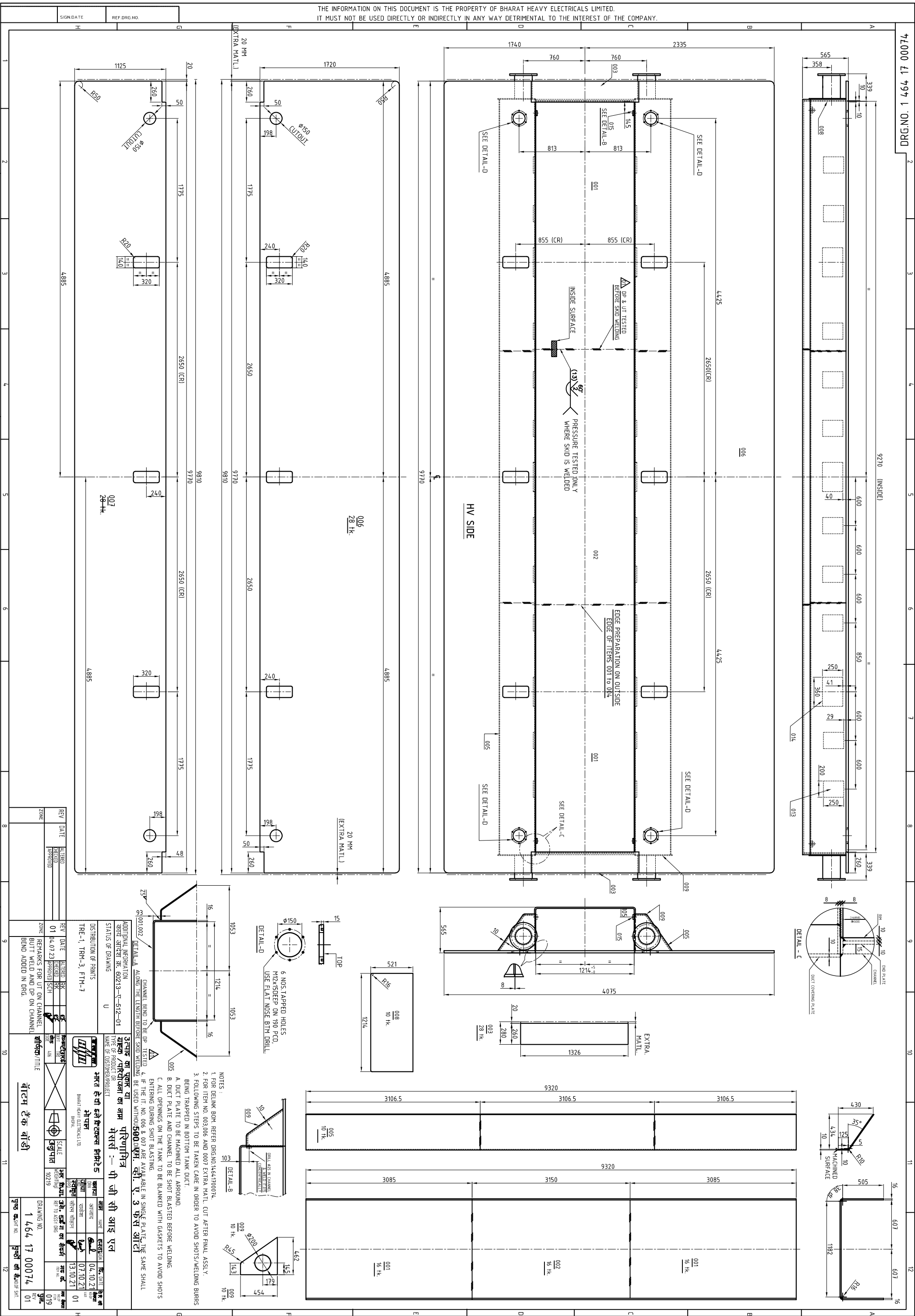


BILL OF MATERIAL	DEP NO	NO OF IT	VAR	TYPE OF PRODUCT	WORK ORDER 60213A51201	DRG NO 14641700074	CORE CODE 65317717	REV 01	VER 00
	406	19	2	500 MVA,3PH,AUTO,TRANSF.	TITLE CHANNEL DETAIL BOTTOM TANK				SHT NO 1 OF 1

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT	MATCODE	A / C	UT	UNIT	WT	G / S					
							MAT SIZE	DETAILS	VAR	MAT SPEC			QTY	ZONE						
				00002	TO DETAIL	001	CHANNEL PLATE			AA1011808110		KG		879.900						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							16			2268				3085						
				00001	TO DETAIL	002	CHANNEL PLATE			AA1011808110		KG		898.400						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							16			2268				3150						
				00002		003	TOP PLATE			AA1011808161		KG		75.800						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							28			280				1326						
				00002	TO DETAIL (3106.5+3106.5+3106.5=9320)	005	DUCT PLATE			AA1011808072		KG		482.700						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							10			659				9320						
				00001	TO DETAIL	006	TOP PLATE			AA1011808161		KG		3655.400						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							28			1720				9810						
				00001	TO DETAIL	007	TOP PLATE			AA1011808161		KG		2376.100						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							28			1125				9810						
				00002	TO DETAIL	008	CHANNEL END COVER			AA1011808072		KG		49.700						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							10			521				1214						
				00004	TO DETAIL	009	DUCT COVER PLATE			AA1011808072		KG		13.300						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							10			454				462						
				00020		013	PAD			AA1011808110		KG		6.280						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							16			200				250						
				00006		014	PAD			AA1011808110		KG		11.300						
							TK			WDT				LEN	ID	OD	DIM1	AA10108		
							16			250				360						
				00004	DETAIL 'B'	015	DRAIN BOSS 1/2" BSP	TR20014B	010	BP9096003497		KG		0.120						
							TK			WDT				LEN	ID	OD	DIM1			
				00004	B=304	017	PIPE FLG. ASSY 200NB	14991500004				KG		16.500						
							TK			WDT				LEN	ID	OD	DIM1	07		

10219.

DISTRIBUTION DETAILS				REV NO. 1	PREP BY	CKD BY	APPD BY	DATE
TRE	TRM	FTM		PREP BY	CKD BY	APPD BY	DATE	
1	3	10		AZAD	RA	SCH	26 AUG 2021	DRG NO 14641700074



BILL OF MATERIAL	DEP NO	NO OF IT	VAR	TYPE OF PRODUCT	WORK ORDER 62207A51201	DRG NO 14641700075	CORE CODE 65317717	REV 00	VER 00
	406	52	3	500 MVA,3PH,AUTO TRANSF.	TITLE BOTTOM TANK ASSY BOTTOM TANK				SHT NO 1 OF 5

[illegible]

DISTRIBUTION DETAILS					REV NO. 0	PREP BY	CKD BY	APPD BY	DATE	
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE		
1	3	7			AZAD	RA	SCH	27 JUL 2022	DRG NO 14641700075	SHT 1 OF 5

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER	DRG NO	CORE CODE	REV	
					62207A51201	14641700075	65317717	00	
	406	52	3	500 MVA,3PH,AUTO TRANSF.	TITLE BOTTOM TANK ASSY BOTTOM TANK				SHT NO 2 OF 5

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S
							MAT SIZE	DETAILS		MAT SPEC			QTY	ZONE	
				00004	TO DETAIL	013	PLATE FOR CONNEC TO EARTH TK WDT LEN ID OD DIM1 20 50 185			AA1011808137 AA10108		KG	1.400		
				00012		014	TANK PART DETAIL TK WDT LEN ID OD DIM1	34641700137	002			KG	0.014		
				00004		015	TANK PART DETAIL TK WDT LEN ID OD DIM1 5 32 3007			AA1011808013 AA10108		KG	3.800		
				00002		016	TANK PART DETAIL TK WDT LEN ID OD DIM1 5 32 3096			AA1011808013 AA10108		KG	3.900		
				00040	ABOVE SKID BASE	017	GUSSET TK WDT LEN ID OD DIM1	34641700137	003			KG	0.762		
				00028		018	TANK PART TK WDT LEN ID OD DIM1 3.15 15 30			AA1011713136 AA10113		KG	0.030		
				00004	ABOVE JACKING PAD	019	TANK PART DETAIL TK WDT LEN ID OD DIM1 16 150 270			AA1011808110 AA10108		KG	5.000		
				00020	WELD INLINE WITH TOP TANK QTY. MAY VARY	020	BOSS M12 TK WDT LEN ID OD DIM1	TR20014B	003	BP9096039980		KG	0.200		
				00001	QTY. OF IT. NO. 001=022 QTY OF IT. NO. 002=011	021	LIMITER ARRGT. TK WDT LEN ID OD DIM1	34521700080	00			KG	67.500		
				00001	FOR SAMPLING	022	PIPE & FLG ASSY (15NB) TK WDT LEN ID OD DIM1	34641500024	00			KG	1.290		
				00002	FOR OIL FILTRATION B=180	023	PIPE & FLG. ASSY (50NB) TK WDT LEN ID OD DIM1	34641500024	02			KG	2.670		
				00001	B=300	024	PIPE & FLG. ASSY (100NB) TK WDT LEN ID OD DIM1	34641500024	04			KG	6.500		

DISTRIBUTION DETAILS					REV NO. 0	PREP BY	CKD BY	APPD BY	DATE	
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE		
1	3	7			AZAD	RA	SCH	27 JUL 2022	DRG NO 14641700075	SHT 2 OF 5

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER	DRG NO	CORE CODE	REV	00
					62207A51201	14641700075	65317717	00	
	406	52	3		500 MVA,3PH,AUTO TRANSF.	TITLE BOTTOM TANK ASSY BOTTOM TANK			

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT WT	G / S
							MAT SIZE	DETAILS		MAT SPEC			QTY	ZONE
				00002	FOR COMPLETE OIL DRAIN	025	COMPLETE DRAIN BOSS	34991700005	00			KG	3.850	
							TK WDT LEN ID OD DIM1							
				00004		026	TANK PART DETAIL			AA1011808110		KG	27.400	
							TK WDT LEN ID OD DIM1			AA10108				
							16 150 1454							
				00002		027	TANK PART DETAIL			AA1011808110		KG	106.200	
							TK WDT LEN ID OD DIM1			AA10108				
							16 150 5630							
				00002		028	TANK PART DETAIL	34641700126		AA1011808110		KG	6.140	
							TK WDT LEN ID OD DIM1			AA10108				
							16 150 326							
				00006		029	TANK PART DETAIL			AA1011808110		KG	6.700	
							TK WDT LEN ID OD DIM1			AA10108				
							16 150 355							
				00008		030	TANK PART DETAIL			AA1011808110		KG	3.470	
							TK WDT LEN ID OD DIM1			AA10108				
							16 150 184							
				00009		031	TANK PART DETAIL			AA1011808110		KG	8.150	
							TK WDT LEN ID OD DIM1			AA10108				
							16 150 432							
				00002		032	GUSSET LV SIDE	34641700137	008			KG	61.000	
							TK WDT LEN ID OD DIM1							
				00016		033	TANK PART DETAIL	34641700137	001			KG	4.880	
							TK WDT LEN ID OD DIM1							
				00012		034	GUSSET LV SIDE	34641700137	006			KG	31.800	
							TK WDT LEN ID OD DIM1							
				00010		035	GUSSET LV SIDE	34641700137	007			KG	39.100	
							TK WDT LEN ID OD DIM1							
				00004		036	GUSSET LV SIDE	34641700137	009			KG	61.000	
							TK WDT LEN ID OD DIM1							

