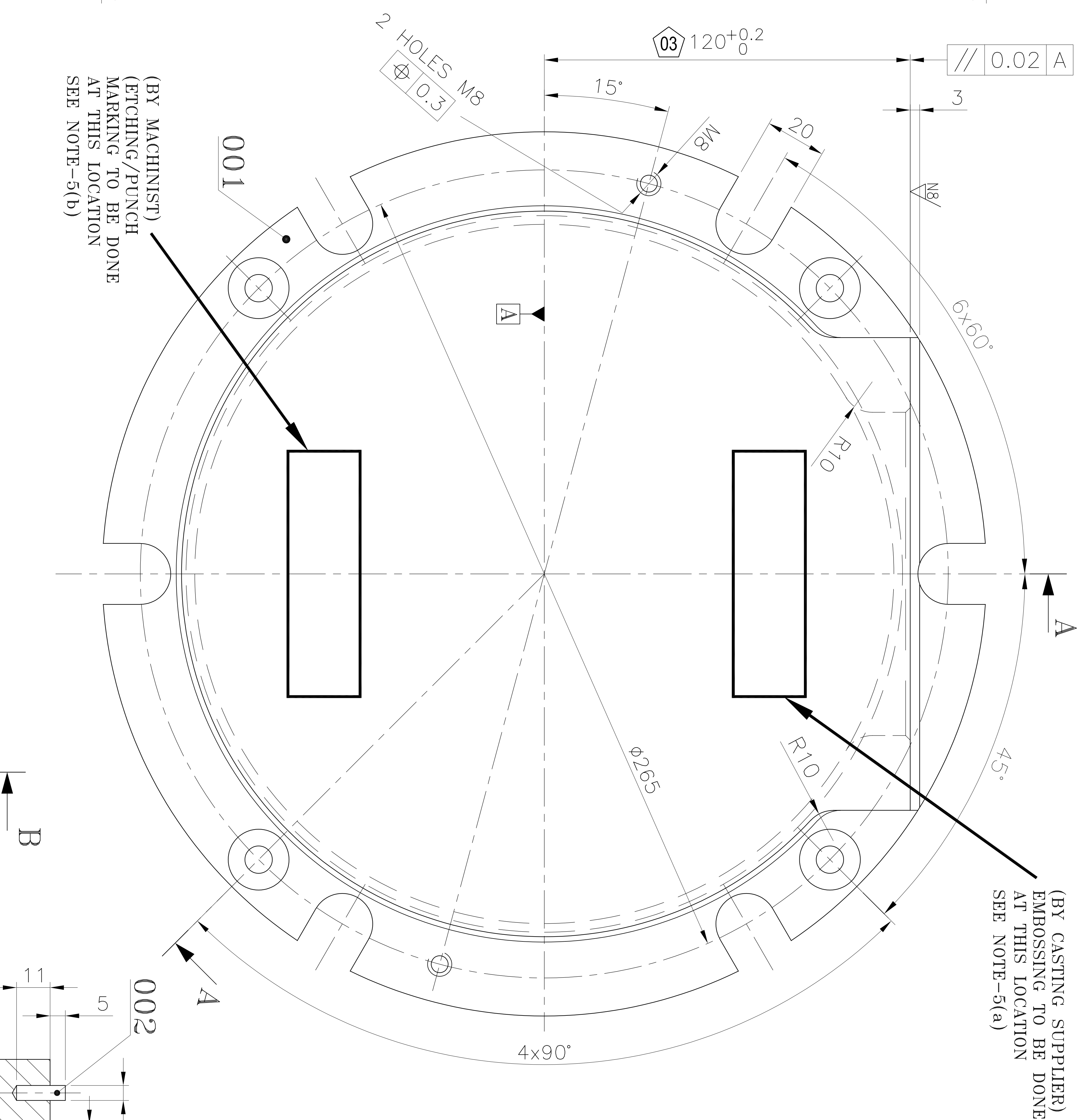


BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN.	BHAGAT	—sd—	03.09.10	
CHD.	D.K.	—sd—	03.09.10	
APPD.	A.S.	—sd—	03.09.10	

DEPT.	UNTOL. DIMS. GR.		SCALE	WEIGHT (K.G.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEM
TME CODE	IS:2102/ISO:2768 'M'		N.T.S.	3.30	0 445 10 64 051	004	001
405	<div>TITLE</div> <div>INNER LABYRINTH (DE) (CNC MACHINED) 6FRA 6068</div>				DRAWING NO.		REV.
4 445 43 64 053					18		
SHT. NO. 01					NO. OF SHT. 0		

