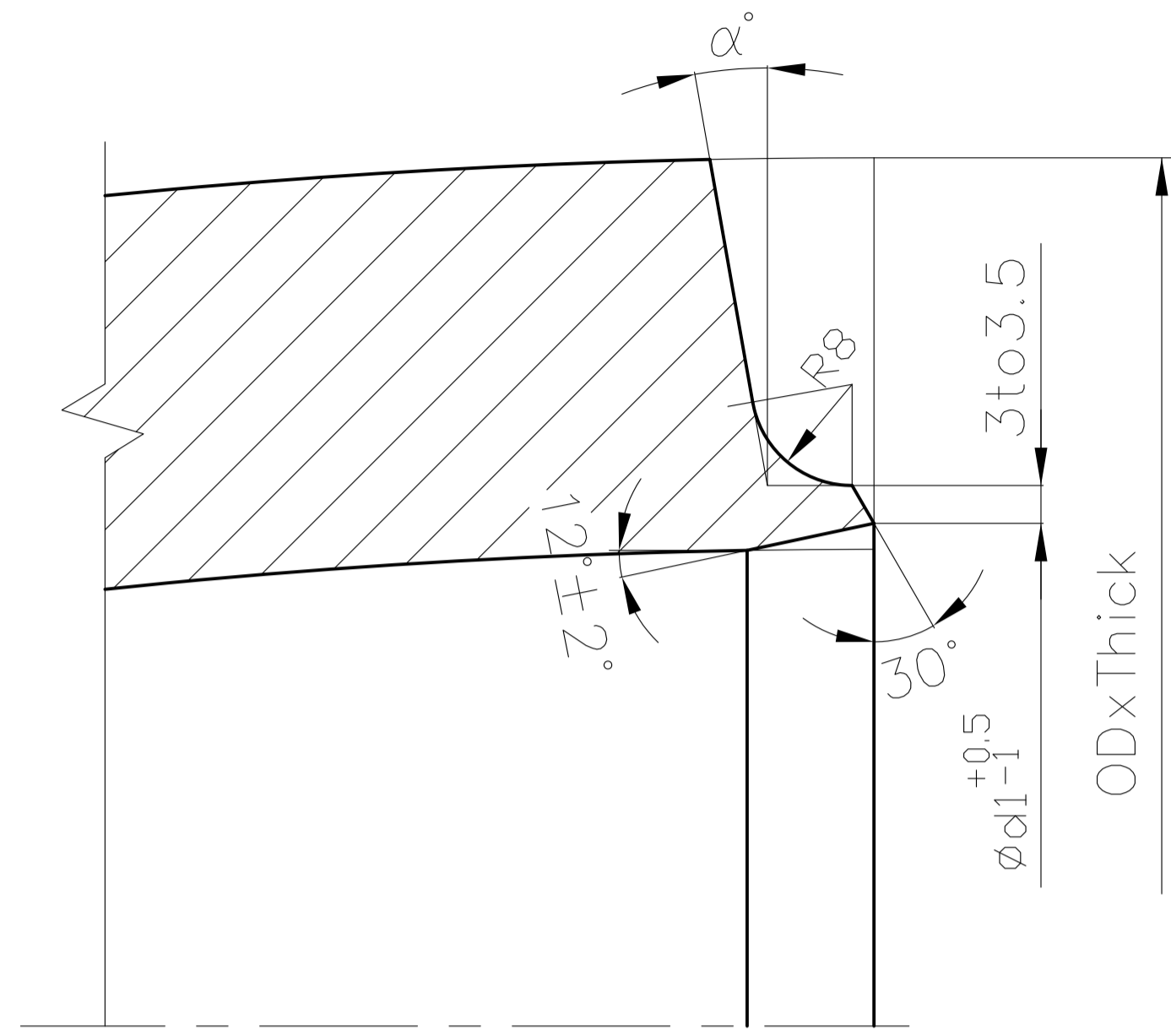


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3-80-999-97744  
DRAWING NO.



