

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  $\leq 30$  mm  
 04.  $\alpha = 10^\circ$  FOR WALL THICKNESS  $> 30$  mm

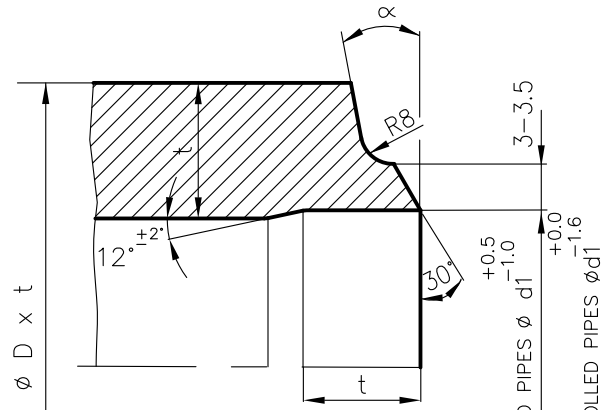


FIGURE - X

FOR OD PIPES  $\phi$  d1  
 FOR ID CONTROLLED PIPES  $\phi$ 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  $\leq 30$  mm  
 03.  $\alpha = 10^\circ$  FOR WALL THICKNESS  $> 30$  mm  
 04. t = THK OF CONNECTING PIPE (STRAIGHT)

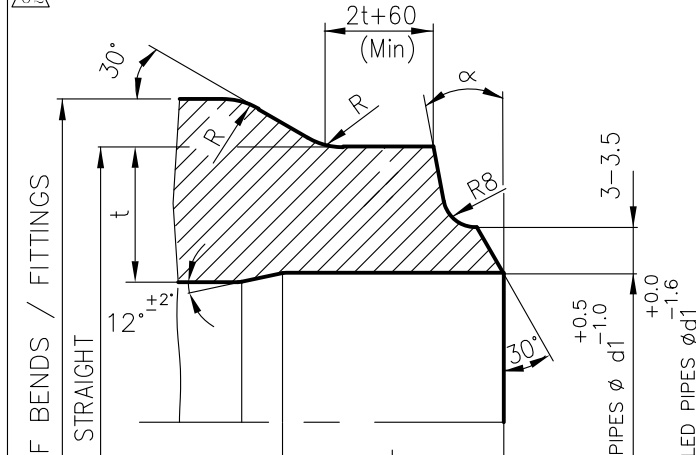


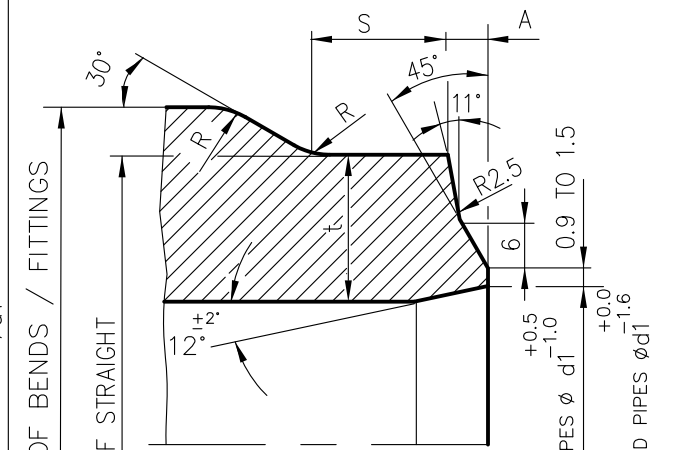
FIGURE - Xa

FOR OD PIPES  $\phi$  d1  
 FOR ID CONTROLLED PIPES  $\phi$ 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  $\phi$  d1  
 FOR ID CONTROLLED PIPES  $\phi$ 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)

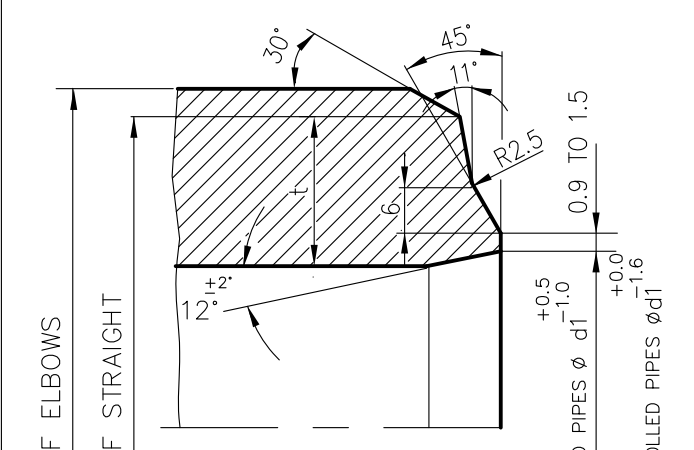


FIGURE - Z

FOR OD PIPES  $\phi$  d1  
 FOR ID CONTROLLED PIPES  $\phi$ d1

NOTES: -

**01. APPLICABLE FOR P91 PIPE BEND WELDED WITH P91 STRAIGHT PIPE FOR THICKNESS  $\leq 30$  mm AND OD  $\geq 558$  mm.**

02.  $\alpha = 6^\circ$  FOR WALL THICKNESS  $\leq 30$  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.

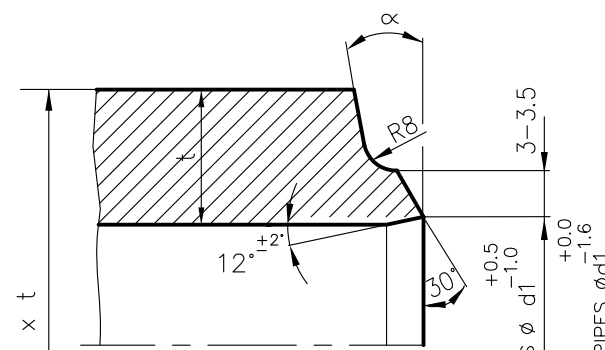


FIGURE - Xb  
(BEND END)

FOR OD PIPES  $\phi$  d1  
 FOR ID CONTROLLED PIPES  $\phi$ d1

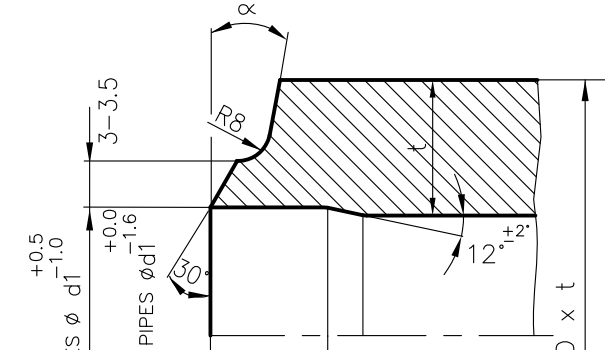
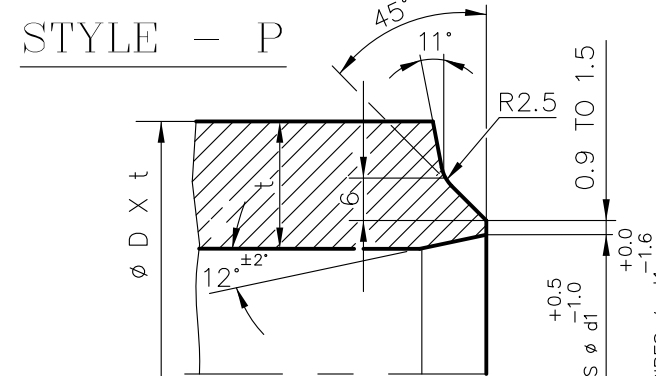


FIGURE - Xc  
(STRAIGHT END)

FOR OD PIPES  $\phi$  d1  
 FOR ID CONTROLLED PIPES  $\phi$ d1

STYLE - P



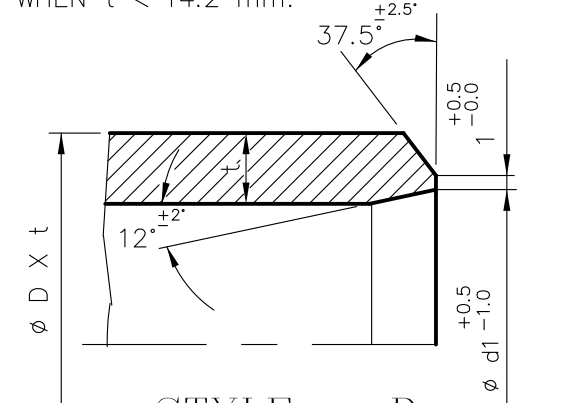
NOTES: -

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

FOR OD PIPES  $\phi$  d1  
 FOR ID CONTROLLED PIPES  $\phi$ d1

NOTES: -

01. USE WHEN  $t < 14.2$  mm.



STYLE - D

FOR OD PIPES  $\phi$  d1  
 FOR ID CONTROLLED PIPES  $\phi$ 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	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.