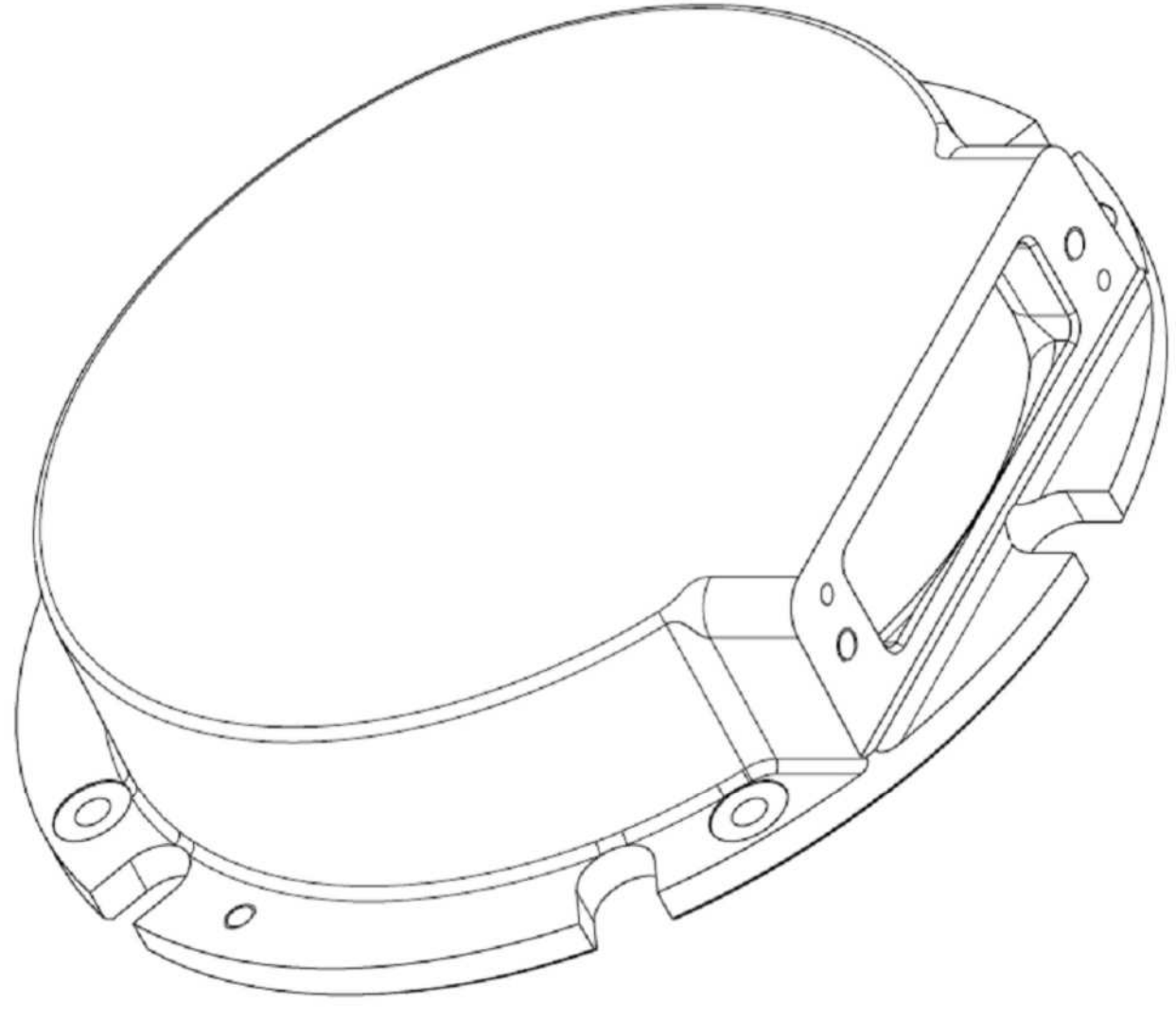
SIZE A4



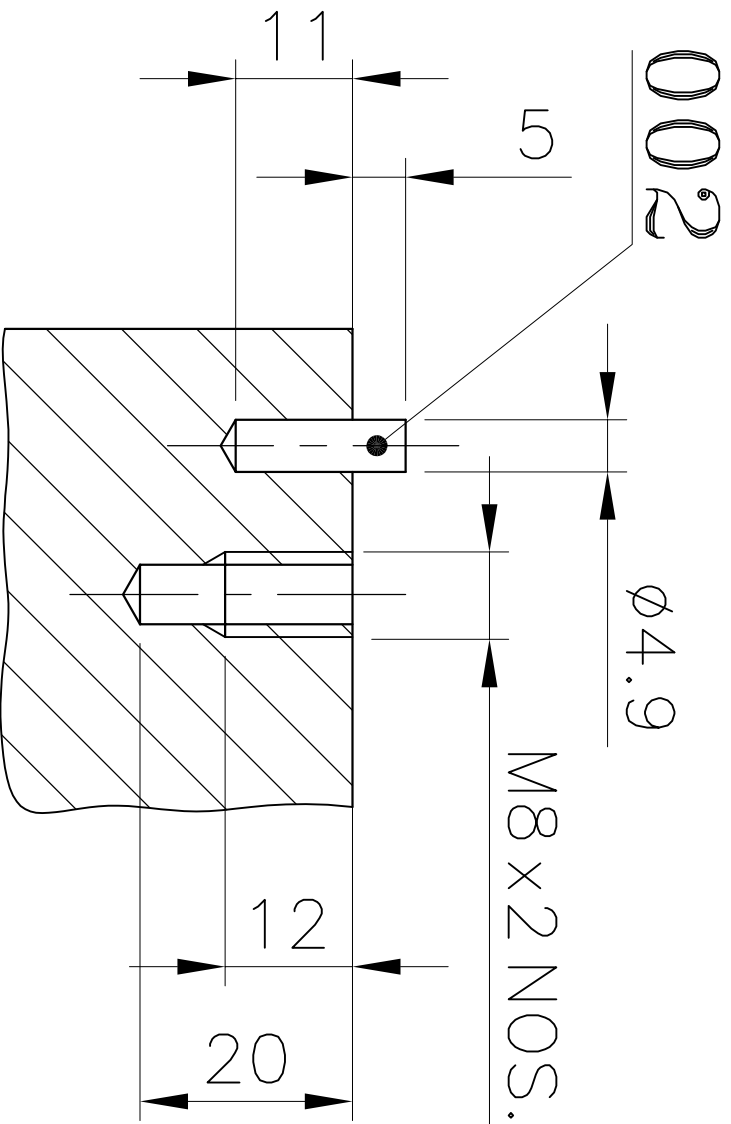
(BY CASTING SUPPLIER)
EMBOSSING TO BE DONE
AT THIS LOCATION
SEE NOTE-5(a)

NOTES:-

1. 1.) C.E.D. NO. FOR 6FRA-6068-5780/079
2. 1) C.E.D. NO. FOR 6FXA-7059-5870/101
3. REMOVE ALL SHARP EDGES.
4. METALLURGICAL TESTS TO BE CARRIED OUT BY DY.C.C & M/CLW/CRU.
5. 4. ALL 8 NOS. "◇" MARKED DIMENSION ARE CRITICAL TO QUALITY (CTQ) & SL. NO. OF CTQ DIMENSION ARE INSCRIBED IN ◇ e.g. 109.
6. 5. (c) EMBOSSING TO BE DONE BY CASTING MANUFACTURER AT THIS LOCATION AS PER CLAUSE 8.1 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
7. (b) ETCHING/ PUNCH MARKING TO BE DONE BY MACHINIST AT THIS LOCATION AS PER CLAUSE 8.2 OF SPECIFICATION TM11491 REV.05 (OR LATEST) SIZE OF EMBOSSING/MARKING TO BE 5-20MM. EMBOSSING & MARKING SHOULD BE LEGIBLE AND SHOULD NOT BE MACHINED/DAMAGED DURING MACHINING AND SHALL BE RETAINED.
8. 6. SURFACE FINISH OF UNMACHINED CASTED SURFACE TO BE AS PER ISO373 (IN CASE MACHINING ALL OVER IS NOT MENTIONED OR SOME SURFACES ARE NOT INDICATED FOR MACHINING BY SYMBOL.)
9. 7. MACHINING ALLOWANCE ON EACH TOOL POINT TO BE 5-7 MM IN CASE CASTING IS SUPPLIED OR 3-5 MM IN CASE ROUGH MACHINED CASTING IS SUPPLIED.
10. 11. FOR QUALITY REQUIREMENT OF COMPONENT SPECIFICATION TM12545 TO BE REFERRED.
11. 9. QAP FOR CASTING TO BE AS PER QTM/QAP/VENDOR/13-14/001 (LATEST REV.).
12. 10. ADDITIONAL MATERIAL SHALL NOT BE PROVIDED ON SURFACES WHERE MACHINING SYMBOL IS NOT INDICATED. TOLERANCES ON UNTOLERATED CASTING SURFACES SHALL BE AS PER IS:4897, CLASS-2.
13. 11. COMPONENT TO BE PRIMER PAINTED WITH INORGANIC ETHYL ZINC SILICATE PRIMER (AA56113) AS PER SCHEME NO. 8 OF TABLE-II(A) OF SPECIFICATION AA0674123 (PAGE NO. 22 OF 30).
14. 2. ALL MACHINED/R.MACHINED SURFACES TO BE PROTECTED WITH TRP.



3D VIEW
(FOR REF. ONLY)



SECTION B-B

Technical drawing of a mechanical part, likely a bracket or support, showing dimensions and features.

