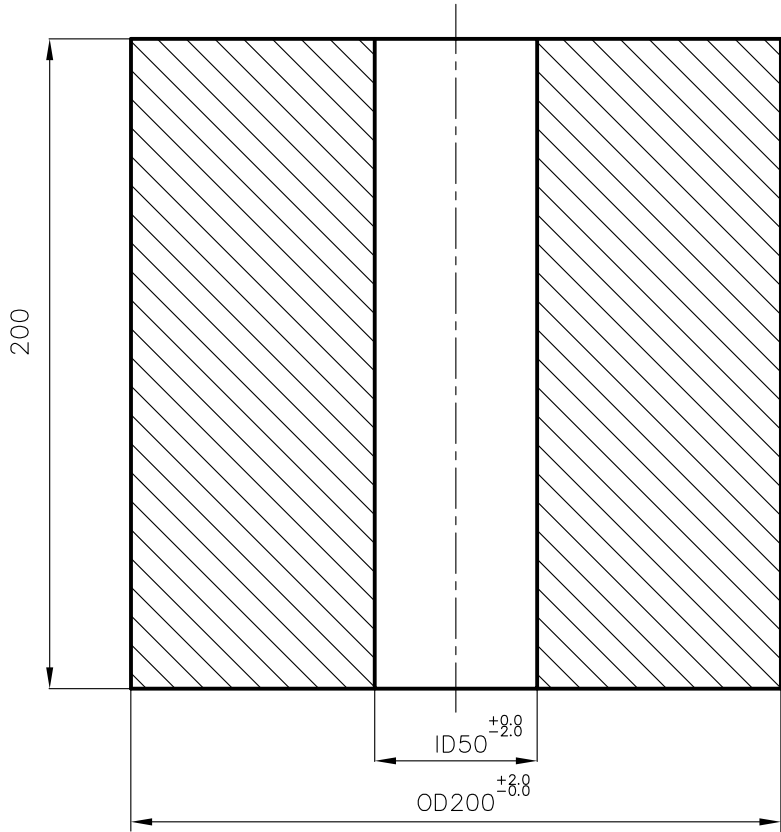


ALL DIMENSIONS ARE IN MILLIMETRES

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REV	DATE	ALTERED
01		APPROVED



	HOLLOW FORGING OD200 / ID50	92 084 110 0000	A	93	00
		SA 182 F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT.WT.(Kg)	
		MATL. SPECN.	C	QTY.	

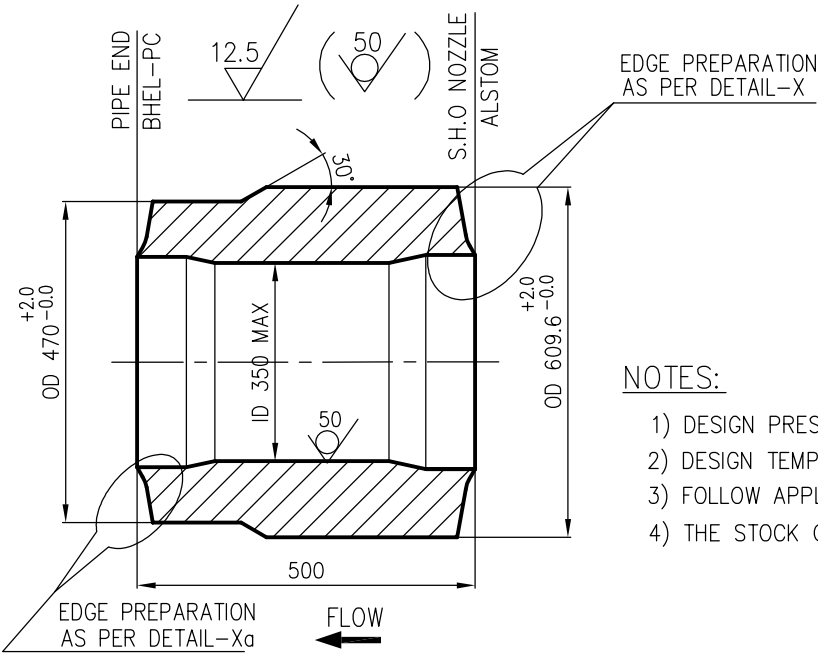
	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	PAVANKUMAR	SIGN	DATE	NO. OF VAR
			CHD	PAVANKUMAR		01.06.12	
			APPD	C KARUNAKARAN		01.06.12	
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	93.000				
TITLE			CARD CODE	DRAWING NO.		REV	
HOLLOW FORGING OD200 / ID50			U 01	4-80-300-75314		00	

ALL DIMENSIONS ARE IN MILLIMETRES

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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

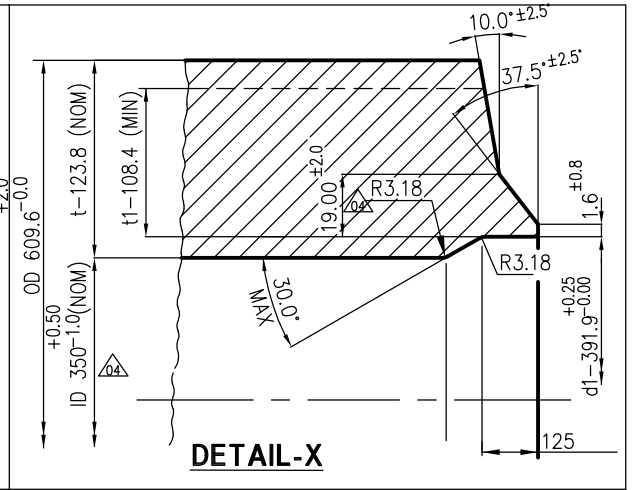
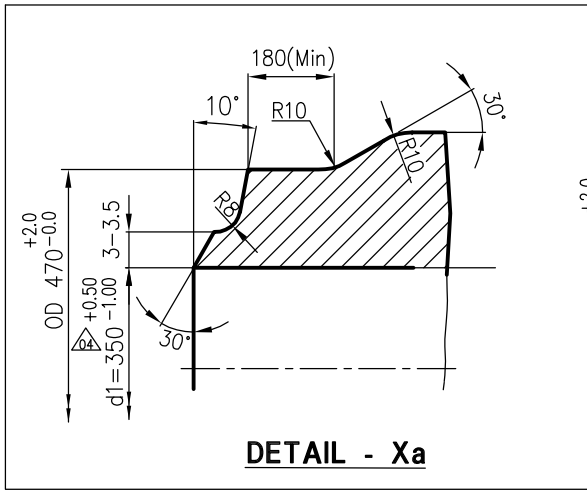
REV 01	DATE 18-01-10	ALTERED : CHD & APPD : CS. Sd.....	MC. Sd.....	REV 02	DATE 16-04-10	ALTERED : CHD & APPD : CS. Sd.....	MC. Sd.....	REV 03	DATE 03-06-10	ALTERED : LALIT CHD & APPD : C.S	
DRAWING PROFILE COMPLETELY REVISED AS PER ALSTOM's REQUIREMENT. DETAIL ALSO MODIFIED.				E.P PROFILE COMPLETELY REVISED AT HEADER END AS PER ALSTOM's REQUIREMENT.				DESIGN TEMPERATURE REVISED REVISION MARKED AS Δ_{03}			

REV 04	DATE 18-08-10	ALTERED : LALIT CHD & APPD : C.S
REVISION MARKED AS Δ_{04}		



NOTES:

- 1) DESIGN PRESSURE : 269 Kg/sq.cm(g)
- 2) DESIGN TEMPERATURE : 568 °C Δ_{03}
- 3) FOLLOW APPLICABLE QP
- 4) THE STOCK CODE FOR THE MATCHING PIECE: 921175670000



VARIANT NUMBER	DESCRIPTION	STD	MATCHING PIECE	580	000
			OD609.6x123.8/ID350x60		
			L=500		
			SA 182 F91	A	
			MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY

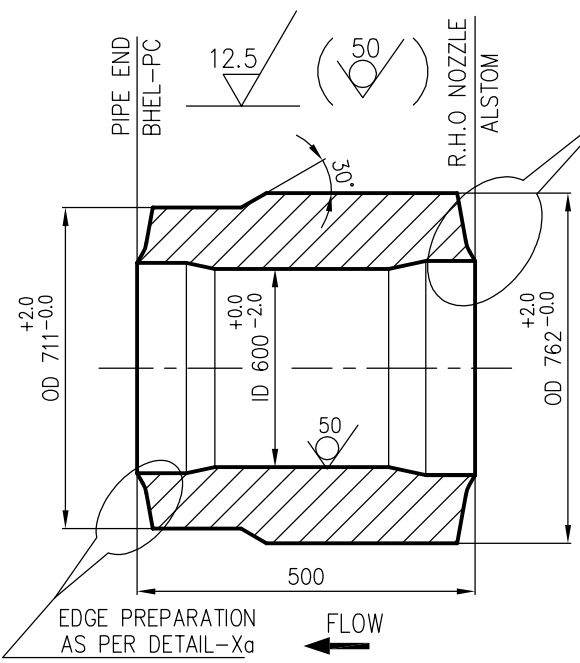
	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGNATURE	DATE
			CHD	M.C.SEKARAN	Sd.....	04.01.10
			APPD	C.SARAVANAN	Sd.....	04.01.10
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S	580.0		
TITLE				DRAWING NO :		REV
MATCHING PIECE				4-80-300-70214		04
OD609.6x123.8/ID350x60						

ALL DIMENSIONS ARE IN MILLIMETRES

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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV 01	DATE 18-01-10	ALTERED : CHD & APPD : CS. Sd.....	MC. Sd.....	REV 02	DATE 16-04-10	ALTERED : CHD & APPD : CS. Sd.....	MC. Sd.....	REV 03	DATE 03-06-10	ALTERED : LALIT CHD & APPD : C.S	
DRAWING PROFILE COMPLETELY REVISED AS PER ALSTOM's REQUIREMENT. DETAIL ALSO MODIFIED.				E.P PROFILE COMPLETELY REVISED AT HEADER END AS PER ALSTOM's REQUIREMENT.				DESIGN TEMPERATURE REVISED REVISION MARKED AS Δ			

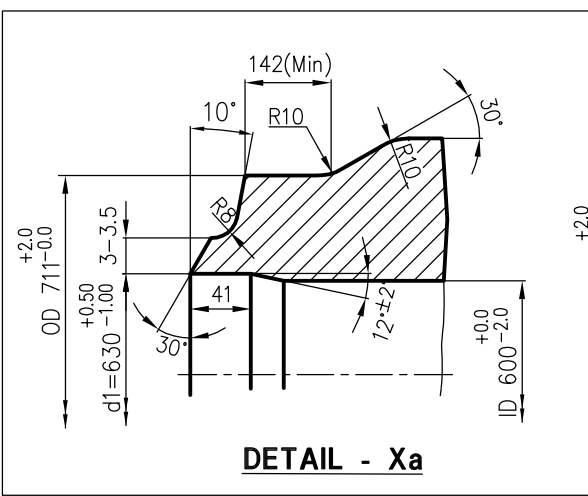
REV 04	DATE 18-08-10	ALTERED : LALIT CHD & APPD : C.S
REVISION MARKED AS Δ		



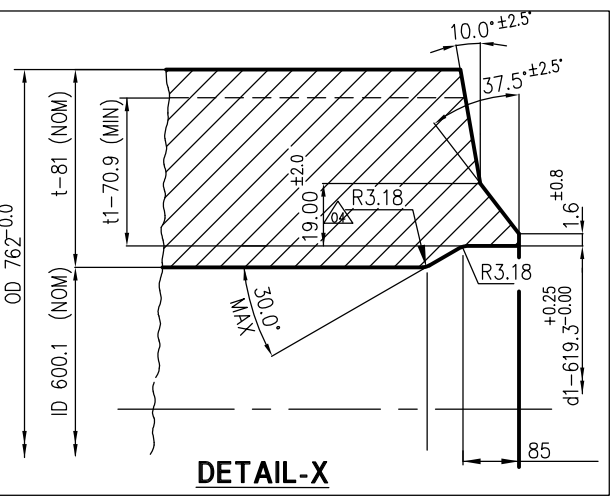
EDGE PREPARATION AS PER DETAIL-X

NOTES:

- 1) DESIGN PRESSURE : 68 Kg/sq.cm(g)
- 2) DESIGN TEMPERATURE : 596 °C Δ
- 3) FOLLOW APPLICABLE QP
- 4) THE STOCK CODE FOR THE MATCHING PIECE: 921175700000



DETAIL - Xa



DETAIL - X

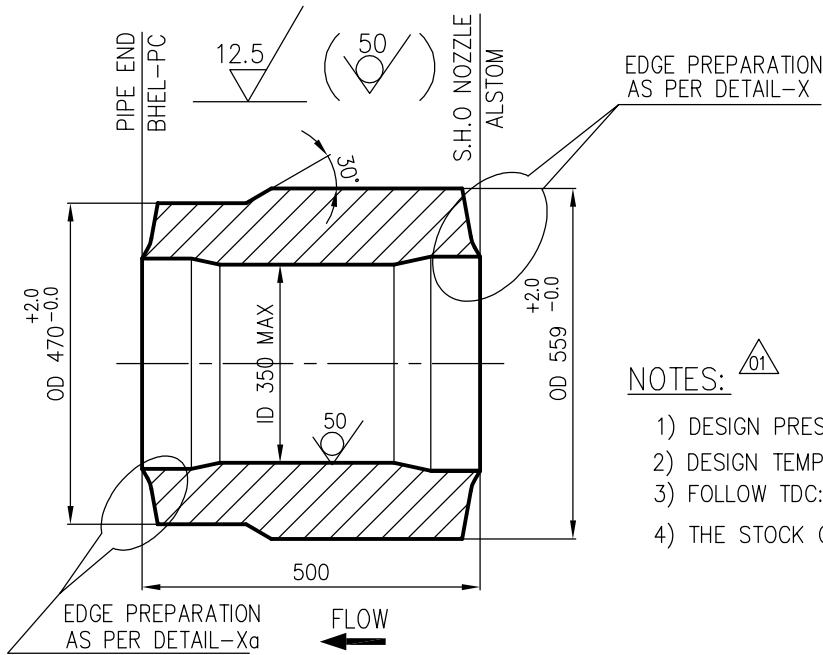
VARIANT NUMBER	DESCRIPTION	STD	MATCHING PIECE	584	000
			OD 762x81/ OD 711X42 L=500		
			SA 182 F91	A	
			MATERIAL CODE	A/C/P	UNIT WEIGHT(KG)
			MATERIAL SPECN	UNIT	QUANTITY

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGNATURE	DATE
			CHD	M.C.SEKARAN	Sd.....	04.01.10
			APPD	C.SARAVANAN	Sd.....	04.01.10
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S	584.0		
TITLE				DRAWING NO :		REV
MATCHING PIECE				4-80-300-70215		04
OD 762x81/ OD 711X42						

ALL DIMENSIONS ARE IN MILLIMETRES

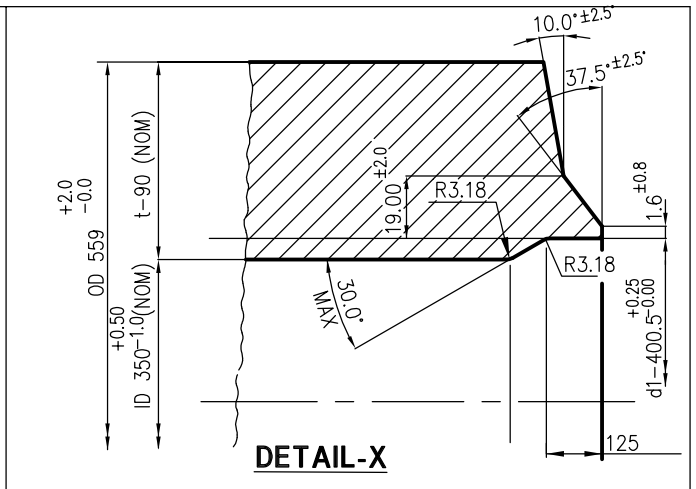
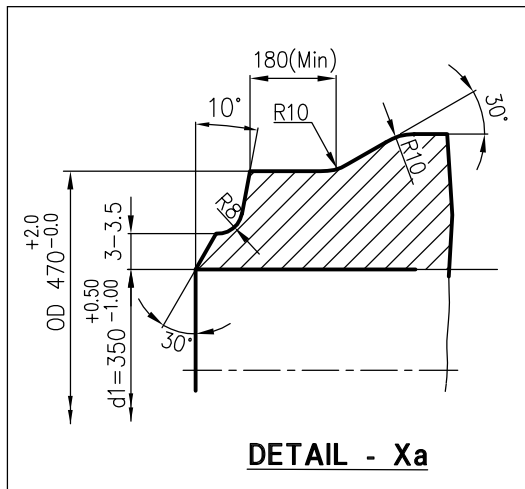
REV 01	DATE 20.08.11	ALTERED : CHD & APPD : KBN SP	REV 02	DATE	ALTERED : CHD & APPD :	REV 03	DATE	ALTERED : CHD & APPD :
NOTE ALTD AS MARKED.								

