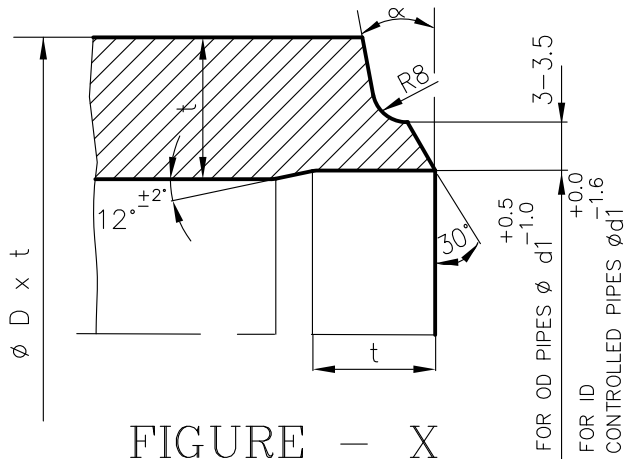


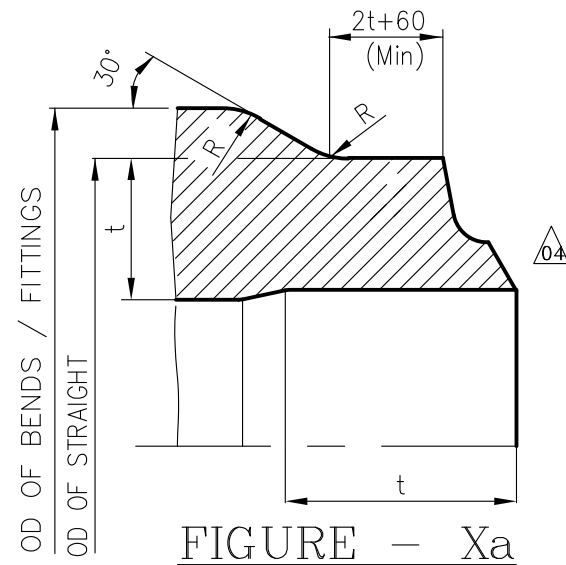
DRAWING No. 3-80-300-19825

NOTES: - 01. APPLICABLE FOR P91/P92
03 i) STRAIGHT WITH STRAIGHT/FITTING
03 ii) BEND WITH BEND/FITTING

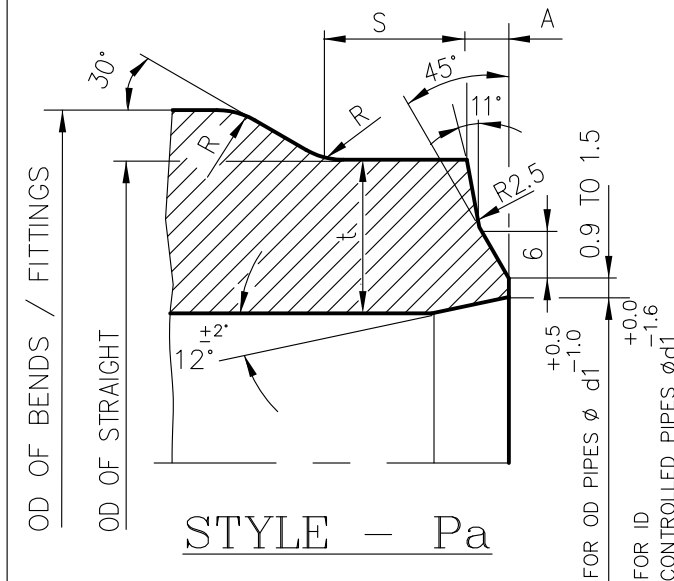
- 04 02. FOR OD MISMATCH, REFER FIGURE-Xa
04 03. REFER STYLE-DL FOR THICKNESS <14.2mm (FOR ALL OD/ID)
04 04. REFER STYLE-PL
i) WHEN THICKNESS IS ≥ 14.2 mm & <20mm (FOR ALL OD/ID)
ii) WHEN THICKNESS ≥ 20 mm & OD <219.1mm.
04 05. $\alpha = 6^\circ$ FOR WALL THICKNESS ≥ 20 MM AND ≤ 30 mm
06. $\alpha = 10^\circ$ FOR WALL THICKNESS > 30 mm



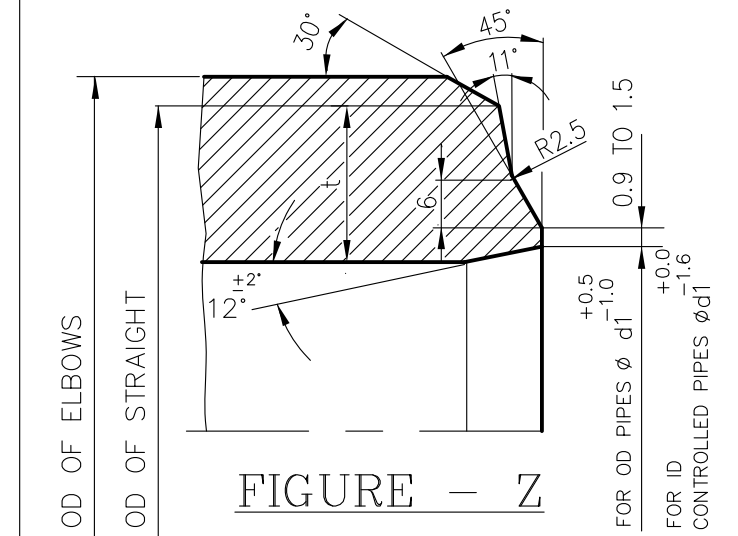
MATCHING EDGE PREPARATION
02 FOR MISMATCH OD APPLICABLE FOR
BENDS/FITTINGS OF P91/P92 MATERIALS 03
NOTES: -
01. OD OF STRAIGHT TO BE PHYSICALLY MEASURED/VERIFIED.
02. t = THK OF CONNECTING PIPE (STRAIGHT)



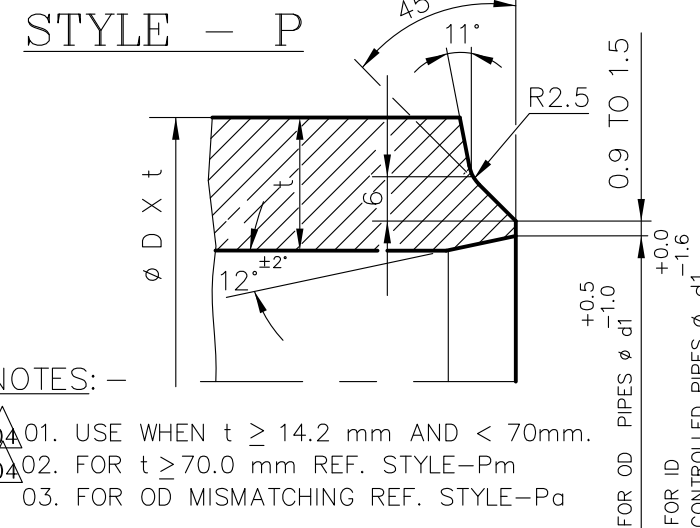
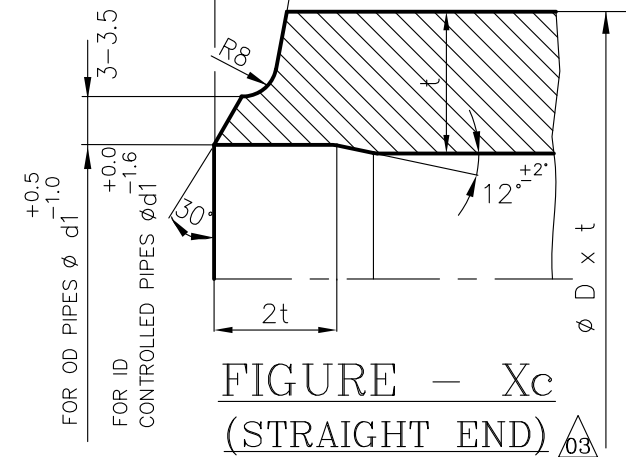
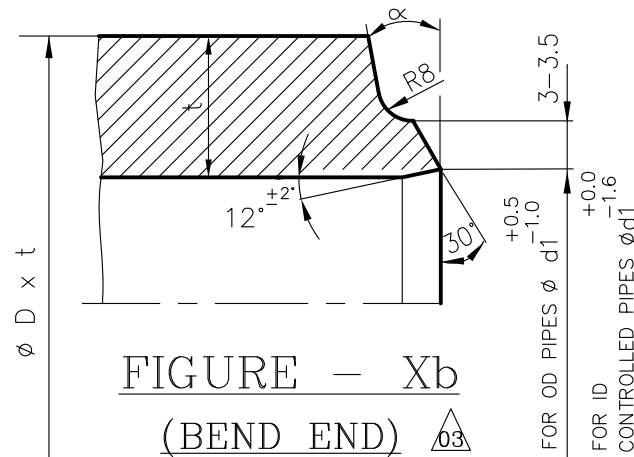
MATCHING EDGE PREPARATION FOR MISMATCH OD
DIAMETRICALLY GREATER THAN 8 mm
(ie OD1 - OD2 > 8mm) APPLICABLE FOR
BENDS/FITTINGS OTHER THAN P91/P92 MATERIALS
NOTES: -
01. OD OF STRAIGHT TO BE PHYSICALLY MEASURED/VERIFIED.
02. WHEN $t < 65$, $S+A = 65$ Min. & $t > 65$, $S=65$ Min.
WHERE t=THK OF CONN.PE(STRAIGHT).



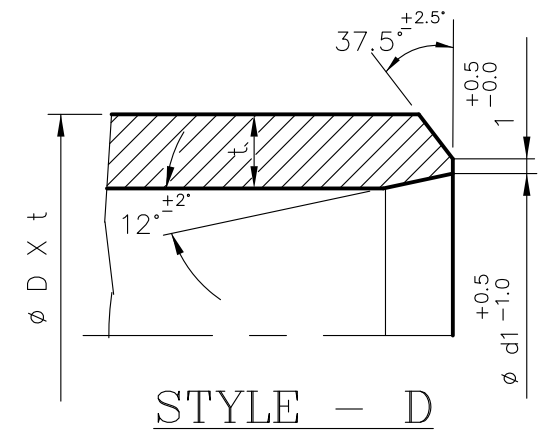
MATCHING EDGE PREPARATION FOR MISMATCH OD
DIAMETRICALLY GREATER THAN 8 mm
(ie OD1 - OD2 > 8mm) APPLICABLE FOR
ELBOWS OTHER THAN P91/P92 MATERIALS
NOTES: -
01. OD = OUTSIDE DIA OF CONN. PIPE (STRAIGHT)
TO BE PHYSICALLY MEASURED/VERIFIED.
02. t = THK OF CONN.PE(STRAIGHT)
03. t = THK OF CONN.PE(STRAIGHT)



NOTES: - 01. APPLICABLE FOR P91/P92 ZERO ARM PIPEBEND WELDED WITH P91/P92 STRAIGHT PIPE
02. FOR OD MISMATCH, REFER FIGURE-Xa
03. REFER STYLE-DL FOR THICKNESS <14.2mm (FOR ALL OD/ID)
04 04. REFER STYLE-PL
i) WHEN THICKNESS IS ≥ 14.2 mm AND <20 mm FOR ALL OD/ID.
ii) WHEN THICKNESS ≥ 20 mm AND OD < 219.1 mm.
05. $\alpha = 6^\circ$ FOR WALL THICKNESS ≥ 20 MM AND ≤ 30 mm
06. $\alpha = 10^\circ$ FOR WALL THICKNESS > 30 mm



NOTES: -
01. USE WHEN $t < 14.2$ mm.



TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

01 STANDARD

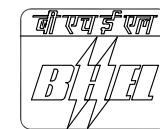
GENERAL NOTES :

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. 02

NOTES FOR WELDING:

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

REV 04	DATE 07.12.16	ALTERED: P SURESH APPROVED: R SESHAGIRI
ZONE	SHEET 2 OF 2 IS ADDED. NOTES ADDED, MODIFIED AND DELETED IN FIGURE-X, Xa, Xb, Xc AND STYLE-P	
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	



BHARAT HEAVY ELECTRICALS LTD.,
PIPING CENTRE, MADRAS

DEPT.

GRADE OF
UN TOL. DIM

CODE

C/M/F

TITLE

EDGE PREPARATION
DETAILS

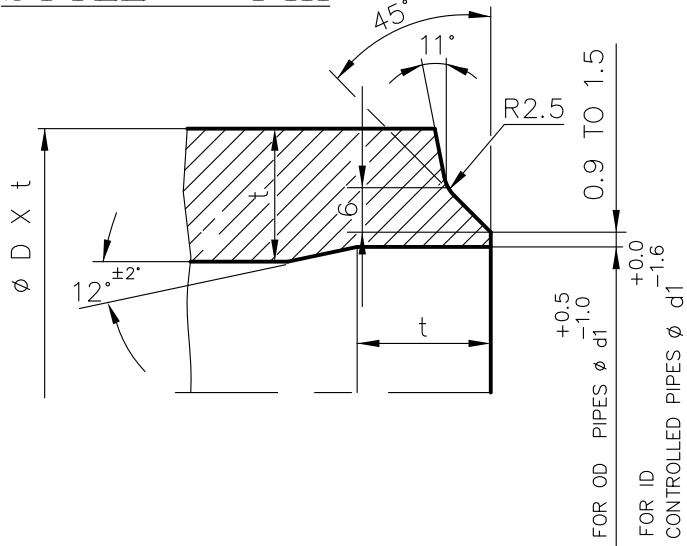
DRN	NAME K.B.RAGUNATH	SIGN	DATE 11.10.01	NO OF ITEMS
CHD	M.C.SEKARAN		11.10.01	
APPD	A.VELAYUTHAM		11.10.01	
DEPT.	GRADE OF UN TOL. DIM	SCALE	WEIGHT (Kg).	NAME OF ORIGINAL ORGANISATION
CODE	C/M/F			
TITLE	EDGE PREPARATION DETAILS	CARD CODE U 01	DRAWING No. 3-80-300-19825	REV 04
			SHEET 1 OF 2	

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3-80-300-19825

DRAWING No.

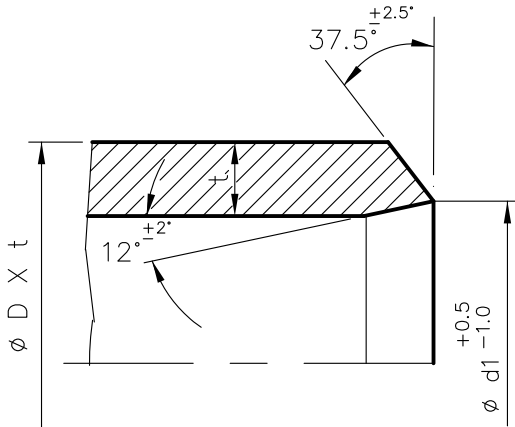
STYLE - P_m



NOTES: -

01. USE FOR SA106GRC PIPES WHEN $t \geq 70.0$ mm.
02. FOR OD MISMATCHING REF. FIGURE-P_a
03. FOR FITTINGS USE STYLE-P.

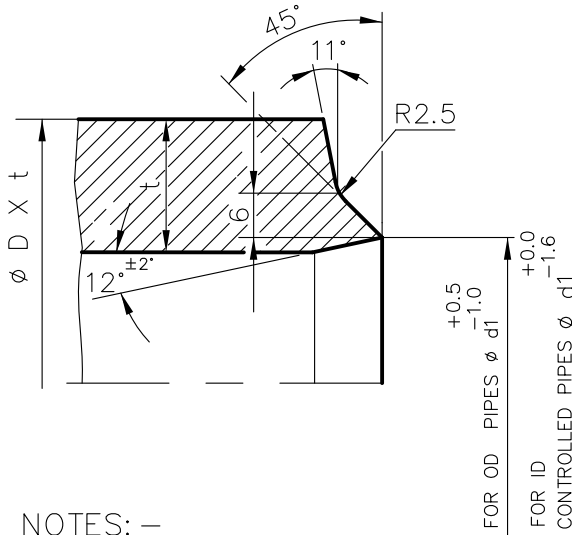
STYLE - D_L



NOTES: -

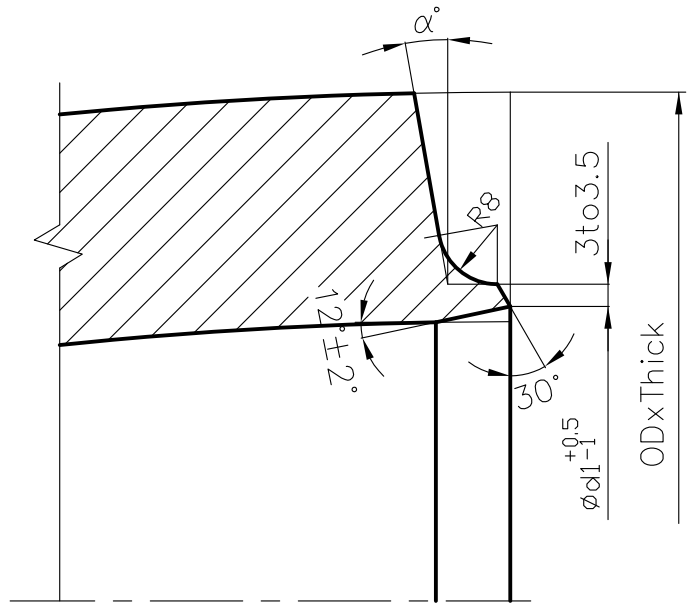
01. USE FOR P91 / P92 PIPES AND FITTINGS WHEN $t < 14.2$ mm (ALL OD/ID).

STYLE - P_L



NOTES: -

01. USE FOR P91 / P92 PIPES AND FITTINGS
 - i) WHEN THICKNESS IS ≥ 14.2 mm AND < 20 mm FOR ALL OD/ID.
 - ii) WHEN THICKNESS ≥ 20 mm AND OD < 219.1 mm.
02. FOR OD MISMATCHING REF. FIGURE-P_a



01. USE FOR P91 / P92 FITTINGS
02. REFER STYLE-D_L FOR THICKNESS < 14.2 mm FOR ALL OD/ID.
03. REFER STYLE-P_L
 - i) WHEN THICKNESS IS ≥ 14.2 mm AND < 20 mm FOR ALL OD/ID.
 - ii) WHEN THICKNESS ≥ 20 mm AND OD < 219.1 mm.
04. $\alpha = 6^\circ$ FOR WALL THICKNESS ≥ 20 mm AND ≤ 30 mm
05. $\alpha = 10^\circ$ FOR WALL THICKNESS > 30 mm.
06. FIGURE-Xf IS APPLICABLE FOR ALL BUTT WELDED FITTINGS NOT COVERED IN NOTES 02 & 03

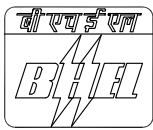
FIGURE-Xf

NOTE :

01. FOR GENERAL NOTES AND NOTES FOR WELDING REFER SHEET 1 OF 2.

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

STANDARD

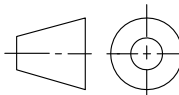


BHARAT HEAVY ELECTRICALS LTD.,
PIPING CENTRE, MADRAS

DRN	NAME	SIGN	DATE	NO OF ITEMS
CHD	P SURESH		07.12.16	
APPD	R SESHAGIRI		07.12.16	
	C KARUNAKARAN		07.12.16	

DEPT.

GRADE OF
UN TOL. DIM



SCALE

WEIGHT (Kg).

NAME OF ORIGINAL
ORGANISATION

ITEM
No.

CODE

C/M/F

SCALE

WEIGHT (Kg).

NAME OF ORIGINAL
ORGANISATION

ITEM
No.

TITLE

EDGE PREPARATION
DETAILS

CARD
CODE

U 01

DRAWING No.

