

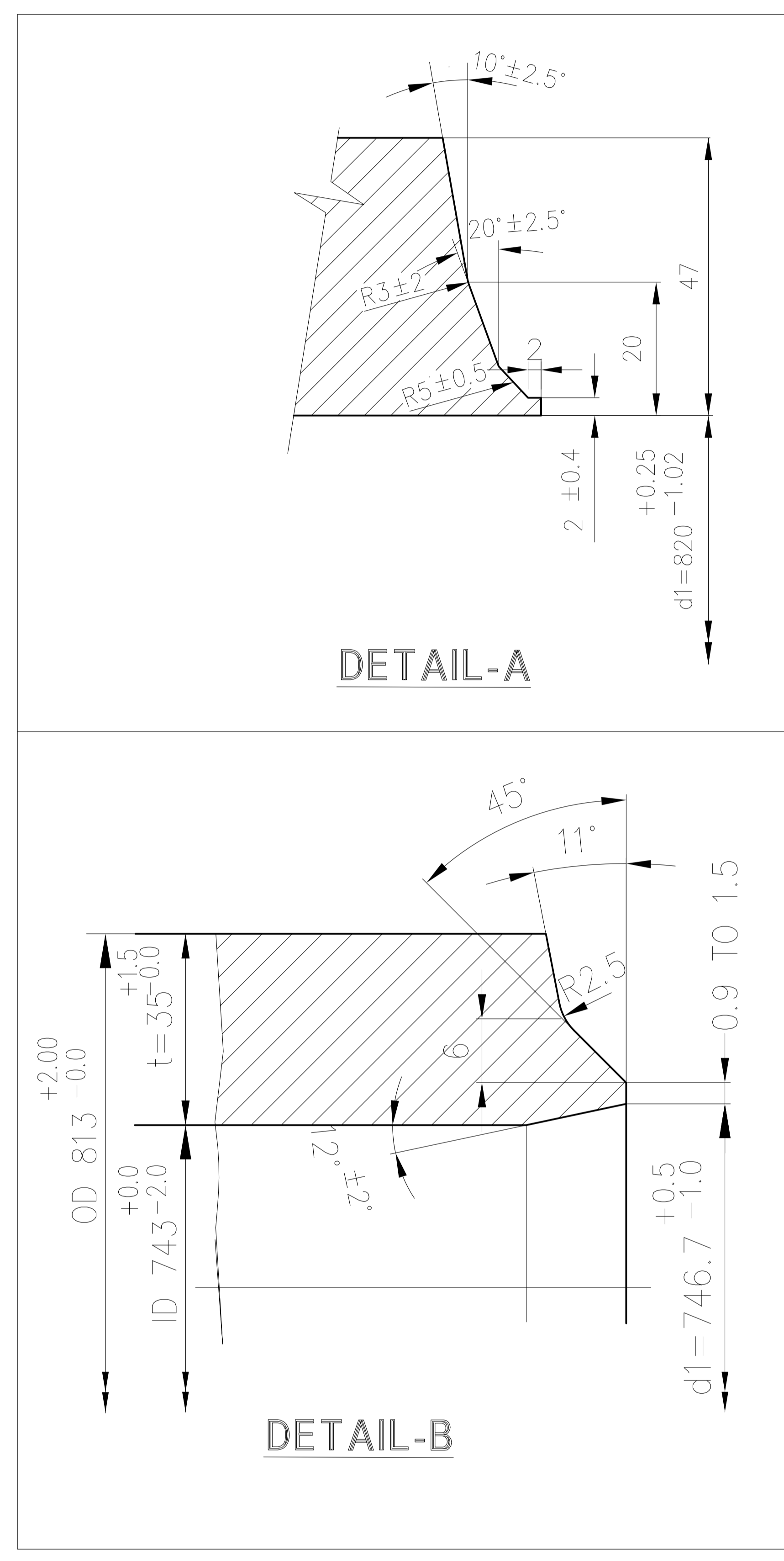
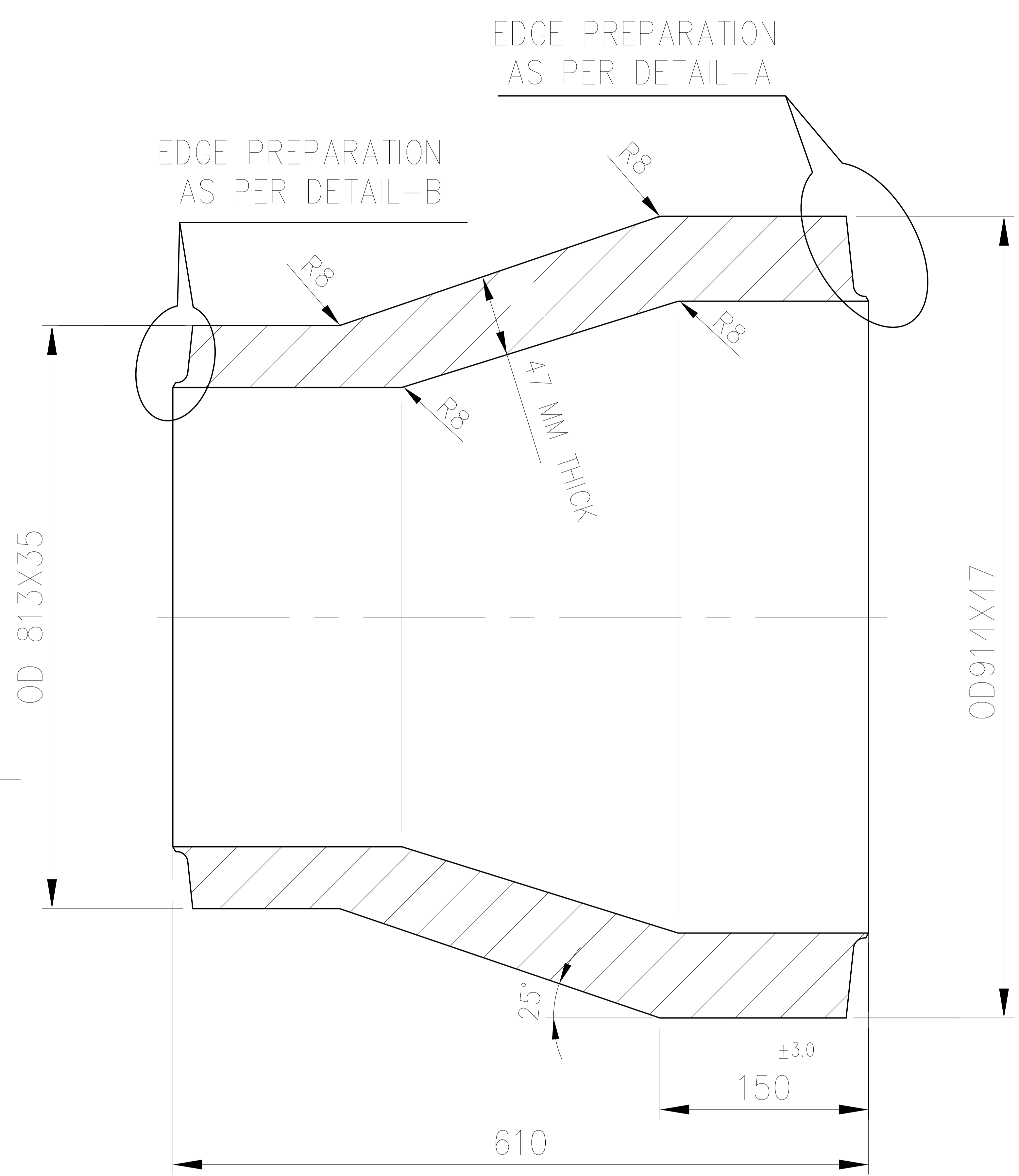
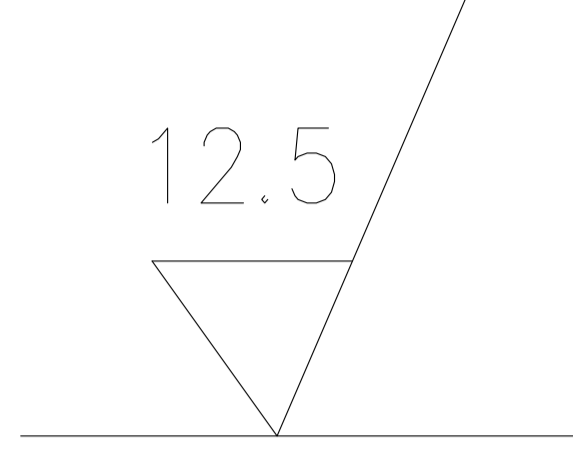
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REV	DATE	ALTERED
01		APPROVED

