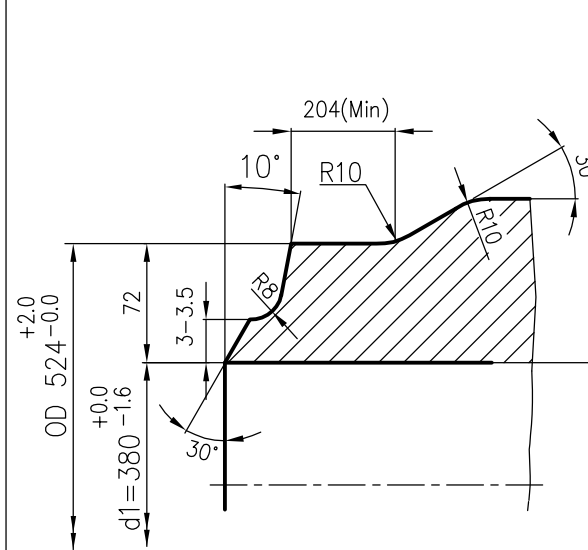
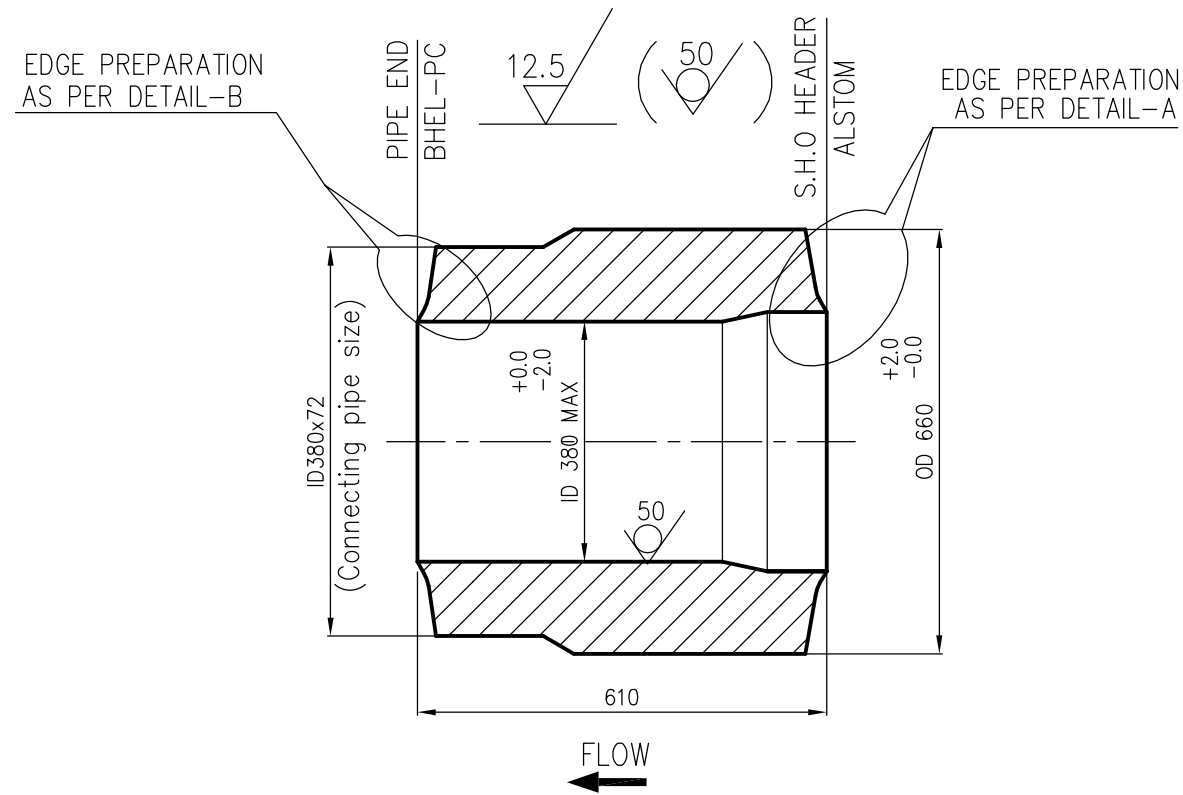


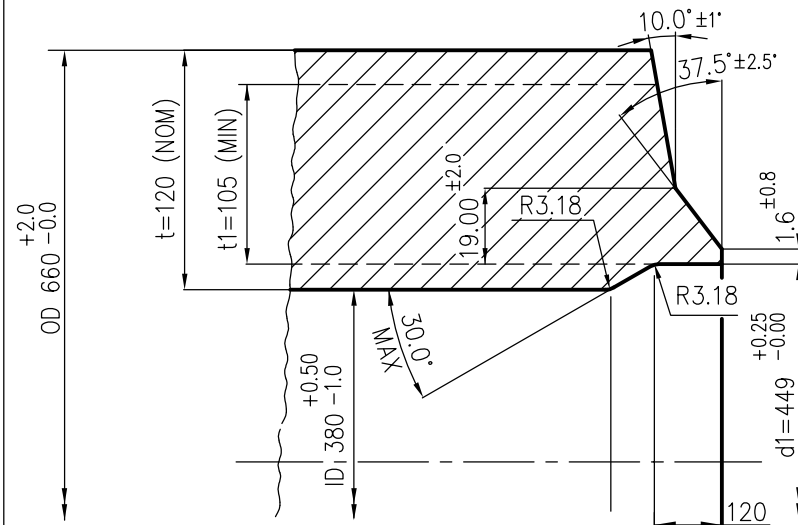
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3-80-300-28583