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NOTES: $\triangle 01$

- 1) DESIGN PRESSURE : 270 Kg/sq.cm(g)
- 2) DESIGN TEMPERATURE : 568 °C
- 3) FOLLOW TDC:104 LATEST REVISION
- 4) THE STOCK CODE FOR THE MATCHING PIECE:921176620000



VARIANT NUMBER	MATCHING PIECE OD559x90/ID350x60 L=500	STD	SA 182 F91	A	UNIT	580	000
			MATERIAL CODE			UNIT WEIGHT(KG)	
DESCRIPTION			MATERIAL SPECN	A/C/P	UNIT	QUANTITY	

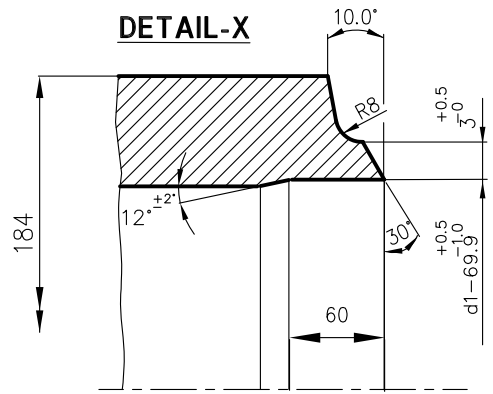
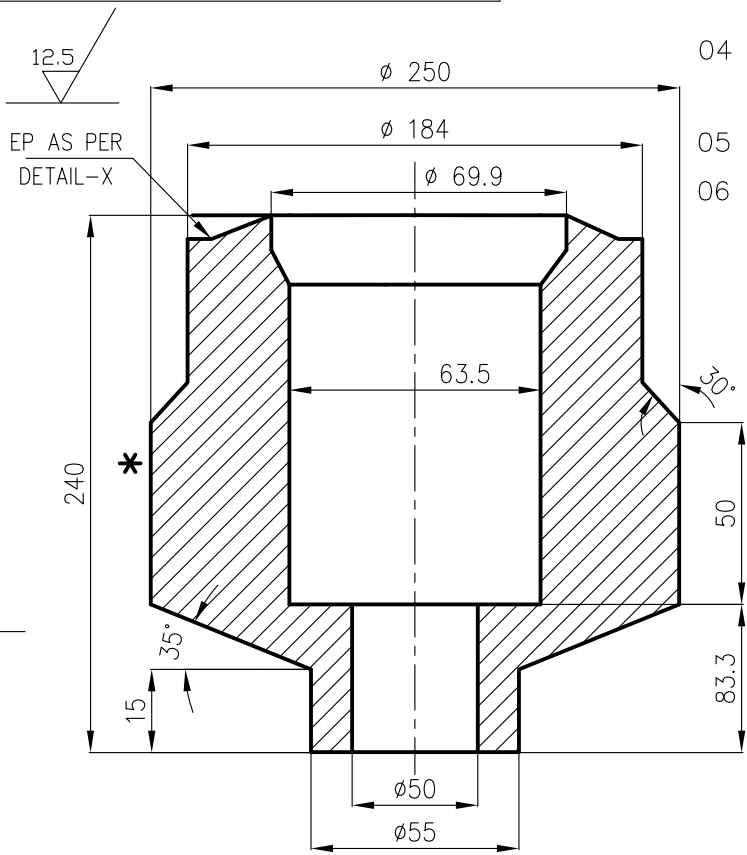
	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME MANOJ	SIGNATURE Sd.....	DATE 04.08.11
			CHD	K. BOOPALAN	Sd.....	04.08.11
			APPD	S. PANDA	Sd.....	04.08.11
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S	580.0		
TITLE				DRAWING NO :		REV
MATCHING PIECE OD559x90/ID350x60				4-80-300-73498		01

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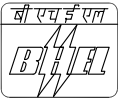
REV	DATE	ALTERED
		APPROVED

ALL DIMENSIONS ARE IN MILLIMETRES

- NOTES:
- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
 - 02 DESIGN TEMPERATURE : 573 °C
 - 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
 - 04 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
 - 05 FOLLOW TDC: TDG:104, REV.04
 - 06 THIS STUB IS REQUIRED FOR MS SYSTEM OF 660 MW UNIT.



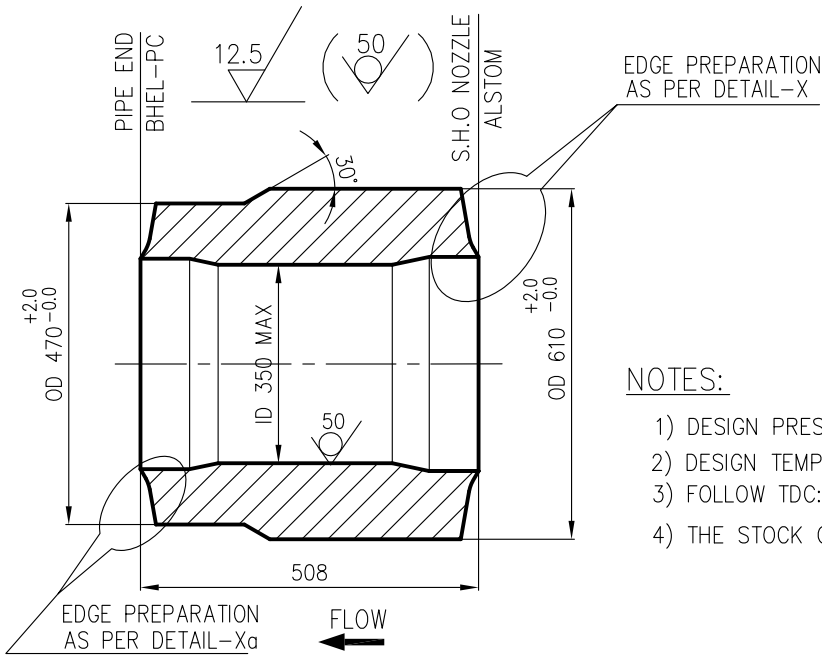
	FORGED STUB L=240 OD250/ID50	92 516 756 0000	A	52	492
		SA182F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

	BHARAT HEAVY ELECTRICALS LIMITED		DRN	POONGKODI V	SIGN	DATE	NO.OF VAR
	PIPING CENTRE		CHD	PANDA S		28.09.12	
	CHENNAI 600 017		APPD	C V NATHAN		28.09.12	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	52.492				
TITLE			CARD CODE	DRAWING NO.			REV
SAFETY VALVE STUB OD 250 SA182F91			U 01	4-80-300-76047			00

ALL DIMENSIONS ARE IN MILLIMETRES

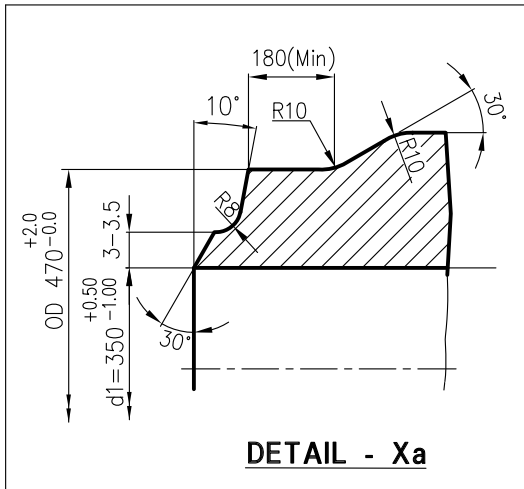
REV 01	DATE	ALTERED : CHD & APPD :	REV 02	DATE	ALTERED : CHD & APPD :	REV 03	DATE	ALTERED : CHD & APPD :
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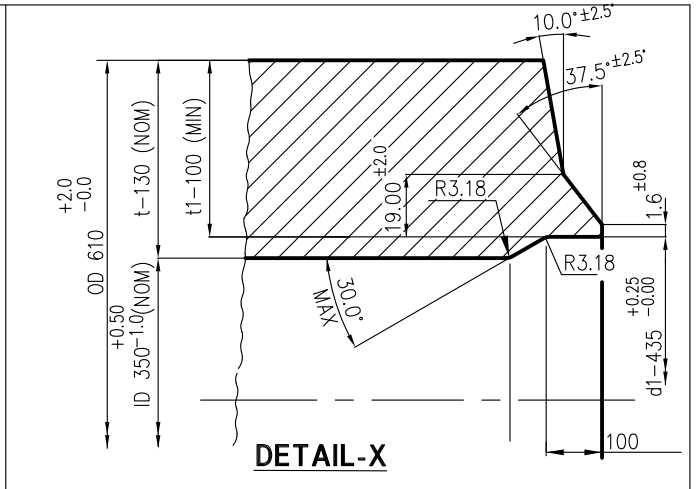


NOTES:

- 1) DESIGN PRESSURE : 270 Kg/sq.cm(g)
- 2) DESIGN TEMPERATURE : 568 °C
- 3) FOLLOW TDC:104 LATEST REVISION
- 4) THE STOCK CODE FOR THE MATCHING PIECE:921178080000



DETAIL - Xa



DETAIL - X

VARIANT NUMBER	MATCHING PIECE OD610x130/ID350x60 L=508	92 117 808 0000	A	673 000
	DESCRIPTION	SA 182 F91		UNIT WEIGHT(KG)
STD		MATERIAL SPECN	A/C/P	QUANTITY

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME B SINGH	SIGNATURE Sd.....	DATE 09.04.2013
			CHD	B SINGH	Sd.....	09.04.2013
			APPD	S. PANDA	Sd.....	09.04.2013
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S	673.000		
TITLE			DRAWING NO :			REV
MATCHING PIECE OD610x130/ID350x60			4-80-300-76664			00

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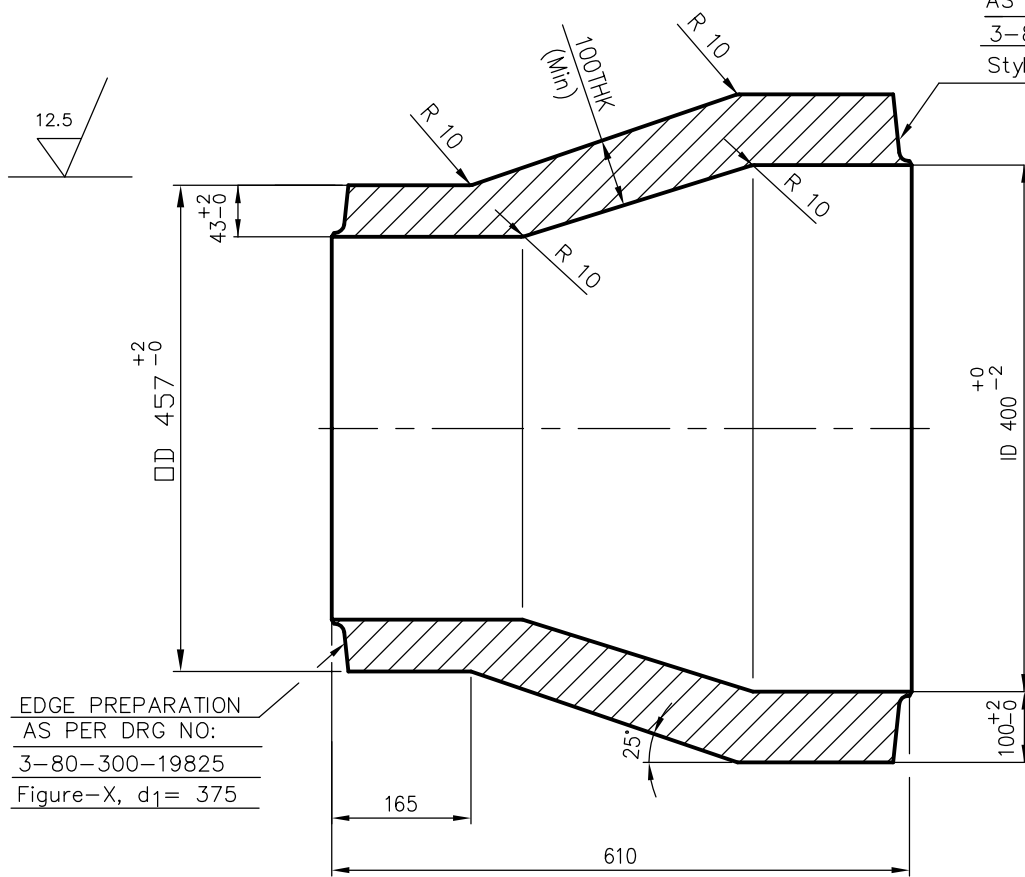
REV	DATE	ALTERED	PALANI
01	01-03-11	APPROVED	VENKAT
DESIGN PRESSURE REVISED.			
ALL REVISIONS INDICATED AS $\triangle 01$			

ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:


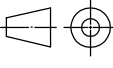
- $\triangle 01$ 01.DESIGN PRESSURE: 188.9 Kg/Sq.Cm (g)
- 02.DESIGN TEMPERATURE: 540°C
- 03.FOLLOW QP NO.: AS APPLICABLE

EDGE PREPARATION
AS PER DRG NO:
3-80-300-19825
Style-P, d1=400



EDGE PREPARATION
AS PER DRG NO:
3-80-300-19825
Figure-X, d1= 375

	MATCHING PIECE L=610 ID400max x thk100min/ OD 457 X43	92 117 470 0000	A	400	000
		SA 182 F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT.WT.(Kg)	
		MATL. SPECN.	C	QTY.	

