

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

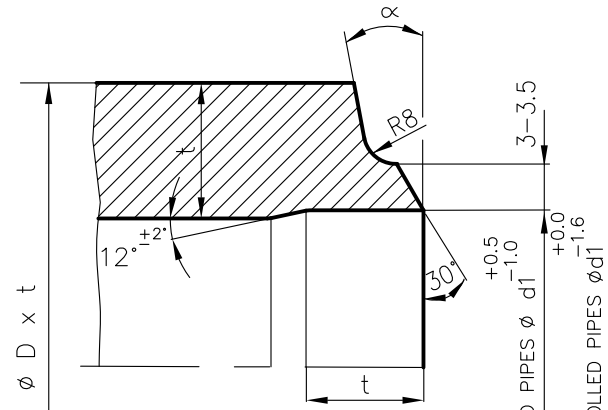


FIGURE - X

FOR OD PIPES ϕ d1
 FOR ID CONTROLLED PIPES ϕ d1

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)

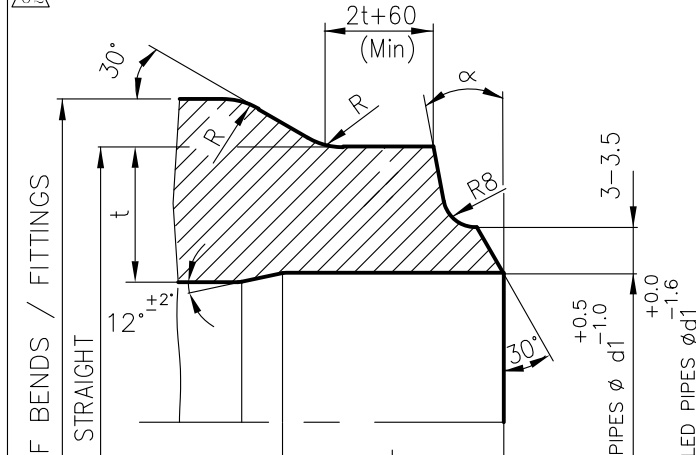


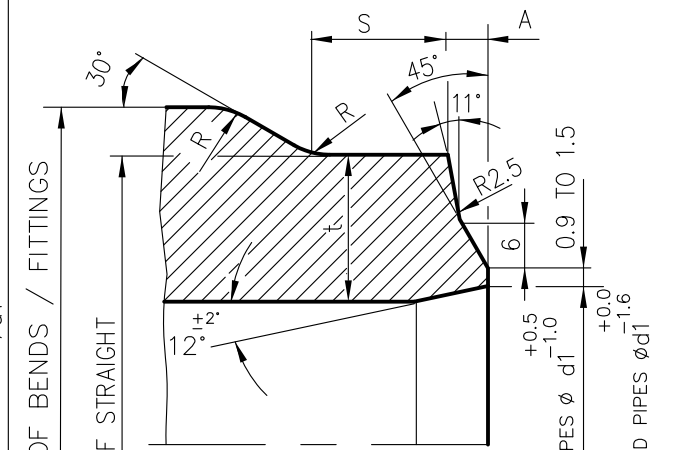
FIGURE - Xa

FOR OD PIPES ϕ d1
 FOR ID CONTROLLED PIPES ϕ d1

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

FOR OD PIPES ϕ d1
 FOR ID CONTROLLED PIPES ϕ d1

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)

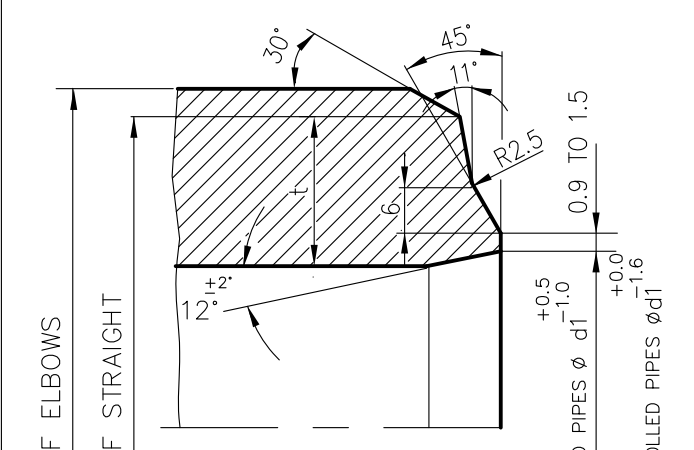


FIGURE - Z

FOR OD PIPES ϕ d1
 FOR ID CONTROLLED PIPES ϕ d1

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.