DRAWING No



DETAIL-B



DETAIL-A

NOTES

- DESIGN PRESSURE : 270.7 Kg/Cm²(g)
- DESIGN TEMPERATURE : 568 °C
- PIPE 'SA 335 P91'(A) CAN ALSO BE USED IN PLACE OF 'SA 182 F91'(A)
- THE FINISHED MATERIAL SPECIFICATION IS 'SA 182 F91'(A)
- THE FINISHED MATERIAL CODE IS '92 117 659 0000'
- FOLLOW TDC No. : TDG-104 (LATEST REVISION)

01	FORGING OD660 / ID380 L=610	3-80-300-28583	-	A	725,000
ITEM NO.	DESCRIPTION	DRAWING NO.	MATERIAL CODE	A	UNIT WT.
			MATERIAL SPEC.	C	QTY.

SPACE FOR IBR APPL.



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

NAME	SIGN	DATE	NO OF ITEMS
DRN POONGKODI.V	_sd_	01/07/2011	-
CHD S.RAMAMURTHY	_sd_	01/07/2011	-
APPD C.V.NATHAN	_sd_	01/07/2011	-

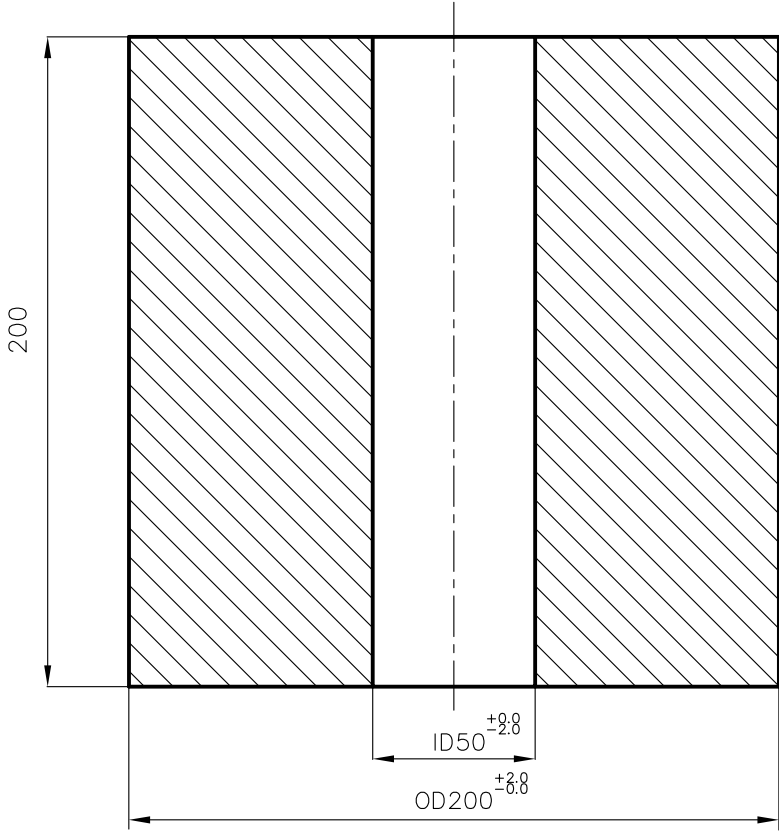
REV 01	DATE	ALTD
ZONE		APPD

DEPT.	GRADE OF UN TOL DIM	SCALE	WEIGHT (Kg).	BHEL PO REF.NO:	ITEM No.
CODE	C/M/F	N.T.S.	725.000	-	-
TITLE			CARD CODE	DRAWING No.	REV
MATCHING PIECE (OD660x120/ID380x72)			U 01	3-80-300-28583	00

ALL DIMENSIONS ARE IN MILLIMETRES

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REV	DATE	ALTERED
01		APPROVED



	HOLLOW FORGING OD200 / ID50	92 084 110 0000	A	93	00
		SA 182 F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT.WT.(Kg)	
		MATL. SPECN.	C	QTY.	