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		NAME S.PALANI	SIGN	DATE 05.02.09	NO.OF VAR -	
DEPT CODE	GRADE OF UNTOL.DIM C / M / F		SCALE N.T.S	WEIGHT (KG). 400.000	BHEL PO REF.NO:			NO. OF ITEMS -
TITLE MATCHING PIECE (ID400maxXthk100min/OD457X43)				CARD CODE U 01	DRAWING NO. 4-80-301-68294		REV 01	

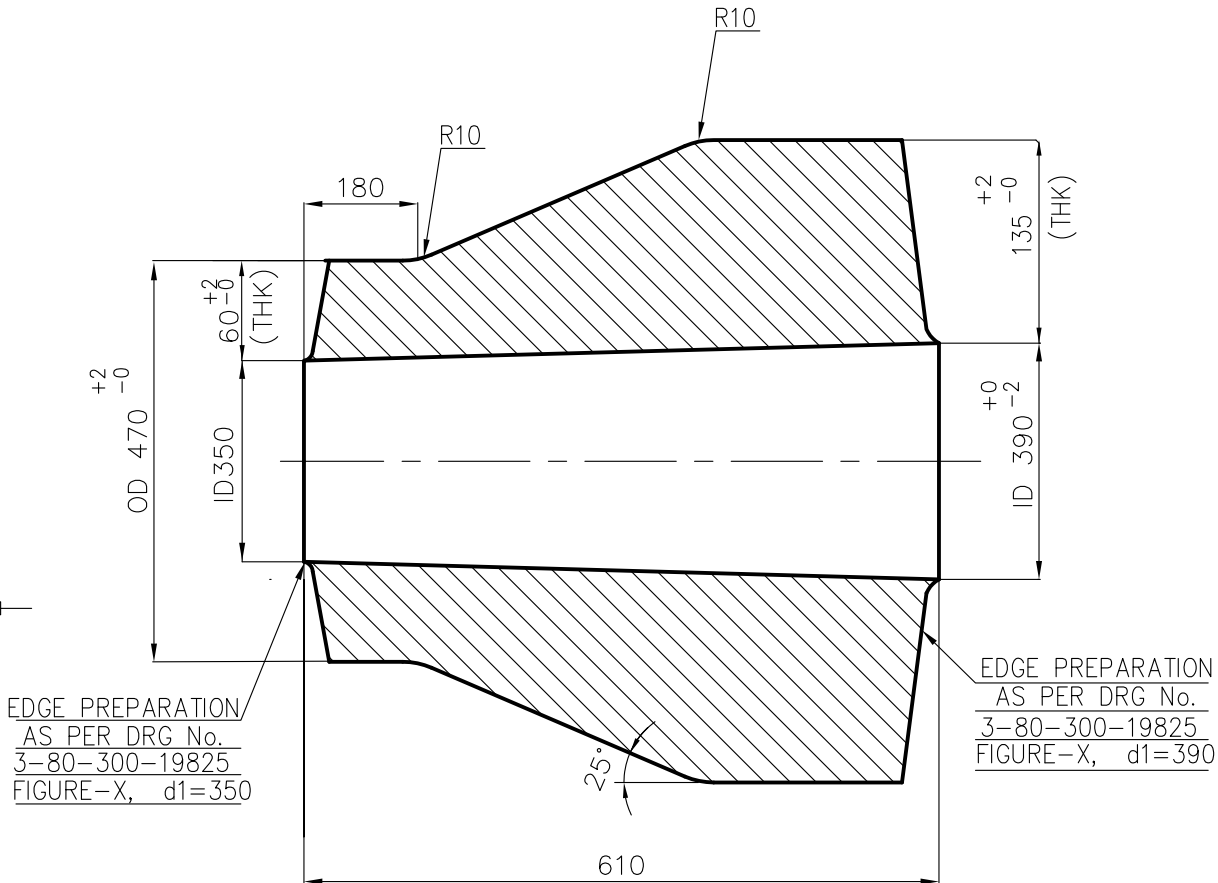
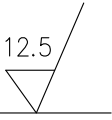
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

REV	DATE	ALTD : K.BOOPALAN -SD.-
01	14.08.2012	APPD : S.PANDA -SD.-
DESIGN PRESSURE ALTERED REVISION INDICATED AS $\triangle 01$		

ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:-

- $\triangle 01$ 01. DESIGN PRESSURE : 272 Kg/Cm²(g)
- 02. DESIGN TEMPERATURE : 568° C
- 03. FITTING SHALL CONFORM TO ALL THE REQUIREMENTS OF ASME B16.9 & A 234(LATEST).
- 04. THIS DRAWING IS FOR INDICATING THE OVER ALL DIMENSIONS, CONNECTING PIPE SIZE AND MATERIAL SPECIFICATION.



	MATCHING PIECE ID 390 Max x Thk 135 min ID350 x 60 L=610	92 117 569 0000	A	1010	000
VAR NO.	DESCRIPTION	STD	MATL. CODE	UNIT	UNIT.WT.(Kg)
			MATL. SPECN.	DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		NAME	SIGN	DATE	NO. OF VAR
DEPT	GRADE OF UNTOL. DIM		SCALE	DRN		16.05.10	
CODE	C / M / F			CHD	C.SARAVANAN	16.05.10	
		APPD	C.SARAVANAN	16.05.10			
		WEIGHT (KG).	1010.000	BHEL PO REF.NO:		ITEM NO.	NO. OF ITEMS
TITLE			CARD CODE		DRAWING NO.		REV
MATCHING PIECE (ID390 x Thk 135 min/ID350x60)SA182F91			U 01		4-80-301-70711		01

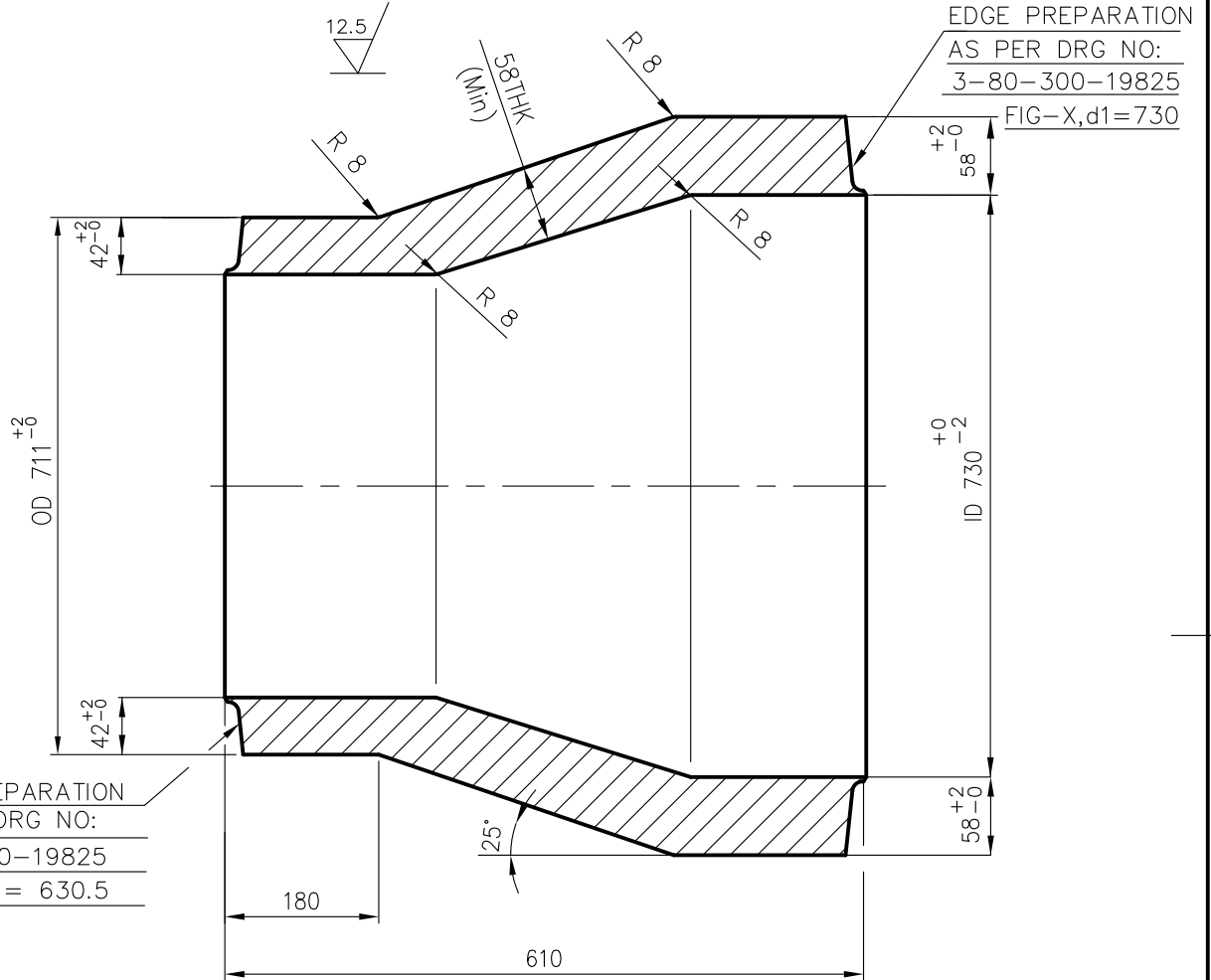
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

REV	DATE	ALTERED	K.BOOPALAN	-SD.-
01	21.08.2012	APPROVED	S.PANDA	-SD.-
DESIGN PRESSURE ALTERED REVISION INDICATED AS \triangle_{01}				


ALL DIMENSIONS ARE IN MILLIMETRES

NOTES :-

- DESIGN PRESSURE : 70 Kg/Cm²(g) \triangle_{01}
- DESIGN TEMPERATURE : 596° C
- FITTING SHALL CONFORM TO ALL THE REQUIREMENTS OF ASME B16.9 & A 234(LATEST).
- THIS DRAWING IS FOR INDICATING THE OVER ALL DIMENSIONS, CONNECTING PIPE SIZE AND MATERIAL SPECIFICATION.



	MATCHING PIECE L=610 ID730max x thk58min/ OD 711X42	92 117 571 0000	A	719 000
		SA 182 F91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT.WT.(Kg)
		MATL. SPECN.	C	QTY.
			DI	

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	C.SARAVANAN		16.05.10	
				APPD	C.SARAVANAN		16.05.10	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	719.000					
TITLE				CARD CODE	DRAWING NO.			REV
MATCHING PIECE (ID730max X thk58min/OD711X42) SA182F91				U 01	4-80-310-70712			01

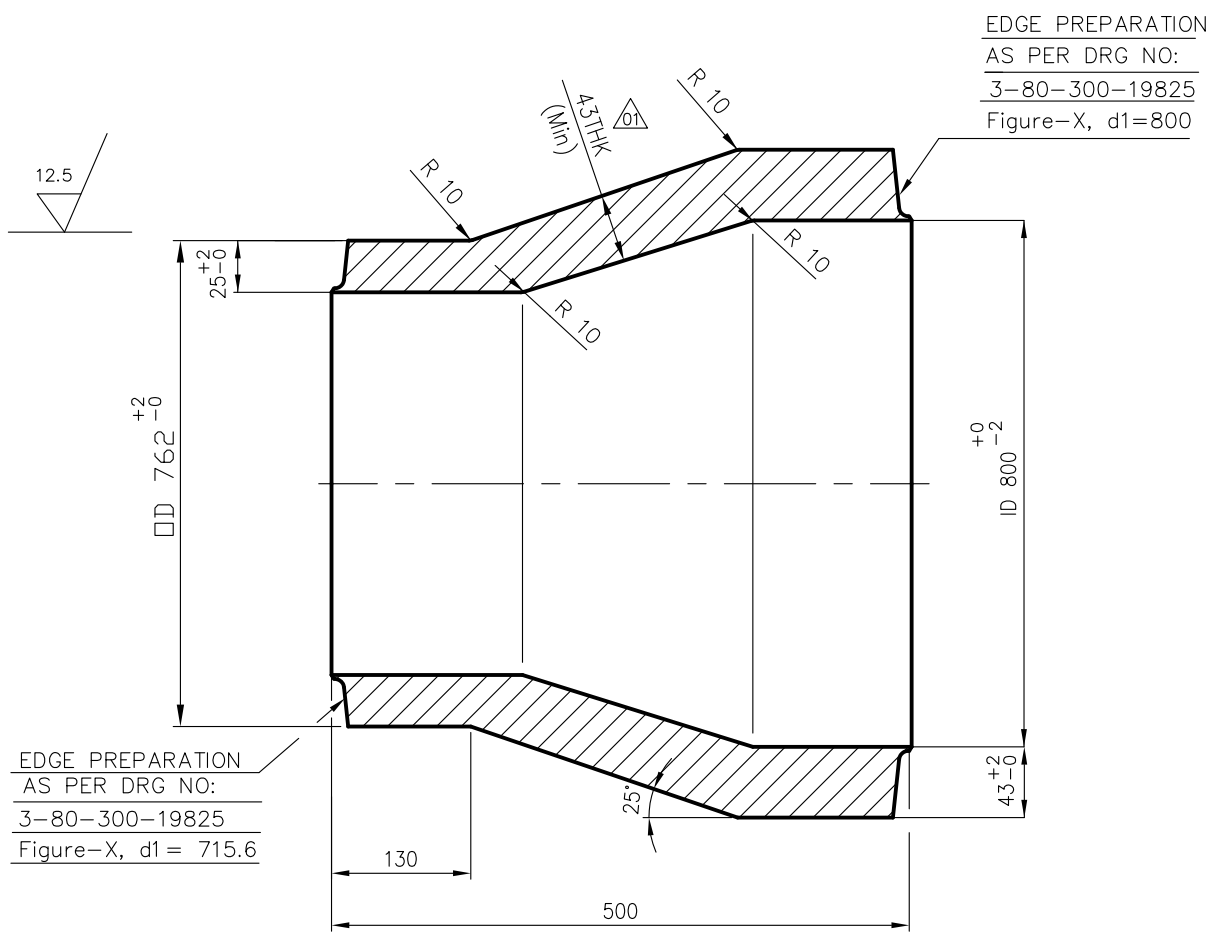
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

REV	DATE	ALTERED	SUDHAKAR
01	19.08.09	APPROVED	VENKAT
THICKNESS CORRECTED ALL REVISIONS MARKED AS \triangle			


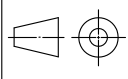
ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- 01.DESIGN PRESSURE: 48.6 Kg/Sq.Cm (g)
- 02.DESIGN TEMPERATURE: 568°C
- 03.FOLLOW QP NO.: AS APPLICABLE



	MATCHING PIECE L=500 ID800max x thk43min/ OD 762 X25	92 117 474 0000	A	500	000
		SA 182 F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		NAME	SIGN	DATE	NO.OF VAR
DEPT	GRADE OF UNTOL.DIM		SCALE	DRN	S.PALANI	05.02.09	
CODE	C / M / F		N.T.S	CHD	VENKAT	05.02.09	-
			WEIGHT (KG)	APPD	K.V.RAMANI	05.02.09	
				BHEL PO REF.NO:			NO. OF ITEMS
TITLE				CARD CODE	DRAWING NO.		REV
MATCHING PIECE (ID800maxXthk43min/OD762X25)				U 01	4-80-310-68403		01