3-80-300-19825

SHEET 2 OF 2

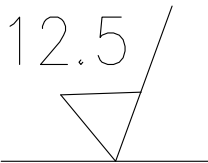
REV

04

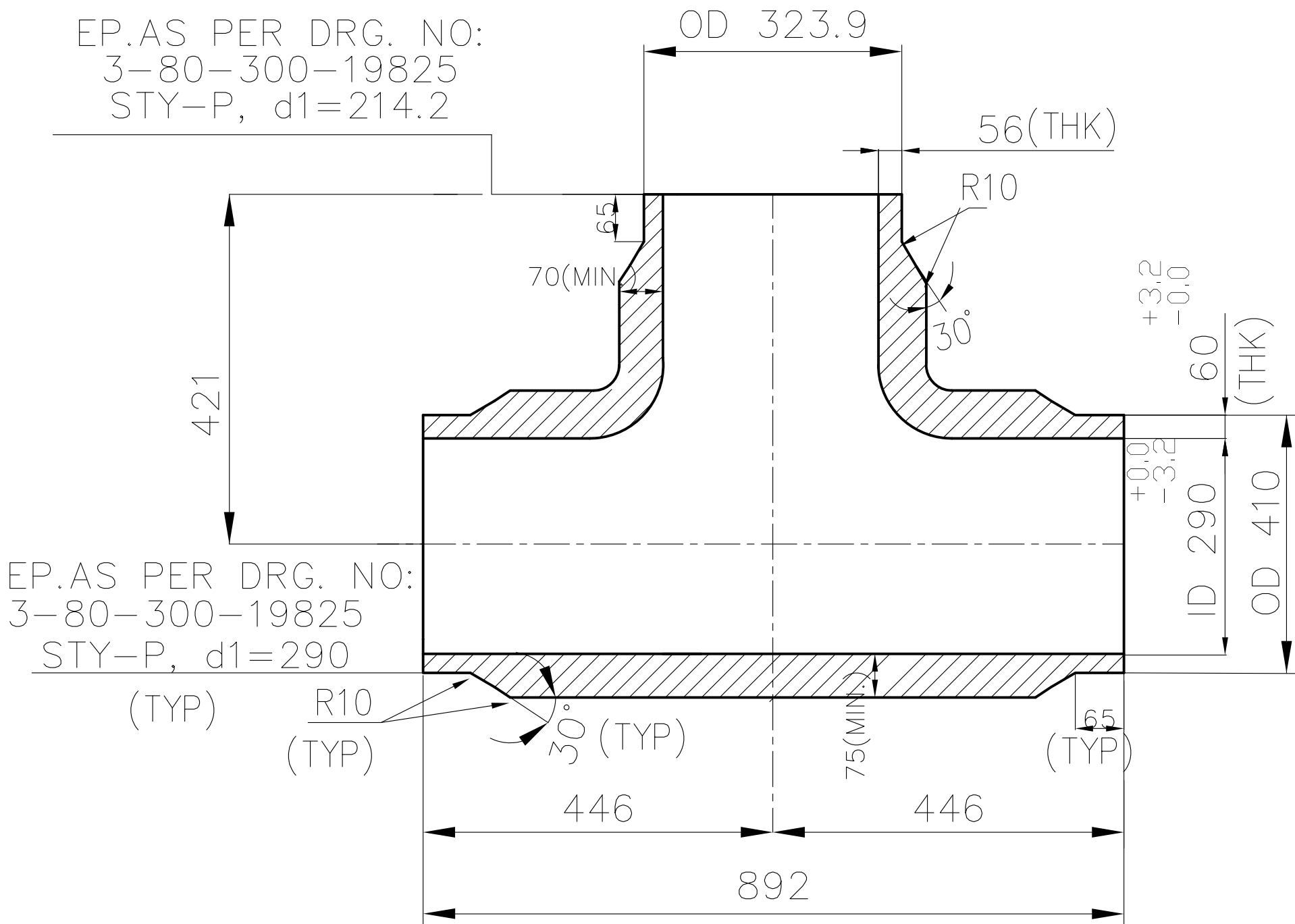
CAUTION THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

3-80-423-34412

DRAWING No

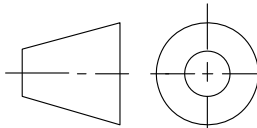


EP.AS PER DRG. NO:
3-80-300-19825
STY-P, d1=214.2



NOTES :-

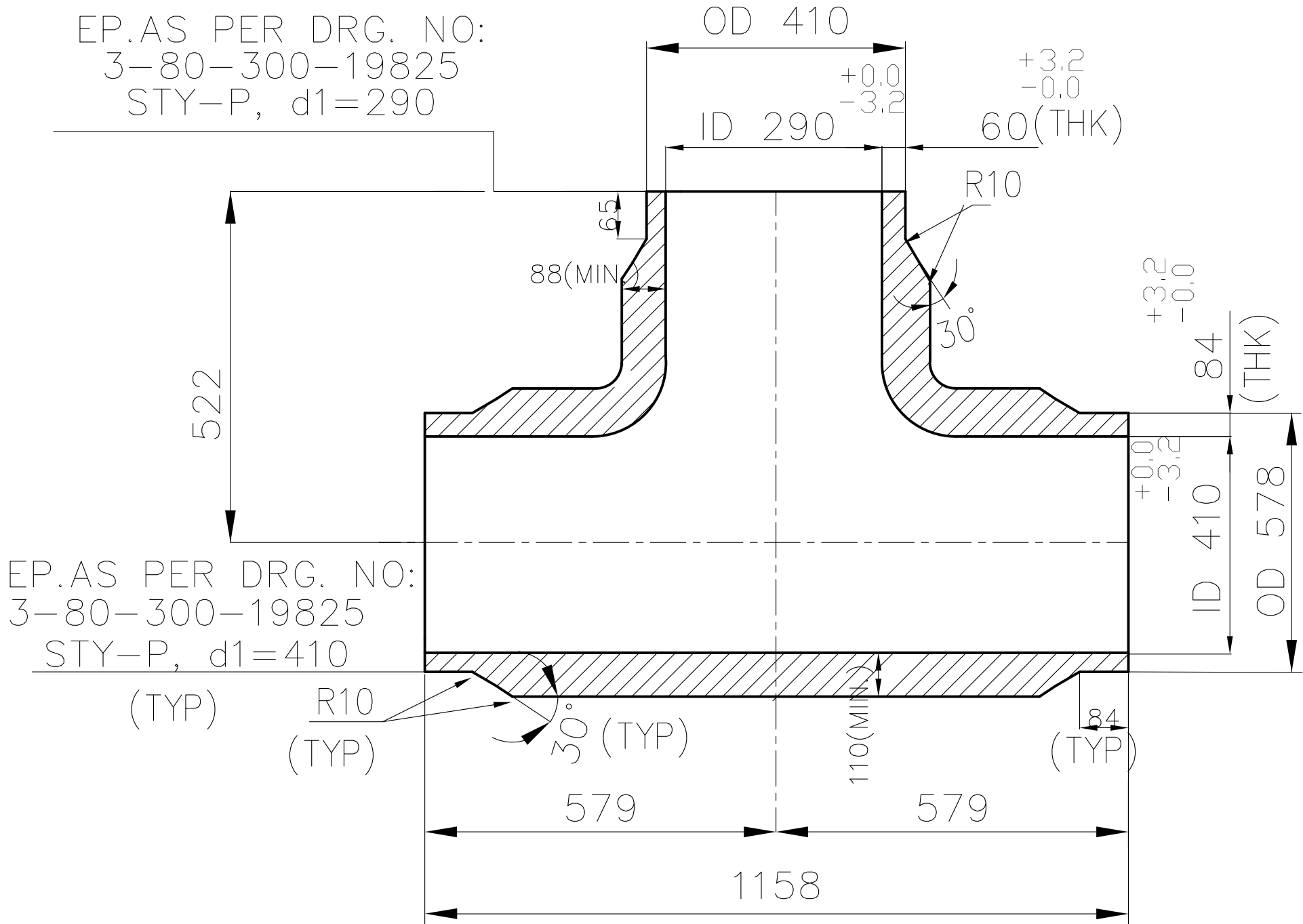
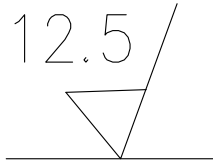
01. DESIGN PRESSURE : 450 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 200° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS AND TOLERANCES ARE AS PER THIS DRAWING.
06. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
07. FOLLOW TDG:102 (LATEST REVISION)
08. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT TO BE FURNISHED BY FITTING SUPPLIER.
09. CONSTRUCTION SHALL BE SEAMLESS
10. CONNECTING PIPE SIZE -ID290X60/OD323.9X56

	BW UNEQUAL TEE ID290X60/ID211.9X56	3-80-423-34412		92 525 047 0000 SA 234 WPC	A	768,644 1
ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO. VAR NO.	MATERIAL CODE MATERIAL SPEC.	A C	UNIT WT. QTY.
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT						
BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI 600 017			DRN CHD APPD	NAME R.BHARATH I.BISWAS R SESHAGIRI	SIGN	DATE 26.03.18 26.03.18 26.03.18
DEPT.	GRADE OF UN TOL. DIM		SCALE	WEIGHT (Kg).	BHEL PO REF.NO:	
CODE	C/M/F		N.T.S.	768.644		
TITLE BW UNEQUAL TEE (ID290X60/OD323.9X56)				CARD CODE U 01	DRAWING No. 3-80-423-34412	
					REV 00	

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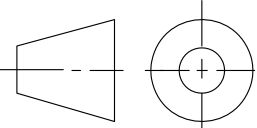
3-80-423-34413

DRAWING No



NOTES :-

01. DESIGN PRESSURE : 450 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 200° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS AND TOLERANCES ARE AS PER THIS DRAWING.
06. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
07. FOLLOW TDG:102 (LATEST REVISION)
08. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT TO BE FURNISHED BY FITTING SUPPLIER.
09. CONSTRUCTION SHALL BE SEAMLESS
10. CONNECTING PIPE SIZE -ID410X84/ID290X60

	BW UNEQUAL TEE ID410X84/ID290X60	3-80-423-34413		92 525 048 0000 SA 234 WPC	A	1952,963 1	
ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO. VAR NO.	MATERIAL CODE MATERIAL SPEC.	A C	UNIT WT. QTY.	
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT							
 BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI 600 017			DRN CHD APPD	NAME R.BHARATH I.BISWAS R SESHAGIRI	SIGN	DATE 26.03.18 26.03.18 26.03.18	NO OF ITEMS
DEPT. CODE	GRADE OF UN TOL. DIM C/M/F		SCALE N.T.S.	WEIGHT (Kg). 1952.963	BHEL PO REF.NO:		ITEM No.
TITLE BW UNEQUAL TEE (ID410X84/ID290X60)				CARD CODE U 01	DRAWING No. 3-80-423-34413		REV 00

DRAWING No

1158

(TYP)

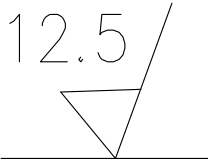
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CAUTION THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

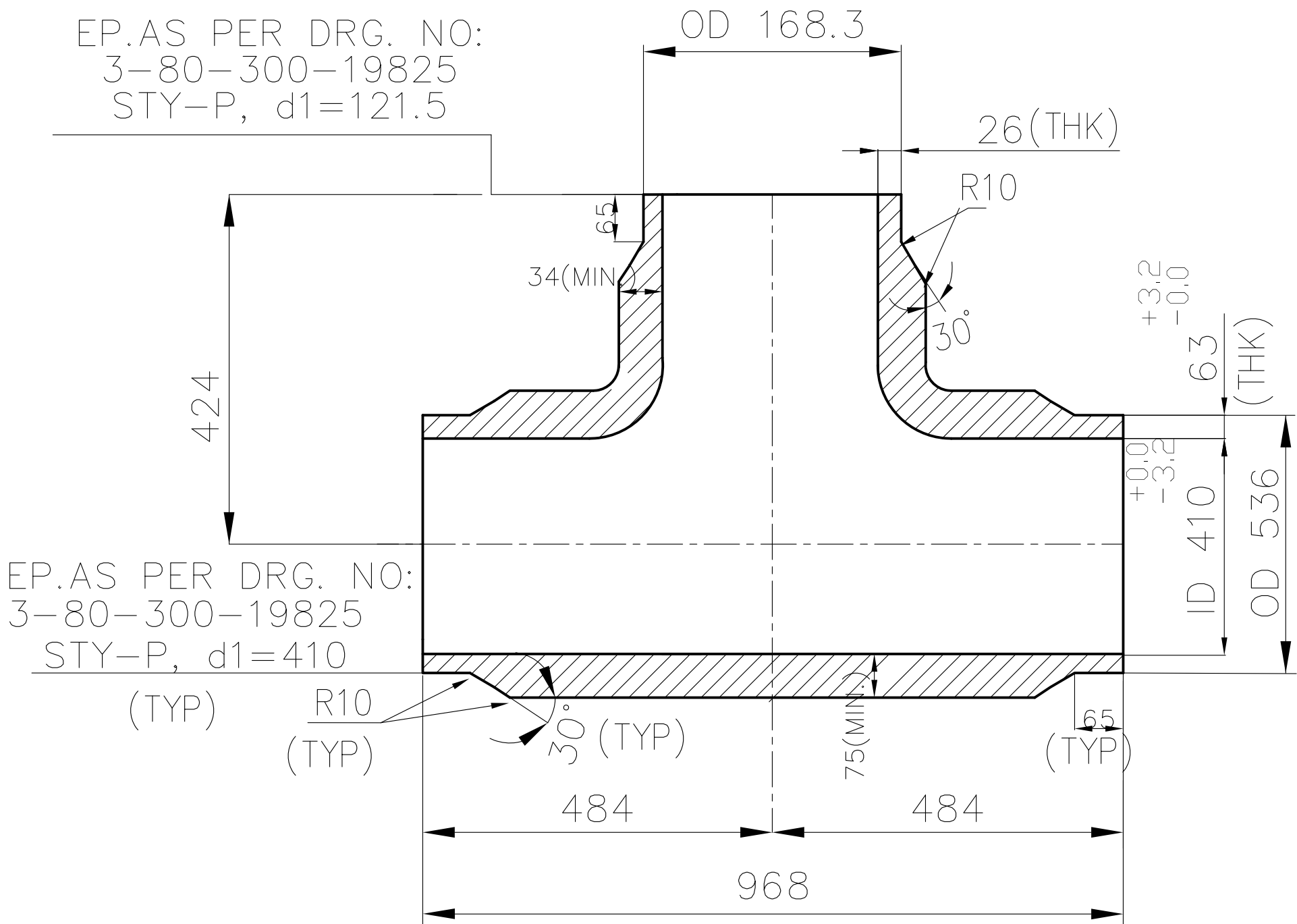
3-80-423-34415

DRAWING No

12.5

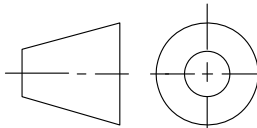


EP.AS PER DRG. NO:
3-80-300-19825
STY-P, d1=121.5



NOTES :-

01. DESIGN PRESSURE : 350 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 200° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS AND TOLERANCES ARE AS PER THIS DRAWING.
06. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
07. FOLLOW TDG:102 (LATEST REVISION)
08. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT TO BE FURNISHED BY FITTING SUPPLIER.
09. CONSTRUCTION SHALL BE SEAMLESS
10. CONNECTING PIPE SIZE -ID410X63/OD168.3X26

	BW UNEQUAL TEE ID410X63/ID116.3X26	3-80-423-34415		92 505 173 0000 SA 234 WPC	A	885.979 1
ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO. VAR NO.	MATERIAL CODE MATERIAL SPEC.	A C	UNIT WT. QTY.
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT						
BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI 600 017			DRN CHD APPD	NAME R.BHARATH I.BISWAS R SESHAGIRI	SIGN	DATE 26.03.18 26.03.18 26.03.18
DEPT.	GRADE OF UN TOL. DIM		SCALE	WEIGHT (Kg).	BHEL PO REF.NO:	
CODE	C/M/F		N.T.S.	885.979		
TITLE BW UNEQUAL TEE (ID410X63/OD168.3X26)				CARD CODE U 01	DRAWING No. 3-80-423-34415	
					REV 00	

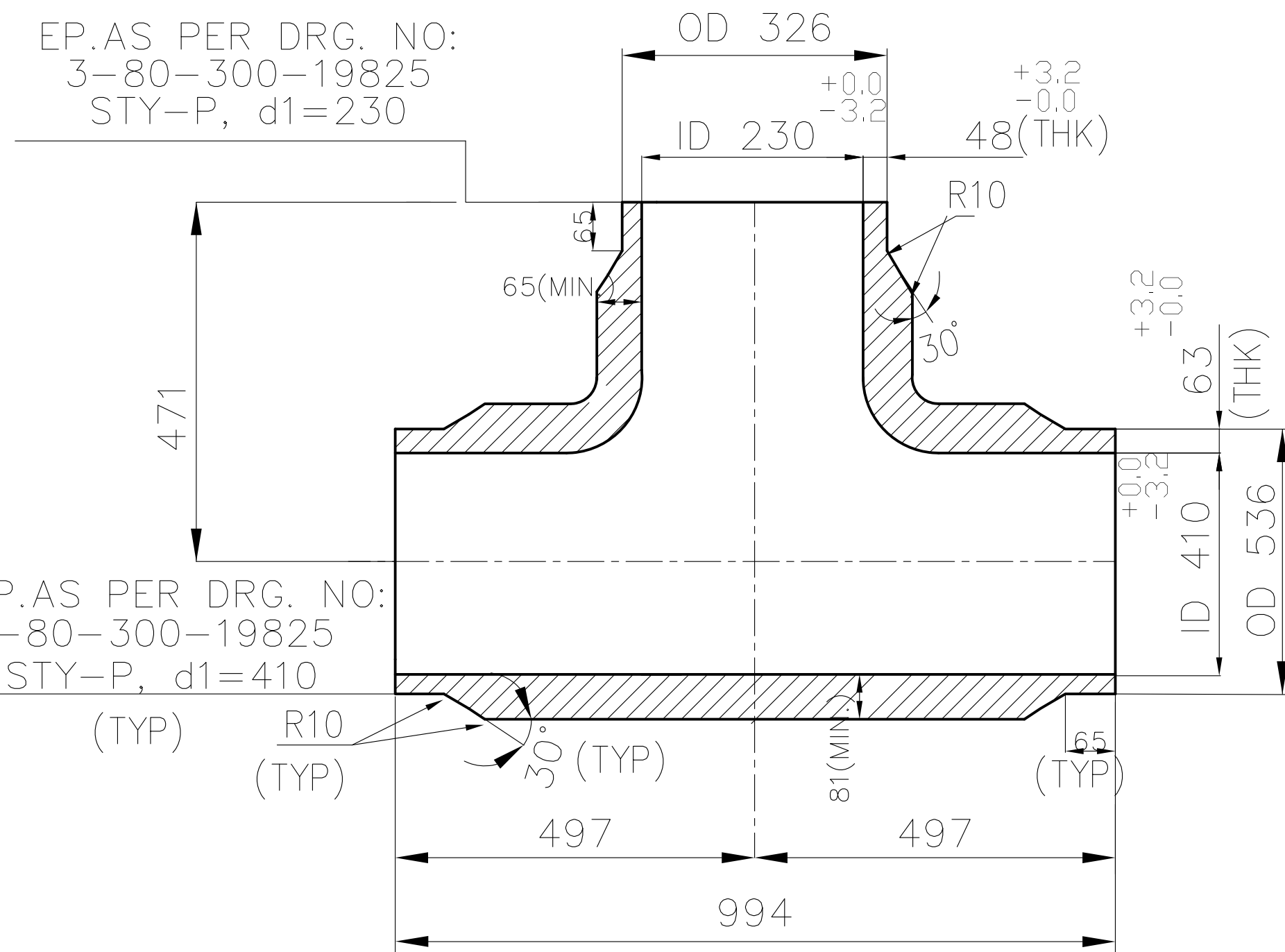
DRA WING No

65
(TYP)

[illegible]

DRAIVING NO

V 01	DATE	ALTD :
		APPD :



01. DESIGN PRESSURE : 350 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 200° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS AND TOLERANCES ARE AS PER THIS DRAWING.
06. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
07. FOLLOW TDG:102 (LATEST REVISION)
08. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT TO BE FURNISHED BY FITTING SUPPLIER.
09. CONSTRUCTION SHALL BE SEAMLESS
10. CONNECTING PIPE SIZE –ID410X63/ID230X48

[illegible]

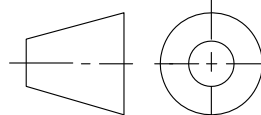
DRA WING No

1120

65
(TYP)

536

01. DESIGN PRESSURE : 350 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 200° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS AND TOLERANCES ARE AS PER THIS DRAWING.
06. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
07. FOLLOW TDG:102 (LATEST REVISION)
08. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT TO BE FURNISHED BY FITTING SUPPLIER.
09. CONSTRUCTION SHALL BE SEAMLESS
10. CONNECTING PIPE SIZE –ID410X63/ID410X63

