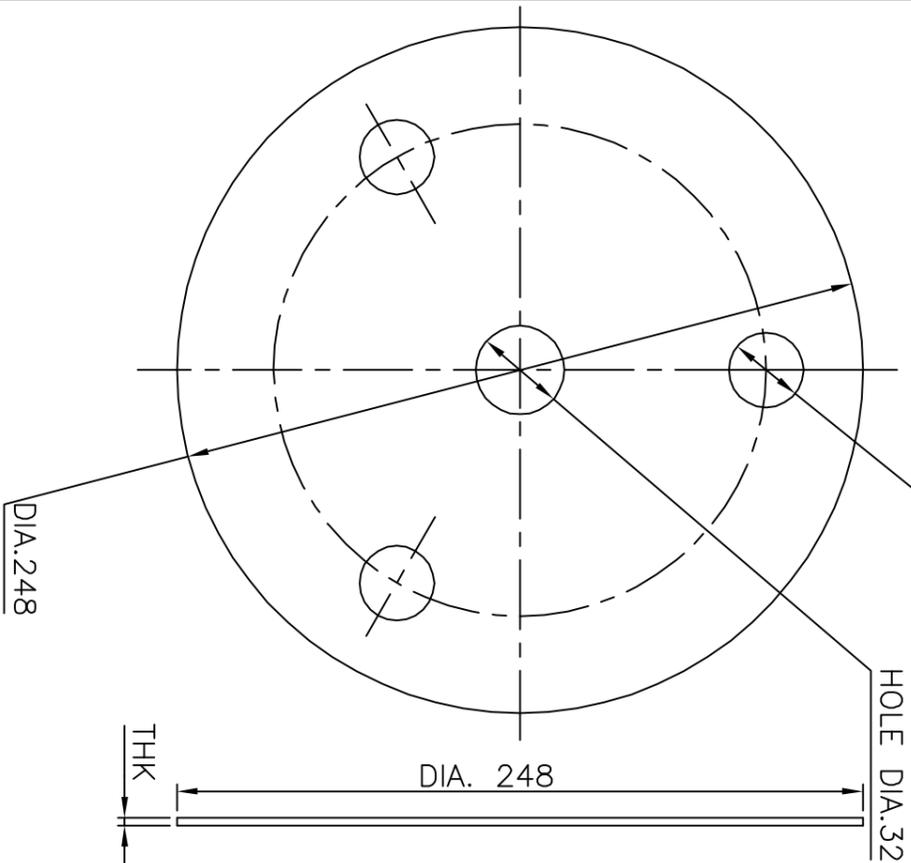


82900-000-19-3.DWG

3 HOLES DIA.27
EQ. SPACED ON PCD 178



- NOTES:-**
- 01. SHIMS TO BE MACHINE CUT & FREE OF SCALE & FOREIGN MATTER.
 - * 02. MATERIAL SPECIFICATION
STEEL SHIM STOCK COMM. QUALITY.

ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
04	SHIM THK 0.79					0.284	
						*	1
03	SHIM THK 0.30				BA9717283109	0.108	
						*	3
						0.047	
						*	2
						0.029	
						*	2

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
1003 XRP BOWL MILL

DEPT. PULV ENGG. BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

SCALE 1:2.5 WEIGHT (kg) 0.760

TITLE **JOURNAL BRG. KEEPER SHIM SET**

DRN.	NAME	SIGN.	DATE	NO.OF VAR.
UNIC			960906	
B.M.R.			970830	
K.M.R.			970830	

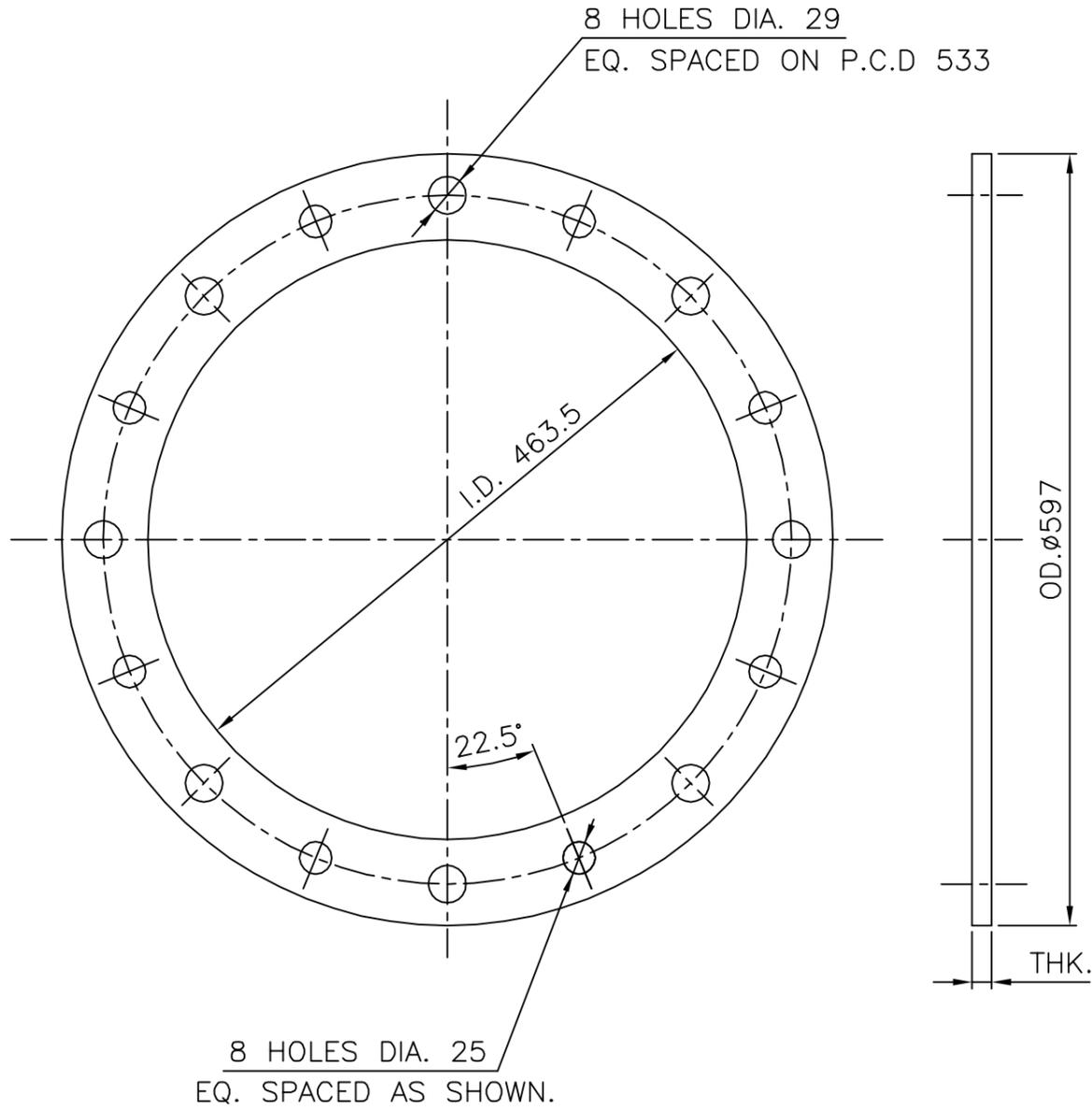
REF. TO ASSY DRG. B-110-00323/01

DRAWING NO. 3-61-000-00678

SHEET NO. 01 NO OF SHEETS 01

DRG. NO. 3-61-000-19-3
62900-000-19-3

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
36100679.DWG



ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	VAR. NO.	MATERIAL CODE	NET WT.	GROSS WT.
04	SHIM THK. 0.8				BA9717283370	0.292	
							1
03	SHIM THK. 0.30				BA9717283370	0.111	
							3
02	SHIM THK. 0.15				BA9717283370	0.048	
							2
01	SHIM THK. 0.10				BA9717283370	0.030	
							2
					MATERIAL SPECN.	QUANTITY	

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

REV.	DATE	ALTERED	E.M.ASHOK	REV.	DATE	ALTERED
02	4.2.04	CHD/APPD	AMAN	01	2.4.99	CHD/APPD
ZONE	DRG REDRAWN.			ZONE	THKS 0.10,0.15&0.80 WERE 0.08,0.13&0.79 RESPLY. DRG REDRAWN.	

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.		DRN.	NAME	SIGN.	DATE	NO.OF VAR.
	HYDERABAD		CHD.	E.M.ASHOK		4.2.04	
			APPD.	AMAN		4.2.04	-NA-

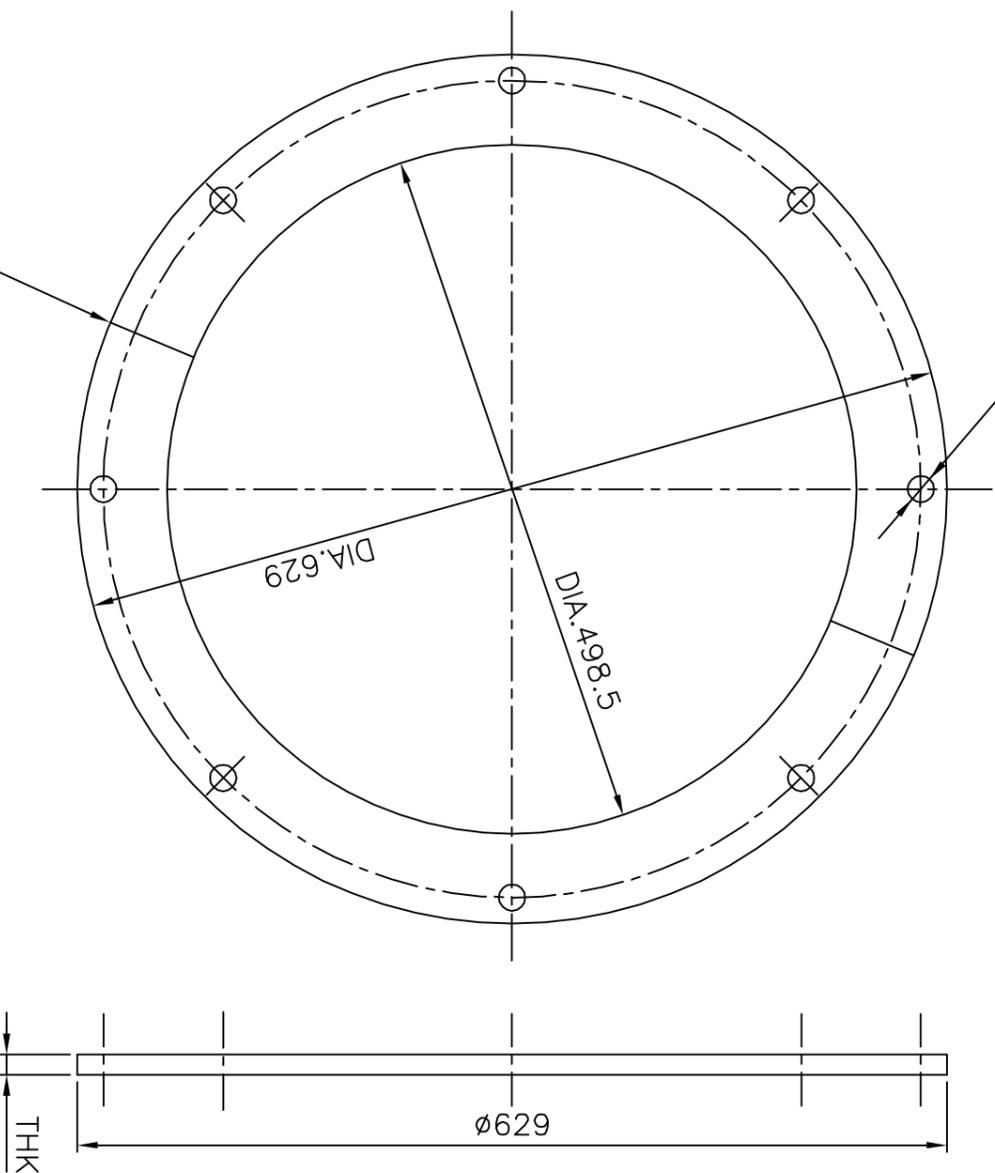
DEPT. PULV. ENGG	UNTOL. DIMS. GR. ϕ /M/F		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
446			N.T.S	0.781	B-110-00319/02	-NA-	-NA-

TITLE	DRAWING NO.	REV.
UPPER BEARING KEEPER SHIM SET	3-61-000-00679	02
	SHT. No 01	NO. OF SHT. 01

08900-000-19-3

DRG. NO.