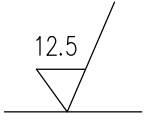
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

REV	DATE	ALTERED	M.MANO
01	27.02.12	APPROVED	CKN
MATERIAL SPECIFICATION ALTERED FROM SA234WP91 TO SA182F91			

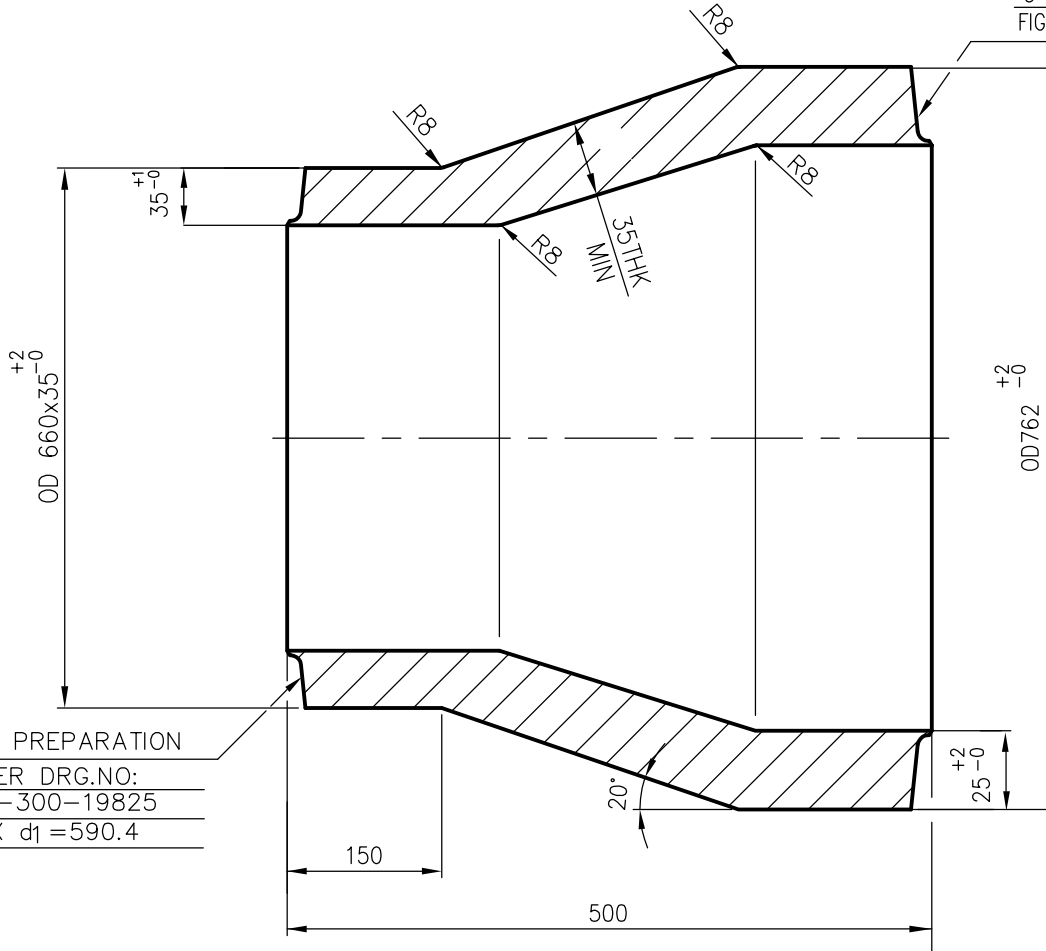
ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- DESIGN PRESSURE : 48.6 Kg/sq.cm(g)
- DESIGN TEMPERATURE : 568°C



EDGE PREPARATION
AS PER DRG.NO:
3-80-300-19825
FIG-X d₁ = 715.6




EDGE PREPARATION
AS PER DRG.NO:
3-80-300-19825
FIG-X d₁ = 590.4

01	REDUCER	92 117 496 0000	A	304 000
	OD762x25/OD660x35	SA182F91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.		
			DI	QTY.

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	SUDHAKAR	SIGN	DATE	NO.OF VAR
			CHD	SUDHAKAR		17.08.09	
			APPD	PARAM		17.08.09	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	304.000				
TITLE			CARD CODE	DRAWING NO.		REV	
REDUCER (OD762x25/OD660x35)			U 01	4-80-310-69297		01	

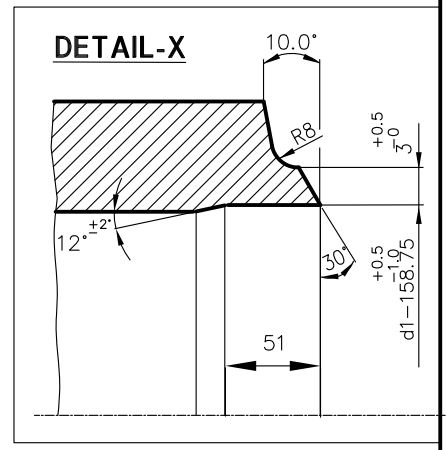
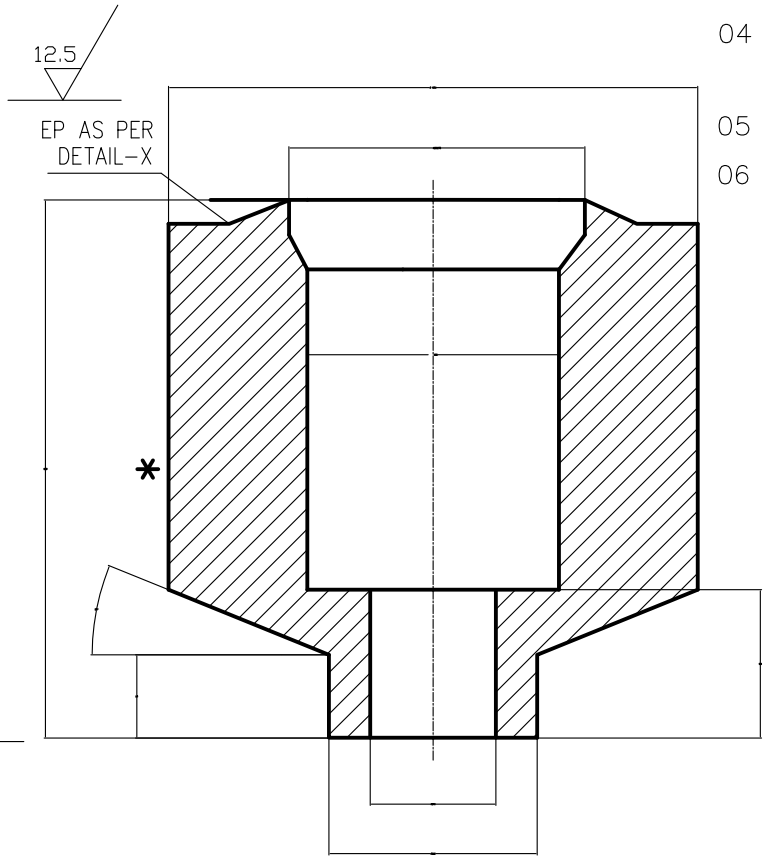
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

REV	DATE	ALTERED	PRABHAKARAN
01	16.10.12	APPROVED	RAJITHA
DIMENSION REVISED			
REVISION INDICATED AS 			


ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- 01 DESIGN PRESSURE : 68kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 601°C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 05 FOLLOW TDC: TDG:104, REV.04
- 06 THIS STUB IS REQUIRED FOR HRH SYSTEM OF 660 MW UNIT.

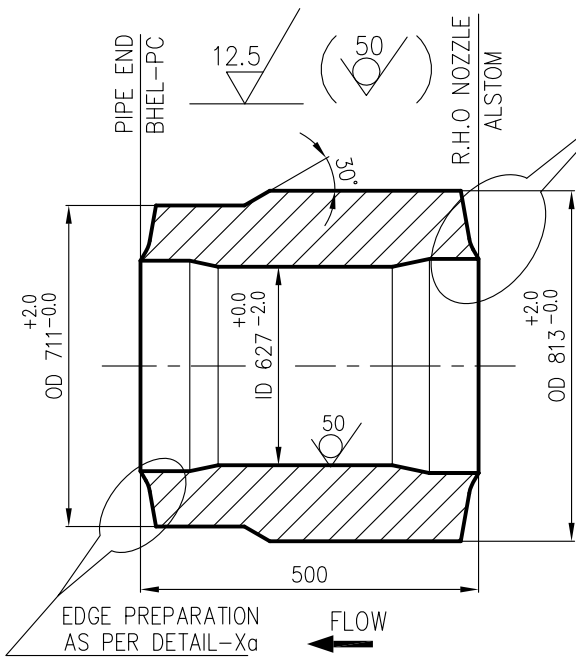


	FORGED STUB L=215 OD254/ID140	92 516 753 0000	A	47	000
		SA182F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO. OF VAR
			CHD	B B SINGH		05.05.12	
			APPD	S PANDA		05.05.12	
DEPT CODE	GRADE OF UNTOL. DIM C / M / F	SCALE N.T.S	WEIGHT (KG).	REF. TO ASSY./OLD DRG.	ITEM NO.	NO. OF ITEMS	
			47.000				
TITLE			CARD CODE	DRAWING NO.	REV		
SAFETY VALVE STUB OD 254 SA182F91			U 01	4-80-310-75157	01		

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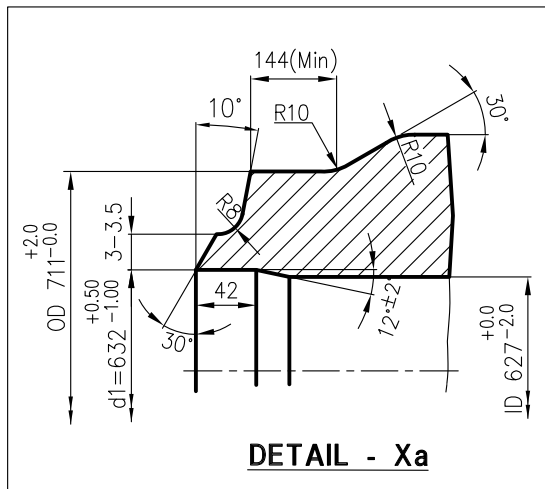
REV 01	DATE	ALTERED :
		CHD & APPD :



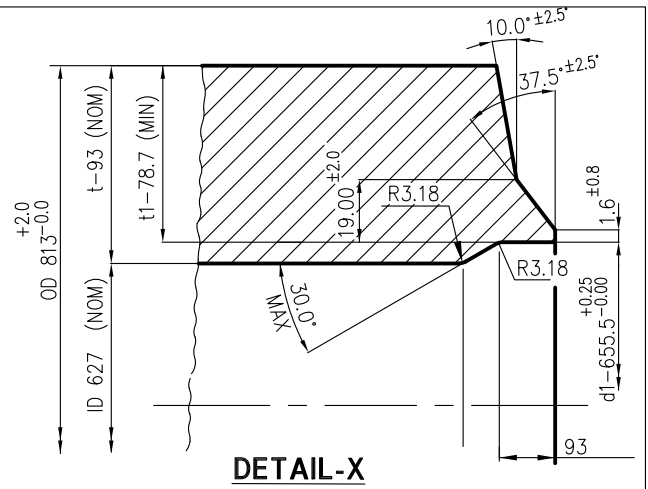
EDGE PREPARATION AS PER DETAIL-X

NOTES:

- 1) DESIGN PRESSURE : 70 Kg/sq.cm(g)
- 2) DESIGN TEMPERATURE : 596 °C
- 3) FOLLOW APPLICABLE QP
- 4) THE STOCK CODE FOR THE MATCHING PIECE:921178090000



DETAIL - Xa



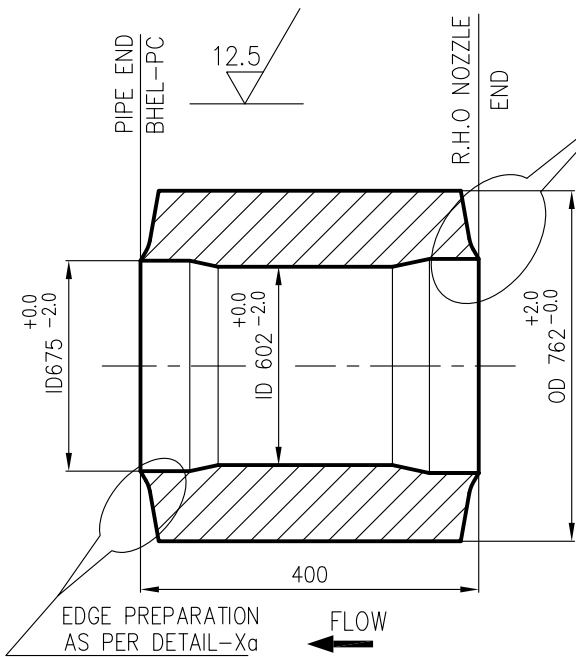
DETAIL-X

VARIANT NUMBER	DESCRIPTION	STD	MATCHING PIECE	92 117 809 0000	A	770	000
			OD 813x93/ OD 711x42	SA 182 F91			
			MATERIAL CODE		A/C/P	UNIT	UNIT WEIGHT(KG)
			MATERIAL SPECN				QUANTITY

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME B SINGH	SIGNATURE Sd.....	DATE 09.04.2013
			CHD	B SINGH	Sd.....	09.04.2013
			APPD	S PANDA	Sd.....	09.04.2013
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S	770.000		
TITLE			DRAWING NO :			REV
MATCHING PIECE			4-80-310-76665			00
OD 813x93/ OD 711x42						

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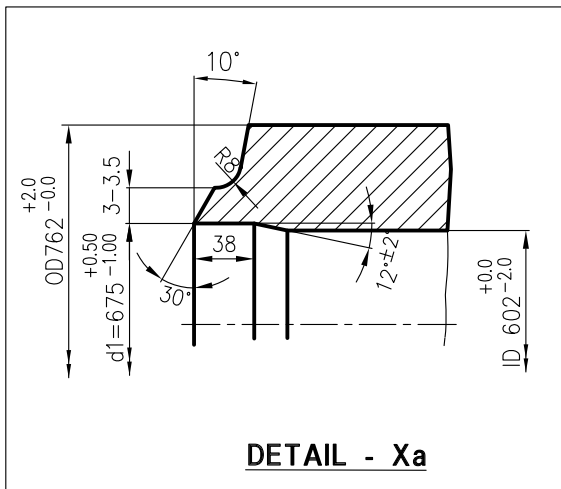
REV 01	DATE	ALTERED :
		CHD & APPD :