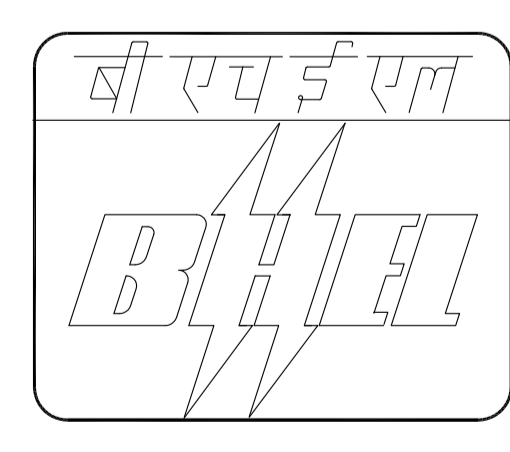
ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- 1) DESIGN PRESSURE : 73.5 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 375 °C
- 3) WORKING MEDIUM : STEAM
- 4) FOLLOW TDC No. : TDG-102 (LATEST REVISION)
- 5) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ANSI B16.9 AND SA 234.



	BW CONC. REDUCER OD914x47/OD813x35	92 117 070 0000	A	494	000
		SA 234 WP22 CL1			
VAR NO.	DESCRIPTION	MATL. CODE	A/C	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.		DI	QTY.

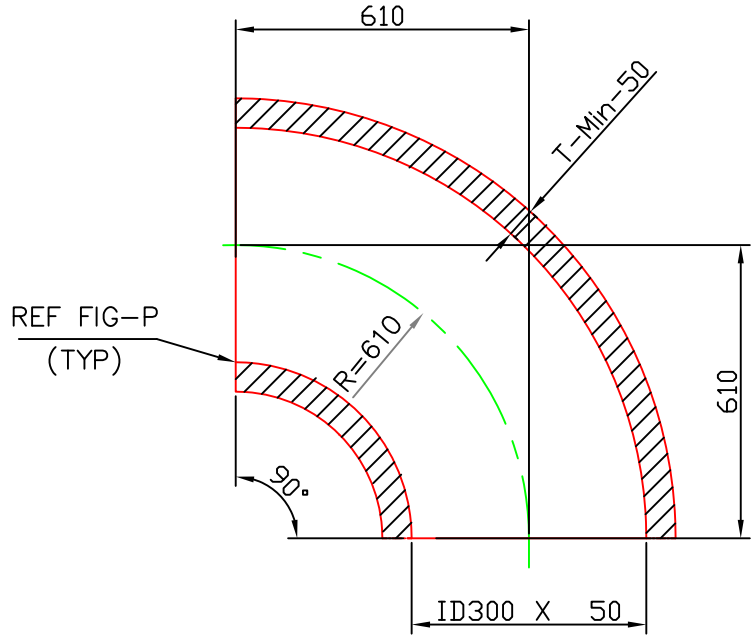
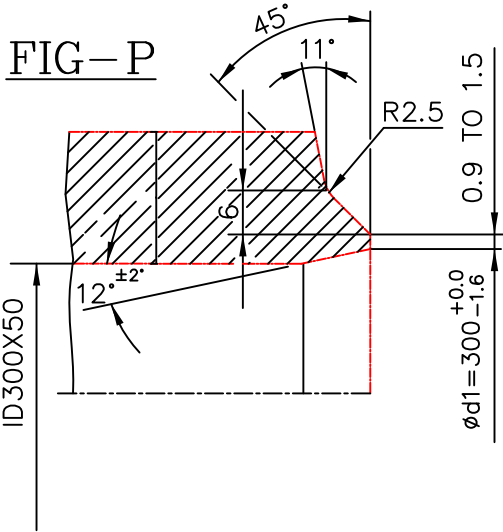
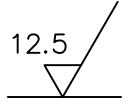
		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		NAME DRN DINESH CHD SRM APPD KVR	SIGN -sd- -sd- -sd-	DATE 01.12.15 01.12.15 01.12.15	NO.OF VAR
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	494				
TITLE			CODE	DRAWING NO.		REV	
BW CON REDUCER OD914x47/OD813x35			U 01	4-80-320-79303		00	