$\alpha^\circ = 6^\circ$  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	

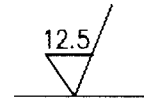
REV	DATE	ALTERED
01		APPROVED

ALL DIMENSIONS ARE IN MILLIMETRES

REV	DATE	ALTERED
		APPROVED

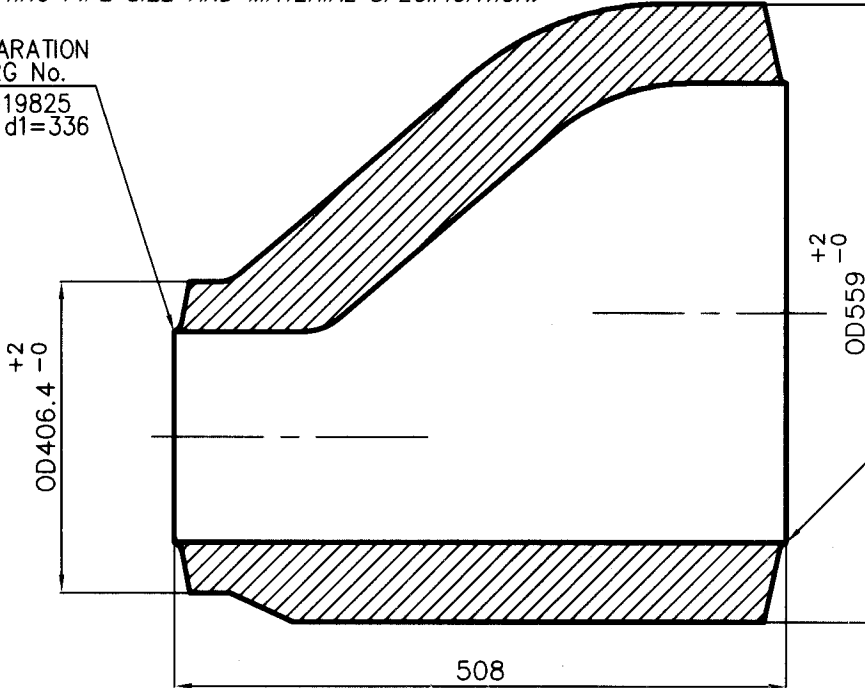
**NOTES:-**

- FITTING SHALL CONFORM TO ALL THE REQUIREMENTS OF ASME B16.9 & A 234.
- THIS DRAWING IS FOR INDICATING THE OVER ALL DIMENSIONS, CONNECTING PIPE SIZE AND MATERIAL SPECIFICATION.



EDGE PREPARATION  
AS PER DRG No.

3-80-300-19825  
FIGURE-X, d1=336



EDGE PREPARATION  
AS PER DRG No.

3-80-300-19825  
FIGURE-X, d1=460

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	ECCENTRIC REDUCER OD559x54 / OD406.4x38	92 517 944 0000	A	520	000
		SA 234 WP91			
VAR NO.	DESCRIPTION	STD	MATL. CODE	UNIT	UNIT.WT.(Kg)
			MATL. SPECN.	DI	QTY.

**STANDARD**



**BHARAT HEAVY ELECTRICALS LIMITED**

PIPING CENTRE  
CHENNAI 600 017

	NAME	SIGN	DATE	NO. OF VAR
DRN	K.R.BALA	<i>K.R.Bala</i>	19.07.06	
CHD	C.SARAVANAN	<i>C.Saravanan</i>	19.07.06	
APPD	T.N.ELANGOVAN	<i>T.N.Elango</i>	19.07.06	

DEPT	GRADE OF UNTOL DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:	ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	520.000			