DISTRIBUTION DETAILS					REV NO. 0	PREP BY	CKD BY	APPD BY	DATE	
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE		
1	3	7			AZAD	RA	SCH	27 JUL 2022	DRG NO 14641700075	SHT 3 OF 5

BILL OF MATERIAL	DEP NO	NO OF IT	VAR	TYPE OF PRODUCT	WORK ORDER 62207A51201	DRG NO 14641700075	CORE CODE 65317717	REV 00	00	
	406	52	3	500 MVA,3PH,AUTO TRANSF.	TITLE BOTTOM TANK ASSY BOTTOM TANK				SHT NO 4 OF 5	

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S
							MAT SIZE	DETAILS		MAT SPEC			QTY	ZONE	
				00002		037	GUSSET HV SIDE	34641700137	012			KG		43.500	
							TK WDT LEN ID OD DIM1								
				00012		038	GUSSET HV SIDE	34641700137	010			KG		20.700	
							TK WDT LEN ID OD DIM1								
				00010		039	GUSSET HV SIDE	34641700137	011			KG		28.000	
							TK WDT LEN ID OD DIM1								
				00004		040	GUSSET HV SIDE	34641700137	013			KG		27.400	
							TK WDT LEN ID OD DIM1								
				00004		041	STIFFENER ASSLY	34641700136				KG		108.500	
							TK WDT LEN ID OD DIM1			01					
			00001		2 NOS. GLOBE VALVES IN SERIES.	042	VALVE MTG. 15NB (GLOBE VALVE)	34645100129				KG		3.147	
							TK WDT LEN ID OD DIM1			01					
			00001		FOR COMPLETE DRAINAGE	043	VALVE MTG. 100NB	34994300104				KG		21.290	
							TK WDT LEN ID OD DIM1			08					
			00002			044	VALVE MTG. 50NB	34641500025				KG		5.940	
							TK WDT LEN ID OD DIM1			02					
			00002			045	VALVE MTG. 200NB	14991900021				KG		16.070	
							TK WDT LEN ID OD DIM1			07					
		00002				046	BLANKING PLATE 50NB	14998800004				KG		1.270	
							TK WDT LEN ID OD DIM1			03					
		00001				047	BLANKING 15NB	14998800004				KG		0.713	
							TK WDT LEN ID OD DIM1			00					
		00001				048	BLANKING 100NB	14998800004				KG		2.465	
							TK WDT LEN ID OD DIM1			05					

DISTRIBUTION DETAILS					REV NO. 0	PREP BY		CKD BY		APPD BY		DATE
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE	DRG NO 14641700075		SHT 4 OF 5	
1	3	7			AZAD	RA	SCH	27 JUL 2022				

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER	DRG NO	CORE CODE	REV		
					62207A51201	14641700075	65317717	00	00	
	406	52	3		500 MVA,3PH,AUTO TRANSF.	TITLE				SHT NO
					BOTTOM TANK ASSY BOTTOM TANK				5 OF 5	

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S			
							MAT SIZE	DETAILS		MAT SPEC			QTY	ZONE				
		00002	00002			049	BLANKING 200 NB	14998800004	07			KG		6.340				
							TK			WDT			LEN	ID	OD	DIM1		
			00024			050	STEEL STUD M12X55LG	TR20048S	019			KG		0.049				
							TK			WDT			LEN	ID	OD	DIM1		
				00002	TO DETAIL	051	STIFFENER			AA1011808110		KG		68.700				
							TK			WDT			LEN	ID	OD	DIM1		AA10108
							16			150			3823					

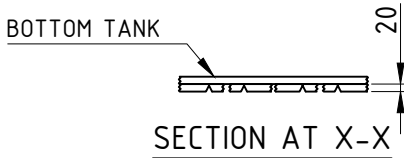
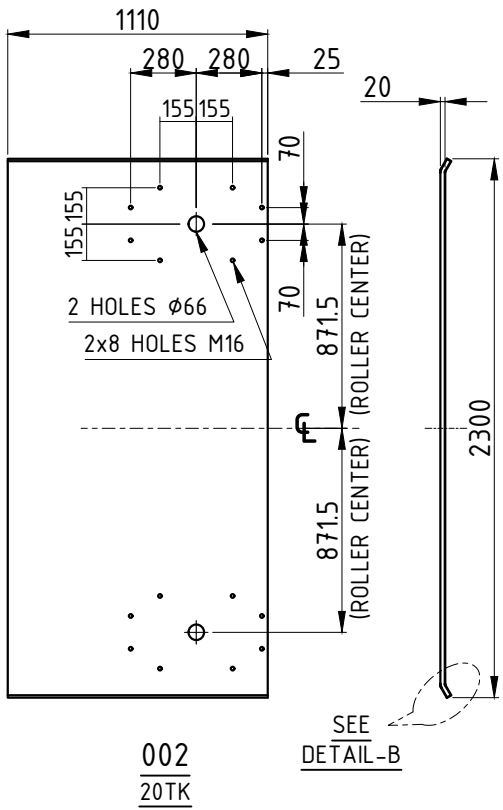
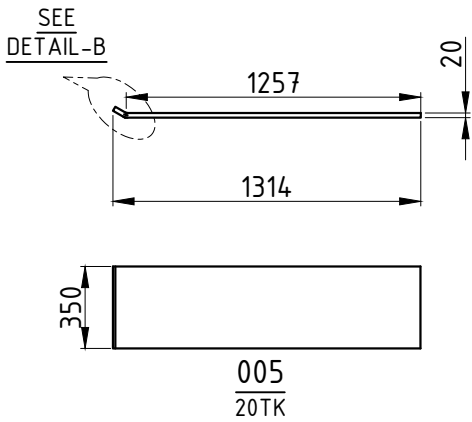
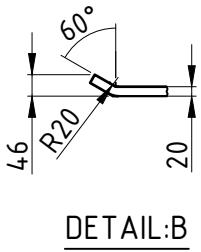
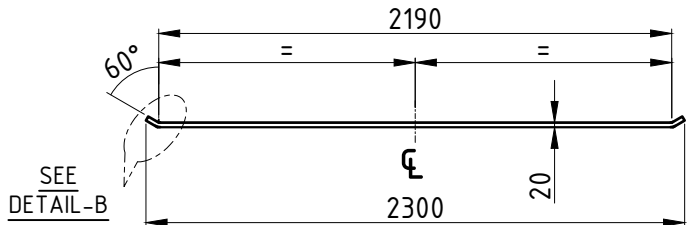
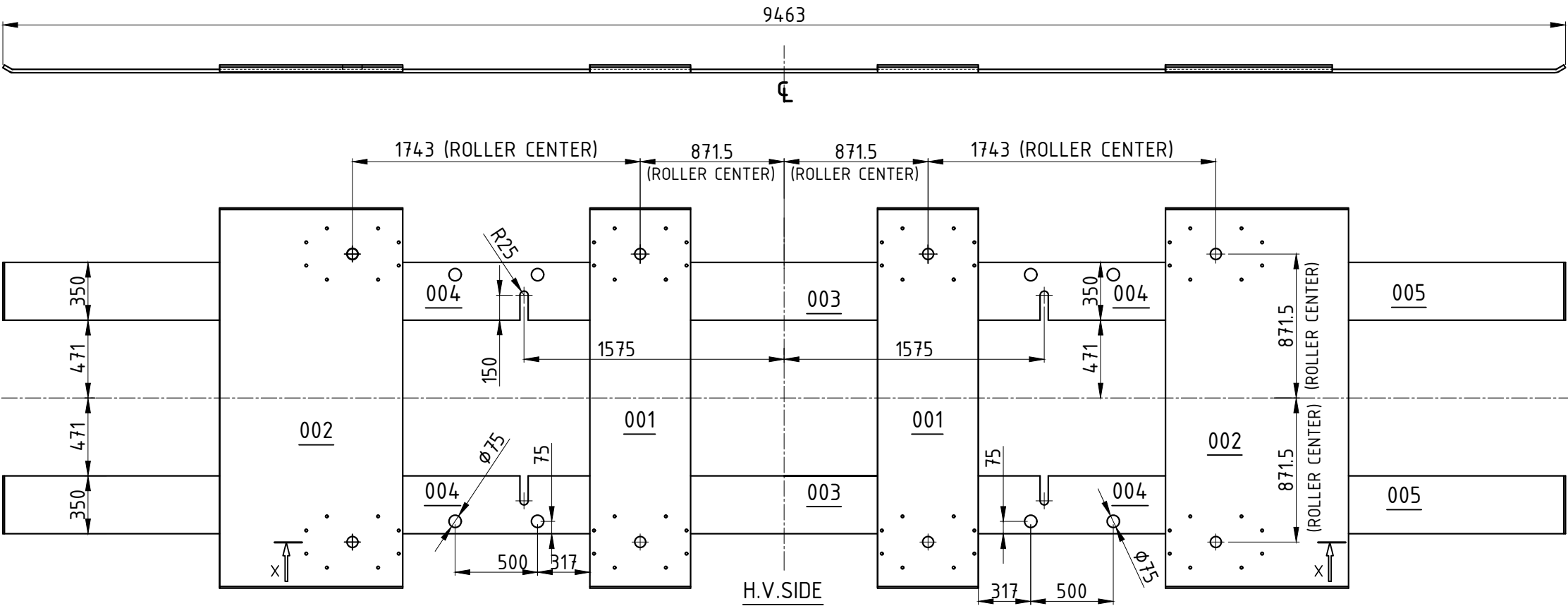
18.398 82.31 15847.

DISTRIBUTION DETAILS					REV NO. 0	PREP BY		CKD BY		APPD BY		DATE
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE				
1	3	7			AZAD	RA	SCH	27 JUL 2022				
DRG NO 14641700075												SHT 5 OF 5

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

INVENTORY NO.
SIGN. DATE
REF. DRG. NO.

DRG. NO. 3 464 17 00135



- NOTES:-
- 1. WELD ITEMS 001 & 002 THEN WELD IT.003 TO 005 WITH BOTTOM TANK AS PER DRAWING.
 - 2. FOR WELDING REFER 14991600002.
 - 3. FOR DELINKED BOM REF. COMPUTER SHEET.34641700135.