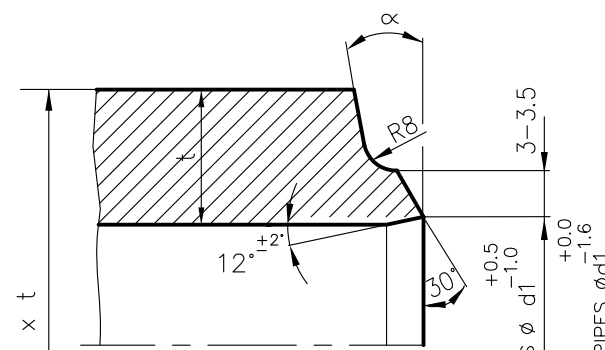


FIGURE - Xb
(BEND END)

FOR OD PIPES ϕ d1
 FOR ID CONTROLLED PIPES ϕ d1

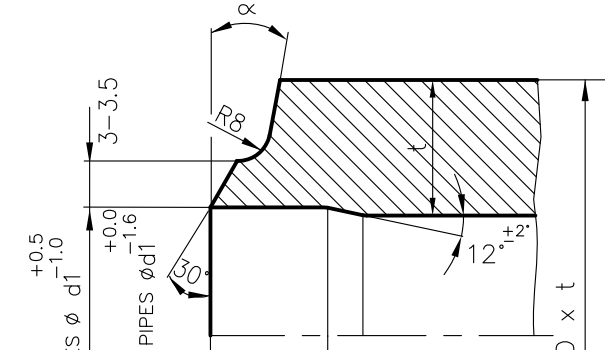
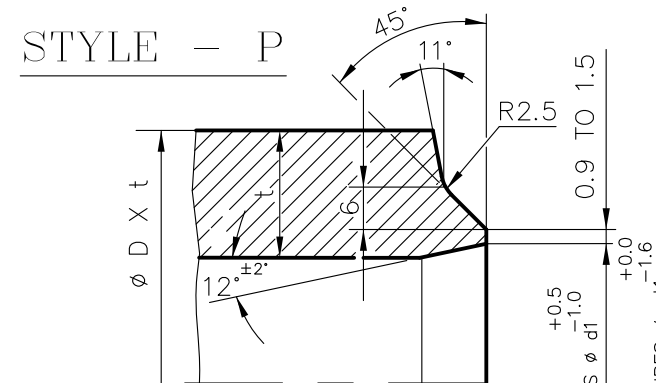


FIGURE - Xc
(STRAIGHT END)

FOR OD PIPES ϕ d1
 FOR ID CONTROLLED PIPES ϕ d1

STYLE - P



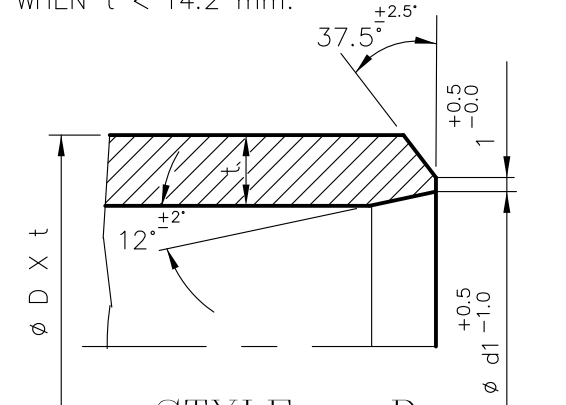
NOTES: -

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

FOR OD PIPES ϕ d1
 FOR ID CONTROLLED PIPES ϕ d1

NOTES: -

01. USE WHEN $t < 14.2$ mm.



STYLE - D

FOR OD PIPES ϕ d1
 FOR ID CONTROLLED PIPES ϕ d1

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.