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REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 366 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 315 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW APPLICABLE TDC
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR
- 7) CONNECTING PIPE SIZE IS PIPE ID300X50
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC



-	BW LR 90DEG ELBOW ∅ ID300 X 50	92 504 102 0000	A	413	290
				SA 234 WPC	
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		UNIT WT. (KG)
					QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	M.R.K	—sd—	02.06.2015
CHD	I.D.B	—sd—	02.06.2015
APPD	S.R.M	—sd—	02.06.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	413.290	—

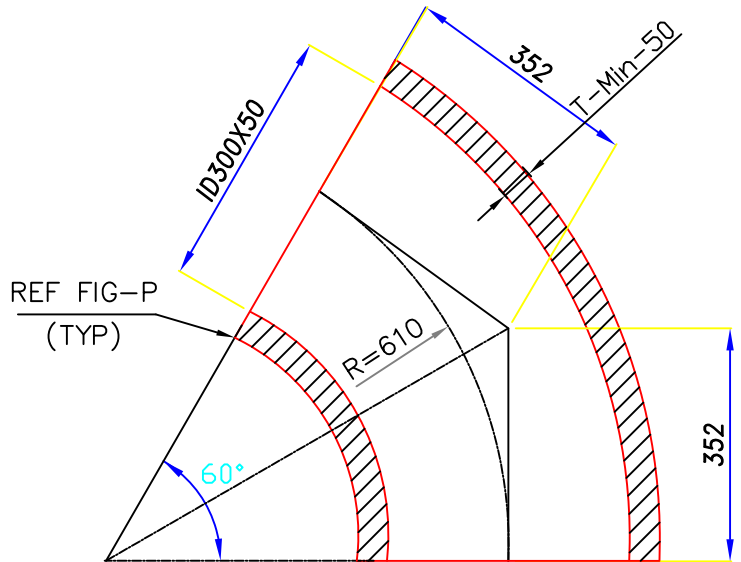
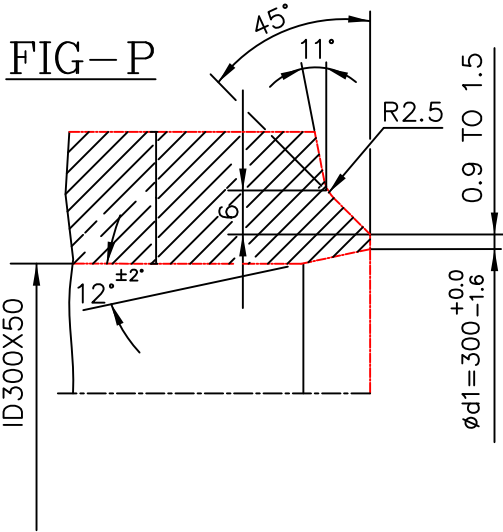
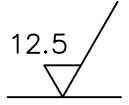
TITLE	DRAWING NO :	REV
BW LR 90DEG ELBOW ID300 X 50	4-80-423-79149	00

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REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 366 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 315 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW APPLICABLE TDC
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR
- 7) CONNECTING PIPE SIZE IS PIPE ID300X50
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC



-	BW LR 60DEG ELBOW ø ID300 X 50	92 504 103 0000	A	275	530	
				SA 234 WPC		1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WT. (KG)
						MATERIAL SPECN



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	M.R.K	—sd—	02.06.2015
CHD	I.D.B	—sd—	02.06.2015
APPD	S.R.M	—sd—	02.06.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	275.53	—