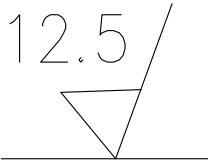
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ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO.	MATERIAL CODE	A			UNIT WT.														
			VAR NO.	MATERIAL SPEC.	C			QTY.														
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT																						
 BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI 600 017 <table><tr><td>DRN</td><td>NAME R.BHARATH</td><td>SIGN</td><td>DATE 26.03.18</td><td rowspan="3">NO OF ITEMS</td></tr><tr><td>CHD</td><td>I.BISWAS</td><td></td><td>26.03.18</td></tr><tr><td>APPD</td><td>R SESHAGIRI</td><td></td><td>26.03.18</td></tr></table>										DRN	NAME R.BHARATH	SIGN	DATE 26.03.18	NO OF ITEMS	CHD	I.BISWAS		26.03.18	APPD	R SESHAGIRI		26.03.18
DRN	NAME R.BHARATH	SIGN	DATE 26.03.18	NO OF ITEMS																		
CHD	I.BISWAS		26.03.18																			
APPD	R SESHAGIRI		26.03.18																			
DEPT.	GRADE OF UN TOL. DIM		SCALE	WEIGHT (Kg).	BHEL PO REF.NO:				ITEM No.													
CODE	C/M/F		N.T.S.	1820.019																		
TITLE				CARD CODE	DRAWING No.				REV													
BW EQUAL TEE (ID410X63)				U 01	3-80-423-34418				00													

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3-80-424-34419

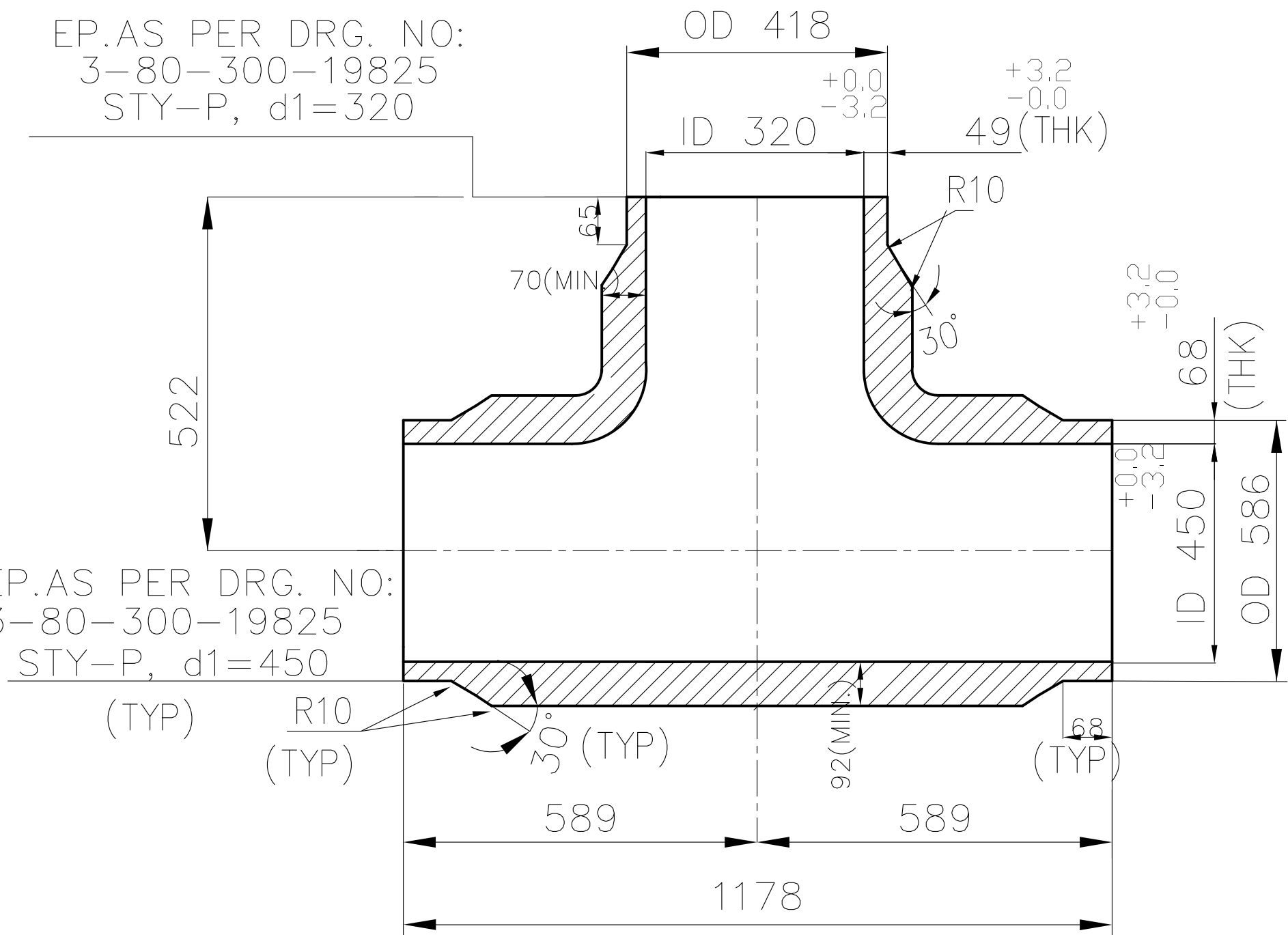
DRAWING No

12.5



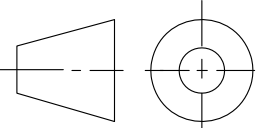
EP.AS PER DRG. NO:
3-80-300-19825
STY-P, d1=320

EP.AS PER DRG. NO:
3-80-300-19825
STY-P, d1=450



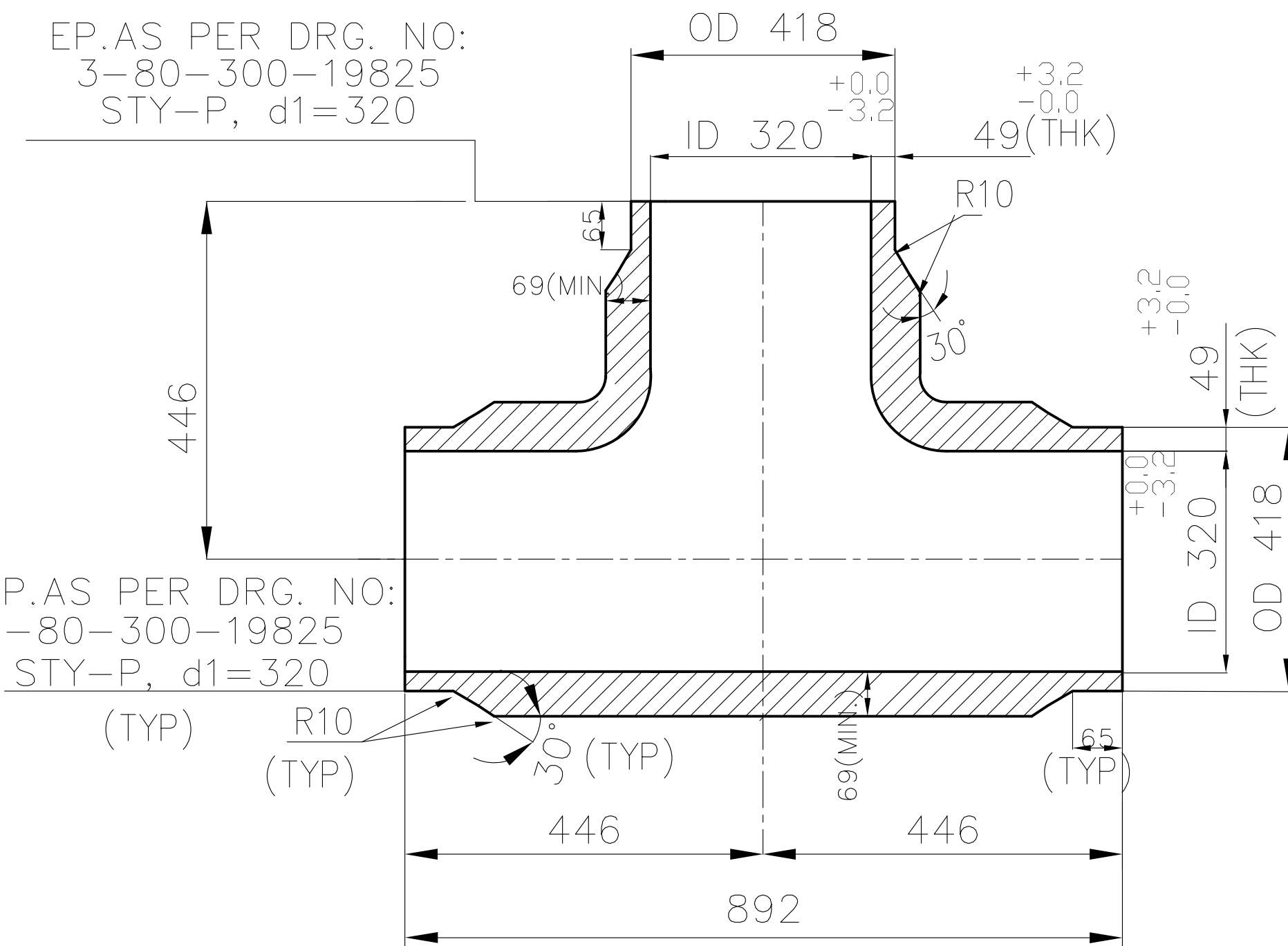
NOTES :-

01. DESIGN PRESSURE : 350 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 310° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS AND TOLERANCES ARE AS PER THIS DRAWING.
06. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
07. FOLLOW TDG:102 (LATEST REVISION)
08. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT TO BE FURNISHED BY FITTING SUPPLIER.
09. CONSTRUCTION SHALL BE SEAMLESS
10. CONNECTING PIPE SIZE -ID450X68/ID320X49

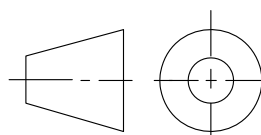
	BW UNEQUAL TEE ID450X68/ID320X49	3-80-424-34419		92 505 174 0000 SA 234 WPC	A	1759,696 1
ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO. VAR NO.	MATERIAL CODE MATERIAL SPEC.	A C	UNIT WT. QTY.
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT						
 BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI 600 017			DRN CHD APPD	NAME R.BHARATH I.BISWAS R SESHAGIRI	SIGN	DATE 26.03.18 26.03.18 26.03.18
DEPT. CODE	GRADE OF UN TOL. DIM C/M/F		SCALE N.T.S.	WEIGHT (Kg). 1759.696	BHEL PO REF.NO:	
TITLE BW UNEQUAL TEE (ID450X68/ID320X49)				CARD CODE U 01	DRAWING No. 3-80-424-34419	ITEM No. REV 00

DRAWING No

EP.AS PER DRG. NO:
3-80-300-19825
STY-P, d1=320



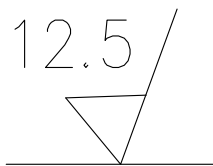
01. DESIGN PRESSURE : 350 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 300° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS AND TOLERANCES ARE AS PER THIS DRAWING.
06. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
07. FOLLOW TDG:102 (LATEST REVISION)
08. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT TO BE FURNISHED BY FITTING SUPPLIER.
09. CONSTRUCTION SHALL BE SEAMLESS
10. CONNECTING PIPE SIZE –ID320X49/ID320X49

	BW EQUAL TEE ID320X49	3-80-424-34420		92 505 175 0000 SA 234 WPC	A	867.154 1													
ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO.	MATERIAL CODE	A	UNIT WT.													
			VAR NO.	MATERIAL SPEC.	C	QTY.													
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT																			
 BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI 600 017 <table><tr><td>DRN</td><td>NAME R.BHARATH</td><td>SIGN</td><td>DATE 26.03.18</td><td rowspan="3">NO OF ITEMS</td></tr><tr><td>CHD</td><td>I.BISWAS</td><td></td><td>26.03.18</td></tr><tr><td>APPD</td><td>R SESHAGIRI</td><td></td><td>26.03.18</td></tr></table>							DRN	NAME R.BHARATH	SIGN	DATE 26.03.18	NO OF ITEMS	CHD	I.BISWAS		26.03.18	APPD	R SESHAGIRI		26.03.18
DRN	NAME R.BHARATH	SIGN	DATE 26.03.18	NO OF ITEMS															
CHD	I.BISWAS		26.03.18																
APPD	R SESHAGIRI		26.03.18																
DEPT.	GRADE OF UN TOL. DIM		SCALE	WEIGHT (Kg).	BHEL PO REF.NO:		ITEM No.												
CODE	C/M/F		N.T.S.	867.154															
TITLE			CARD CODE	DRAWING No.			REV												
BW EQUAL TEE (ID320X49)			U 01	3-80-424-34420			00												

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

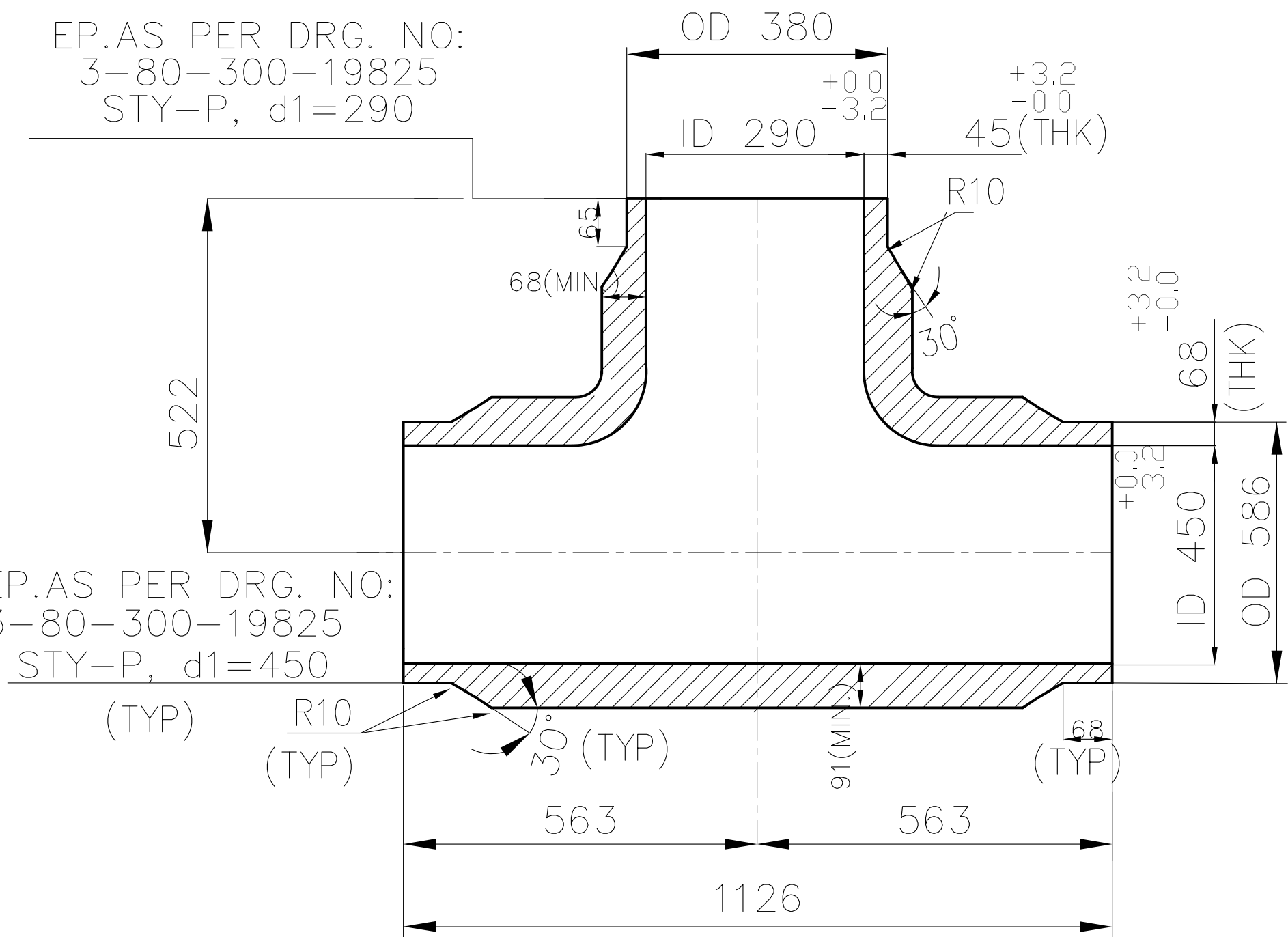
3-80-425-34421

DRAWING No



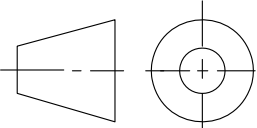
EP.AS PER DRG. NO:
3-80-300-19825
STY-P, d1=290

EP.AS PER DRG. NO:
3-80-300-19825
STY-P, d1=450



NOTES :-

01. DESIGN PRESSURE : 350 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 310° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS AND TOLERANCES ARE AS PER THIS DRAWING.
06. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
07. FOLLOW TDG:102 (LATEST REVISION)
08. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT TO BE FURNISHED BY FITTING SUPPLIER.
09. CONSTRUCTION SHALL BE SEAMLESS
10. CONNECTING PIPE SIZE -ID450X68/ID290X45

	BW UNEQUAL TEE ID450X68/ID290X45	3-80-425-34421		92 505 177 0000 SA 234 WPC	A	1637.076 1	
ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO. VAR NO.	MATERIAL CODE MATERIAL SPEC.	A C	UNIT WT. QTY.	
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT							
 BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI 600 017			DRN CHD APPD	NAME R.BHARATH I.BISWAS R SESHAGIRI	SIGN	DATE 26.03.18 26.03.18 26.03.18	NO OF ITEMS
DEPT. CODE	GRADE OF UN TOL. DIM C/M/F		SCALE N.T.S.	WEIGHT (Kg). 1637.076	BHEL PO REF.NO.		ITEM No.
TITLE BW UNEQUAL TEE (ID450X68/ID290X45)				CARD CODE U 01	DRAWING No. 3-80-425-34421		REV 00

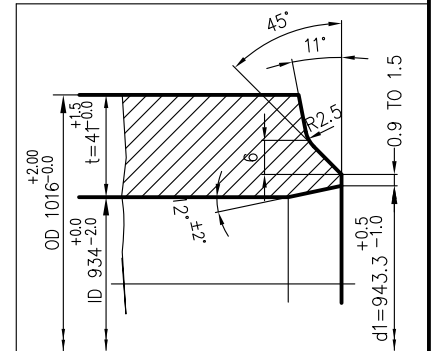
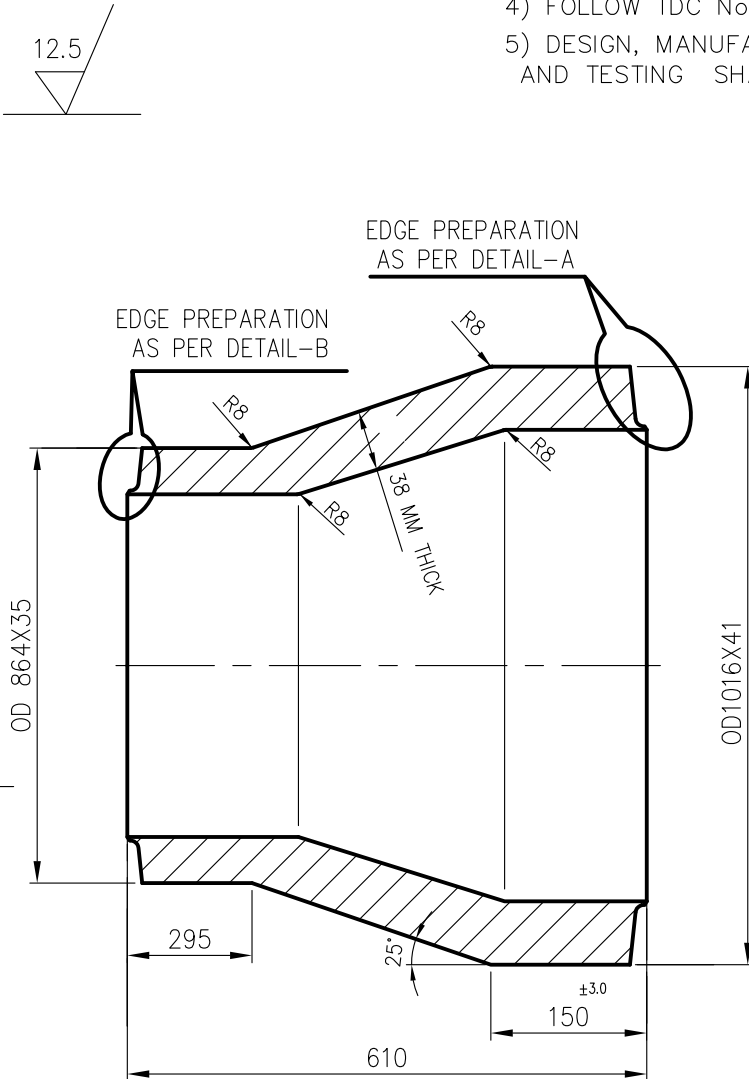
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

REV	DATE	ALTERED
01		APPROVED

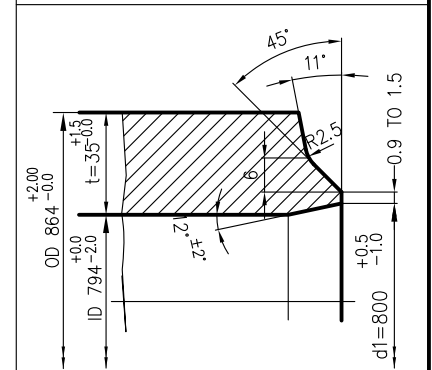
ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- 1) DESIGN PRESSURE : 74.8 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 380 °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.