8 HOLES DIA. 19
EQ. SPACED ON P.C.D 591



COMPUTER FILE NAME
36100680.DWG

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INVENTORY NO

SIGN. AND DATE

REF. DRG. NO.

REV.	DATE	ALTERED	E.M.ASHOK	REV.	DATE	ALTERED
02	4.2.04	CHD/APPD	AMAN	01	2.4.99	CHD/APPD
ZONE DRG REDRAWN.				ZONE THKS 0.10,0.15&0.80 WERE 0.08,0.13&0.79 RESPPLY. DRG REDRAWN.		

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.

ITEM NO.	DESCRIPTION	IS	DRAWING NO.	VAR. NO.	MATERIAL CODE	NET WT.	GROSS WT.
04	SHIM THK. 0.8				BA9717283362	0.703	1
03	SHIM THK. 0.6				BA9717283362	0.569	2
02	SHIM THK. 0.4				BA9717283362	0.338	2
01	SHIM THK. 0.2				BA9717283362	0.205	2

TYPE OF PRODUCT: 1003 XRP BOWL MILL

NAME OF CUSTOMER/PROJECT: DR

DEPT. PULVENECS
CODE 446

UNTDL. DIMS. GR. f/m/y

SCALE N.T.S

WEIGHT (KG) 2.927

REF. TD ASSY. DRG. B-110-00916/00

ITEM NO. -NA-

REV. 02

DRAWING NO. 3-61-000-006801

SHT. No 01

ND. OF SHT. 01



BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

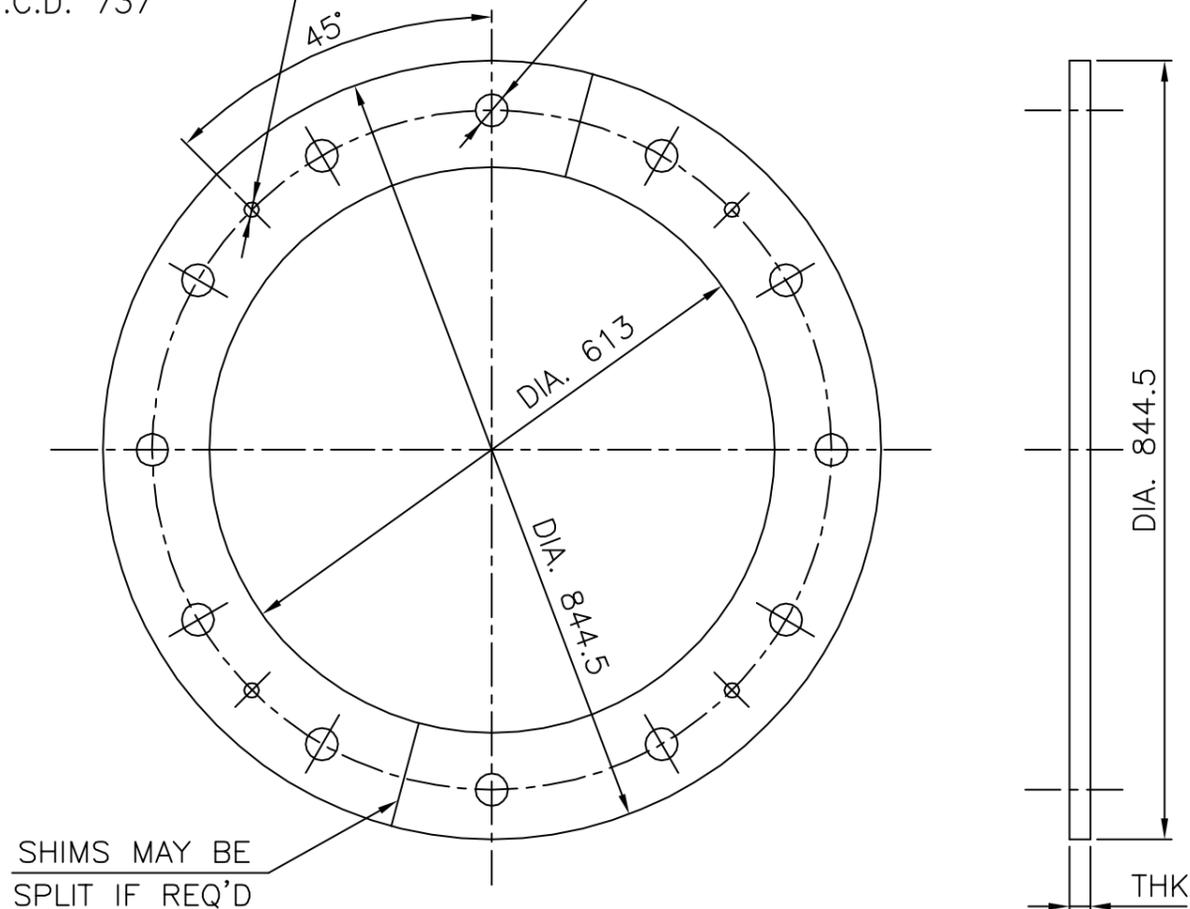
NAME	SIGN.	DATE	ND. OF VAR.
DRN. E.M.ASHOK		4.2.04	
CHD. AMAN		4.2.04	
APPD. S.G		4.2.04	

DRG. NO. 3-61-000-19-3
28900-000-19-3

COMPUTER FILE NAME: 36100682.DWG
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4 HOLES DIA 16 THRU
EQ. SPACED ON
P.C.D. 737

12 HOLES DIA 35 THRU
EQ. SPACED ON P.C.D. 737



ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	VAR. NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	
04	SHIM THK. 0.8				BA9717283389	1.567	
							3
03	SHIM THK. 0.4				BA9717283389	0.754	
							3
02	SHIM THK. 0.15				BA9717283389	0.258	
							2
01	SHIM THK. 0.1				BA9717283389	0.159	
							2

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

REV.	DATE	ALTERED	E.M.ASHOK	REV.	DATE	ALTERED
02	4.2.04	CHD/APPD	AMAN	01	2.4.99	CHD/APPD
ZONE	DRG REDRAWN.			ZONE	THKS 0.10,0.15&0.80 WERE 0.08,0.13&0.79 RESPLY. DRG REDRAWN.	

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

DRN.	NAME	SIGN.	DATE	NO.OF VAR.
	E.M.ASHOK		4.2.04	
CHD.	AMAN/NDS	<i>[Signature]</i>	4.2.04	-NA-
APPD.	S.G	<i>[Signature]</i>	4.2.04	

DEPT. PULV.ENGG	UNTOL. DIMS. GR. /M/F	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
446		NTS	7.797	B-101-01079/00	-NA-	-NA-

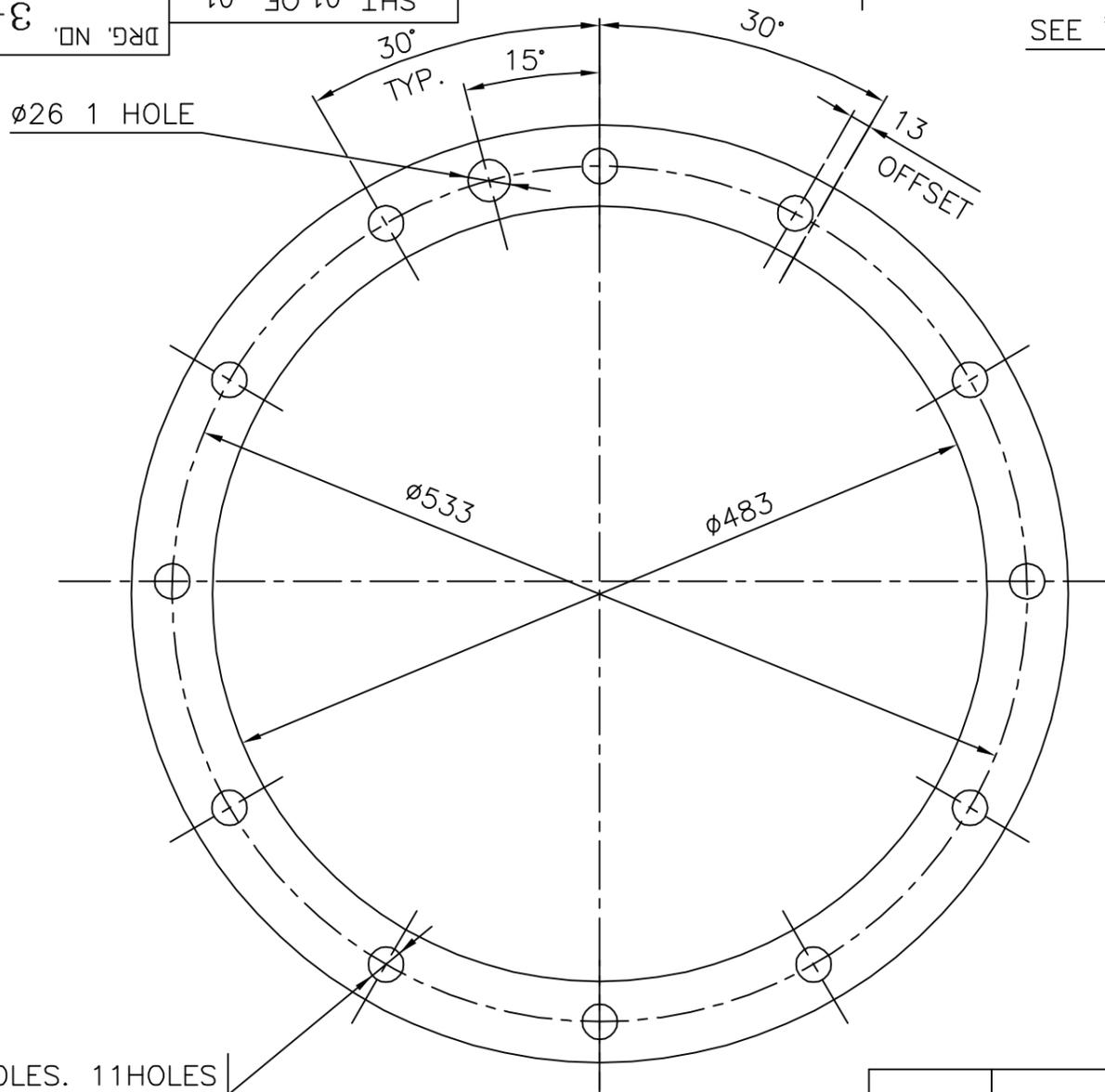
TITLE: **UPPER JOURNAL HSG. SHIM SET**

DRAWING NO. **3-61-000-00682** REV. **02**

SHT. No 01 NO. OF SHT. 01

DRG. NO. 3-61-100-00520

SHT. 01 OF 01



SEE "T" DIM

VARIANT No.	RECOM.QTY. SHIM SET	"T" DIM (MM SIZE)	"T" DIM (INCH SIZE)	WEIGHT PER PIECE
01	2	0.05	0.003"	0.050
02	2	0.10	0.005"	0.080
03	2	0.20	0.012"	0.200

TOTAL WEIGHT PER SET : 0.660 KGS.