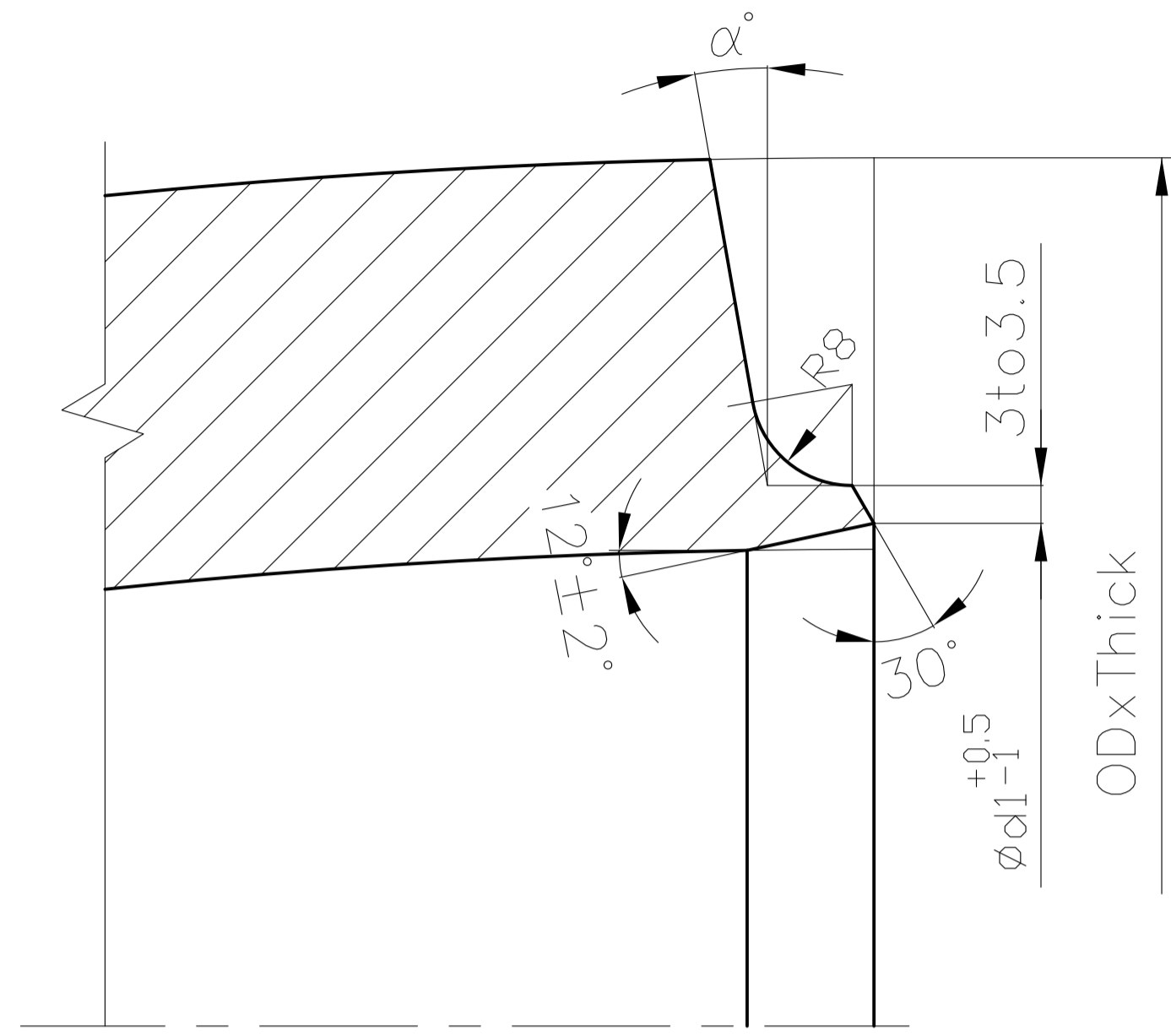
NOTES FOR WELDING:

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		

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3-80-999-97744
DRAWING NO.