	BHARAT HEAVY ELECTRICALS LIMITED		DRN	PAVANKUMAR	SIGN	DATE	NO. OF VAR
	PIPING CENTRE		CHD	PAVANKUMAR		01.06.12	
	CHENNAI 600 017		APPD	C KARUNAKARAN		01.06.12	
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	BHEL PO REF.NO:		ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	93.000				
TITLE			CARD CODE	DRAWING NO.		REV	
HOLLOW FORGING OD200 / ID50			U 01	4-80-300-75314		00	

Size A4

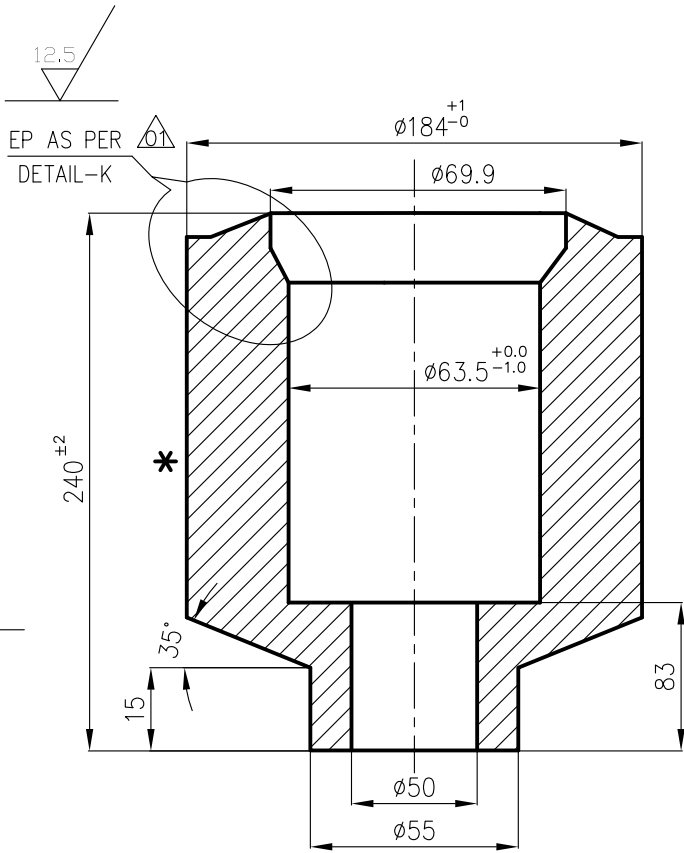
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REV	DATE	ALTERED	C.DEEPAK
01	26.02.14	APPROVED	M.MANO
STUB OD REDUCED TO 184mm. EP DETAILS MATCHED WITH SAFETY VALVE.			
CHANGES ARE MARKED BY			

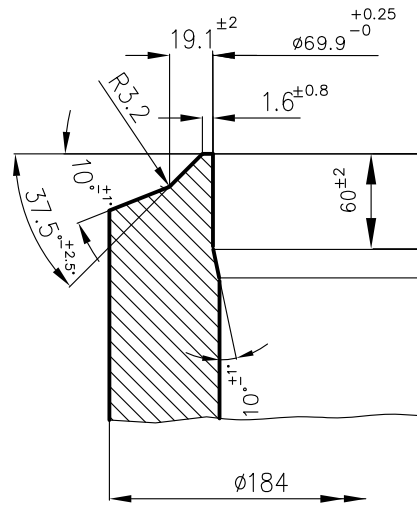
ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- 01 DESIGN PRESSURE : 272.4 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 573 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 05 FOLLOW TDC: TDG:104, REV.04
- 06 THIS STUB IS REQUIRED FOR MS SYSTEM OF 660 , 700 & 800 MW UNITS.



DETAIL-K



	FORGED STUB L=240 OD184/ID50	92 516 756 0000	A	28 000
		SA182F91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017	DRN	POONGKODI V	SIGN	DATE	NO.OF VAR
		CHD	PANDA S		28.09.12	
		APPD	C V NATHAN		28.09.12	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.	ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	28.000			
TITLE			CARD CODE	DRAWING NO.	REV	
SAFETY VALVE STUB OD 184 SA182F91			U 01	4-80-300-76047	01	