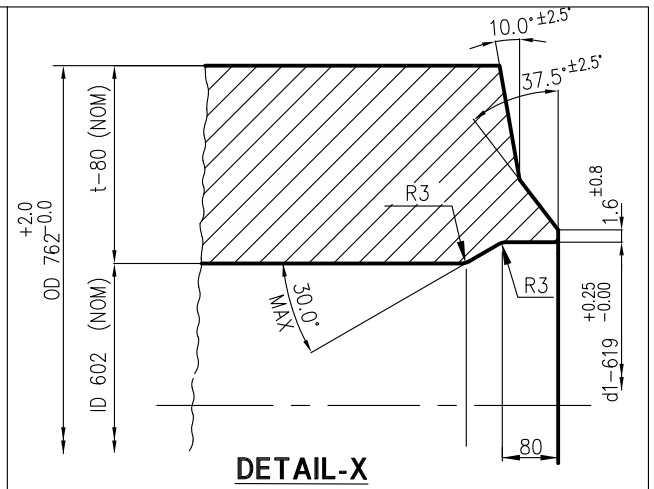
EDGE PREPARATION AS PER DETAIL-X

NOTES:

- 1) DESIGN PRESSURE : 70 Kg/sq.cm(g)
- 2) DESIGN TEMPERATURE : 601 °C
- 3) FOLLOW TDG: 104
- 4) THE FINISHED MATERIAL CODE IS 92 117 828 0000


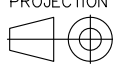


DETAIL - Xa



DETAIL - X

VARIANT NUMBER	MATCHING PIECE OD 762x80/ ID 675X38 L=400	STD	A	470	000	
	DESCRIPTION			SA 182 F91		
			MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT(KG)
			MATERIAL SPECN			QUANTITY

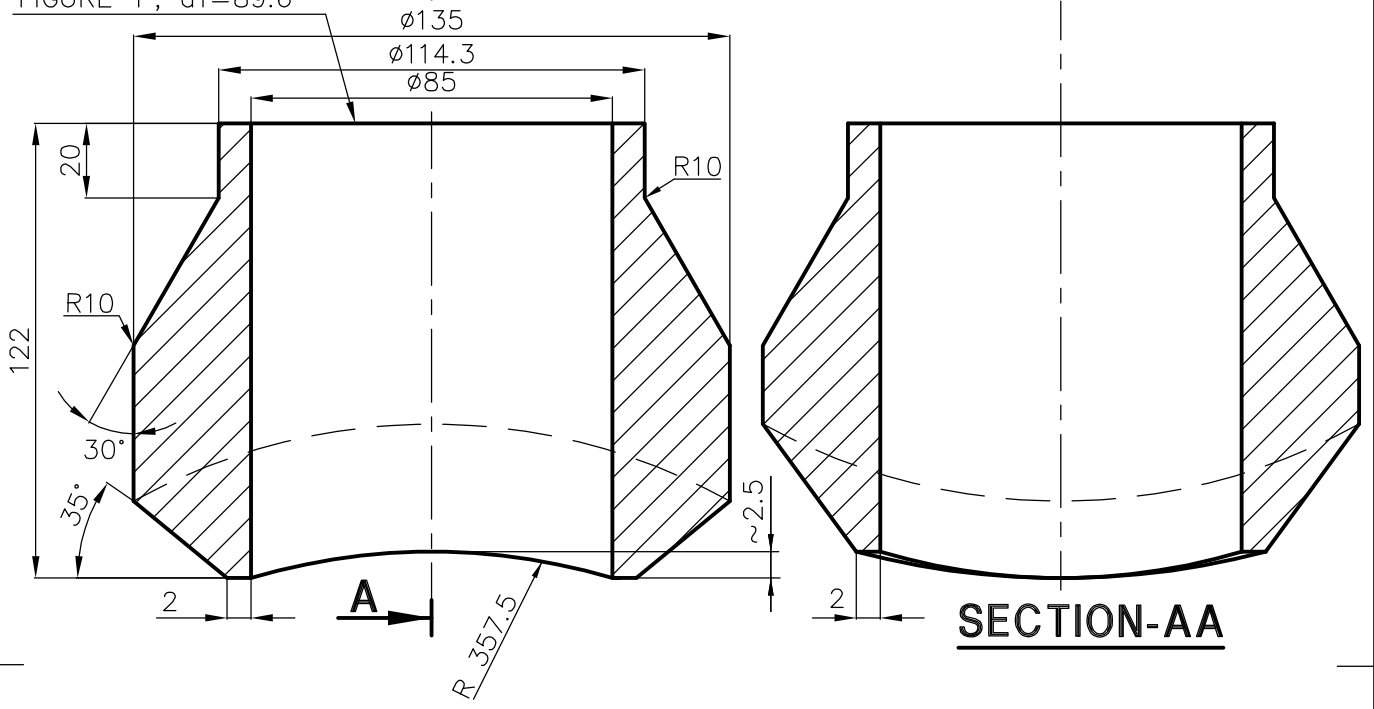
	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME KONDAPA	SIGNATURE	DATE 10.06.13
			CHD	KONDAPA		10.06.13
			APPD	R.SESAHGIRI		10.06.13
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S	470.0		
TITLE	MATCHING PIECE OD 762x80/ ID 675X38 (SA182F91)			DRAWING NO :		REV
				4-80-310-7703100		

REV	DATE	ALTERED :
01		APPROVED :

BW EP AS PER DRG.NO. **A**
 3-80-300-19825
 FIGURE-P, d1=89.6

DESIGN PRESSURE AT 568°C : 50kg/sq.cm(g)


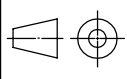
12.5/



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		92 516 670 0000	A	
		SA 182 F91		
VAR NO.	DESCRIPTION	MATL. CODE	A/C	UNIT
		MATL. SPECN.	DI	QTY.

STANDARD

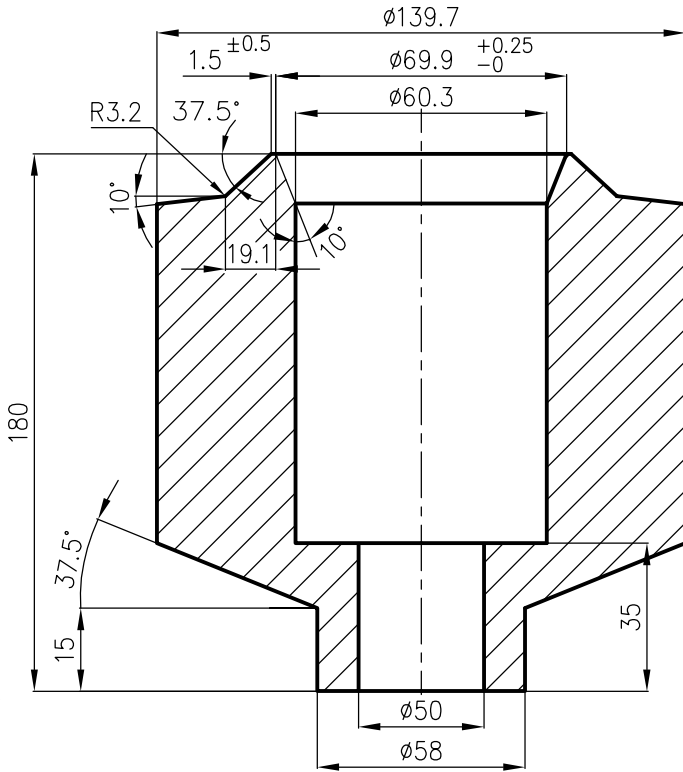
		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE MADRAS 600 017		DRN	R.ANANTH	SIGN		DATE	03.09.09	NO. OF VAR
				CHD	R.ANANTH			03.09.09		
				APPD	M.N.VASUDEVAN			03.09.09		
DEPT	GRADE OF UNTOL. DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS		
CODE	C / M / F		N.T.S	6.400						
TITLE				CARD CODE	DRAWING NO.				REV	
STUB OD114.3x13.49 L122 F91				U 01	4-80-999-93219				00	

ALL DIMENSIONS ARE IN MILLIMETRES

REV	DATE	ALTERED	SRM
01	6/9/10	APPROVED	SVRK
NOTE NO.01 ADDED			

DESIGN PRESSURE AT 540 °C : 150 kG/sq.cm(g)


12.5



NOTE:
01.FOR THE STUB, RAW MATERIAL OD200/ID50 SA182 F91 (92-084-110-0000) CAN ALSO BE USED

		92 516 695 0000		16	500
		SA182F91	A		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

STANDARD

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	S.R.Murthy		01.02.10	
				APPD	C.V.nathan		01.02.10	
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S						
TITLE				CARD CODE	DRAWING NO.			REV
ERV STUB F91 OD139.7 d1=69.9 L=180				U 01	4-80-999-93247			01

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ALL DIMENSIONS ARE IN MILLIMETRES

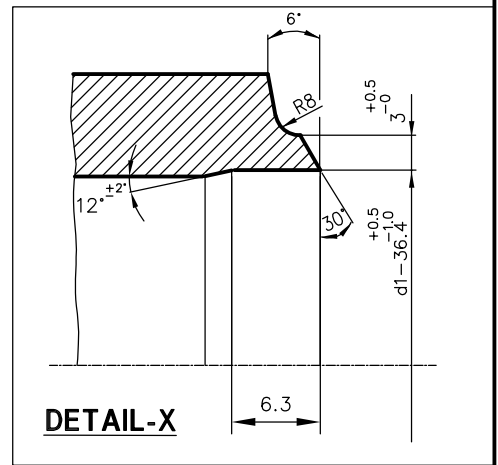
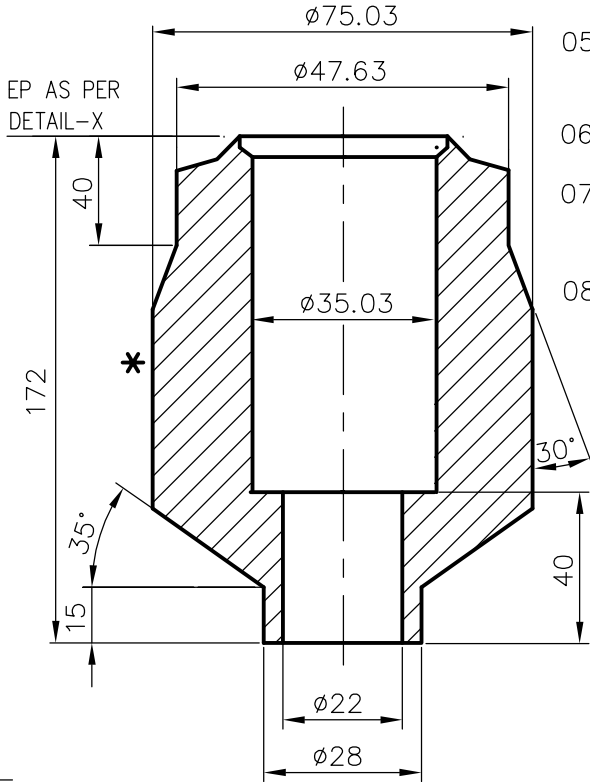
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REV	DATE	ALTERED
		APPROVED

NOTES:

- 01 DESIGN PRESSURE : 70kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 596°C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167090000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR N2 FILLING FOR HRH SYSTEM 660/800 MW UNITS.
- 08 RAW MATERIAL CODE IS 15 339 405 0000

12.5



STANDARD

	ROD ϕ 80, L=172				4	851
			SA 182 F91	A		
VAR NO.	DESCRIPTION	STD	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
			MATL. SPECN.	C	DI	QTY.

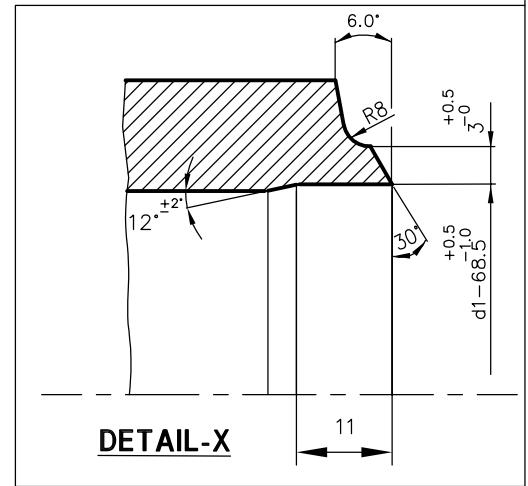
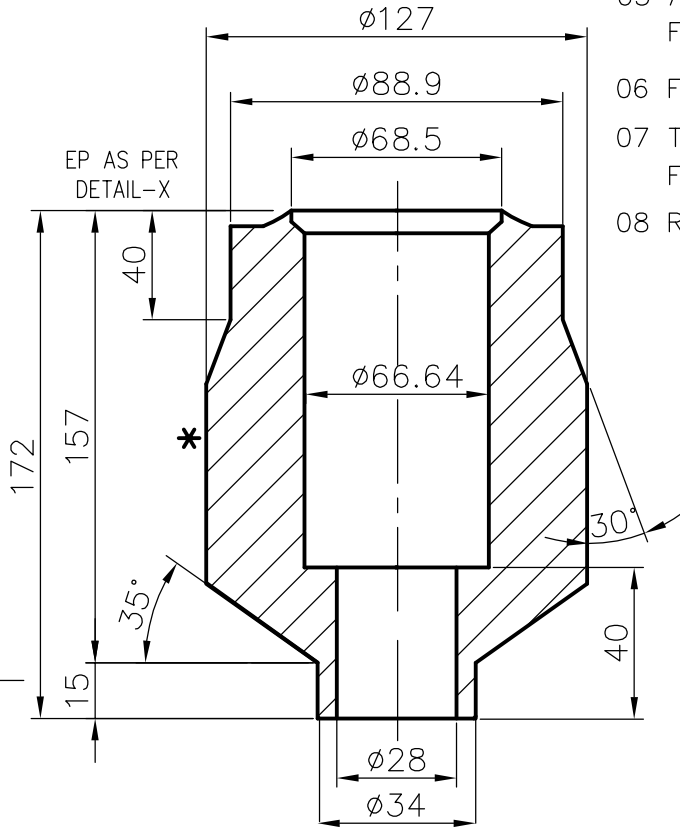
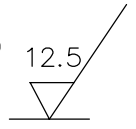
		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	SIGN	DATE	NO. OF VAR
				CHD	SVR.KALAISELVAN		16.12.10	
				APPD	AP.MADHAVANKUTTY		16.12.10	
DEPT	GRADE OF UNTOL. DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	4 851				
TITLE				CARD CODE	DRAWING NO.			REV
STUB OD 47.63 SA182F91				U 01	4-80-999-93300			00

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REV	DATE	ALTERED :
01		CHD & APPD :

NOTES:

- 01 DESIGN PRESSURE : 70kg/sq.cm(g) 12.5
- 02 DESIGN TEMPERATURE : 596°C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167100000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR START-UP VENT FOR 660/800 MW UNITS.
- 08 RAW MATERIAL CODE IS 153394070000