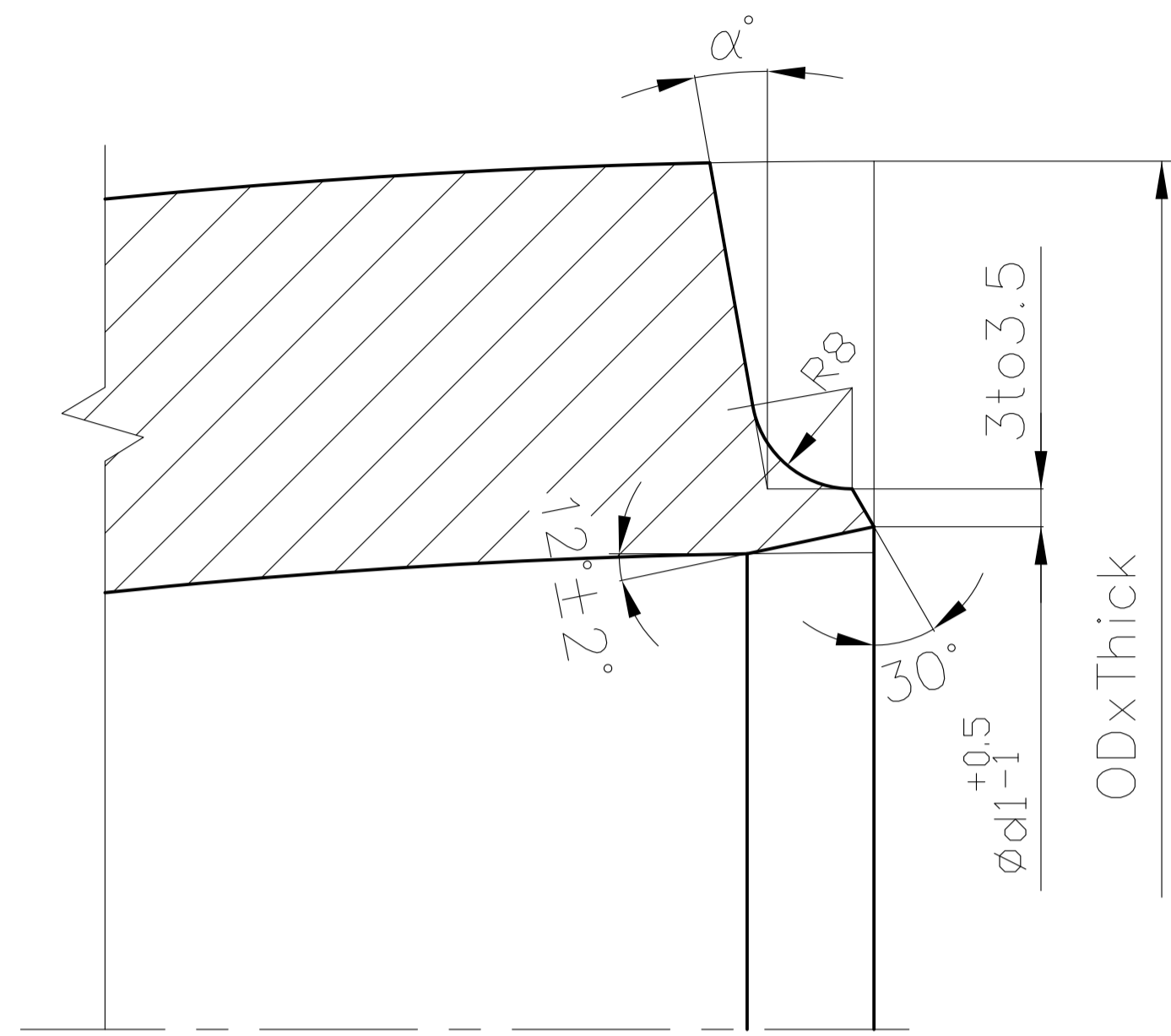
NOTES FOR WELDING:

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  $\leq 30$ 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

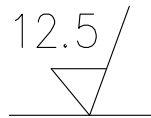




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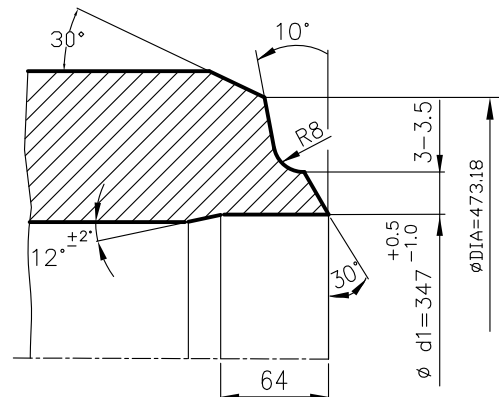
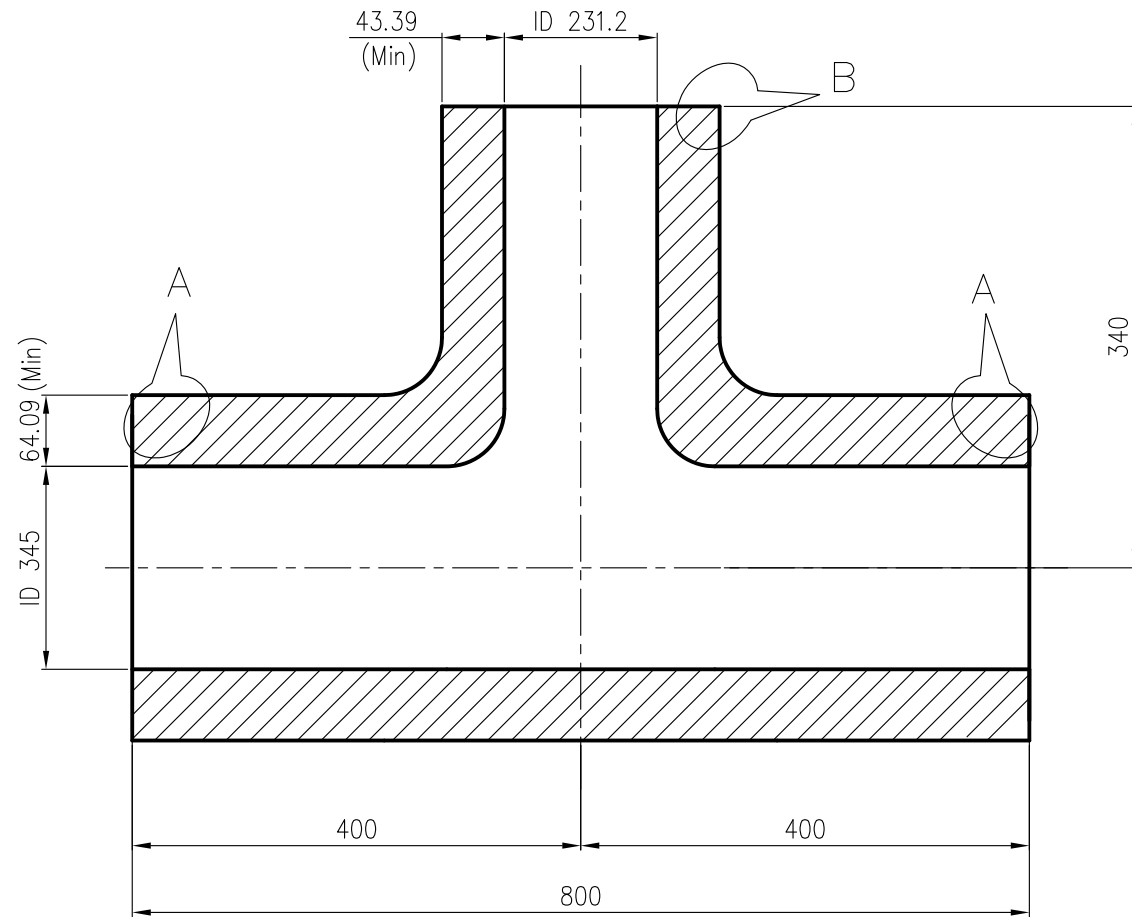
3-80-301-32171

DRAWING No

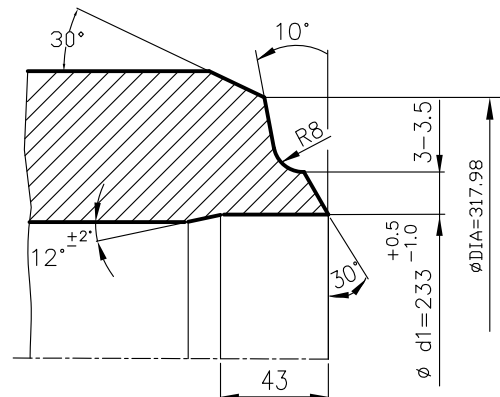


**NOTES :-**

- 1) FOLLOW TDC: AS APPLICABLE
- 2) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 3) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZES ID345x64.09/ID231.2X43.39
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE



DETAIL-A



DETAIL-B

REV	DATE	ALTD :
01		APPD :

ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO.	MATERIAL CODE	A	UNIT WT.
	BW UNEQUAL TEE ID345x64.09/ID231.2X43.39	3-80-301-32171	VAR NO.	MATERIAL SPEC.	C	QTY.
				92 505 055 0000	A	638,000
				SA 234 WP91		

TYPE OF PRODUCT  
OR NAME OF  
CUSTOMER/PROJECT



BHARAT HEAVY ELECTRICALS LTD.,  
PIPING CENTRE,  
CHENNAI 600 017

DRN	NAME	SIGN	DATE	NO OF
CHD	SOURAV		04.06.15	ITEMS
APPD	SOURAV		04.06.15	
	M MANO		04.06.15	

DEPT.	GRADE OF UN TOL DIM	SCALE	WEIGHT (Kg).	BHEL PO REF.NO:	ITEM No.
CODE	C/M/F	N.T.S.	638.000		
TITLE	BW UNEQUAL TEE (ID345x64.09/ID231.2X43.39)		CARD CODE	DRAWING No.	REV
			U 01	3-80-301-32171	00