TITLE	CARD CODE	DRAWING NO.	REV
<b>ECCENTRIC REDUCER</b> OD559X54 / OD406.4X38	U 01	<b>4-80-301-62569</b>	<b>00</b>

Size A4

ALL DIMENSIONS ARE IN MILLIMETRES

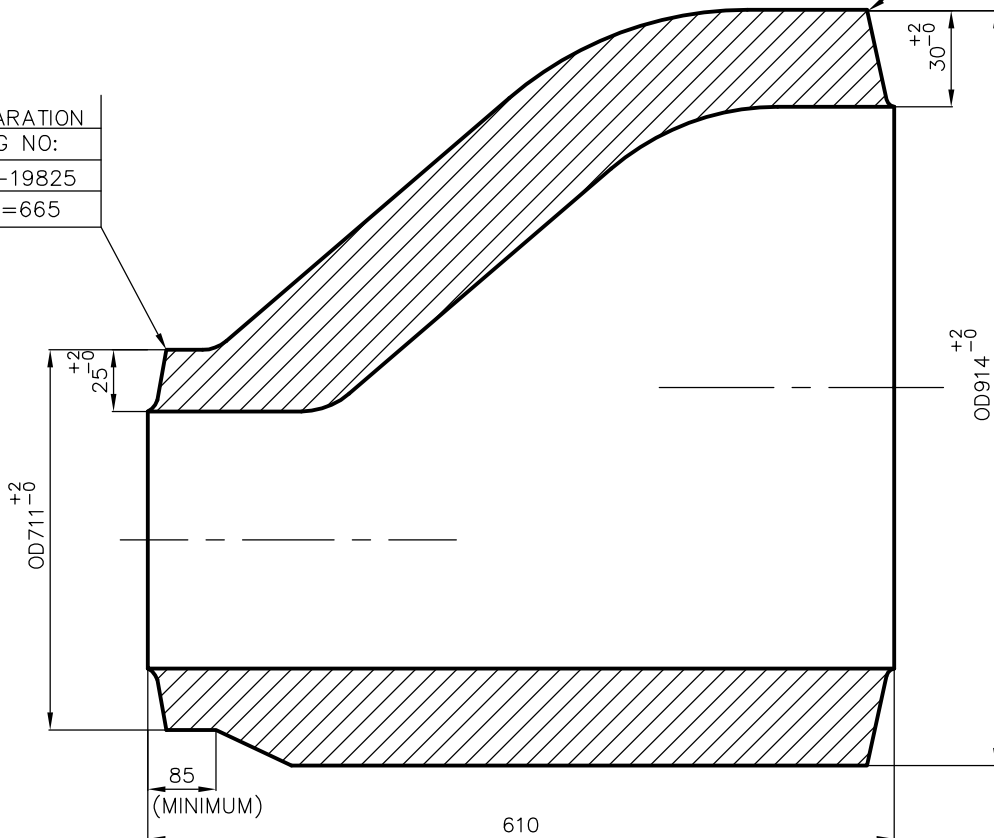
REV	DATE	ALTERED
01		APPROVED

**NOTES:**

- 1.DESIGN PRESSURE: 48.4Kg/cm<sup>2</sup>(g)
- 2.DESIGN TEMPERATURE: 568°C
- 3.FOLLOW QP:NO:
- 4.FITTING SHALL CONFORM TO ALL THE REQUIREMENTS OF ASME B16.9 & A 234.
- 5.THIS DRAWING IS FOR INDICATING THE OVER ALL DIMENSIONS, CONNECTING PIPE SIZE AND MATERIAL SPECIFICATION.
- 6.MANUFACTURING AND TESTING SHALL BE AS PER TDC / QP.

EDGE PREPARATION  
AS PER DRG NO:  
3-80-300-19825  
FIG-X , d1=858.4

EDGE PREPARATION  
AS PER DRG NO:  
3-80-300-19825  
FIG-X , d1=665



	ECCENTRIC REDUCER OD914x30 / OD711x25	92 117 442 0000	A	350	000
		SA 234 WP91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO. OF VAR
			CHD	A. AMALRAJ		02.01.07	
			APPD	M.SRINIVASAN		02.01.07	
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	350.000				
TITLE			CARD CODE	DRAWING NO.			REV
<b>ECCENTRIC REDUCER</b> <b>OD914x30 / 711x25</b>			U 01	<b>4-80-310-63823</b>			<b>00</b>