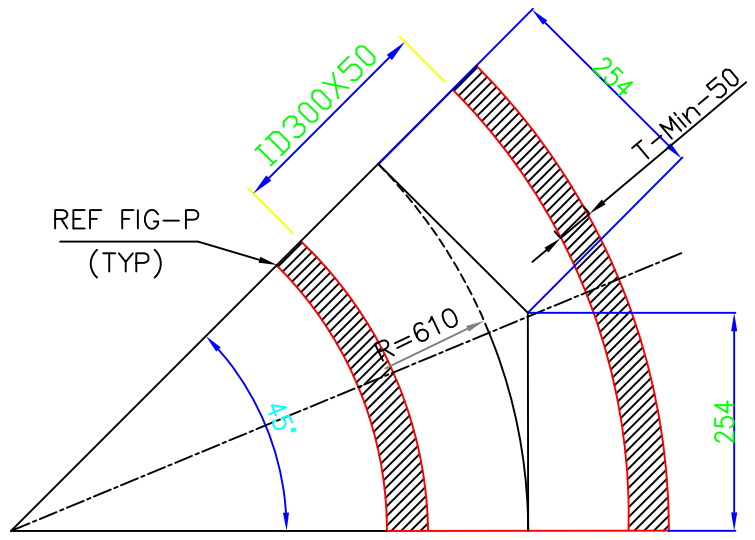
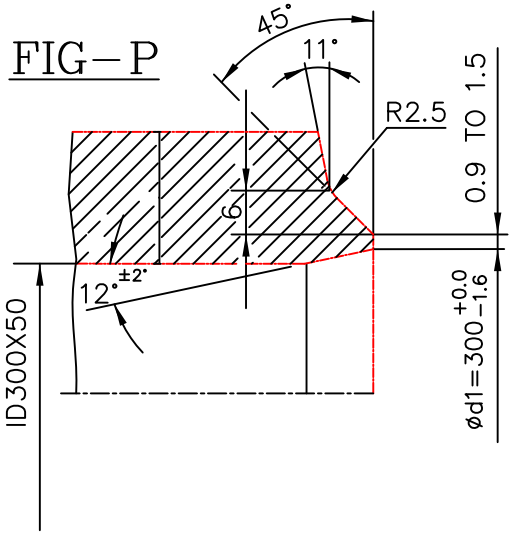
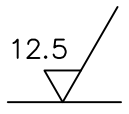
TITLE	DRAWING NO :	REV
BW LR 60DEG ELBOW ID300 X 50	4-80-423-79150	00

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REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 366 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 315 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW APPLICABLE TDC
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR
- 7) CONNECTING PIPE SIZE IS PIPE ID300X50
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC



-	BW LR 45DEG ELBOW ø ID300 X 50	92 504 104 0000	A	206	650
				1	
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WT. (KG)
					MATERIAL SPECN



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	M.R.K	—sd—	02.06.2015
CHD	I.D.B	—sd—	02.06.2015
APPD	S.R.M	—sd—	02.06.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	206.650	—

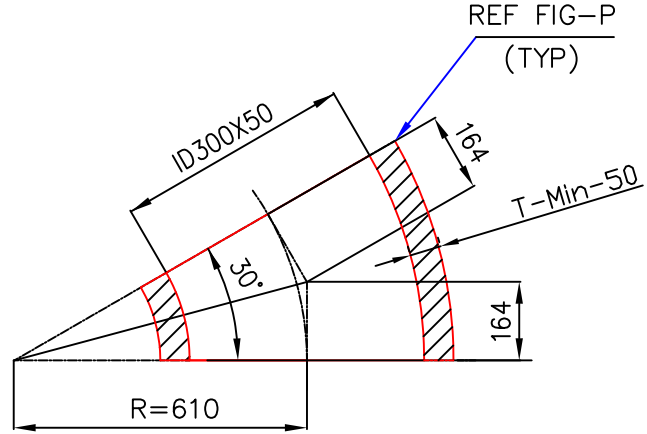
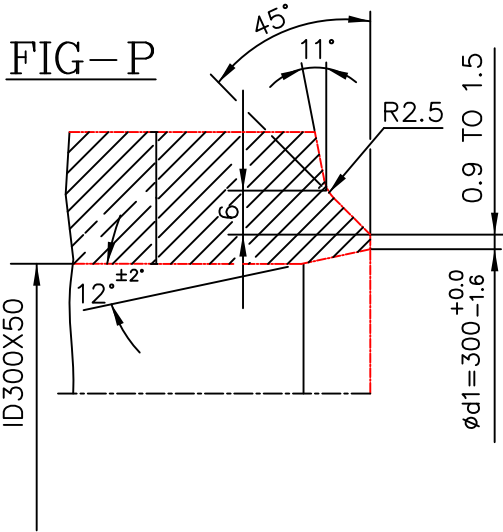
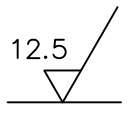
TITLE	DRAWING NO :	REV
BW LR 45DEG ELBOW ID300 X 50	4-80-423-79151	00