Dimensions:

- Overall width: 155
- Overall height: 49 ± 0.2
- Central slot width: 106
- Top flange width: 35
- Top flange thickness: 21 ± 0.2
- Bottom flange width: 35
- Bottom flange thickness: 21 ± 0.2
- Internal slot width: 30
- Internal slot depth: 20
- Chamfer: 2°
- Fillet: (R4)

Features:

- Top flange with a central slot.
- Internal slot with a width of 30 and a depth of 20.
- Bottom flange with a central slot.
- Chamfered edges (2°).
- Fillet (R4) on the internal slot corners.

Labels:

- 04 (Top flange)
- 06 (Bottom flange)

SECTION B-B

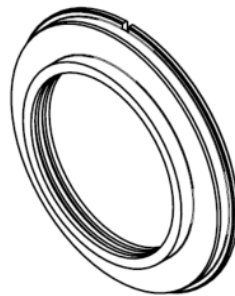
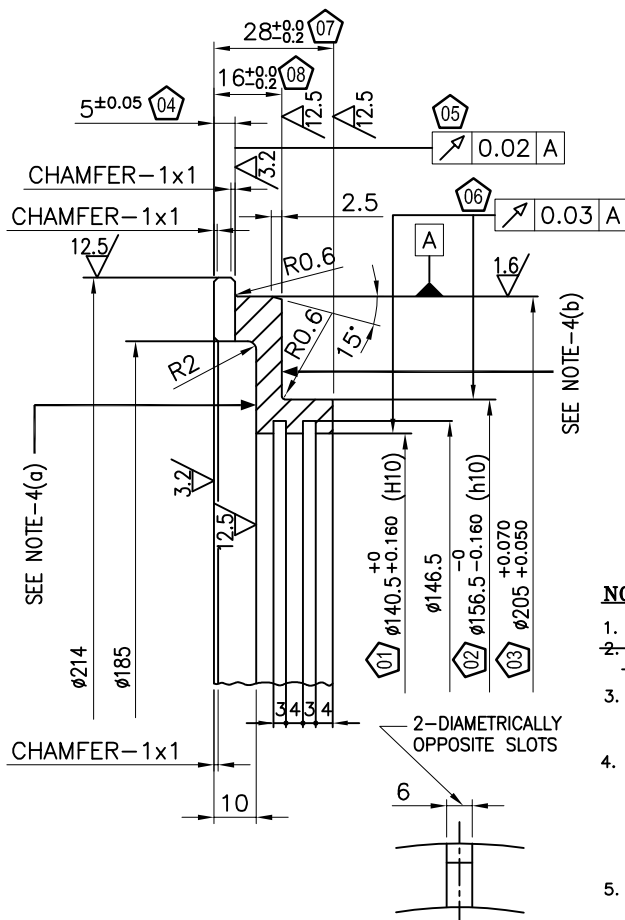
ION B-B

GENERAL TOLERANCE FOR LINEAR AND ANGULAR MEASUREMENTS ACCORDING TO ISO-2768																																												
59 64 65 QTY	64 65 REMARKS	75 76 79 25 27 29 VAR. ITEM NO.	DESCRIPTION	88 89 90 STD	DRAWING NO.	RATED MEASUREMENT IN mm.										DEVIATION OF MEDIUM GRADE																												
						> 0.5			> 3			> 6			> 30			> 120			> 400			> 1000			> 2000			> 4000			> 8000			> 12000			> 16000					
						...3.0			...6			...30			...120			...400			...1000			...2000			...4000			...8000			...12000			...16000			...20000					
						±0.1			±0.1			±0.2			±0.3			±0.5			±0.8			±1.2			±2			±3			±4			±5			±6					
						SURFACE GRADE			ROUGHNESS NUMBER			VALUE TO ISO:3073			N1			N2			N3			N4			N5			N6			N7			N8			N9			N10		
SYMBOL			V			V			V			V			V			V			V			V			V			V			V			V			V					
002			002			CYLINDRICAL PIN 5 h8 x 16																																						
R/MT. 18.0 KG			001			SPEED PROBE HOUSING																																						

[illegible]

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WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

REV. 12	DATE 30.08.19	ALTERED A.J. <i>[Signature]</i>	REV. 11	DATE 24.07.19	ALT. SDB <i>[Signature]</i>	ADDITIONAL INFORMATION	4TWD.096.031 (ALT.6)
		CHECKED AS <i>[Signature]</i>			CHK. ABHIJIT <i>[Signature]</i>		
		APPROVED AS <i>[Signature]</i>			APPD. ABHIJIT <i>[Signature]</i>		
ZONE	IN TOOL LIST TOOL NO. 1605134		ZONE	DIMS. $\phi 140.5$ & $\phi 156.5$ WERE $\phi 141$ & $\phi 156$. (CLW LETTER REF. CLW/TM/18059/ PART-I/1 DATED 12/07/19). NOTE 7 DELETED & NOTE 8 ADDED.		STATUS OF DRAWING	
	1605135 ADDED. TOOL NO 1605020 & 1605021 DELETED.					DISTRIBUTION TME-1, TXM-4	
REV. 13	DATE 02.01.20	ALTERED A.J. <i>[Signature]</i>	REV. 14	DATE 13.07.22	ALT. SDB <i>[Signature]</i>	OF PRINTS TNX-1	
		CHECKED AS <i>[Signature]</i>			CHK. ABHIJIT <i>[Signature]</i>		
		APPROVED AS <i>[Signature]</i>			APPD. ABHIJIT <i>[Signature]</i>		
ZONE	IN TOOL LIST TOOL NO. 1605153 ADDED.		ZONE	DRG. REVISED AS PER CLW SPEC. 4TMS.096.068 REV.01, ALT.8. AND CLW DRG. NO. 4TWD.096.031, ALT.6 & NOTES UPDATED.			
	(TCM-355)						



3D VIEW
(FOR REF. ONLY)

NOTES:-

1. REMOVE ALL SHARP EDGES.
2. MATERIAL: SPHEROIDAL GRAPHITE CAST IRON (SGCI) TO DIN-1693-PART-1 GR.600/40 OR GR-400/18 OF IS:1865-1991(LATEST VERSION).
3. ALL 8 NOS. 'M' MARKED DIMENSION ARE CRITICAL TO QUALITY (CTQ) & SL. NO. OF CTQ DIMENSION ARE INSCRIBED IN *[Signature]* e.g. 08.
4. (a) EMBOSING TO BE DONE BY CASTING MANUFACTURER AT THIS LOCATION AS PER CLAUSE 8.1 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
- (b) ETCHING/PUNCH MARKING TO BE DONE BY MACHINIST AT THIS LOCATION AS PER CLAUSE 8.2 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
5. MACHINING ALLOWANCE ON EACH TOOL POINT TO BE 5-7 MM IN CASE CASTING IS SUPPLIED OR 3-5 MM IN CASE ROUGH MACHINED CASTING IS SUPPLIED.
6. FOR QUALITY REQUIREMENT OF COMPONENT SPECIFICATION TM12545 TO BE REFERRED.
7. ALL MACHINED/ R.MACHINED SURFACES TO BE PROTECTED WITH TRP.