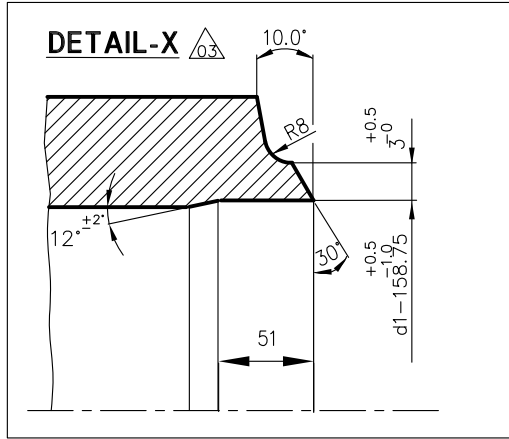
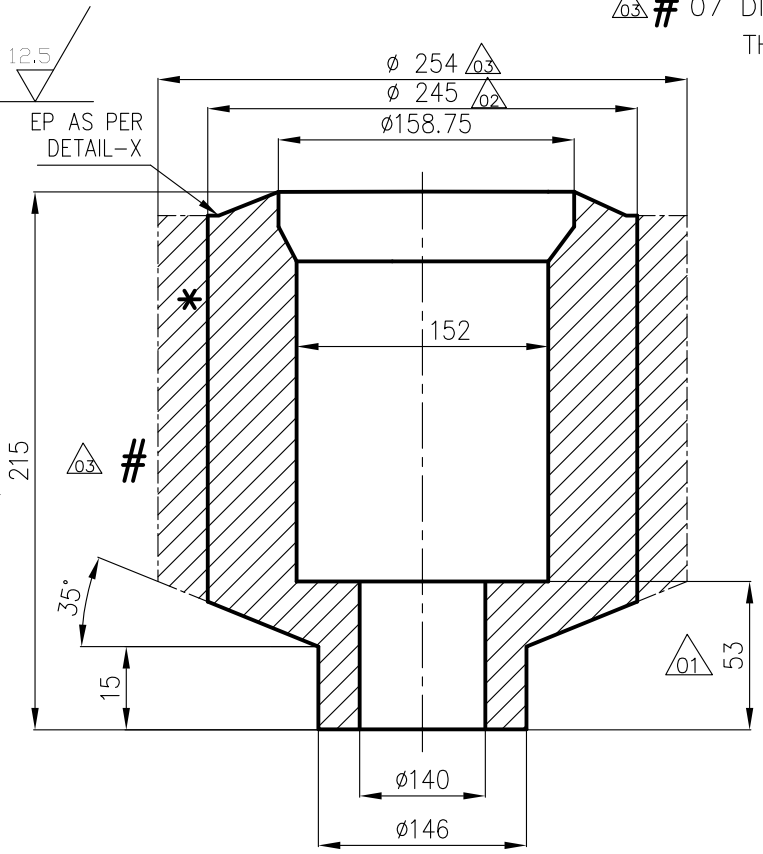
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REV	DATE	ALTERED	PRABHAKARAN
01	16.10.12	APPROVED	RAJITHA
DIMENSION REVISED REVISION INDICATED AS \triangle_{01}			
REV	DATE	ALTERED	C.DEEPAK
02	26.02.14	APPROVED	M.MANO
STUB OD REDUCED TO 245mm. EP DETAILS MATCHED WITH SAFETY VALVE. REVISION INDICATED AS \triangle_{02}			
REV	DATE	ALTERED	C.DEEPAK
03	14.05.14	APPROVED	M.MANO
MACHINING DETAIL ADDED FOR STUB. EP DETAILS REVERTED BACK. REVISION INDICATED AS \triangle_{03}			

ALL DIMENSIONS ARE IN MILLIMETRES

NOTES:

- 01 DESIGN PRESSURE : 68kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 601°C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 05 FOLLOW TDC: TDG:104, REV.04
- \triangle_{03} # 06 THIS STUB IS REQUIRED FOR HRH SYSTEM OF OTSC BOILERS.
- \triangle_{03} # 07 DIA254 IS TO BE MACHINED TO DIA245 THROUGHOUT.



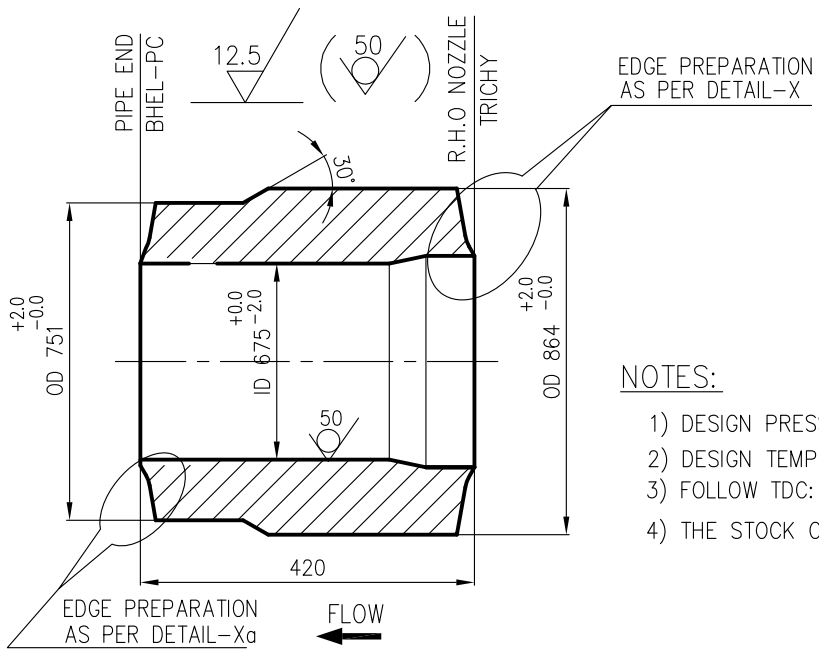
\triangle_{02}	FORGED STUB L=215 OD254/ID140	92 516 753 0000	A	38 000
		SA182F91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT
		MATL. SPECN.	C	DI
				UNIT.WT.(Kg)
				QTY.