NOTE:-

- 01. SHIMS TO BE MACHINE CUT & FREE OF SCALE AND FOREIGN MATTER
- 02. MATERIAL SPECIFICATION IS: 1993 GR FIRST(PRIME)

Ø22-12 HOLES. 11HOLES
EQUALLY SPACED ON A
12-HOLE PATTERN 1 HOLE
OFFSET AS SHOWN

01	SHIM SET-LOWER BRG. HSG. COVER				BA9717283028	0.660	
					AA10131		1
ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	VAR. NO.	MATERIAL CODE	NET WT.	GROSS WT.
					MATERIAL SPECN.	QUANTITY	

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COMPUTER FILE NAME
36100520.DWG

SIGN. AND DATE REF. DRG. NO.

INVENTORY NO

FOR RECOMMENDED SHIM SET SEE TABLE

REV.	DATE	ALTERED	REV.	DATE	ALTERED
02	25.02.99	CHD/APPD	01	14.10.96	CHD/APPD
ZONE	DRAWING REDRAWN IN AUTO CAD		ZONE	NOTE 02 ADDED, 'MM' SIZE FOR DIM 'T' ADDED. NOTE MODIFIED.	

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
1003 XRP BOWL MILL

	BHARAT HEAVY ELECTRICALS LTD.		DRN.	NAME	SIGN.	DATE	NO.OF VAR.
	HYDERABAD		CHD.	E.M.A		25.2.93	03
			APPD.	S.G	<i>[Signature]</i>	25.2.93	

DEPT. PULV. ENGG CODE 446	UNTOL. DIMS. GR. $\varnothing/M/\varphi$		SCALE N.T.S	WEIGHT (KG) 0.660	REF. TO ASSY. DRG.	ITEM NO. -	NO.OF ITEMS -
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TITLE **SHIM SET LOWER BEARING HOUSING COVER**

DRAWING NO. **3-61-100-00520** REV. **02**

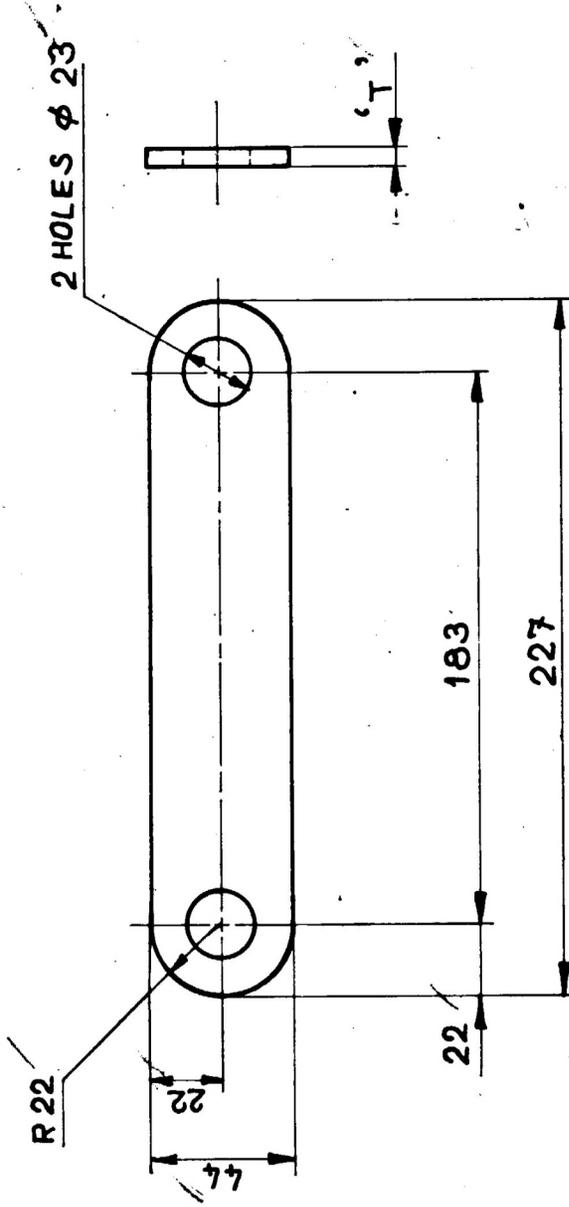
SHT. No 01 NO. OF SHT. 01

APP 166 - FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

REV	DATE	ALTERED	BY	REV	DATE	ALTERED
01	12-3-76	K. RAMESH	02			
		CHECKED	K. M. RAO			CHECKED

VAR NO-04, 05&06 ADDED
WT 1.186 WAS 0.088 KGS.

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GENERAL DIMENSIONS, LIMITS, FITS & TOLERANCES AS PER PS. HY 0230261

SD MAT CODE - 849617284278

NO	SHIM	DESCRIPTION	AA10131XXX	IS 1993	AA10131XXX	IS-1993	AA10131XXX	IS1993	AA 10131XXX	IS-1993	AA 10131XXX	IS-1993	AA 10131XXX	IS-1993	UNIT WT	QTY
06	SHIM	4 X 44 X 227												0.274	2	
05	SHIM	2 X 44 X 227												0.137	2	
04	SHIM	1 X 44 X 227												0.069	4	
03	SHIM	0.30 x 44 x 227												0.01	4	
02	SHIM	0.10 x 44 x 227												0.00	2	
01	SHIM	0.05 x 44 x 227												0.00	2	

1082-179



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

DEPT. MILUS	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG	DATE
CODE 240	NTS	1.186	B-GP-3964-0	13.8.07
				24/09/87
				29/9/87

TITLE
GRINDING ROLL SHIM SET

DRAWING NO.

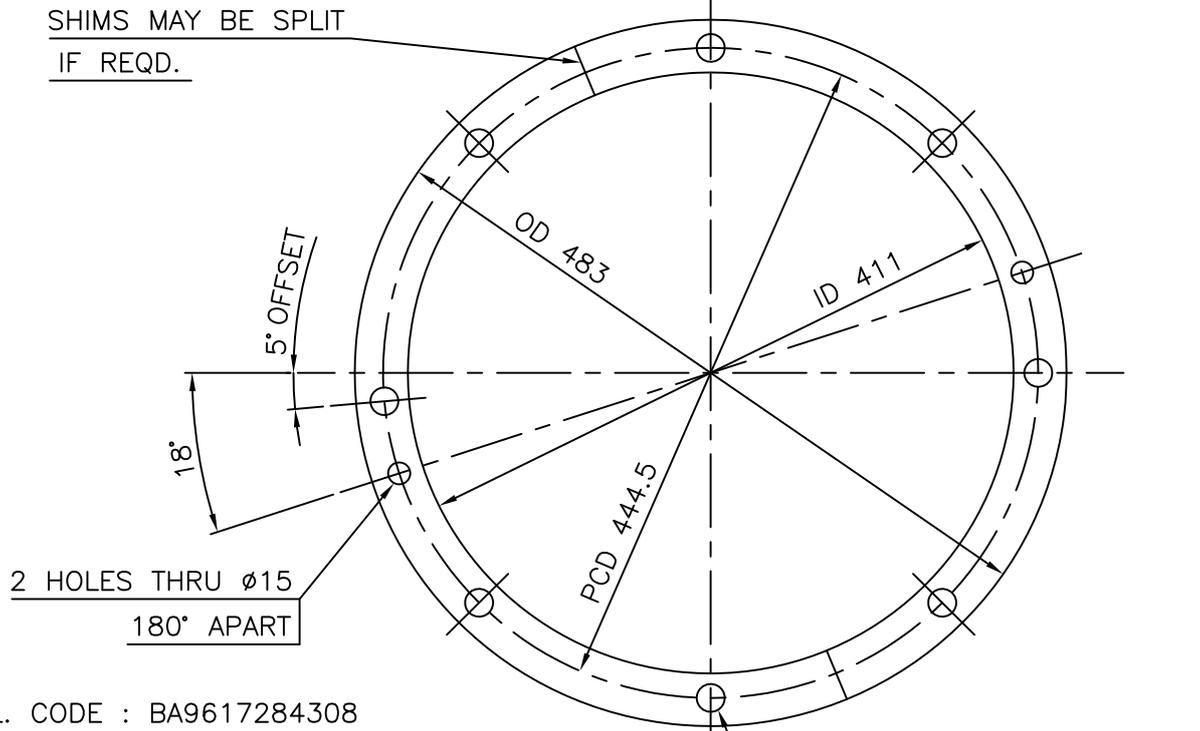
4-61-080-00961 0

FIRST ANGLE PROJECTION

(ALL DIMENSIONS IN mm)

REV. 02	DATE 27.11.03	ALTERED UC	REV.	DATE	ALTERED	ADDITIONAL INFORMATION	
		CHECKED G.S.N.M.RAO			CHECKED		STATUS OF DRAWING
		APPROVED			APPROVED		DISTRIBUTION OF PRINTS
DRG. REDRAWN BY INCORPORATING THE PREVIOUS REVISIONS.							

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MATL. CODE : BA9617284308

GENERAL DIMENSIONS, LIMITS, FITS & TOLERANCES AS PER PS HY0230261.

8 HOLES Ø19, 7 HOLES EQUI. SPACED ONE HOLE OFFSET BY 5°

04	SH. 0.5		BA9617284308	0.100
			AA10131	1
03	SH. 0.31		BA9617284308	0.060
			AA10131	1
02	SH. 0.13		BA9617284308	0.030
			AA10131	1
01	SH. 0.1		BA9617284308	0.020
			AA10131	1
ITEM NO.	DESCRIPTION	DRAWING NO.	MATL. CODE	UNIT WT.
			MATL. SPECN.	QTY

REF. DRG. NO. (A-101-00993/3)

COMPUTER FILE NAME 46102005.DWG

	BHARAT HEAVY ELECTRICALS LTD.		NAME	SIGN	DATE	NO. OF VAR.
	HYDERABAD		DRN. UNIC		14.04.97	
			CHD G.S.N.M.RAO		27.11.03	
			APPD.			

DEPT. BDG CODE 821	GRADE OF TOL. DIM Ø/M/F		SCALE 1:5	WEIGHT(K.G.) 0.21	REF. TO ASSY. DRG. 1.61.088.01019	ITEM NO. 25	NO. OF ITEMS 28
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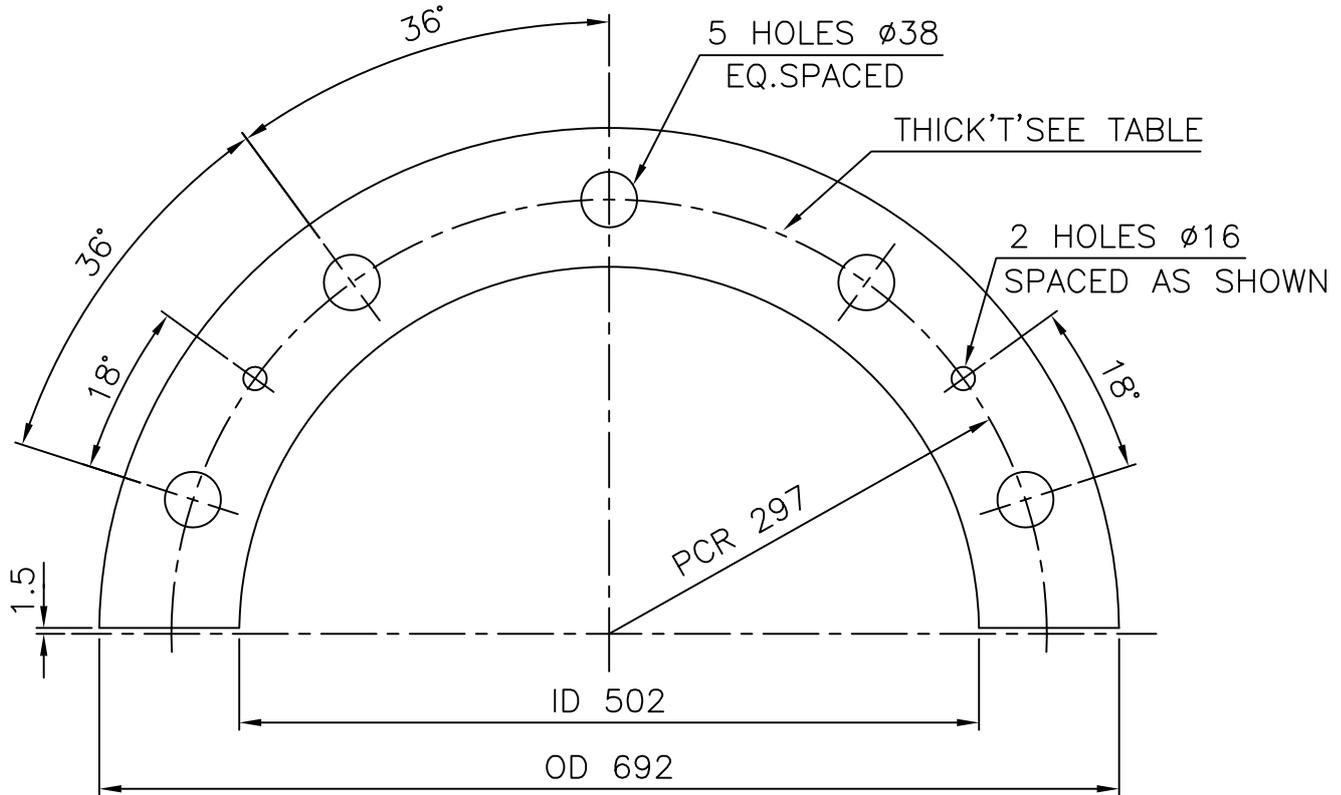
TITLE	UPPER BEARING KEEPER SHIM SET	CARD CODE	DRAWING NO. 4-61-088-02005	REV. 02
			SHEET NO. 01	NO. OF SHEETS 01