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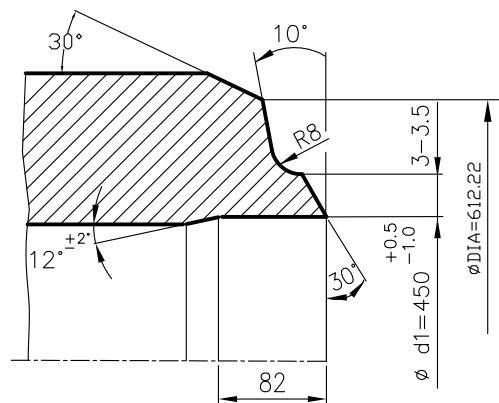
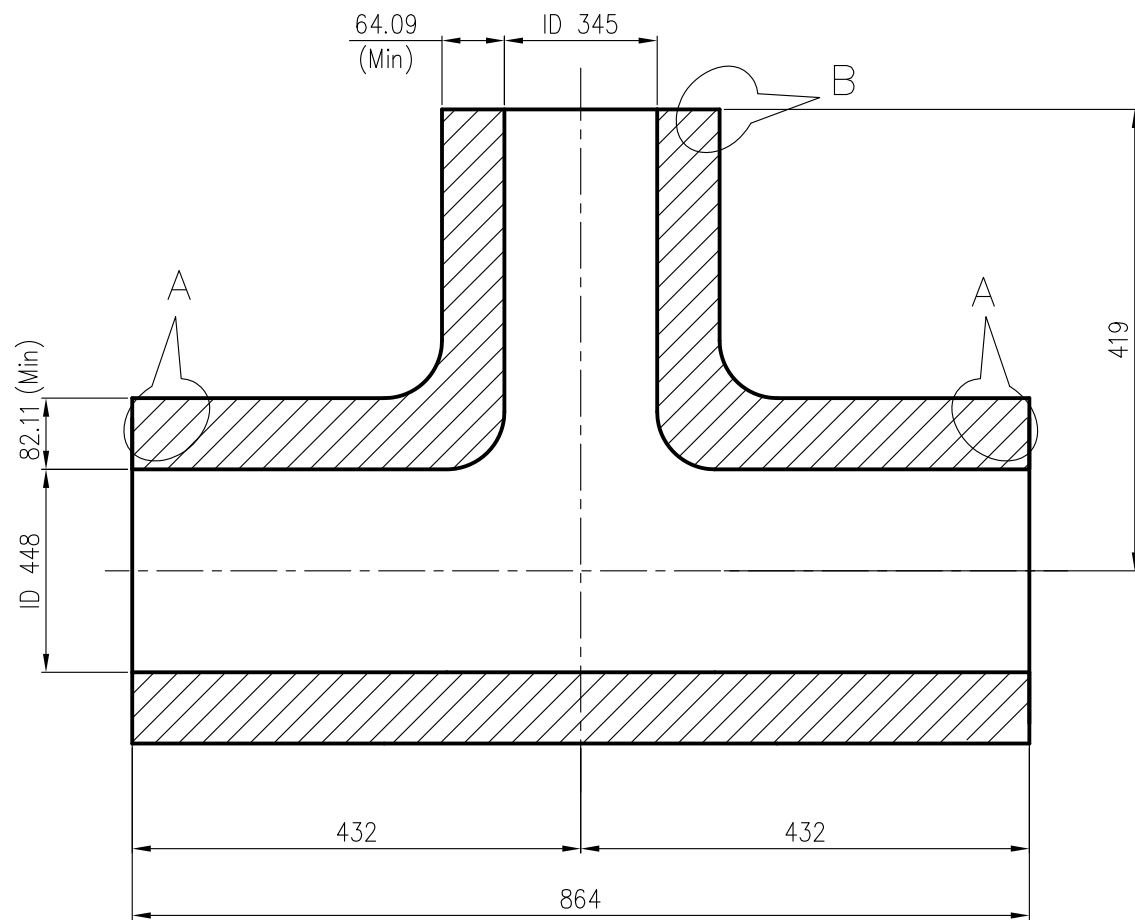
**3-80-301-32172**

DRAWING No

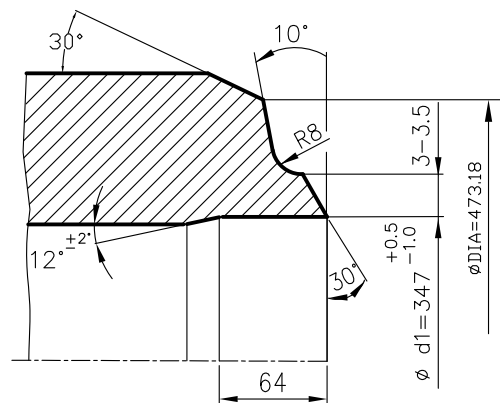


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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZES ID448x82.11/ID345x64.09
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE



DETAIL-A



DETAIL-B

REV	DATE	ALTD :
01		APPD :

ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO.	MATERIAL CODE	A	UNIT WT.
	BW UNEQUAL TEE ID448x82.11/ID345x64.09	3-80-301-32172	VAR NO.	MATERIAL SPEC.	C	QTY.
				92 505 056 0000	A	1364,000
				SA 234 WP91		

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

	BHARAT HEAVY ELECTRICALS LTD.,		DRN	NAME	SIGN	DATE	NO OF ITEMS
	PIPING CENTRE,		CHD	SOURAV		04.06.15	
	CHENNAI 600 017		APPD	M MANO		04.06.15	

DEPT.	GRADE OF UN TOL DIM	SCALE	WEIGHT (Kg).	BHEL PO REF.NO:	ITEM No.
CODE	C/M/F	N.T.S.	1364.000		
TITLE			CARD CODE	DRAWING No.	REV
BW UNEQUAL TEE (ID448x82.11/ID345x64.09)			U 01	<b>3-80-301-32172</b>	<b>00</b>







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REV	DATE	ALTERED :
01		CHD & APPD :

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID194.9 X 33.09
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

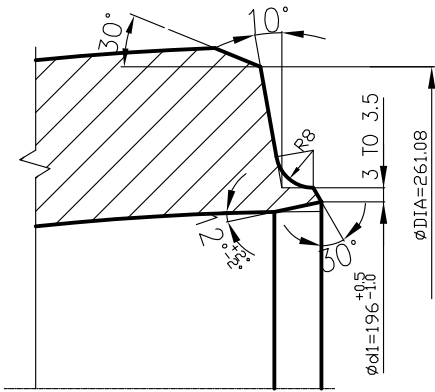
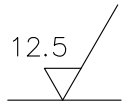
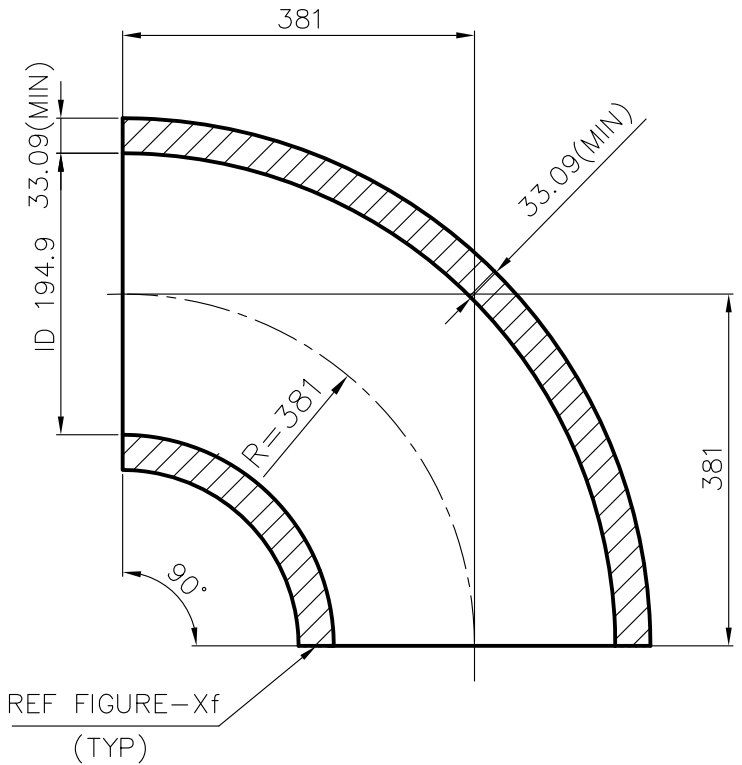


FIGURE - Xf



-	BW LR 90DEG ELBOW	92 504 070 0000	A	112	000	
	ID194.9 X 33.09	SA 234 WP91				
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	112.000	—

TITLE	DRAWING NO :	REV
<b>BW LR 90DEG ELBOW</b> ID194.9 X 33.09	<b>4-80-301-79104</b>	<b>00</b>

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID 231.2 X 43.39
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

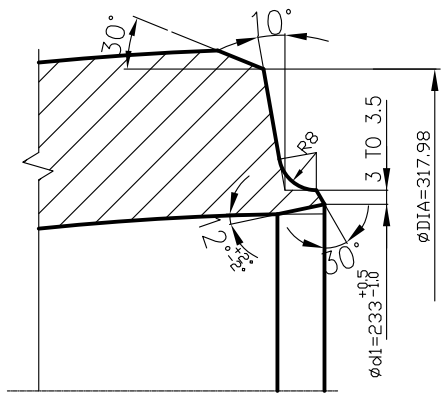
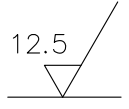
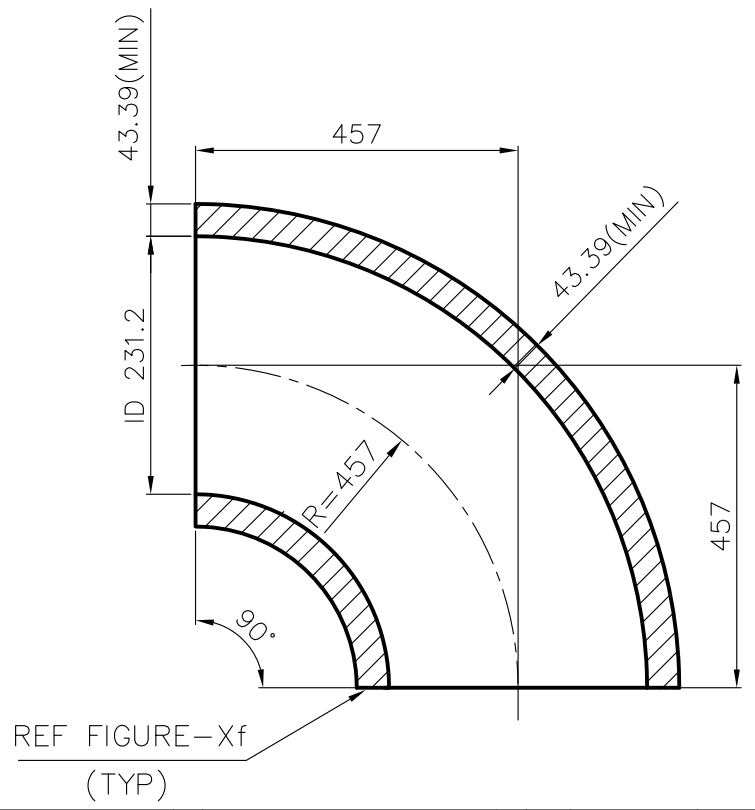


FIGURE-Xf



-	BW LR 90DEG ELBOW ID231.2 X 43.39	92 504 071 0000	A	211 000		
					SA 234 WP91	
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	211.000	—