	BHARAT HEAVY ELECTRICALS LIMITED		DRN	NAME	SIGN	DATE	NO.OF VAR
	PIPING CENTRE		CHD	PERUMAL C		05.05.12	
	CHENNAI 600 017		APPD	B B SINGH		05.05.12	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	38.000				
TITLE			CARD CODE	DRAWING NO.			REV
SAFETY VALVE STUB OD 245 SA182F91			U 01	4-80-310-75157			03

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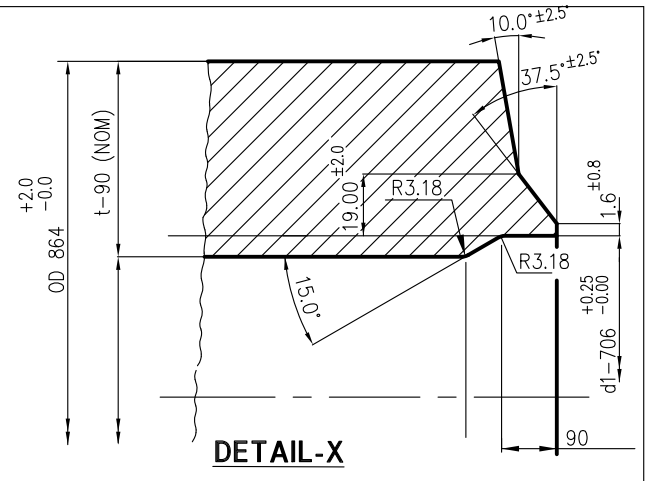
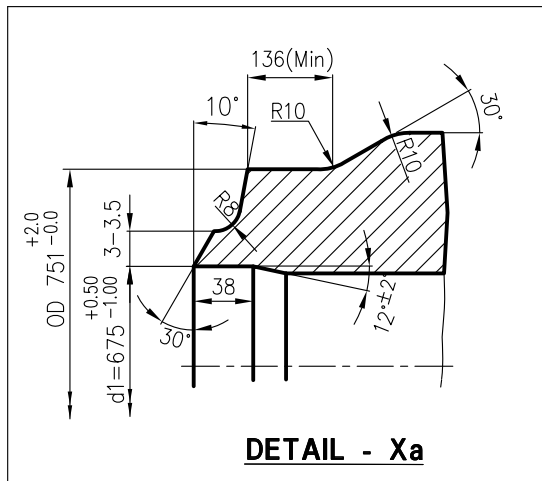
ALL DIMENSIONS ARE IN MILLIMETRES

REV 01	DATE	ALTERED : CHD & APPD :	REV 02	DATE	ALTERED : CHD & APPD :	REV 03	DATE	ALTERED : CHD & APPD :
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NOTES:

- 1) DESIGN PRESSURE : 68 Kg/sq.cm(g)
- 2) DESIGN TEMPERATURE : 601 °C
- 3) FOLLOW TDC:104 LATEST REVISION
- 4) THE STOCK CODE FOR THE MATCHING PIECE:921170300000



VARIANT NUMBER	DESCRIPTION	STD	MATCHING PIECE OD864x90/ID675x38 L=420	A	530	000
			SA 182 F91		UNIT WEIGHT(KG)	
			MATERIAL SPECN	A/C/P	QUANTITY	

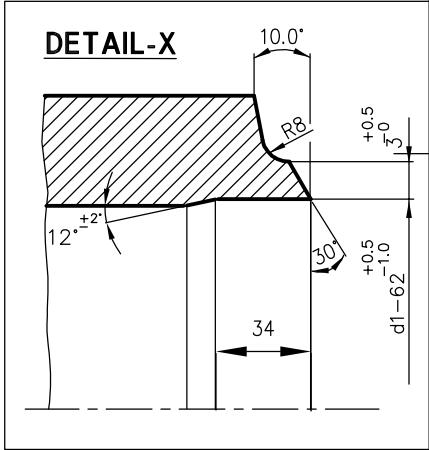
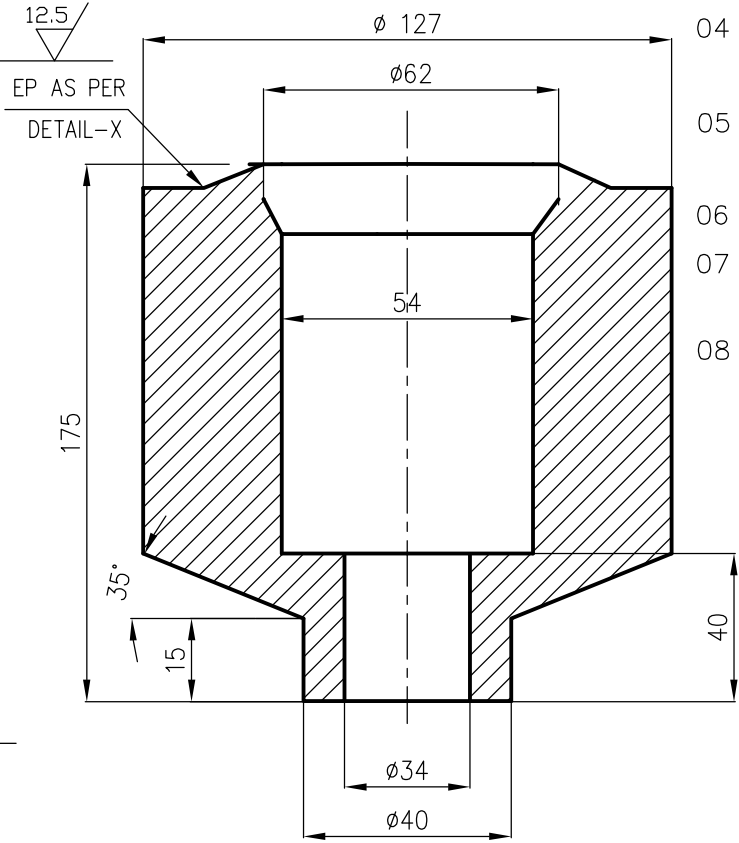
BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017	DRN	NAME M.R.KRISHNA	SIGNATURE Sd.....	DATE 30.04.15	
	CHD	I.D.B.RAJU	Sd.....	30.04.15	
	APPD	S RAMAMURTHY	Sd.....	30.04.15	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 530.0	REF TO ASSY / OLD DWG
TITLE MATCHING PIECE OD864x90/ID675x38-SA182F91			DRAWING NO : 4-80-310-79031		REV 00