ADDITIONAL INFORMATION W.O. NO.- 60213-A-512-01.				उत्पाद का प्रकार या ग्राहक /परियोजना का नाम 500 MVA,3-PH. AUTO TRANSFORMER			
STATUS OF DRAWING U				M/s:- PGCIL			
DISTRIBUTION OF PRINTS TRE-1 , TRM-3 , FTM-10				भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD. BHOPAL			
REV 00	DATE	ALTERED CHECKED APPROVED		विभाग TRE कोड 406	SCALE अनुपात NTS	WEIGHT(kg) भार कि.ग्रा. 1885.7	असे. ड्राईंग का संदर्भ REF TO ASSY DRG
ZONE				शीर्षक/TITLE SKID BASE ASSY.			
				DRAWING NO. 3 464 17 00135			
				पृष्ठ क. SHT NO.1			

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER 60213A51201	DRG NO 34641700136	CORE CODE 65317717	REV 00	VER 00	
	406	10		500 MVA,3PH, AUTO. TRANSF	TITLE STIFFENER ASSLY BOTTOM TANK				SHT NO 1 OF 1	

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION						DRAWING NO	IT.	MATCODE		A / C	UT	UNIT WT		G / S
							MAT SIZE						DETAILS	VAR	MAT SPEC				QTY	ZONE	
			00001		SHARP EDGES TO BE ROUNDED OFF	001	TANK PART								AA1011808110			KG	45.000		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	300	1196												
			00001			002	TANK PART								AA1011808110			KG	40.630		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	300	1082												
				00001	TO DETAIL	003	TANK PART								AA1011808110			KG	22.200		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	168	1180												
				00006	TO DETAIL	004	GUSSET								AA1011808110			KG	3.200		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	157	168												
				00002		005	TANK PART								AA1011808110			KG	5.200		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	118	350												
			00001		TO DETAIL	006	TANK PART								AA1011808110			KG	9.820		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	68	1180												
			00006		TO DETAIL	007	GUSSET								AA1011808110			KG	1.100		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	68	132												
			00002			008	TANK PART								AA1011808110			KG	3.200		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	35	300												
				00001		009	TANK PART								AA1011808110			KG	52.540		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	350	1196												
				00001		010	TANK PART								AA1011808110			KG	47.440		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	350	1082												

108.5 151.78

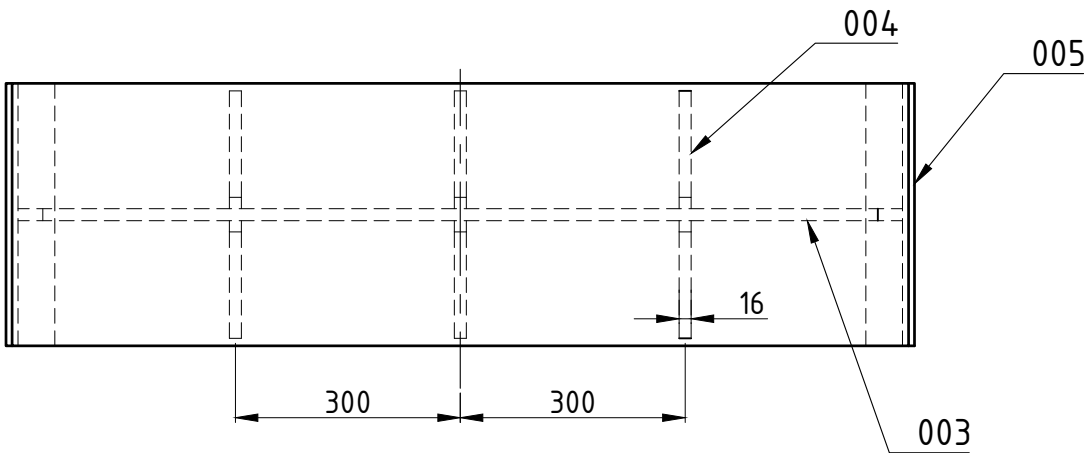
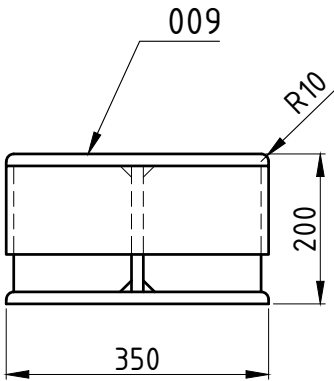
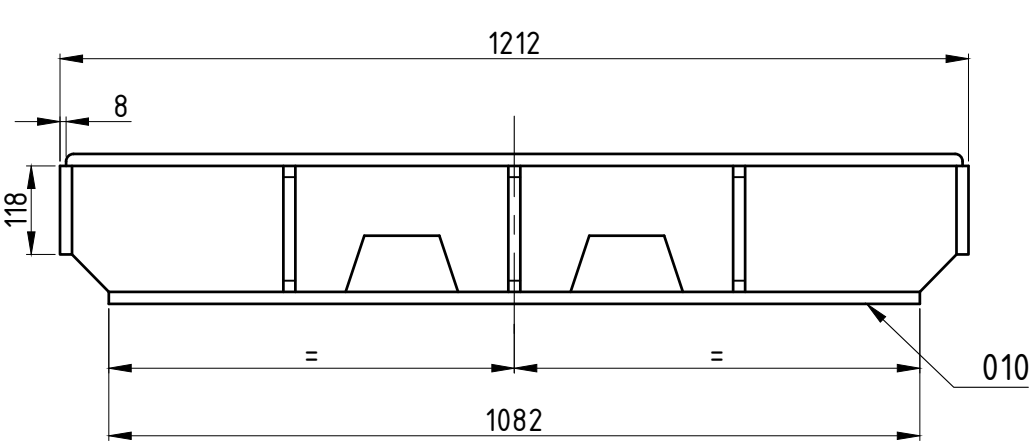
DISTRIBUTION DETAILS				REV NO. 0		PREP BY		CKD BY		APPD BY		DATE	
TRE	TRM	FTM		PREP BY		CKD BY		APPD BY		DATE			
1	3	10		AZAD		RA		SCH		26 AUG 2021		DRG NO 34641700136	
												SHT 1 OF 1	

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

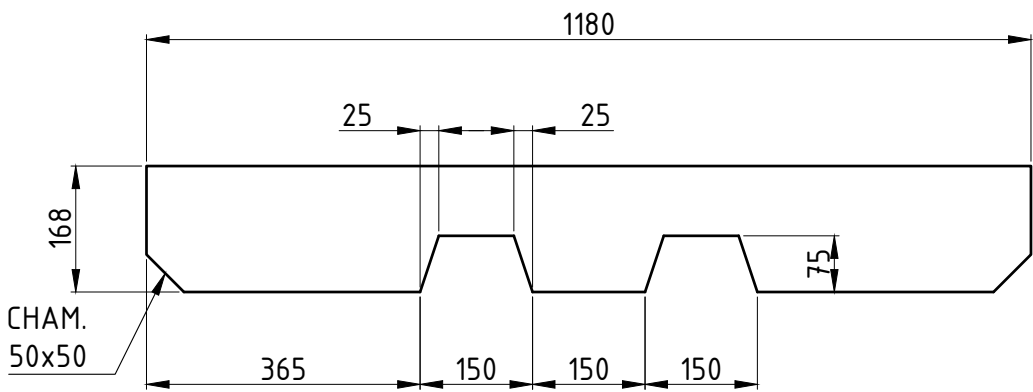
INVENTORY NO.
SIGN. DATE
REF.DRG.NO.

BHARAT HEAVY ELECTRICALS LTD.

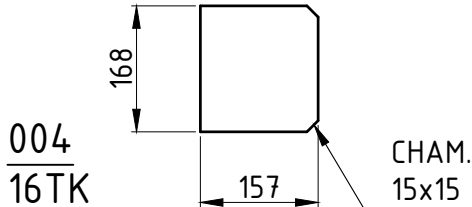
DRG. NO. 3 464 17 00136



VAR.00

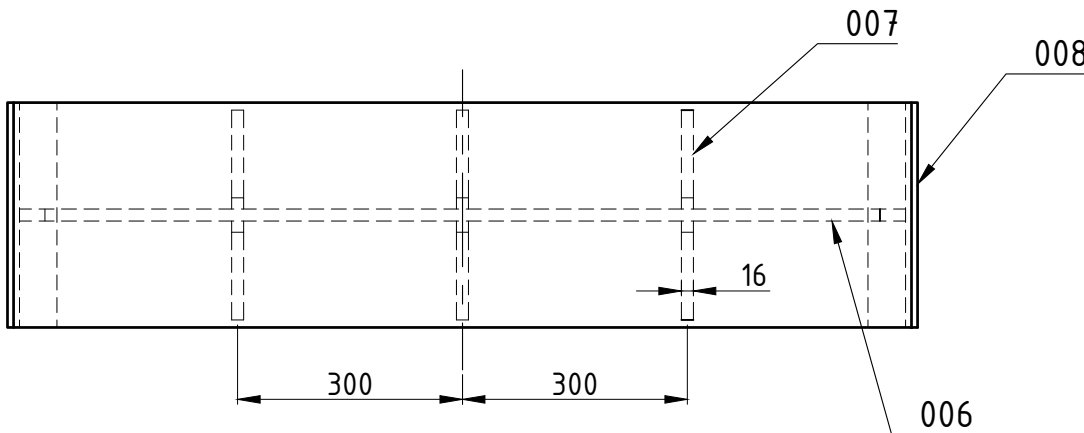
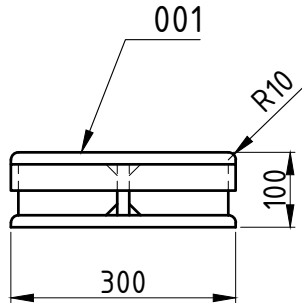
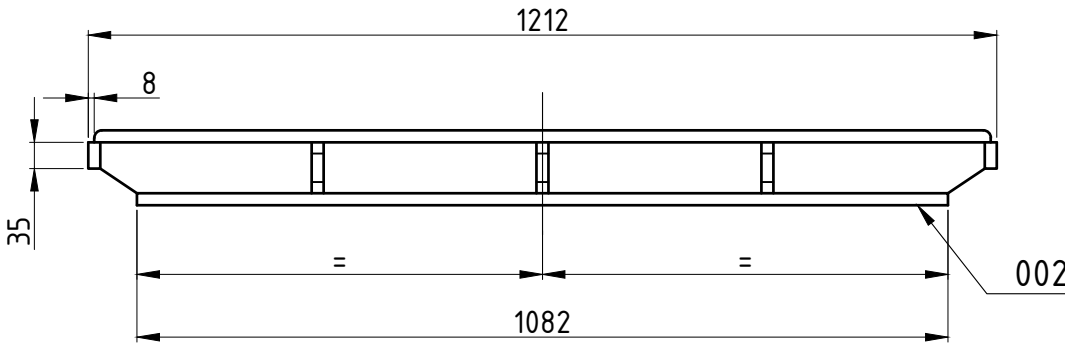


003
16TK

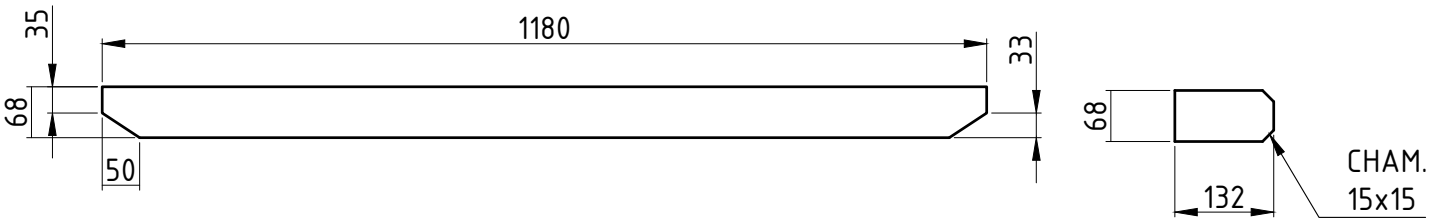


004
16TK

- NOTE:-
1. FOR DELINKED BOM REFER BOM SHEET 34641700136.
2. ALL SHARP EDGES TO BE ROUNDED OFF.



