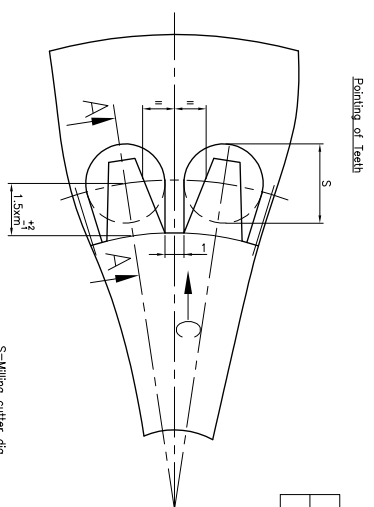


Crown Gearing

1	No. of teeth	Z	30
2	Normal Modulus,	m <sub>no</sub>	6
3	Normal Pressure angle,	α <sub>no</sub>	20°
4	Bevel	B <sub>o</sub>	-
5	Thread direction		-
6	Modification of tooth proportion x·m <sub>no</sub>		2.5
7	Tooth form		DIN 867
8	Perm. out of true		63μ
9	Quality		8
10	Size of	upper	
11	tooth width	lower	
12	Measured over teeth	Z	Zahne
13	Tolerance		μm
14	Foot circle diameter	d <sub>f</sub>	-
15	Pitch circle diameter	d <sub>o</sub>	180
16	Outside circle diameter	d <sub>k</sub>	174 +0.3
17	Head	km <sub>n</sub>	-
18	Axle distance in housing	a	-
19	Axle allowances	A <sub>a</sub>	-
20	Flank clearance	min.	-
21		max.	-
22	Countergear dng.no.		Z-7-1155-07-10019

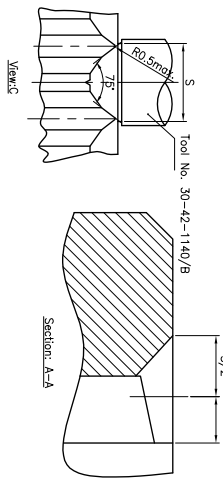
Crown Gearing

1	No. of teeth	Z	34
2	Normal Modulus,	m <sub>no</sub>	5
3	Normal Pressure angle,	α <sub>no</sub>	20°
4	Bevel	B <sub>o</sub>	-
5	Thread direction		-
6	Modification of tooth proportion x·m <sub>no</sub>		0.5
7	Tooth form		DIN 867
8	Perm. out of true		63μ
9	Quality		8
10	Size of	upper	
11	tooth width	lower	
12	measured over teeth	Z	-
13	Tolerance		μm
14	Foot circle diameter	d <sub>f</sub>	-
15	Pitch circle diameter	d <sub>o</sub>	170
16	Outside circle diameter	d <sub>k</sub>	165 +0.3
17	Head	km <sub>n</sub>	-
18	Axle distance in housing	a	-
19	Axle distance allowances	A <sub>a</sub>	-
20	Flank Clearance	min.	-
21		max.	-
22	Countergear dng.no.		30-ST-115-02-050



Ø190	H9	+0.115	190/115
SIZE		0	190
TOLERANCE			

25 / 3.2



- NOTES:
- All Non-Dimension edges broken 0.3x45°
  - Countersink thread bores up to thread outside diameter, countersink angle 120°
- Spline to be checked only with GO & NOGO gauge  
 Matching of sets shall not be used.  
 \* Gas nitrided by special nitriding treatment: 0.8-1.0mm depth  
 \* Hardened to: Rm 900-100 N/mm<sup>2</sup>
- \* Manufacturing Instructions  
 SN 200

\* Machining of Tooth base : Ground  
 max. surface roughness of tooth base : 0.016 mm

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REV	DATE	REVISION
01		

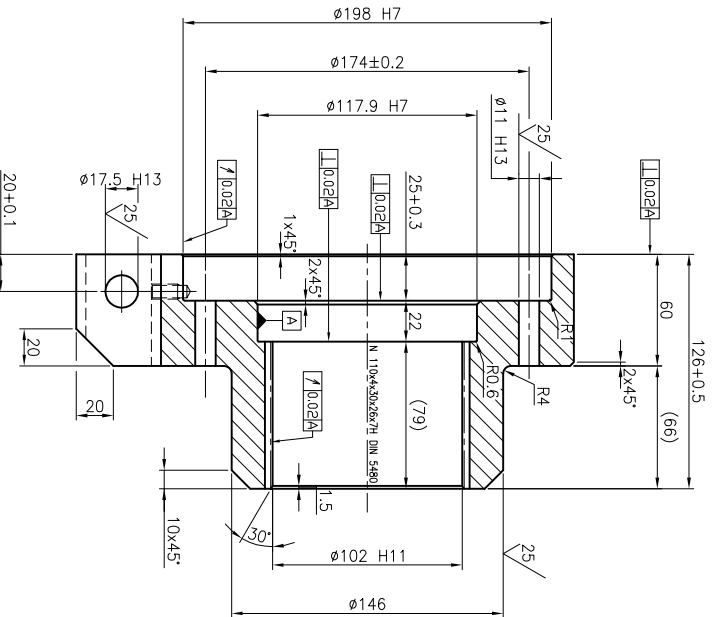
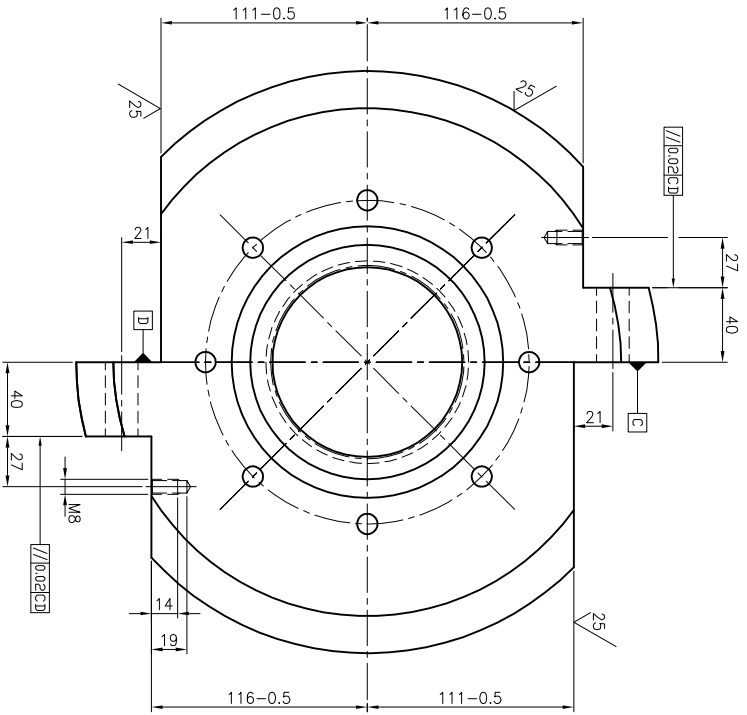
ITEM NO.	DESCRIPTION	DRAWING NO.	UNIT
		42024A02 IS:5517	UNIT

CPY: SINGH KENDRA WIL

SRM - COUPLING SLEEVE (DRIVE ASSY - SRM 300)

1-7-1155-07-10098

3.2/25



SIZE	TOLERANCE
198	H7 +0.046 / 0 198
117.9	H7 +0.035 / 0 117.9
102	H11 +0.22 / 0 102
117.5	H13 +0.27 / 0 117.5
11	H13 +0.27 / 0 11

Spline Hub	
Reference Diameter d (for pitch diameter d)	110
Module	4
Pressure angle, $\alpha$	30°
Number of Teeth z	26
Back rack profile as in	DIN 5480
Addendum modification x.m	-0.800
Space width tolerance	DIN 5480-7H
GO Plug gauge	DIN 5480
NOT GO Plug gauge	DIN 5480
Text dim. M1	Basic Dim. 95.447
between	KM1 95.529
$D_M =$	GM1 95.478
Supplementary Datum F <sub>r</sub>	22
Theoretical Root Diameter $d_{r2}$ plus deviation A	110.8 +0.878
Broached $(h_p = 0.5m) : d$	12
Generated by shoving $(h_p = 0.65m) : d$	12
Hobbed $(h_p = 0.60m) : d$	12
Mating Spline Element (Drawing No.)	2-7-1155-07-10020

- \* Machining of Tooth base : Grounded max. surface roughness of tooth base : 0.016 mm Spline to be checked only with GO & NOGO gauge Matching or sets shall not be used.
- \* Bath nitrided

NOTE. 1. ALL SHARP CORNERS CHAMFERED TO 0.6x45°  
 \* Manufacturing Instructions  
 SN 200

REV	DATE	ALTERED BY	APPROVED BY

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DEPT. STAMP	SCALE OF UNTO. DIM	SCALE	WEIGHT (Kg)	CARD CODE
458	$\phi_{N1} / \phi_{N2}$	1:2	34.0	U 01
TITLE SRM - COUPLING HALF-1 IN PUT DRIVE ASSY-EVEN NO STAND-SRM300				

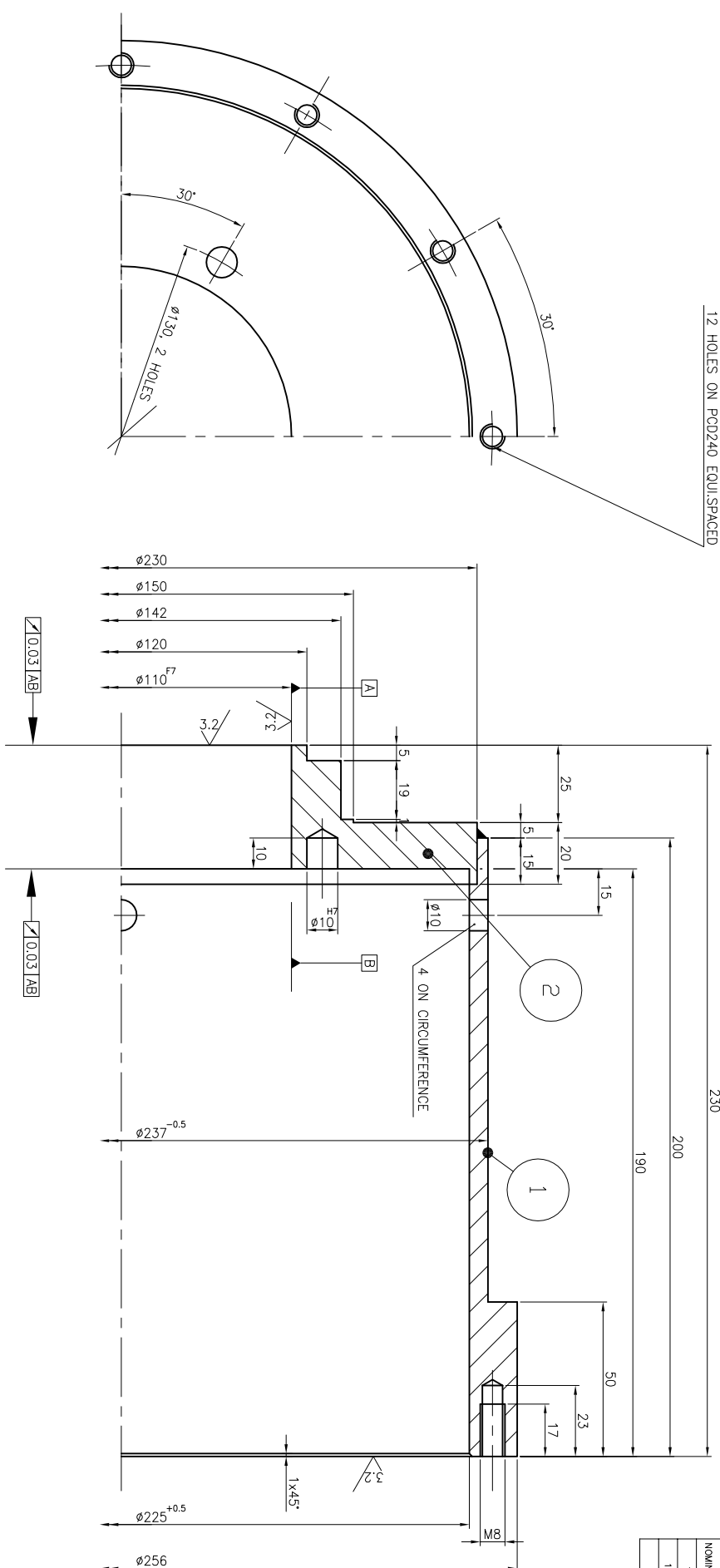
ITEM NO.	DESCRIPTION	DRAWING NO.	NAME	SIGNATURE	DATE
			Bharat Heavy Electricals Ltd		
	SEAMLESS STEEL TUBE PLANT		SRM		
	TRUOHIRAPALLI - 620014		SRM		