$\alpha^\circ = 6^\circ$ FOR WALL THICKNESS ≤ 30 mm.
 $\alpha^\circ = 10^\circ$ FOR WALL THICKNESS > 30 mm.

FIGURE-Xf

STANDARD

 BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI, 600 017	NAME	SIGN	DATE
	DRN	R.ANANTH	19.01.2009
	CHD	R.ANANTH	19.01.2009
	APPD	M.N.VASUDEVAN	19.01.2009
DEPT.	GRADE OF UN TOL. DIM	SCALE	WEIGHT (Kg).
CODE	C/M/F	N.T.S.	
TITLE	REF.TO ASSY / OLD DRG.		
BW EP FOR WP91 ASMEB16.9 FITTINGS	CARD CODE	DRAWING No.	REV
U 01	3-80-999-97744	00	

REV	DATE	ALTERED
01		APPROVED

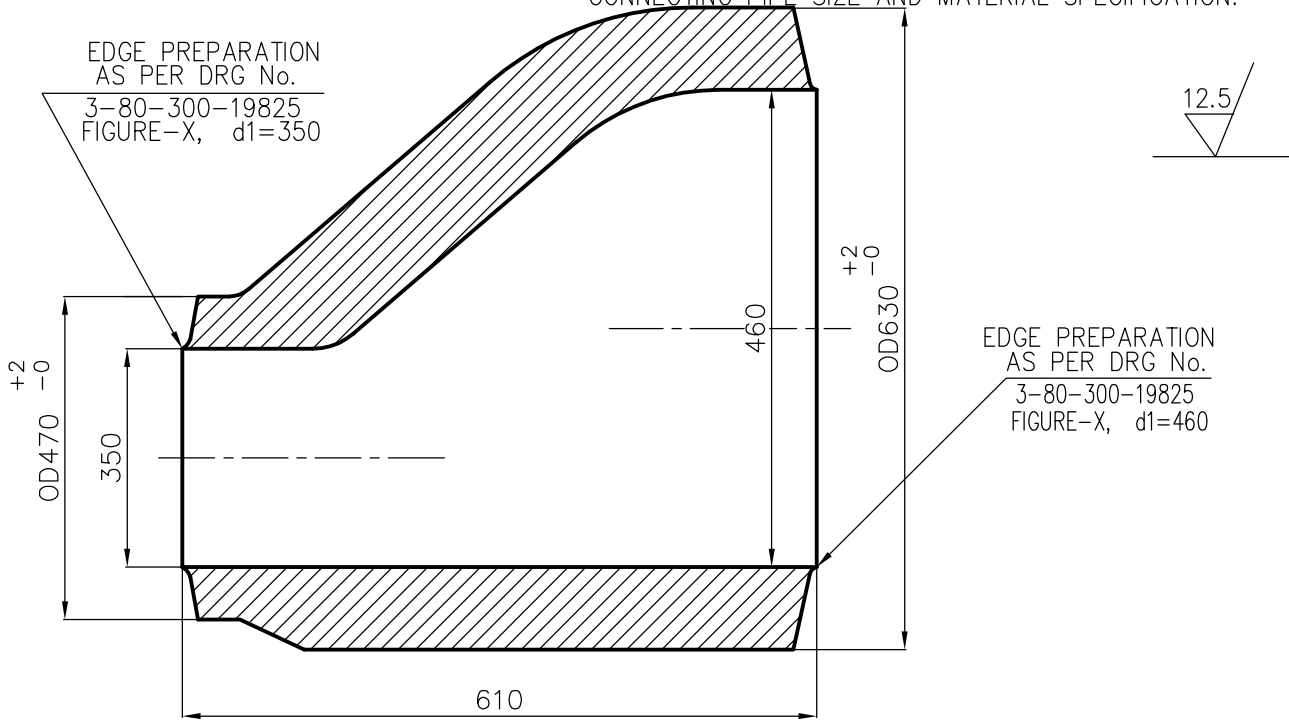
ALL DIMENSIONS ARE IN MILLIMETRES

REV	DATE	ALTERED
		APPROVED

NOTES:-

01. DESIGN PRESSURE : 269 Kg/Cm²(g)
02. DESIGN TEMPERATURE : 568° C
03. FITTING SHALL CONFORM TO ALL THE REQUIREMENTS OF ASME B16.9 & A 234(LATEST).
04. FOLLOW TDG.TDC.102.REV04
05. THIS DRAWING IS FOR INDICATING THE OVER ALL DIMENSIONS, CONNECTING PIPE SIZE AND MATERIAL SPECIFICATION.