TITLE	DRAWING NO :	REV
<b>BW LR 90DEG ELBOW</b> ID231.2 X 43.39	<b>4-80-301-79105</b>	<b>00</b>

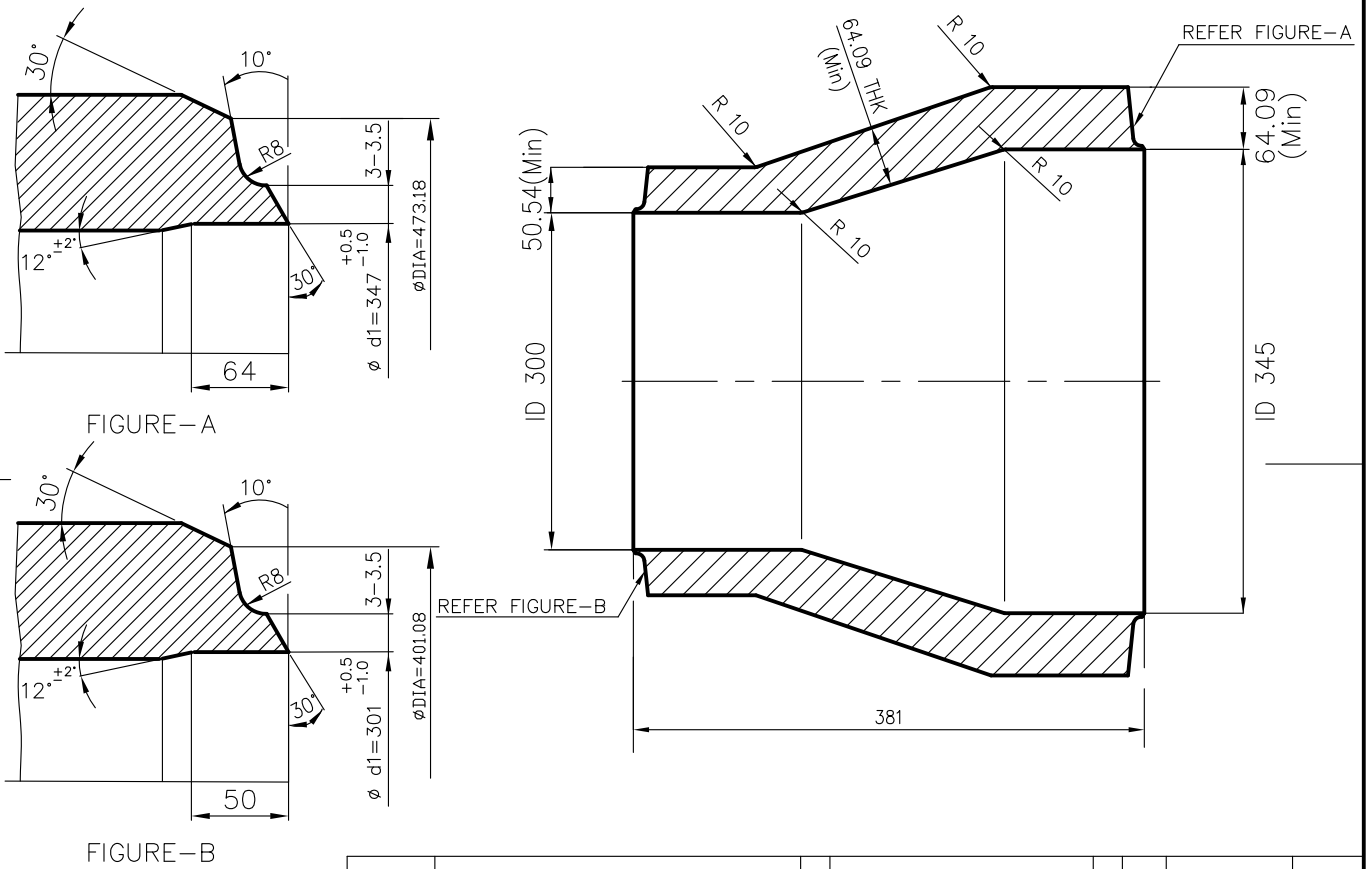
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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZES ID345X64.09/ID300X50.54
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE



	BW CONCENTRIC REDUCER ID345X64.09/ID300X50.54	92 117 037 0000	A	230 000
		SA 234 WP91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

		<b>BHARAT HEAVY ELECTRICALS LIMITED</b> PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	SOURAV		02.06.15	
				APPD	M MANO		02.06.15	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	230.0					
TITLE				CARD CODE	DRAWING NO.			REV
<b>BW CONCENTRIC REDUCER</b> ID345X64.09/ID300X50.54				U 01	<b>4-80-301-79106</b>			<b>00</b>

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REV 01	DATE	ALTERED :
		CHD & APPD :

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID 300.0 X 50.54
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

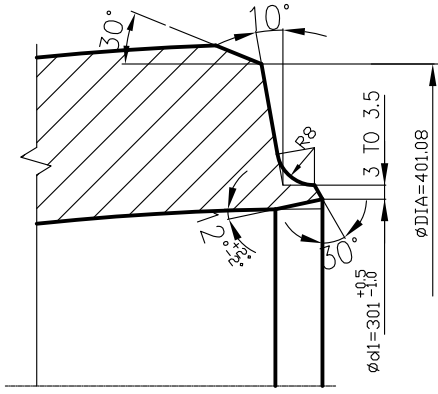
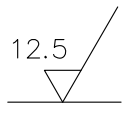
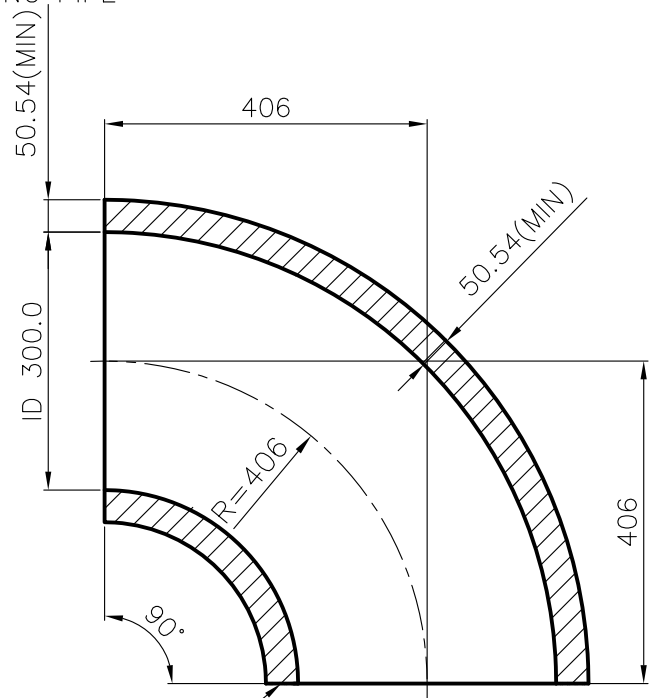


FIGURE-Xf



REF FIGURE-Xf  
(TYP)

-	BW SR 90DEG ELBOW ID300.0 X 50.54	92 504 072 0000	A	280	000	
				SA 234 WP91		
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	280.000	—

TITLE	DRAWING NO :	REV
<b>BW SR 90DEG ELBOW</b> ID300.0 X 50.54	<b>4-80-301-79107</b>	<b>00</b>

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZES ID345X64.09/OD355.6X50.6
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

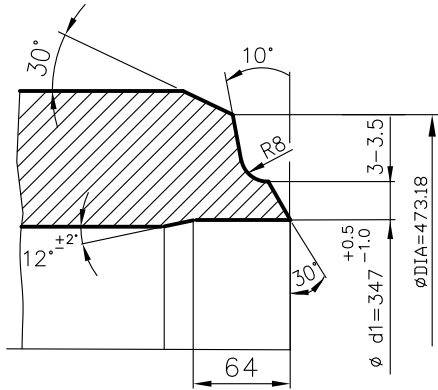


FIGURE-A

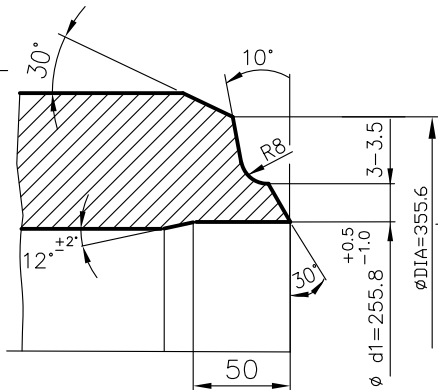
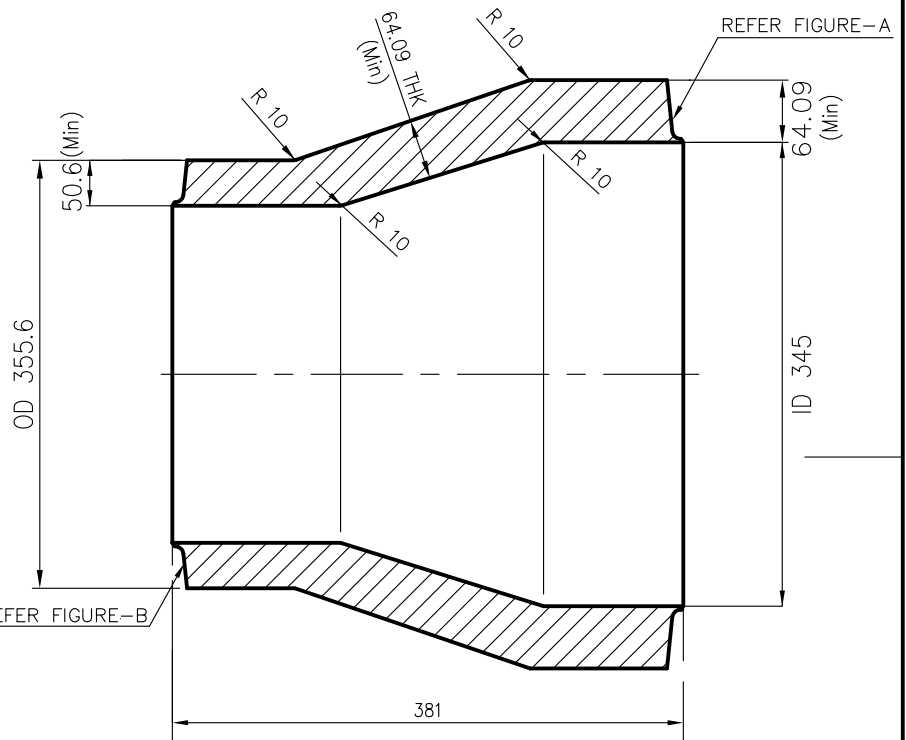


FIGURE-B



	BW CONCENTRIC REDUCER ID345X64.09/OD355.6X50.6	92 117 036 0000	A	220 000
		SA 234 WP91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