	RAW WEIGHT	001	INNER LABYRINTH NDE		TM11491	KG	2.0
	6.0 KG.						
59	64	65	75	25	27	29	58
VAR00	REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE	45	55
				46	MATL. SPCN.	54	56
						UNIT	58
							65
							68
							71



BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

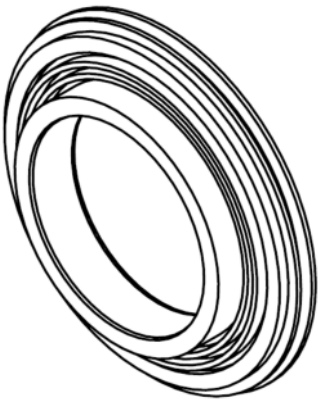
	NAME	SIGN	DATE	NO. OF VAR.
DRN.	ASWINI	-sd-	07.09.10	
CHD.	D.K.	-sd-	07.09.10	
APPD.	A.S.	-sd-	07.09.10	

DEPT. TME	UNTOL. DIMS. GR.	SCALE	WEIGHT (K.G.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEM
CODE 405	IS:2102/ISO:2768 'M'	N.T.S.	2.0	0 445 10 64 051	009	001
TITLE				DRAWING NO.		REV.
INNER LABYRINTH (NDE)				4 445 44 64 052		14
(CNC MACHINED)				SHT. NO.	01	NO. OF SHT.
6FRA 6068						01

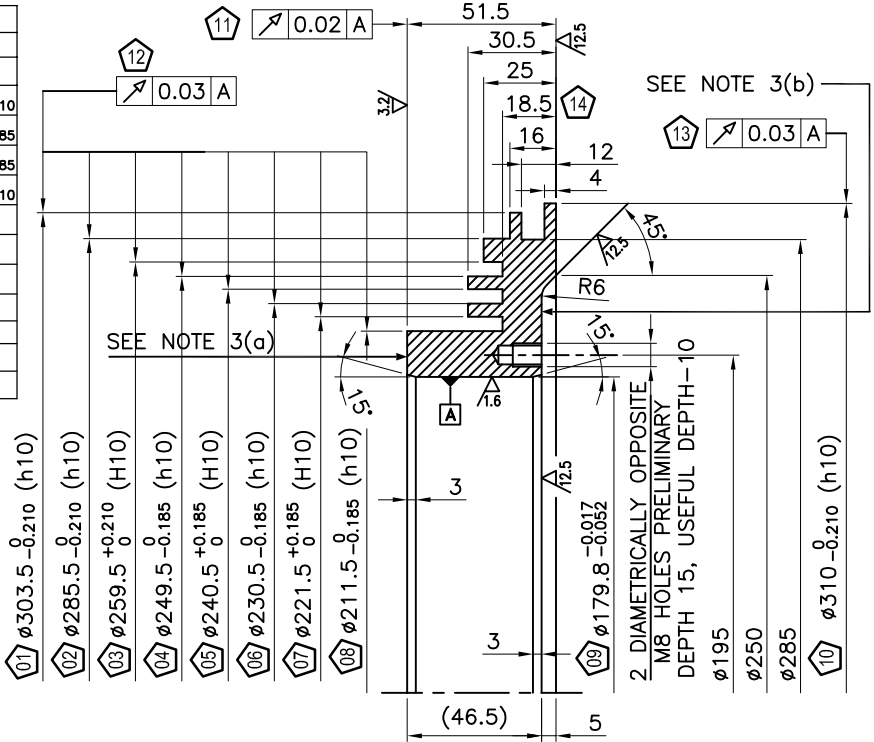
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17	17.03.22	CHD ABHIJIT APPD ABHIJIT	18	13.07.22	CHD ABHIJIT APPD ABHIJIT	ADDITIONAL INFORMATION	4TWD.096.029, (ALT.7)
ZONE	LOCATION OF MARKING REVISED. NOTES REARRANGED.		ZONE	DRG. REVISED AS PER CLW SPEC. 4TMS.096.068 REV.01, ALT.8. AND CLW DRG. NO. 4TWD.096.029, ALT.7 & NOTES UPDATED.		STATUS OF DRAWING	
						DISTRIBUTION OF PRINTS	TME-1, TXM-4 TNX-1


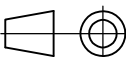
TOOL LIST	
TOOL NO.	DESCRIPTION
1577916	DRILL JIG FOR 2 HOLES
1605119	CALIPER GAUGE $\phi 211.5^{+0.0}_{-0.210}$
1605120	CALIPER GAUGE $\phi 230.5^{+0.0}_{-0.185}$
1605121	CALIPER GAUGE $\phi 249.5^{+0.0}_{-0.185}$
1605122	CALIPER GAUGE $\phi 285.5^{+0.0}_{-0.210}$
1605123	PIN GAUGE $\phi 221.5^{+0.0}_{-0.185}$
1605124	PIN GAUGE $\phi 240.5^{+0.0}_{-0.185}$
1605125	PIN GAUGE $\phi 259.5^{+0.0}_{-0.210}$
1577886	GROOVE & DEPTH GAUGE 5x12
1605154	SPIGOT PLATE FOR TURNING
1605179	PLUG GAUGE $\phi 179.8^{-0.017}_{-0.052}$
1577906	PIN GAUGE $\phi 179.8^{-0.017}_{-0.052}$
1605195	GAUGE FOR CHECKING LABYRINTHS



3D VIEW
(FOR REF. ONLY)



- NOTES:-
- REMOVE ALL SHARP EDGES.
 - ALL 14 NOS. "◊" MARKED DIMENSION ARE CRITICAL TO QUALITY (CTQ) & SL. NO. OF CTQ DIMENSION ARE INSCRIBED IN ◊ e.g. 14.
 - (a) EMBOSHING TO BE DONE BY CASTING MANUFACTURER AT THIS LOCATION AS PER CLAUSE 8.1 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
(b) ETCHING/PUNCH MARKING TO BE DONE BY MACHINIST AT THIS LOCATION AS PER CLAUSE 8.2 OF SPECIFICATION TM11491 REV.05 (OR LATEST).
 - MACHINING ALLOWANCE ON EACH TOOL POINT TO BE 5-7 MM IN CASE CASTING IS SUPPLIED OR 3-5 MM IN CASE ROUGH MACHINED CASTING IS SUPPLIED.
 - FOR QUALITY REQUIREMENT OF COMPONENT SPECIFICATION TM12545 TO BE REFERRED.
 - ALL MACHINED/ R.MACHINED SURFACES TO BE PROTECTED WITH TRP.