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	ECCENTRIC REDUCER ID460X85 / ID350X60	92 117 568 0000	A	683 000
		SA 234 WP91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT.WT.(Kg)
		MATL. SPECN.	C	QTY.

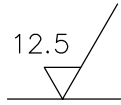
BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		NAME	SIGN	DATE	NO. OF VAR	
		DRN	LALIT	19.05.10		
		CHD	C.SARAVANAN	19.05.10		
		APPD	C.SARAVANAN	19.05.10		
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:	ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	683.000			
TITLE			CARD CODE	DRAWING NO.	REV	
ECCENTRIC REDUCER (ID460X85 / ID350X60)SA234WP91			U 01	4-80-301-71071	00	

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REV	DATE	ALTERED : POONGKODI.V
01	06.01.12	CHD & APPD:C.V.NATHAN
d1 VALUE REVISED. REVISION MARKED AS 		


NOTES:

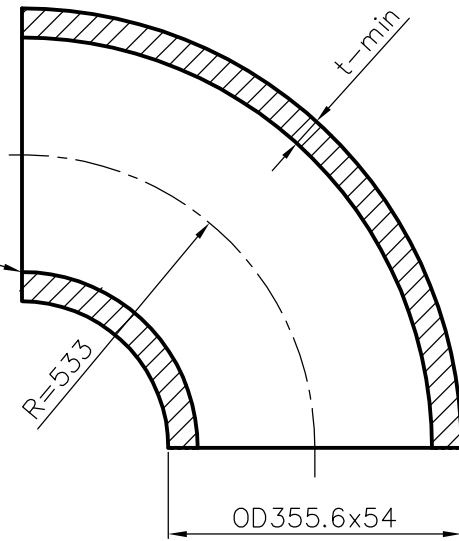
- 1) DESIGN PRESSURE : 270.7 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 568 °C
- 3) WORKING MEDIUM : STEAM
- 4) FOLLOW TDC No. : TDG-102 (LATEST REVISION)
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR ANSI B16.9 AND SA 234.
- 7) FLOW AREA SHALL NOT BE LESS THAN 80% OF NOMINAL FLOW AREA.
- 8) t-min SHALL NOT BE LESS THAN 0.875 TIMES OF THE WALL THICKNESS (i.e 0.875 x THICKNESS)



****** d1=247.6mm IS APPLICABLE FOR KRISHNAPATNAM ONLY.
d1=250.1mm FOR OTHER PROJECTS.



EDGE PREPARATION
AS PER DRG NO:
3-80-300-19825
FIGURE-X, d1= **
(TYP) 



-	BW LR 90DEG ELBOW OD355.6x54	92 524 975 0000	A	396 000		
					SA 234 WP91	1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WT. (KG)
			MATERIAL SPECN			QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	N.MEGANATHAN	—sd—	23/03/2010
CHD	N.MEGANATHAN	—sd—	24/03/2010
APPD	K.V.RAMANI	—sd—	25/03/2010