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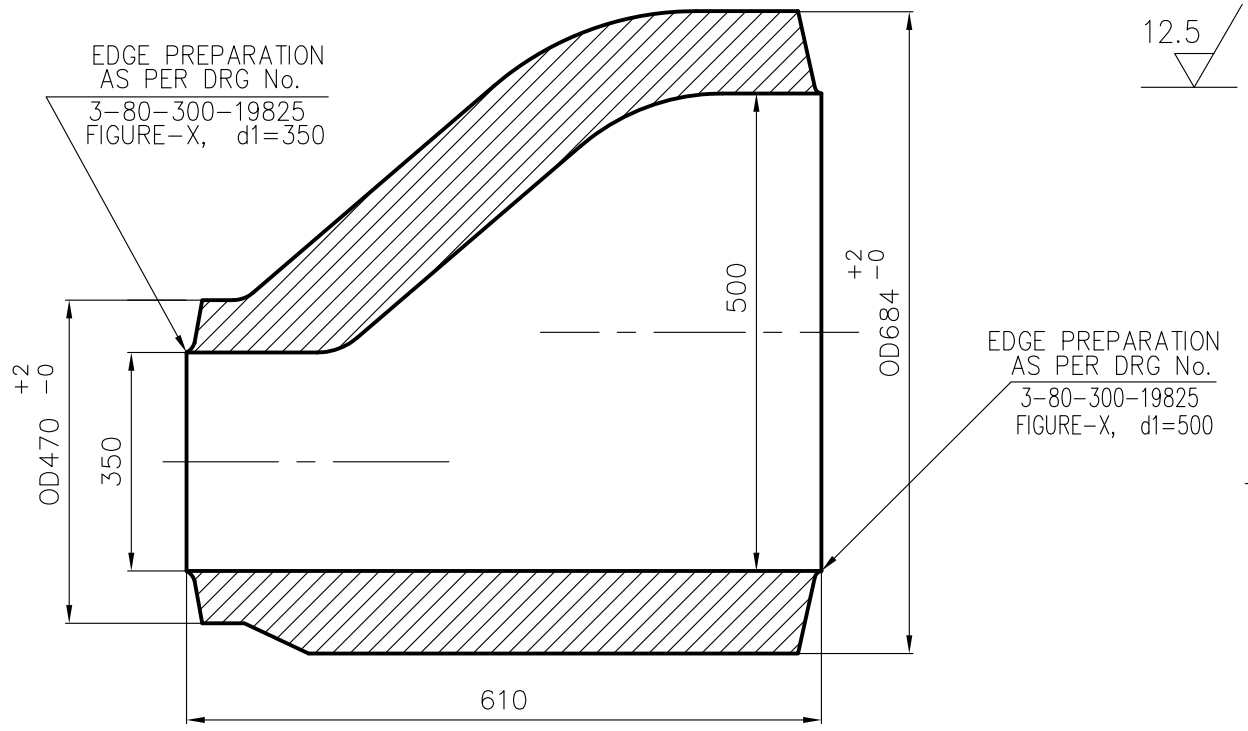
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REV 01	DATE	ALTERED
		APPROVED

**NOTES**

ALL DIMENSIONS ARE IN MILLIMETRES


- 1) DESIGN PRESSURE : 269 Kg/Cm<sup>2</sup>(g)
- 2) DESIGN TEMPERATURE : 568 °C
- 3) FOLLOW TDC No. : TDG-102 (LATEST REVISION)
- 4) FITTING SHALL CONFORM TO ALL THE REQUIREMENTS OF ASME B16.9 & A 234(LATEST)
- 5) THIS DRAWING IS FOR INDICATING THE OVERALL DIMENSIONS, CONNECTING PIPE SIZE AND MATERIAL SPECIFICATION
- 6) THE FINISHED MATERIAL CODE IS '92 517 759 0000'



—	ECCENTRIC REDUCER ID500X92/ID350X60	—	SA 234 WP91	A	715	000
VAR NO.	DESCRIPTION	STD	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
			MATL. SPECN.	C	DI	QTY.

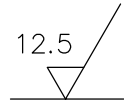
	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> PIPING CENTRE CHENNAI 600 017		NAME	SIGN	DATE	NO. OF VAR	
	DEPT	GRADE OF UNTOL.DIM	DRN	POONGKODI.V	—sd—	08/08/2013	—
	CODE	C / M / F	CHD	SUKUMAR.B	—sd—	08/08/2013	—
			APPD	C.V.NATHAN	—sd—	08/08/2013	—
		SCALE	WEIGHT (KG).	BHEL PO REF.NO:	ITEM NO	NO. OF ITEMS	
		N.T.S	715	—	—	—	
TITLE			CARD CODE	DRAWING NO.		REV	
<b>ECCENTRIC REDUCER</b> (ID500x92/ID350x60) SA234WP91			U 01	<b>4-80-301-77260</b>		00	

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


**NOTES:**

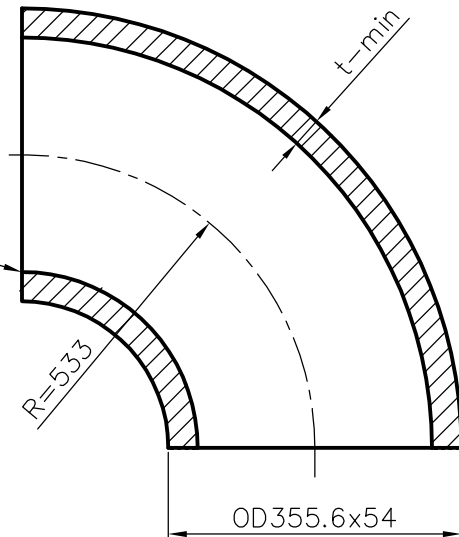
- 1) DESIGN PRESSURE : 270.7 Kg/Cm<sup>2</sup>(g)
- 2) DESIGN TEMPERATURE : 568 °C
- 3) WORKING MEDIUM : STEAM
- 4) FOLLOW TDC No. : TDG-102 (LATEST REVISION)
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR ANSI B16.9 AND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