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REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 366 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 315 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW APPLICABLE TDC
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR
- 7) CONNECTING PIPE SIZE IS PIPE ID300X50
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC



-	BW LR 30DEG ELBOW φ ID300 X 50	92 504 105 0000	A	137	760
				SA 234 WPC	
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		UNIT WT. (KG)
					QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	M.R.K	—sd—	02.06.2015
CHD	I.D.B	—sd—	02.06.2015
APPD	S.R.M	—sd—	02.06.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	137.760	—

TITLE	DRAWING NO :	REV
BW LR 30DEG ELBOW ID300 X 50	4-80-423-79152	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

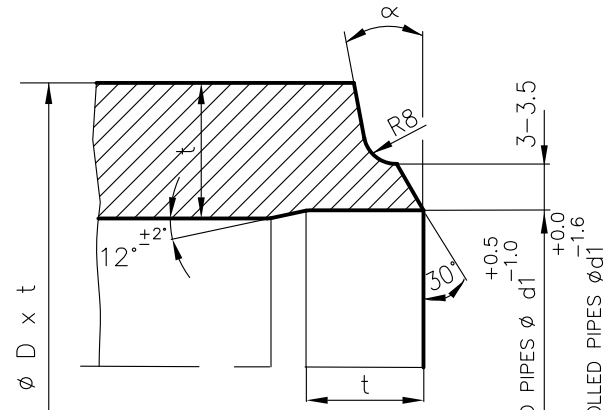


FIGURE - X

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)

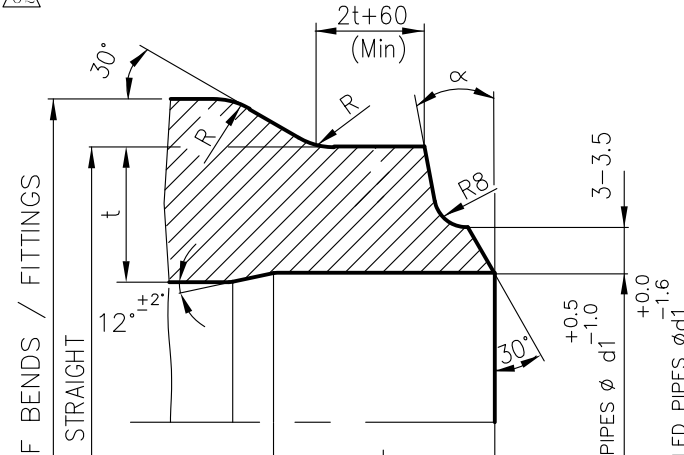
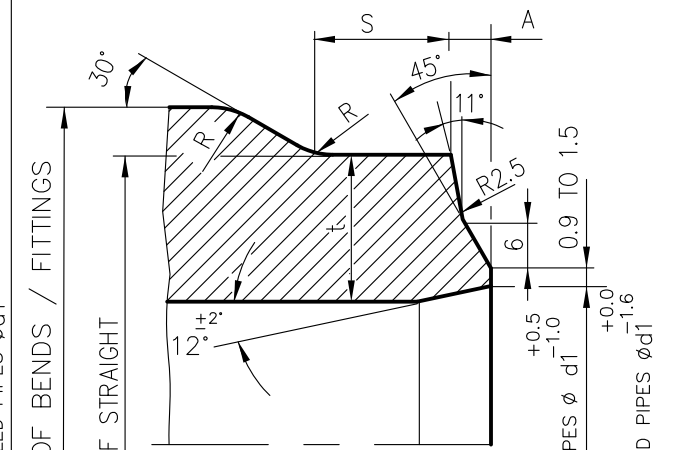


FIGURE - Xa

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)