VAR.01



006
16TK

WEIGHT IN KGS. :

VAR.00 : 151.78

VAR.01 : 108.50

007
16TK

ADDITIONAL INFORMATION W.O. NO.- 60213-A-512-01.					उत्पाद का प्रकार या ग्राहक /परियोजना का नाम TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT					500 MVA,3-PH. AUTO TRANSFORMER M/s:- PGCIL						
STATUS OF DRAWING U					भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD. BHOPAL					वनाया DRN		नाम NAME	हस्ता. SIGN	दि. DATE	वेरि की संख्या NO.OF VAR	
DISTRIBUTION OF PRINTS टी आर ई-1, टी आर एम -3, एफ टी एम-7										जांचा CHD		RAKESH		07.10.21	02	
										स्वीकृत APPD		SCH		08.10.21		
										विभागीय आरई DEPT TRE				SCALE अनुपात		WEIGHT(kg) भार कि.ग्रा.
कोड CODE 406																
ZONE					शीर्षक/TITLE STIFFENER ASSY.					DRAWING NO. 3 464 17 00136 पृष्ठ क्र.SHT NO.1					पृष्ठों की सं. NO.OF SHT.1	

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER 60213A51201	DRG NO 34641700137	CORE CODE 65317717	REV 00	VER 00
	406	13	0		500 MVA,3PH,AUTO. TRANSF.	TITLE GUSSET DETAILS BOTTOM TANK			SHT NO 1 OF 2

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION						DRAWING NO	IT.	MATCODE	A / C	UT	UNIT WT	G / S
							MAT SIZE						DETAILS	VAR	MAT SPEC			QTY	ZONE
				00001	TO DETAIL	001	PLATE								AA1011808110		KG	4.800	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							16	182	250										
				00001	TO DETAIL	002	STIFFENER								AA1011808013		KG	0.014	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							5	27	27										
				00001	TO DETAIL	003	STIFFENER								AA1011808110		KG	0.762	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							16	82	100										
				00001	TO DETAIL	004	RIB								AA1011808153		KG	12.500	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							25	156	490										
				00001	TO DETAIL	005	JACKING PAD								AA1011808170		KG	44.900	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							32	325	565										
				00001	TO DETAIL	006	GUSSET								AA1011808110		KG	31.800	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							16	537	1586										
				00001	TO DETAIL	007	GUSSET								AA1011808110		KG	39.100	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							16	537	1586										
				00001	TO DETAIL	008	GUSSET								AA1011808153		KG	61.000	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							25	537	1586										
				00001	TO DETAIL	009	GUSSET								AA1011808110		KG	61.000	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							16	537	1586										
				00001	TO DETAIL	010	GUSSET								AA1011808110		KG	20.700	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							16	537	990										
				00001	TO DETAIL	011	GUSSET								AA1011808110		KG	28.000	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							16	537	990										
				00001	TO DETAIL	012	GUSSET								AA1011808153		KG	43.500	
							TK	WDT	LEN	ID	OD	DIM1			AA10108				
							25	537	990										

DISTRIBUTION DETAILS					REV NO. 0	PREP BY	CKD BY	APPD BY	DATE	
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE		
1	3	10			AZD	RA	SCH	01 SEP 2021	DRG NO 34641700137	SHT 1 OF 2

BILL OF MATERIAL				DEP NO	NO OF IT VAR		TYPE OF PRODUCT				WORK ORDER 60213A51201		DRG NO 34641700137		CORE CODE 65317717		REV 00 00	
				406	13	0	500 MVA,3PH,AUTO. TRANSF.				TITLE GUSSET DETAILS BOTTOM TANK							

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION						DRAWING NO	IT.	MATCODE		A / C	UT	UNIT WT		G / S
							MAT SIZE						DETAILS			MAT SPEC			QTY		ZONE
				00001	TO DETAIL	013	GUSSET								AA1011808110			KG	27.400		
							TK	WDT	LEN	ID	OD	DIM1			AA10108						
							16	537	990												

375.48

DISTRIBUTION DETAILS					REV NO. 0	PREP BY		CKD BY		APPD BY		DATE
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE	DRG NO 34641700137		SHT 2 OF 2	
1	3	10			AZD	RA	SCH	01 SEP 2021				

BHARAT HEAVY ELECTRICALS LTD.

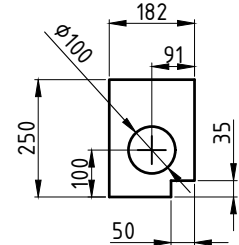
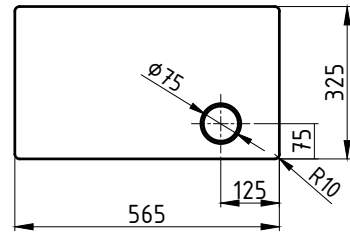
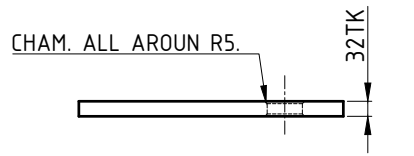
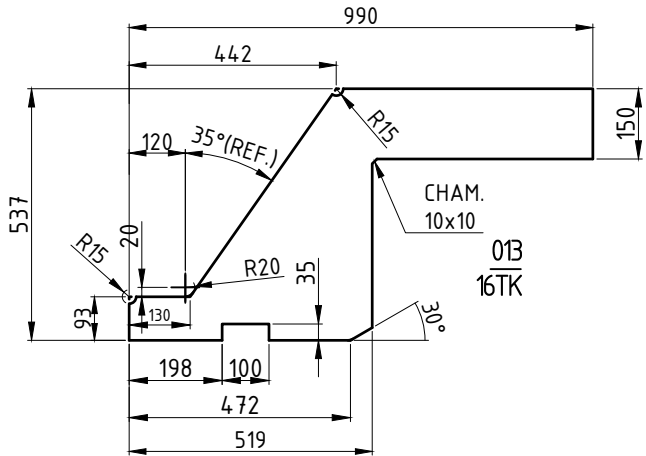
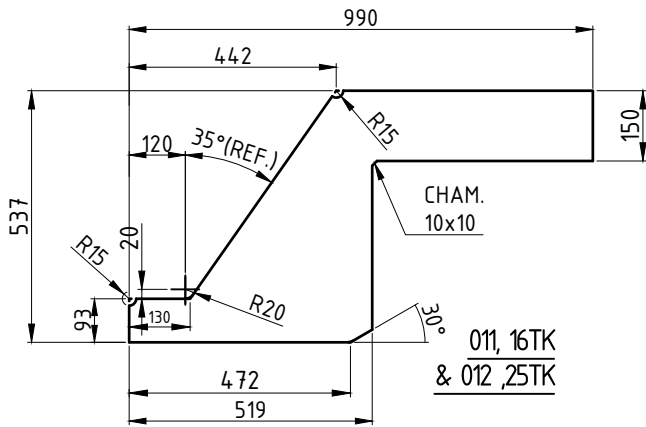
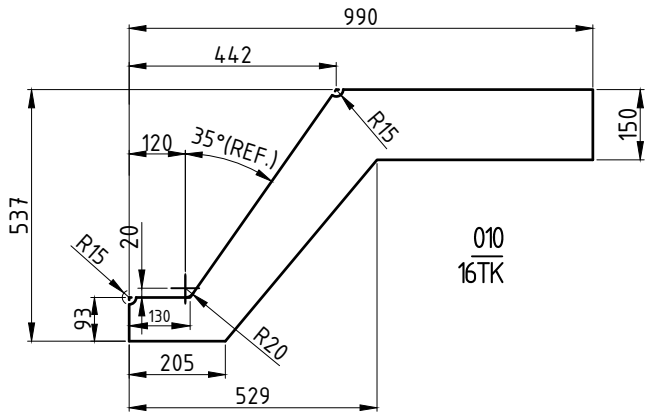
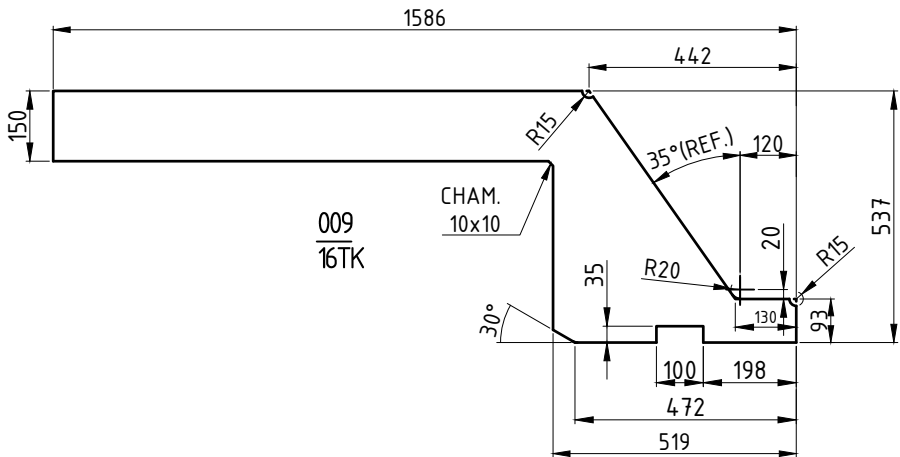
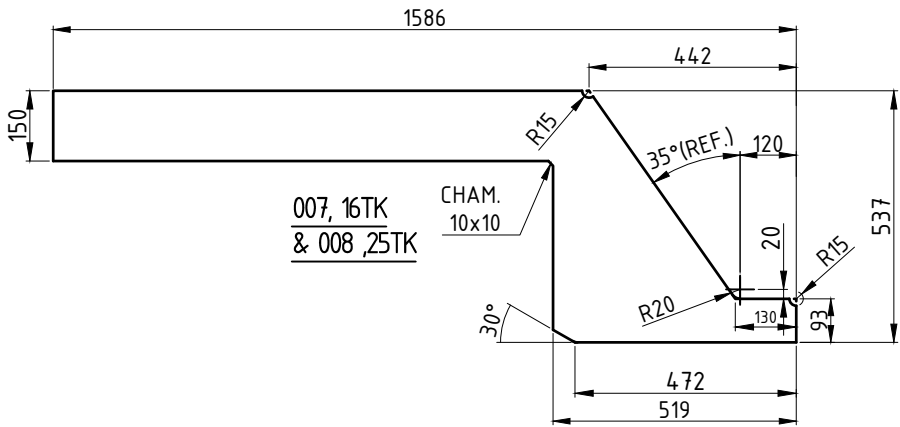
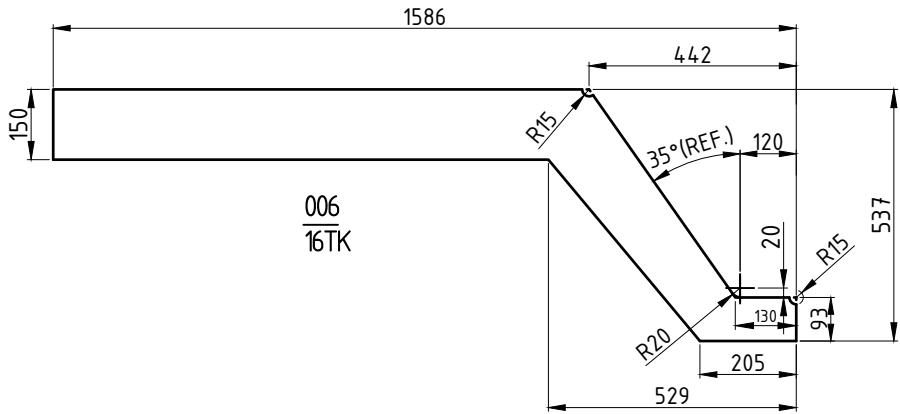
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

REF.DRG.NO.

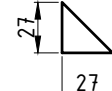
SIGN.DATE

INVENTORY NO.

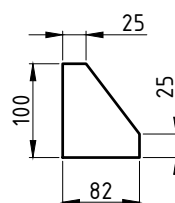
DRG.NO. 3 464 17 00137



001
16TK



002
5TK



003
16TK

NOTE :

1. FOR DELINKED BOM REFER DRG.NO 34641700137

ADDITIONAL INFORMATION
W.O. NO.- 60213-A-512-01.