DETAIL-A



DETAIL-B

	BW CONC. REDUCER OD1016x41/OD864x35	92 117 262 0000 SA 234 WP12 CL1	A	487	590
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

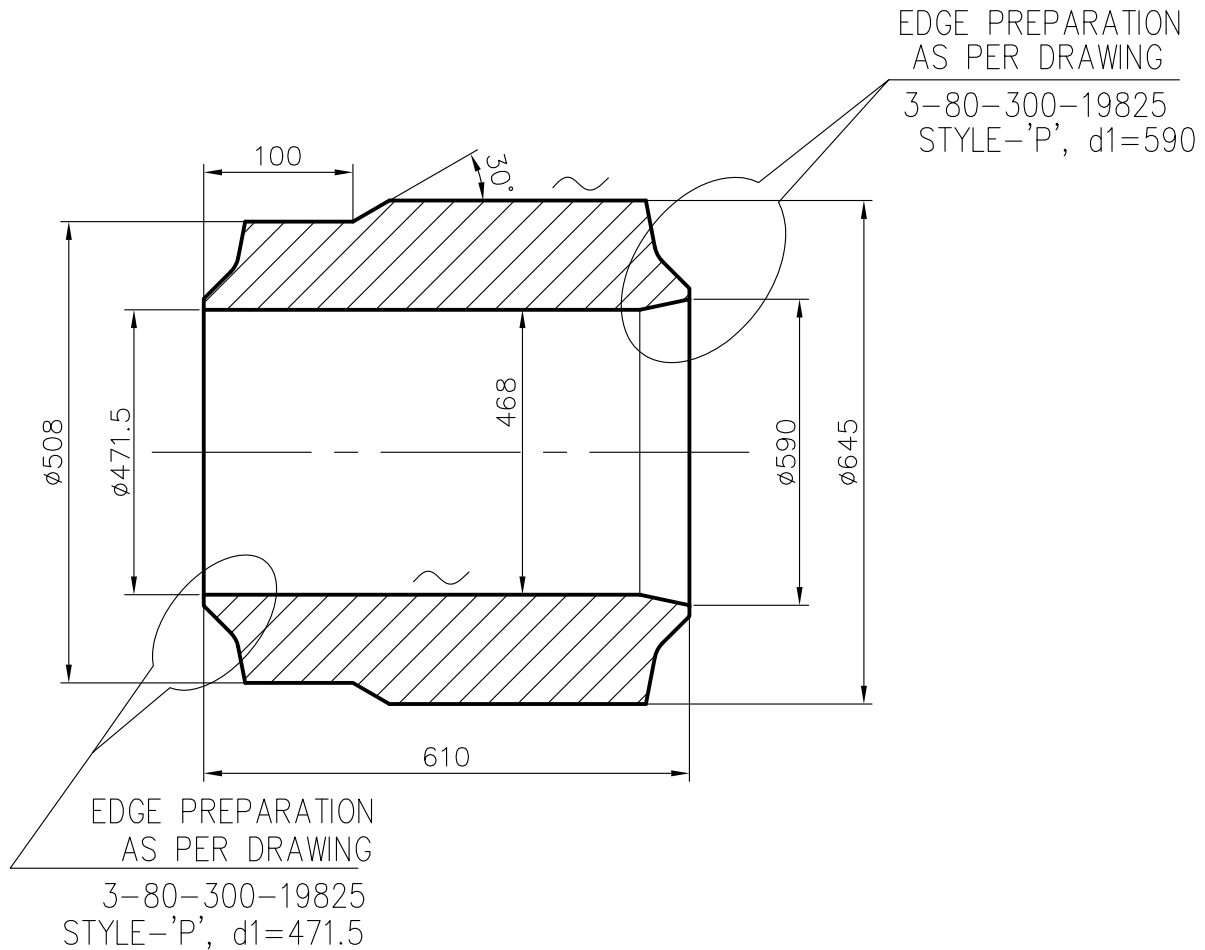
		BHARAT HEAVY ELECTRICALS LIMITED		NAME		SIGN	DATE	NO.OF VAR
PIPING CENTRE		CHENNAI 600 017		DRN	S ARUNSHARMA	--sd--	04.01.18	
				CHD	P SURESH	--sd--	04.01.18	
				APPD	R SESHAGIRI	--sd--	04.01.18	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	487.590					
TITLE				DRAWING NO.				REV
BW CON REDUCER OD1016x41/OD864x35				4-80-320-81907 00				
				CODE U 01				

REV	DATE	ALTERED
01		APPROVED

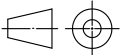
ALL DIMENSIONS ARE IN MILLIMETRES

NOTES :-

01. DESIGN PRESSURE : 74.8 Kg/Cm²(g)
02. DESIGN TEMPERATURE : 380° C
03. THIS DRAWING IS FOR INDICATING THE OVERALL DIMENSIONS, CONNECTING PIPE SIZE AND MATERIAL SPECIFICATION
04. FOLLOW APPLICABLE QP



	MATCHING REDUCER OD645X27.5/OD508X20	92 527 011 0000 SA 182 F22 CL3	A		473 000
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

बी एच ई एल 		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME ARUNSHARMA	SIGN —sd—	DATE 05.04.18	NO.OF VAR
				CHD	P SURESH	—sd—	05.04.18	
				APPD	R SESHAGIRI	—sd—	05.04.18	
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO	NO. OF ITEMS
CODE	C / M / F		N.T.S	473.000				
TITLE MATCHING REDUCER OD645X27.5/OD508X20 SA182F22CL3				CARD CODE U 01	DRAWING NO. 4-80-321-82074			REV 00

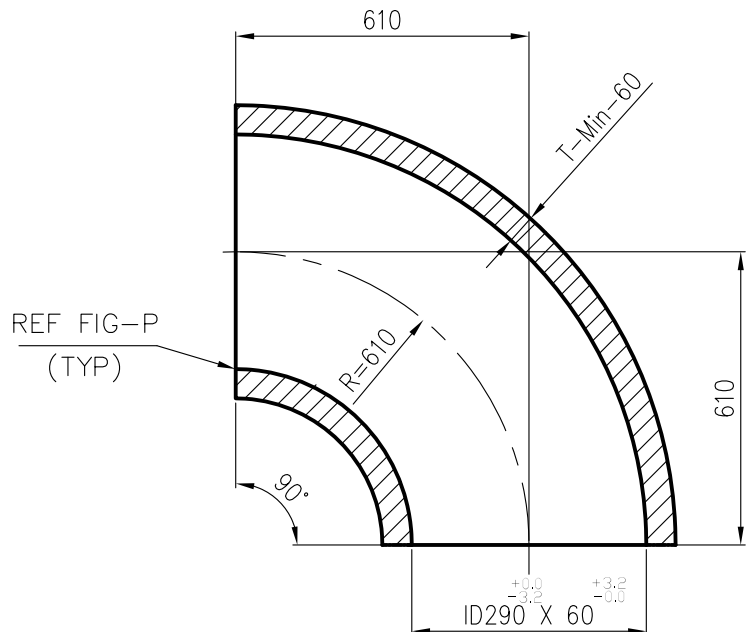
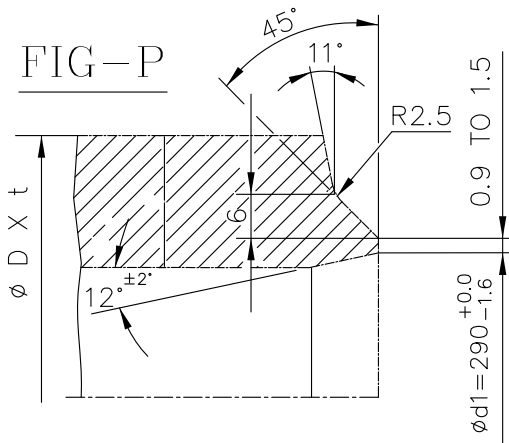
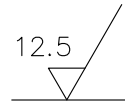
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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

CAUTION:

REV	DATE	ALTERED :
01		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 450 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. :AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID290X60
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 90DEG ELBOW ID290 X 60	925240050000 SA 234 WPC	A		495	952
					1	
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WT. (KG)
						QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM		SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		
CODE			N.T.S	495.952	—		
TITLE					DRAWING NO :		REV
BW LR 90DEG ELBOW ID290 X 60					4—80—423—82029		00

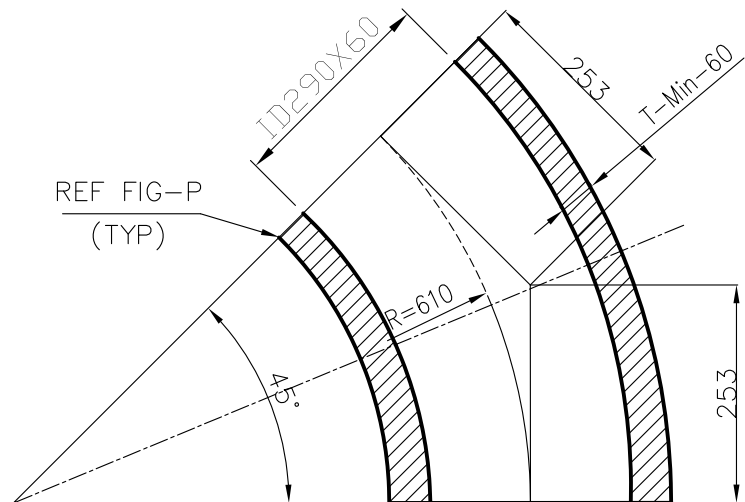
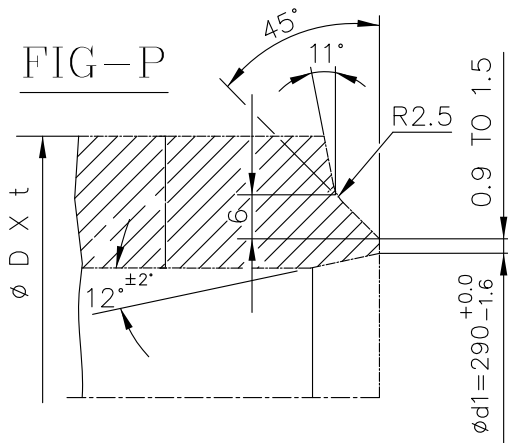
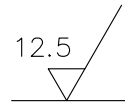
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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY
IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

CAUTION:

REV	DATE	ALTERED :
01		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 450 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. :AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID290X60
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 45DEG ELBOW ID290 X 60	925240070000	A	247	976
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	247.976	—
TITLE	BW LR 45DEG ELBOW ID290 X 60				DRAWING NO : 4—80—423—82030
					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 450 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID290 X 60
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

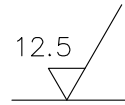
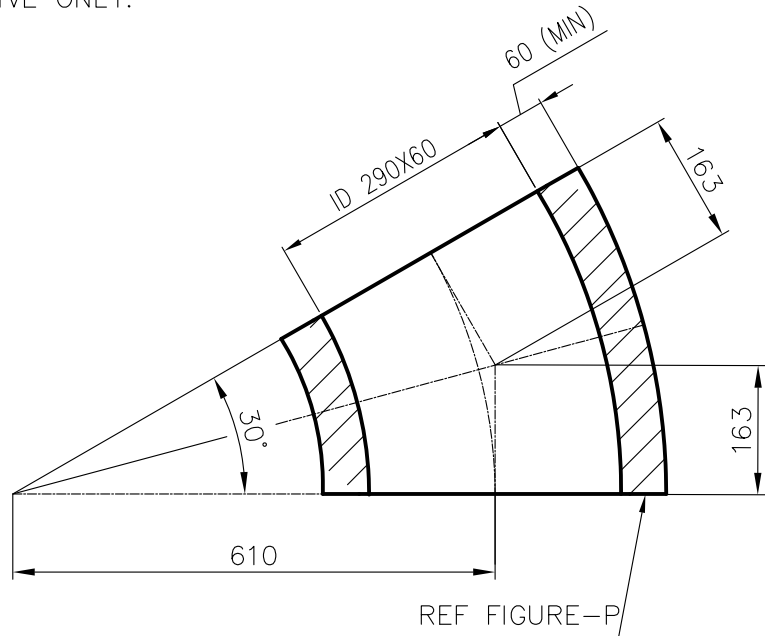
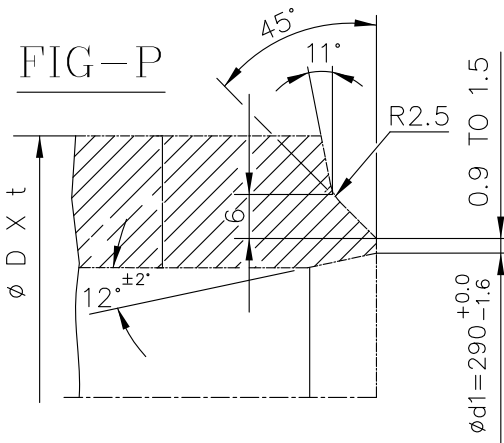


FIG-P



—	BW LR 30DEG ELBOW ID290 X 60	925042000000	A	165	318
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

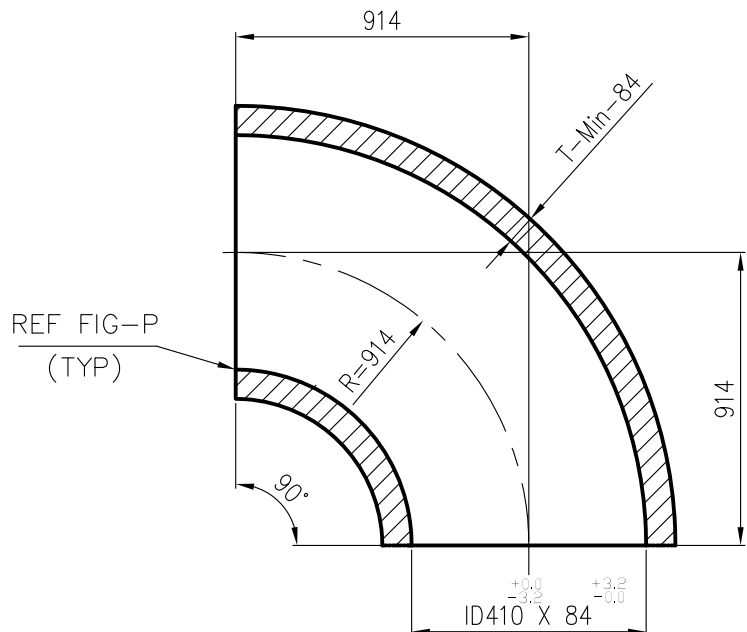
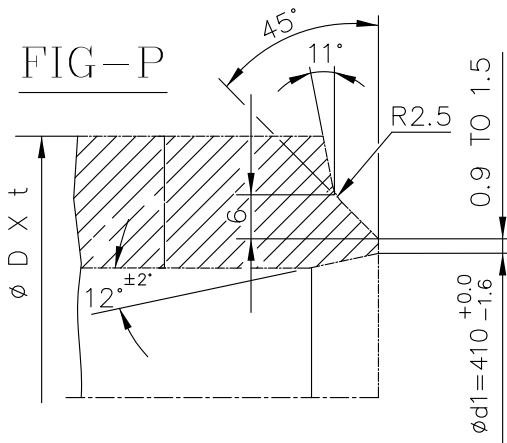
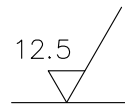
	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	165.318	—
TITLE	BW LR 30DEG ELBOW ID290 X 60				DRAWING NO : 4-80-423-82031
					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 450 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID410X84
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 90DEG ELBOW ID410 X 84	925240080000	A	1468	396
VAR No.	DESCRIPTION	STD	A/C/P	UNIT	QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	1468.396	—
TITLE					DRAWING NO : 4—80—423—82032
BW LR 90DEG ELBOW ID410 X 84					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 450 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. :AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID410X84
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

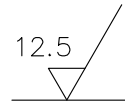
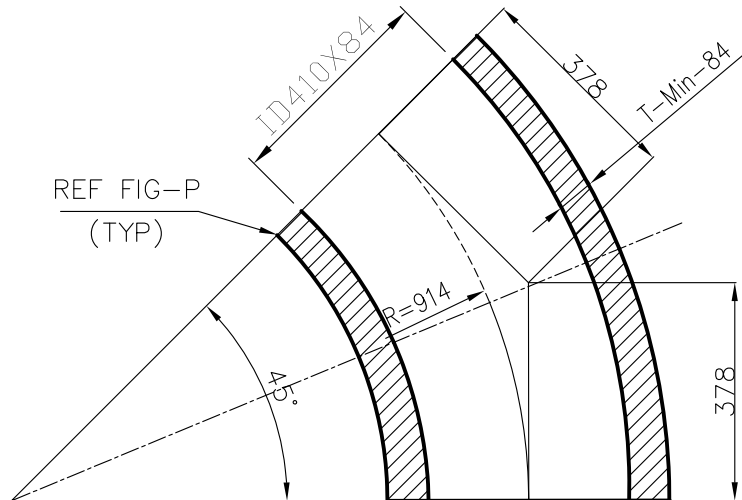
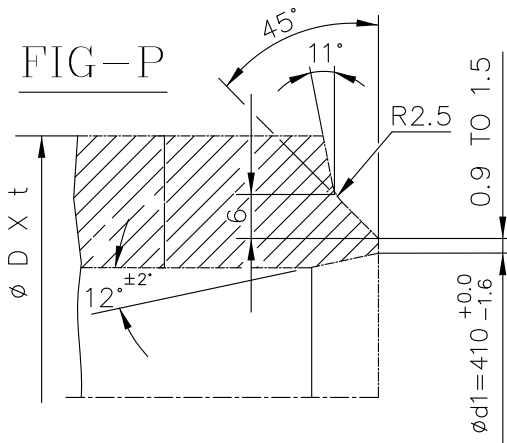


FIG-P



—	BW LR 45DEG ELBOW ID410 X 84	925240090000	A	734	198
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

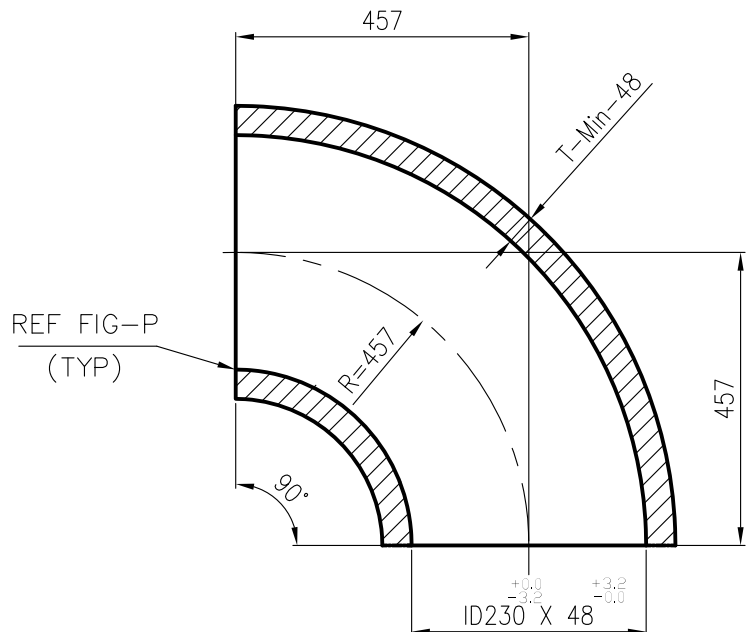
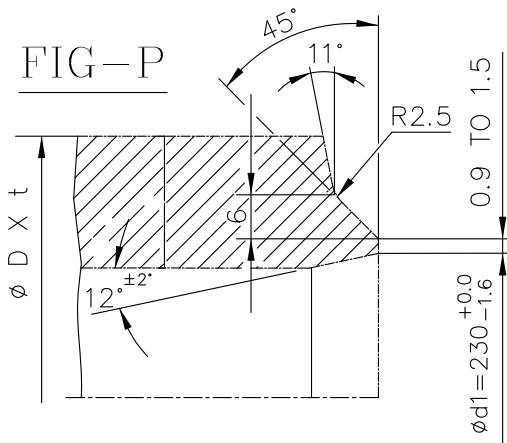
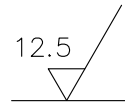
	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	734.198	—
TITLE	BW LR 45DEG ELBOW ID410 X 84				DRAWING NO : 4-80-423-82033
					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 450 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID230X48
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 90DEG ELBOW ID230 X 48	925240100000	A	236	099
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