REV	DATE	ALTERED	N.D.S	REV	DATE	ALTERED	N.D.S	REV	DATE	ALTERED	CNY
01	16.6.97	CHECKED	S.G	02	16.1.99	CHECKED	S.G	03	18.5.05	CHECKED	RR
		APPROVED	K.M.R			APPROVED	K.M.R			APPROVED	GK

STY-01 THICKNESS & QTY WAS 0.76&4
 STY-02 THICKNESS & QTY WAS 0.13&4
 STY-03 THICKNESS & QTY WAS 0.3
 STY-04 THICKNESS & QTY WAS 0.542

T IN INCHES DELETED.
 QTY DOUBLED.

MATL STD WAS AA10740



NOTE:— SHIMS TO BE MACHINE-CUT AND FREE OF SCALE AND FOREIGN MATTER
 MATERIAL STANDARD IS:1079

ONE SET CONSISTS OF

STYLE	THICKNESS 'T'	MATERIAL CODE	QUANTITY PER SET
01	0.10		4
02	0.15		4
03	0.45		4
04	2.00		2

SHIM(TO SUIT)		BA9617284294	1.900	
		AA10113		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 **883 XRP BOWL MILL**

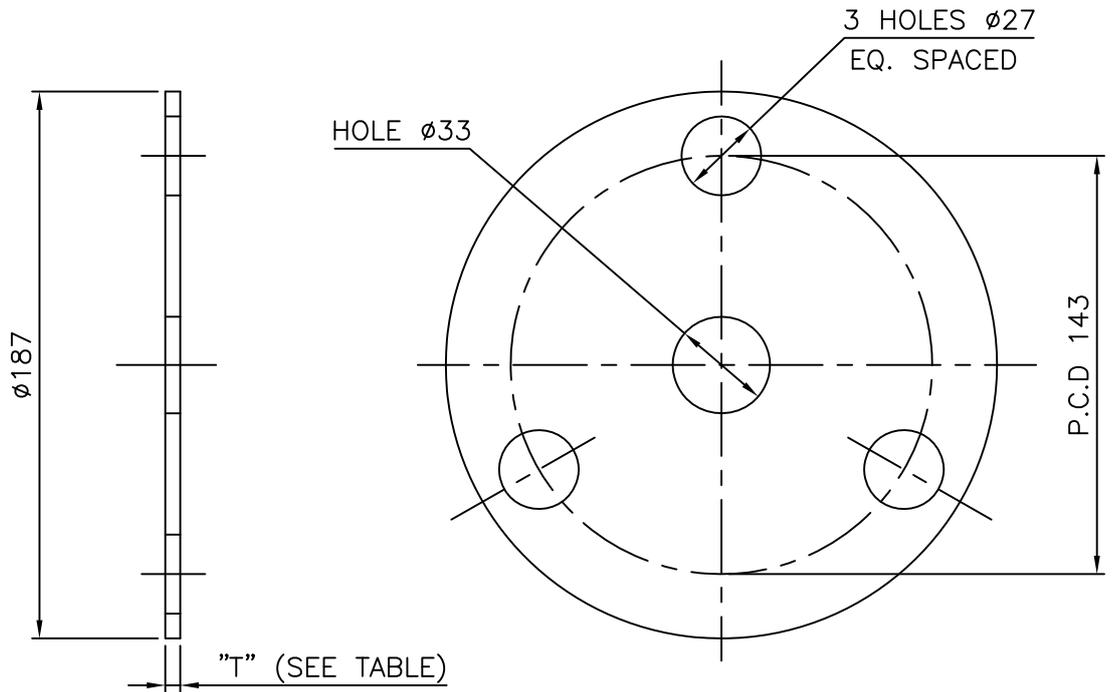
REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.	BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	DRN.	N.D.S	16.1.99	NO.OF VAR. -NA-	
		CKD.	S.G	16.1.99		
		APPD.	K.M.R	16.1.99		
DEPT. PULV.ENGG		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 446		1:5	1.900	1.61.088.01019	15	28
TITLE				DRAWING NO.	REV.	
JOURNAL BRG HSG SHIM SET				4-61-088-02062	03	
				SHT.NO. 01	NO.OF SHT. 01	

COMPUTER NO. 46102062.DWG IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.
 REF. DRG. NO. A-101-00210-3
 SIGN. & DATE
 INVENTORY NO.

FIRST ANGLE PROJECTION

(ALL DIMENSIONS IN mm)

REV. 01	DATE 14.04.97	ALTERED UC	REV. 02	DATE 13.11.04	ALTERED	ADDITIONAL INFORMATION
		CHECKED N.D.S			CHECKED	
		APPROVED S.G			APPROVED S.G	
DRG. REDRAWN ON AUTOCAD.			NOTE 2 MODIFIED. INCH REMOVED FROM VAR TABLE.			STATUS OF DRAWING _____
DISTRIBUTION OF PRINTS _____						



NOTES:-

- 01. SHIMS TO BE MACHINE-CUT AND FREE OF SCALE AND FOREIGN MATTER
 - 02. ALL DIMENSIONS ARE IN MM.
- ONE SET CONSISTS OF ALL VARIANTS AND QTY SHOWN.

STYLE	THICKNESS 'T'	MATERIAL SPEC.	QUANTITY PER SET
01	0.08	AA 10114	2
02	0.12	AA 10114	2
03	0.30	AA 10114	3
04	0.80	AA 10114	2

GENERAL DIMENSIONS, LIMITS, FITS & TOLERANCES AS PER PS HY0230261.

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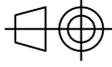
REF. DRG. NO.

COMPUTER FILE NAME
46100468.DWG

INVENTORY NO.

ITEM NO.	DESCRIPTION	DRAWING NO.	BA9617284260	0.600
			STEEL SHEET	1 SET
ITEM NO.	DESCRIPTION	DRAWING NO.	MATL. CODE	UNIT WT.
			MATL. SPECN.	QTY

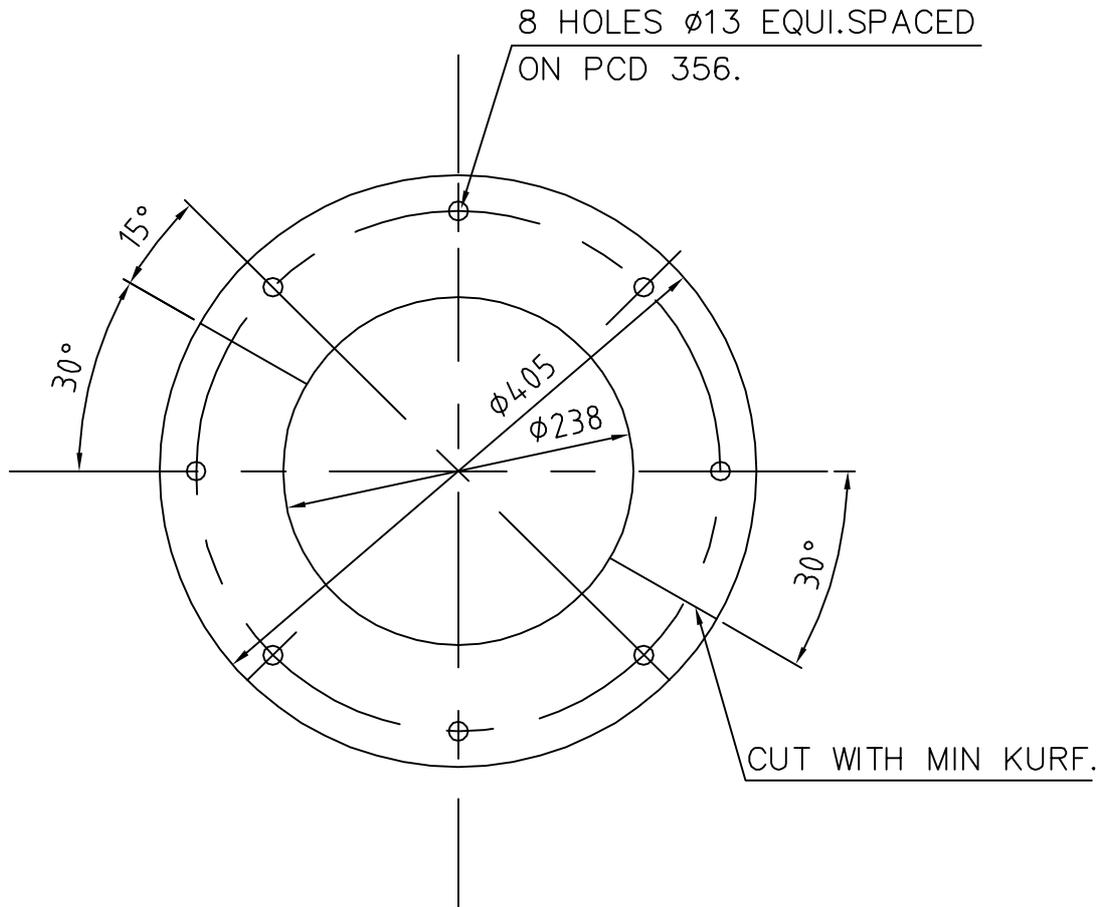
 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	NAME	SIGN	DATE	NO.OF VAR.
	DRN. UNIC		14.04.97	
	CHD N.D.SAMUEL	<i>N.D. Samuel</i>	14.04.97	NA
	APPD. S.GHATGE	<i>S. Ghatge</i>	14.04.97	

DEPT. BGD	GRADE OF TOL. DIM	 SCALE 1:2.5	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEMS
CODE 821	Ø/M/ƒ		0.600	1-61-088-01019	11	28

TITLE	CARD CODE	DRAWING NO.	REV.
JOURNAL BRG KEEPER SHIM	U 01	4-61-096-00468	02
		SHEET NO. 01	NO. OF SHEETS 01

REV.	DATE	ALTERED	EMA	REV.	DATE	ALTERED	EMA	REV.	DATE	ALTERED	
01	4.1.03	CHECKED	NDS	02	12.8.03	CHECKED	NDS			CHECKED	
		APPROVED	SG			APPROVED	SG			APPROVED	
DRAWING REDRAWN ON AUTOCAD				8 HOLES EQUI. SPACED SHOWN CORRECTLY.							

6.3 ✓

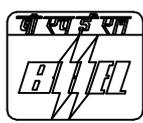
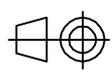


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COMPUTER NO. 46100694
REF. DRG. NO.
SIGN & DATE
INVENTORY NO.