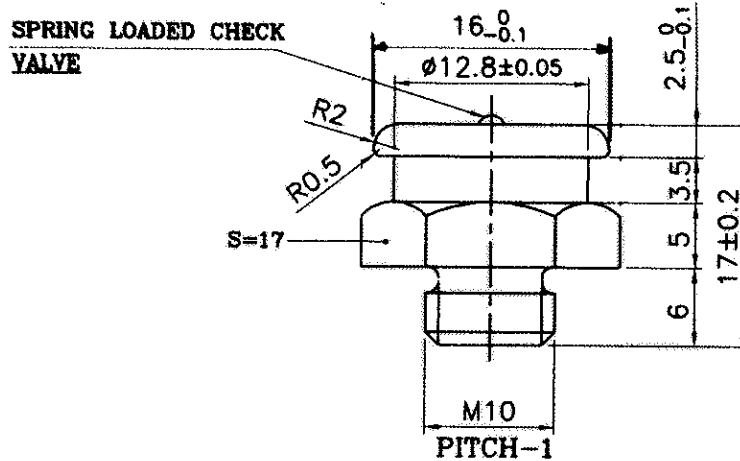
REF. DRG. NO.	6. ALL MACHINED/ R.MACHINED SURFACES TO BE FINISHED WITH TRP.																				
	RAW WEIGHT 20.3 KG.		001		OUTER LABYRINTH DE				TM11491		KG		9.0								
	59	64	65	75	25	27	29	58	59	34	45	55	56	58	65						
	VAR00		REMARKS		ITEM NO.		DESCRIPTION				STD		MATL. CODE		UNIT WT.						
										46		MATL. SPCN.		QTY.							
				28 → CARD TYPE-3				28 → CARD TYPE-1				28 → CARD TYPE-2									
SIGN. & DATE																					
											NAME		SIGN		DATE		NO. OF VAR.				
	BHARAT HEAVY ELECTRICALS LTD. BHOPAL								DRN.		BHAGAT		-sd-		03.09.10						
									CHD.		D.K.		-sd-		03.09.10						
APPD.									A.S.		-sd-		03.09.10								
INVENTORY NO.	DEPT. TME		UNTOL. DIMS. GR.						SCALE		WEIGHT (K.G.)		REF. TO ASSY. DRG.				ITEM NO.		NO. OF ITEM		
	CODE		IS:2102/ISO:2768						N.T.S.		9.0		0 445 10 64 051				006		001		
	405		'M'																		
	TITLE										DRAWING NO.						REV.				
	OUTER LABYRINTH (DE)										4 445 43 64 051						18				
	(CNC MACHINED)																				
6FRA 6068										SHT. NO.		01		NO. OF SHT.						01	

240216/2023/HEP-TXM20500


(ALL DIMENSIONS ARE IN mm)

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REV.	DATE	ALTERED	REV.	DATE	ALTERED	ADDITIONAL INFORMATION
02	22-7-11	CHECKED <i>[Signature]</i> APPROVED <i>[Signature]</i>	01	13.01.11	CHECKED <i>[Signature]</i> APPROVED <i>[Signature]</i>	4TWD.096.074(ALT.-01)
ZONE	NOTE-4 MODIFIED & VIEW UPDATED.		ZONE	DRG. UPDATED & DIGITIZED.		STATUS OF DRAWING
						DISTRIBUTION OF PRINTS
						TME-4, TXM-1 TNX-4

**NOTE:-**

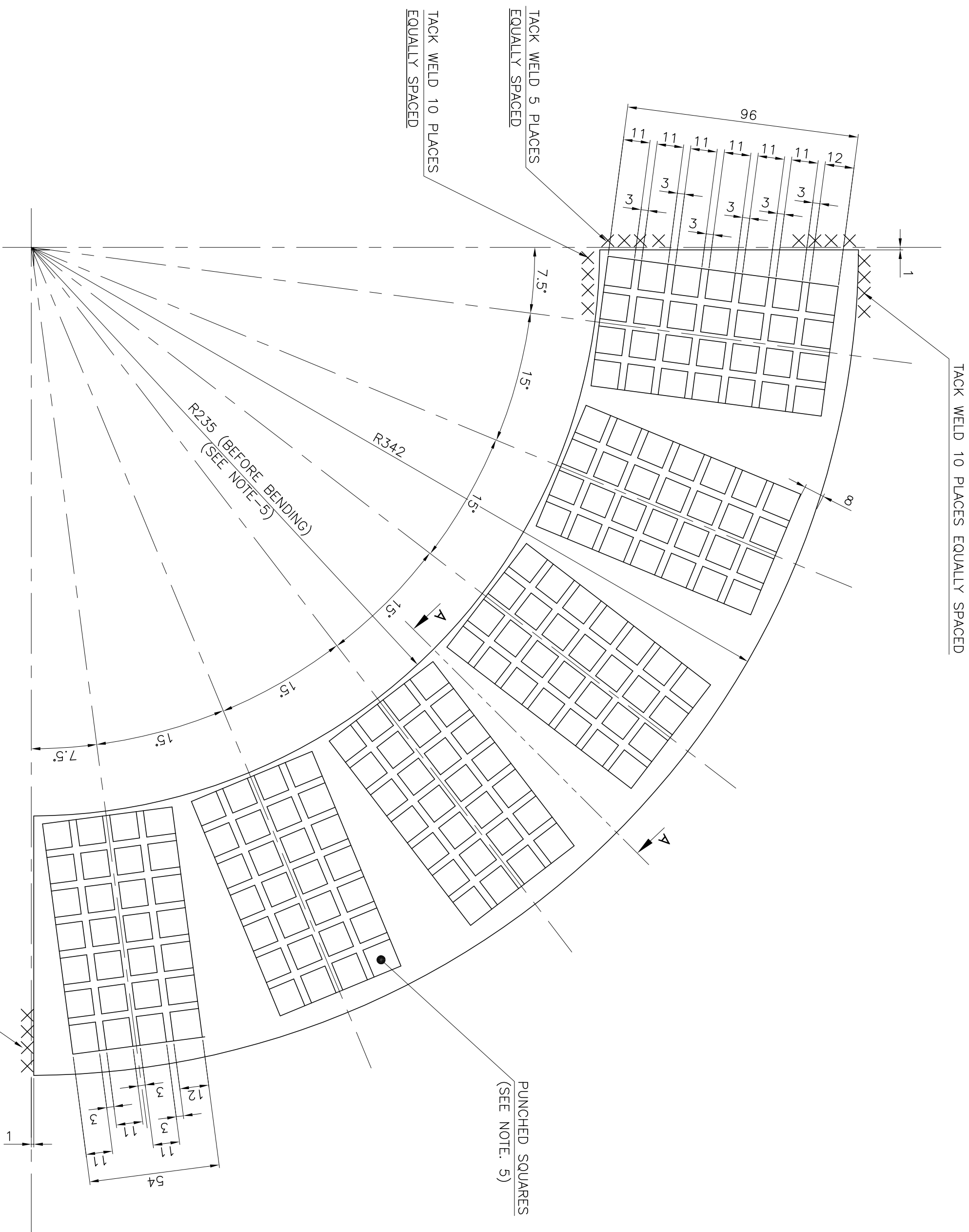
1. MATERIAL : BRASS CuZn40-HB TO IS:410-1977
2. EACH COMPONENT SUPPLIED SHOULD BEAR A PUNCH MARK OF FIRM AT SUITABLE LOCATION
3. PACKING- EACH COMPONENT SHALL BE SUITABLE PACKED i.e. WRAPPED BY POLYTHENE PAPER FOLLOWED BY CORRUGATED PAPER AND FINALLY BE SEALED IN A HARD CARD BOARD BOX SO THAT NO DAMAGE CAN ARISE DURING TRANSPORTATION.
4. THIS IS A COMMON DRAWING OF 6FRA-6068 AND 6FXA 7059.