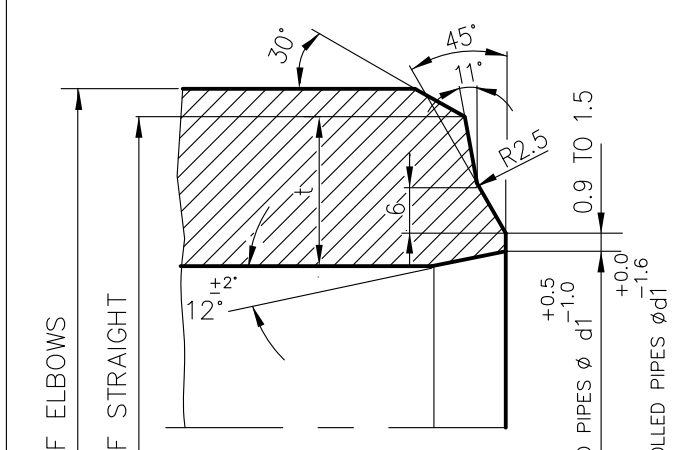


FIGURE - Z

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.

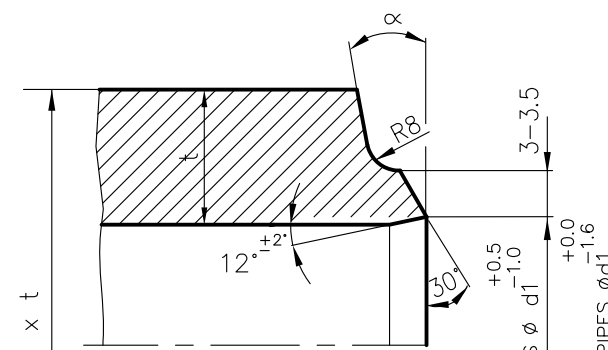


FIGURE - Xb (BEND END)

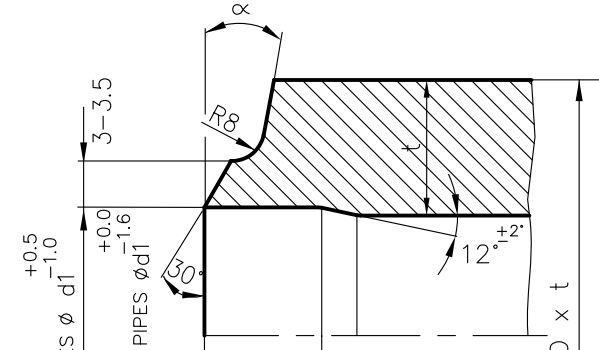
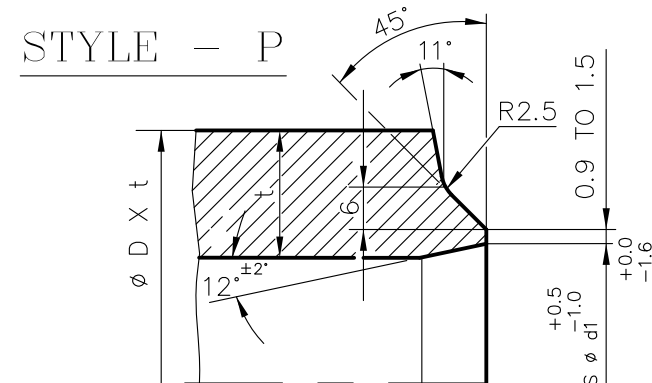


FIGURE - Xc (STRAIGHT END)

STYLE - P

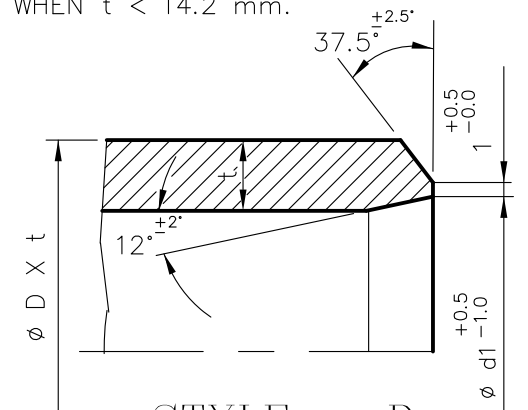


NOTES: -

- 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		