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REV	DATE	ALTERED
		APPROVED

ALL DIMENSIONS ARE IN MILLIMETRES

- NOTES:**
- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
 - 02 DESIGN TEMPERATURE : 568 °C
 - 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
 - 04 FINISHED COMPONENT CODE IS 925167170000
 - 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
 - 06 FOLLOW TDC: TDG:104, REV.03
 - 07 THIS STUB IS REQUIRED FOR MS SYSTEM OF 660/800 MW UNITS.
 - 08 RAW MATERIAL CODE IS 15 339 407 0000



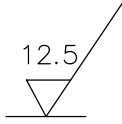
STANDARD

	ROD DIA: 130 L=175			15	521
		SA 182 F91	A		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	NAME	SIGN	DATE	NO.OF VAR
				CHD	SVR.KALAISELVAN			16.12.10	
				APPD	AP.MADHAVANKUTTY			16.12.10	
DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.			ITEM NO.	NO. OF ITEMS	
CODE	C / M / F	N.T.S	15.521						
TITLE				CARD CODE	DRAWING NO.				REV
ERV STUB OD 127 SA 182 F91				U 01	4-80-999-93309				00

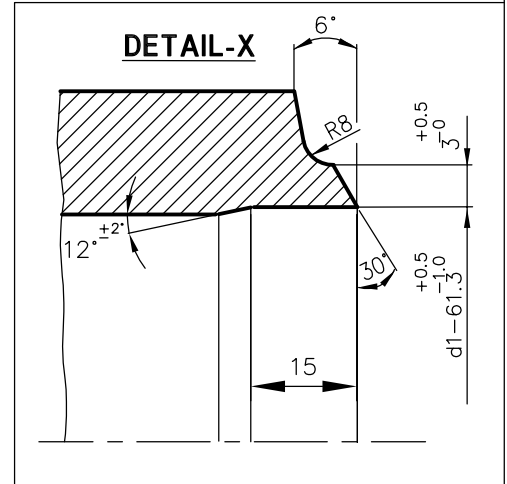
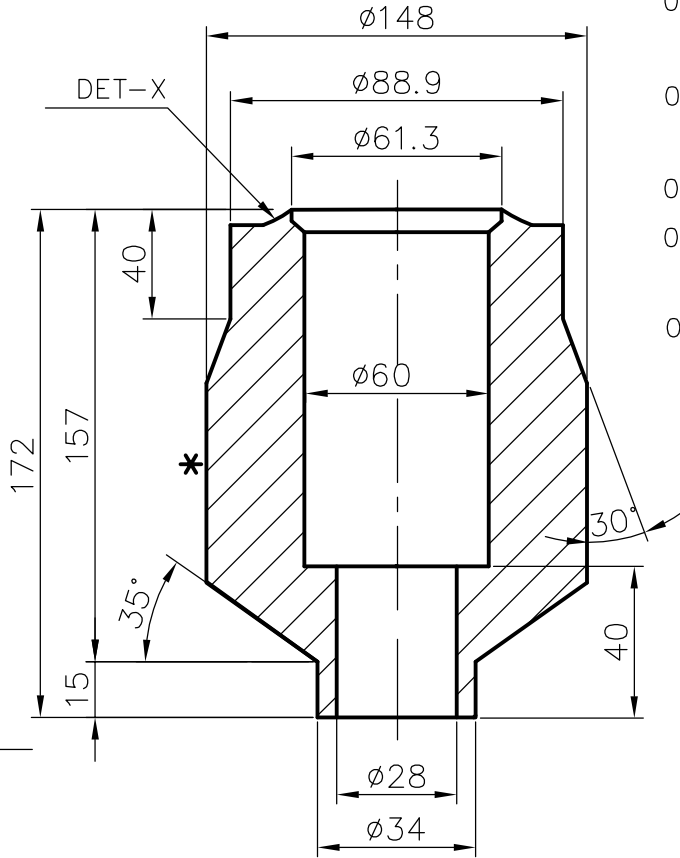
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REV 01	DATE	ALTERED : CHD & APPD :
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NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 568 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167180000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR MS SYSTEM START UP VENT OF 660/800 MW UNITS.
- 08 RAW MATERIAL CODE IS 15 339 407 0000