STATUS OF DRAWING
U

DISTRIBUTION OF PRINTS
टी आर ई-1, टी आर एम -3,
एफ टी एम-7

REV DATE ALTERED -
CHECKED -
APPROVED -

ZONE

उत्पाद का प्रकार या ग्राहक /परियोजना का नाम
500 MVA,3-PH. AUTO TRANSFORMER
M/s:- PGCIL

भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD. BHOPAL	नाम NAME AZAD	हस्ता. SIGN 	दि. DATE 28.09.2021	वेरि की संख्या NO.OF VAR 00
	जांचा CHD	RAKESH	02.10.2021	
	स्वीकृत APPD	SCH	13.10.2021	

विभाग टी आर ई DEPT TRE	SCALE अनुपात	WEIGHT(kg) भार कि.ग्रा.	असे. ड्राईंग का संदर्भ REF TO ASSY DRG	मद कं. ITEM NO.	मद संख्या NO.OF ITEM 013
---------------------------	--------------	----------------------------	---	--------------------	--------------------------------

शीर्षक/TITLE

GUSSET DETAILS

DRAWING NO.

3 464 17 00137

पृष्ठ क. SHT NO.1

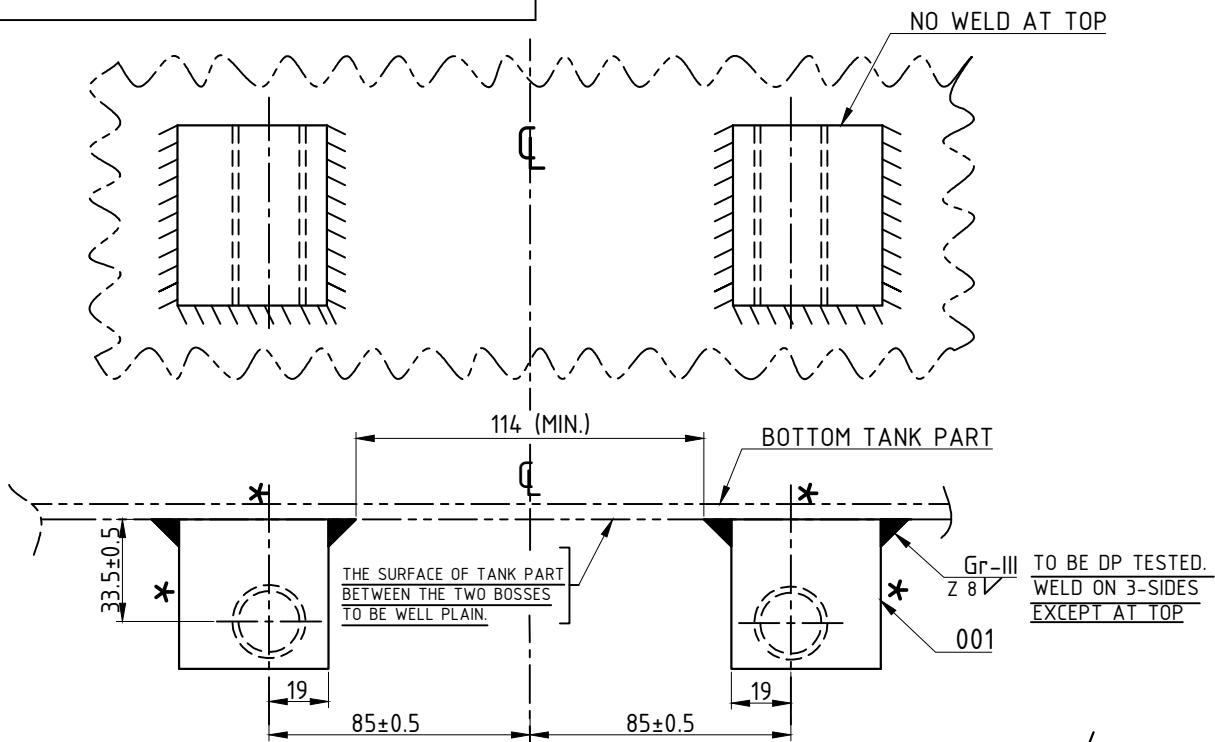
पृष्ठों की सं. NO.OF SHT.1

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

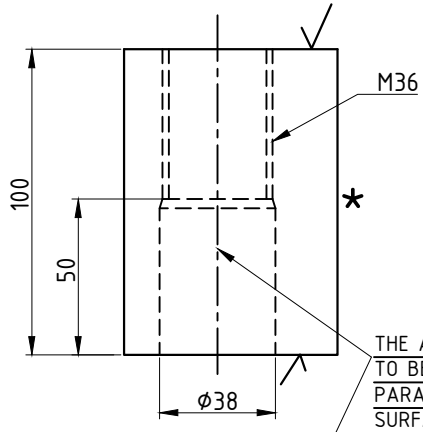
B64.01822/02
B64.01675/03
ADG / 14.11.022
SIGNATURE

INVENTORY NO.

DRG.NO. 3 499 17 00003



VAR-00
(FOR 75 DIA PIN)



VAR-01
(FOR 95 DIA PIN)

STYLE LIST				
BP NO	ITEM INCLUDED	DESCRIPTION	RECORDED	
			SIGN	DATE
BP9086045405	001	BOSS M24	SD/-	14.11.022
BP9086045383	002	BOSS M36	SD/-	14.11.022

APROX WT IN KG.	
VAR-00	= 2.00
VAR-01	= 7.30

NOTES:-

1. FOR DELINKED BOM REFFER COMP BOM DRG NO 3 499 17 00003.
2. FOR ALL OTHER IMPORTANT INFORMATION SEE BOTTOM TANK ASSY DRG.

ADDITIONAL INFORMATION
STD

STATUS OF DRAWING
"U"

DISTRIBUTION OF PRINTS
TRE-01, TRM-03 , FTM-07.

उत्पाद का प्रकार या
ग्राहक /परियोजना का नाम
TRFMR DIVISION BHEL BHOPAL.



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
भोपाल

नाम	हस्ता.	दि.	वेरि की संख्या
YGV	SD/-	10.07.091	02
BSB	SD/-	21.08.091	
BSB	SD/-	21.08.091	

REV 01
DATE 19.11.022
ALTERED
CHECKED
APPROVED

पिभाग टीआरई
कोड 406

अनुपात
NTS

असे. डाईंग का संदर्भ
1 499 81 00004-IT 002
1 499 81 00005-IT 002

ZONE TOTAL DRAWING REDRAWN AND BOM DELINKED.

शीर्षक
BOSS ASSY

DRAWING NO.
3 499 17 00003
पृष्ठ क. 1
पृष्ठों की सं. 1

BILL OF MATERIAL	DEP NO	NO OF		TYPE OF PRODUCT	WORK ORDER	DRG NO	CORE CODE	REV	VER	
		IT	VAR		62216A51201	04641600264	65316720	00	00	
	406	88	3		500 MVA,3-PH.AT.PGCIL	TITLE				SHT NO
					TOP TANK ASSY. TOP TANK				1 OF 8	

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S		
							MAT SIZE	DETAILS	VAR	MAT SPEC			QTY	ZONE			
					SEE W.O.	001	TANK ASSY. (WELDED)	04641600264				KG	23245.000				
							TK WDT LEN ID OD DIM1						00				
					SEE W.O.	002	TANK ASSY. (OUT SIDE FITTING)	04641600264				KG	799.100				
							TK WDT LEN ID OD DIM1						01				
					SEE W.O.	003	TANK ASSY. (BLANKING)	04641600264				KG	556.890				
							TK WDT LEN ID OD DIM1						02				
				00001		004	TOP TANK DETAILS(HV. SIDE)	14641600309				KG	4491.500				
							TK WDT LEN ID OD DIM1						00				
				00001		005	TOP TANK DETAILS(IV. SIDE)	14641600310				KG	4757.900				
							TK WDT LEN ID OD DIM1						00				
				00001	LH.SIDE	006	TOP TANK DETAIL (END WALL)	14641600311				KG	2160.000				
							TK WDT LEN ID OD DIM1						01				
				00001	RH. SIDE	007	TOP TANK DETAIL (END WALL)	14641600311				KG	1906.800				
							TK WDT LEN ID OD DIM1						00				
				00001		008	TANK COVER ASSY. (WELDED)	14641600312				KG	7811.900				
							TK WDT LEN ID OD DIM1						00				
				00001		009	TOP TANK RIM ASSY.	24641600119				KG	850.880				
							TK WDT LEN ID OD DIM1						00				
				00057	TO DETAIL AS REQD.	010	GUSSET			AA1011808110		KG	1.270				
							TK WDT LEN ID OD DIM1										
							16 100 150										
				00001		011	TERTIARY POCKET ASSY.	34641600223				KG	649.290				
							TK WDT LEN ID OD DIM1						00				
				00026	FOR EARTHING	012	BOSS M12	44692100023				KG	0.120				
							TK WDT LEN ID OD DIM1						05				

DISTRIBUTION DETAILS					REV NO. 0		PREP BY		CKD BY		APPD BY		DATE	
TRM	TRX	FTM	TRE		PREP BY		CKD BY		APPD BY		DATE			
3	0	10	3		GTM		RK		SCH.		23 DEC 2022		DRG NO 04641600264	
													SHT 1 OF 8	

BILL OF MATERIAL	DEP NO	NO OF IT	VAR	TYPE OF PRODUCT	WORK ORDER 62216A51201	DRG NO 04641600264	CORE CODE 65316720	REV 00	00
	406	88	3	500 MVA,3-PH.AT.PGCIL	TITLE TOP TANK ASSY. TOP TANK				SHT NO 2 OF 8

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S
							MAT SIZE	DETAILS		MAT SPEC			QTY	ZONE	
				00003		013	TANK WALL SUPPORT TK WDT LEN ID OD DIM1 	34641600225				KG	20.200		
				00001	TO DETAIL	014	BRACKET FOR DRIV.GEAR UNIT MTG TK WDT LEN ID OD DIM1 32 90 560			AA1011808172 AA10108		KG	12.390		
			00006		3 NO. TUR. TURRET 2 NO. COVER, 1 NO.HV.WALL	015	BOSS FOR EARTHING (M10) TK WDT LEN ID OD DIM1 	44991600012	001 00	BP9086053610		KG	0.650		
				00001		016	PAD FOR BEVEL GEAR BRACKET TK WDT LEN ID OD DIM1 	44991500016	002			KG	1.600		
				00002	MTG.FOR MOTOR DRIVING UNIT TO DETAIL	017	PAD TK WDT LEN ID OD DIM1 32 60 160			AA1011808170 AA10108		KG	2.350		
				00036	TO DETAIL (AS REQD.)	018	GUSSET FOR CORNER PLATE TK WDT LEN ID OD DIM1 16 150 150			AA1011808110 AA10108		KG	1.330		
				00001		019	TANK WALL SUPPORT TK WDT LEN ID OD DIM1 	34641600226				KG	21.380		
				00004		020	TANK WALL SUPPORT TK WDT LEN ID OD DIM1 	34641600226				KG	27.830		
				00002		021	SUPPORT FOR TERTIARY PKT. TK WDT LEN ID OD DIM1 	34641600226				KG	19.500		
				00002	BELOW TERTIARY PKT.	022	SUPPORT FOR TERTIARY PKT. TK WDT LEN ID OD DIM1 	34641600226				KG	30.970		
				00002		023	SUPPORT FOR TER & IV WALL. TK WDT LEN ID OD DIM1 	34641600225				KG	17.850		
			00002		ON COVER	024	INSPECTION COVER ASSY.O/D705 TK WDT LEN ID OD DIM1 	24991900041				KG	41.050		

DISTRIBUTION DETAILS					REV NO. 0	PREP BY	CKD BY	APPD BY	DATE
TRM	TRX	FTM	TRE		PREP BY	CKD BY	APPD BY	DATE	
3	0	10	3		GTM	RK	SCH.	23 DEC 2022	DRG NO 04641600264