REF. DRG. NO.	SEE NOTE-1		001	LUBRICATING NIPPLE																	
	59	64	65	75	25	27	29	58	59	34	45	55	56	58	65						
	VAR00		REMARKS		ITEM NO.		DESCRIPTION		STD		MATL. CODE		UNIT WT.		QTY.						
											MATL. SPCN.										
SIGN. & DATE	28		CARD TYPE-3		28		CARD TYPE-1		28		CARD TYPE-2										
	 BHARAT HEAVY ELECTRICALS LTD. BHOPAL																				
	NAME		SIGN		DATE		NO. OF VAR.														
	DRN. S.D.BHAGAT		-SD-		03.09.10		00														
INVENTORY NO.	CHD. D.K.		-SD-		03.09.10																
	APPD. A.S.		-SD-		03.09.10																
	DEPT. TME		UNTOL. DIMS. GR.		SCALE		WEIGHT (K.G.)		REF. TO ASSY. DRG.		ITEM NO.		NO. OF ITEM								
	CODE 405				NTS				04454364052		002		001								
LUBRICATING NIPPLE 6FRA 6068														DRAWING NO.		REV.					
														4 445 43 64054		02					
														SHT. NO. 01		NO. OF SHT.		01			

SIZE A4

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1240216/2023/HEP-TXM20500	
INVENTORY NO.	SIGN. & DATE




SURFACE ROUGHNESS VALUE TO IS:3073	GRADE NUMBER	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
		0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	SYMBOL	√			√			√			√		~


REV.	DATE	ALTERED	SDB	REVISION
03	01.12.20	CHECKED	ABJULIT	①-②-③-④
ZONE	PUNCHED SQUARE DIMS. 11 & 3 WERE 12 & 2. FINISH & ROUGH WEIGHT ADDED. NOTE-4 MODIFIED.	APPROVED	ABJULIT	①-②-③-④
REV.	DATE	ALTERED	SDB	REVISION
03	17.03.16	CHECKED	ABJULIT	①-②-③-④
ZONE	TYPGRAPHICAL ERROR IN DIMENSIONAL 1,6 IN ZONE A-6 CORRECTED	APPROVED	ABJULIT	①-②-③-④

[illegible]

ADDITIONAL INFORMATION 2TWD.096.078, ALT.1		TYPE OF PRODUCT OR			
STATUS OF DRAWING		NAME OF CUSTOMER/PROJECT			
DISTRIBUTION OF PRINTS TME-1, TXM-3, TNX-1		6FRA 6068			
		BHARAT HEAVY ELECTRICALS LTD. BHOPAL			
DRN.	S.D.BHACAT	NAME	SIGN	DATE	NO. OF VAR.
CHD.	D.K.		-sd-	03/09/10	
APPD.	A.S.		-sd-	03/09/10	

DEPT. TIME CODE 405	UNTOLIMS. GR TM20079 GR.'M'		SCALE NTS	WEIGHT (K.G.) 0.70	REF. TO ASSY. DRG.			ITEM NO. 005	ITEM NO. 001
					DRAWING NO.				
AIR OUTLET NET					2 445 43 64 051				
SFT. NO.					01	NO. OF SFT.			01

	 TME/2012	PRODUCT STANDARD TME DIVISION, BHOPAL		TM 11491 Rev.06																																																							
				PAGE 01 OF 06																																																							
COPYRIGHT AND CONFIDENTIAL 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		TECHNICAL SPECIFICATION OF END FRAME (DE), END FRAME (NDE), ROTOR END RING (MODIFIED) SET OF LABYRINTHS AND SPEED PROBE HOUSING MADE FROM SPHEROIDAL GRAPHITE CAST IRON (SGCI) FOR USE ON THREE PHASE TRACTION MOTORS TYPE 6FRA6068 & 6FXA7059.																																																									
		<p>1.0 Scope :</p> <p>1.1 This specification covers the technical requirements, manufacture, inspection and packing of End Frame (DE), End Frame (NDE) , Rotor End Ring (modified), Set of Labyrinths and Speed Probe housing made from Spheroidal Graphite Cast Iron (SGCI) for use on three phase traction motors type 6FRA-6068 & 6FXA-7059.</p> <p>2.0 Material specification and drawings of components :</p> <p>2.1 The castings shall conform to Gr.400/18 of IS:1865 (Latest version) in regards to Chemical composition, physical properties and other relevant aspects.</p> <p>The details of castings / items covered in this specification are given below :</p> <table border="1" data-bbox="351 974 1340 1489"> <thead> <tr> <th>Sl. no.</th> <th>Description</th> <th>BHEL drawing number</th> <th>CLW/ RDSO drawing number</th> </tr> </thead> <tbody> <tr> <td colspan="4">COMPONENTS FOR 6FRA - 6068</td> </tr> <tr> <td>1</td> <td>End Frame /DE</td> <td>04454364051</td> <td>1TWD.096.005</td> </tr> <tr> <td>2</td> <td>End Frame /NDE</td> <td>04454464051</td> <td>0TWD.096.003</td> </tr> <tr> <td>3</td> <td>Rotor End Ring</td> <td>24454564053</td> <td>SKEL 4732</td> </tr> <tr> <td>4</td> <td>Speed Probe Housing</td> <td>14450164053</td> <td>1TWD.096.077</td> </tr> <tr> <td>5</td> <td>Outer Bearing Cap /DE</td> <td>14454364051</td> <td>1TWD.096.006</td> </tr> <tr> <td>6</td> <td>Clamp Plate /NDE</td> <td>24454464051</td> <td>2TWD.096.033</td> </tr> <tr> <td>7</td> <td>Bearing Cap / NDE</td> <td>34454464051</td> <td>3TWD.096.032</td> </tr> <tr> <td>8</td> <td>Inner Labyrinth /DE</td> <td>44454364052</td> <td>4TWD.096.043</td> </tr> <tr> <td>9</td> <td>Inner Labyrinth /NDE</td> <td>44454464052</td> <td>4TWD.096.031</td> </tr> <tr> <td>10</td> <td>Inner Labyrinth /NDE</td> <td>44454464051</td> <td>4TWD.096.042</td> </tr> <tr> <td>11</td> <td>Inner Labyrinth /DE</td> <td>44454364053</td> <td>4TWD.096.028</td> </tr> <tr> <td>12</td> <td>Outer Labyrinth /DE</td> <td>44454364051</td> <td>4TWD.096.029</td> </tr> </tbody> </table>				Sl. no.	Description	BHEL drawing number	CLW/ RDSO drawing number	COMPONENTS FOR 6FRA - 6068				1	End Frame /DE	04454364051	1TWD.096.005	2	End Frame /NDE	04454464051	0TWD.096.003	3	Rotor End Ring	24454564053	SKEL 4732	4	Speed Probe Housing	14450164053	1TWD.096.077	5	Outer Bearing Cap /DE	14454364051	1TWD.096.006	6	Clamp Plate /NDE	24454464051	2TWD.096.033	7	Bearing Cap / NDE	34454464051	3TWD.096.032	8	Inner Labyrinth /DE	44454364052	4TWD.096.043	9	Inner Labyrinth /NDE	44454464052	4TWD.096.031	10	Inner Labyrinth /NDE	44454464051	4TWD.096.042	11	Inner Labyrinth /DE	44454364053	4TWD.096.028	12	Outer Labyrinth /DE
Sl. no.	Description	BHEL drawing number	CLW/ RDSO drawing number																																																								
COMPONENTS FOR 6FRA - 6068																																																											
1	End Frame /DE	04454364051	1TWD.096.005																																																								
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5	Outer Bearing Cap /DE	14454364051	1TWD.096.006																																																								
6	Clamp Plate /NDE	24454464051	2TWD.096.033																																																								
7	Bearing Cap / NDE	34454464051	3TWD.096.032																																																								
8	Inner Labyrinth /DE	44454364052	4TWD.096.043																																																								
9	Inner Labyrinth /NDE	44454464052	4TWD.096.031																																																								
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11	Inner Labyrinth /DE	44454364053	4TWD.096.028																																																								
12	Outer Labyrinth /DE	44454364051	4TWD.096.029																																																								
	Revision : 06 Date: 18.07.2022	Distribution TXM QTM TME TSD	Qty. 1 1 1 1	Approved : Manish Verma Sr. DGM/ TME Prepared Abhishek Shukla Sr. Engr./ TME	Checked: Abhijit Jain Dy. Mgr./ TME	Date: 04.05.2011																																																					