STANDARD

VARIANT NUMBER	ROD DIA: 150 L=172	STD	A/C/P	UNIT	10	100	
					SA 182 F91		
					MATERIAL CODE		UNIT WEIGHT
					MATERIAL SPECN		QUANTITY

	BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME LALIT	SIGNATURE	DATE 20.10.10
			CHD	SVR.KALAISELVAN		20.10.10
			APPD	AP.MADAHVANKUTTY		20.10.10
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S.	10.100	4-80-300-66381	
TITLE				DRAWING NO :		REV
STUB OD88.9x15.24 SA182F91				4-80-999-93310		00

ALL DIMENSIONS ARE IN MILLIMETRES

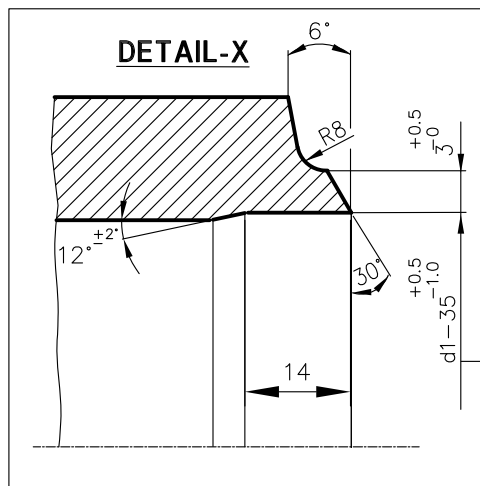
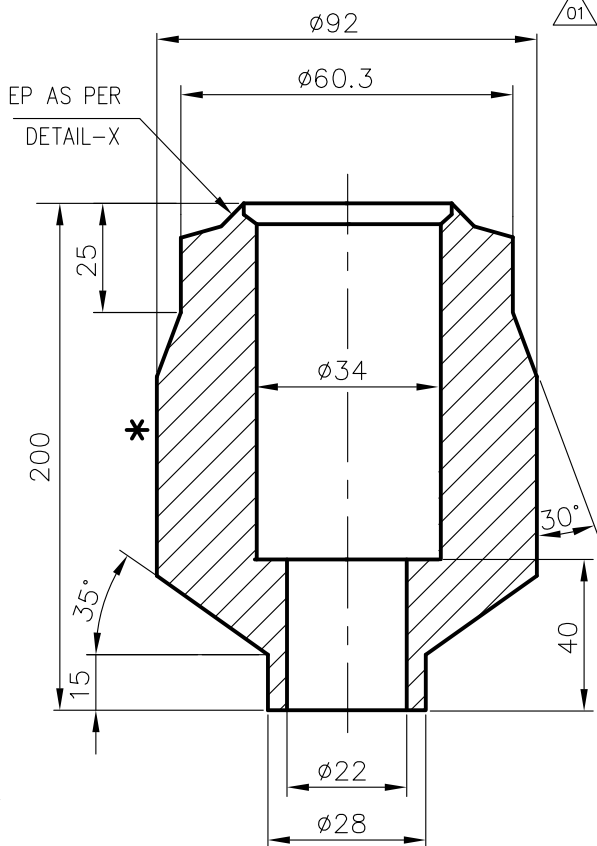
12.5/

REV	DATE	ALTERED	S.PANDA -SD.-
01	21.08.2012	APPROVED	APMK -SD.-
DESIGN PRESSURE ADDED		REVISION INDICATED AS $\triangle 01$	

NOTES:

- $\triangle 01$ 01 DESIGN PRESSURE, kg/cm²(g) :
- $\triangle 02$ 02 DESIGN TEMPERATURE, °C :
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167190000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR MS SYSTEM VENT OF 660/800 MW UNITS.
- 08 RAW MATERIAL CODE IS 15 339 406 0000

CASE-I	CASE-II
272	68.8
568	596



STANDARD

VAR NO.	DESCRIPTION	STD	MATL. CODE	MATL. SPECN.	A	UNIT	DI	QTY.	UNIT.WT.(Kg)
	ROD $\phi 100$, L=200		SA 182 F91		A			6	160

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	SIGN		DATE	20.10.10	NO. OF VAR
DEPT	GRADE OF UNTOL. DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS		
CODE	C / M / F		N.T.S	6 160						
TITLE				CARD CODE	DRAWING NO.				REV	
STUB OD60.3 SA182F91				U 01	4-80-999-93311				01	