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



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



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



**BHARAT HEAVY ELECTRICALS LIMITED**  
PIPING CENTRE  
CHENNAI 600 017

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

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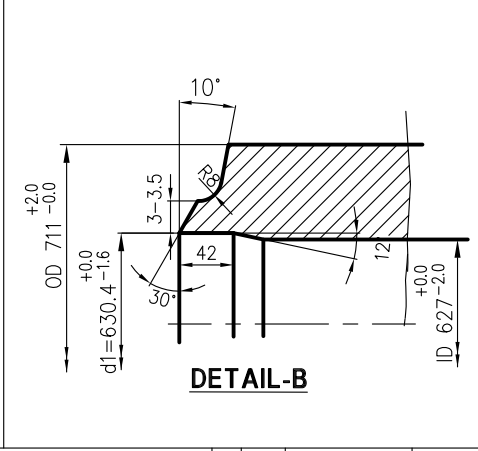
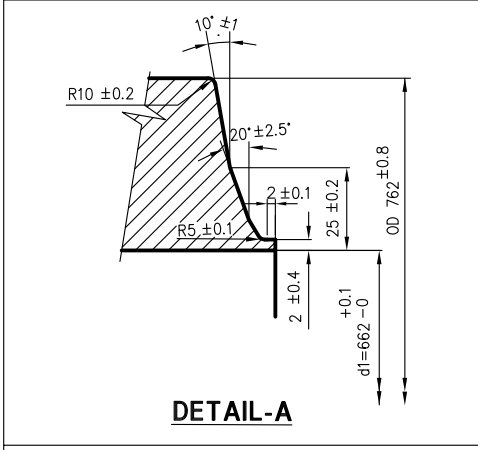
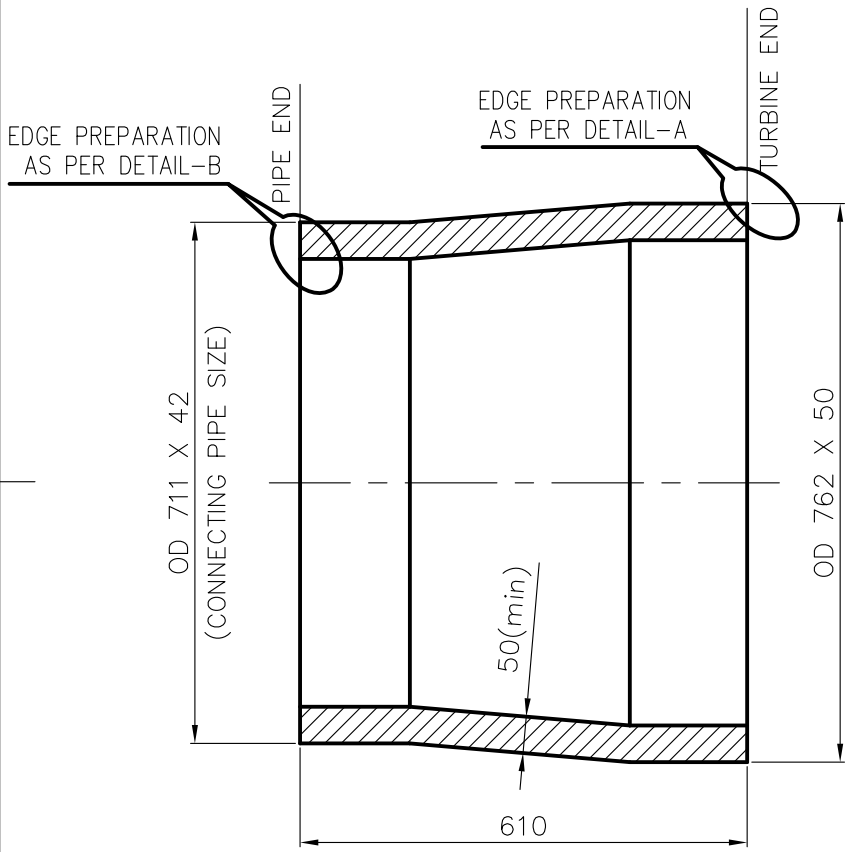
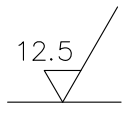
TITLE <b>ASME B16.9 BW LR 90DEG ELBOW OD355.6x54</b>	DRAWING NO : <b>4-80-304-70628</b>	REV <b>01</b>
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REV 01	DATE	ALTERED : CHD & APPD :
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**NOTES:**

- 1) DESIGN PRESSURE : 68 Kg/Cm<sup>2</sup>(g)
- 2) DESIGN TEMPERATURE : 596 °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.