SHEET		SH.0.63XØ405	-BA9617284200	0.417	
					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

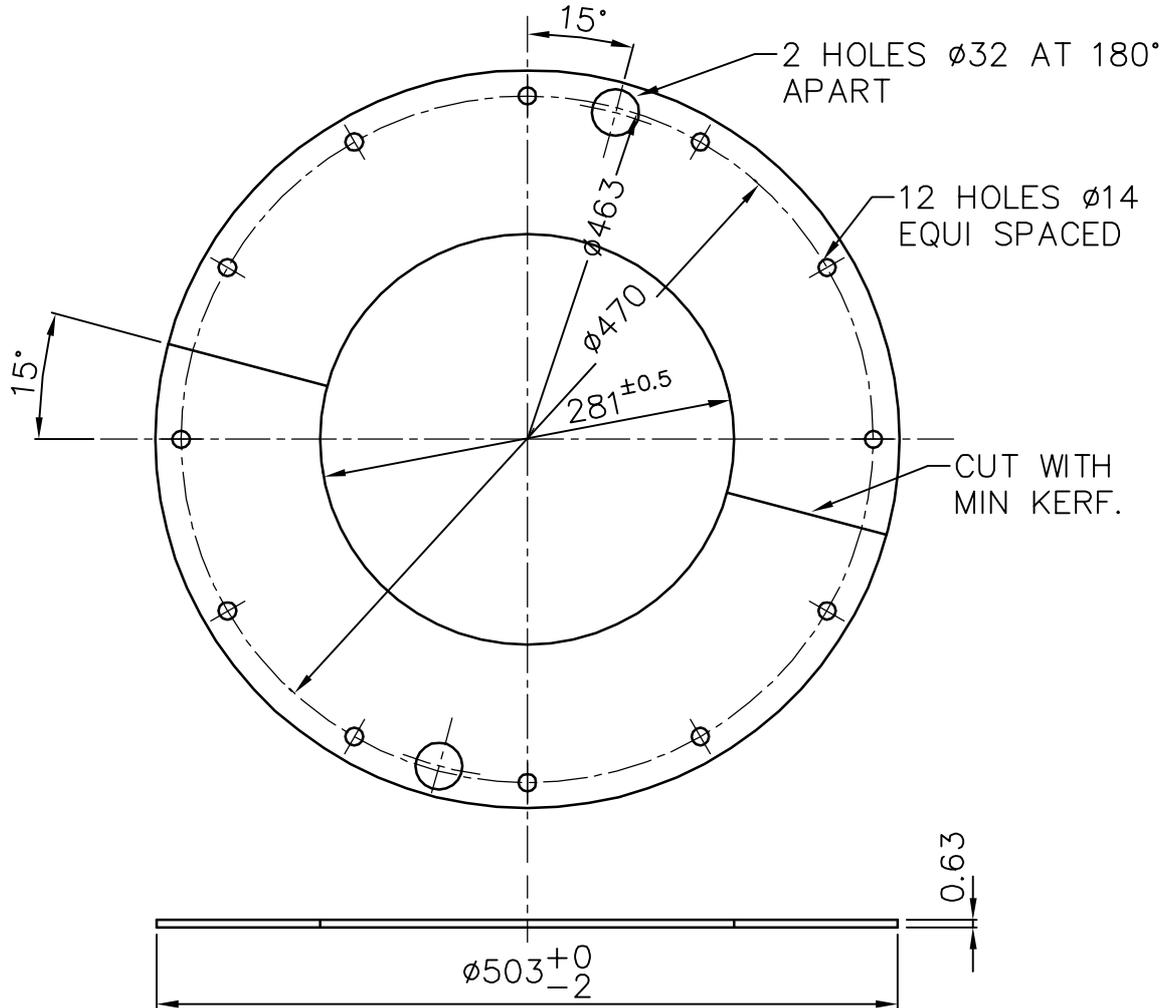
 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD	DRN.	RAZVI	SIGN		DATE	4.1.03	NO.OF VAR.
	CKD.	N.D.S.	SIGN	<i>[Signature]</i>	DATE	4.1.03	
	APPD.	SG	SIGN	<i>[Signature]</i>	DATE	4.1.03	
DEPT. PULV.ENGG	 SCALE 1:5	WEIGHT(K.G.)	REF.TO ASSY.DRG.		ITEM NO.	NO.OF ITEM	
CODE 446		0.417	-		-	-	
TITLE		DRAWING NO.				REV.	
SHIM		4-61-162-00694				02	
			SHT.NO. 01	NO.OF SHT. 01			

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN mm.

REV. 02	DATE 22.03.03	ALTERED PAVAN KUMAR CHECKED APPROVED	REV. 03	DATE 06.04.04	ALTERED PAVAN KUMAR CHECKED S.GHATGE APPROVED	REV. 04	DATE 7.7.06	ALTERED AMAN CHECKED S.GHATGE APPROVED
DRG. REDRAWN BY INCORPORATING ALL PREVIOUS REVISIONS.			TOL ADDED ON $\phi 505$. $\phi 14$ WAS $\phi 12$.			DIM $\phi 503$ WAS $\phi 505$		

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



TO BE MATCH MACHINED ALONG WITH SPACER RING (46118000682) GASKET (46118000683)

SHIM		SH. 0.63x520x520	BA9617284138	0.260	
			AA10114		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.	B.PAVAN KUMAR			22.3.03	
		CKD.	N.D.SAMUEL			22.3.03	
				APPD.	SATISH GHATGE		22.3.03
DEPT. PULV.ENGG		SCALE 1:5	WEIGHT(K.G.) 0.260	REF.TO ASSY.DRG. 4-61-176-00312	ITEM NO. /	NO.OF ITEM /	
CODE 446				DRAWING NO. 4-61-180-00680		REV. 04	
TITLE SHIM				SHT.NO. 01		NO.OF SHT. 01	



CORPORATE PURCHASING SPECIFICATION

AA10113

Rev No.07

PREFACE SHEET

HOT ROLLED CARBON STEEL SHEET (330 N/mm² Tensile)

FOR INTERNAL USE ONLY

REMOVE THIS PREFACE BEFORE ISSUE TO SUPPLIERS

Comparable Standards:

1. INDIAN : IS: 5986 – 2011, Gr: 205

Suggested/Probable Suppliers and Grades:

Refer plant vendors list

User Plants References:

1. HEEP, HARDWAR : 0500.004, Gr.: St.34
2. HPEP, HYDERABAD : HY0212299
3. HEP, BHOPAL : PS10113
4. HPBP, TRICHY :

Revisions:
As per Cl.No.38.1 of MOM of MRC– S&GPS

APPROVED:
INTERPLANT MATERIAL RATIONALISATION
COMMITTEE – MRC(S&GPS)

Rev No.07	Amd No.	Reaffirmed	Prepared	Issued	Dt. of 1 st Issue
Dt:22-02-2014	Dt:	Year:	HEP, Bhopal	Corp.R&D	July, 1976

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CORPORATE PURCHASING SPECIFICATION

AA10113

Rev No. 07

PAGE 1 of 5

HOT ROLLED CARBON STEEL SHEET (330 N/mm² Tensile)

1.0 GENERAL:

This specification governs the quality requirements of Hot Rolled Carbon Steel Sheet of thickness of 2.5 mm to 4.0 mm (both inclusive).

2.0 APPLICATION:

Suitable for cold forming / drawing / fabrication by welding.

3.0 CONDITION OF DELIVERY:

Sheets shall be supplied in hot rolled, decaled and oiled condition. Imported sheets shall be supplied in straight lengths. The edges shall be flattened and sheared. Mill edges are not acceptable. Sheets shall be free from waviness and shall have a uniformly dull (matt) finish.

Oil used for rust prevention should be free from pungent smell. The following oils are suggested:

- a) SERVO RP 125 of M/s. IOC.
- b) RUSTOP 387/388 of M/s. HPC
- c) Bharat TCPF of M/s. Bharat Petroleum
- d) Any other TRP conforming to IS : 1154

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

The material shall comply with the requirements of the following National standards and also meet the requirements of this specification.

IS: 5986 – 2011, Gr.: 205: Hot rolled steel flat products for structural forming and flanging purposes - Specification.

5.0 DIMENSIONS AND TOLERANCES:

5.1 Sizes:

Hot rolled carbon steel sheets shall be supplied to the dimensions in BHEL order.

5.2 Tolerances:

The tolerances on sheets shall comply with the following:

5.2.1 Thickness (IS: 1852):

Thickness, mm	Tolerance, mm
2.50	± 0.20
3.15	± 0.22
4.0	± 0.25

Revisions:
As per Cl.No.38.1 of MOM of MRC– S&GPS

APPROVED:
INTERPLANT MATERIAL RATIONALISATION
COMMITTEE – MRC(S&GPS)

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Dt:22-02-2014	Dt:	Year:	HEP, Bhopal	Corp.R&D	July, 1976

CORPORATE PURCHASING SPECIFICATION



5.2.2 Width (IS: 1852):

Width, mm	Tolerance, mm
Upto & incld. 1250 mm	+ 6 mm - 0 mm
Over 1250 mm & upto and incld.1550 mm	+ 0.5 percent - 0.0 percent
Over 1550 mm	+ 0.6 percent - 0.0 percent

5.2.3 Length (Continuous mill) IS: 1852:

Length, mm	Tolerance, mm
Upto & incld. 2500 mm	+ 25 mm - 00 mm
Over 2500 mm	+ 1 percent subject to a maximum of 70 mm - 0 percent

5.2.4 Flatness (for cut lengths):

Thickness, mm	Width, mm	Flatness tolerance, mm
From 2.5 to 4.0	Upto & incld. 1200	15
	Over 1200 & upto incld. 1500	20
	Over 1500	25

5.2.5 Edge camber IS: 5986:

The edge camber (i.e. lateral departure of the edge of the material from a straight line forming a chord) of sheets in cut lengths and coil shall not exceed the following values:

5.2.5.1 For Cut Lengths:

Length in meters		Tolerance, mm
Over	Upto & incld.	
--	1.25	5
1.25	1.80	6
1.80	2.50	8
2.50	3.15	10
3.15	3.55	12
3.55	4.00	16
4.00	5.00	19

5.2.5.2 For Coils:

25 mm in any 5000 mm length.



CORPORATE PURCHASING SPECIFICATION

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Rev No.07

PAGE 3 of 5

6.0 MANUFACTURE:

Process of manufacture is left to the discretion of the manufacturer except Bessemer process.

Material shall be manufactured from semi killed or killed steel.

7.0 FREEDON FROM DEFECTS:

The sheets shall be free from harmful defects, twists, buckle, rust, scale and waviness and shall be reasonably smooth, flat and square.

8.0 CHEMICAL COMPOSITION:

The melt analysis of steel and the permissible variation in the composition of the material from the melt analysis shall be as follows:

Element	Melt analysis, percent, max.	Permissible variation, percent, max.
Carbon	0.15	0.03
Manganese	0.80	0.05
Sulphur	0.040	0.005
Phosphorus	0.040	0.005

9.0 TEST SAMPLES:

9.1 Tensile Test:

One sample shall be taken per thickness per consignment from each melt.

As far as possible test pieces shall be cut transverse to the direction of rolling and shall be of full thickness of the sheet rolled.

9.2 Bend Test:

One sample shall be taken per thickness per consignment from each melt.

Bend test pieces shall be cut so that the axis of the bend is parallel to the direction of rolling viz. transverse.

Note: When more than one thickness is rolled from the same melt, one additional test piece for each thickness shall be taken.

10.0 MECHANICAL PROPERTIES:

10.1 Bend:

When tested in accordance with IS: 1599, the test pieces shall be capable of being bent cold through 180° close. The outer convex surface of the test piece shall be free from cracks.

10.2 Tensile:

When tested as per IS: 1608, the test pieces shall show the following properties:

CORPORATE PURCHASING SPECIFICATION



Tensile strength	: 330 – 440 N/mm ²
Yield strength	: 205 N/mm ² , min.
Elongation:	
For sheets up to & Incl. 3 mm, thick	: 20 %, minimum on 80 mm gauge length
For sheets above 3 mm, thick	: 28 %, minimum in 5.65 √So gauge length

11.0 HARDNESS (VICKERS):

When tested in accordance with IS: 1501, the material shall show a Vickers hardness in the range of 100 – 140 HV.