DIN	NAME	SIGNATURE	DATE
4204M02 IS:5517	VKRISHNAKUMAR		05.02.11
MATL CODE	MATL SPEC	UNIT WT	

DRAWING NO : 2-7-1155-07-10018

25 / 32

12 HOLES ON PCD240 EQUI.SPACED



NOMINAL SIZE	TOLERANCE	DEVIATIONS
10	H7	+0.015 0
110	F7	+0.021 +0.024

\* Manufacturing Instructions  
SN 200

ITEM NO	DESCRIPTION	DRAWING NO	NAME	SIGNATURE	DATE
01	PIPE Ø273x281-210L		V.KRISHNAKUMAR	<i>V.Krishna Kumar</i>	23.02.11
02	PLATE Ø240 x 95L		S.N.KUMAR	<i>S.N.Kumar</i>	23.02.11
			G.LOCHANATHAN	<i>G.Lochanathan</i>	23.02.11

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DEPT S/NO	SCALE	WEIGHT (Kg)	REF TO ASSY Dwg NO
458	1:1	16.0	1-7-1155-07-10086
GRADE OF UNTO. DIA			REF TO QAD DWG NO
Ø110 / Ø120			0107035-33.002

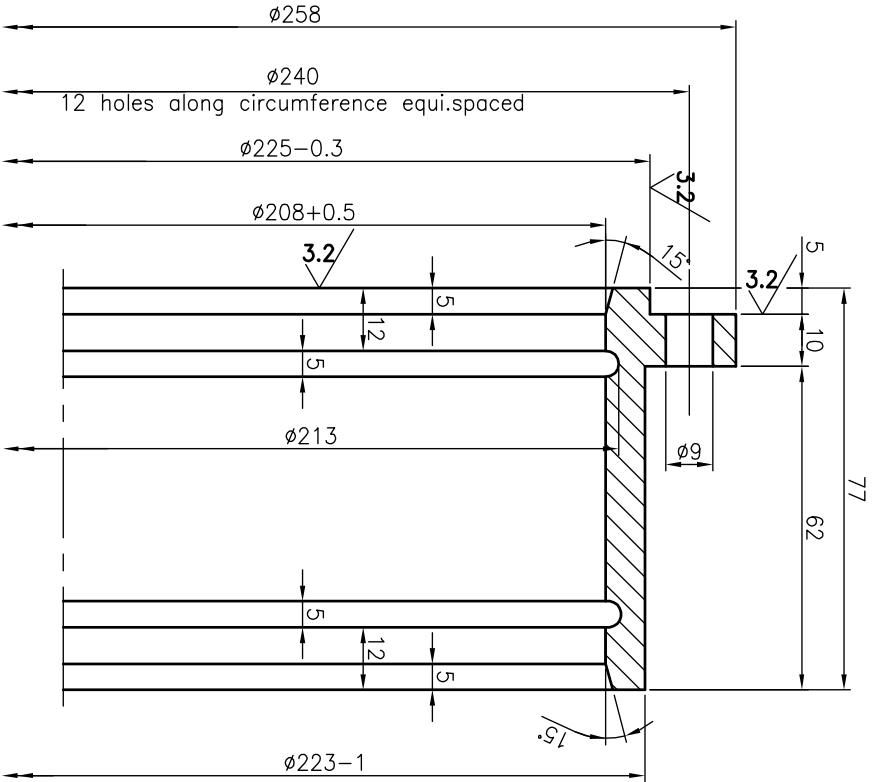
**SRM - SPRING HOUSING (DRIVE ASSY - SRM 300)**

DRAWING NO: **2-7-1155-07-10021**

REV: 00

A2-SIZE

ALL DIMENSIONS ARE IN MILLIMETRES



\* Manufacturing Instructions  
SN 200

ITEM NO	DESCRIPTION	DRAWING NO	UNIT WT	QTY



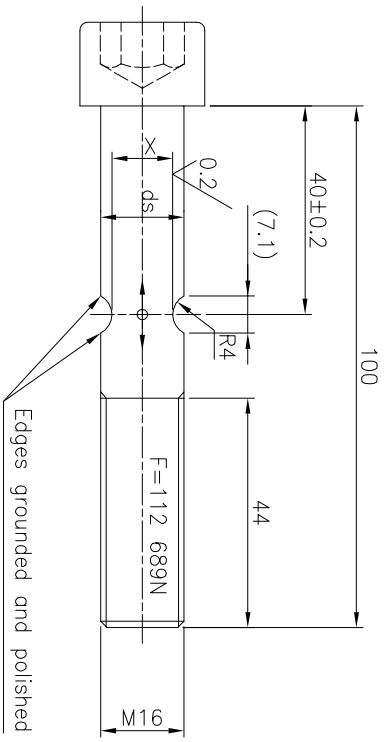
Bharat Heavy Electricals Ltd  
SEAMLESS STEEL TUBE PLANT  
TRUCHIRAPALLI - 620014

DEPT	GRADE OF UNITOL DIM	SCALE	WEIGHT (Kg)	DRN	NAME	SIGNATURE	DATE
SSTP	$\phi \sqrt{M} / \sqrt{F}$	1:1	4.6	CHD	YKRISHNAKUMAR	<i>[Signature]</i>	23.02.11
CODE	IS:2102			APPD	SSN.KUMAR	<i>[Signature]</i>	23.02.11
456					GLOGANATHAN	<i>[Signature]</i>	23.02.11

TITLE	CARD CODE	DRAWING NO :	REV
SRM - COVER (DRIVE ASSY - SRM 300)	U 01	3-7-1155-07-10014	00

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REV	DATE	ALTERED
01		CHECKED
		APPROVED



Tensile Strength(N/mm <sup>2</sup> )	Notch 'X' (mm)	Notched area (mm <sup>2</sup> )	Breaking force (N)
1040	11.75	108.38	1,12,715
1040	11.72	107.83	1,12,140

Manufactured from, Standard – Hexagon socket head cap screw ISO 4762 – M16x100 – 10.9(IS 2269;2006)

Total Stand torque : 17,500Nm

Total Breaking torque : 29,750Nm (Total Stand torque x 1.7)

Breaking force per Bolt : 1,12,689N

Dimension marked as 'X' is  $\phi 11.75 - 0.03\text{mm}$ .

Breaking head for minimum Tensile strength of property class 10.9

Prior to Mass Production 3 pipes at random shall be tested on a lot size of 100 or more belonging the same heat. the reported tensile strength will be used to arrive at the breaking force as given in the above table.

Deviations from these values shall be reported for correction of the 'Notch' area.

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ITEM NO	DESCRIPTION	DRAWING NO	UNIT WT	QTY
			10.9	



Bharat Heavy Electricals Ltd  
SEAMLESS STEEL TUBE PLANT  
TIRUCHIRAPALLI – 620014

DEPT SSTD	GRADE OF UNTOL. DIM	SCALE	WEIGHT (Kg)	DRN	NAME	SIGNATURE	DATE
456	$\phi \sqrt{N} / \sqrt{F}$ IS:2102	1:1	0.1	CHD	V.KRISHNAKUMAR	<i>V. Krishnakumar</i>	05.02.11
				APPD	SSN.KUMAR	<i>SSN Kumaran</i>	05.02.11
					G.LOCHANATHAN	<i>G. Loganathan</i>	05.02.11

TITLE	CARD CODE	DRAWING NO :	REV
SRM - SHEAR PIN (DRIVE ASSY - SRM 300)	U 01	3-7-1155-07-10017	00

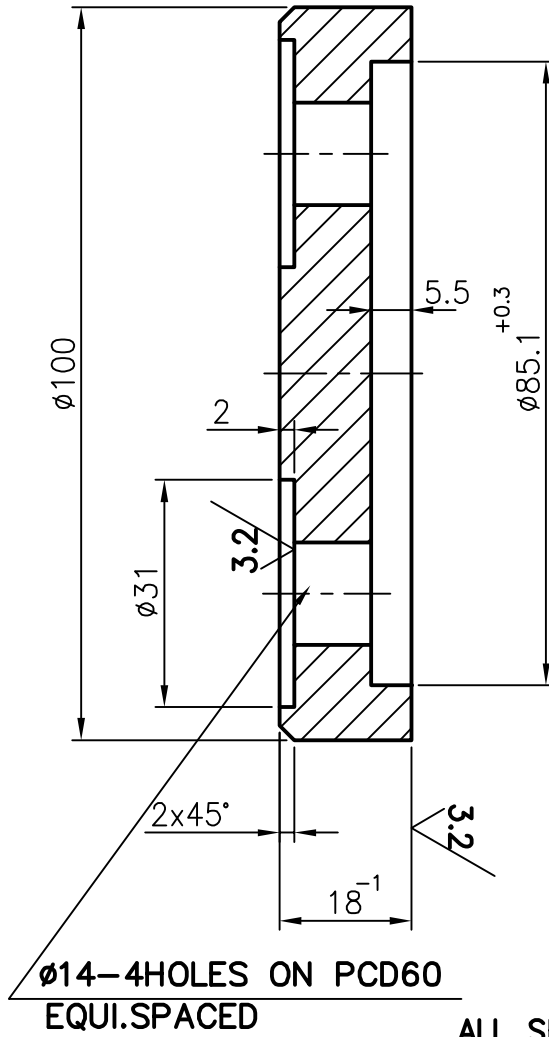
REV	DATE	ALTERED
01		CHECKED APPROVED

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ALL DIMENSIONS ARE IN MM


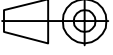
REV 01	DATE	ALTERED
		CHECKED
		APPROVED

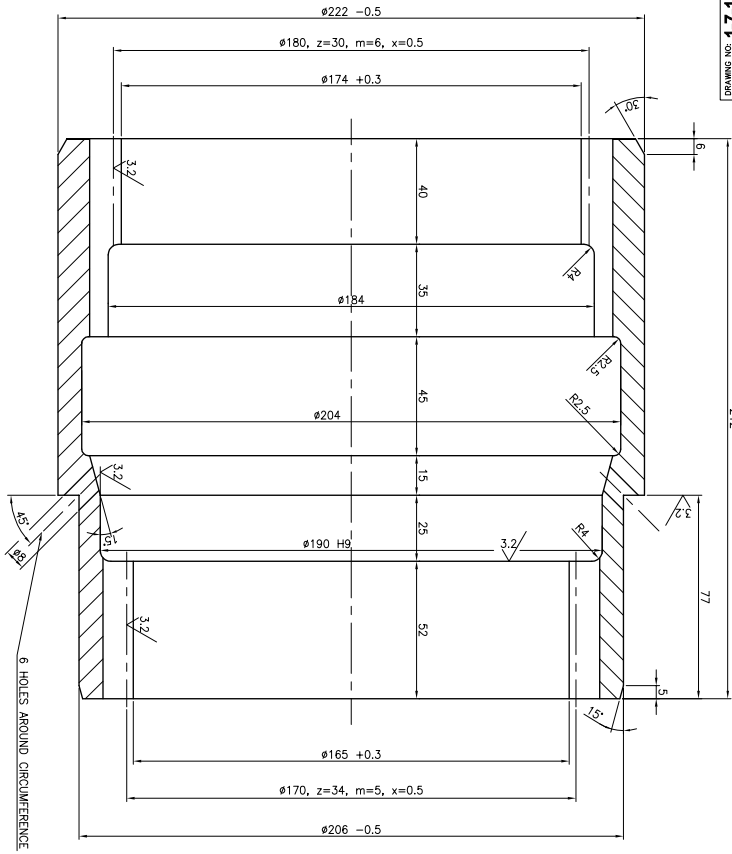
25/3.2/



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ITEM NO	DESCRIPTION	DRAWING NO	45C8 IS:1875	UNIT WT
			MATL CODE	QTY
			MATL SPEC	

EQPT: <b>STRETCH REDUCING MILL</b>						
	<b>Bharat Heavy Electricals Ltd</b> SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN	NAME <b>V.KRISHNAKUMAR</b>	SIGNATURE <i>V. Krishnakumar</i>	DATE <b>26.02.11</b>
			CHD	<b>SSN.KUMAR</b>	<i>SSN.Kumar</i>	<b>26.02.11</b>
			APPD	<b>G.LOGANATHAN</b>	<i>G. Loganathan</i>	<b>26.02.11</b>
DEPT SSTP	GRADE OF UNTOL. DIM		SCALE	WEIGHT (Kg)	REF TO ASSY DWG NO	ITEM
CODE 456	$\phi/M/f$ IS: 2102		1:1	1	1-7-1155-07-10086 1-7-1155-07-10087	31
TITLE			CARD CODE	DRAWING NO :		REV
<b>SRM - END DISC (DRIVE ASSY - SRM 300)</b>			U 01	<b>4-7-1155-07-10020</b>		00