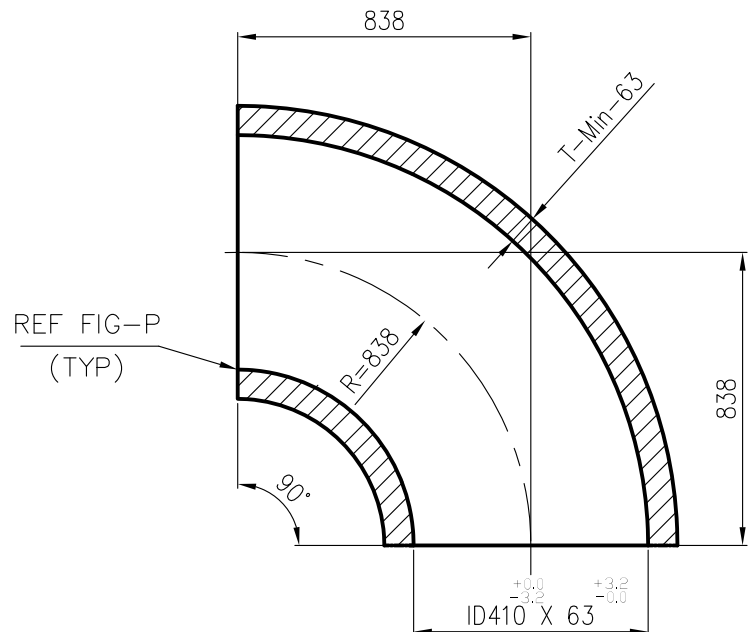
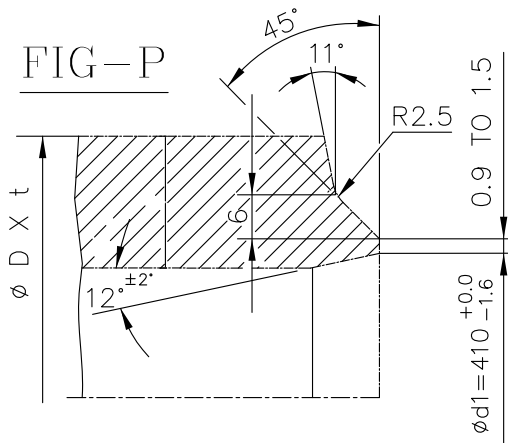
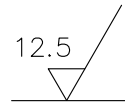
	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	236.099	—
TITLE	BW LR 90DEG ELBOW ID230 X 48				DRAWING NO : 4-80-423-82034
					REV 00

REV	DATE	ALTERED :
01		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID410X63
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 90DEG ELBOW ID410 X 63	925042040000	A	966	799
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	966.799	—
TITLE	BW LR 90DEG ELBOW ID410 X 63				DRAWING NO : 4-80-423-82035
					REV 00

REV	DATE	ALTERED :
01		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. :AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID290X45
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

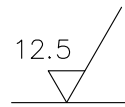
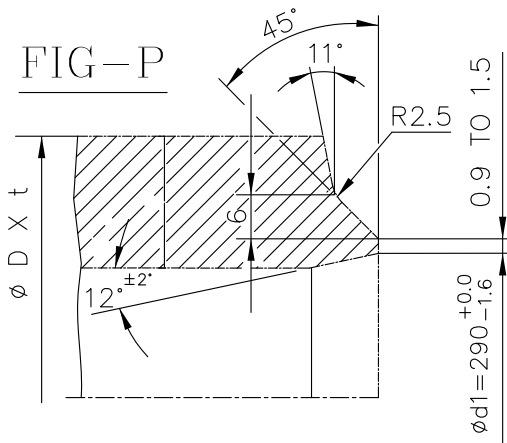
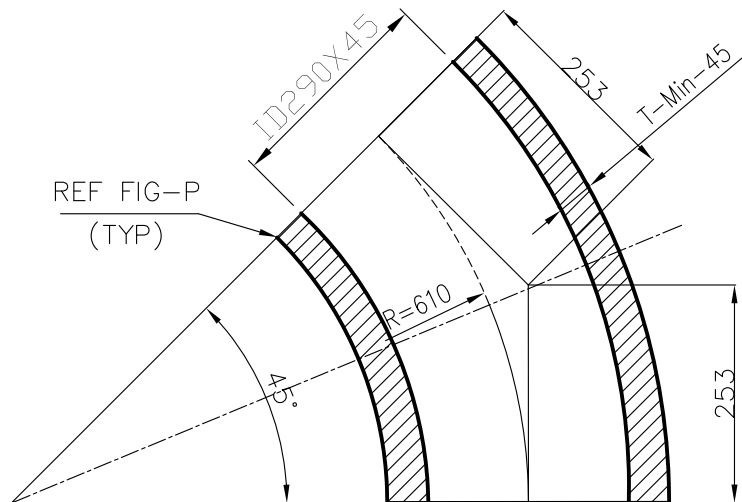


FIG-P



REF FIG-P
(TYP)



—	BW LR 45DEG ELBOW ID290 X 45	925240110000	A	178	012
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WT. (KG)
			MATERIAL SPECN	UNIT	QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	178.012	—
TITLE	BW LR 45DEG ELBOW ID290 X 45				DRAWING NO : 4-80-423-82036
					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. :AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID290 X 45
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

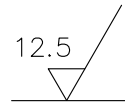
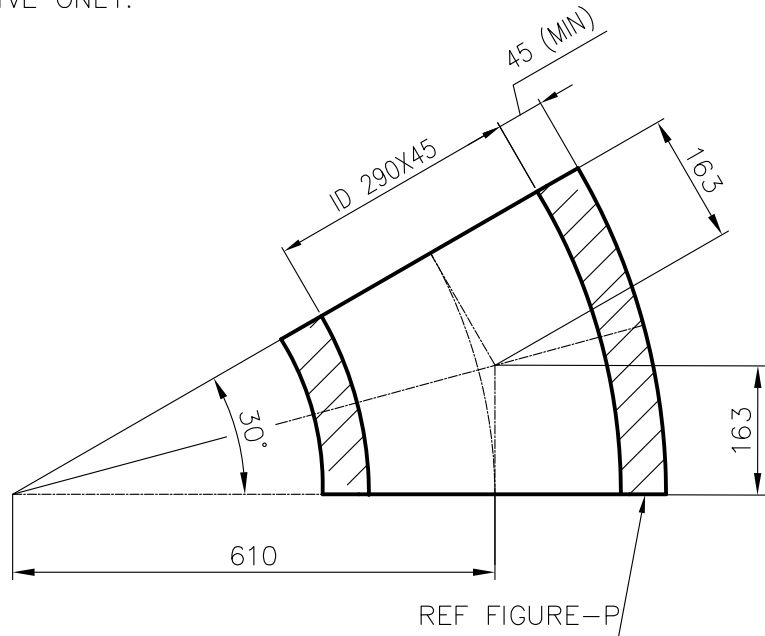
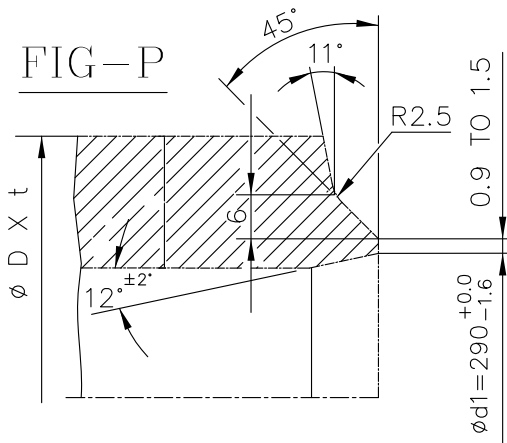


FIG-P



—	BW LR 30DEG ELBOW ID290 X 45	925240120000	A	118	675
		SA 234 WPC			1
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	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

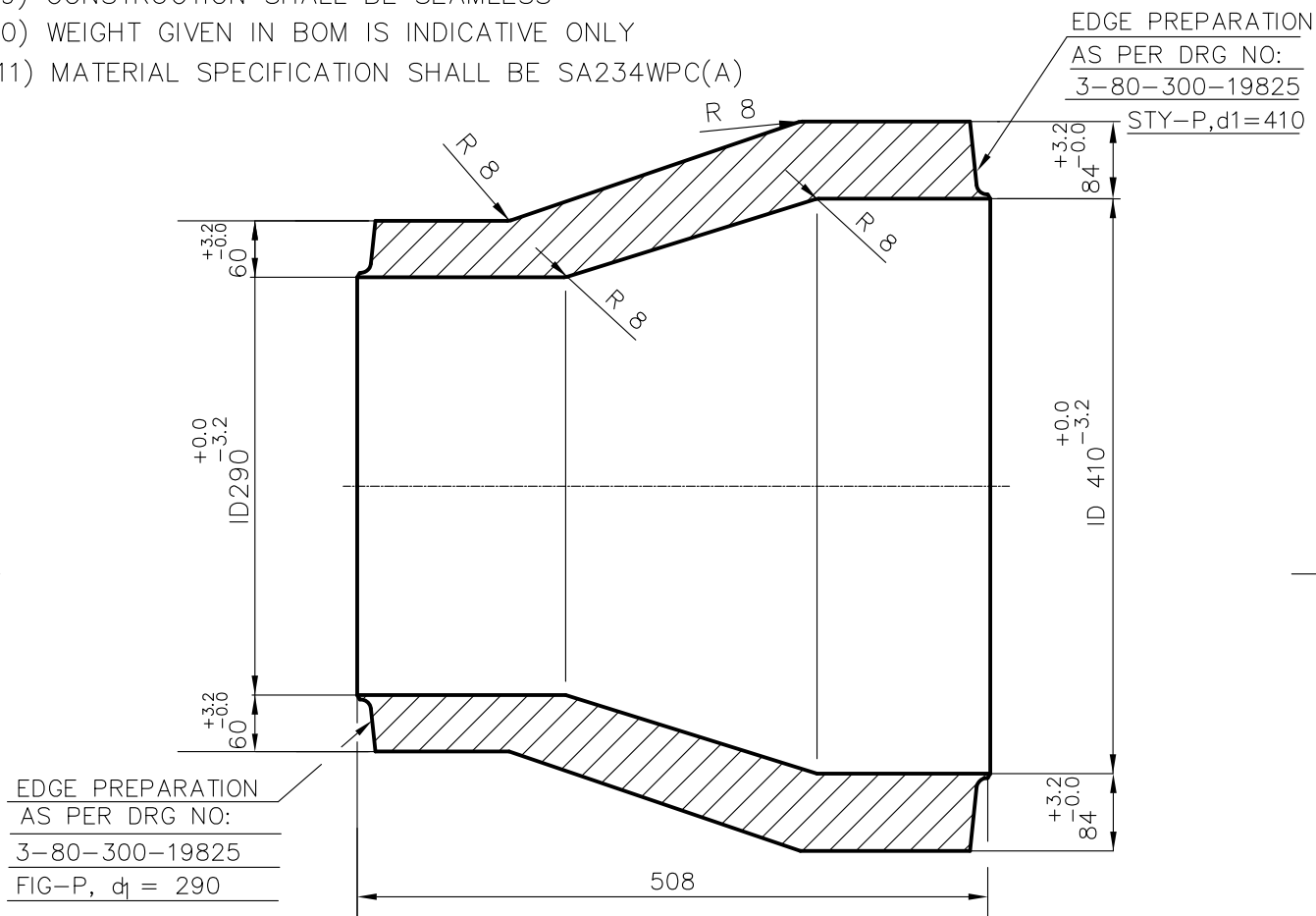
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	118.675	—
TITLE	BW LR 30DEG ELBOW ID290 X 45				DRAWING NO : 4-80-423-82037
					REV 00

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NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 450 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE -ID410X84/ID290X60
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)



	BW CONCENTRIC REDUCER ID410X84/ID290X60	92 117 271 0000 SA 234 WPC	A	443 000
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT.WT.(Kg)
		MATL. SPECN.	C	QTY.

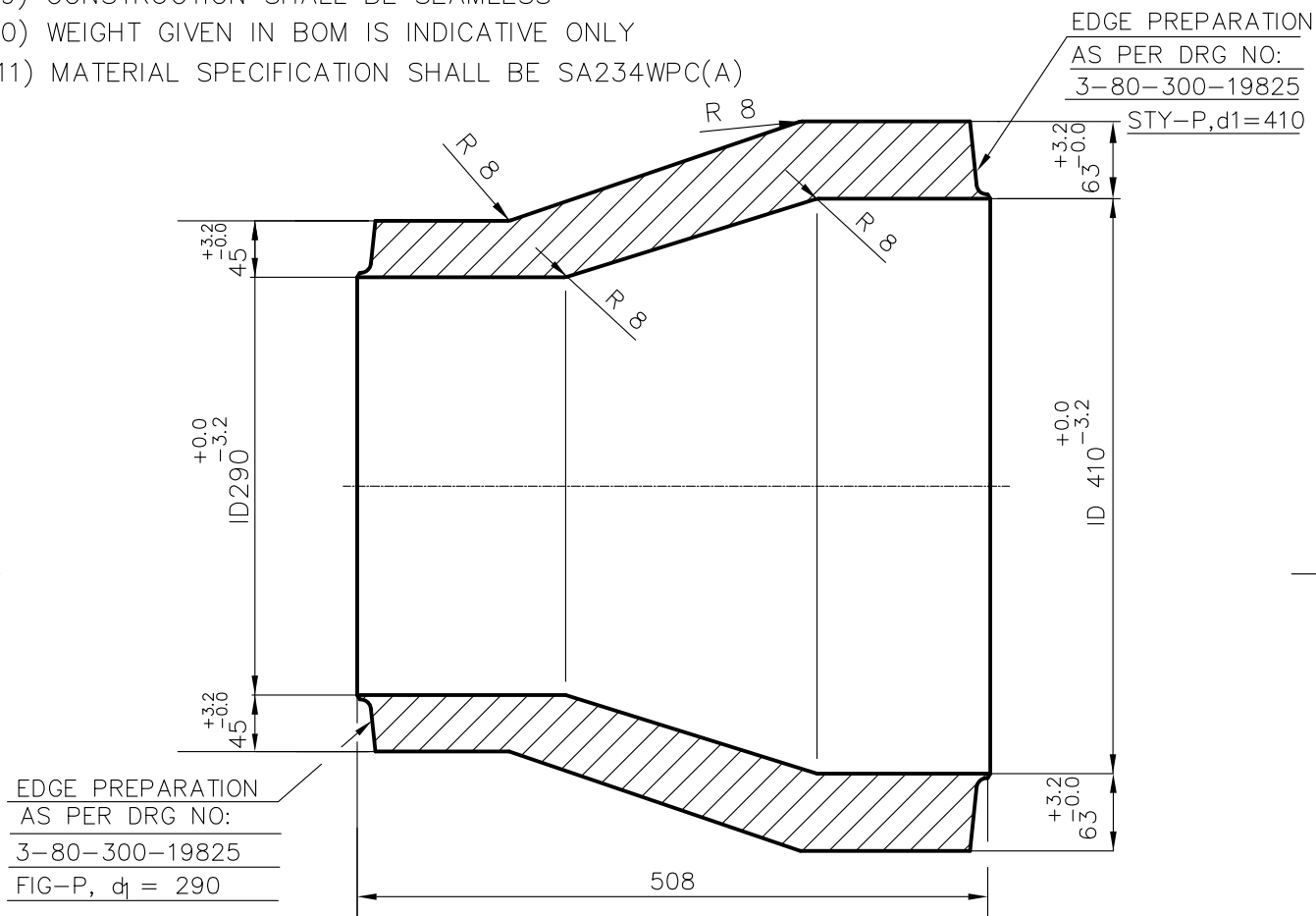
		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18	
					R SESHAGIRI		26.03.18	
DEPT	GRADE OF	SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF
CODE	UNTOL.DIM	N.T.S	443.000					ITEMS
C / M / F								
TITLE				CARD	DRAWING NO.			REV
BW CONCENTRIC REDUCER				CODE	4-80-423-82056			00
ID410X84/ID290X60 (SA234WPC)				U 01				

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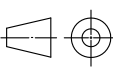
NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 350 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE -ID410X63/ID290X45
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)



	BW CONCENTRIC REDUCER ID410X63/ID290X45	92 527 008 0000	A		319 000	
VAR NO.	DESCRIPTION	STD	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
						QTY.
				C	DI	

		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18	
					R SESHAGIRI		26.03.18	
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	319.000				
TITLE			CARD CODE	DRAWING NO.		REV		
BW CONCENTRIC REDUCER			U 01	4-80-423-82057		00		
ID410X63/ID290X45 (SA234WPC)								

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.

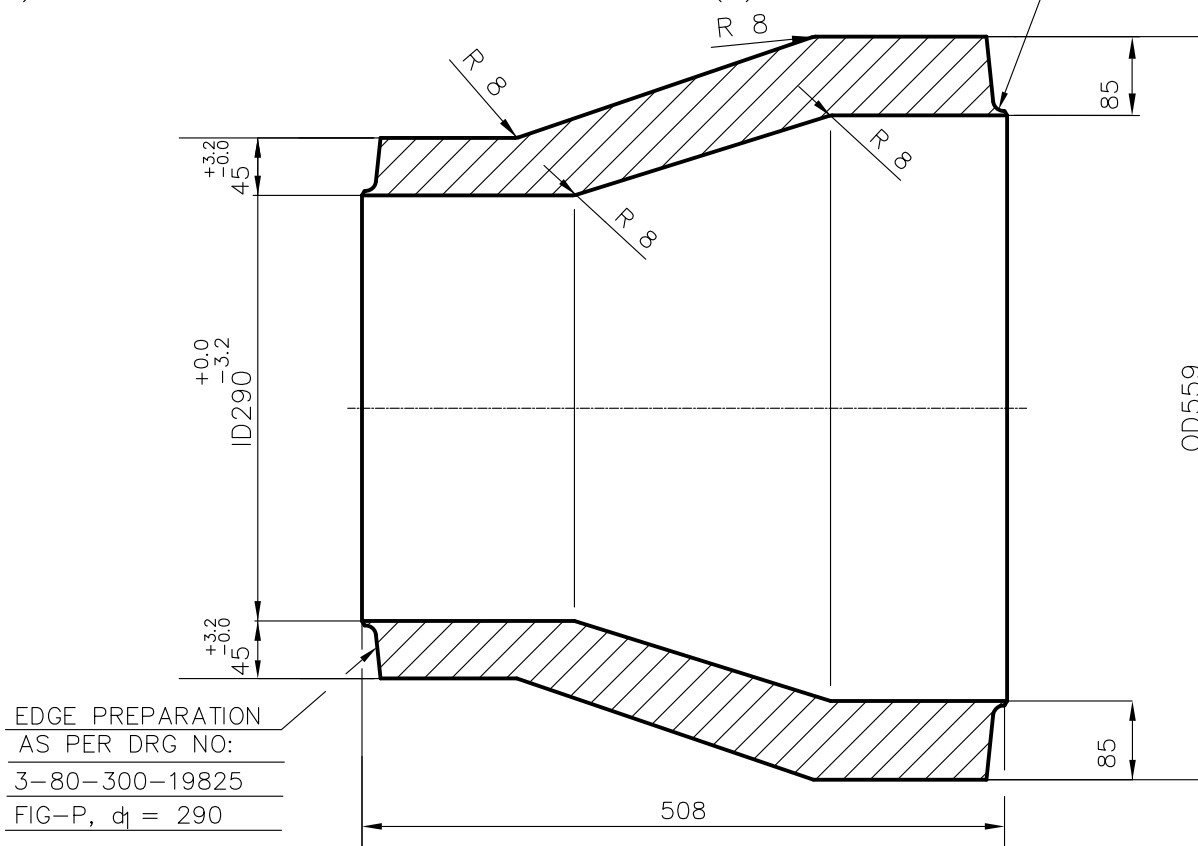
NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

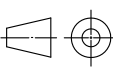
- 1) DESIGN PRESSURE : 350 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE –OD559X85/ID290X45
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)



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



	BW CONCENTRIC REDUCER ID389X85/ID290X45	92 117 274 0000 SA 234 WPC	A	422 000
VAR NO.	DESCRIPTION	STD	MATL. CODE MATL. SPECN.	UNIT DI
				UNIT.WT.(Kg) QTY.