STANDARD

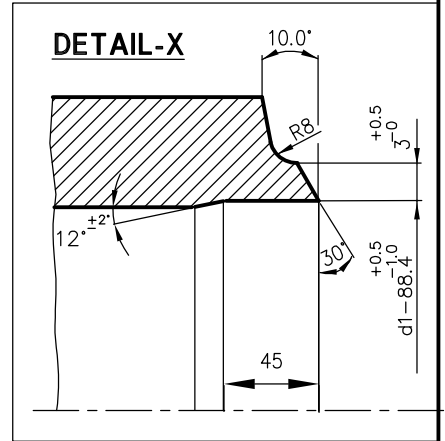
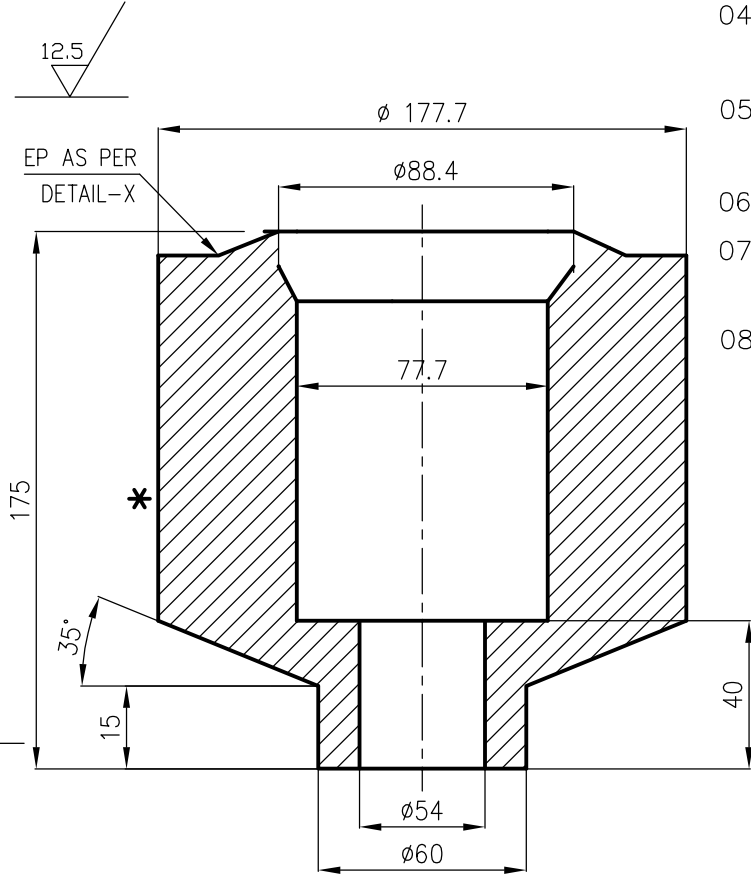
	ROD DIA: 130 L=172				13	300
VARIANT NUMBER	DESCRIPTION	STD	SA 182 F91	A	UNIT WEIGHT	QUANTITY
			MATERIAL SPECN	A/C/P	UNIT	

BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGNATURE	DATE
		CHD	LALIT		16.12.10
		APPD	SVR.KALAISELVAN		16.12.10
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S.	13.300	
TITLE			DRAWING NO :		REV
STUB OD 88.9 SA182F91			4-80-999-93301		00

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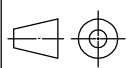
REV	DATE	ALTERED
		APPROVED

- NOTES:** ALL DIMENSIONS ARE IN MILLIMETRES
- 01 DESIGN PRESSURE : 70kg/sq.cm(g)
 - 02 DESIGN TEMPERATURE : 596°C
 - 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
 - 04 FINISHED COMPONENT CODE IS 925167110000
 - 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
 - 06 FOLLOW TDC: TDG:104, REV.03
 - 07 THIS STUB IS REQUIRED FOR HRH SYSTEM OF 660/800 MW UNITS.
 - 08 RAW MATERIAL CODE IS 92 084 110 0000



STANDARD

	FORGED STUB L=175 OD200/ID50				28	437
		SA182F91	A			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)	
		MATL. SPECN.	C	DI	QTY.	

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	NAME	SIGN	DATE	NO.OF VAR
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.			ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	28.437					
TITLE				CARD CODE	DRAWING NO.				REV
ERV STUB OD 177.7 SA182F91				U 01	4-80-999-93303				00

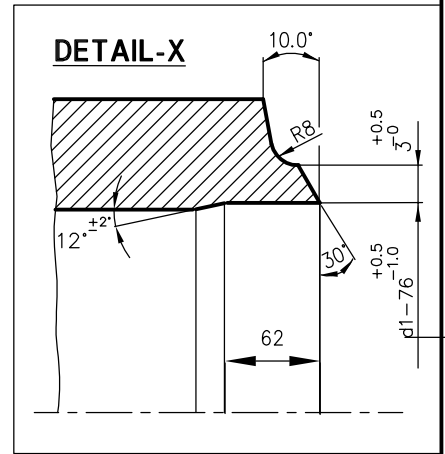
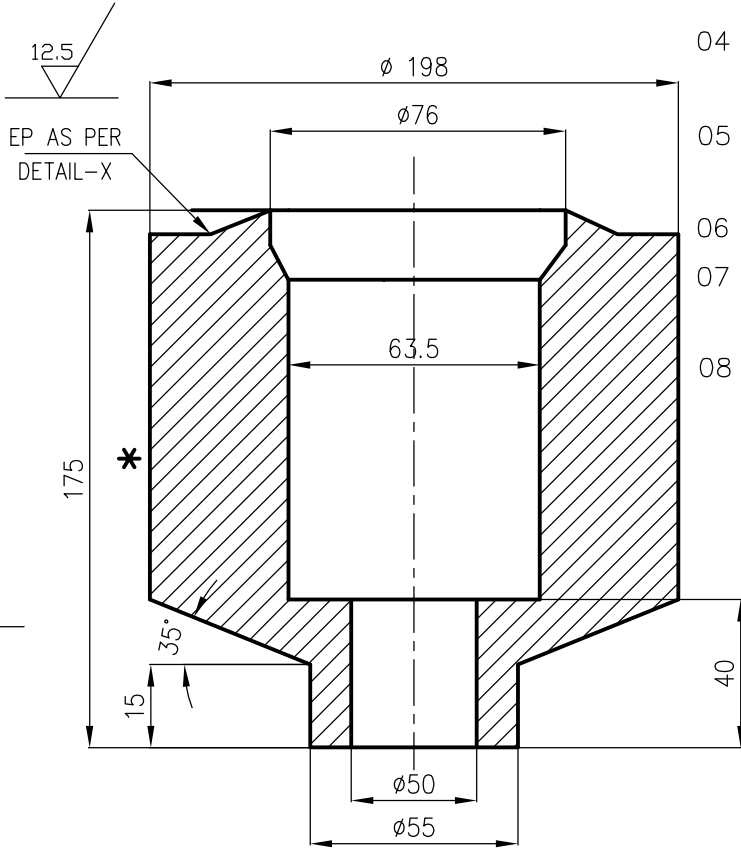
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REV	DATE	ALTERED
		APPROVED

ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 568 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167160000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR MS SYSTEM OF 660/800 MW UNITS.
- 08 RAW MATERIAL CODE IS 92 084 110 0000



STANDARD

	FORGED STUB L=175 OD200/ID50				40	000
		SA182F91	A			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)	
		MATL. SPECN.	C	DI	QTY.	

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	SVR.KALAISELVAN		16.12.10	
				APPD	AP.MADHAVANKUTTY		16.12.10	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	40.000					
TITLE				CARD CODE	DRAWING NO.			REV
SAFETY VALVE STUB OD 198 SA182F91				U 01	4-80-999-93308			00

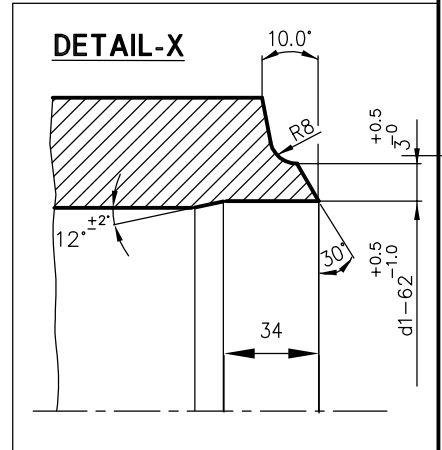
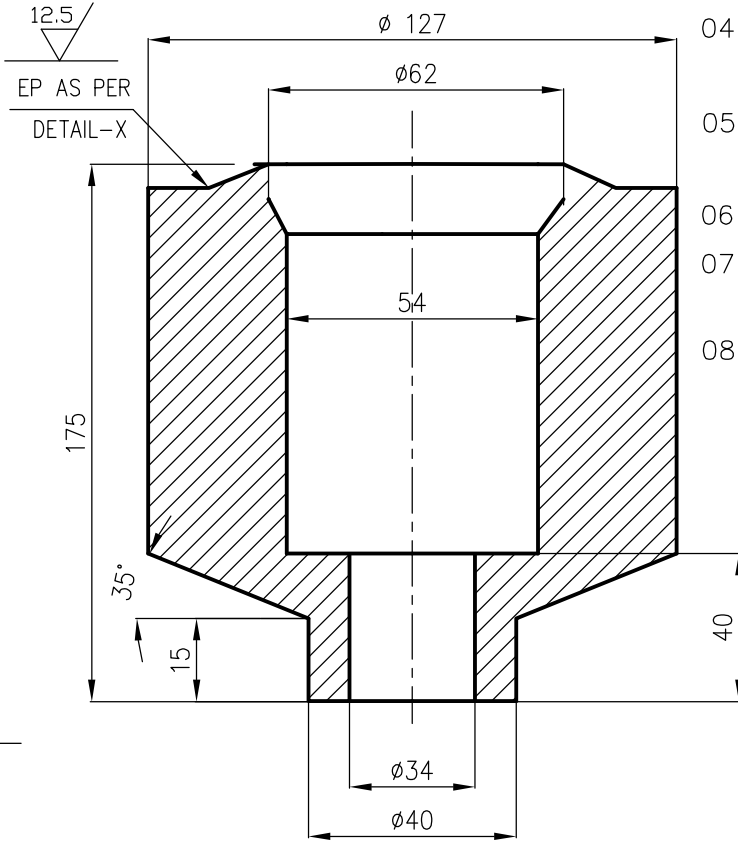
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REV	DATE	ALTERED
		APPROVED

ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 568 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167170000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR MS SYSTEM OF 660/800 MW UNITS.
- 08 RAW MATERIAL CODE IS 15 339 407 0000



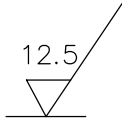
STANDARD

	ROD DIA: 130 L=175			15	521
		SA 182 F91	A		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	NAME	SIGN	DATE	NO.OF VAR
				CHD	SVR.KALAISELVAN			16.12.10	
				APPD	AP.MADHAVANKUTTY			16.12.10	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.			ITEM NO.	NO. OF ITEMS	
CODE	C / M / F	N.T.S	15.521						
TITLE				CARD CODE	DRAWING NO.				REV
ERV STUB OD 127 SA 182 F91				U 01	4-80-999-93309				00

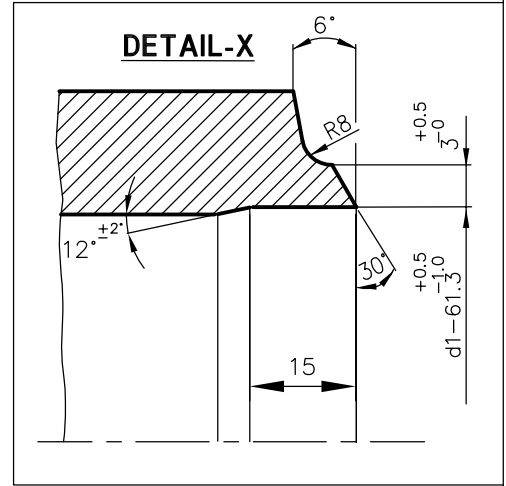
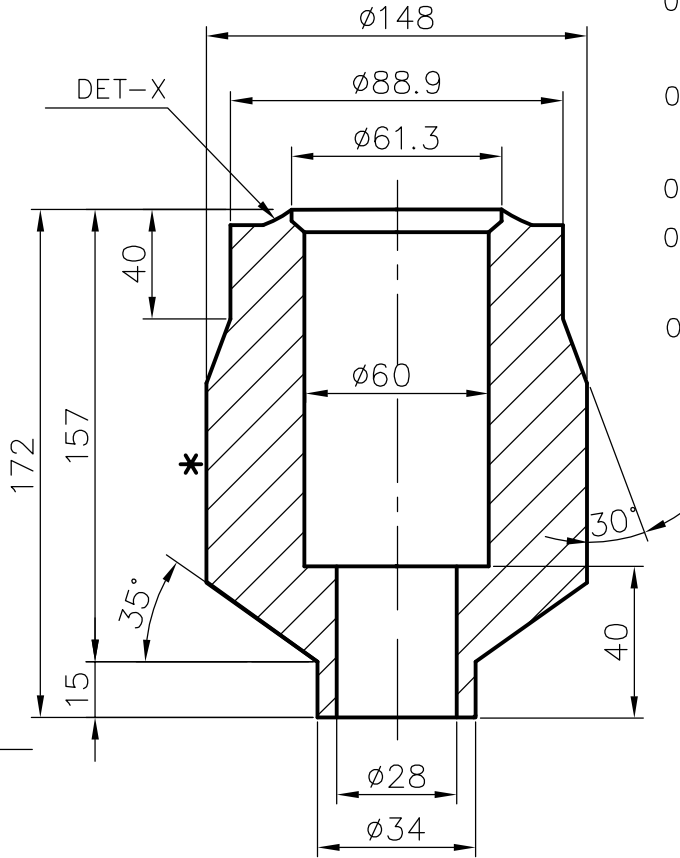
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REV 01	DATE	ALTERED : CHD & APPD :
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NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 568 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167180000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR MS SYSTEM START UP VENT OF 660/800 MW UNITS.
- 08 RAW MATERIAL CODE IS 15 339 407 0000



STANDARD

	ROD DIA: 150 L=172				10 100
VARIANT NUMBER	DESCRIPTION	STD	SA 182 F91	A	
			MATERIAL CODE	A/C/P	UNIT WEIGHT
			MATERIAL SPECN	UNIT	QUANTITY

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME LALIT	SIGNATURE	DATE 20.10.10
			CHD	SVR.KALAISELVAN		20.10.10
			APPD	AP.MADAHVANKUTTY		20.10.10
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S.	10.100	4-80-300-66381	
TITLE				DRAWING NO :		REV
STUB OD88.9x15.24 SA182F91				4-80-999-93310		00

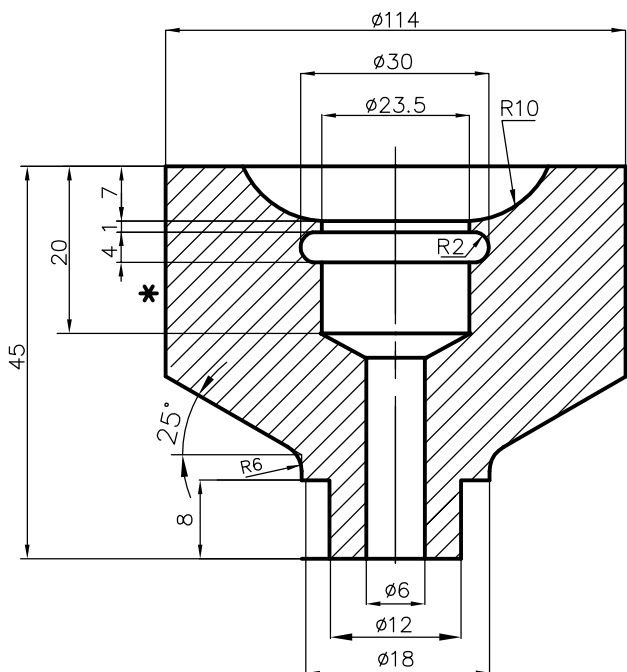
ALL DIMENSIONS ARE IN MILLIMETRES

12.5/

REV	DATE	ALTERED:
01		APPROVED:

NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 568 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167200000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR MS SYSTEM OF 660 MW UNITS.
- 08 RAW MATERIAL CODE IS 15 339 407 0000



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STANDARD

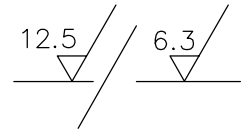
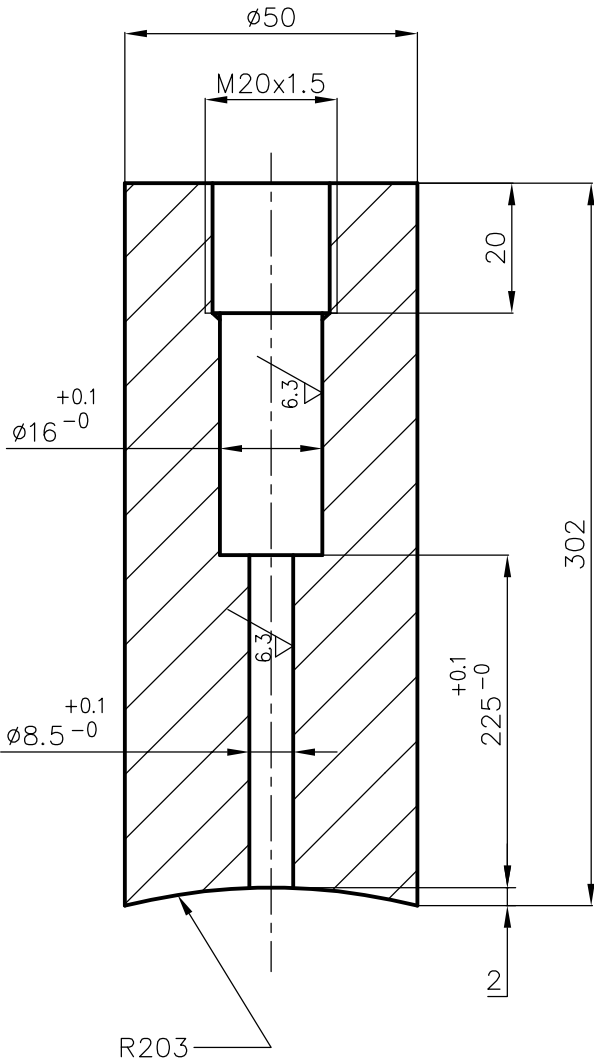
	ROUND ϕ 130 L=45		A	1	470
		SA 182 F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	SIGN	DATE	NO.OF VAR
				CHD	SVR.KALAISELVAN		11.12.10	
				APPD	AP.MADHAVANKUTTY		11.12.10	
DEPT	GRADE OF UNTO. DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS	
CODE	C / M / F	N.T.S	1.470	4-80-999-93150				
TITLE				CARD CODE	DRAWING NO.			REV
TEMPERATURE STUB				U 01	4-80-999-93312			00
OD114 L45 HWR SA182F91								

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

REV	DATE	ALTERED
01		APPROVED

ALL DIMENSIONS ARE IN MILLIMETRES



NOTES

- 01 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 02 FINISHED COMPONENT CODE IS 925167220000
- 03 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 04 FOLLOW TDC: TDG:104, REV.03
- 05 THIS STUB IS REQUIRED FOR MS SYSTEM OF 660 MW UNITS.
- 06 RAW MATERIAL CODE IS 15 339 405 0000

STANDARD

	ROD = ø80 L=302				4	400
		SA 182 F91	C			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)	
		MATL. SPECN.	C	DI	QTY.	

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	SIGN	Sd.....	DATE	03.12.10	NO. OF VAR
				CHD	SVRKALAISELVAN	Sd.....		03.12.10		
				APPD	AP.MADHAVANKUTTY	Sd.....		03.12.10		
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS			
CODE	C / M / F	N.T.S	4.400	4-80-301-60450/01						
TITLE				CARD CODE	DRAWING NO.				REV	
METAL TEMP STUB OD50 SA182 F91				U 01	4-80-999-93314				00	

ALL DIMENSIONS ARE IN MILLIMETRES

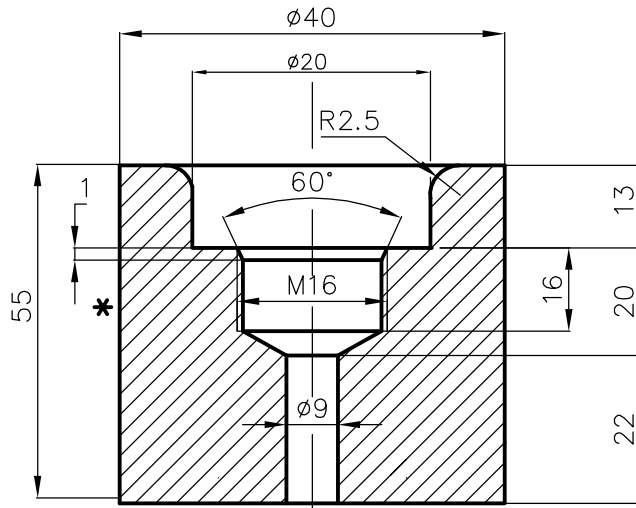
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REV	DATE	ALTERED
		APPROVED

NOTES


12.5/

- 01 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 02 FINISHED COMPONENT CODE IS 925167230000
- 03 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 04 FOLLOW TDC: TDG:104, REV.03
- 05 THIS STUB IS REQUIRED FOR HRH SYSTEM OF 660 MW UNITS.
- 06 RAW MATERIAL CODE IS 15 339 405 0000



STANDARD

	ROD D80 L=55		A		0 500
		SA 182 F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

 BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO. OF VAR
		CHD	LALIT		13.12.10	
		APPD	SVR.KALAISELVAN		13.12.10	
			AP.MADHAVANKUTTY		13.12.10	
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.	ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	0.500	4-80-999-93147		
TITLE			CARD CODE	DRAWING NO.		REV
METAL TEMP STUB OD40 SA182 F91			U 01	4-80-999-93315		00

Size A4

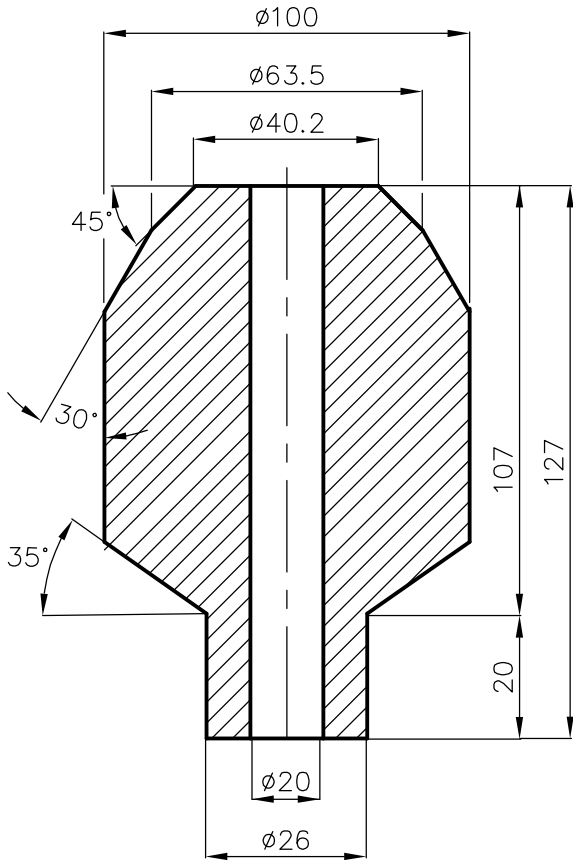
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REV	DATE	ALTERED
		APPROVED

12.5

NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 568°C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167240000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR MS PG TEST FOR 660 MW UNITS.
- 08 THE RAW MATERIAL CODE IS 15 339 406 0000



STANDARD

	ROD ϕ 100; L=127				6	367
		SA 182 F91	A			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)	
		MATL. SPECN.	C	DI	QTY.	

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	SIGN	DATE	NO. OF VAR
				CHD	SVR.KALAISELVAN		21.12.10	
				APPD	AP.MADHAVANKUTTY		21.12.10	
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS	
CODE	C / M / F	N.T.S	6.367					
TITLE				CARD CODE	DRAWING NO.			REV
THERMOWELL STUB OD 63.5 H:107 SA182F91 MAIN PIPE THICK 60				U 01	4-80-999-93316			00

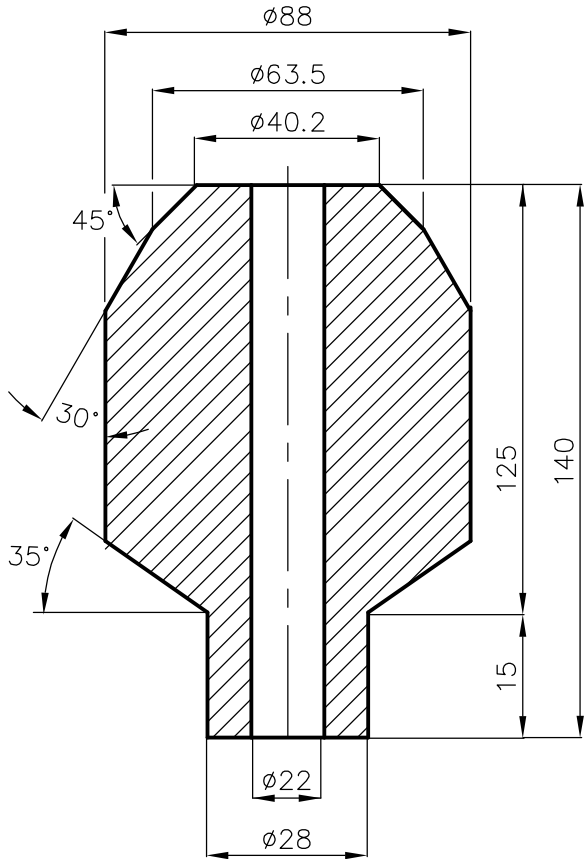
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REV	DATE	ALTERED
		APPROVED

12.5 / $\sqrt{\quad}$

NOTES:

- 01 DESIGN PRESSURE : 70 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 596°C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167250000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR HRH PG TEST FOR 660 MW UNITS.
- 08 RAW MATERIAL CODE IS 15 339 406 0000



STANDARD

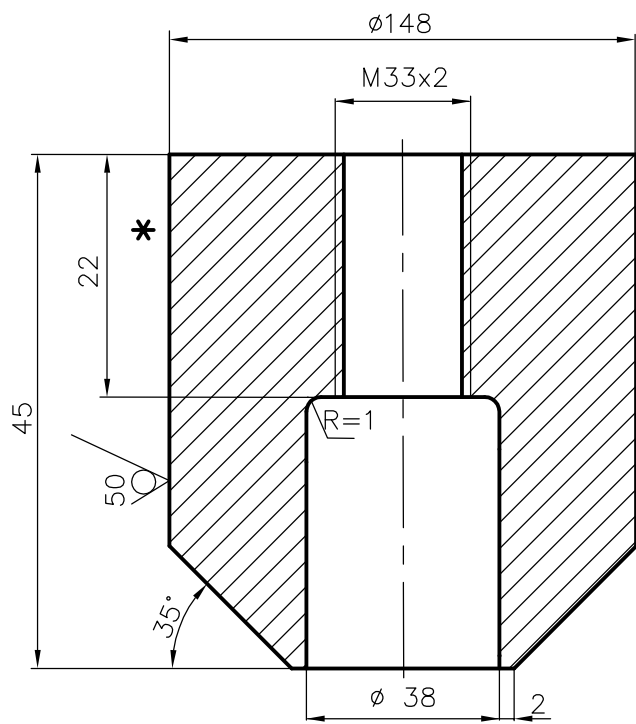
	ROD ϕ 100; L=140			5	622
		SA 182 F91	A		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	SIGN	DATE	NO. OF VAR
				CHD	SVR.KALAISELVAN		11.12.10	
				APPD	AP.MADHAVANKUTTY		11.12.10	
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	5.622					
TITLE				CARD CODE	DRAWING NO.			REV
THERMOWELL STUB OD 63.5 H=125 SA182F91 MAIN PIPE THICK 42				U 01	4-80-999-93317			00

ALL DIMENSIONS ARE IN MILLIMETRES

REV	DATE	ALTD
01		APPD

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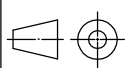
12.5/
▽

NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 568 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167290000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR MS SYSTEM OF 660/800 MW UNITS.

STANDARD

	FORGED STUB L=45 OD200/ID40		A	5	363
VAR NO.	DESCRIPTION	STD	A/C	UNIT	UNIT.WT.(Kg) QTY.

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	SIGN	DATE	NO.OF VAR	
			CHD	SVR.KALAISELVAN		16.12.10		
			APPD	AP.MADHAVANKUTTY		16.12.10		
DEPT	GRADE OF UNTOL. DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	5.363				
TITLE			CARD CODE	DRAWING NO.			REV	
TEMPERATURE STUB M33x2 OD 148 L=45 SA182F91			U 01	4-80-999-93322			00	

Size A4

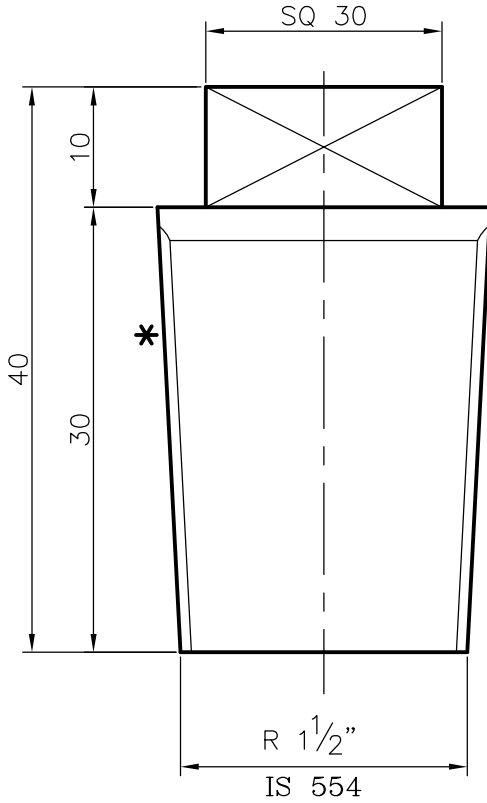
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REV	DATE	ALTERED
		APPROVED

12.5

NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 596°C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167310000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 RAW MATERIAL CODE IS 153394050000
- 08 ALL SHARP CORNERS ARE TO BE ROUNDED OFF.