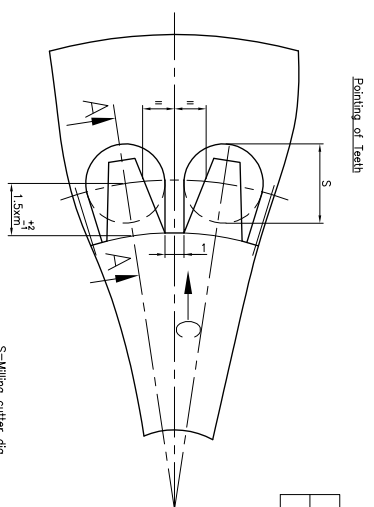


Crown Gearing

1	No. of teeth	Z	30
2	Normal Modulus,	m <sub>no</sub>	6
3	Normal Pressure angle,	a <sub>no</sub>	20°
4	Bevel	B <sub>o</sub>	-
5	Thread direction		-
6	Modification of tooth proportion x·m <sub>no</sub>		2.5
7	Tooth form		DIN 867
8	Perm. out of true		63μ
9	Quality		8
10	Size of		upper
11	tooth width		lower
12	Measured over teeth	Z	Zahne
13	Tolerance		μm
14	Foot circle diameter	d <sub>f</sub>	-
15	Pitch circle diameter	d <sub>o</sub>	180
16	Outside circle diameter	d <sub>k</sub>	174 +0.3
17	Head	km <sub>n</sub>	-
18	Axle distance in housing	a	-
19	Axle allowances	A <sub>a</sub>	-
20	Flank clearance		min.
21			max.
22	Countergear dng.no.		Z-7-1155-07-10019

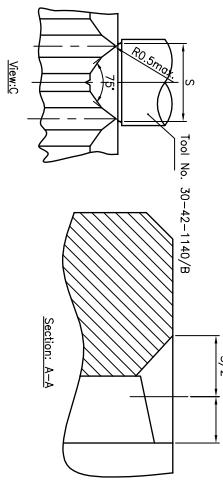
Crown Gearing

1	No. of teeth	Z	34
2	Normal Modulus,	m <sub>no</sub>	5
3	Normal Pressure angle,	a <sub>no</sub>	20°
4	Bevel	B <sub>o</sub>	-
5	Thread direction		-
6	Modification of tooth proportion x·m <sub>no</sub>		0.5
7	Tooth form		DIN 867
8	Perm. out of true		63μ
9	Quality		8
10	Size of		upper
11	tooth width		lower
12	measured over teeth	Z	-
13	Tolerance		μm
14	Foot circle diameter	d <sub>f</sub>	-
15	Pitch circle diameter	d <sub>o</sub>	170
16	Outside circle diameter	d <sub>k</sub>	165 +0.3
17	Head	km <sub>n</sub>	-
18	Axle distance in housing	a	-
19	Axle distance allowances	A <sub>a</sub>	-
20	Flank Clearance		min.
21			max.
22	Countergear dng.no.		30-ST-115-02-050



Ø190	H9	+0.115	190.115
SIZE		0	190
TOLERANCE			

25 / 3.2



- NOTES:
- All Non-Dimension edges broken 0.3x45°
  - Countersink thread bores up to thread outside diameter, countersink angle 120°
- Spline to be checked only with GO & NOGO gauge  
 Matching of sets shall not be used.  
 \* Gas nitrided by special nitriding treatment: 0.8-1.0mm depth  
 \* Hardened to: Rm 900-100 N/mm<sup>2</sup>
- \* Manufacturing Instructions  
 SN 200

\* Machining of Tooth base : Ground  
 max. surface roughness of tooth base : 0.016 mm

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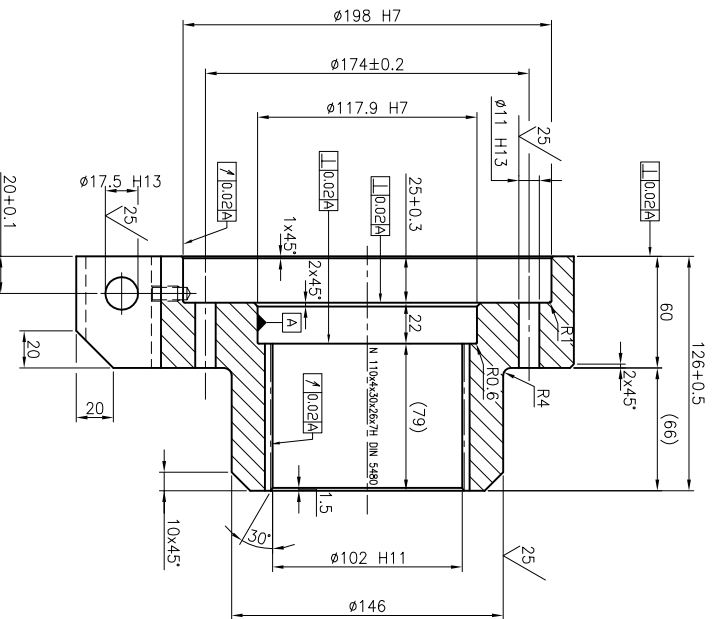
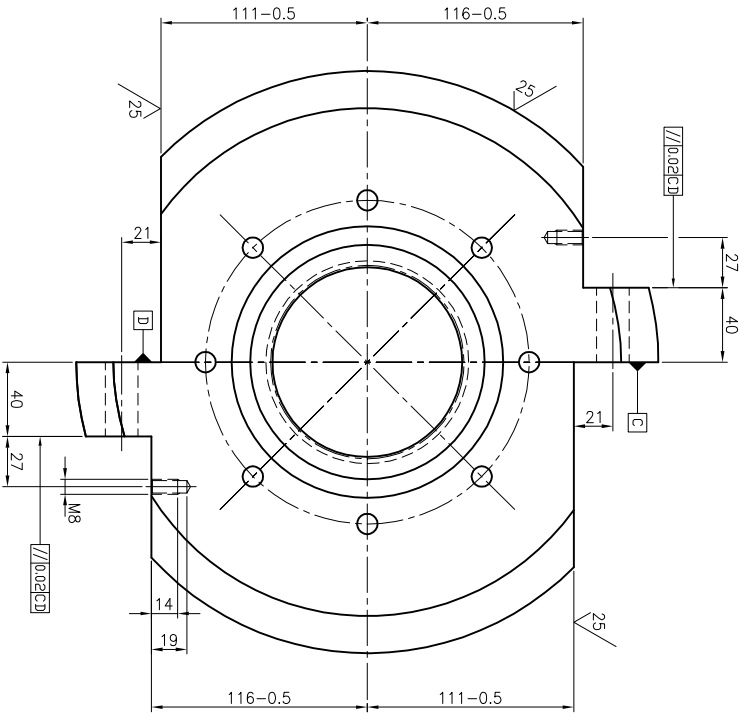
REV	DATE	REVISION
01		

ITEM NO.	DESCRIPTION	DRAWING NO.
1	SRM - COUPLING SLEEVE (DRIVE ASSY - SRM 300)	1-7-1155-07-10098

DATE	SCALE	WEIGHT (kg)	DRAWING NO.
11/11/20	1:1	23.0	001726-SS-002

DESIGNER	CHECKER	APPROVER
S. K. SINGH	S. K. SINGH	S. K. SINGH

3.2/25



SIZE	TOLERANCE
198	H7 +0.046/0 198.046
17.9	H7 +0.035/0 117.935
102	H11 +0.22/0 102.22
17.5	H13 +0.27/0 17.77
11	H13 +0.27/0 11.27

Splines Hub	
Reference Diameter d (for pitch diameter d)	110
Module	4
Pressure angle, $\alpha$	30°
Number of Teeth z	26
Back rack profile as in	DIN 5480
Addendum modification x.m	-0.800
Space width tolerance	DIN 5480-7H
GO Plug gauge	DIN 5480
NOT GO Plug gauge	DIN 5480
Text dim. M1	Basic Dim. 95.447
between	KM1 95.529
$D_M =$	GM1 95.478
Supplementary Datum F <sub>1</sub>	22
Theoretical Root Diameter $d_{f2}$ plus deviation A	110.8 +0.878
Broached	
$(h_p = 0.5m) : d$	12
Generated by shoping	
$(h_p = 0.65m) : d$	12
Hobbed	
$(h_p = 0.60m) : d$	12
Mating Spline Element (Drawing No.)	2-7-1155-07-10020

- \* Machining of Tooth base : Grounded max. surface roughness of tooth base : 0.016 mm
- \* Spline to be checked only with GO & NOGO gauge Matching or sets shall not be used.
- \* Bath nitrided

NOTE. 1. ALL SHARP CORNERS CHAMFERED TO 0.6x45°  
 \* Manufacturing Instructions  
 SN 200

REV	DATE	ALTERED BY	APPROVED BY

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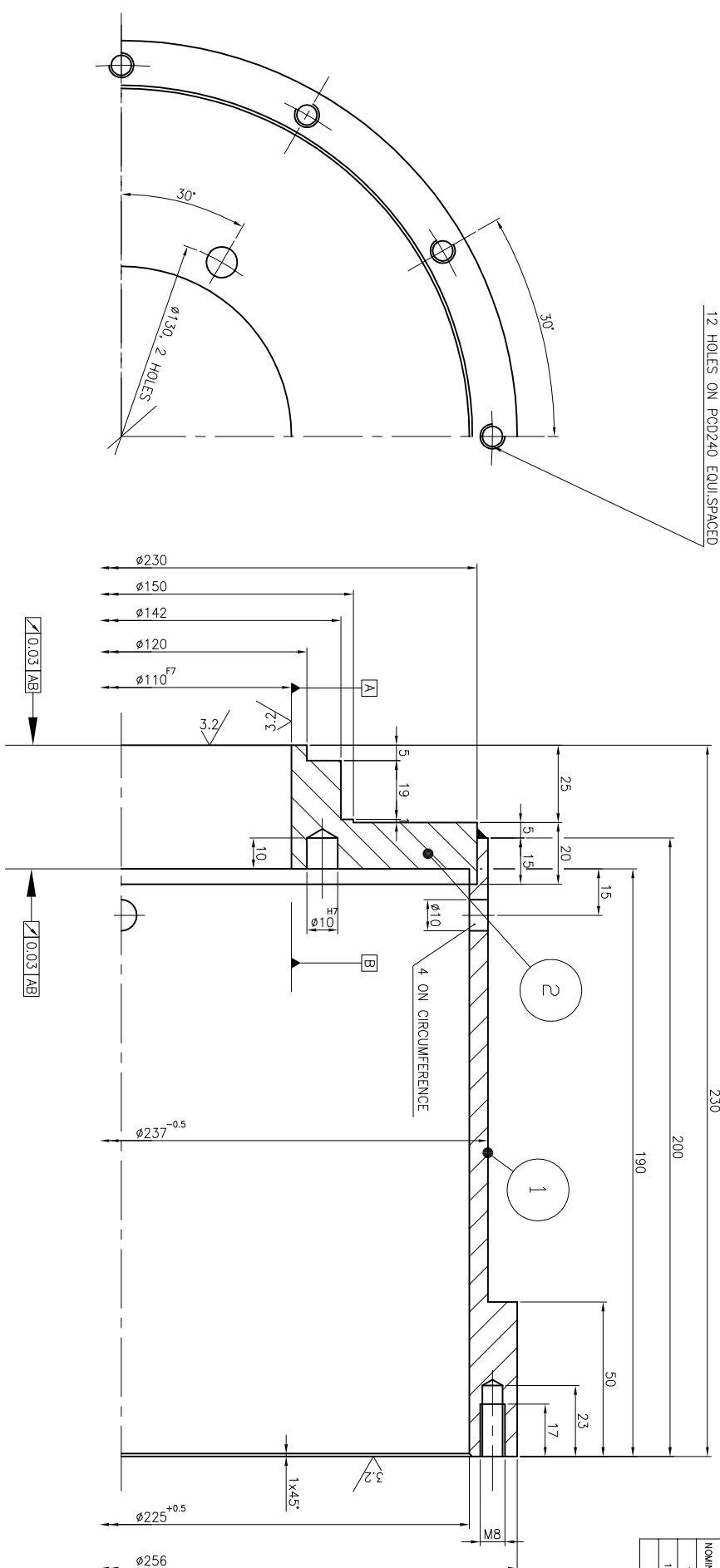
DEPT. STAMP	SCALE OF UNTO. DIM	SCALE	WEIGHT (Kg)	CARD CODE	DRAWING NO. :
456	$\phi \frac{M}{N} / \frac{P}{Q}$	1:2	34.0	U 01	2-7-1155-07-10018

ITEM NO.	DESCRIPTION	DRAWING NO.	NAME	SIGNATURE	DATE

SRM - COUPLING HALF-1  
 IN PUT DRIVE ASSY-EVEN NO STAND-SRM300

25/32

12 HOLES ON PCD240 EQUI.SPACED



NOMINAL SIZE	TOLERANCE	DEVIATIONS
10	H7	+0.015 0
110	F7	+0.021 +0.024

\* Manufacturing Instructions  
SN 200

ITEM NO	DESCRIPTION	DRAWING NO	NAME	SIGNATURE	DATE
01	PIPE Ø273x281-210L		V.KRISHNAKUMAR	<i>V.KrishnaKumar</i>	23.02.11
02	PLATE Ø240 x 95L		S.N.KUMAR	<i>S.N.Kumar</i>	23.02.11
			G.LOCHANATHAN	<i>G.Lochanathan</i>	23.02.11