		<b>BHARAT HEAVY ELECTRICALS LIMITED</b> PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	SOURAV		02.06.15	
				APPD	M MANO		02.06.15	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	220.0					
TITLE				CARD CODE	DRAWING NO.			REV
<b>BW CONCENTRIC REDUCER</b> ID345X64.09/OD355.6X50.6				U 01	<b>4-80-303-79108</b>			00

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- 3) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZES ID500X82.56/ID345X64.09
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

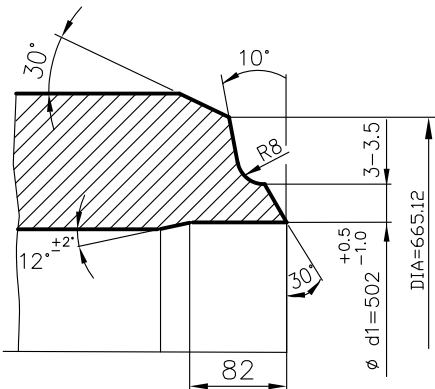


FIGURE - A

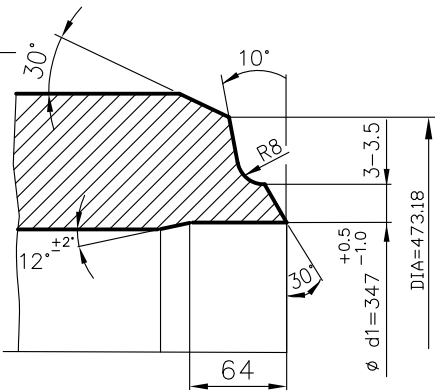
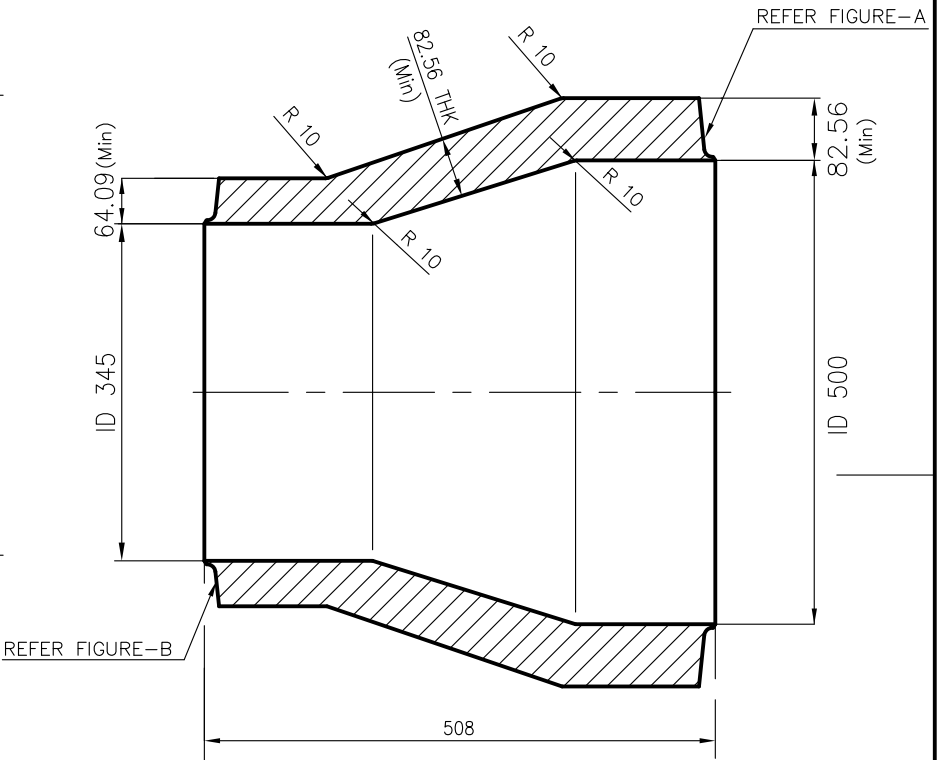


FIGURE - B



	BW CONCENTRIC REDUCER ID500X82.56/ID345X64.09	92 117 038 0000	A	520 000
		SA 234 WP91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

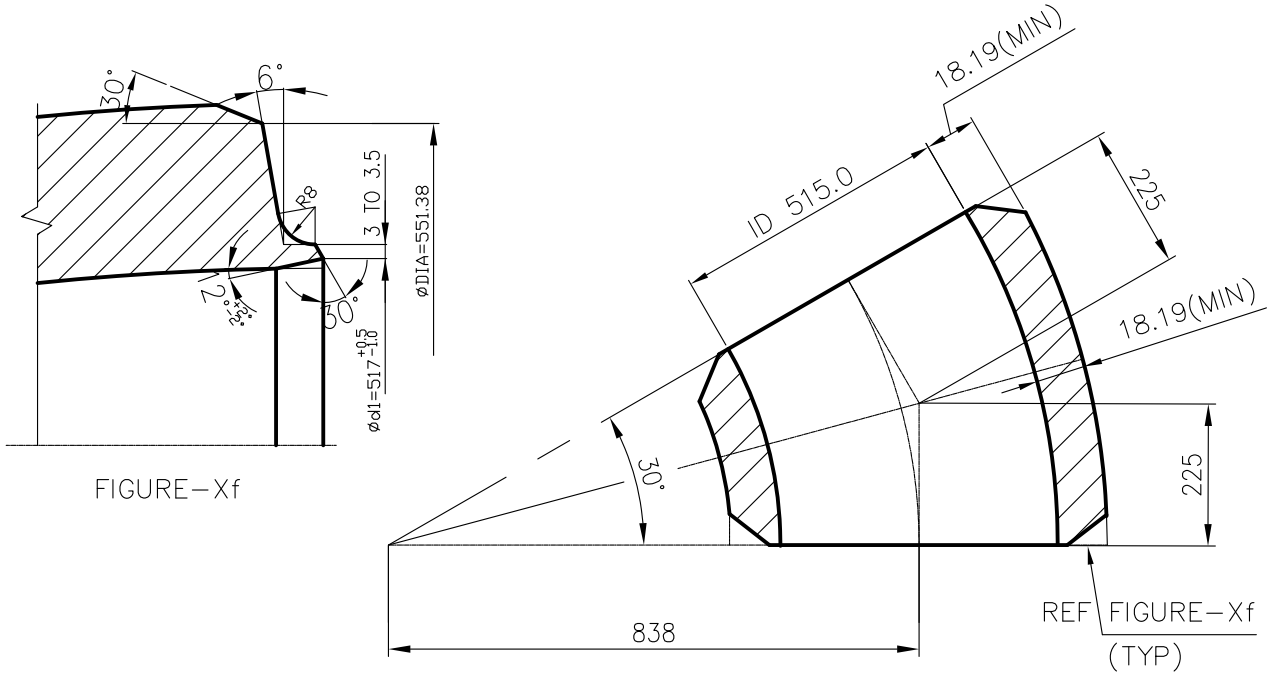
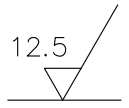
		<b>BHARAT HEAVY ELECTRICALS LIMITED</b> PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	SOURAV		02.06.15	
				APPD	M MANO		02.06.15	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	520.0					
TITLE				CARD CODE	DRAWING NO.			REV
<b>BW CONCENTRIC REDUCER</b> ID500X82.56/ID345X64.09				U 01	<b>4-80-303-79110</b>			<b>00</b>

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01		CHD & APPD :

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- 3) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID515.0 X 18.19
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE



-	BW LR 30DEG ELBOW ID515.0 X 18.19	92 504 073 0000	A	28	000	
					SA 234 WP91	
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	28.000	—

TITLE	DRAWING NO :	REV
<b>BW LR 30DEG ELBOW</b> ID515.0 X 18.19	<b>4-80-310-79113</b>	<b>00</b>

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01		CHD & APPD :

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- 3) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID375.0 X 13.72
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

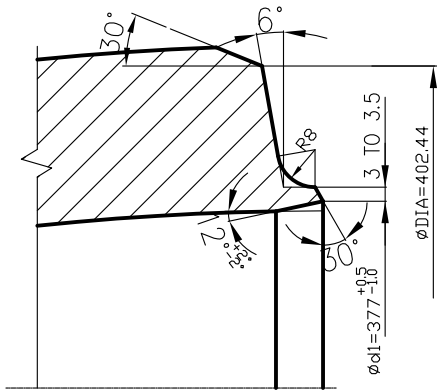
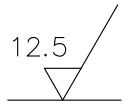
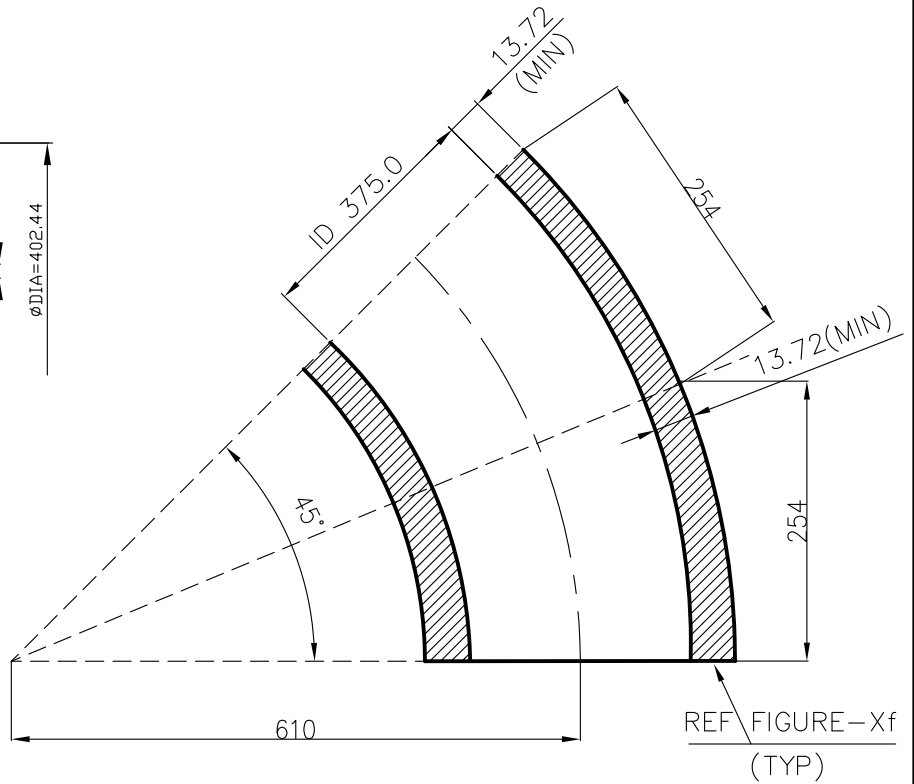