Note: Hardness test shall be conducted only when tensile test cannot be performed.

12.0 TEST CERTIFICATES:

Unless otherwise specified, three copies of test certificates shall be supplied.

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

The test certificate shall bear the following information:

AA10113, Rev 07: HOT ROLLED CARBON STEEL SHEET (330 N/mm² Tensile)

BHEL Order No,

Supplier's name,

Identification No

Melt No,

Process of manufacture

Details of pickling, descaling and oiling

Results of dimensional inspection

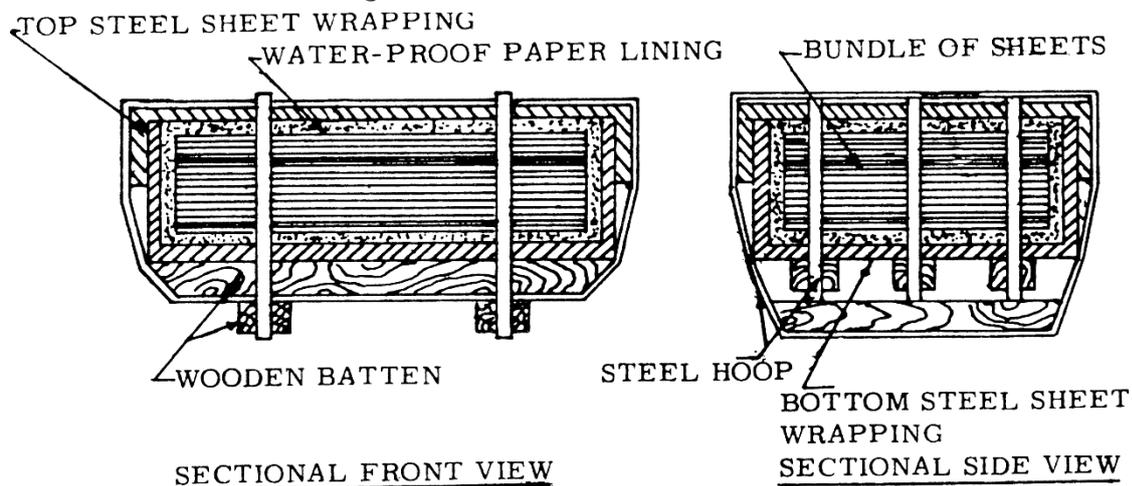
Results of Chemical analysis and Mechanical tests,

Note: Material procured, supplied and certified as AA10113 / IS: 5986, Gr.:205 and comply with the requirements of this specification is acceptable.

13.0 PACKING AND MARKING:

Steel sheets shall be supplied in bundles and shall be suitably packed in bundles to prevent corrosion and damage during transit.

The recommended packing for imported material shall be as shown below.





CORPORATE PURCHASING SPECIFICATION

AA10113

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PAGE 3 of 5

Note:

- a) Water proof paper lining shall be preferably Volatile Corrosion Inhibitor (V.C.I.) Coated Paper with an additional polythene (100 micron) enveloped.
- b) Approximate weight of each bundle shall be 2 to 3 tonnes. Bundle weighing 2 metric tonnes is however preferred.

A metal label shall be securely attached to each bundle and shall bear the following information:

AA10113:HOT ROLLED CARBON STEEL SHEET (330 N/mm² Tensile)

BHEL Order No,

Supplier's Name & Identification No,

Size & Thickness of sheets

Weight

14.0 REFERRED STANDARDS (Latest publications including amendments):

- 1) IS: 1154 2) IS: 1501 3) IS: 1852 4) IS: 1599 5) IS: 1608

**CORPORATE PURCHASING SPECIFICATION**

AA 101 14

Rev. No. 07

PREFACE SHEET

COLD ROLLED CARBON STEEL SHEET-ORDINARY

FOR INTERNAL USE ONLY
REMOVE THIS PREFACE SHEET BEFORE ISSUE TO SUPPLIERS

Comparable Standards:

1. INDIAN : IS: 513-1994
Gr: O-Ordinary
Quality : Killed/Semi Killed
Temper : No 4-Annealed & skin passed
Surface finish : Matt
Surface type : Best

Suggested/Probable Suppliers And Grades:

1. M/s SAIL : IS : 513, Gr.: O

User Plant References:

1. BHOPAL : --
2. HEER, HARDWAR : --
3. HYDERABAD : HY 021 02 99
4. TIRUCHY : BM-C 07

Revisions :

Cl: 27.6.7 of MOM of MRC-S&GPS

APPROVED :**INTERPLANT MATERIAL RATIONALISATION
COMMITTEE-MRC (S&GPS)**

Rev. No. 07

Amd.No.

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Prepared

Issued

Dt. of 1st Issue

Dt: 15.06.2005

Dt :

Year :

BHOPAL

Corp. R&D

JULY, 1976

**CORPORATE PURCHASING SPECIFICATION**

AA 101 14

Rev. No. 07

PAGE 1 OF 6

COLD ROLLED CARBON STEEL SHEET – ORDINARY**1.0 GENERAL:**

This specification governs the quality requirements of Cold Rolled Carbon Steel Sheet of ordinary quality, Annealed and skin passed condition. Sheets having thickness of 0.40 to 2.50 mm (both inclusive) are covered in this specification.

2.0 APPLICATION:

Suitable for general purpose.

3.0 CONDITION OF DELIVERY:

Cold rolled descaled and oiled sheets/coils shall be supplied in fully annealed and skin passed condition. The size, weight and packing of the coils/sheets shall be as agreed to between the manufacturer and BHEL for indigenous material. For imported material, it shall comply with clause 14.0.

Sheets shall be supplied in straight lengths or in coils as specified in BHEL order.

Sheets shall be flat and the edges cleanly sheared and truly squared to the specified dimensions.

Oils used for rust prevention shall be free from pungent smell. The following oils are suggested :

- a) SERVO RP 125 of M/s. IOC.
- b) RUSTOP 387/388 of M/s. HPC
- c) Bharat TCPF of M/s. Bharat Petroleum
- d) Any other TRP conforming to IS : 1154

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

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

IS: 513-1994, Gr: O-ordinary

Temper: No 4, Annealed & Skin passed;

Quality: killed/semi killed

Surface type - Best;

Surface finish : Matt.

Revisions :**Cl. 27.6.7 OF MOM OF MRC-S&GPS****APPROVED :****INTERPLANT MATERIAL RATIONALISATION
COMMITTEE-MRC (S&GPS)**

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Prepared

Issued

Dt. of 1st Issue

Dt.:15.06.2005

Dt :

Year :

BHOPAL

Corp. R&D

JULY, 1976



5.0 DIMENSIONS AND TOLERANCES:

5.1 Sizes:

Cold rolled carbon steel sheets shall be supplied to the dimensions specified in BHEL order.

5.2 Tolerances:

The tolerances on sheets shall comply with IS : 513 as detailed below:

5.2.1 Thickness:

Shall comply with table 6 of IS:513.

5.2.2 Width:

<u>Width</u>	<u>Tolerance</u>
Upto and incld. 1250 mm	+ 7 mm - 0 mm
Above 1250 mm	+ 10 mm - 0 mm

5.2.3 Length:

<u>Width</u>	<u>Tolerance</u>
Up to and incld. 2000 mm	+ 15 mm - 0 mm
Over 2000 mm	+ 0.75 percent of length - 0 percent

5.2.4 Edge Camber:

The edge camber (ie. Lateral departure of the edge of the material from a straight line forming a chord) of sheets in cut lengths/coils shall not exceed 0.4 percent X length.

5.2.5 Out of Square Tolerances (for cut lengths) :

1 % (percent) of the width.

(Out of squareness is the deviation of an edge from a straight line drawn at a right angle to the other edge of the sheet, touching one corner and extending to the opposite edge).

6.0 MANUFACTURE :

Steel shall be manufactured by open-hearth, electric, basic oxygen or a combination of these processes.

Material shall be manufactured from semi – killed or killed steel.

Rimmed steel is not acceptable.

7.0 FINISH:

Material shall have a medium or dull finish. Pores, roll marks or scratches which do not impair uniform appearance of the finished product are permissible. The sheets shall be free from waviness and the surface shall be ideal for spray painting.

**8.0 HEAT TREATMENT :**

Sheets shall be fully annealed and skin passed.

9.0 FREEDOM FROM DEFECTS :

The material shall be free from harmful defects such as scale, rust, blisters, laminations, pitting, cracked edges, etc.

10.0 CHEMICAL COMPOSITION :

The melt analysis of steel and the permissible variation in the composition of the material from the melt analysis shall be as follows:

Element	Melt analysis, percent, max	Permissible variation, percent, max.
Carbon	0.15	0.02
Manganese	0.60	0.03
Sulphur	0.055	0.005
Phosphorus	0.055	0.005

11.0 TEST SAMPLES:

One bend test and hardness test shall be carried out from each melt and heat treatment batch of each size.

Test pieces shall be cut so that the axis of the bend is parallel to the direction of rolling, viz., transverse direction.

12.0 MECHANICAL PROPERTIES :**12.1 Bend Test :**

The test piece shall be capable of being bent cold through 1 t (t = thickness) without showing sign of cracks or fracture on the outer convex surface.

Bend test shall be carried out in accordance with IS : 1599.

12.2 Hardness (Vickers) :

When tested as per IS : 1501, the test pieces shall show a Vickers hardness of 120 HV, max..

12.3 Tensile Strength (for information only):

275 N/mm² for design purpose.



13.0 TEST CERTIFICATES:

Unless otherwise specified, three copies of test certificates shall be supplied.

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

The test certificate shall bear the following information:

AA 101 14, Rev 07: Cold rolled carbon steel sheet-ordinary

BHEL Order No,

Melt No,

Process of manufacture

Supplier's name,

Identification No

Details of oiling and heat treatment

Dimensional inspection

Results of Chemical analysis and Mechanical tests

Note: Material procured, supplied and certified as AA 101 14, Rev 07/IS:513, Gr.: O-ordinary from M/S SAIL and comply with the requirements of this specification is acceptable.

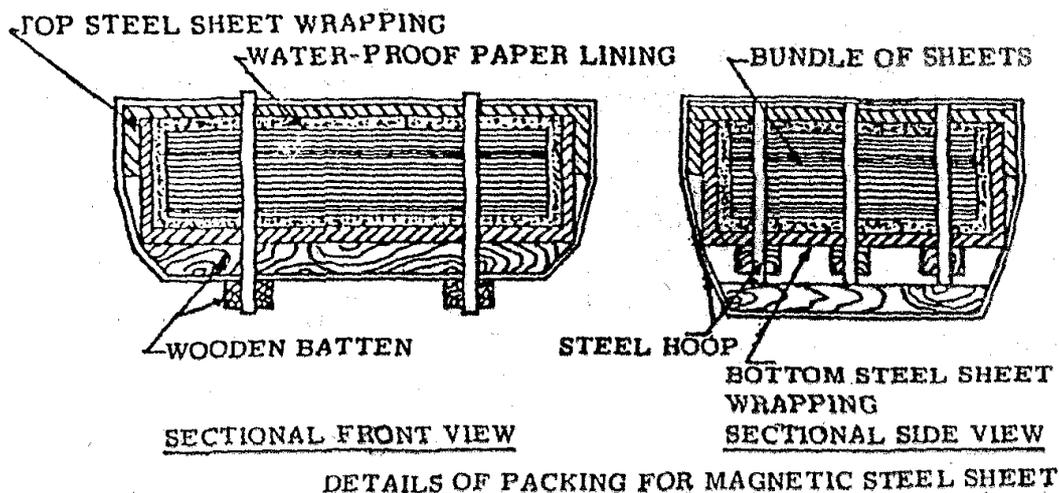
14.0 PACKING AND MARKING:

14.1 Packing:

Sheets and Coils shall be suitably packed in bundles to prevent corrosion and damage during transit.