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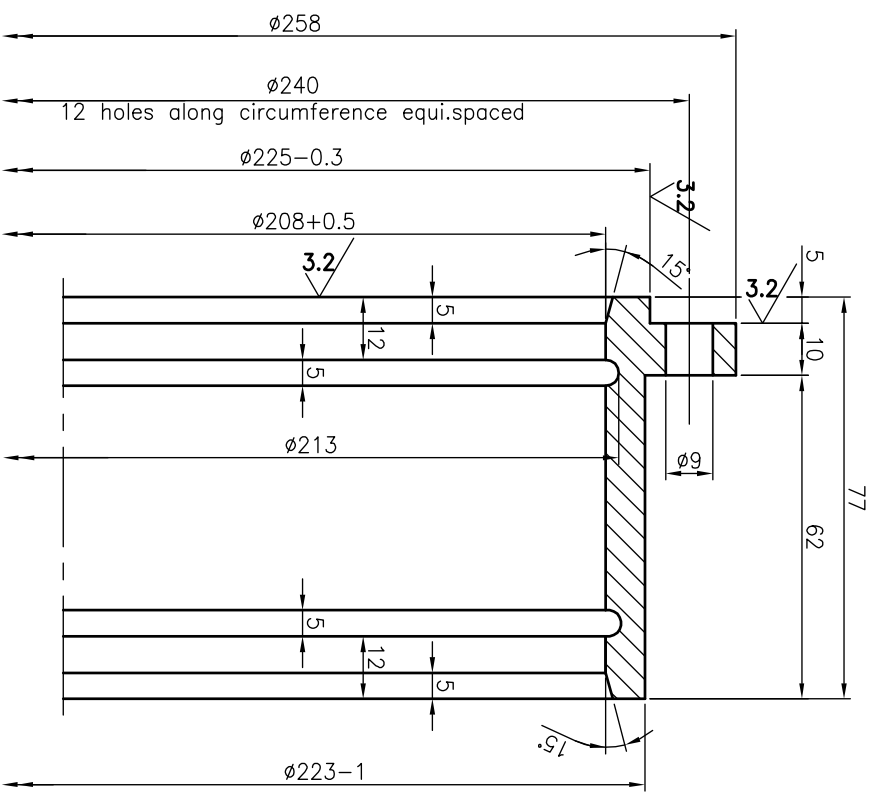
DEPT S/NO	SCALE	WEIGHT (Kg)	REF TO ASSY Dwg NO
458	1:1	16.0	1-7-1155-07-10086
GRADE OF UNTO. DIA			REF TO QAD DWG NO
Ø110/Ø110			0107035-33.002

SRM - SPRING HOUSING  
(DRIVE ASSY - SRM 300)

DRAWING NO: 2-7-1155-07-10021

REV 00

1 2 3 4 5 6 7 8 A2-SIZE

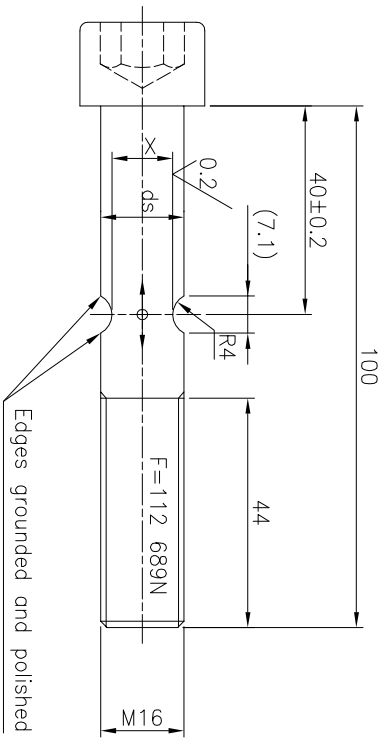


\* Manufacturing Instructions  
SN 200

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EQUIPMENT: <b>STRETCH REDUCING MILL</b>		ITEM NO		DESCRIPTION		DRAWING NO		UNIT WT	
Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TRUCHIRAPALLI - 620014		SRM - COVER (DRIVE ASSY - SRM 300)		P.BRONZE Gr-2 IS: 28				QTY	
DRN	NAME	SIGNATURE	DATE	MATERIAL CODE		MATERIAL SPEC			
YKRISHNAKUMAR	G. Loganathan		23.02.11	SSN.KUMAR		SSN.KUMAR		23.02.11	
CHD	APPD	REF TO ASSY DWG NO	REF TO OLD DWG NO	SCALE		WEIGHT (Kg)		CARD CODE	
SSN.KUMAR	G. Loganathan	1-7-1155-07-10086	0107047-33.006	1:1		4.6		U 01	
DEPT: SSTP		GRADE OF UNTOOL DIM		TITLE		DRAWING NO :		REV	
456		φ <sub>N</sub> /φ <sub>F</sub> IS: 2102		SRM - COVER (DRIVE ASSY - SRM 300)		3-7-1155-07-10014		00	

REV	DATE	ALTERED
01		CHECKED
		APPROVED



Tensile Strength(N/mm <sup>2</sup> )	Notch 'X' (mm)	Notched area (mm <sup>2</sup> )	Breaking force (N)
1040	11.75	108.38	1,12,715
1040	11.72	107.83	1,12,140

Manufactured from, Standard – Hexagon socket head cap screw ISO 4762 – M16x100 – 10.9(IS 2269;2006)

Total Stand torque : 17,500Nm

Total Breaking torque : 29,750Nm (Total Stand torque x 1.7)

Breaking force per Bolt : 1,12,689N

Dimension marked as 'X' is  $\phi 11.75 - 0.03\text{mm}$ .

Breaking head for minimum Tensile strength of property class 10.9

Prior to Mass Production 3 pipes at random shall be tested on a lot size of 100 or more belonging the same heat. the reported tensile strength will be used to arrive at the breaking force as given in the above table.

Deviations from these values shall be reported for correction of the 'Notch' area.

ITEM NO	DESCRIPTION	DRAWING NO	UNIT WT	QTY
			10.9	



Bharat Heavy Electricals Ltd  
SEAMLESS STEEL TUBE PLANT  
TIRUCHIRAPALLI – 620014

DEPT SSTD	GRADE OF UNTOL. DIM	SCALE	WEIGHT (Kg)
456	$\phi \sqrt{N} / \sqrt{F}$ IS:2102	1:1	0.1

**SRM - SHEAR PIN**  
**(DRIVE ASSY - SRM 300)**

REV	DATE	ALTERED
01		CHECKED APPROVED

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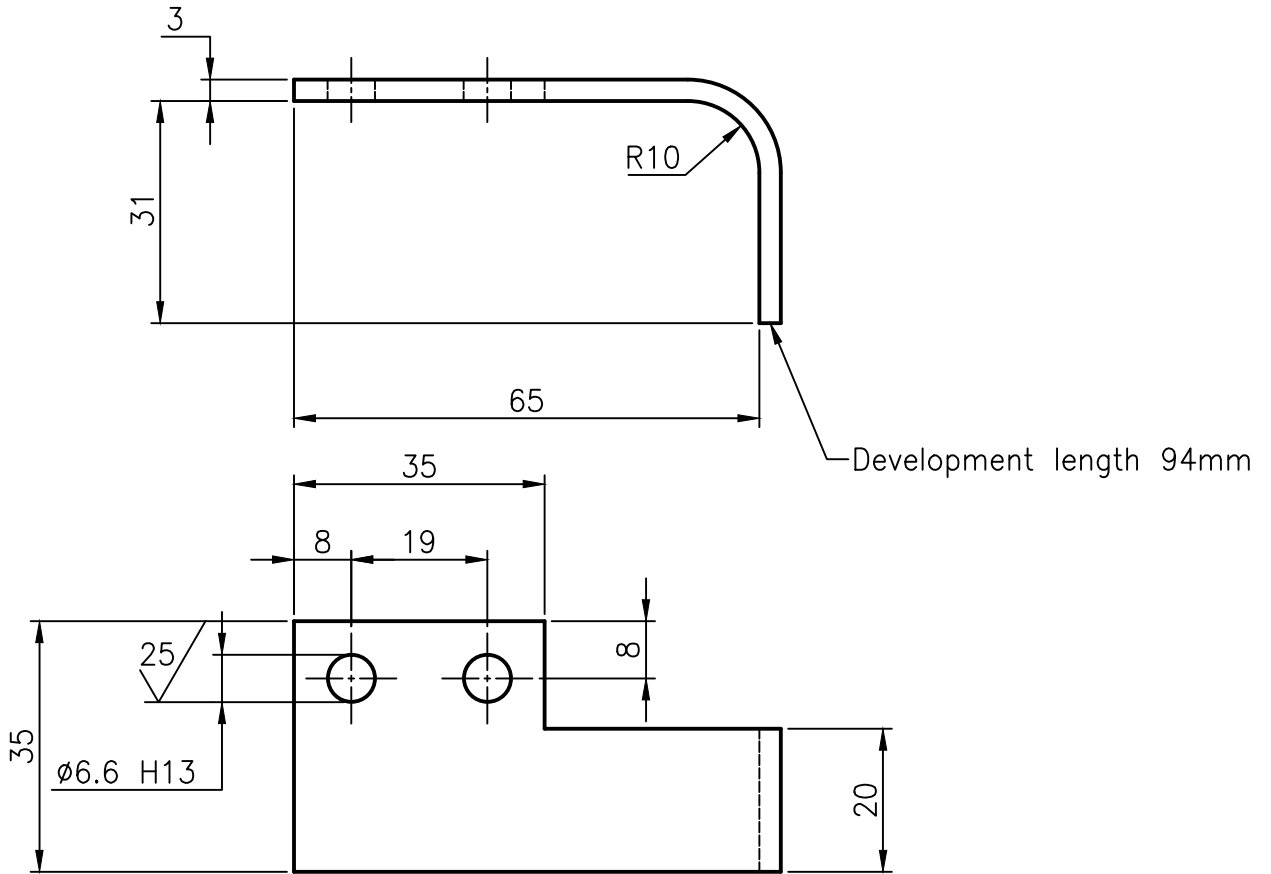
TITLE	CARD CODE	DRAWING NO :	REV
	U 01	<b>3-7-1155-07-10017</b>	00

ALL DIMENSIONS ARE IN MM

REV 01	DATE 11.02.15	ALTERED V.Krishnakumar/ A.S
		CHECKED R.K.Singh
		APPROVED S.Loganathan

MISSING VERTICAL DIMENSION 8 ADDED

Ø6.6	H13	$+0.22$	$\frac{6.82}{6.6}$
SIZE	TOLERANCE		



ALL SHARP CORNERS CHAMFERED TO 0.6x45°

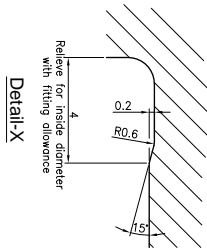
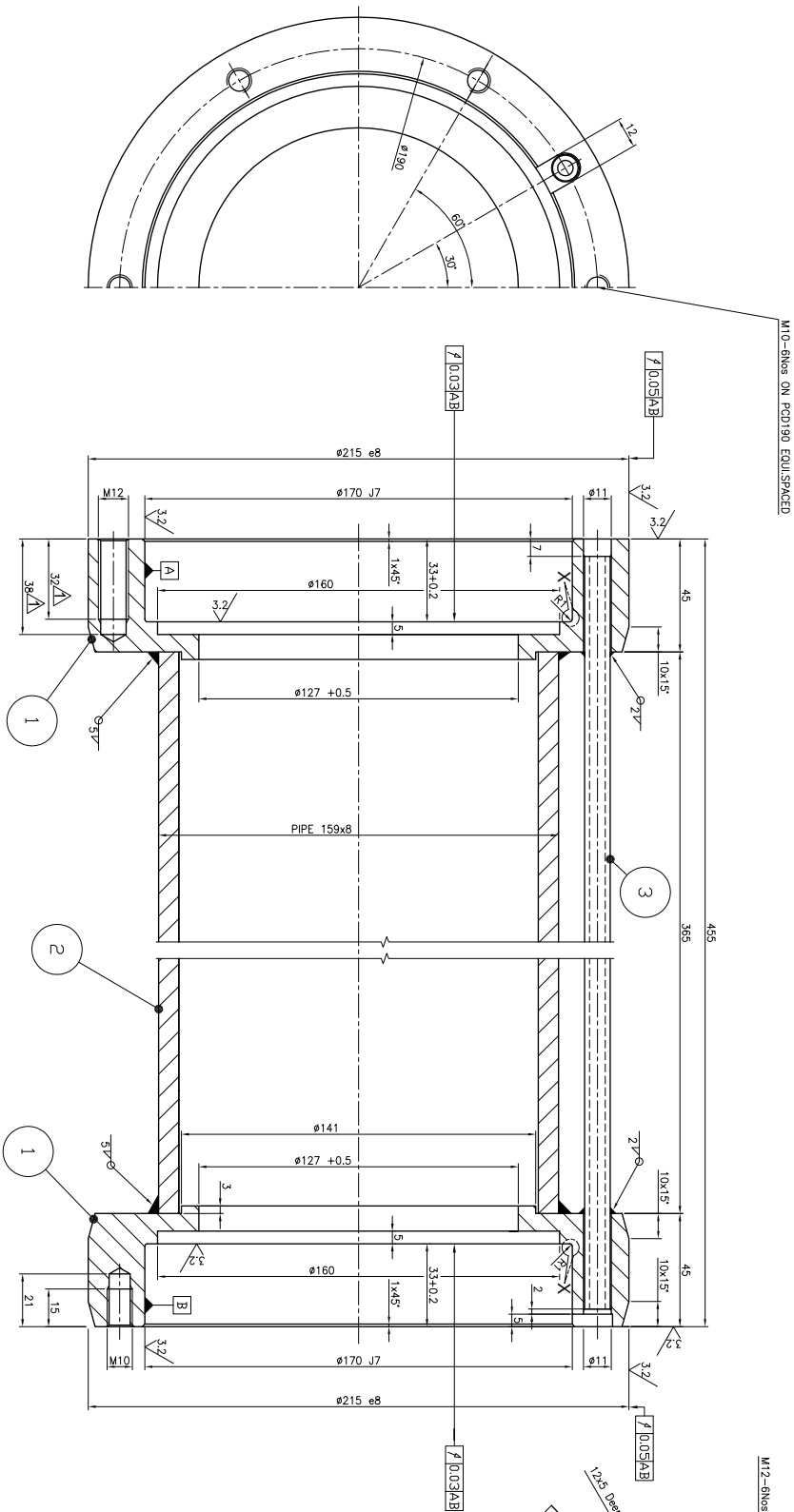
\* Manufacturing Instructions  
SN 200