PRODUCT STANDARD
TME DIVISION, BHOPAL

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TME/2012

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Sl. no.	Description	BHEL drawing number	CLW/ RDSO drawing number
COMPONENTS FOR 6FXA - 7059			
1	End Frame / DE	04454366051	1TWD.097.011
2	End Frame /NDE	04454466051	0TWD.097.012
3	Clamp Plate /NDE	24454466051	2TWD.097.040
4	Bearing Cap / NDE	34454466051	3TWD.097.039
5	Bearing Cover / DE	34454366051	3TWD.097.036
6	Inner Labyrinth /NDE	44454466052	4TWD.097.034
7	Inner Labyrinth /NDE	44454466051	3TWD.097.038
8	Inner Labyrinth /DE	44454366051	4TWD.097.037
9	Inner Labyrinth /DE	44454366052	4TWD.097.035
10	Rotor end ring (Modified)	14454566051	2TWD.097.013

3.0 Manufacturing :

3.1 Firm should have their own foundry duly approved by RDSO as Class – A foundry for casting raw material or they have to submit adequate documentary evidence regarding sourcing of raw material (casting) from RDSO approved class – A foundry only.

3.2 All the components should be machined on CNC machine and the manufacturer should fulfil schedule of Technical requirements as per RDSO's STR No. RDSO/2007/EL/STR/0021 Rev.01 or latest.

3.3 The dimension indicated on the relevant drawing are for the finish-machined components. The working drawing of the pattern and the pattern shall be prepared by the manufacturer/ tenderer himself. Responsibilities for pattern design shall be with the manufacturer / supplier completely.

3.4 Machining variations in the linear and angular dimensions without tolerance indications shall be in accordance with IS:2102 (Part-I)

3.5 The surface of the castings shall be free of mould and core sand and any unevenness impairing the usability of the castings.

3.6 The castings shall not exhibit any defects which will impair their machinability or usefulness to more than insignificant extent.

3.7 Welding shall not be allowed for repair of castings.

PRODUCT STANDARD
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TME/2012

3.8 In the event of castings proving defective from foundry in the course of preparation, machining or assembly, such castings may be rejected not withstanding any previous certification or satisfactory testing and / or inspection.

4.0 Inspection :-

4.1 For vendors supplying this item to BHEL Bhopal for the first time, first lot of item shall be supplied for quality inspection at BHEL Bhopal and bulk supply shall be undertaken only after clearance of first lot by BHEL Bhopal.

4.2 Vendor has to initiate the supplies as per PO delivery only. Delay in supply of first lot of components or rejection of components due to any non-conformity/ quality deficiency shall not be considered as reason for delay in supply of components in subsequent deliveries as per PO delivery requirement.

4.3 Initial clearance of 1st lot of items does not absolve the supplier from supply of items as per drawing and specification requirement during bulk supply.

4.4 To ensure the accuracy and precision in the supplies of machined items checking of dimensions of each consignment must be done on 3-D Co-Ordinate Measuring Machine. Quantum of inspection shall be as per relevant QA plan.

5.0 Non-Destructive Test


5.1 Castings shall be subjected to radiographic inspection (5% offered qty. selected at random).

5.2 Radiographic test shall be done as per ASTM E689-95
Radiograph shall be graded in accordance with ASTM E-446 and ASTM E-186 as per Table – 1.

TABLE -1	
Shrinkage	3
Inclusion	3
Gas Porosity	3
Crack	Not Allowed
Hot Tears	Not Allowed
Chaplets	Not Allowed

The casting having defects exceeding the above radiographic quality limits shall not be accepted.

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	PRODUCT STANDARD TME DIVISION, BHOPAL	TM 11491 Rev.06
	TME/2012	PAGE 04 OF 06

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5.3 The sampling of castings shall be in accordance with clause of relevant specification nominated on the relevant drawing.

5.4 Sample of the castings shall be inspected by the authorised representative of purchaser for its physical property test.

5.5 In case the radiographic test is not possible due to special shape or contour of the casting, it may be subjected to other non-destructive test.

6.0 Static Balancing

6.1 Only Rotor End Ring required to be checked for 100% static unbalance. The permissible unbalance in fully machined condition shall be limited to 20±5 gram (max).

7.0 Documents to be supplied :

7.1 The manufacturer shall produce the records of all tests carried out by them along with tested sample to the inspecting authority at the time of inspection.

7.2 Report of dimensional compliance of individual components shall be provided by the manufacturer along with each supply.

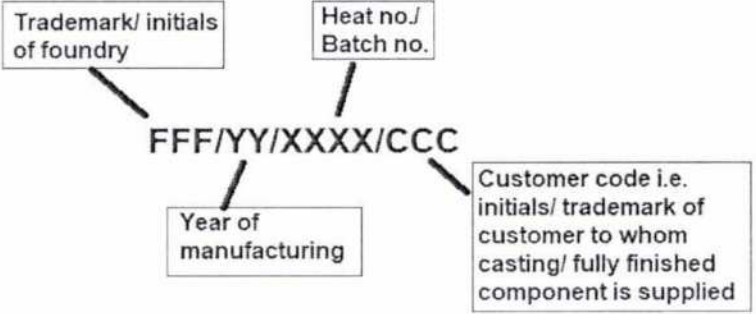
8.0 Marking :

8.1 Embossing details (To be done by casting manufacturer):


- Each cast component should have individual distinct number embossed by the foundry in format 'FFF/YY/XXXX/CCC' (where 'FFF' is trademark or initial of foundry, 'YY' is year of casting, 'XXXX' is unique four digit batch/ Heat no. & 'CCC' is customer code i.e. initials/ trademark of the customer to whom casting/ fully finished is supplied by the foundry.


e.g. for 'CCC':

Sl. no.	Order of components in form of:	Customer	'CCC' shall be:
1.	Casting/ rough machined	Machinist	Initials/ trade mark of machinist.
2.	Fully finished	Motor manufacturer	Initials/ trade mark of motor manufacturer i.e. 'BHEL'