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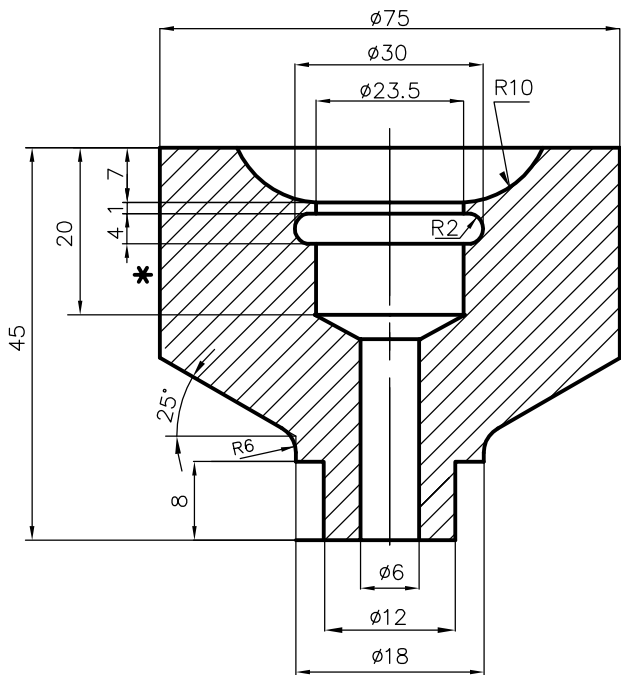
ALL DIMENSIONS ARE IN MILLIMETRES

12.5/

REV	DATE	ALTERED
		APPROVED


NOTES:

- 01 DESIGN PRESSURE : 70 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 596 °C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167210000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 THIS STUB IS REQUIRED FOR HRH SYSTEM OF 660 MW UNITS.
- 08 RAW MATERIAL CODE IS 15 339 405 0000



STANDARD

	ROUND ϕ 80 L=45		A		0 820
		SA 182 F91			
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT.WT.(Kg)
		MATL. SPECN.	C	DI	QTY.

 BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	LALIT	SIGN	DATE	NO. OF VAR
		CHD	SVR.KALAISELVAN		11.12.10	
		APPD	AP.MADHAVANKUTTY		11.12.10	
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.	ITEM NO.	NO. OF ITEMS
CODE	C / M / F	N.T.S	0.820			
TITLE			CARD CODE	DRAWING NO.	REV	
TEMPERATURE STUB OD75			U 01	4-80-999-93313	00	
L=45 HWR SA182F91						

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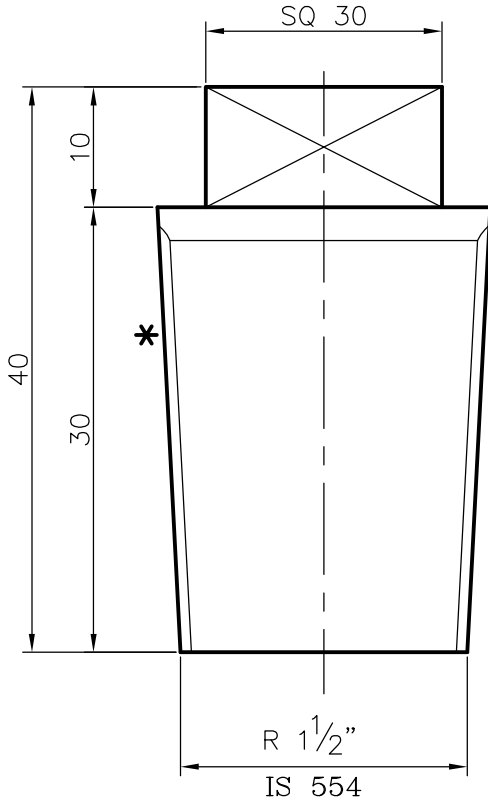
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REV	DATE	ALTERED
		APPROVED

12.5

NOTES:

- 01 DESIGN PRESSURE : 272 kg/sq.cm(g)
- 02 DESIGN TEMPERATURE : 596°C
- 03 HARD PUNCH "F91" AT PLACE MARKED WITH *
- 04 FINISHED COMPONENT CODE IS 925167310000
- 05 ALTERNATE/SUITABLE SIZE OF SA182 F91 FORGING CAN ALSO BE USED.
- 06 FOLLOW TDC: TDG:104, REV.03
- 07 RAW MATERIAL CODE IS 153394050000
- 08 ALL SHARP CORNERS ARE TO BE ROUNDED OFF.



STANDARD

	ROD ϕ 80 ; L=40		A	0 500
		SA 182 F91		
VAR NO.	DESCRIPTION	MATL. CODE	A	UNIT.WT.(Kg)
		MATL. SPECN.	C	QTY.

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	JUDE ANTONE	SIGN	DATE	NO. OF VAR
				CHD	SVR.KALAISELVAN		04.01.11	
				APPD	AP.MADHAVANKUTTY		04.01.11	
DEPT	GRADE OF UNTOL. DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	0.500	4-80-300-56137			
TITLE				CARD CODE	DRAWING NO.			REV
SCREW PLUG RC 1.5" SA 182 F91				U 01	4-80-999-93326			00