FIGURE-Xf



-	BW LR 45DEG ELBOW ID375.0 X 13.72	92 504 074 0000	A	27	000	
					SA 234 WP91	
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	27.000	—

TITLE	DRAWING NO :	REV
<b>BW LR 45DEG ELBOW</b> ID375.0 X 13.72	<b>4-80-310-79114</b>	<b>00</b>

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01		CHD & APPD :

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID375.0 X 13.72
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

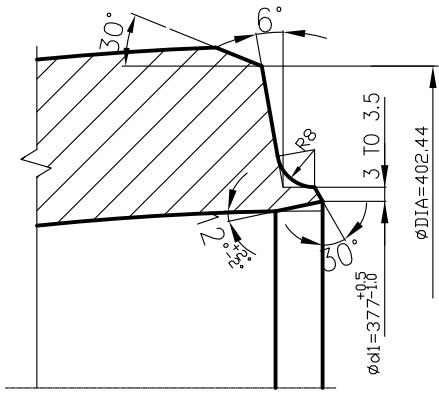
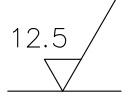
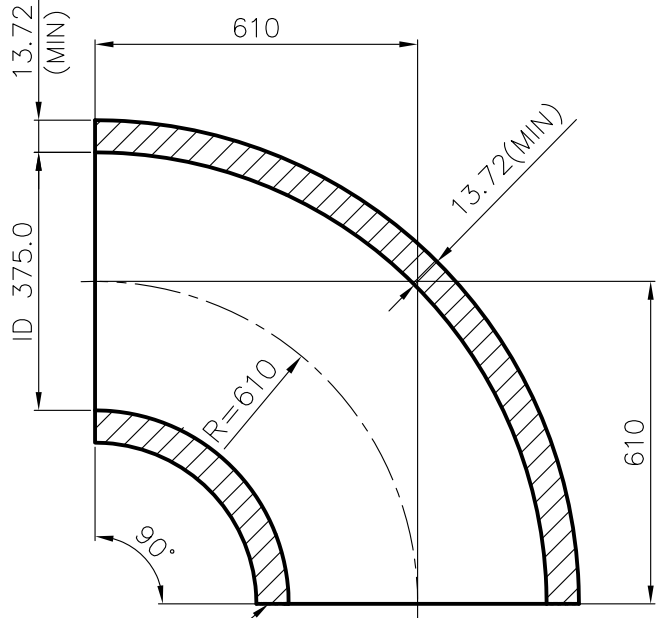


FIGURE-Xf



REF FIGURE-Xf  
(TYP)

-	BW LR 90DEG ELBOW ID375.0 X 13.72	92 504 075 0000	A	126 000		
				SA 234 WP91		
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	126.000	—

TITLE	DRAWING NO :	REV
<b>BW LR 90DEG ELBOW</b> ID375.0 X 13.72	<b>4-80-310-79115</b>	<b>00</b>

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE IS PIPE ID515.0 X 18.19
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

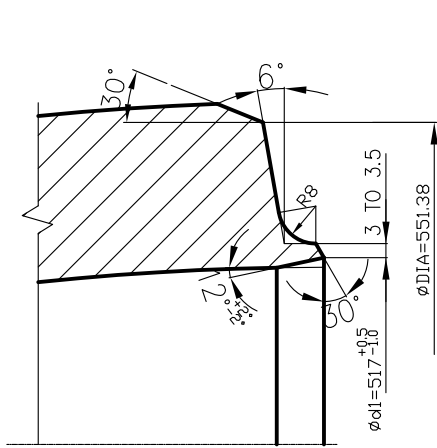
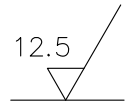
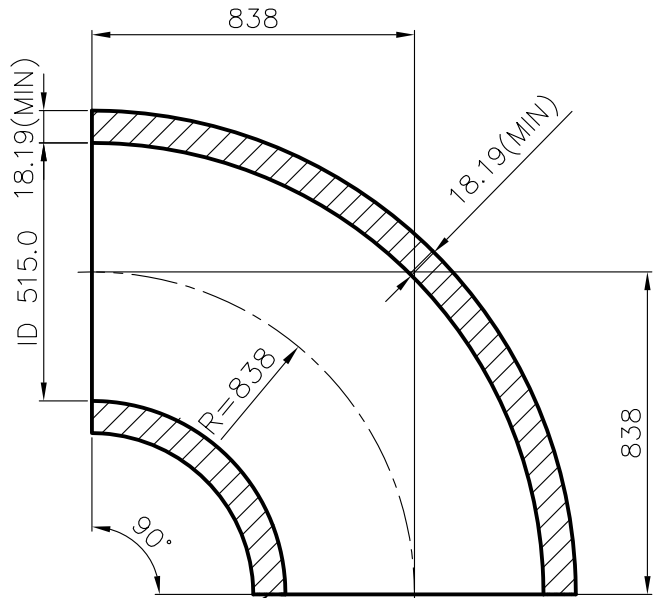


FIGURE-Xf



REF FIGURE-Xf  
(TYP)

-	BW LR 90DEG ELBOW	92 504 076 0000	A	315	000	
	ID515.0 X 18.19	SA 234 WP91				
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	315.000	—

TITLE	DRAWING NO :	REV
<b>BW LR 90DEG ELBOW</b> ID515.0 X 18.19	<b>4-80-310-79116</b>	<b>00</b>

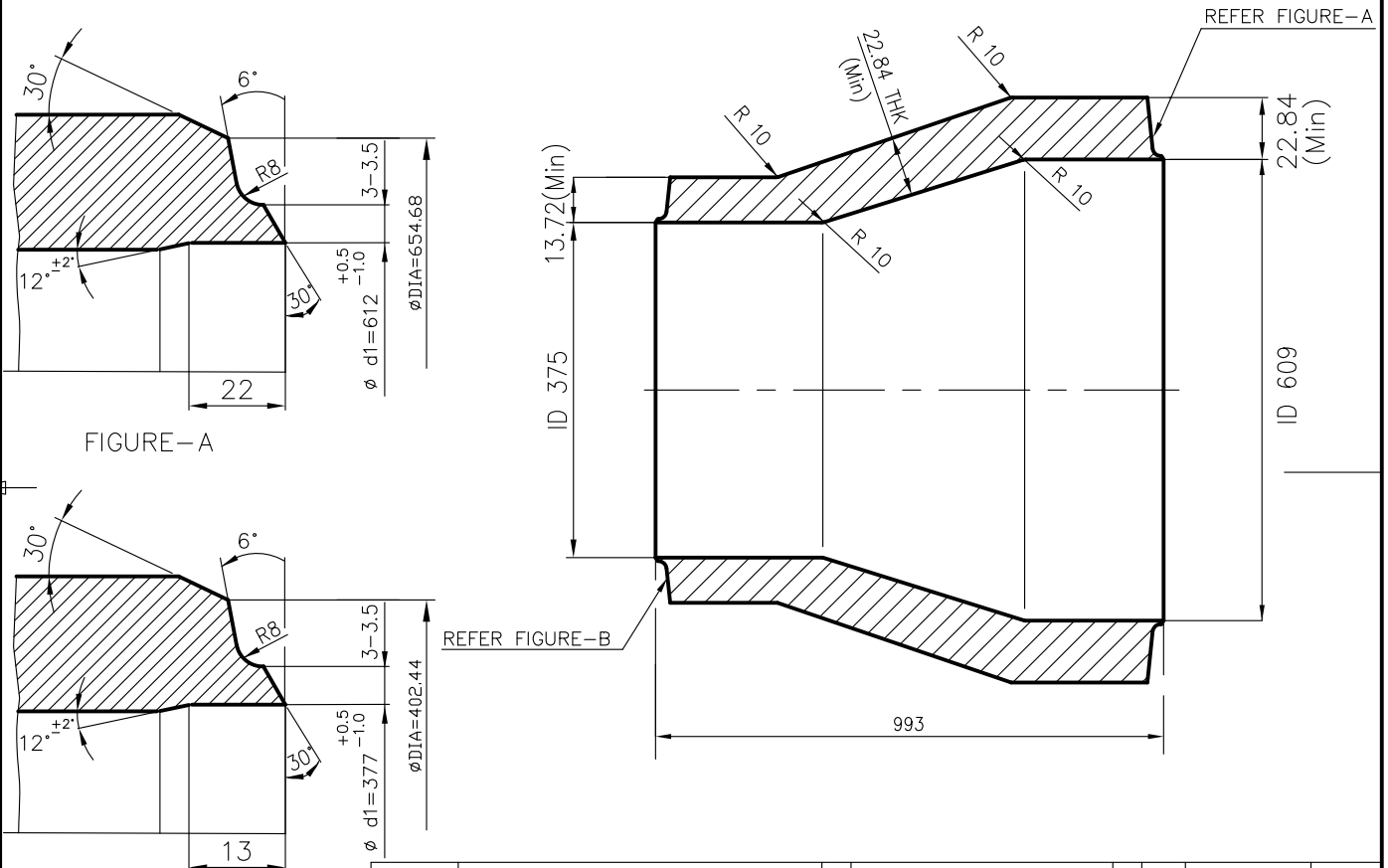
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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZES ID609X22.84/ID375X13.72
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE



	BW CONCENTRIC REDUCER ID609X22.84/ID375X13.72	92 117 042 0000	A	290 000
		SA 234 WP91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