STANDARD

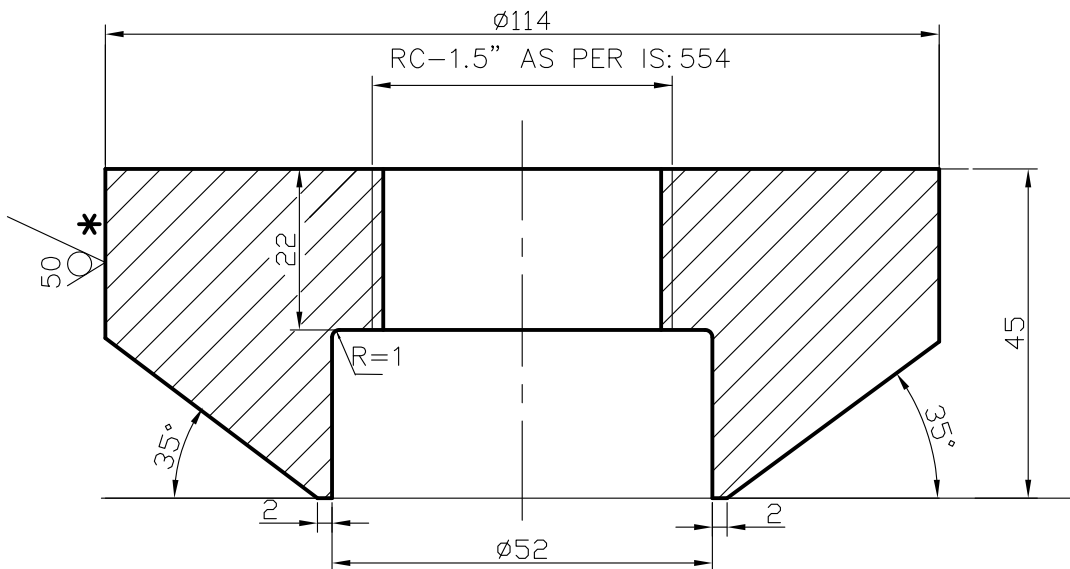
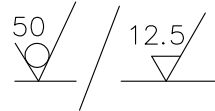
	ROD ϕ 80 ; L=40			0	500
		SA 182 F91	A		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	JUDE ANTONE	SIGN	DATE	NO. OF VAR
				CHD	SVR.KALAISELVAN		04.01.11	
				APPD	AP.MADHAVANKUTTY		04.01.11	
DEPT	GRADE OF UNTOL. DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	0.500	4-80-300-56137			
TITLE				CARD CODE	DRAWING NO.			REV
SCREW PLUG RC 1.5" SA 182 F91				U 01	4-80-999-93326			00

ALL DIMENSIONS ARE IN MILLIMETRES

REV 01	DATE	ALTERED :
		CHD & APPD :

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NOTES:

- 01 DESIGN PRESSURE : 272.4 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 568 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 05 FOLLOW TDC: TDG:104, REV.03

	STUB OD 114 L=45	92 516 758 0000	A	3	200
		SA 182 F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	M.R KRISHNA	SIGN	SD.....	DATE	02.09.13	NO.OF VAR
			CHD	M.MANO		SD.....		02.09.13	
			APPD	C.KARUNAKARAN		SD.....		02.09.13	
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS	
CODE	C / M / F		1:1	3.200					
TITLE			CARD CODE	DRAWING NO.				REV	
TEMPERATURE STUB RC1.5" OD 114 L=45 SA182F91			U 01	4-80-999-93353				00	

3-80-300-19825

DRAWING No.

NOTES: -

- 01. APPLICABLE FOR P91/P92**
i) STRAIGHT WITH STRAIGHT/FITTING
ii) BEND WITH BEND/FITTING
 02. FOR OD MISMATCHING REF. FIGURE-Xa.
 03. $\alpha = 6^\circ$ FOR WALL THICKNESS ≤ 30 mm
 04. $\alpha = 10^\circ$ FOR WALL THICKNESS > 30 mm

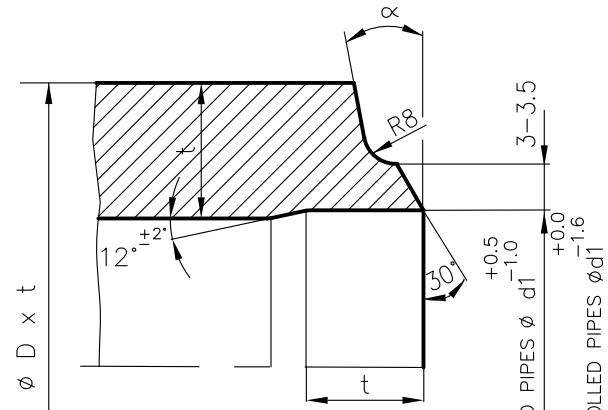


FIGURE - X

MATCHING EDGE PREPARATION FOR MISMATCH OD APPLICABLE FOR BENDS/FITTINGS OF P91/P92 MATERIALS

NOTES: -

01. OD OF STRAIGHT TO BE PHYSICALLY MEASURED/VERIFIED.
 02. $\alpha = 6^\circ$ FOR WALL THICKNESS ≤ 30 mm
 03. $\alpha = 10^\circ$ FOR WALL THICKNESS > 30 mm
 04. t = THK OF CONNECTING PIPE (STRAIGHT)

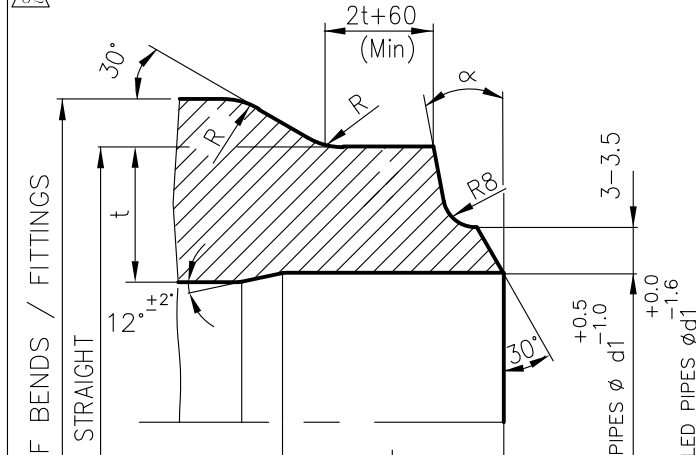
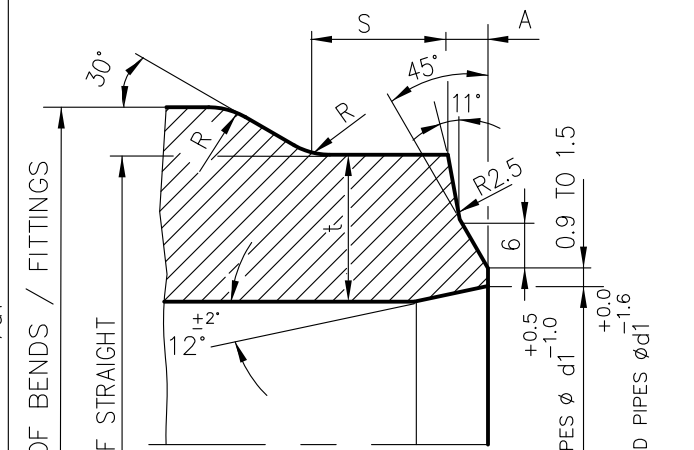


FIGURE - Xa

MATCHING EDGE PREPARATION FOR MISMATCH OD DIAMETRICALLY GREATER THAN 8 mm (ie OD1 - OD2 > 8mm) APPLICABLE FOR BENDS/FITTINGS OTHER THAN P91/P92 MATERIALS

NOTES: -

01. OD OF STRAIGHT TO BE PHYSICALLY MEASURED/VERIFIED.
 02. WHEN $t < 65$, $S+A = 65$ Min. & $t > 65$, $S=65$ Min. WHERE t =THK OF CONN.PIPE(STRAIGHT).



STYLE - Pa

MATCHING EDGE PREPARATION FOR MISMATCH OD DIAMETRICALLY GREATER THAN 8 mm (ie OD1 - OD2 > 8mm) APPLICABLE FOR ELBOWS OTHER THAN P91/P92 MATERIALS

NOTES: -

01. OD = OUTSIDE DIA OF CONN. PIPE (STRAIGHT) TO BE PHYSICALLY MEASURED/VERIFIED.
 02. t = THK OF CONN.PIPE (STRAIGHT)

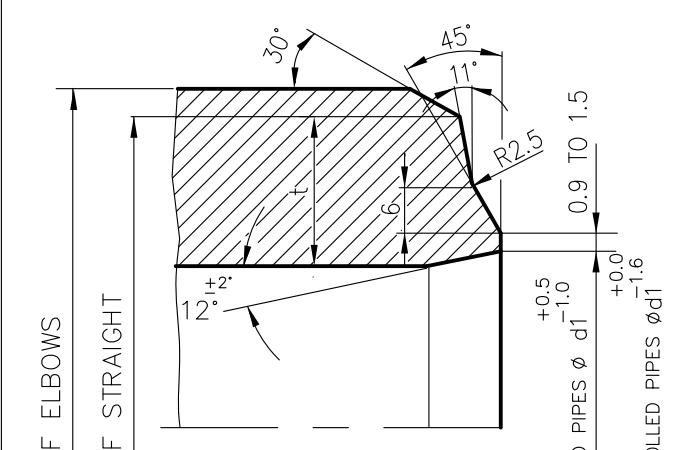


FIGURE - Z

NOTES: -

- 01. APPLICABLE FOR P91 PIPE BEND WELDED WITH P91 STRAIGHT PIPE FOR THICKNESS ≤ 30 mm AND OD ≥ 558 mm.**
 02. $\alpha = 6^\circ$ FOR WALL THICKNESS ≤ 30 mm
 03. FOR OD MISMATCH, REFER THE OD MACHINING ONLY SHOWN IN FIGURE-Xa
 04. FIGURE-Xb AND FIGURE-Xc ARE NOT APPLICABLE FOR P92 MATERIALS.

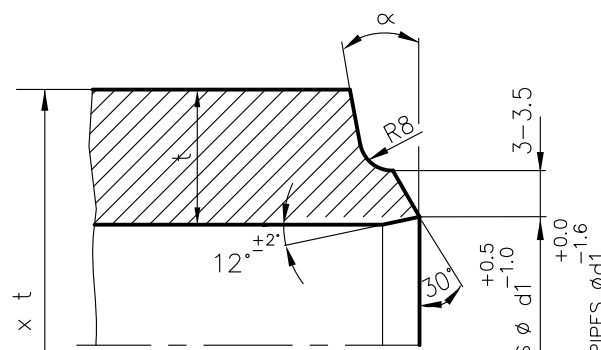


FIGURE - Xb
(BEND END)

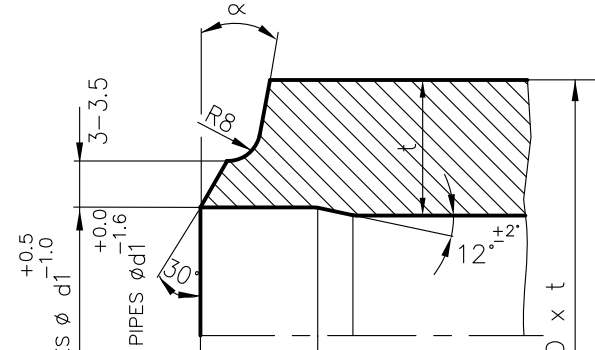
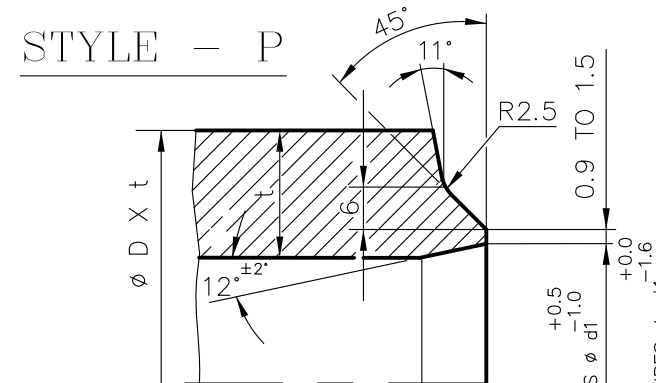


FIGURE - Xc
(STRAIGHT END)

STYLE - P

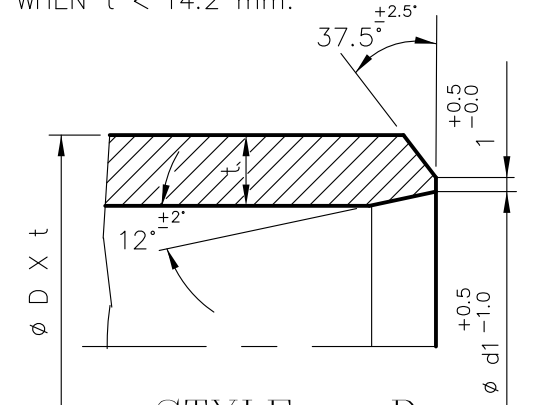


NOTES: -

01. USE WHEN $t \geq 14.2$ mm.
 02. FOR OD MISMATCHING REF. FIGURE-Pa

NOTES: -

01. USE WHEN $t < 14.2$ mm.



STYLE - D

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

STANDARD

	BHARAT HEAVY ELECTRICALS LTD.		DRN	NAME	SIGN	DATE	NO OF ITEMS
	PIPING CENTRE, MADRAS		CHD	K.B.RAGUNATH		11.10.01	
			APPD	M.C.SEKARAN		11.10.01	
				APPD	A.VELAYUTHAM	11.10.01	

DEPT.	GRADE OF UN TOL DIM	SCALE	WEIGHT (Kg)	NAME OF ORIGINAL ORGANISATION	ITEM No.
CODE	C/M/F				

TITLE	CARD CODE	DRAWING No.	REV
EDGE PREPARATION DETAILS	U 01	3-80-300-19825	03

GENERAL NOTES :

01. THE MINIMUM THICKNESS AT WELD END SHALL NOT BE LESS THAN
 a) 0.875 TIMES t NOM. FOR OD PIPES.
 b) t MIN. FOR ID CONTROLLED PIPES.
 02. t NOM & t MIN SHALL BE AS PER SPECIFIED PIPE SIZE.
 03. SHARP CORNERS SHALL BE ROUNDED OFF WHEREEVER 'R' IS INDICATED.

NOTES FOR WELDING:

01. WELD REINFORCEMENT TO BE FLUSH GROUND AND MERGED WITH PARENT METAL WITHOUT ANY UNEVENNESS.

REV 03	DATE 10.04.13	ALTERED: M.R.K
APPROVED: C.K.N		
ZONE	FIG.Xb AND FIG.Xc ADDED. IN FIG.X. NOTE 01 MODIFIED. IN FIG.Xa, STY-Pa, FIG.Z. P92 MATERIAL ADDED	
REV 02	DATE 10.01.13	ALTERED: M.R.K
APPROVED: C.K.N		
ZONE	IN FIG.Xa, NOTE 04 ADDED. GENERAL NOTES 03 ADDED. IN FIG.Xa, 8MM OD MISMATCH IS REMOVED	
REV 01	DATE 11.05.04	ALTERED: R.SENDHIL
APPROVED: A.VELAYUTHAM		
ZONE	PROJECT NAME REMOVED AND STANDARD INCORPORATED IN TITLE BLOCK	