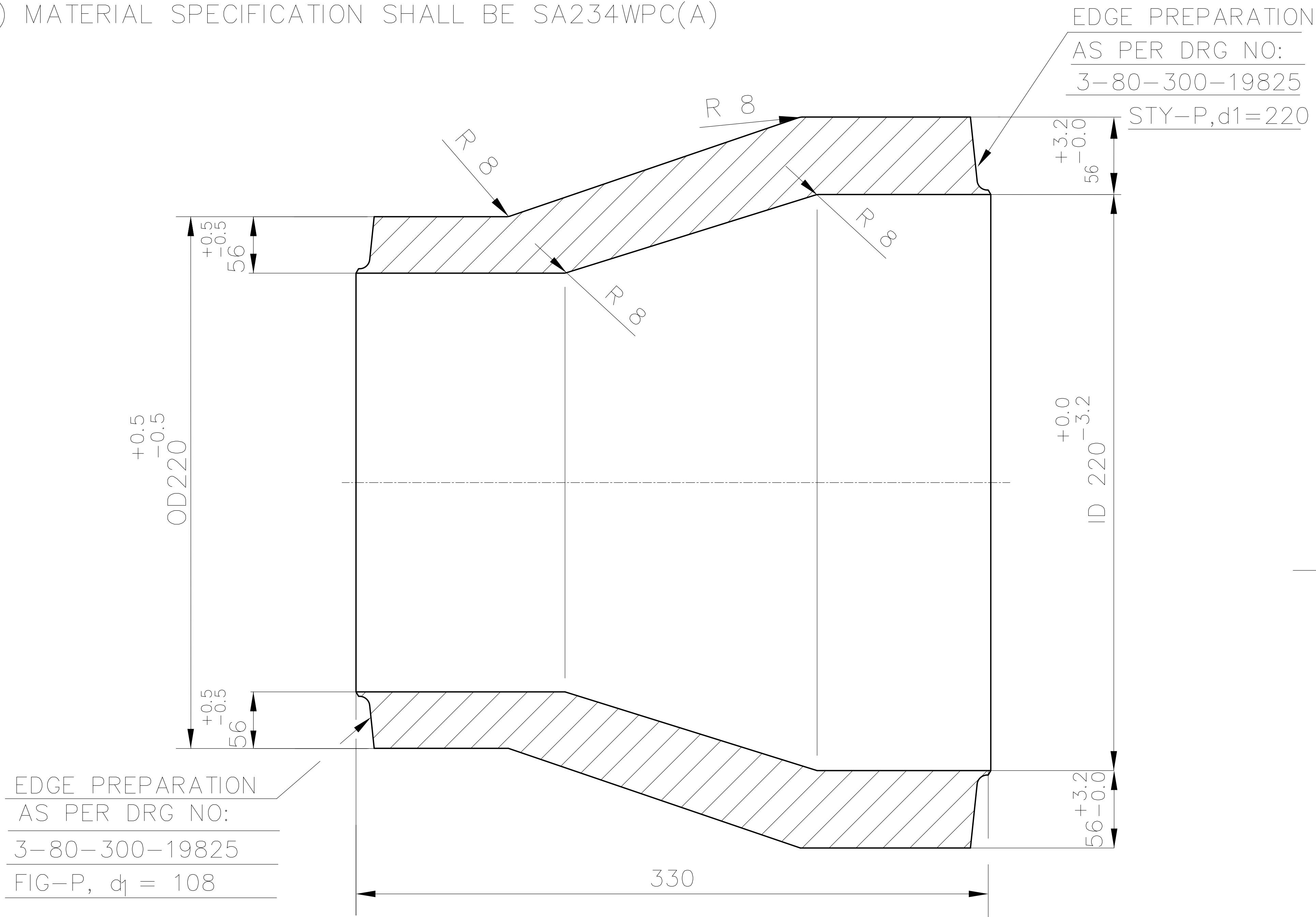
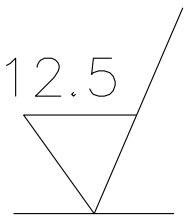
		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF	
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR	
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18		
					R SESHAGIRI		26.03.18		
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	422.000					
TITLE				CARD CODE	DRAWING NO.				REV
BW CONCENTRIC REDUCER				U 01	4-80-423-82058				00
OD559X85/ID290X45 (SA234WPC)									

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NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 525 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONSTRUCTION SHALL BE SEAMLESS
- 9) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 10) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)



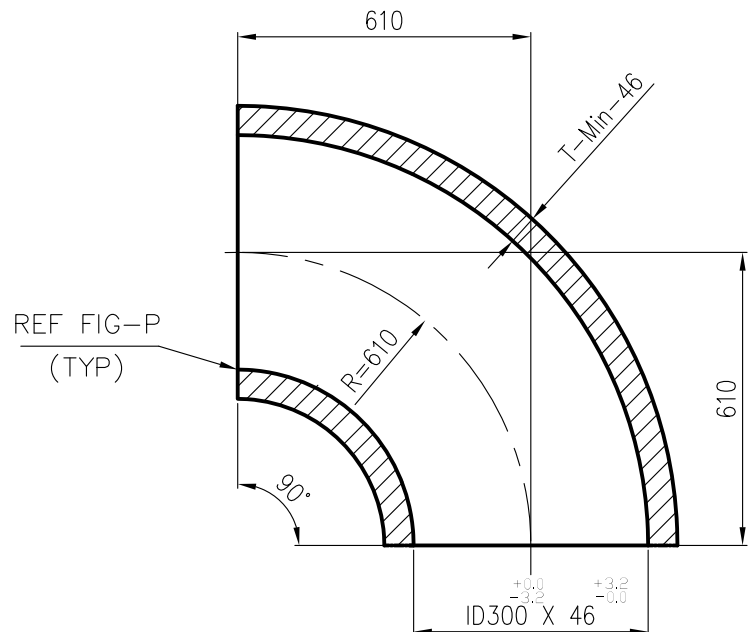
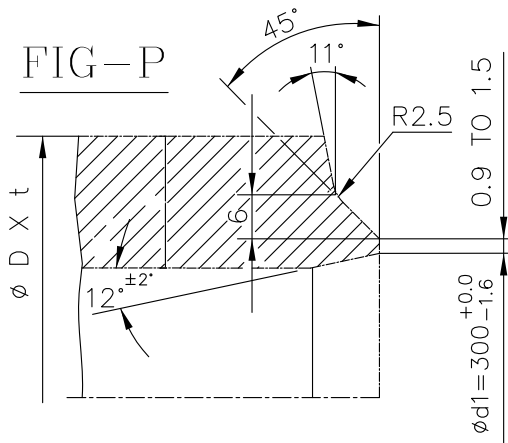
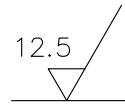
	BW MATCHING REDUCER ID220X56/OD220X56		92 117 277 0000	A		101	609
			SA 234 WPC				
VAR NO.	DESCRIPTION	STD	MATL. CODE	A C	UNIT DI	UNIT.WT.(Kg)	
			MATL. SPECN.			QTY.	

बी एच ई एल BHEL BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017				DRN	NAME	SIGN	DATE	NO.OF VAR	
				CHD	P SURESH		13.04.18		
				APPD	R SESHAGIRI		13.04.18		
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	101.609					
TITLE				CARD CODE	DRAWING NO.				REV
BW MATCHING REDUCER ID220X56/OD220X56				U 01	4-80-423-82085				00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 230 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID300X46
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 90DEG ELBOW ID300 X 46	925240140000 SA 234 WPC	A	375	885
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	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	375.885	—
TITLE					DRAWING NO : 4-80-424-82038
BW LR 90DEG ELBOW ID300 X 46					REV 00

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY
IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

CAUTION:

REV	DATE	ALTERED :
01		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 230 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. :AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID300 X 46
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

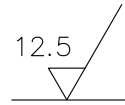
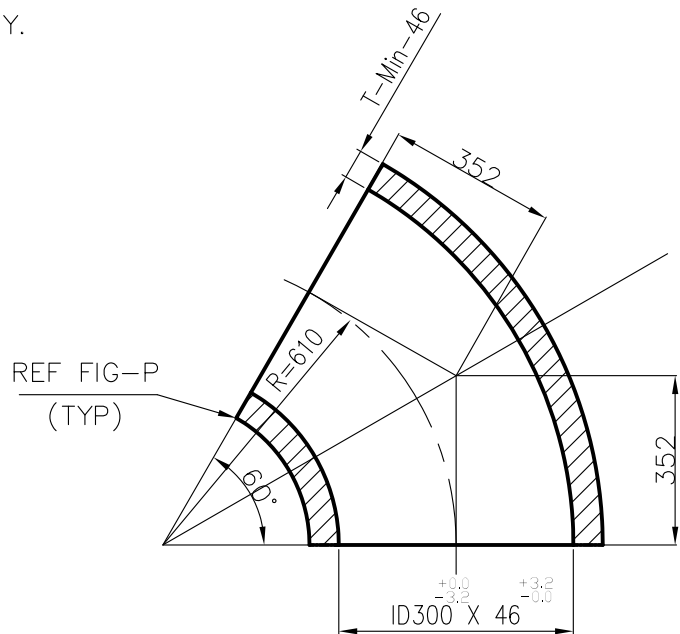
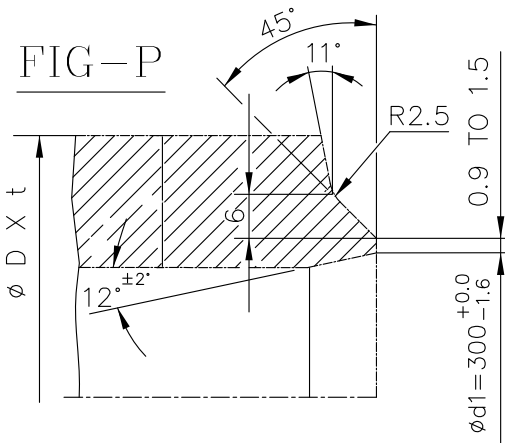


FIG-P



—	BW LR 60DEG ELBOW ID300 X 46		925042070000	A		250	590
			SA 234 WPC			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	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM		SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S	250.590	—	
TITLE					DRAWING NO :	REV
BW LR 60 DEG ELBOW ID300 X 46					4-80-424-82039	00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 230 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID300 X 46
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

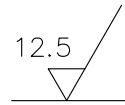
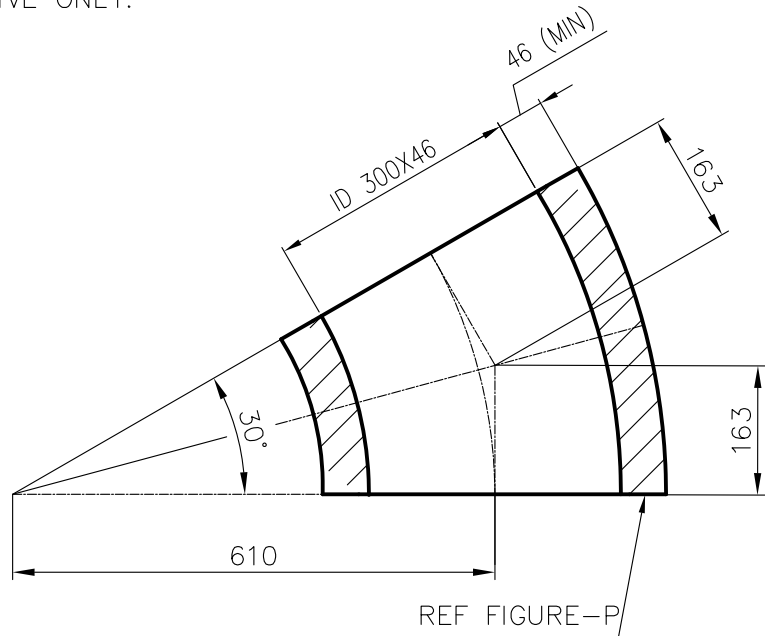
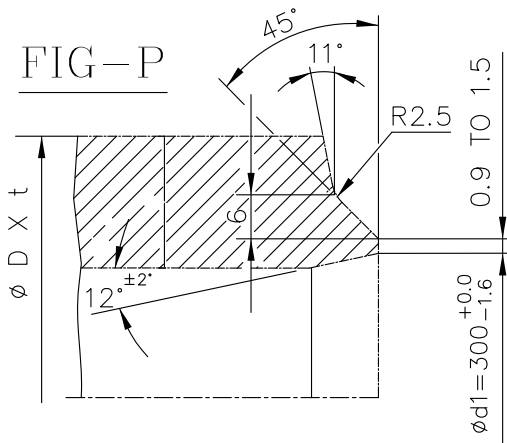


FIG-P



—	BW LR 30DEG ELBOW ID300 X 46	925042080000	A	125	295
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

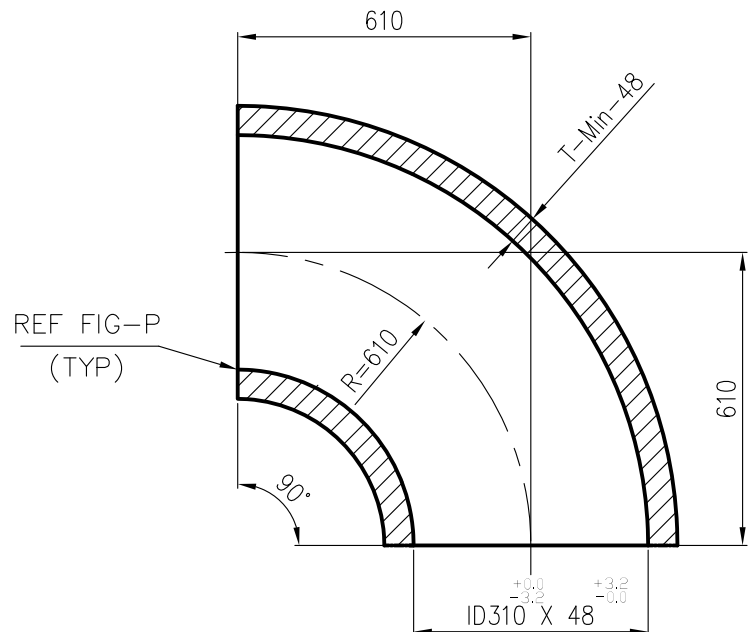
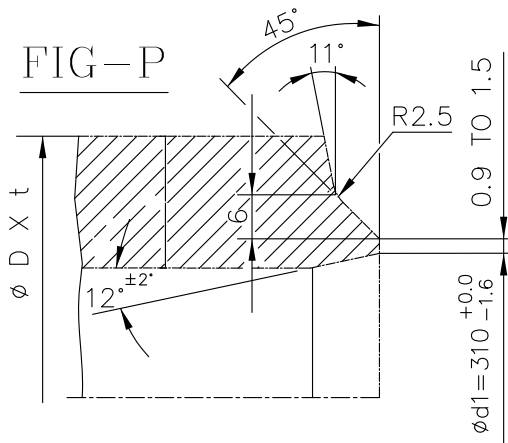
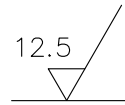
	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	125.295	—
TITLE	BW LR 30DEG ELBOW ID300 X 46				DRAWING NO : 4-80-424-82040
					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 280 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID310X48
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 90DEG ELBOW ID310 X 48	925042090000	A	405	831
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	405.831	—
TITLE	BW LR 90DEG ELBOW ID310 X 48				DRAWING NO : 4—80—424—82041
					REV 00

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY
IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

CAUTION:

REV	DATE	ALTERED :
01		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 280 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID310 X 48
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

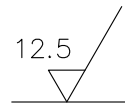
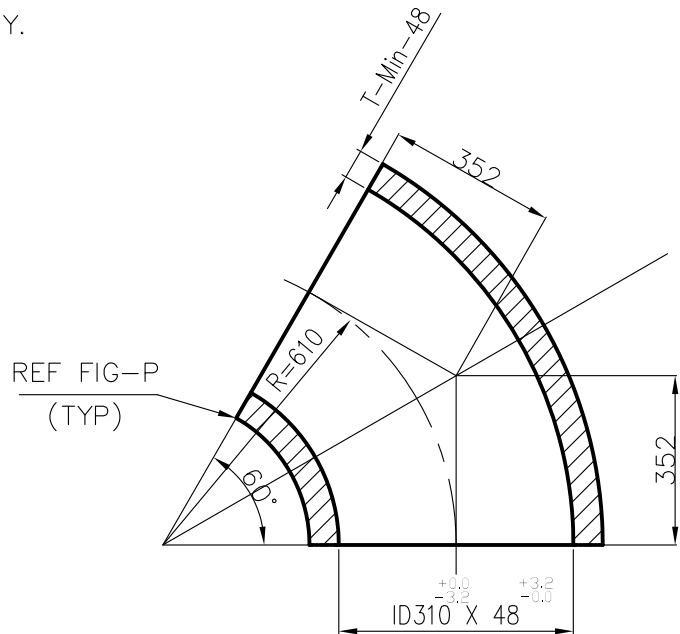
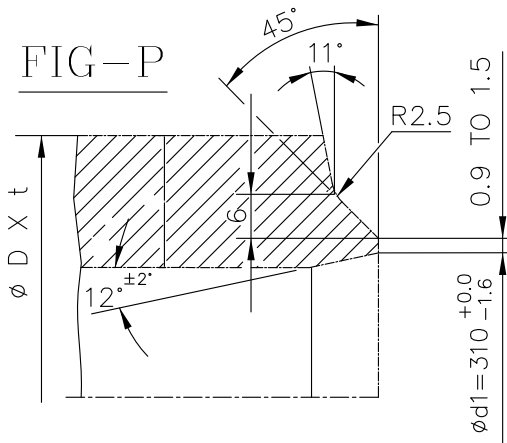


FIG-P



—	BW LR 60DEG ELBOW ID310 X 48	925042130000 SA 234 WPC	A	UNIT	270	554
					1	
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WT. (KG)	
			MATERIAL SPECN		QUANTITY	



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	270.554	—
TITLE					DRAWING NO : 4-80-424-82042
BW LR 60 DEG ELBOW ID310 X 48					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 280 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID310 X 48
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

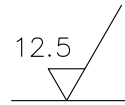
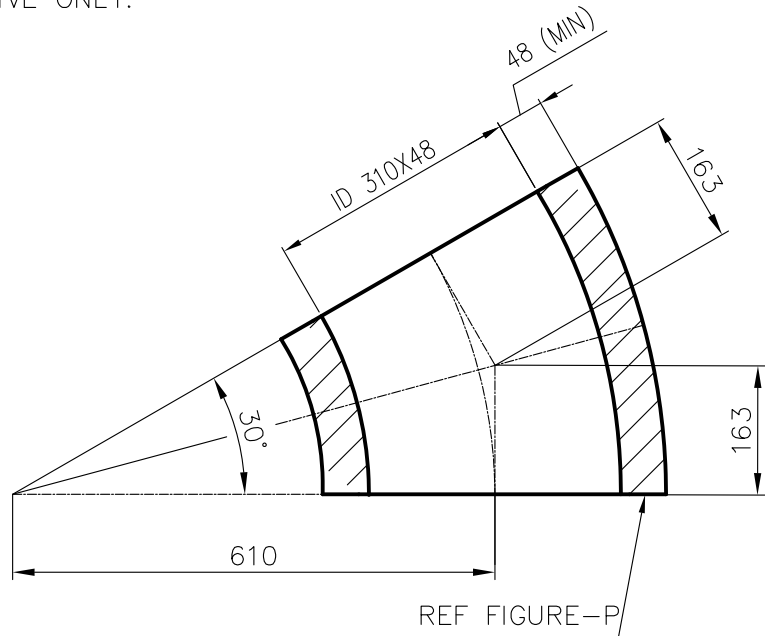
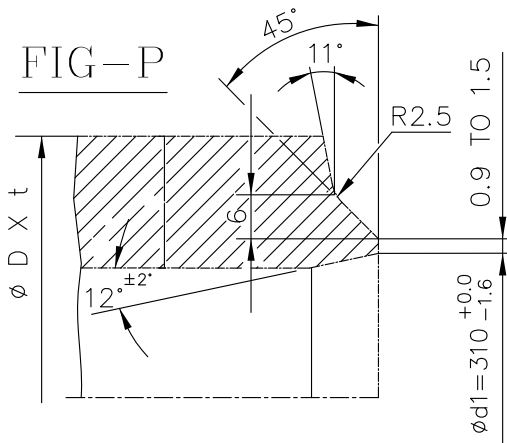


FIG-P



—	BW LR 30DEG ELBOW ID310 X 48	925042140000	A	135	277
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