-	CON REDUCER OD762x50/OD711x42 L=610	92 117 844 0000	A	520	000
		SA 234 WP91		1	
VAR No.	DESCRIPTION	STD	MATERIAL CODE	UNIT	UNIT WT. (KG)
			MATERIAL SPECN	A/C/P	QUANTITY



**BHARAT HEAVY ELECTRICALS LIMITED**  
PIPING CENTRE  
CHENNAI 600 017

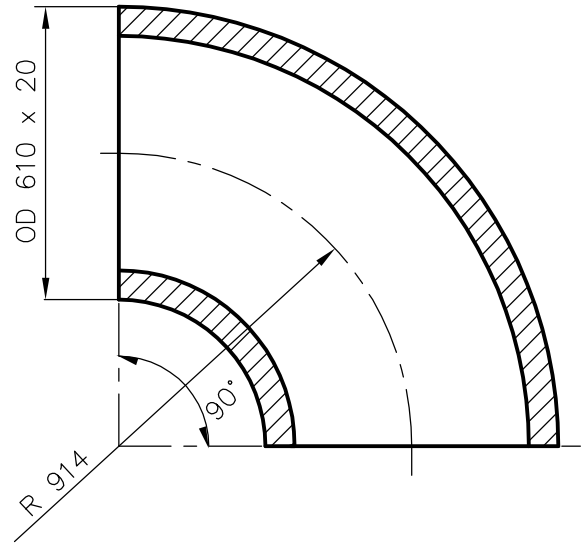
	NAME	SIGNATURE	DATE
DRN	POONGKODI.V	..sd..	15/06/2013
CHD	SUKUMAR.B	..sd..	15/06/2013
APPD	C.V.NATHAN	..sd..	15/06/2013

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	520.000	

TITLE	DRAWING NO :	REV
<b>ASME B16.9 BW CON REDUCER</b> OD762x50/OD711x42	<b>4-80-310-77057</b>	<b>00</b>

REV	DATE	ALTERED
01		APPROVED

DESIGN PRESSURE AT 573 °C : 49.4 Kg/sq.cm(g)  
 RAW MATL SPECN.: SA 335 P91 (A).  
 FITTING SPECN. : SA 234 WP91 (A).  
 FINISHED FITTING MATERIAL CODE: 92 524 995 0000  
 WEIGHT OF FINISHED FITTING: 418 kg.


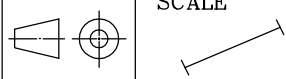


**NOTES: -**

01. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
02. FOR TOLERANCES REFER STANDARD DRG.4-80-301-26192.
03. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234.
04. EDGE PREPARATION DETAIL SHALL BE AS PER DRAWING No: 3-80-300-19825 STYLE X, d1=572.6
05. O.D AT ANY SECTION SHALL BE WITHIN 606.0 TO 614.0 mm.
06. ACTUAL THICKNESS AT ANY POINT SHALL NOT VARY MORE THAN 12.5% OF THE NOMINAL THICKNESS (17.5mm to 22.5mm).
07. ALTERNATE RAW MATERIAL CAN ALSO BE USED.

**STANDARD**

PIPE OD 610 x 25 L=1836	15 958 124 5150	A	534.254
	SA 335 P91		
DESCRIPTION	RAW MATL. CODE	A	UNIT WT.
	MATL. SPECN.	C	QTY

 BHARAT HEAVY ELECTRICALS LTD PIPING CENTRE CHENNAI 600 017		NAME	SIGN	DATE	
		DRN	BISWAS/SVRK	15.06.10	
		CHD	AP.MADHAVANKUTTY	15.06.10	
		APPD	S.JAYAKUMAR	15.06.10	
DEPT	GRADE OF UNTOL DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.
CODE	C / M / F			534.254	
TITLE			CARD CODE	DRAWING NO.	REV
<b>BW LR 90 DEG. ELBOW                  OD 610x20 WP91</b>			U 01	<b>4-80-999-93256</b>	<b>00</b>

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