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ITEM NO	DESCRIPTION	DRAWING NO			Fe360B					
					MATL CODE			UNIT WT		
					MATL SPEC			QTY		
EQPT: STRETCH REDUCING MILL										
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014			DRN	V.KRISHNAKUMAR	SIGNATURE	V.Krishnakumar	DATE	19.02.11
					CHD	SSN.KUMAR	SIGNATURE	S.S.N.Kumar	DATE	19.02.11
					APPD	G.LOGANATHAN	SIGNATURE	S.Loganathan	DATE	19.02.11
DEPT	GRADE OF UNTOL. DIM		SCALE	WEIGHT (Kg)	REF TO ASSY DWG NO 1-7-1155-07-10086				ITEM	
SSTP					1-7-1155-07-10087				51	
CODE	Ø/M/F		1:1	0.1	REF TO OLD DWG NO 0107120-33.021					
456	IS: 2102									
TITLE					CARD CODE		DRAWING NO :		REV	
SRM - HOLDER (DRIVE ASSY - SRM 300)					U 01		4-7-1155-07-10015		01	

25/32/1

SIZE	TOLERANCE
ø215	ø8 -0.1 214.9
ø170	-0.172 170.828
J7	+0.028 170.828 -0.028 169.888



\* Manufacturing Instructions  
SN 200

QTY	ITEM NO	DESCRIPTION	DRAWING NO	UNIT WT	MATL CODE	MATL SPEC	QTY
1	03	PIPE 102 x 2 x 441 LG.	-	12.0	SEAMLESS TUBE		1
1	02	PIPE 159 x 8 x 365 LG.	-	8.0	SEAMLESS TUBE		1
1	01	PLATE 8015 x 48 INH.	-	6.5	PLATE		1

REV	DATE	REVISION	BY	CHKD
01	27-11-20	ISSUED FOR MANUFACTURE	SRM	SRM

REV	DATE	REVISION	BY	CHKD
01	27-11-20	ISSUED FOR MANUFACTURE	SRM	SRM

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NOTIFICATIONS ARE ISSUED BY THE NUMBER OF REV. IN THE TITLE.

SRM - BEARING HOUSING (DRIVE ASSY - SRM 300)

1-7-1155-07-10089

U 01

DRAWING NO: 07025-S2013

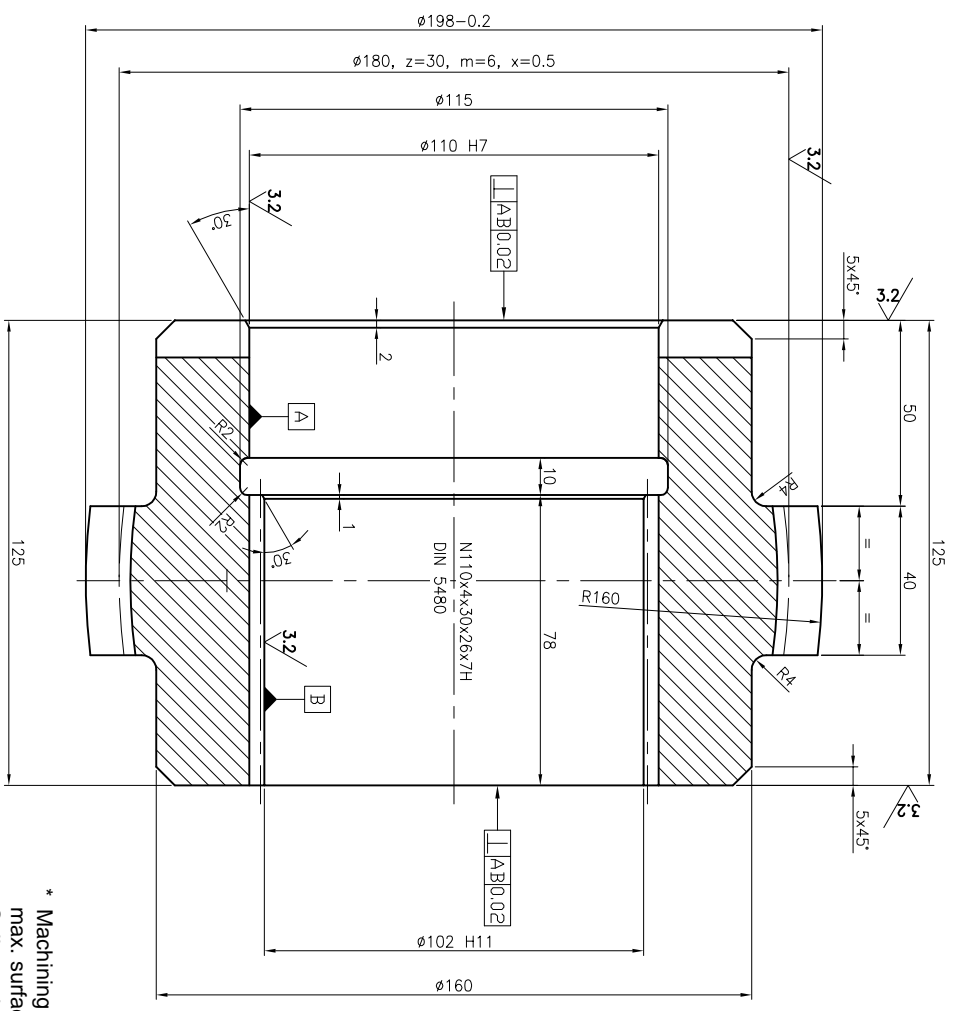
REV 01

11

12 A1-SIZE

25/3.2

Spine Hub		
Reference diameter d (for pitch diameter d)	110	
Module, m	4	
Pressure angle, a	30°	
No. of teeth, z	26	
Basic rack profile as in	DIN 5480	
Addendum modification x,m	-0.800	
Space width tolerance	DIN 5480-7H	
Go plug gauge	DIN 5480-	
NO GO gauge	DIN 5480-	
Text dim. M1 between	Basic Dim.	95.447
	KMI	95.529
M <sub>1</sub>	GMI	95.478
	Supplementary datum F r	22
Theoretical Root Diameter d <sub>g</sub> plus deviation A	d12	110.8 +0.878
Broached (r <sub>1</sub> f=0.55m)/d	12	
Generated by shaping (r <sub>1</sub> f <sub>g</sub> =0.65m)/d	12	0.650
Hobbed (r <sub>1</sub> f <sub>g</sub> =0.60m)/d	12	
Mating Spine Element (Drawing No.)		2-7-1155-07-10020



SIZE	TOLERANCE
Ø110	H7 <sup>+0.035</sup> / <sub>0</sub> 110.035
Ø102	H11 <sup>+0.22</sup> / <sub>0</sub> 102.22

CROWN GEARING

1	No. of teeth	z	30
2	Normal Modulus.	m md	6
3	Normal Pressure angle.	a no	20°
4	Bevel	B o	-
5	Thread Direction		-
6	Modification of tooth proportion	x, m np	0.5
7	Tooth form		DIN 687
8	Perm. out of true		63µ
9	Quality		8ba
10	Size of Tooth width	upper	84.1118
11		lower	84.0268
12	measured over ... teeth z'		5
13	Tolerance		42µm
14	Foot circle diameter d	f	-
15	Pitch circle diameter d	o	180
16	Outside circle diameter d	k	198-02
17	Head	n	-
18	Axis distance in housing a		-
19	Axis distance allowances Aa		-
20	Flank	min.	-
21	Clearance	max.	-
22	Countergear drg.no		1-7-1155-07-10088

\* Manufacturing Instructions

SN 200

\* Machining of Tooth base : Grounded  
 max. surface roughness of tooth base : 0.016 mm  
 Spine to be checked only with GO & NOGO gauge  
 Matching of sets shall not be used.  
 Hardened to: Rm 900+100 N/mm<sup>2</sup>  
 \* Bath nitrided

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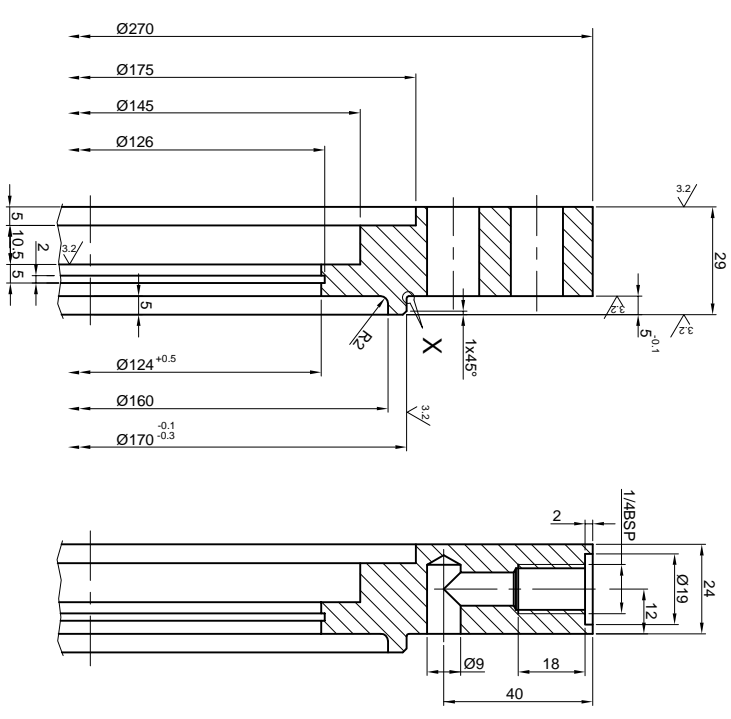
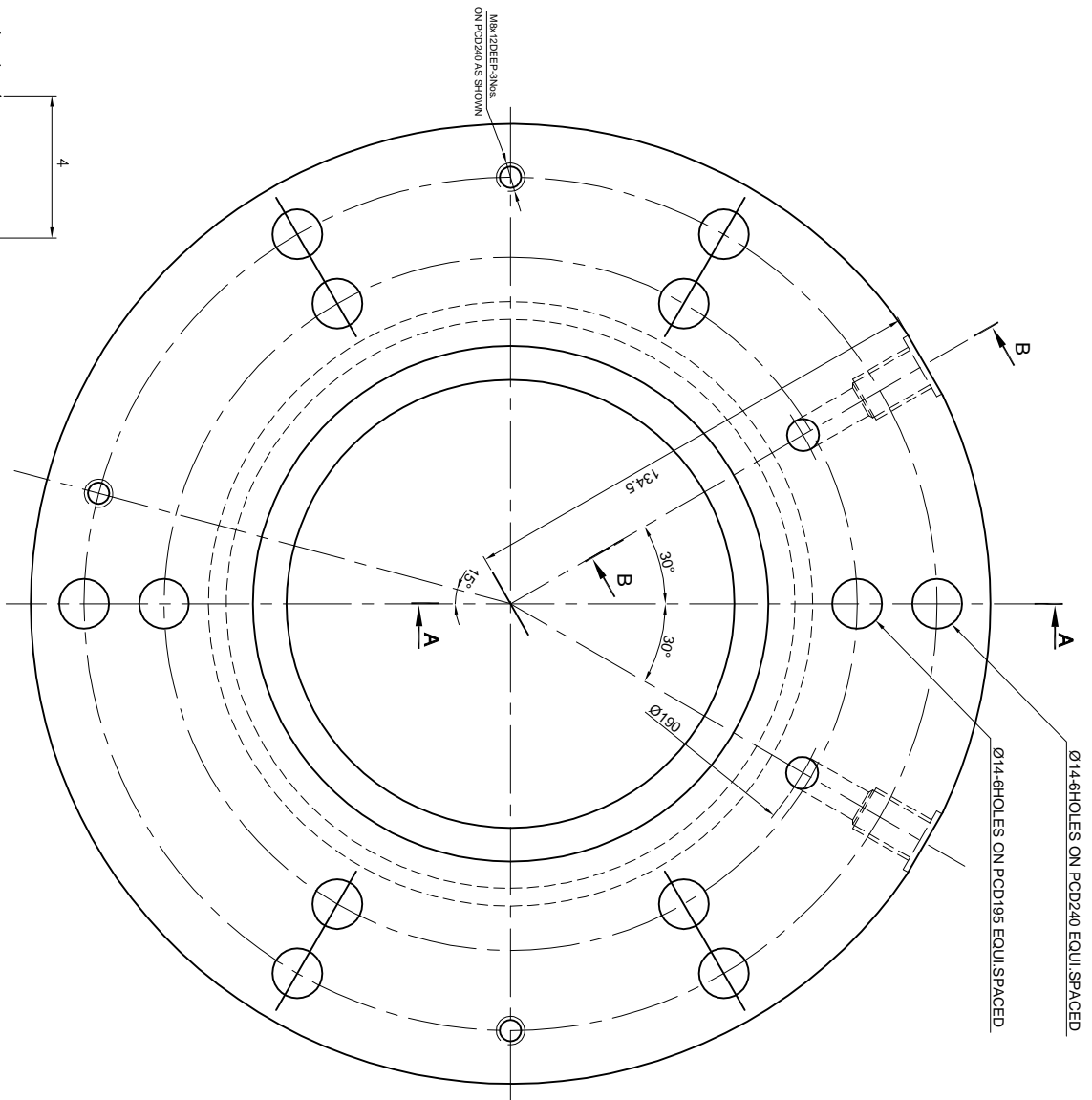
REV	DATE	BY	CHKD	DESCRIPTION
01	18.09.13	18	13	COUNTERGEAR DRG. NO. IS CHANGED 1-7-1155-07-10088 TO 1-7-1155-07-10088