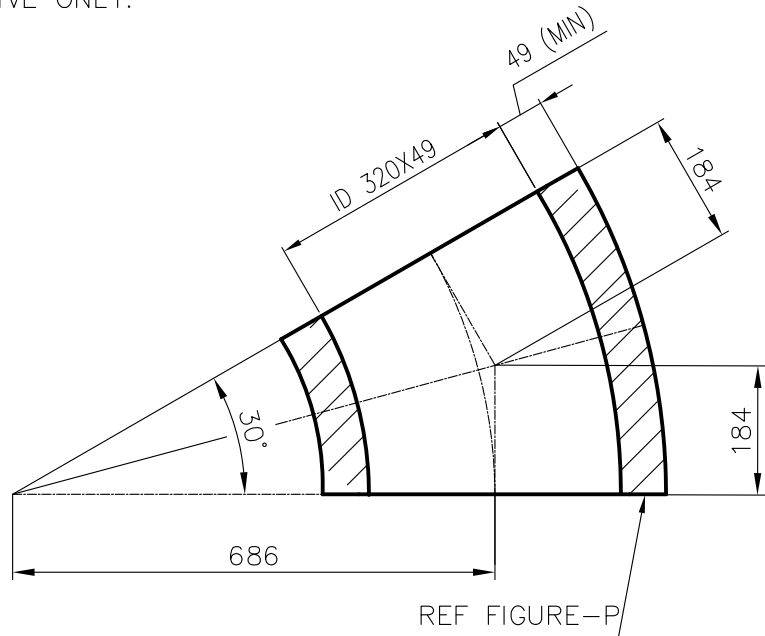
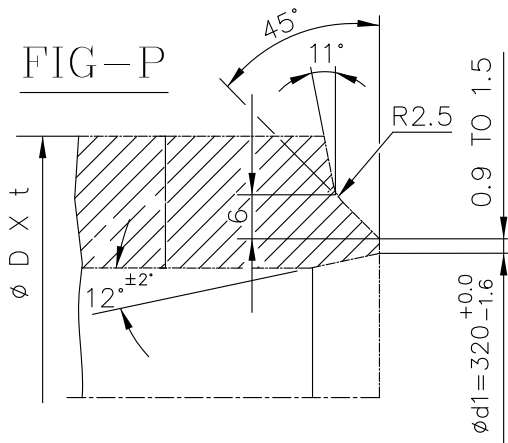
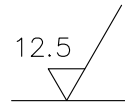
	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	135.277	—
TITLE	BW LR 30DEG ELBOW ID310 X 48				DRAWING NO : 4-80-424-82043
					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm²(g)
- 2) DESIGN TEMPERATURE : 300 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID320 X 49
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 30DEG ELBOW ID320 X 49	925240150000	A	160	073
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

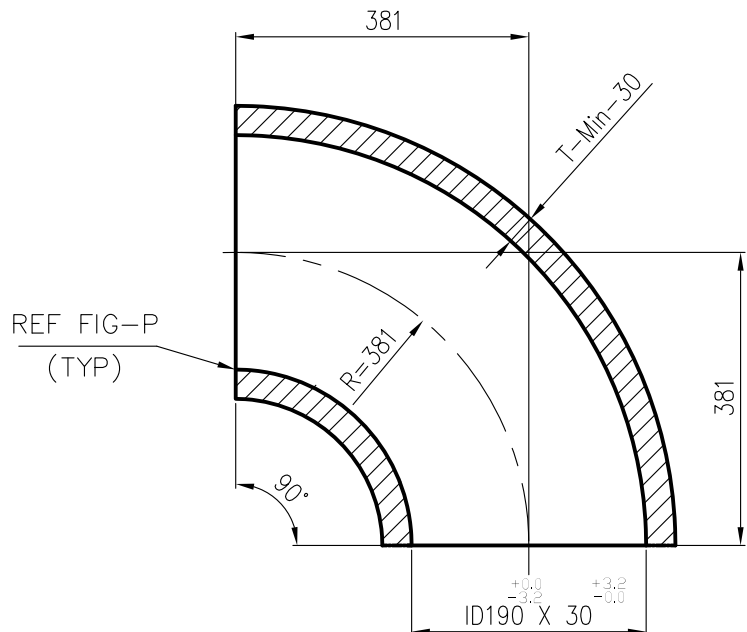
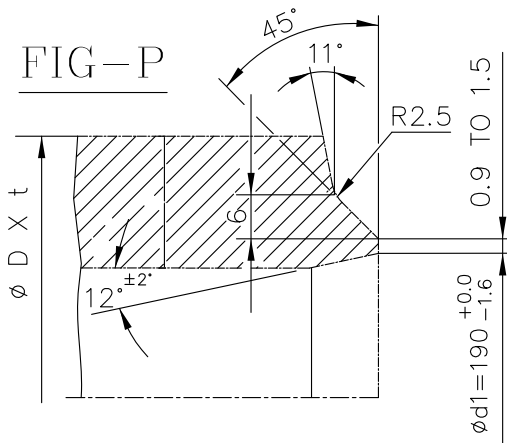
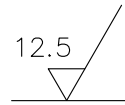
	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	160.073	—
TITLE	BW LR 30DEG ELBOW ID320 X 49				DRAWING NO : 4-80-424-82044
					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 300 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID190X30
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 90DEG ELBOW ID190 X 30	925240180000	A	95	356
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	97.356	—
TITLE	BW LR 90DEG ELBOW ID190 X 30				DRAWING NO : 4-80-424-82045
					REV 00

REV 01	DATE	ALTERED : CHD & APPD :
-----------	------	---------------------------

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 300 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID190 X 30
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.

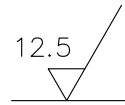
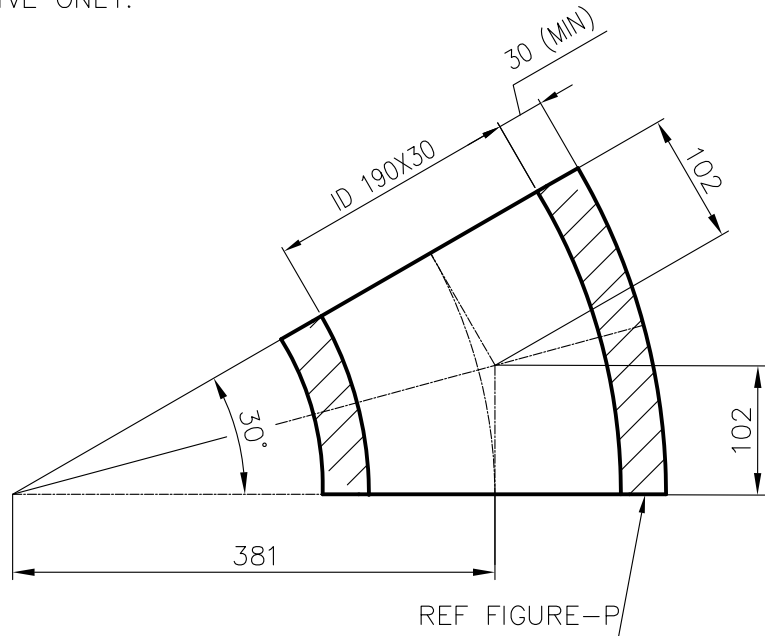
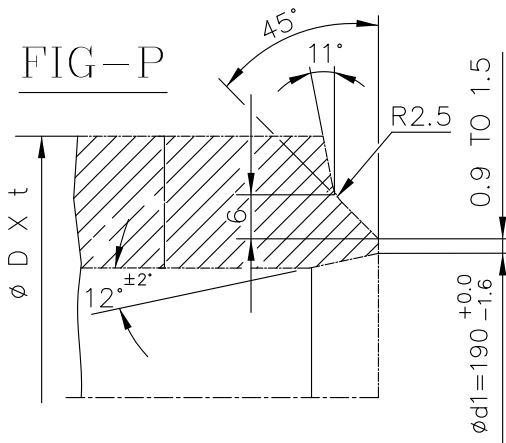


FIG-P



—	BW LR 30DEG ELBOW ID190 X 30	925240190000	A	32	452
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

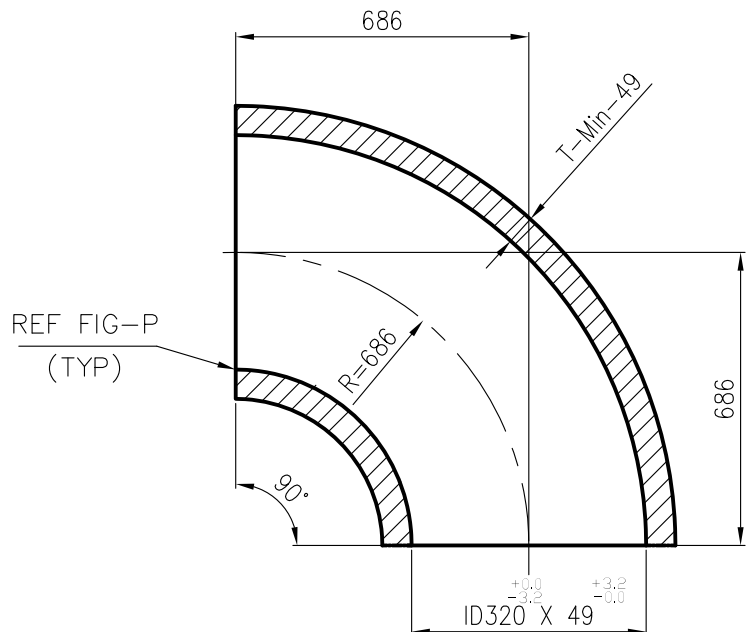
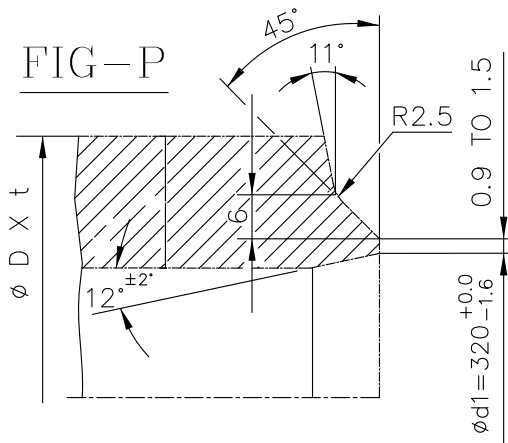
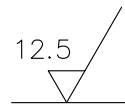
	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	32.452	—
TITLE	BW LR 30DEG ELBOW ID190 X 30				DRAWING NO : 4-80-424-82046
					REV 00

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 310 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID320X49
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



—	BW LR 90DEG ELBOW ID320 X 49	925042150000 SA 234 WPC	A	UNIT	480	217
					1	
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WT. (KG)	
					QUANTITY	



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

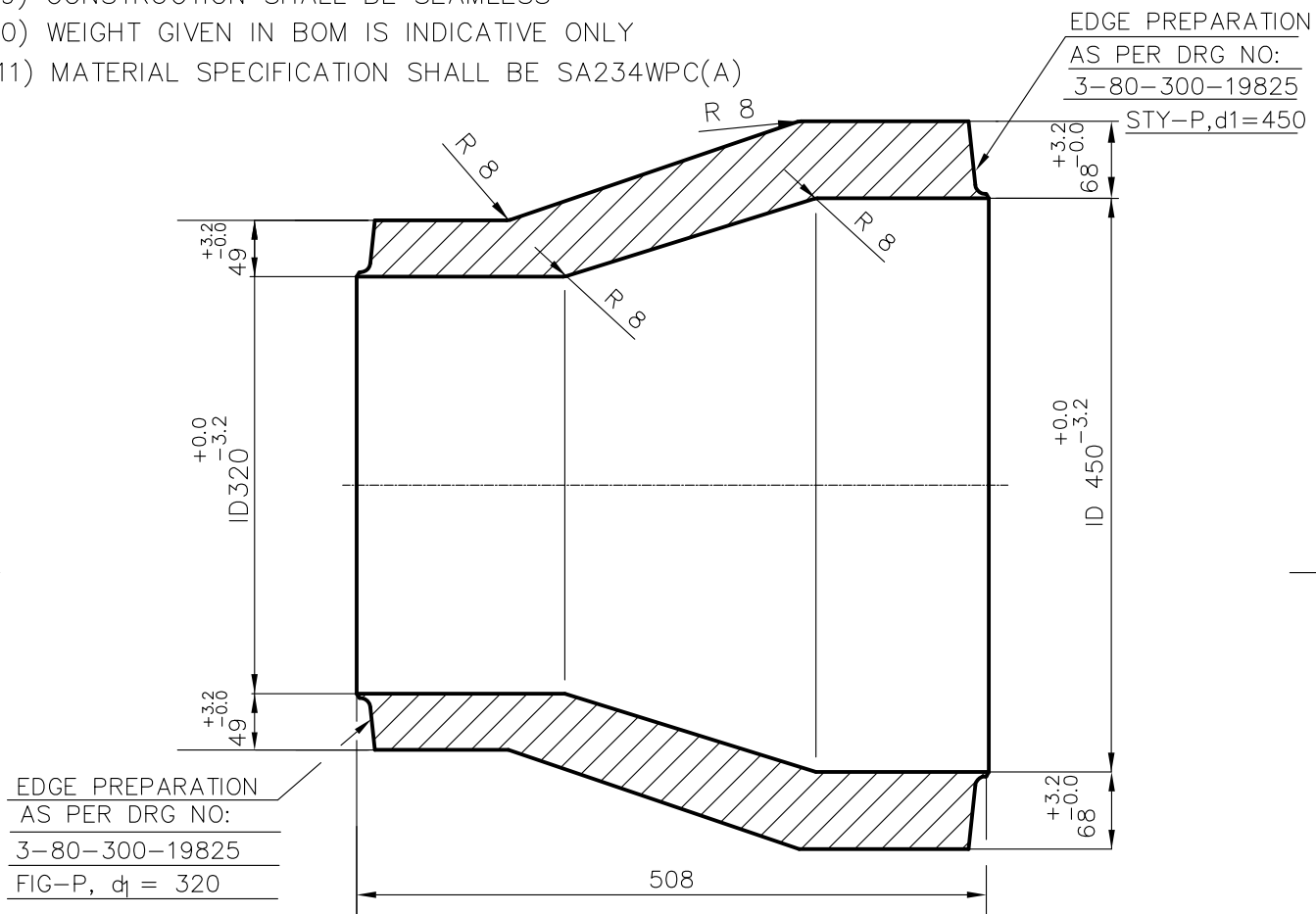
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	480.217	—
TITLE					DRAWING NO : 4-80-424-82047
BW LR 90DEG ELBOW ID320 X 49					REV 00

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NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 350 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 310 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE –ID450X68/ID320X49
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)



	BW CONCENTRIC REDUCER ID450X68/ID320X49		92 117 272 0000	A		379	000
			SA 234 WPC				
VAR NO.	DESCRIPTION	STD	MATL. CODE	A	UNIT	UNIT.WT.(Kg)	
			MATL. SPECN.			DI	QTY.

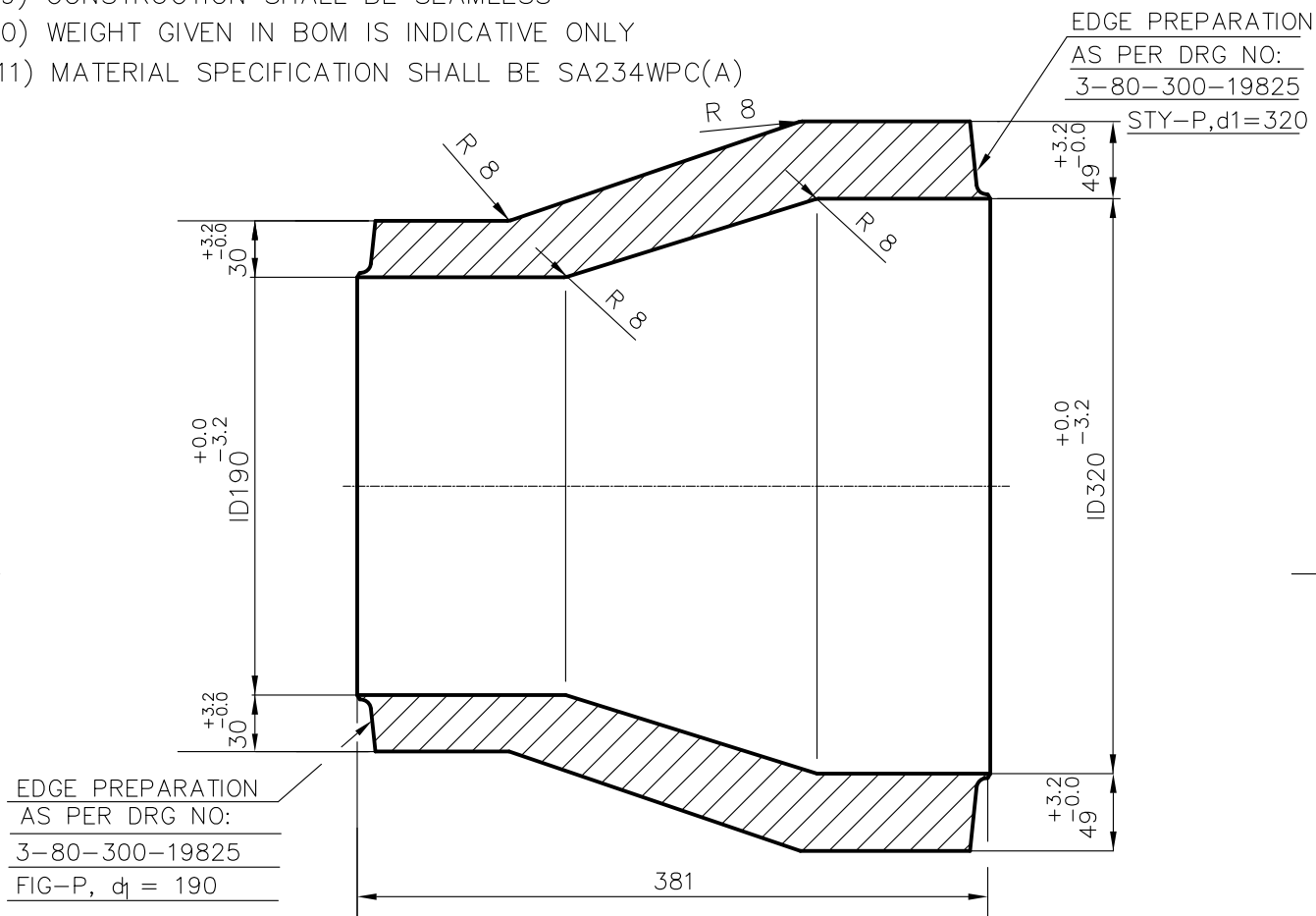
		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18	
					R SESHAGIRI		26.03.18	
DEPT	GRADE OF		SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF
CODE	UNTOL.DIM		N.T.S	379.000			ITEMS	
C / M / F								
TITLE				CARD	DRAWING NO.		REV	
BW CONCENTRIC REDUCER				CODE	4-80-424-82059		00	
ID450X68/ID320X49 (SA234WPC)				U 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.

NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 350 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 300 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE -ID320X49/ID190X30
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)



	BW CONCENTRIC REDUCER ID320X49/ID190X30	92 117 273 0000	A	137 000
VAR NO.	DESCRIPTION	STD	MATL. CODE	UNIT.WT.(Kg)
			MATL. SPECN.	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18	
					R SESHAGIRI		26.03.18	
DEPT	GRADE OF		SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF
CODE	UNTOL.DIM		N.T.S	137.000				
C / M / F								
TITLE				CARD	DRAWING NO.			REV
BW CONCENTRIC REDUCER				CODE	4-80-424-82060			00
ID320X49/ID190X30 (SA234WPC)				U 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.