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER 62216A51201	DRG NO 04641600264	CORE CODE 65316720	REV 00	00	
	406	88	3		500 MVA,3-PH.AT.PGCIL	TITLE TOP TANK ASSY. TOP TANK				SHT NO 3 OF 8

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT WT	G / S
							MAT SIZE	DETAILS		MAT SPEC			QTY	ZONE
			00004		3 NO. TER. POCKET 1 NO. HV. WALL	025	INSPECTION COVER ASSY.	34521600093	01			KG	21.040	
							TK WDT LEN ID OD DIM1							
			00008		8 NOS.N2 INJECTION	026	VALVE MTG. (25NB)	34645100067	01			KG	3.028	
							TK WDT LEN ID OD DIM1							
			00002			027	VALVE MTG. 250NB	14991900021	08			KG	23.072	
							TK WDT LEN ID OD DIM1							
			00008		2 NOS.FILTER VALE, 2 NOS. ONLINE DGA, 4 NOS UHF VAL	028	VALVE MTG. 50NB	34645100067	02			KG	6.760	
							TK WDT LEN ID OD DIM1							
			00001		2 NOS.GLOBE VALVE IN SERIES	029	VALVE MTG. 15NB	34645100129	02			KG	3.802	
							TK WDT LEN ID OD DIM1							
			00004		1 NO IV WALL ELLIPTICAL TYPE 3 NOS ON HV WALL	030	INSPECTION COVER MTG.(430X730)	34521600065	01			KG	29.370	
							TK WDT LEN ID OD DIM1							
			00002		ON IV WALL	031	INSPECTION COVER MTG.	34981900033	01			KG	43.110	
							TK WDT LEN ID OD DIM1							
				00005	FOR AUX. CONSER.PIPE SUPPORT	032	PAD	TR20092P	004			KG	0.500	
							TK WDT LEN ID OD DIM1							
			00002			033	15 NB VALVE MTG.	34645100067	00			KG	1.978	
							TK WDT LEN ID OD DIM1							
			00001		ON TANK COVER	034	INSPECTION COVER ASSY.OTI,WTI.	34981900034	01			KG	58.340	
							TK WDT LEN ID OD DIM1							
			00001			035	NAME PLATE (ENGLISH)	14991900023	00			KG	5.140	
							TK WDT LEN ID OD DIM1							
			00001			036	NAME PLATE (HINDI)	14991900022	00			KG	13.900	
							TK WDT LEN ID OD DIM1							

DISTRIBUTION DETAILS					REV NO. 0	PREP BY	CKD BY	APPD BY	DATE	
TRM	TRX	FTM	TRE		PREP BY	CKD BY	APPD BY	DATE		
3	0	10	3		GTM	RK	SCH.	23 DEC 2022	DRG NO 04641600264	SHT 3 OF 8

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER 62216A51201	DRG NO 14641600309	CORE CODE 65316720	REV 01	VER 00	
	406	54	0	500 MVA,3PH.AT. PGCIL	TITLE TANK WALL (HV SIDE) TOP TANK				SHT NO 1 OF 5	

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT WT	G / S		
							MAT SIZE	DETAILS	VAR	MAT SPEC			QTY	ZONE		
				00001		001	TANK WALL	24641600118	001			KG	32.980			
							TK WDT LEN ID OD DIM1									
				00001		002	TANK WALL	24641600118	002			KG	87.000			
							TK WDT LEN ID OD DIM1									
				00001		003	TANK WALL	24641600118	003			KG	82.420			
							TK WDT LEN ID OD DIM1									
				00001		004	TANK WALL	24641600118	004			KG	331.570			
							TK WDT LEN ID OD DIM1									
				00001		005	TANK WALL	24641600118	005			KG	453.830			
							TK WDT LEN ID OD DIM1									
				00001		006	TANK WALL	24641600118	006			KG	191.200			
							TK WDT LEN ID OD DIM1									
				00001		007	TANK WALL	24641600118	007			KG	168.260			
							TK WDT LEN ID OD DIM1									
				00001		008	TANK WALL	24641600118	008			KG	197.780			
							TK WDT LEN ID OD DIM1									
				00001		009	TANK WALL			AA1011808072		KG	137.770			
							TK WDT LEN ID OD DIM1								AA10108	
							10 777 2256									
				00001		010	TANK WALL			AA1011808110		KG	210.290			
							TK WDT LEN ID OD DIM1								AA10108	
							16 1070 1743									
				00001		011	TANK WALL			AA1011808110		KG	106.920			
							TK WDT LEN ID OD DIM1								AA10108	
							16 589 1743									
				00001		012	TANK WALL			AA1011808110		KG	141.020			
							TK WDT LEN ID OD DIM1								AA10108	
							16 754 1743									

DISTRIBUTION DETAILS				REV NO. 1		PREP BY		CKD BY		APPD BY		DATE	
TRE	TRM	FTM		PREP BY		CKD BY		APPD BY		DATE			
3	3	10		OPG		RK		SCH		23 DEC 2022		DRG NO 14641600309	
												SHT 1 OF 5	

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER	DRG NO	CORE CODE	REV	
					62216A51201	14641600309	65316720	01	
	406	54	0	500 MVA,3PH.AT. PGCIL	TITLE TANK WALL (HV SIDE) TOP TANK				SHT NO 2 OF 5

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S
							MAT SIZE						QTY	ZONE	
				00004		013	BOX STIFFENER TK WDT LEN ID OD DIM1	24641600118	009			KG		187.100	
				00002		014	BOX STIFFENER TK WDT LEN ID OD DIM1	24641600118	010			KG		142.500	
				00003		015	BOX STIFFENER TK WDT LEN ID OD DIM1	24641600118	011			KG		58.230	
				00006		016	GUSSET TK WDT LEN ID OD DIM1	24641600118	012			KG		7.410	
				00004	FOR EARTHING	017	WELDING NUT M10 TK WDT LEN ID OD DIM1	44991600012	013			KG		0.065	
				00009	FOR AIR PRESSURE TESTING	018	BOSS 1/2" BSP TK WDT LEN ID OD DIM1	34991800008	004	BP9096003497		KG		0.134	
									03						
				00003		019	PAD FOR INSPECTION COVER TK WDT LEN ID OD DIM1	34521600065				KG		18.700	
									02						
				00001		020	PAD FOR NAME PLATE (HINDI) TK WDT LEN ID OD DIM1	24991500013	017			KG		6.983	
									00						
				00001		021	PAD FOR NAME PLATE (ENGLISH) TK WDT LEN ID OD DIM1	24991500013	008			KG		8.216	
									00						
				00001		022	LASHING LUG TK WDT LEN ID OD DIM1	44691600051	002			KG		7.332	
				00001		023	LASHING LUG TK WDT LEN ID OD DIM1	44691600051	001			KG		7.332	
				00006		024	PAD FOR R&D PLATE & VALVE TK WDT LEN ID OD DIM1	44991500008	002	BP9086050727		KG		9.500	

DISTRIBUTION DETAILS					REV NO. 1	PREP BY		CKD BY		APPD BY		DATE
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE	DRG NO 14641600309		SHT 2 OF 5	
3	3	10			OPG	RK	SCH	23 DEC 2022				

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER	DRG NO	CORE CODE	REV	00
					62216A51201	14641600309	65316720	01	
	406	54	0		500 MVA,3PH.AT. PGCIL	TITLE TANK WALL (HV SIDE) TOP TANK			

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S
							MAT SIZE	DETAILS		MAT SPEC			QTY	ZONE	
				00001		025	SUPPORT FOR HV. WALL	34641600229	00			KG		9.620	
							TK WDT LEN ID OD DIM1								
				00002		026	SUPPORT FOR HV. WALL	34641600229	01			KG		9.960	
							TK WDT LEN ID OD DIM1								
				00003	FOR PHASE MARKING PLATE	027	POLARITY PAD	44991500006	001			KG		0.055	
							TK WDT LEN ID OD DIM1								
				00002		028	SUPPORT PLATE			AA1011808072		KG		1.470	
							TK WDT LEN ID OD DIM1			AA10108					
							10 75 250								
				00001	MTG. PAD	029	SUDDEN PRESSURE RELAY	44991800033	00			KG		7.000	
							TK WDT LEN ID OD DIM1								
				00001		030	SUPPORT FOR HV WALL	34641600229	02			KG		13.700	
							TK WDT LEN ID OD DIM1								
				00002		031	SUPPORT FOR HV WALL	34641600229	03			KG		13.200	
							TK WDT LEN ID OD DIM1								
				00002	B = 100	032	PIPE FLANGE ASSY. (50 NB)	34641500024	02			KG		2.380	
							TK WDT LEN ID OD DIM1								
				00002		033	PAD FOR PRV PIPE MTG.	34991900105	001			KG		1.130	
							TK WDT LEN ID OD DIM1								
				00001		034	SUPPORT FOR HV.WALL	34641600230	00			KG		13.040	
							TK WDT LEN ID OD DIM1								
				00003		035	SUPPORT FOR HV.WALL	34641600230	01			KG		10.970	
							TK WDT LEN ID OD DIM1								
				00001		036	PAD FOR INSPECTION COVER	34521600093	02			KG		14.480	
							TK WDT LEN ID OD DIM1								

DISTRIBUTION DETAILS					REV NO. 1	PREP BY	CKD BY	APPD BY	DATE	
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE		
3	3	10			OPG	RK	SCH	23 DEC 2022	DRG NO 14641600309	SHT 3 OF 5

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER 62216A51201	DRG NO 14641600309	CORE CODE 65316720	REV 01	00	
	406	54	0		500 MVA,3PH.AT. PGCIL	TITLE TANK WALL (HV SIDE) TOP TANK				SHT NO 4 OF 5

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT WT	G / S
							MAT SIZE	DETAILS		MAT SPEC			QTY	ZONE
				00001	LH.SIDE	037	LIFTING BOLLARD ASSY.	34641600251	00			KG	254.290	
							TK WDT LEN ID OD DIM1							
				00001	RH.SIDE	038	LIFTING BOLLARD ASSY.	34641600224	01			KG	261.900	
							TK WDT LEN ID OD DIM1							
				00001		039	SUPPORT FOR HV. WALL	34641600230	02			KG	12.690	
							TK WDT LEN ID OD DIM1							
				00003		040	SUPPORT FOR HV. WALL	34641600230	03			KG	10.270	
							TK WDT LEN ID OD DIM1							
				00001		041	SUPPORT FOR HV. WALL	34641600231	00			KG	11.690	
							TK WDT LEN ID OD DIM1							
				00003		042	SUPPORT FOR HV. WALL	34641600231	01			KG	15.460	
							TK WDT LEN ID OD DIM1							
				00001		043	SUPPORT FOR HV WALL	34641600231	02			KG	15.300	
							TK WDT LEN ID OD DIM1							
				00004		044	SUPPORT FOR HV WALL	34641600231	03			KG	10.390	
							TK WDT LEN ID OD DIM1							
				00001		045	SUPPORT FOR HV WALL	34641600232	00			KG	15.960	
							TK WDT LEN ID OD DIM1							
				00002		046	SUPPORT FOR HV WALL	34641600232	01			KG	15.180	
							TK WDT LEN ID OD DIM1							
				00001		047	SUPPORT FOR HV WALL	34641600232	02			KG	14.740	
							TK WDT LEN ID OD DIM1							
				00003		048	SUPPORT FOR HV WALL	34641600232	03			KG	12.360	
							TK WDT LEN ID OD DIM1							