SRM - COUPLING HUB (DRIVE ASSY - SRM 300)

ITEM NO.	DESCRIPTION	DRAWING NO.	QTY
420-4M02	IS 5517		

DATE	SIGNATURE	UNIT	WT
19.02.11	VARGISHANKAR		
19.02.11	SNIAKUMAR		
19.02.11	SHARADANATHAN		

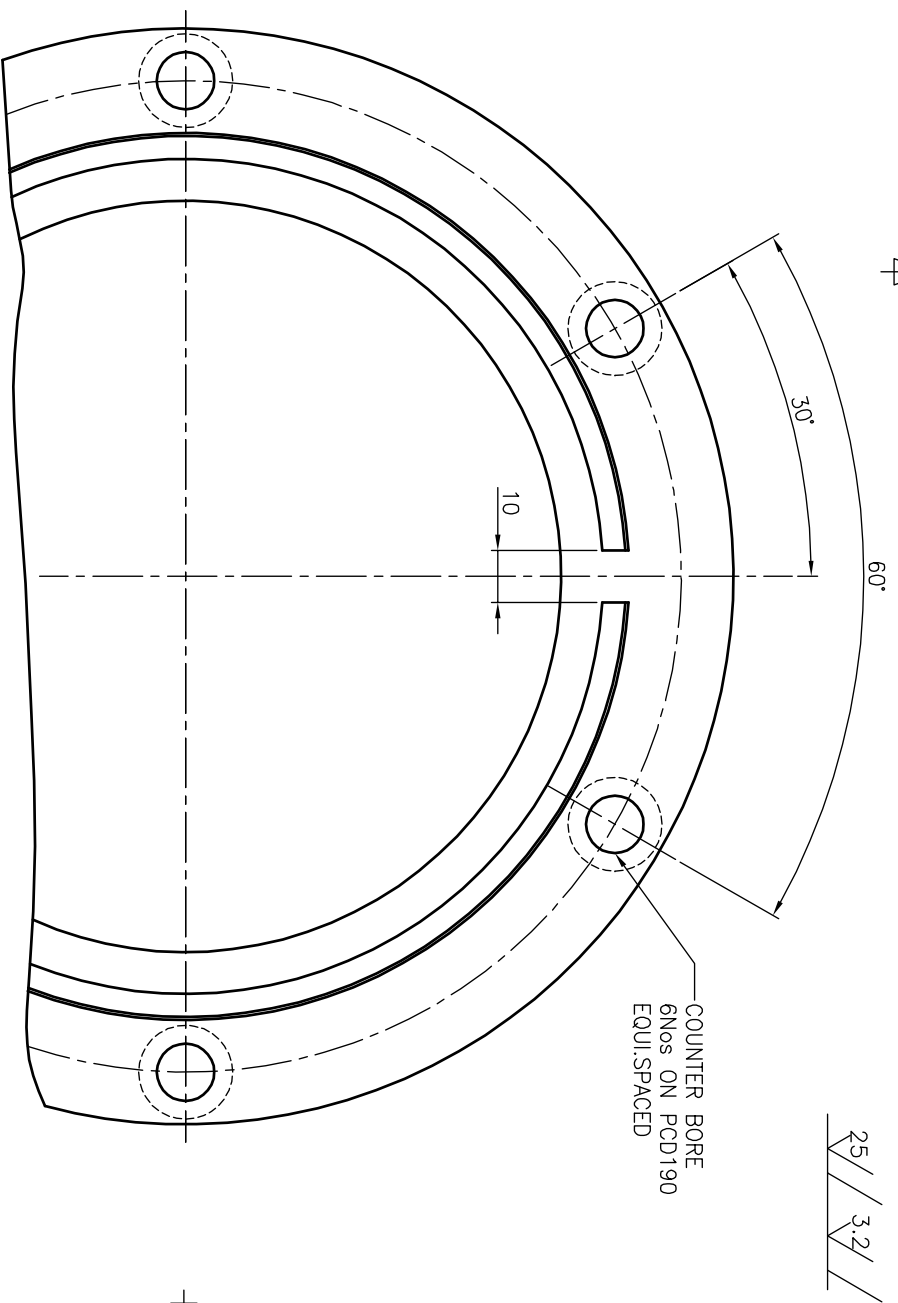
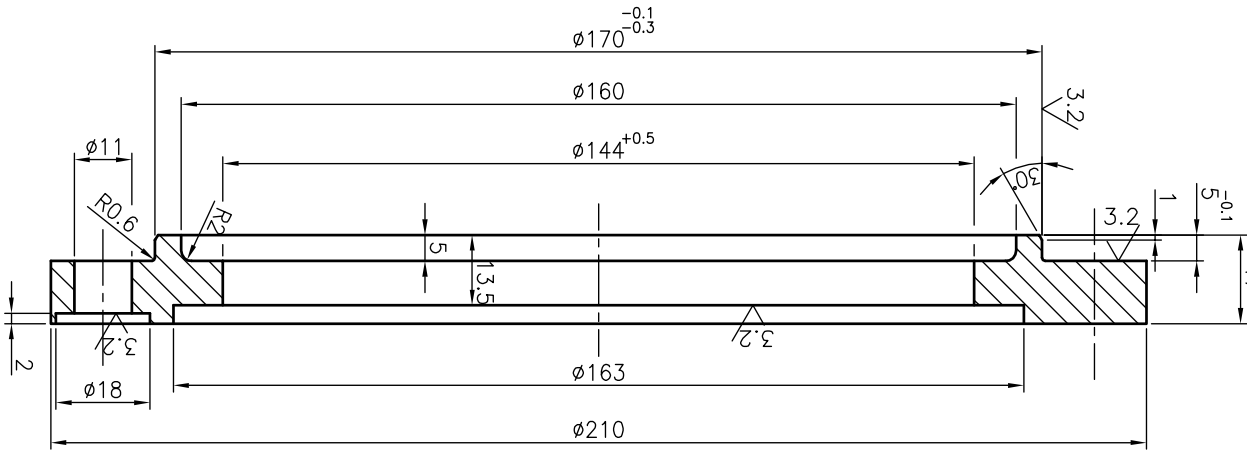
DRAWING NO : 2-7-1155-07-10019



**\* Manufacturing Instructions**  
**SN 200**  
 ALL SHARP CORNERS CHAMFERED TO 0.5x45°

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DEPT. STP CODE 456	SCALE 1:1 S1
TITLE <b>SRM - COVER</b> <b>(DRIVE ASSY - SRM 300)</b>	WEIGHT (Kg) 7
ECP T: <b>STRETCH REDUCING MILL</b>	DWT: <b>VARSHAWKUMAR</b>
ITEM NO DESCRIPTION Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TRILOHIRAPALLI - 620014	DATE 28.02.11
DRAWING NO 45CB IS:1875	UNIT WT 28.02.11
NAME VARSHAWKUMAR	QTY 43
MTL CODE SN:KUMAR	SIGNATURE [Signature]
MTL SPEC GLOBANATHAN	REF TO ASSY DWG NO 1-7-1155-07-10086
REF TO QAD DWG NO 0107047-33.009	REF TO QAD DWG NO 0107047-33.009

REV	DATE	ALTERED BY	APPROVED BY



ALL DIMENSIONS ARE IN MILLIMETRES

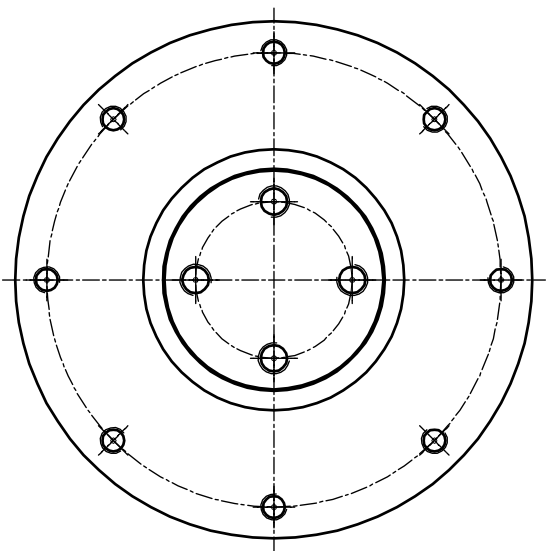
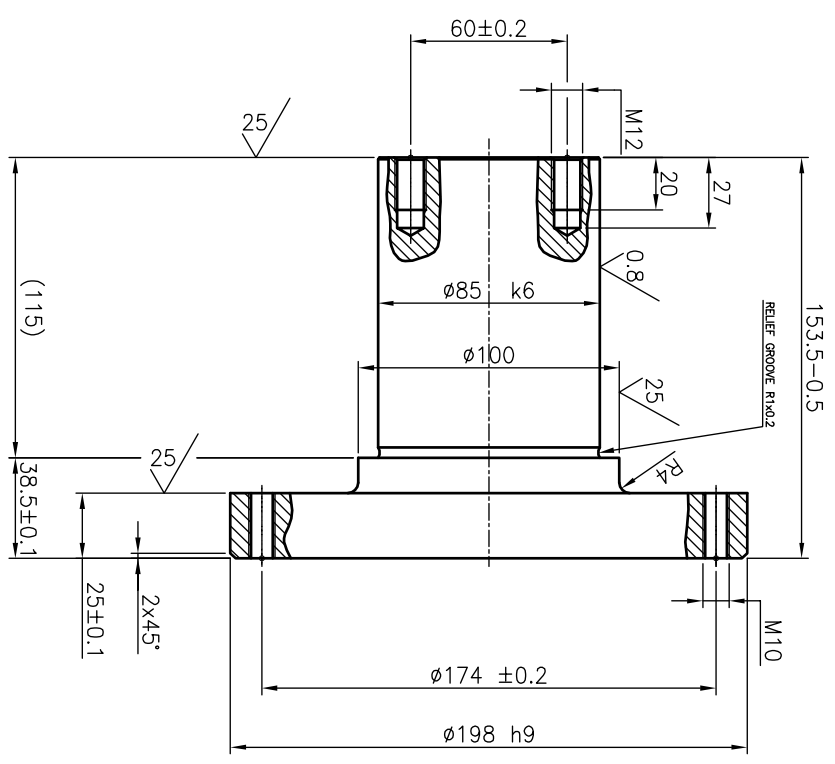
**\* Manufacturing Instructions  
SN 200**

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REV	DATE	ALTERED
01		CHECKED APPROVED