EMBOSSING DETAILS

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<p>COPYRIGHT AND CONFIDENTIAL</p> <p>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.</p>	<ul style="list-style-type: none"> • Embossing of batch no./ heat no. done on items having all round machining to be remarked (etched/ punched) properly on finished components at location shown in drawing (as per requirement of clause 8.2 (c)). • Embossing to be done at location marked in individual component drawing. <p>8.2 Etching/ punch marking details (To be done by machinist):</p> <ul style="list-style-type: none"> • Each finish machined component shall be legibly and indelibly marked (i.e. punched/ etched in End Frame DE, End Frame NDE & Speed probe housing and etched on remaining components) properly mentioning the following, not necessarily in same order: <ol style="list-style-type: none"> a) Manufacturer's initial/ trademark. b) Manufacturer's unique serial number in format 'XX/MMYY/ZZZZZ' (where 'XX' is code unique to the vendor, vendor wise code attached at annexure A, 'MMYY' is month & year of manufacture of subject item and 'ZZZZZ' is unique & incremental five digit serial number from 00001 to 99999 specific to a vendor irrespective of P.O. no. or P.O. placing authority). c) Batch/ Heat number. d) 'SGCI' marking. e) CLW Drawing no. (preferable last 03 digits). <div data-bbox="435 936 1377 1265" data-label="Diagram"> <pre> graph TD A[AA/XX/MMYY/ZZZZZ/BBBB/SGCI/DDD] A --- B[AA] A --- C[XX] A --- D[MMYY] A --- E[ZZZZZ] A --- F[BBBB] A --- G[SGCI] A --- H[DDD] B --- B1[Manufacturer's initial/ trademark] C --- C1[Code unique to a vendor, ref. annexure A] D --- D1[Month and Year of manufacturing] E --- E1[unique & incremental five digit serial number from 00001 to 99999 specific to a vendor irrespective of P.O. no. or P.O. placing authority] F --- F1[Heat no./ Batch no.] G --- G1[SGCI marking] H --- H1[Last 03 digits of drawing no. of component] </pre> </div> <p>ETCHING/ PUNCHING DETAILS</p> <ul style="list-style-type: none"> • Etching/ punch marking to be done at location marked in individual component drawing. 	
	<p>9.0 Packing :</p> <ol style="list-style-type: none"> i) The components shall be suitably packed to prevent transit / long storing damage. ii) The components shall be coated with antirust varnish/compound after inspection. iii) Varnished components shall be wrapped in polythene paper followed by corrugated paper. iv) The wrapped components shall finally be sealed in thick polythene bag. v) All sealed components in a kit bearing same serial number shall be finally packed in single wooden crate separated by different wooden compartments for each item, properly lined/ padded by big bubble wrapper/ thick foam/ thermocol sheets to prevent transit damage to machined surfaces. vi) Packing list shall be provided on the boxes. <p>10.0 This specification is equivalent to CLW's specification no. 4TMS.096.068 Rev.01 Alt.08.</p>	

	 <p>PRODUCT STANDARD TME DIVISION, BHOPAL</p> <p>TME/2012</p>	<p>TM 11491 Rev.06</p> <p>PAGE 06 OF 06</p>																																																												
<p>COPYRIGHT AND CONFIDENTIAL</p> <p>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</p>	<p>Annexure A : As per clause 8.2 (b) above, 'XX' i.e. code unique to a vendor is being allotted as follows:</p> <table border="1"> <thead> <tr> <th>SN</th> <th>Firm's Name</th> <th>'XX' i.e. code unique to a vendor</th> </tr> </thead> <tbody> <tr><td>01</td><td>M/s KMRI (P) Ltd. Kharagpur</td><td>AA</td></tr> <tr><td>02</td><td>M/s Kay Pee Equipments Pvt. Ltd./ HWH</td><td>AB</td></tr> <tr><td>03</td><td>M/s Simplex Engg. & Foundry Works Pvt. Ltd./ Bhilai</td><td>AC</td></tr> <tr><td>04</td><td>Special Engg. Services/ Kol</td><td>AD</td></tr> <tr><td>05</td><td>Narmada Equipment Pvt. Ltd./ Bhopal</td><td>AE</td></tr> <tr><td>06</td><td>Ravi Engineering Works/ Bhopal</td><td>AF</td></tr> <tr><td>07</td><td>Saini Elect. & Engg. Works/ Navi Mumbai</td><td>AH</td></tr> <tr><td>08</td><td>M/s. Nike Energy Manufacturing Pvt. Ltd./Varanasi</td><td>AJ</td></tr> <tr><td>09</td><td>M/s. Alert Engineering Enterprises/Bhopal</td><td>AK</td></tr> <tr><td>10</td><td>M/s. Saurabh Metals Pvt. Ltd/Bhopal</td><td>AL</td></tr> <tr><td>11</td><td>M/s. Bhupendra Steels (P) Ltd/Faridabad</td><td>AM</td></tr> <tr><td>12</td><td>M/s. Frontier Alloy Steels Ltd./Kanpur</td><td>AN</td></tr> <tr><td>13</td><td>M/s. Sonak Engg. Pvt. Ltd./Navi Mumbai</td><td>AO</td></tr> <tr><td>14</td><td>M/s. Excelsior Industries/Bhopal</td><td>AP</td></tr> <tr><td>15</td><td>M/s. Gallard Steel Ltd./Pithampur</td><td>AR</td></tr> <tr><td>16</td><td>M/s. Porwal Auto Components Ltd./Pithampur</td><td>AS</td></tr> <tr><td>17</td><td>M/s. S.D. Industries/Navi Mumbai</td><td>AT</td></tr> <tr><td>18</td><td>M/s BHEL/ Bhopal</td><td>BA</td></tr> <tr><td>19</td><td>M/s CGPISL/ Mandideep</td><td>BB</td></tr> </tbody> </table>		SN	Firm's Name	'XX' i.e. code unique to a vendor	01	M/s KMRI (P) Ltd. Kharagpur	AA	02	M/s Kay Pee Equipments Pvt. Ltd./ HWH	AB	03	M/s Simplex Engg. & Foundry Works Pvt. Ltd./ Bhilai	AC	04	Special Engg. Services/ Kol	AD	05	Narmada Equipment Pvt. Ltd./ Bhopal	AE	06	Ravi Engineering Works/ Bhopal	AF	07	Saini Elect. & Engg. Works/ Navi Mumbai	AH	08	M/s. Nike Energy Manufacturing Pvt. Ltd./Varanasi	AJ	09	M/s. Alert Engineering Enterprises/Bhopal	AK	10	M/s. Saurabh Metals Pvt. Ltd/Bhopal	AL	11	M/s. Bhupendra Steels (P) Ltd/Faridabad	AM	12	M/s. Frontier Alloy Steels Ltd./Kanpur	AN	13	M/s. Sonak Engg. Pvt. Ltd./Navi Mumbai	AO	14	M/s. Excelsior Industries/Bhopal	AP	15	M/s. Gallard Steel Ltd./Pithampur	AR	16	M/s. Porwal Auto Components Ltd./Pithampur	AS	17	M/s. S.D. Industries/Navi Mumbai	AT	18	M/s BHEL/ Bhopal	BA	19	M/s CGPISL/ Mandideep	BB
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