Recommended packing for imported material shall be as shown below. However, other methods of packing is also acceptable if prior agreement of BHEL is obtained in writing by the manufacturer.

14.1.1 Sheets :



Note:

- Water proof paper lining shall be preferably Volatile Corrosion Inhibitor (V.C.I.) Coated Paper with an additional polythene (100 micron) enveloped.
- Approximate weight of each bundle shall be 2 to 3 tonnes. Bundle weighing 2 metric tonnes is however preferred.



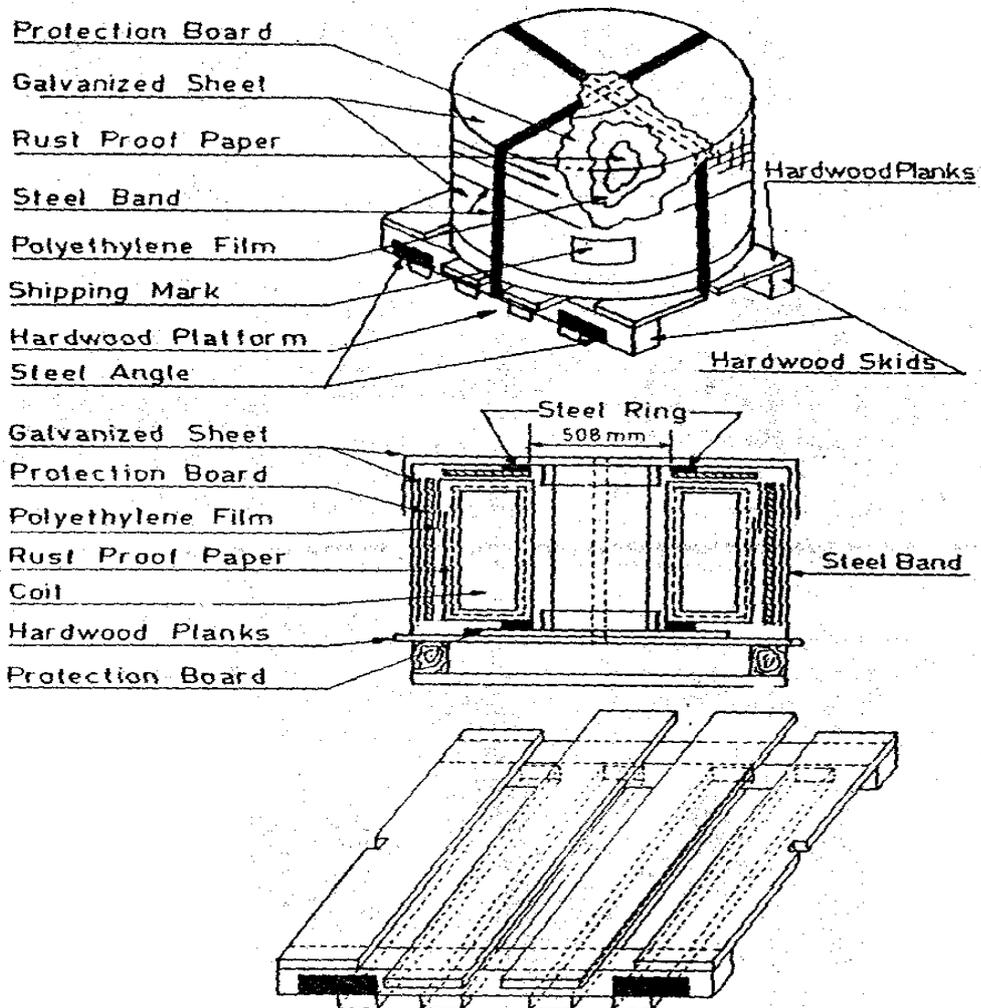
14.1.2 Coils:

The material shall be supplied in coils of continuous strip. The nominal weight of each coil shall be 1800 - 2000 kg.

The nominal internal diameter of coil shall be 500 mm.

Sheet shall be protected to prevent damage and rusting during transit.

Sheet shall be vertically packed according to the instructions and drawings given below:





- a) An annular protection board shall be placed at either end of the coil.
- b) The coil should then be wrapped with waterproof anti-rust proof paper by lapping axially all around the circumference.
- c) The coil shall then be covered by polythylene sheet or anti-rust waterproof paper and the ends sealed properly.
- d) A galvanized sheet shall be wrapped on the outside of the coil and the top and bottom of the coils. Care shall be taken to ensure that the ends of the top and bottom of the coils extend sufficiently over the inside diameter of the coil.
- e) A galvanized sheet shall be wrapped on the inside of the coil. Care shall be taken that it overlaps sufficiently over the ends of the sheet mentioned in (d) above.
- f) Steel ring made from thick angle sheets shall be placed on the rim of the inner diameter at both ends of the coil. The rings shall be held at either ends at four points by steel bands.
- g) The coil should then be mounted on wooden skids held together by steel bands. Wooden skids must have cutouts to house the steel bands for tight fit and to avoid slippage.
- h) The packing shall ensure that there is no seepage of moisture and the coils reach BHEL in completely rust free condition. It shall be strong enough to withstand handling.
- i) Coils shall be sufficiently tight-wound to prevent collapse to an extent that would preclude their being mounted on a mandrel appropriate to the ordered internal diameter.
- j) Each package should indicate the , Sling Position, for lifting without damage. It is preferable to fix a suitable size of, 'Sheet Steel Angle', at the position where the Sling Rope is to be fitted to avoid slippage/damage/breakage of the wooden skid at four places.

14.2 MARKING:

A metal label shall be securely attached to each bundle and shall bear the following information :

AA 101 14 : Cold rolled carbon steel sheet-ordinary

BHEL Order No,

Supplier's Name & Identification No,

Melt No, Size & Thickness of sheet,

Bundle No., Weight.

15.0 REFERRED STANDARDS (Latest Publications Including Amendments) :

1. IS : 513

2. IS : 1154

3. IS : 1501

4. IS : 1599



CORPORATE PURCHASING SPECIFICATION

AA 10131

Rev. No. 05

PAGE 1 OF 4

COLD-REDUCED MILD STEEL SHIMS

1.0 GENERAL:

This specification governs the quality requirements of Cold Mild Steel Shims of thickness 0.05 to 0.49 mm, supplied in the form of sheets in coils.

2.0 APPLICATION:

For shims and other general engineering purposes.

3.0 CONDITION OF DELIVERY:

Cold-Reduced sheets in coils.

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

There is no Indian standard covering this thickness of material. However, assistance has been derived from IS:2385.

5.0 DIMENSIONS AND TOLERANCES:

5.1 Sizes:

Material shall be supplied to the dimensions specified on the order.

5.2 Tolerances:

The thickness of shim/sheet shall comply with the following:

5.2.1 Thickness:

Average thickness of consignment:

The mean of the thickness of each lot of 5 sheets selected from a package shall not deviate from the ordered nominal thickness by more than ± 2.5 percent.

Average thickness of individual sheet:

The average thickness of any of the 5 sample sheets selected from a package shall not deviate by more than ± 8.5 percent from the ordered nominal thickness.

Variation within a sheet:

The thickness of an individual specimen shall not deviate by more than ± 4 percent from the average thickness of the sheet.

5.2.2 Length and Width:

+ 5 mm
- 0 mm

Revisions : Ref: e-mail from
B.Choudary,HW dt.19.02.2009

APPROVED :Interplant Material
Rationalisation Committee - MRC S&GPS

Rev. No. 05	Amd.No.	Reaffirmed	Prepared BHOPAL	Issued Corp. R&D	Dt. of 1st Issue Aug. 76
Dt.20.2.2009	Dt :	Year :			

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5.2.3 Shape:

Flatness:

Sheet shall be commercially flat when placed vertical and horizontal positions.

Sheets hanging from vertical position shall not show bowing of more than 5 mm.

Edge waviness:

Sheet lying on a flat surface shall not show edge waviness of more than 3 mm.

Squareness:

The maximum out of squareness shall not normally exceed 0.15 percent of the length. However, 5 percent of the sheet may exceed this limit to a maximum of 0.25%.

Camber:

Maximum camber on any edge shall be such that the deviation from the straight line does not exceed 0.15 percent on any side.

6.0 MANUFACTURE :

The method of manufacture of the material shall be at the discretion of manufacturer.

7.0 TREATMENT:

The hot-rolled strip shall be pickled, cold-reduced with or without intermediate annealing and cleaned, annealed and finally temper-rolled, if necessary, to obtain the desired condition of the material and surface.

8.0 FREEDOM FROM DEFECTS:

The material shall be free from cracks, pitting, blisters, laminations and other surface defects.

9.0 CHEMICAL COMPOSITION :

The melt analysis of steel and permissible variation in the composition of the material from the melt analysis shall be as follows:

Element	Percent, Max.	Permissible variation, Percent, Max.
Carbon	0.12	0.02
Manganese	0.60	0.03
Sulphur	0.050	0.005
Phosphorus	0.050	0.005

10.0 TEST SAMPLES:

Hardness Test:

One sample shall be selected from each package.

**11.0 HARDNESS (VICKERS):**

When tested in accordance with IS: 1501, the test pieces shall have a Vicker's hardness in the range of 80-120 HV.

12.0 INSPECTION AT SUPPLIERS' WORKS :

Whenever specified, tests and inspection are to be conducted in the presence of BHEL's representative.

BHEL's representative shall have free access at all times while the work on the contract is being performed, to all parts of the manufacturer's works. The manufacturer shall offer BHEL's representative all reasonable facilities without charge to satisfy the latter that the material is being furnished in accordance with this specification. The manufacturer shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities do not exist at his works, the manufacturer shall make necessary arrangements for carrying out the prescribed tests elsewhere. The manufacturer shall notify BHEL's representative in advance about the readiness of the material for inspection and testing.

BHEL reserves the right to test the material at BHEL's works and the final acceptance of the material shall be based on these test results.

13.0 TEST CERTIFICATES :

Three copies of test certificates shall be supplied unless otherwise stated on the order.

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 :

BHEL References :

AA 10131 : Rev.No. 05

BHEL Order No.

Supplier's References :

Name

Identification No.

Melt No.

Process of manufacture.

Results of tests :

Dimensional inspection.

Results of chemical analysis and mechanical tests.

14.0 PACKING AND MARKING :**14.1 Packing:**

The material shall be supplied in coils of continuous strip. The nominal weight of each coil shall be 1800-2000kg. The nominal internal diameter of coil shall be 500 mm.

Sheet shall be protected to prevent damage and rusting during transit.

Sheet shall be packed in line with IS: 2385.

**14.2 Marking:**

A metal label shall be securely attached to each bundle and shall be marked with the following:

AA 101 31 : Cold - Reduced M.S Shims
BHEL Order No.
Consignment / Identification No.
Weight, Size and Thickness
Supplier's Name and Grade
Melt No.
Packet/ Bundle No.

15.0 REJECTION AND REPLACEMENT :

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or any defect is found during the course of further processing, such material shall be rejected notwithstanding any previous certification of satisfactory testing and/or inspection.

The manufacturer shall undertake to replace the rejected material of his own cost and the rejected material shall be taken back by the supplier after fulfilling the commercial terms and conditions.

16.0 REFERRED STANDARDS :

The following is the list of the latest standards, as published by the respective issuing bodies, referred to in this specification.

1. IS:228

2. IS:1501

3. IS:2385

TD-106-1

Rev.5

Form No.



PRODUCT STANDARD

PULVERISERS
HYDERABAD

PRODUCT
STD No. BA55016

Rev. No. 01

PAGE 01 OF 02

SHIMS FOR JOURNAL HOUSING

MATERIAL CODE : SEE TABLE

MATERIAL : AS PER IS:1079 & IS:1993

TOLERANCE : AS PER IS 1852

NOTE:

- SURFACE MUST BE FLAT, TRUE & PARALLEL
- MACHINE OUT AND FREE FROM FOREIGN MATTERS
(ALL EDGES TO BE SMOOTH)
- ALL DIMENSIONS ARE IN mm
- ONE SET CONSISTS OF FOLLOWING THICKNESS
ONE NO IN EACH THICKNESS.