EQUIP: STRETCH REDUCING MILL		ITEM NO		DESCRIPTION		DRAWING NO		UNIT WT	
Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		SRM - COVER (DRIVE ASSY - SRM 300)		SCALE 1:1		WEIGHT (Kg) 2.2		MATERIAL F&S40B IS: 8500	
DRN	NAME	SIGNATURE	DATE	CHD	NAME	SIGNATURE	DATE	APPD	NAME
V.KRISHNAKUMAR	V.KRISHNAKUMAR	<i>V. Krishna Kumar</i>	26.02.11	SSN.KUMAR	SSN.KUMAR	<i>S. Srinivasan</i>	26.02.11	G.LOGANATHAN	G. Loganathan
26.02.11	26.02.11	26.02.11	26.02.11	26.02.11	26.02.11	26.02.11	26.02.11	26.02.11	26.02.11
REF TO ASSY DWG NO 1-7-1155-07-10086	REF TO ASSY DWG NO 1-7-1155-07-10087	REF TO QLD DWG NO 0107029-33.011	REF TO QLD DWG NO 0107029-33.011	REF TO ASSY DWG NO 1-7-1155-07-10086	REF TO ASSY DWG NO 1-7-1155-07-10087	REF TO QLD DWG NO 0107029-33.011	REF TO QLD DWG NO 0107029-33.011	REF TO ASSY DWG NO 1-7-1155-07-10086	REF TO ASSY DWG NO 1-7-1155-07-10087
DRAWING NO : <b>3-7-1155-07-10015</b>		CARD CODE U 01		TITLE SRM - COVER (DRIVE ASSY - SRM 300)		SCALE 1:1		WEIGHT (Kg) 2.2	
REV 00		REV 00		TITLE SRM - COVER (DRIVE ASSY - SRM 300)		SCALE 1:1		WEIGHT (Kg) 2.2	

3.2//0.8//25//



Ø198	h9	0, -0.115	198, 197.885
Ø85	k6	+0.025, +0.003	85.025, 85.003
SIZE	TOLERANCE		

NOTES 1. ALL SHARP CORNERS CHAMFERED TO 0.6x45°  
2. THREADED HOLES DEPRESSED UP TO THREAD O.D. DEPRESSION ANGLE 120°

\* Manufacturing Instructions  
SN 200

ITEM NO	DESCRIPTION	DRAWING NO	UNIT WT
		42C-4M62 IS: 5517	
		MATL CODE	
		MATL SPEC	QTY

EQUIPMENT: STRETCH REDUCING MILL		DRN	NAME	SIGNATURE	DATE
Bharat Heavy Electricals Ltd		CHD	V.KRISHNAKUMAR	<i>V. Krishna Kumar</i>	19.02.11
SEAMLESS STEEL TUBE PLANT		APPD	SSN.KUMAR	<i>S.S.N. Kumar</i>	19.02.11
TRUCHIRAPALLI - 620014			G.LOGANATHAN	<i>G. Loganathan</i>	19.02.11

DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (Kg)
SRIP	φ M / φ	1:2	12.0
CODE	IS: 2102		

TITLE	CARD CODE	DRAWING NO :	REV
SRM - SHAFT	U 01	3-7-1155-07-10018	00
DRIVE ASSY-SRM300			

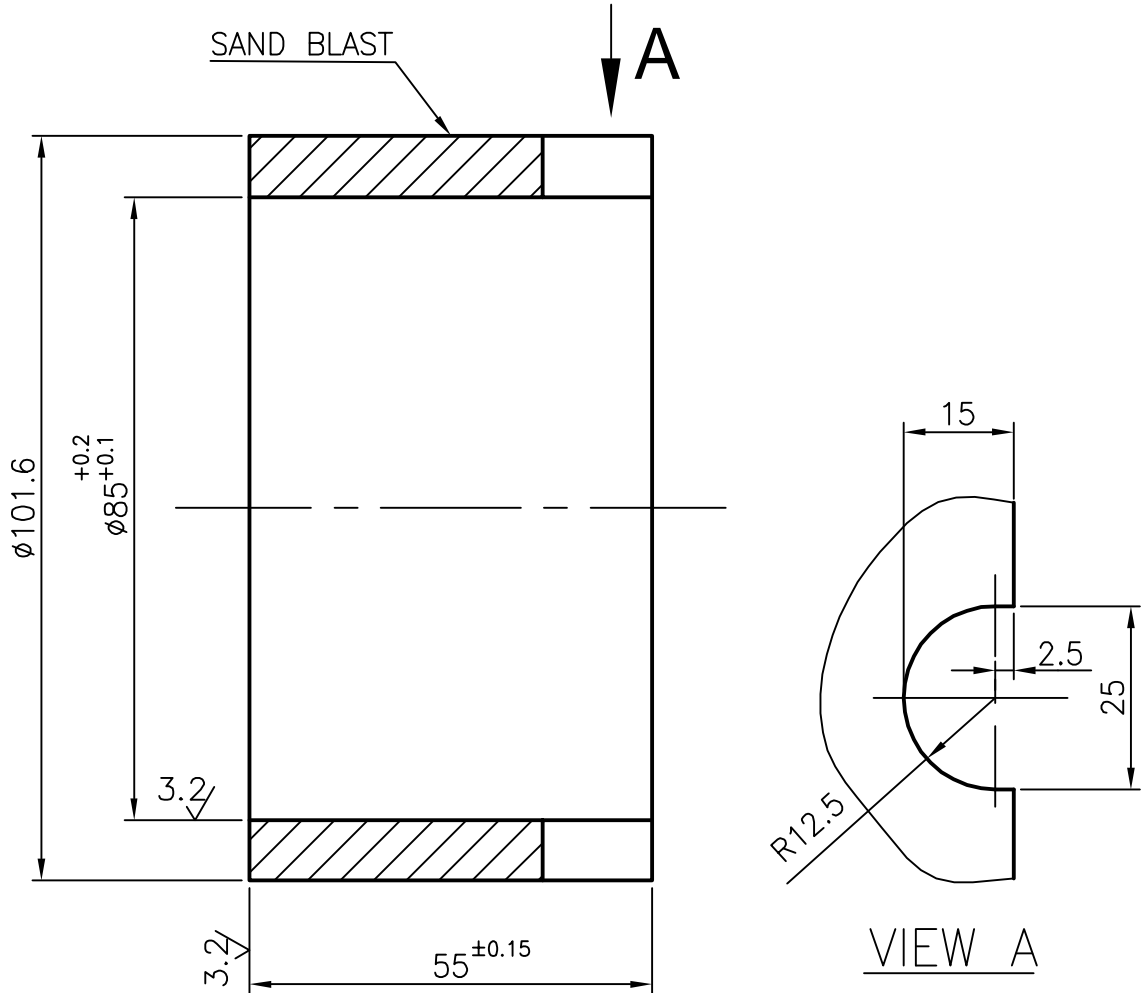
REV	DATE	ALTERED
01		CHECKED APPROVED

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ALL DIMENSIONS ARE IN MM

REV 01	DATE	ALTERED
		CHECKED
		APPROVED

25/3.2/



Fabricated from Pipe 101.6 x 12.5

\* **Manufacturing Instructions**

**SN 200**

**ALL SHARP CORNERS CHAMFERED TO 0.5x45°**

ITEM NO	DESCRIPTION	DRAWING NO	<b>35C8 IS:1875</b>	
			MATL CODE	UNIT WT
			MATL SPEC	QTY

EQPT: **STRETCH REDUCING MILL**



**Bharat Heavy Electricals Ltd**  
SEAMLESS STEEL TUBE PLANT  
TIRUCHIRAPALLI - 620014

DRN	NAME <b>V.KRISHNAKUMAR</b>	SIGNATURE <i>V. Krishnakumar</i>	DATE <b>26.02.11</b>
CHD	<b>SSN.KUMAR</b>	<i>SSN.Kumar</i>	<b>26.02.11</b>
APPD	<b>G.LOGANATHAN</b>	<i>G. Loganathan</i>	<b>26.02.11</b>

DEPT SSTP	GRADE OF UNTOL. DIM ϕ/M/F IS: 2102	SCALE <b>1:1</b>	WEIGHT (Kg) <b>1</b>	REF TO ASSY DWG NO <b>1-7-1155-07-10086</b> <b>1-7-1155-07-10087</b>	ITEM <b>29</b>
CODE 456				REF TO OLD DWG NO <b>0107029-33.004</b>	

**SRM - SPACER RING**  
**(DRIVE ASSY - SRM 300)**

TITLE	CARD CODE <b>U 01</b>	DRAWING NO : <b>4-7-1155-07-10016</b>	REV <b>00</b>
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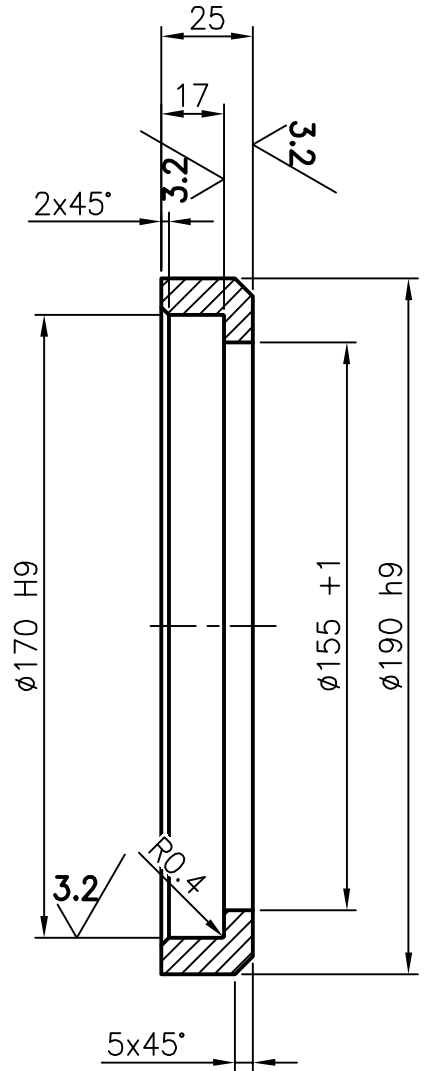
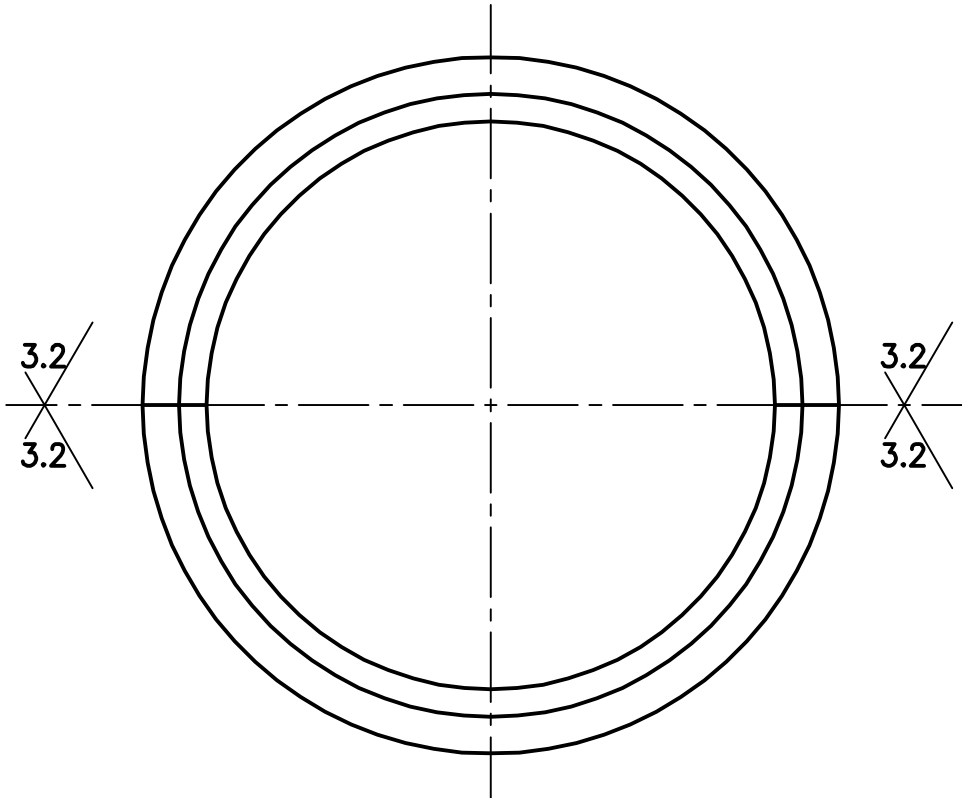
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ALL DIMENSIONS ARE IN MM

REV 01	DATE	ALTERED
		CHECKED
		APPROVED

25/3.2/

190	h9	$0$	$190$
		$-0.115$	$189.885$
170	H9	$+0.100$	$170.100$
		$0$	$170$
SIZE	TOLERANCE		



ALL SHARP CORNERS CHAMFERED TO 0.5x45°

\* Manufacturing Instructions  
SN 200

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ITEM NO	DESCRIPTION	DRAWING NO	Fe410WA IS:2062	UNIT WT
			MATL CODE	QTY
			MATL SPEC	

EQPT: **STRETCH REDUCING MILL**



**Bharat Heavy Electricals Ltd**  
SEAMLESS STEEL TUBE PLANT  
TIRUCHIRAPALLI - 620014

DRN	NAME	SIGNATURE	DATE
	<b>V.KRISHNAKUMAR</b>	<i>V. Krishnakumar</i>	<b>23.02.11</b>
CHD	<b>SSN.KUMAR</b>	<i>SSN. Kumar</i>	<b>23.02.11</b>
APPD	<b>G.LOGANATHAN</b>	<i>G. Loganathan</i>	<b>23.02.11</b>