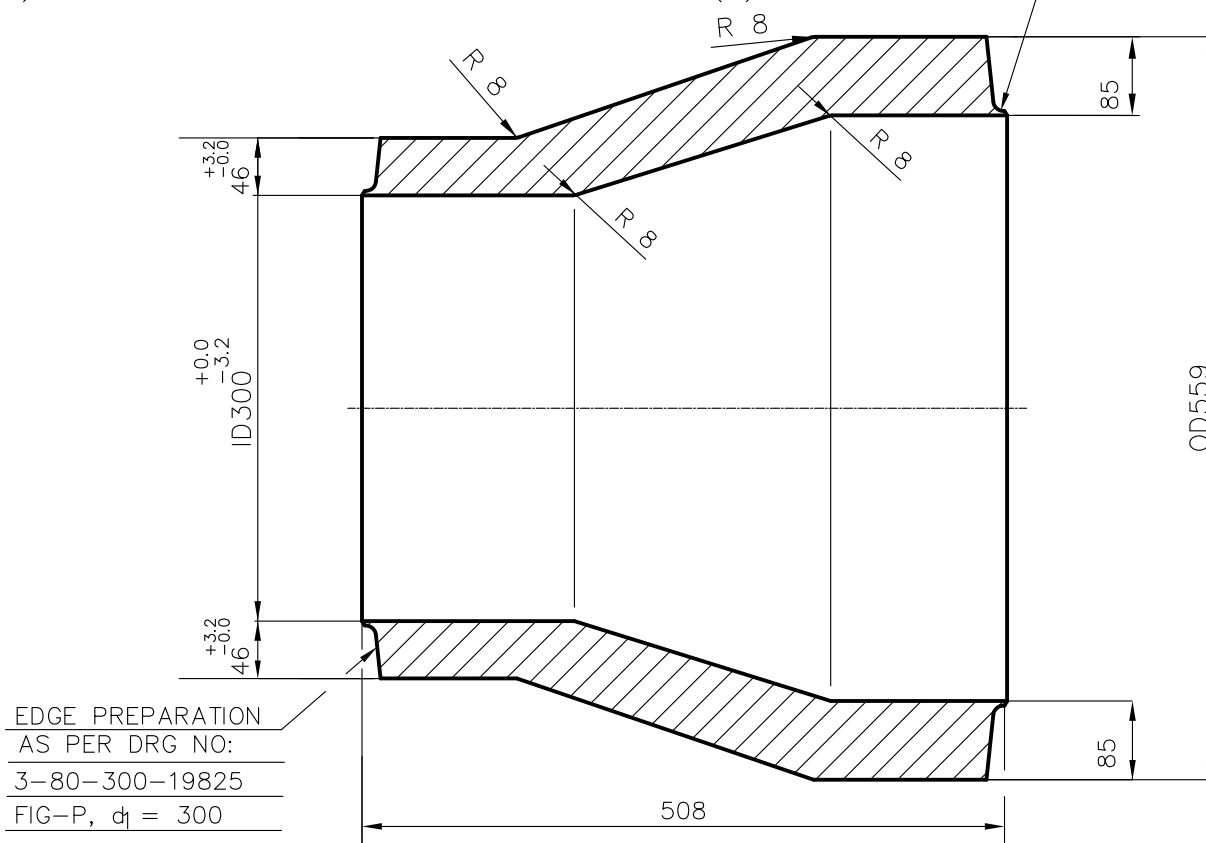
NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 350 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 230 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE –OD559X85/ID300X46
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)

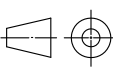


EDGE PREPARATION
AS PER DRG NO:
3-80-300-19825
STY-P,d1=400



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

	BW CONCENTRIC REDUCER ID389X85/ID300X46		92 117 275 0000	A		427	000
			SA 234 WPC				
VAR NO.	DESCRIPTION	STD	MATL. CODE	A	UNIT	UNIT.WT.(Kg)	
			MATL. SPECN.	C		DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF	
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR	
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18		
					R SESHAGIRI		26.03.18		
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	427.000					
TITLE				CARD CODE	DRAWING NO.				REV
BW CONCENTRIC REDUCER				U 01	4-80-424-82061				00
OD559X85/ID300X46 (SA234WPC)									

Size A4

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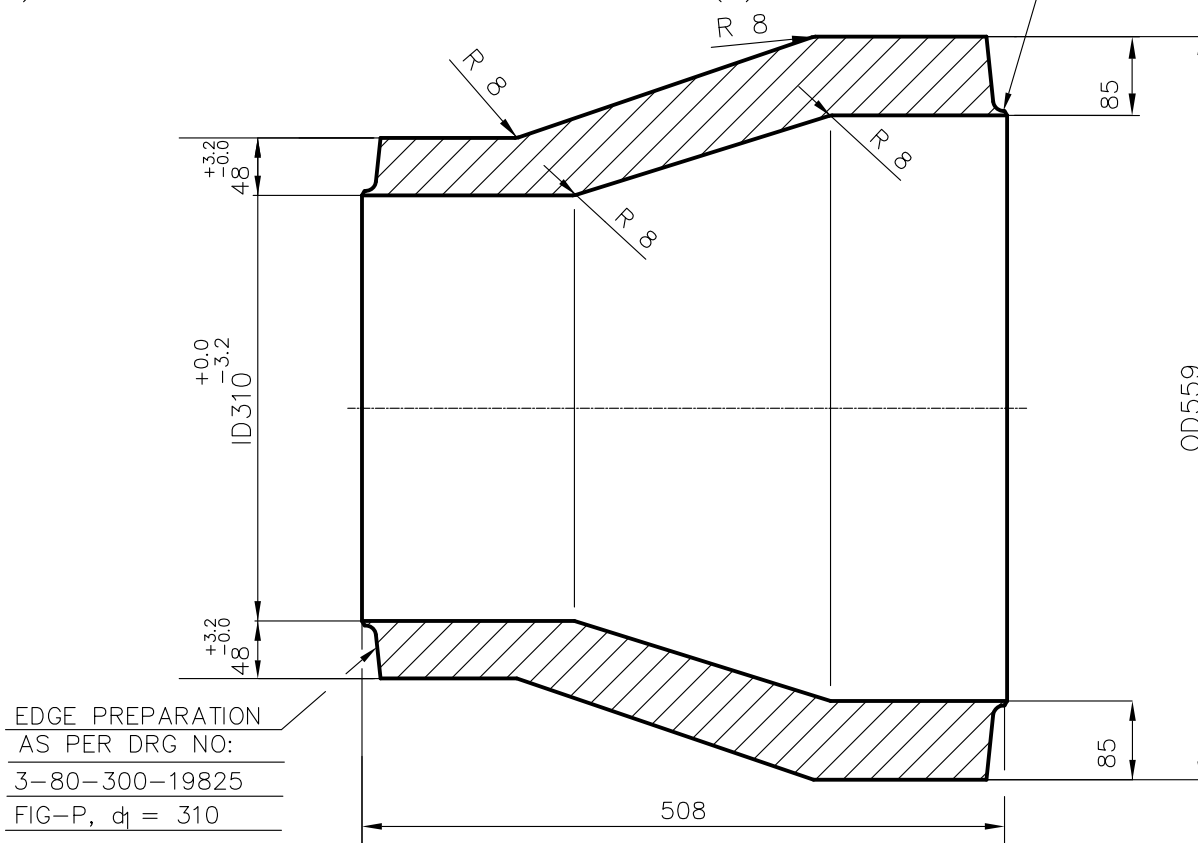
NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 350 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 280 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE -OD559X85/ID310X48
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)



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



EDGE PREPARATION
AS PER DRG NO:
3-80-300-19825
FIG-P, d1 = 310

	BW CONCENTRIC REDUCER ID389X85/ID310X48	92 117 276 0000	A		432 000	
VAR NO.	DESCRIPTION	STD	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
						QTY.

		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF	
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR	
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18		
					R SESHAGIRI		26.03.18		
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	432.000					
TITLE				CARD CODE	DRAWING NO.				REV
BW CONCENTRIC REDUCER				U 01	4-80-424-82062				00
OD559X85/ID310X48 (SA234WPC)									

Size A4

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NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 350 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 300 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE -OD559X85/ID320X49
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)

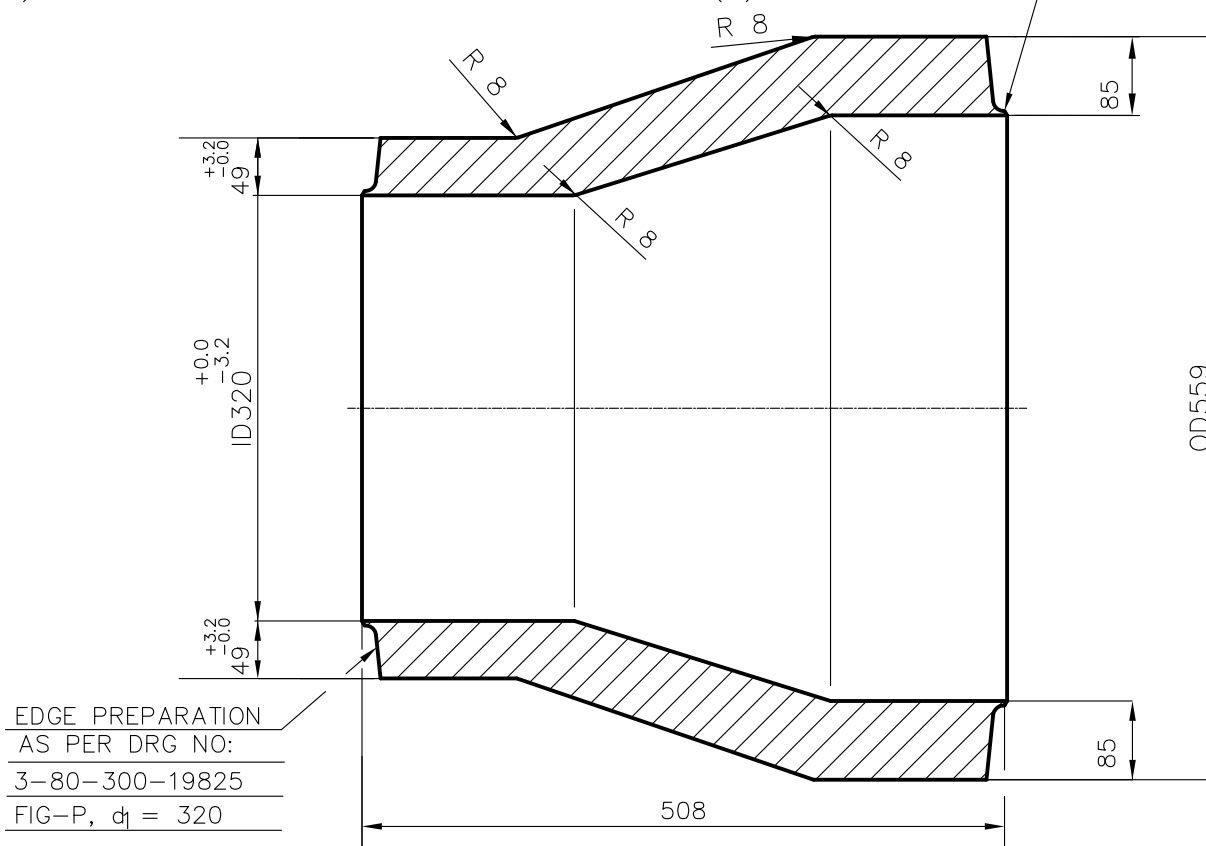


EDGE PREPARATION

AS PER DRG NO:

3-80-300-19825

STY-P,d1=400



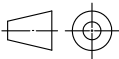
EDGE PREPARATION

AS PER DRG NO:

3-80-300-19825

FIG-P, d1 = 320

	BW CONCENTRIC REDUCER ID389X85/ID320X49	92 527 009 0000	A		438 000	
VAR NO.	DESCRIPTION	STD	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
						QTY.

		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF	
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR	
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18		
					R SESHAGIRI		26.03.18		
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	438.000					
TITLE				CARD CODE	DRAWING NO.				REV
BW CONCENTRIC REDUCER				U 01	4-80-424-82063				00
OD559X85/ID320X49 (SA234WPC)									

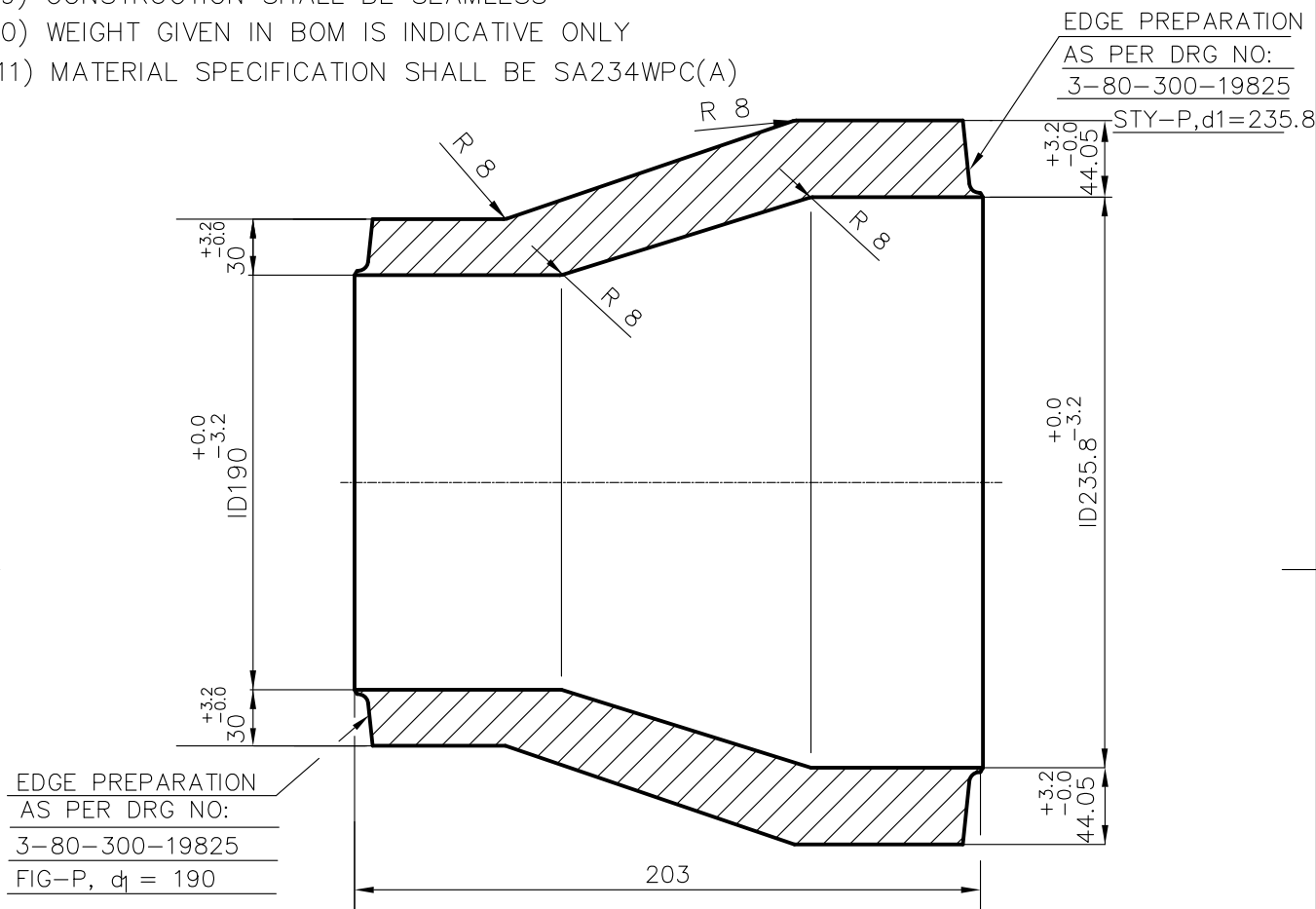
Size A4

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.

NOTES :-

ALL DIMENSIONS ARE IN MILLIMETRES

- 1) DESIGN PRESSURE : 350 kg/cm²(g)
- 2) DESIGN TEMPERATURE : 300 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN,MANUFACTURING,INSPECTION & TESTING SHALL BE AS PER IBR ANSI B16.9 & SA234
- 7) DIMENSIONS & TOLERANCES ARE AS PER THE DRAWING
- 8) CONNECTING PIPE SIZE –OD323.9X44.05/ID190X30
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY
- 11) MATERIAL SPECIFICATION SHALL BE SA234WPC(A)



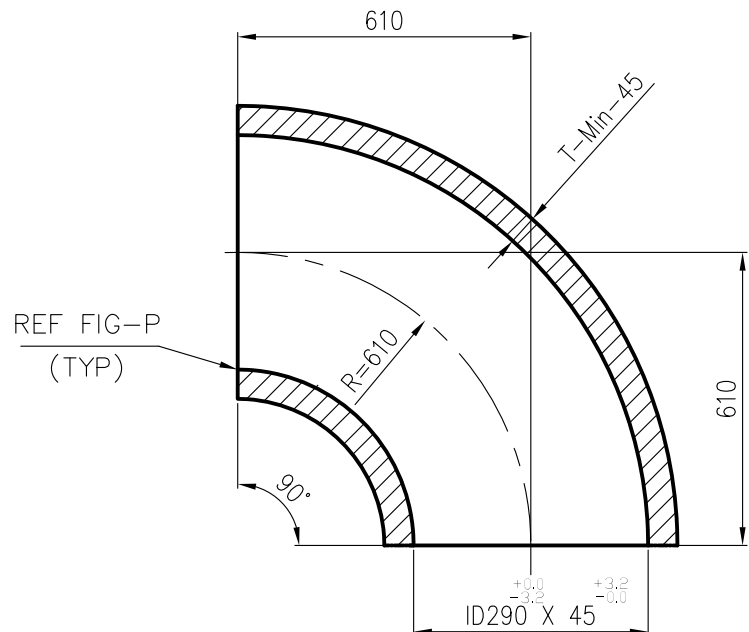
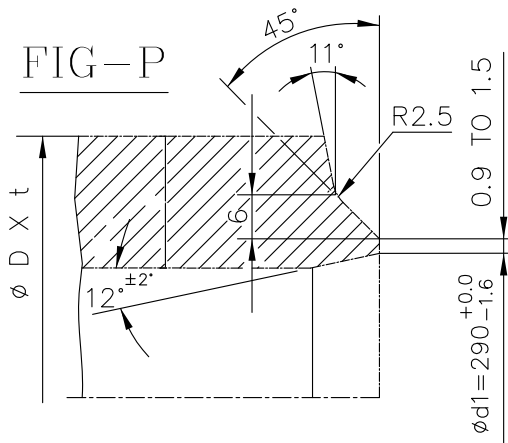
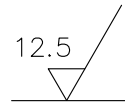
	BW CONCENTRIC REDUCER ID235.8X44.05/ID190X30		92 527 010 0000	A		55	000
			SA 234 WPC				
VAR NO.	DESCRIPTION	STD	MATL. CODE	A	UNIT	UNIT.WT.(Kg)	
			MATL. SPECN.			DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF
		PIPING CENTRE		CHD	R.BHARATH		26.03.18	VAR
		CHENNAI 600 017		APPD	I.BISWAS		26.03.18	
					R SESHAGIRI		26.03.18	
DEPT	GRADE OF		SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF
CODE	UNTOL.DIM		N.T.S	55.000				
C / M / F								
TITLE				CARD	DRAWING NO.			REV
BW CONCENTRIC REDUCER				CODE	4-80-424-82064			00
OD323.9X44.05/ID190X30 (SA234WPC)				U 01				

REV 01	DATE	ALTERED :
		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 350 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 200 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID290X45
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.



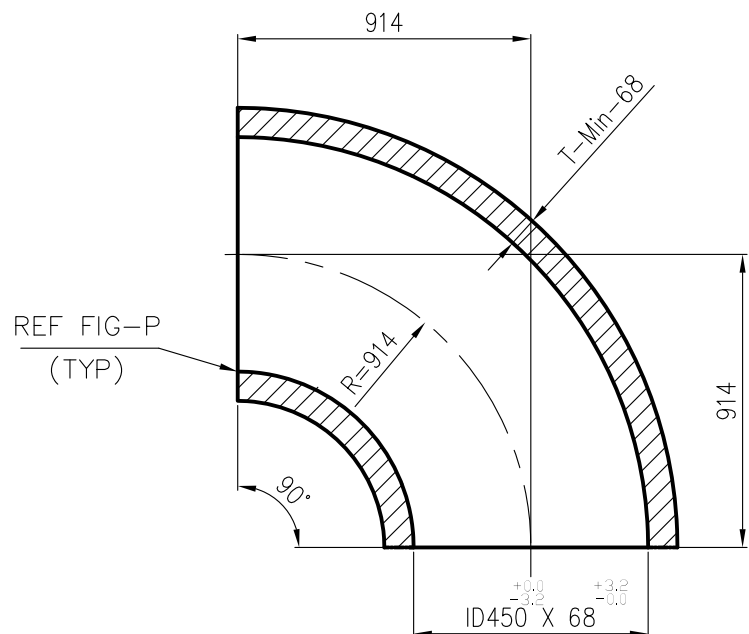
—	BW LR 90DEG ELBOW ID290 X 45	925042050000	A	356	023
		SA 234 WPC			1
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT
			MATERIAL SPECN		UNIT WT. (KG)
					QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	356.023	—
TITLE	BW LR 90DEG ELBOW ID290 X 45				DRAWING NO : 4-80-425-82048
					REV 00

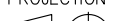


—	BW LR 90DEG ELBOW ID450 X 68		925240130000	A		1246	452
			SA 234 WPC			1	
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WT. (KG)	
			MATERIAL SPECN			QUANTITY	



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	R.BHARATH	—SD—	17.03.18
CHD	I.BISWAS	—SD—	17.03.18
APPD	R.SESHAGIRI	—SD—	17.03.18

DEPT	ALL DIMENSIONS ARE IN MM		SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	1246.452	—
TITLE BW LR 90DEG ELBOW ID450 X 68					DRAWING NO : 4-80-425-82049
					REV 00