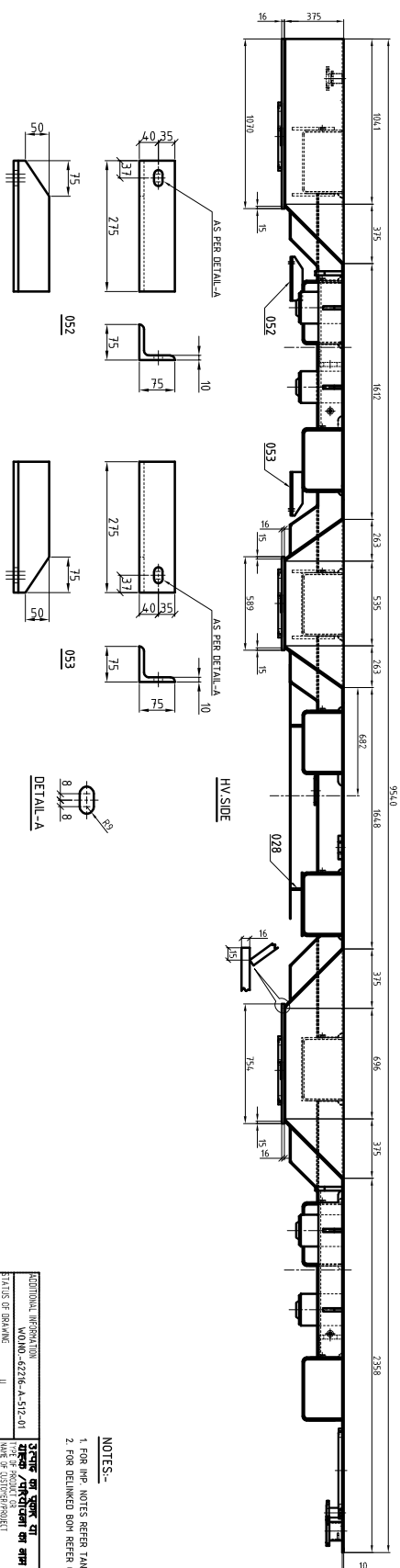
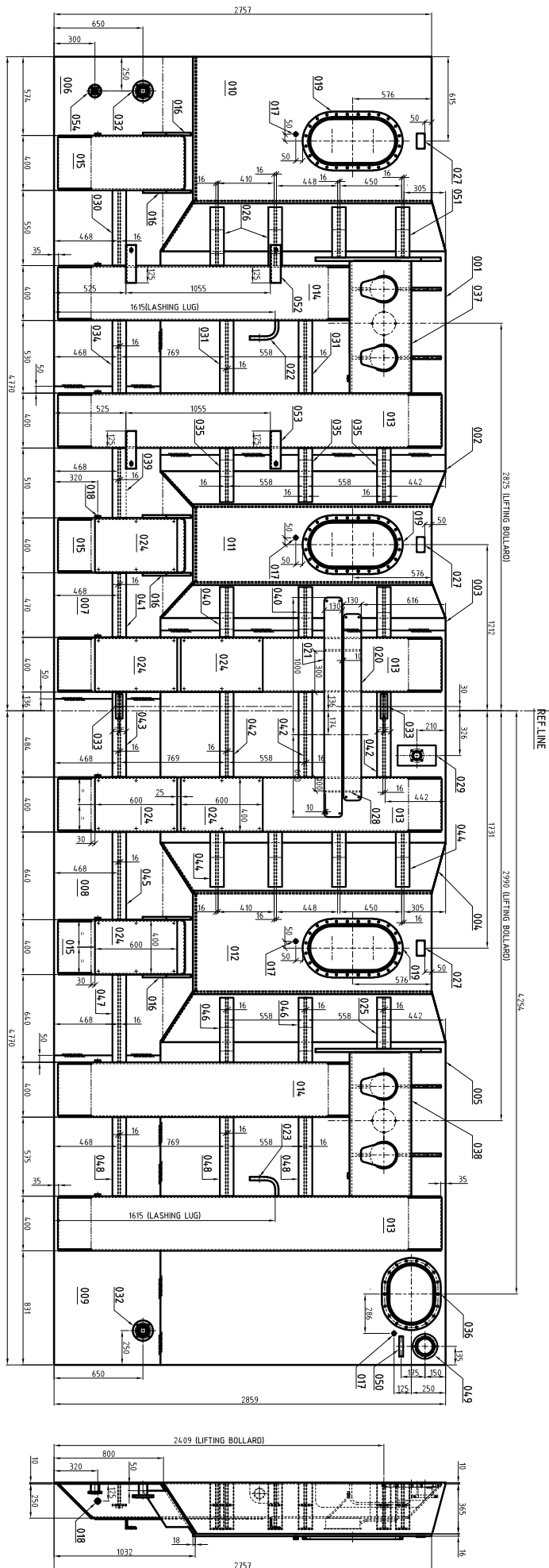
DISTRIBUTION DETAILS					REV NO. 1	PREP BY	CKD BY	APPD BY	DATE	
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE		
3	3	10			OPG	RK	SCH	23 DEC 2022	DRG NO 14641600309	SHT 4 OF 5

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER	DRG NO	CORE CODE	REV	
					62216A51201	14641600309	65316720	01	
	406	54	0	500 MVA,3PH.AT. PGCIL	TITLE TANK WALL (HV SIDE) TOP TANK				SHT NO 5 OF 5

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT WT	G / S		
							MAT SIZE			DETAILS					MAT SPEC	QTY
				00001	A = 100	049	PKT.FOR TERMINAL BOX	34993000012				KG	3.770			
							TK WDT LEN ID OD DIM1						00			
				00001		050	PAD FOR CT LEVEL PLATE	44992100002	001			KG	0.210			
							TK WDT LEN ID OD DIM1									
				00002		051	HV.WALL SUPPORT	34641600251				KG	8.440			
							TK WDT LEN ID OD DIM1						01			
				00002	10 X 75 X 75 X 275 LG TO DETAIL	052	SUPPORT ANGLE			AA1012508145		KG	3.000			
							TK WDT LEN ID OD DIM1						AA10108			
							10						275			
				00002	10 X 75 X 75 X 275 LG TO DETAIL	053	SUPPORT ANGLE			AA1012508145		KG	3.000			
							TK WDT LEN ID OD DIM1						AA10108			
							10						275			
				00001		054	15 NB PIPE FLG. ASSY.	34641500024				KG	0.625			
							TK WDT LEN ID OD DIM1						00			

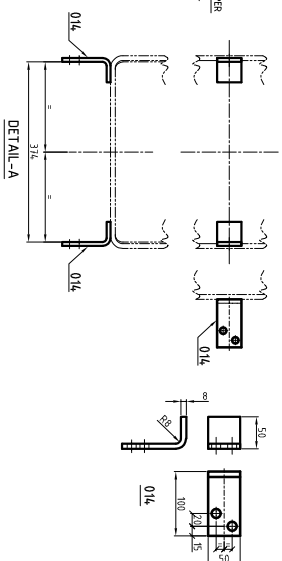
4491.5

DISTRIBUTION DETAILS					REV NO. 1	PREP BY	CKD BY	APPD BY	DATE	
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE		
3	3	10			OPG	RK	SCH	23 DEC 2022	DRG NO 14641600309	SHT 5 OF 5

[illegible]

1. FOR IMP. NOTES REFER TANK ASSY.
2. FOR DELINKED BOM REFER COMP. SHEET DRG.NO. 1464 16 00309

TANK WALL (HV. SIDE)



1. FOR IMP. NOTES REFER TANK ASSY.
2. FOR DELINKED BOM REFER COMP. SHEET DRG.NO. 1 464 16 00370

[illegible]

BILL OF MATERIAL	DEP NO	NO OF IT	VAR	TYPE OF PRODUCT	WORK ORDER 62216A51201	DRG NO 14641600311	CORE CODE 65316720	REV 00	VER 01
	406	40	2	500MVA,3PH AT. PGCIL	TITLE TANK DETAIL END WALL TOP TANK				SHT NO 1 OF 4

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S						
							MAT SIZE						DETAILS	VAR	MAT SPEC	QTY	ZONE				
				00001	TODETAIL	001	TANK END WALL			AA1011808072		KG	586.640								
							TK			WDT						LEN	ID	OD	DIM1	AA10108	
							10			2345						3299					
				00001	TO DETAIL	002	TANK END WALL			AA1011808072		KG	269.910								
							TK			WDT						LEN	ID	OD	DIM1	AA10108	
							10			1450						3299					
			00001		TO DETAIL	003	TANK END WALL			AA1011808072		KG	528.710								
							TK			WDT						LEN	ID	OD	DIM1	AA10108	
							10			2125						3299					
			00001		TO DETAIL	004	TANK END WALL			AA1011808072		KG	466.000								
							TK			WDT						LEN	ID	OD	DIM1	AA10108	
							10			2045						3299					
			00002	00002	TO DETAIL	005	BOX STIFFNER			AA1011808072		KG	191.800								
							TK			WDT						LEN	ID	OD	DIM1	AA10108	
							10			868						3064					
			00001		TO DETAIL	006	BOX STIFFNER			AA1011808072		KG	198.280								
							TK			WDT						LEN	ID	OD	DIM1	AA10108	
							10			868						3159					
				00001	TO DETAIL	007	BOX STIFFNER			AA1011808072		KG	149.860								
							TK			WDT						LEN	ID	OD	DIM1	AA10108	
							10			868						2323					
			00001	00001	TO DETAIL	008	BOX STIFFNER			AA1011808072		KG	189.000								
							TK			WDT						LEN	ID	OD	DIM1	02 AA10108	
							10			868						3024					
			00002	00002	TO DETAIL BELOW 250NB PIPE	009	GUSSET			AA1011808110		KG	3.800								
							TK			WDT						LEN	ID	OD	DIM1	AA10108	
							16			175						260					
			00002	00002	B=375	010	250NB PIPE FLANGE ASSY.	14991500004				KG	28.030								
							TK									WDT	LEN	ID	OD	DIM1	08
			00003	00001	B = 100	011	50NB PIPE FLANGE ASSY.	34641500024				KG	2.380								
							TK									WDT	LEN	ID	OD	DIM1	02
			00001	00001		012	15NB PIPE FLANGE ASSY.	34641500024				KG	0.625								
							TK									WDT	LEN	ID	OD	DIM1	00

DISTRIBUTION DETAILS				REV NO. 0	PREP BY	CKD BY	APPD BY	DATE
TRE	TRM	FTM		PREP BY	CKD BY	APPD BY	DATE	
1	3	10		GTM	RK	SCH	24 DEC 2022	DRG NO 14641600311

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER 62216A51201	DRG NO 14641600311	CORE CODE 65316720	REV 00	01	
	406	40	2	500MVA,3PH AT. PGCIL	TITLE TANK DETAIL END WALL TOP TANK				SHT NO 3 OF 4	