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 396.000	REF TO ASSY / OLD DWG —
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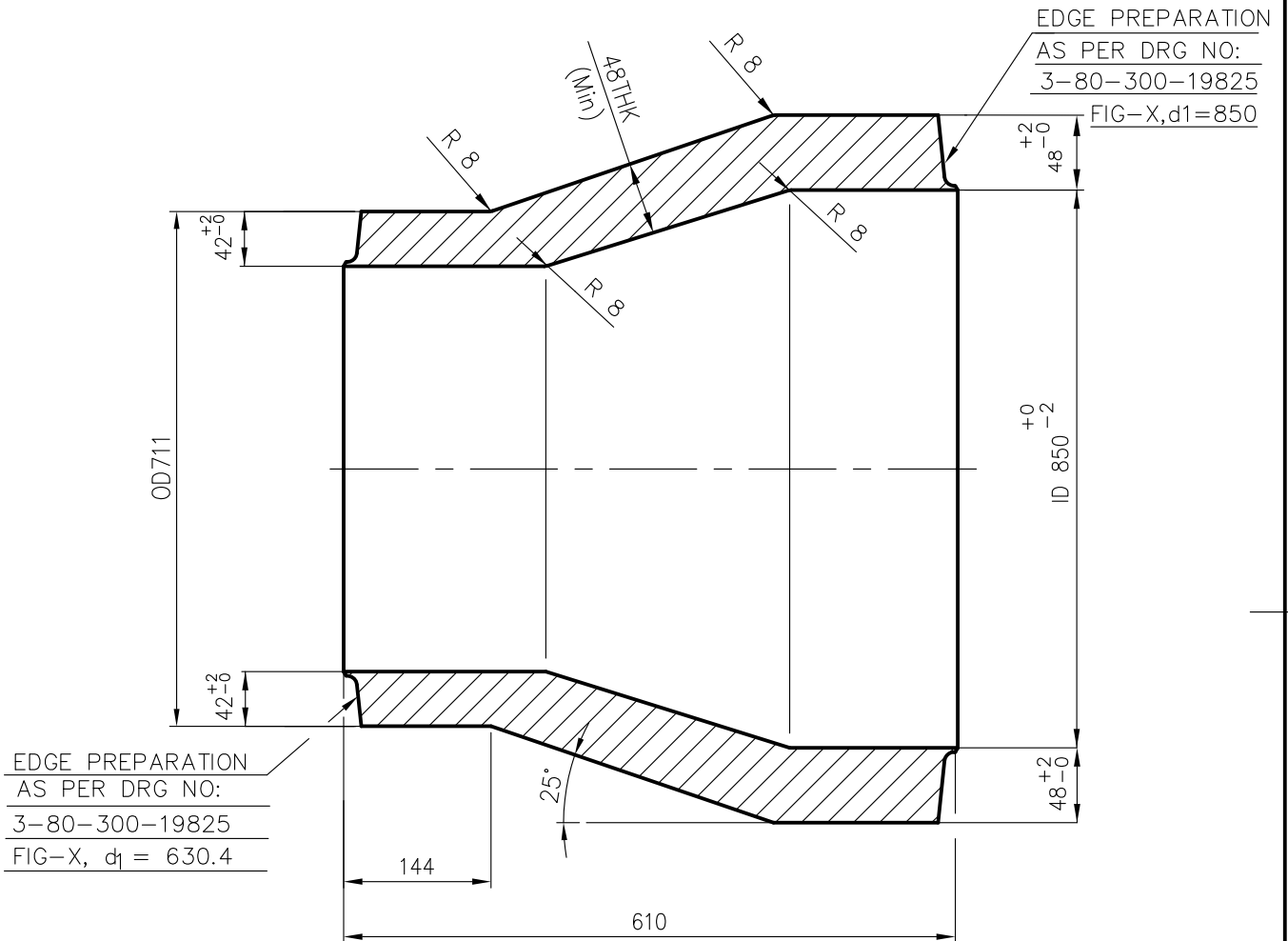
TITLE ASME B16.9 BW LR 90DEG ELBOW OD355.6x54	DRAWING NO : 4-80-304-70628	REV 01
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NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 01. DESIGN PRESSURE : 70 Kg/Cm²(g)
- 02. DESIGN TEMPERATURE : 601° C
- 03. FOLLOW TDG: 104
- 04. THE FINISHED MATERIAL CODE IS 92 117 829 0000



	BW CONCENTRIC REDUCER ID850X48/OD711X42	92 117 829 0000	A	560 000
		SA 234 WP91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
DEPT		GRADE OF UNTOL.DIM	SCALE	CHD	KONDAPA		10.06.13	
CODE		C / M / F	N.T.S	APPD	R.SESHAGIRI		10.06.13	
TITLE			WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.		NO. OF ITEMS
BW CONCENTRIC REDUCER ID850X48/OD711X42 (SA234WP91)			560.0					
CARD CODE		DRAWING NO.		REV				
U 01		4-80-310-77032		00				