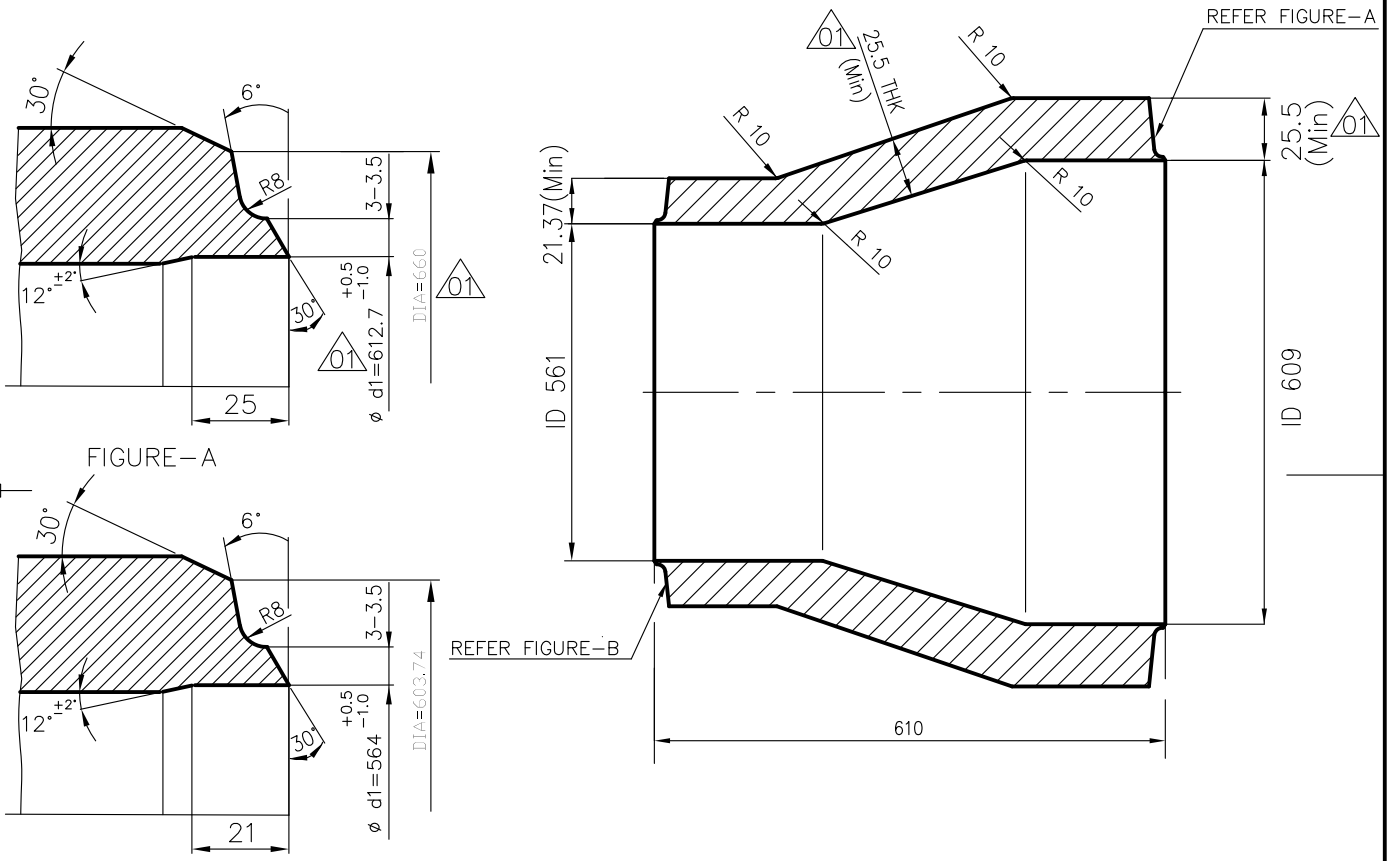
		<b>BHARAT HEAVY ELECTRICALS LIMITED</b> PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	SOURAV		02.06.15	
				APPD	M MANO		02.06.15	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	290.0					
TITLE				CARD CODE	DRAWING NO.			REV
<b>BW CONCENTRIC REDUCER</b> ID609X22.84/ID375X13.72				U 01	<b>4-80-310-79117</b>			<b>00</b>

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZES ID609X22.84/ID561X21.37
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE



	BW CONCENTRIC REDUCER ID609X22.84/ID561X21.37	92 117 041 0000	A	210 000
		SA 234 WP91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

		<b>BHARAT HEAVY ELECTRICALS LIMITED</b> PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	SOURAV		02.06.15	
				APPD	M MANO		02.06.15	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:			ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	210.0					
TITLE				CARD CODE	DRAWING NO.			REV
<b>BW CONCENTRIC REDUCER</b> ID609X22.84/ID561X21.37				U 01	<b>4-80-310-79118</b>			<b>01</b>

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID515.0 X 18.19
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

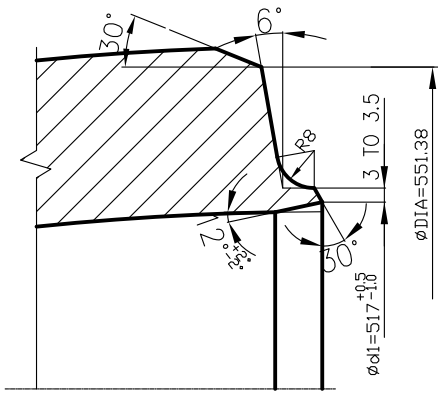
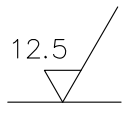
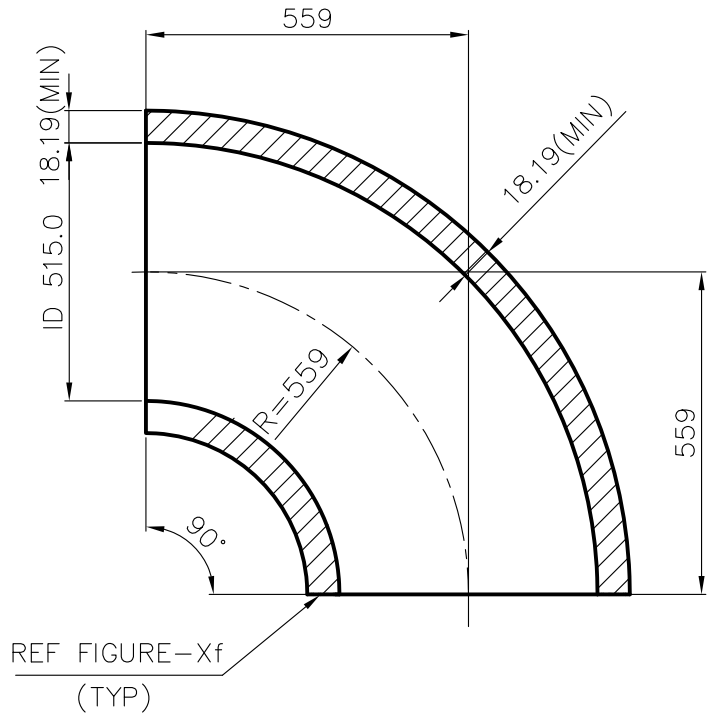


FIGURE-Xf



-	BW SR 90DEG ELBOW ID515.0 X 18.19	92 504 077 0000	A	210	000	
					SA 234 WP91	
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	210.000	—

TITLE	DRAWING NO :	REV
<b>BW SR 90DEG ELBOW</b> ID515.0 X 18.19	<b>4-80-310-79119</b>	<b>00</b>

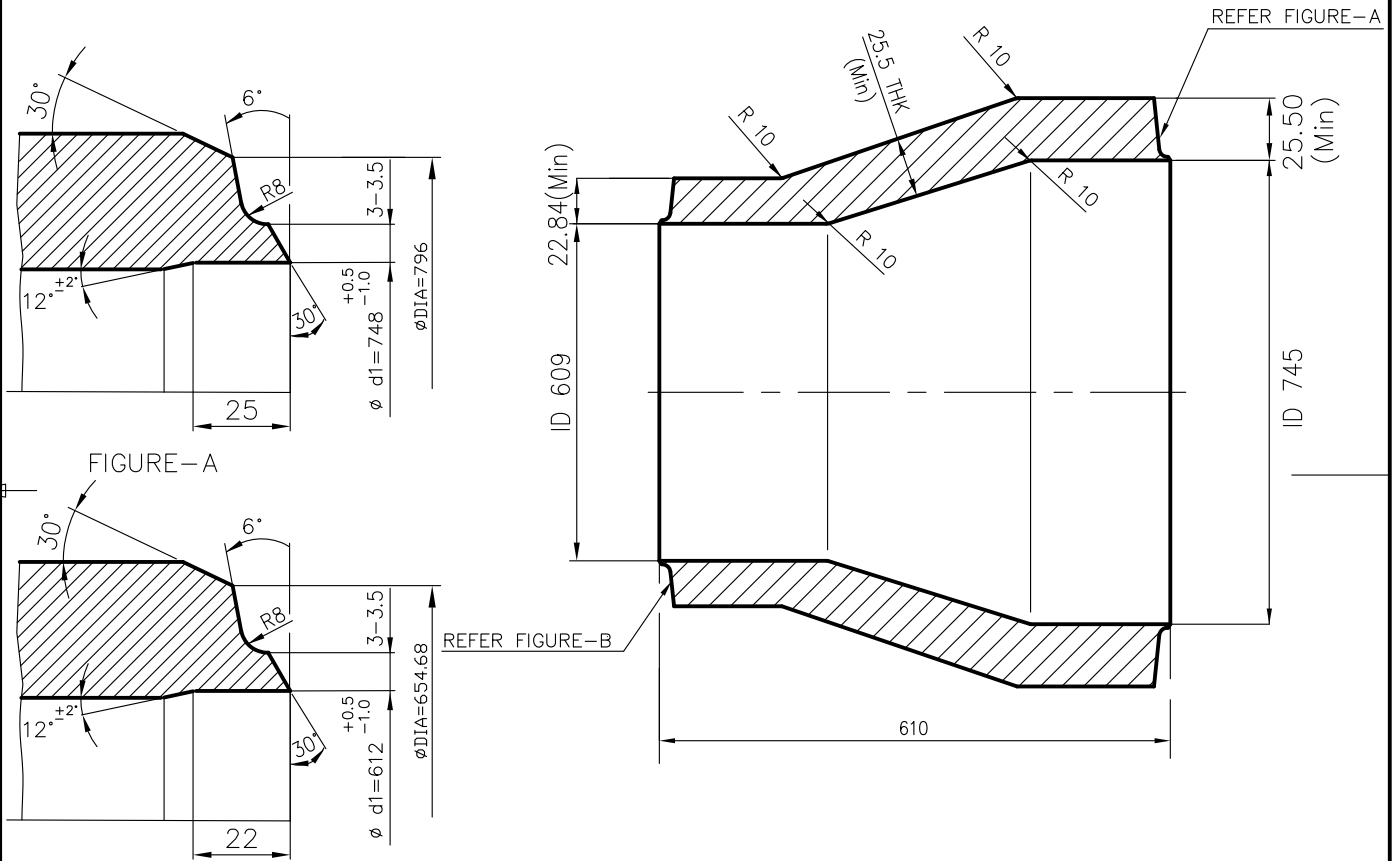
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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZES ID745X25.5/ID609X22.84
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE



	BW CONCENTRIC REDUCER ID745X25.5/ID609X22.84	92 117 040 0000	A	272 000
		SA 234 WP91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

		<b>BHARAT HEAVY ELECTRICALS LIMITED</b> PIPING CENTRE CHENNAI 600 017		DRN <b>SOURAV</b>	SIGN 	DATE <b>02.06.15</b>	NO.OF VAR	
DEPT 	GRADE OF UNTOL.DIM C / M / F		SCALE N.T.S	WEIGHT (KG). 272.0	BHEL PO REF.NO:		ITEM NO.	NO. OF ITEMS
TITLE <b>BW CONCENTRIC REDUCER</b> <b>ID745X25.5/ID609X22.84</b>				CARD CODE U 01	DRAWING NO. <b>4-80-312-79112</b>		REV <b>00</b>	

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REV	DATE	ALTERED :
01		CHD & APPD :

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID609.0 X 22.84
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

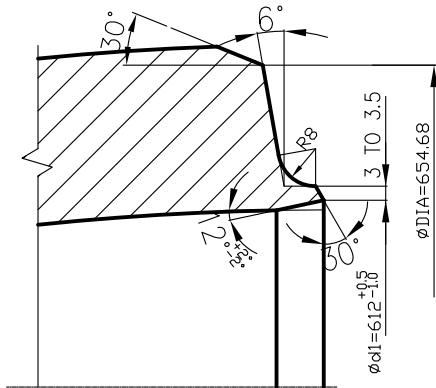
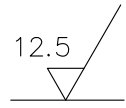
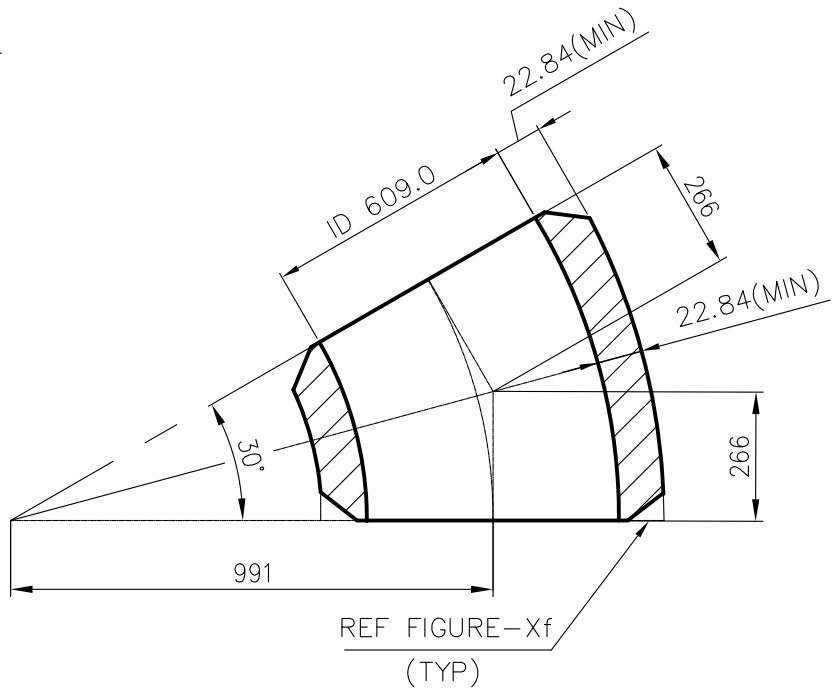


FIGURE-Xf



-	BW LR 30DEG ELBOW ID609.0 X 22.84	92 504 078 0000	A	50	000	
					SA 234 WP91	
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	50.000	—
TITLE					REV
<p align="center"><b>BW LR 30DEG ELBOW</b> ID609.0 X 22.84</p>					<p align="center">DRAWING NO : <b>4-80-312-79121</b></p>
					00



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01		CHD & APPD :

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- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID609.0 X 22.84
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

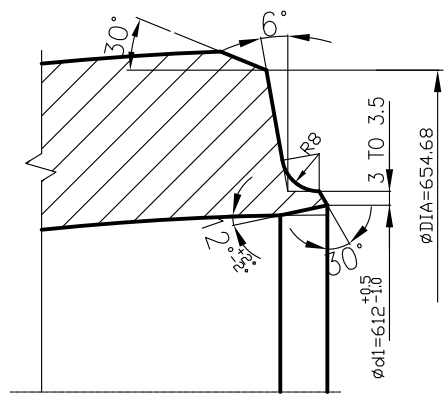
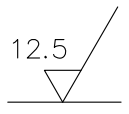
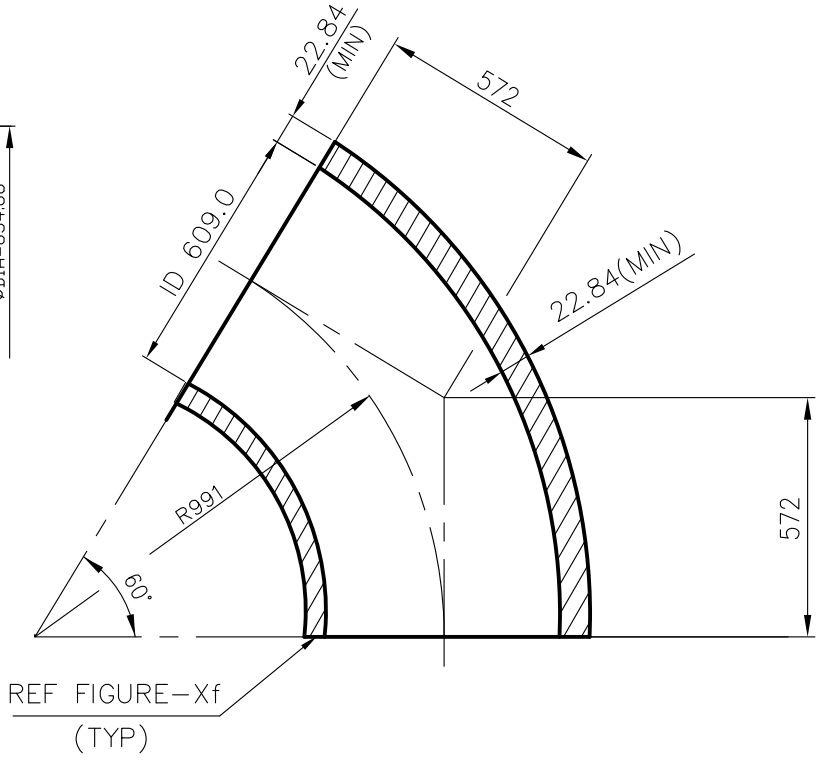


FIGURE-Xf



-	BW LR 60DEG ELBOW	92 504 080 0000	A	213	000	
	ID609.0 X 22.84	SA 234 WP91				
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	213.000	—

TITLE	DRAWING NO :	REV
<b>BW LR 60DEG ELBOW</b> ID609.0 X 22.84	<b>4-80-312-79123</b>	<b>00</b>

THE INFOM ON THIS DOCUMENT IS THE PROPERTY OF BHEL. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED :
01		CHD & APPD :

**NOTES:**

- 1) FOLLOW TDC: AS APPLICABLE
- 2) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 3) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 4) CONSTRUCTION SHALL BE SEAMLESS
- 5) MATERIAL SPECIFICATION SHALL BE SA234WP91
- 6) CONNECTING PIPE SIZE ID609.0 X 22.84
- 7) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

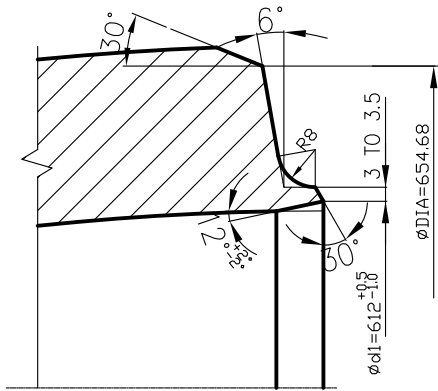
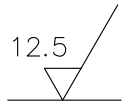
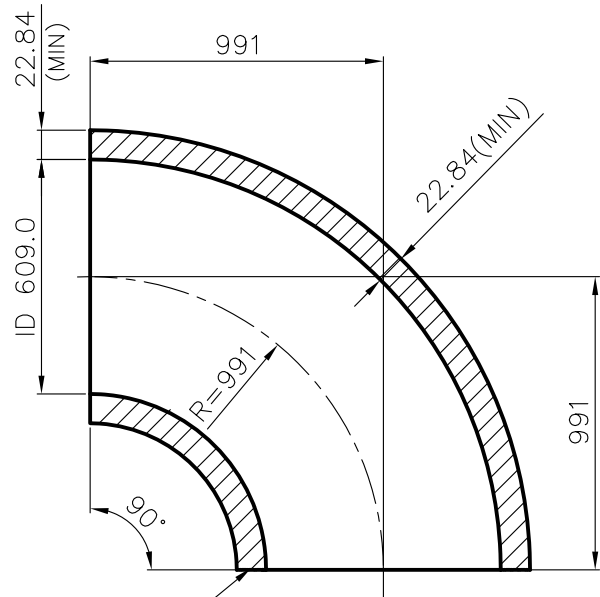


FIGURE-Xf



REF FIGURE-Xf  
(TYP)

-	BW LR 90DEG ELBOW ID609.0 X 22.84	92 504 081 0000	A	554 000	
				SA 234 WP91	
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	SOURAV	—sd—	28.05.2015
CHD	SOURAV	—sd—	28.05.2015
APPD	M MANO	—sd—	28.05.2015

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	554.000	—

TITLE	DRAWING NO :	REV
<b>BW LR 90DEG ELBOW</b> ID609.0 X 22.84	<b>4-80-312-79124</b>	<b>00</b>