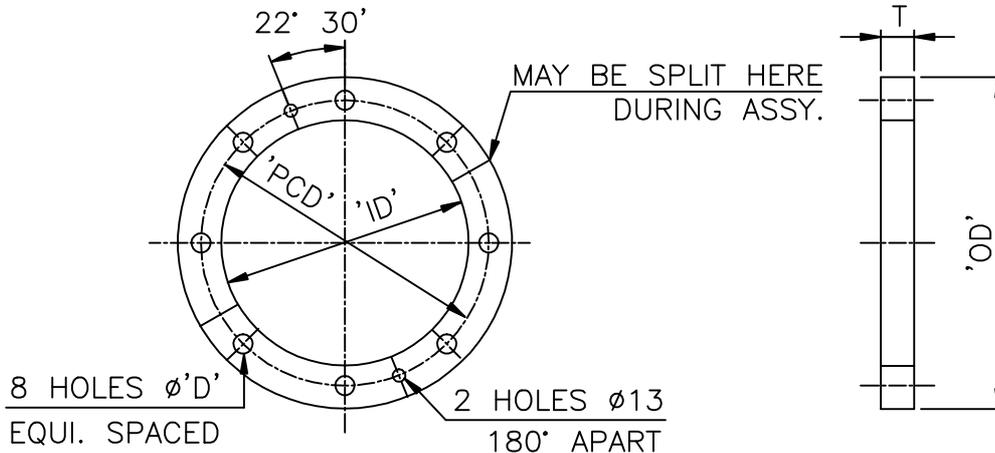
THICKNESS SIZES : 0.10, 0.15, 0.20, 0.30, 0.40, 0.50, 1.00, 1.60 & 1.80

PACKING : ALL THE SHIMS TO BE TIED AS A SET

MARKING : A TAG WITH SPECTION & VAR NO.

BOWL MILL : 583, 603 XRS, 623,603 XRP
763, 783, 803 XRP

LOCATION : JOURNAL ASSY,60-358,60-360,61-362,61-360, 61376, 61-378 & 61-380



TABLE

MILL TYPE	VAR No.	'OD'	'ID'	'PCD'	ø'D'	MAT.CODE
803	01	559	436	489	40	BA9755016007
623	02	419	308	365	30	BA9755016015

FOR REVISIONS REFER RECORD OF REVISIONS

PREPARED

APPROVED

DATE

B M R

RAMANNA

2000.03.20

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COMP. FILE NAME

BA55016.DWG

Ref. Doc.

A-654 & A-612

TD-106-1

Rev.5

Form No.



PRODUCT STANDARD

PULVERISERS

HYDERABAD

Spec.NO: BA55017

Rev. No. 01

PAGE 01 OF 02

SHIMS

MATERIAL CODE : REF. TABLE
LOCATION : REF. TABLE
MATERIAL : AS PER IS 1079 & IS 1993
TOLERANCE : AS PER IS 1852

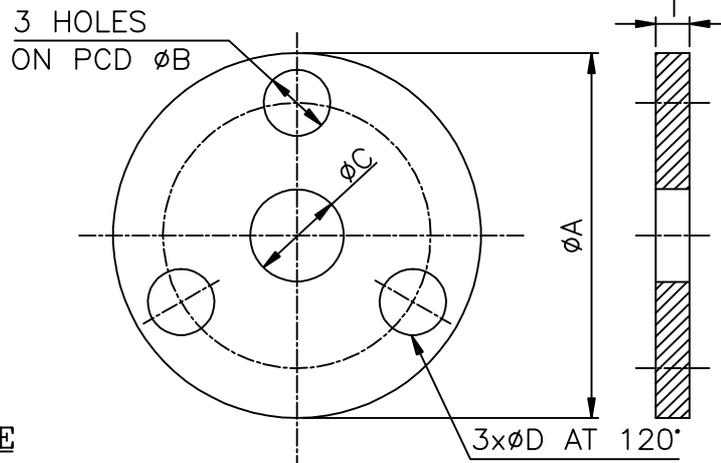
NOTE:

- SURFACE MUST BE FLAT, TRUE & PARALLEL
- MACHINE CUT AND FREE FROM FOREIGN MATTERS
(ALL EDGES TO BE SMOOTH)
- ALL DIMENSIONS ARE IN mm
- ONE SET CONSISTS OF FOLLOWING THICKNESS
ONE NO IN EACH THICKNESS.

THICKNESS SIZES : 0.10, 0.15, 0.20, 0.30, 0.40, 0.50, 1.00 & 1.8

PACKING : ALL THE SHIMS TO BE TIED AS A SET

MARKING : A TAG WITH SPECTION & VAR NO.



TABLE

MILL TYPE	VAR NO.	ϕA	ϕB	ϕC	ϕD	LOCATION	MAT.CODE
803 XRP	01	140.0	102.0	48	25	OIL PUMP KEEPER	BA9755017011
803 XRP	02	162.0	114.5	32	25	JRN.L.BRG KEEPER	BA9755017020
603 XRP	03	95.0	70.0	48	16	OIL PUMP KEEPER	BA9755017038
603 XRP	04	124.0	90	32	25	JRN.L.BRG KEEPER	BA9755017046

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COMP. FILE NAME

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A607,613
651 & 653

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PRODUCT STANDARD

PULVERISERS
HYDERABAD

Spec.NO: BA55019

Rev. No. 02

PAGE 01 OF 02

SHIMS FOR W.SHAFT THRUST BRG. HSG.COVER

MATERIAL CODE : BA9755019014
LOCATION : MILL DRIVE ASSY OF 763/783/803 XRP MILLS
MATERIAL : AS PER IS 1079 & IS 1993
TOLERANCE : AS PER IS 1852

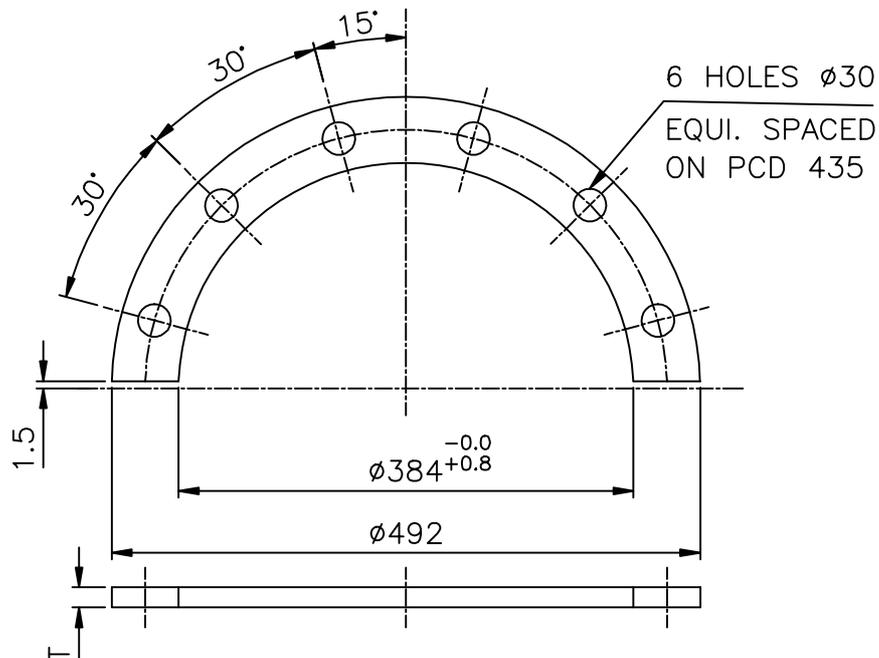
NOTE:

- SURFACE MUST BE FLAT, TRUE & PARALLEL
- MACHINE CUT AND FREE FROM FOREIGN MATTERS
(ALL EDGES TO BE SMOOTH)
- ALL DIMENSIONS ARE IN mm
- ONE SET CONSISTS OF FOLLOWING THICKNESS
ONE PAIR IN EACH THICKNESS.

THICKNESS SIZES : 0.10, 0.15, 0.20, 0.30, & 0.40

PACKING : ALL THE SHIMS TO BE TIED AS A SET

MARKING : A TAG WITH SPECTION & VAR NO.



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COMP. FILE NAME

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Ref. Doc.

A-609

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Rev.5

Form No.



PRODUCT STANDARD

PULVERISERS
HYDERABAD

Spec.NO: BA55020

Rev. No. 01

PAGE 01 OF 02

SHIMS FOR PUMP HOUSING COVER

MATERIAL CODE : BA9755020012
LOCATION : MILL DRIVE ASSY OF 763/783/803 XRP
MATERIAL : AS PER IS:1079 & IS:1993
TOLERANCE : AS IS 1852

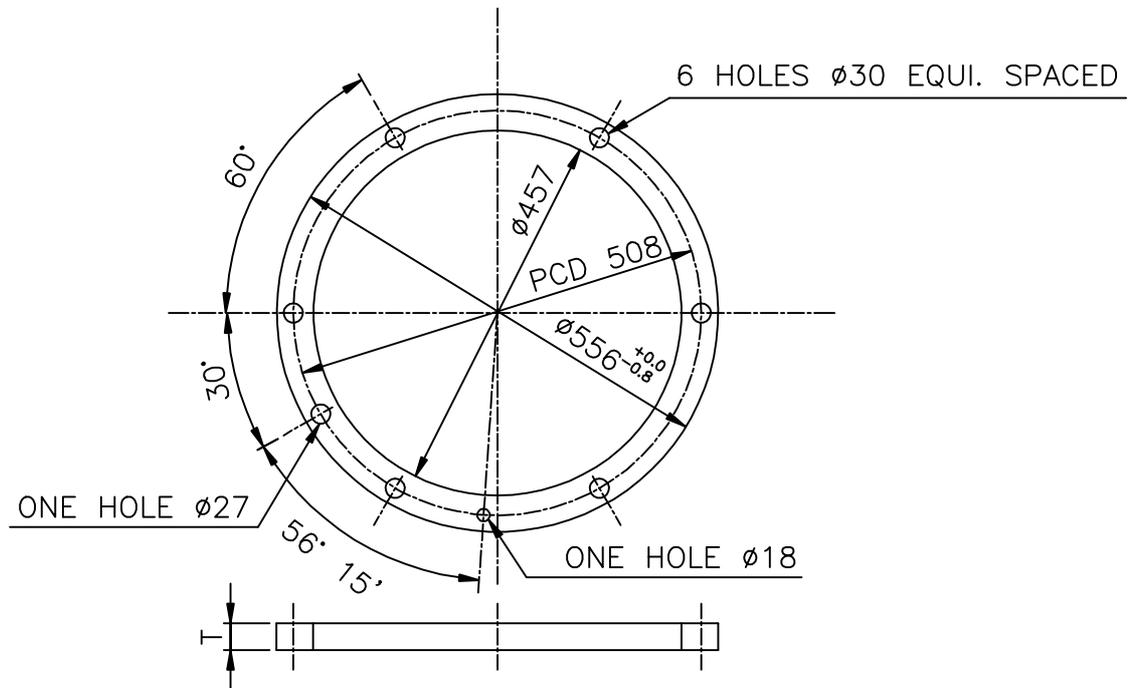
NOTE:

- SURFACE MUST BE FLAT, TRUE & PARALLEL
- MACHINE CUT AND FREE FROM FOREIGN MATTERS
(ALL EDGES TO BE SMOOTH)
- ALL DIMENSIONS ARE IN mm
- ONE SET CONSISTS OF FOLLOWING THICKNESS
ONE NO IN EACH THICKNESS.

THICKNESS SIZES : 0.10, 0.15, 0.3, 0.4, 0.5, 1.0 & 1.6

PACKING : ALL THE SHIMS TO TIED AS A SET

MARKING : A TAG WITH SPECTION & VAR NO.



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COMP. FILE NAME

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A-608

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