DEPT SSTP	GRADE OF UNTOL. DIM	SCALE	WEIGHT (Kg)	REF TO ASSY DWG NO	ITEM
456	$\phi/M/F$ IS: 2102	1:2	1.3	1-7-1155-07-10086 1-7-1155-07-10087	17
				REF TO OLD DWG NO	
				0107047-33.004	

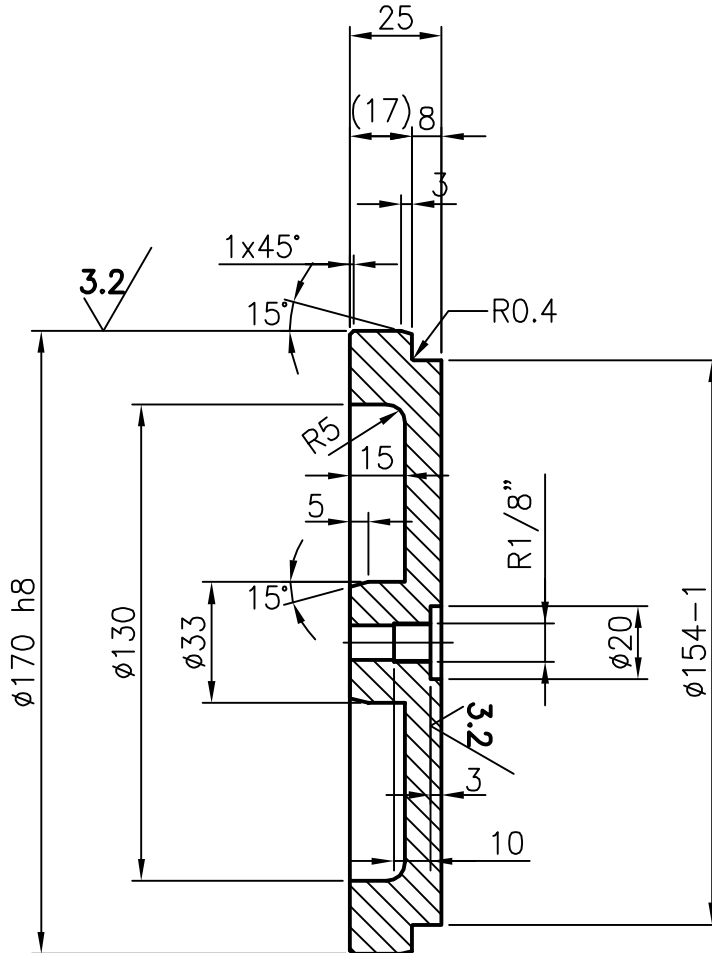
TITLE	CARD CODE	DRAWING NO :	REV
<b>SRM - SPLIT RING (DRIVE ASSY - SRM 300)</b>	<b>U 01</b>	<b>4-7-1155-03-10018</b>	<b>00</b>

ALL DIMENSIONS ARE IN MM

REV 01	DATE	ALTERED
		CHECKED
		APPROVED

25//3.2//

SIZE	TOLERANCE
170	h8 $\begin{matrix} 0 & 170 \\ -0.063 & 169.937 \end{matrix}$




\* Manufacturing Instructions  
SN 200

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			<b>Fe410WA IS: 2062</b>	
ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE	UNIT WT
			MATL SPEC	QTY

EQPT: **STRETCH REDUCING MILL**

	Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014	DRN	NAME <b>V.KRISHNAKUMAR</b>	SIGNATURE <i>V. Krishnakumar</i>	DATE <b>11.03.11</b>
		CHD	<b>SSN.KUMAR</b>	<i>SSN.Kumar</i>	<b>11.03.11</b>
		APPD	<b>G.LOGANATHAN</b>	<i>G. Loganathan</i>	<b>11.03.11</b>

DEPT SSTP	GRADE OF UNTOL. DIM $\phi/M/F$ IS: 2102	SCALE <b>1:2</b>	WEIGHT (Kg) <b>2.1</b>	REF TO ASSY DWG NO 1-7-1155-07-10086 <b>1-7-1155-07-10087</b>	ITEM <b>13</b>
CODE 456				REF TO OLD DWG NO <b>0107047-33.002</b>	

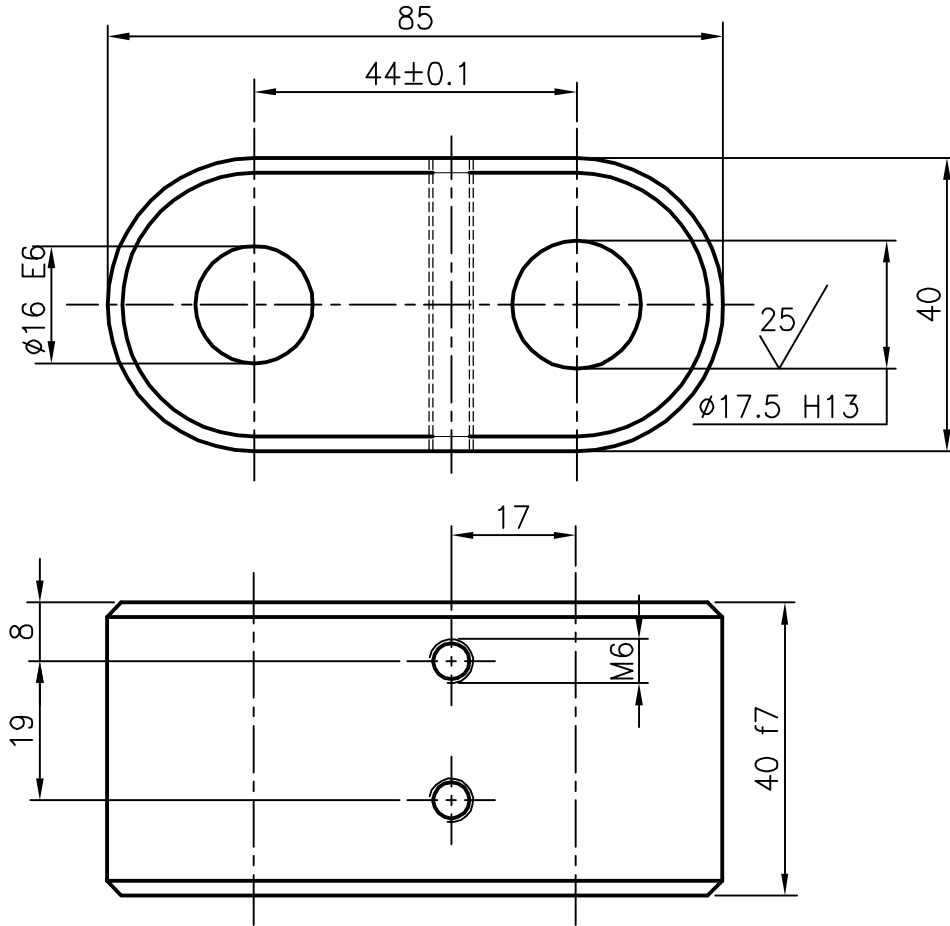
TITLE <b>SRM - COVER (DRIVE ASSY - SRM 300)</b>	CARD CODE <b>U 01</b>	DRAWING NO : <b>4-7-1155-07-10019</b>	REV <b>00</b>
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ALL DIMENSIONS ARE IN MM

REV 01	DATE	ALTERED
		CHECKED
		APPROVED

3.2//25//


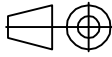
40	f7	-0.025 -0.05	39.975 39.95
∅17.5	H13	+0.27 0	17.77 17.5
∅16	E6	+0.043 +0.032	16.043 16.032
SIZE	TOLERANCE		



ALL SHARP CORNERS CHAMFERED TO 0.6x45°

\* Manufacturing Instructions  
SN 200

Nitro carburised  
Surface Hardness: 650-660 HV0.5

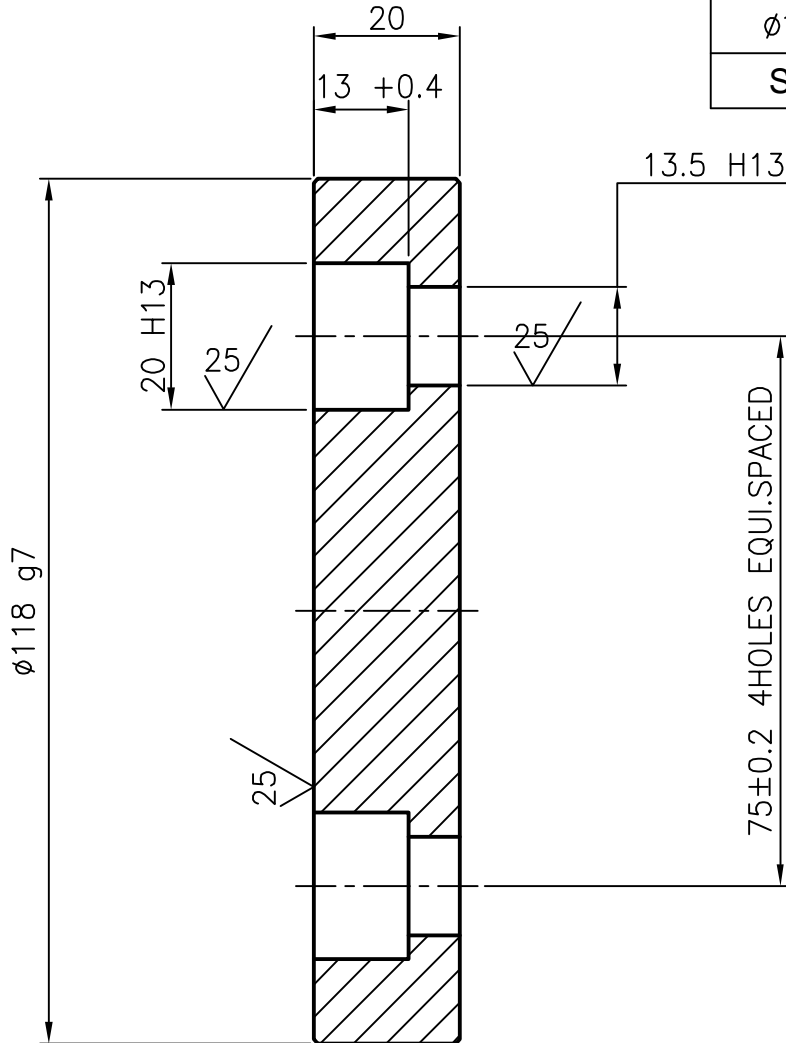
CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.					42Cr4Mo2 IS: 5517		
	ITEM NO	DESCRIPTION	DRAWING NO		MATL CODE	UNIT WT	
					MATL SPEC	QTY	
	EQPT: STRETCH REDUCING MILL						
	Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014			DRN	NAME V.KRISHNAKUMAR	SIGNATURE <i>V. Krishnakumar</i>	DATE 05.02.11
				CHD	SSN.KUMAR	<i>SSN.Kumar</i>	05.02.11
				APPD	G.LOGANATHAN	<i>G. Loganathan</i>	05.02.11
DEPT SSTP	GRADE OF UNTOL. DIM		SCALE	WEIGHT (Kg)	REF TO ASSY DWG NO	1-7-1155-07-10086	ITEM
CODE 456	$\phi/M/f$ IS: 2102		1:1	0.7	REF TO OLD DWG NO	1-7-1155-07-10087	50
TITLE <b>SRM - BRACKET</b> <b>(DRIVE ASSY - SRM 300)</b>				CARD CODE U 01	DRAWING NO : <b>4-7-1155-07-10021</b>		REV 00

ALL DIMENSIONS ARE IN MM

REV 01	DATE	ALTERED
		CHECKED
		APPROVED

3.2//25//


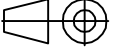
Ø118	g7	-0.012 -0.047	117.988 117.953
Ø20	H13	+0.33 0	20.33 20
Ø13.5	H13	+0.27 0	13.77 13.5
SIZE	TOLERANCE		



NOTE: 1. All SHARP CORNERS CHAMFERED TO  $0.6 \times 45^\circ$

\* Manufacturing Instructions  
SN 200

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				45C8	IS:1875		
ITEM NO	DESCRIPTION	DRAWING NO		MATL CODE		UNIT WT	
				MATL SPEC		QTY	
EQPT: STRETCH REDUCING MILL							
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN	V.KRISHNAKUMAR	SIGNATURE	DATE
				CHD	SSN.KUMAR	<i>SSN.Kumar</i>	18.02.11
				APPD	G.LOGANATHAN	<i>G.Loganathan</i>	18.02.11
DEPT SSTP	GRADE OF UNTOL. DIM		SCALE	WEIGHT (Kg)	REF TO ASSY DWG NO	1-7-1155-07-10086	ITEM
CODE	$\phi/M/F$ IS:2102		1:1	1.7	REF TO OLD DWG NO	1-7-1155-07-10087	40
456					0107120-33.012		
TITLE				CARD CODE	DRAWING NO :		REV
<b>SRM - COVER</b> <b>(DRIVE ASSY - SRM 300)</b>				U 01	<b>4-7-1155-07-10022</b>		00