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION						DRAWING NO	IT.	MATCODE		A / C	UT	UNIT WT		G / S
							MAT SIZE								DETAILS				MAT SPEC		
			00003	00003	TO DETAIL	025	GUSSET								AA1011808137			KG	44.740		
							TK	WDT	LEN	ID	OD	DIM1									
							20	225	1317												
			00001	00001	TO DETAIL	026	GUSSET								AA1011808137			KG	38.000		
							TK	WDT	LEN	ID	OD	DIM1									
							20	225	1128												
			00004	00004	FOR N2 INJECTION	027	25NB PIPE FLANGE ASSY.						34641500024		01			KG	1.270		
							TK	WDT	LEN	ID	OD	DIM1									
				00002		028	SUPPORT FOR END WALL						34641600234		00			KG	10.050		
							TK	WDT	LEN	ID	OD	DIM1									
			00002			029	SUPPORT FOR END WALL						34641600234		01			KG	12.570		
							TK	WDT	LEN	ID	OD	DIM1									
			00002			030	SUPPORT FOR END WALL						34641600234		02			KG	10.050		
							TK	WDT	LEN	ID	OD	DIM1									
			00003			031	SUPPORT FOR END WALL						34641600234		03			KG	9.995		
							TK	WDT	LEN	ID	OD	DIM1									
			00001			032	SUPPORT FOR END WALL						14641600311		02			KG	9.779		
							TK	WDT	LEN	ID	OD	DIM1									
			00001	00001		033	LASHING LUG						44691600051	002				KG	7.332		
							TK	WDT	LEN	ID	OD	DIM1									
		00001			TO DETAIL	034	RIB								AA1011808056			KG	2.990		
							TK	WDT	LEN	ID	OD	DIM1									
							8	100	477												
		00001			TO DETAIL	035	GUSSET								AA1011808110			KG	6.780		
							TK	WDT	LEN	ID	OD	DIM1									
							16	225	242												
			00002			036	PAD FOR PRV.PIPE MTG.						34991900105	001				KG			
							TK	WDT	LEN	ID	OD	DIM1									

DISTRIBUTION DETAILS				REV NO. 0		PREP BY		CKD BY		APPD BY		DATE	
TRE	TRM	FTM		PREP BY		CKD BY		APPD BY		DATE			
1	3	10		GTM		RK		SCH		24 DEC 2022		DRG NO 14641600311	
												SHT 3 OF 4	

B I L L O F M A T E R I A L				DEP NO	NO OF IT VAR		TYPE OF PRODUCT				W O R K O R D E R 62216A51201		DRG NO 14641600311		CORE CODE 65316720		REV 00	01				
				406	40	2	500MVA,3PH AT. PGCIL				TITLE TANK DETAIL END WALL TOP TANK								SHT NO 4 OF 4			
DU	VAR03	VAR02	VAR01	VAR00	REMARKS		IT NO	DESCRIPTION						DRAWING NO	IT.	MATCODE		A / C	UT	UNIT	WT	G / S
								MAT SIZE						DETAILS			MAT SPEC				QTY	ZONE
			00001				037	SUPPORT FOR END WALL						14641600311				KG	14.960			
								TK	WDT	LEN	ID	OD	DIM1			03						
	00001				TO DETAIL		038	GUSSET								AA1011808110			KG	11.190		
								TK	WDT	LEN	ID	OD	DIM1		AA10108							
								16	150	600												
	00001						039	RIB								AA1011808056			KG	3.770		
								TK	WDT	LEN	ID	OD	DIM1		AA10108							
								8	100	600												
			00001	00001	TO DETAIL		040	GUSSET								AA1011808072			KG	0.470		
								TK	WDT	LEN	ID	OD	DIM1		AA10108							
								10	50	145												

14.96 9.77 2159. 1906.8

DISTRIBUTION DETAILS					REV NO. 0	PREP BY		CKD BY		APPD BY		DATE
TRE	TRM	FTM			PREP BY	CKD BY	APPD BY	DATE	DRG NO 14641600311		SHT 4 OF 4	
1	3	10			GTM	RK	SCH	24 DEC 2022				

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER 62207A51201	DRG NO 24641600118	CORE CODE 65316720	REV 01	VER 00
	406	12	0	500 MVA,3PH.AT. PGCIL	TITLE WALL DETAIL HV SIDE TOP TANK				SHT NO 1 OF 1

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION						DRAWING NO	IT.	MATCODE		A / C	UT	UNIT WT		G / S
							MAT SIZE						DETAILS	VAR	MAT SPEC				QTY	ZONE	
				00001	TO DETAIL	001	TANK WALL								AA1011808072			KG	320.980		
							TK	WDT	LEN	ID	OD	DIM1									
							10	2054	2082												
				00001	TO DETAIL	002	TANK WALL								AA1011808072			KG	87.000		
							TK	WDT	LEN	ID	OD	DIM1									
							10	568	2082												
				00001	TO DETAIL	003	TANK WALL								AA1011808072			KG	82.420		
							TK	WDT	LEN	ID	OD	DIM1									
							10	540	2082												
				00001	TO DETAIL	004	TANK WALL								AA1011808072			KG	331.570		
							TK	WDT	LEN	ID	OD	DIM1									
							10	2082	2068												
				00001	TO DETAIL	005	TANK WALL								AA1011808072			KG	453.830		
							TK	WDT	LEN	ID	OD	DIM1									
							10	2082	2875												
				00001	TO DETAIL	006	TANK WALL								AA1011808072			KG	191.200		
							TK	WDT	LEN	ID	OD	DIM1									
							10	1234	2404												
				00001	TO DETAIL	007	TANK WALL								AA1011808072			KG	168.260		
							TK	WDT	LEN	ID	OD	DIM1									
							10	1234	2280												
				00001	TO DETAIL	008	TANK WALL								AA1011808072			KG	197.780		
							TK	WDT	LEN	ID	OD	DIM1									
							10	1234	2600												
				00001	TO DETAIL	009	BOX STIFFENER								AA1011808072			KG	187.100		
							TK	WDT	LEN	ID	OD	DIM1									
							10	868	2995												
				00001	TO DETAIL	010	BOX STIFFENER								AA1011808072			KG	142.500		
							TK	WDT	LEN	ID	OD	DIM1									
							10	868	2270												
				00001	TO DETAIL	011	BOX SRIFFENER								AA1011808072			KG	58.230		
							TK	WDT	LEN	ID	OD	DIM1									
							10	868	1025												
				00001	TO DETAIL	012	GUSSET								AA1011808137			KG	7.410		
							TK	WDT	LEN	ID	OD	DIM1									
							20	265	350												

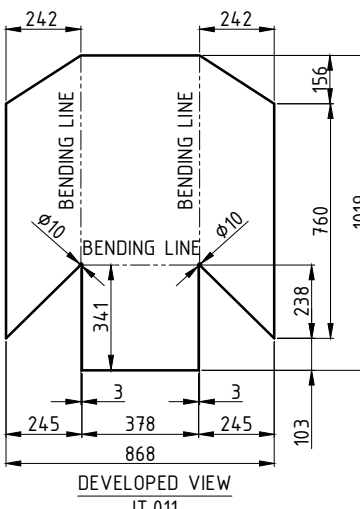
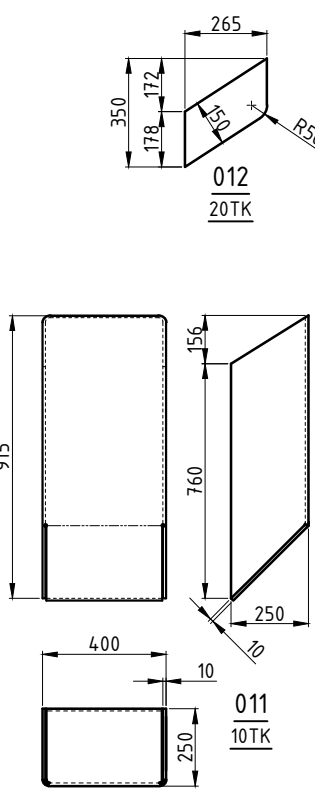
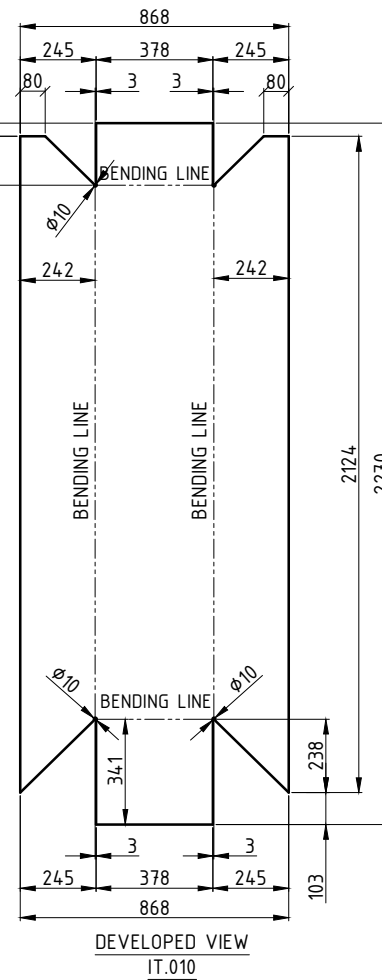
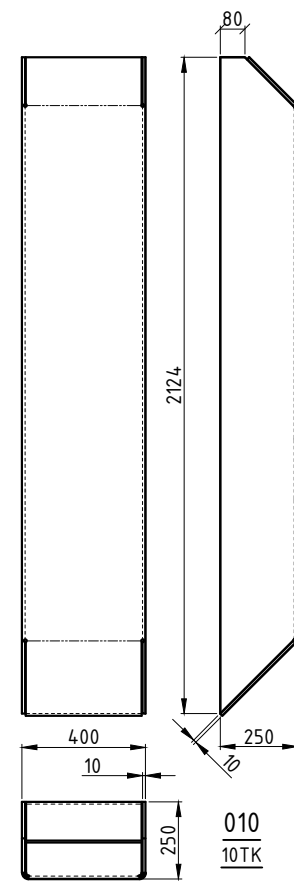
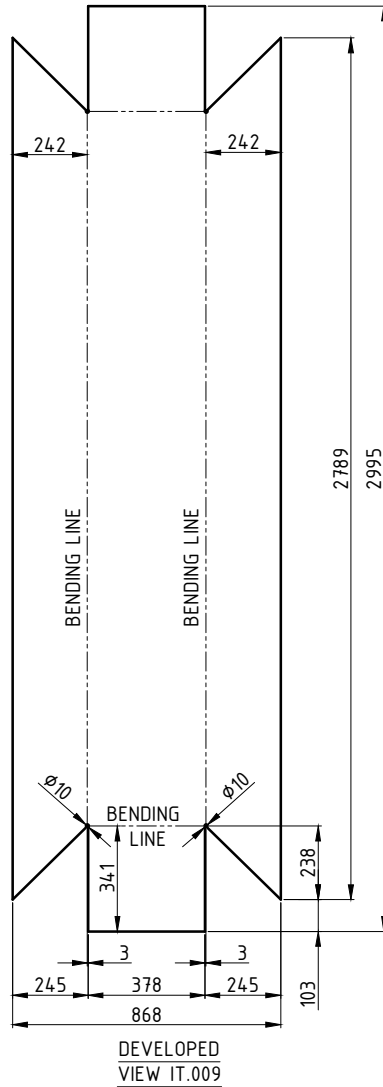
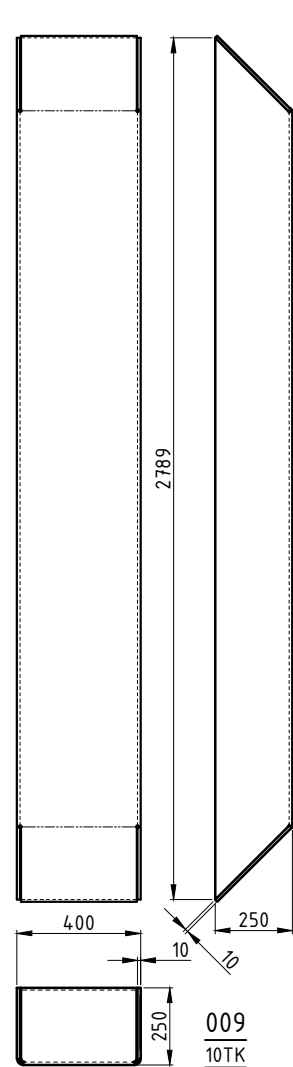
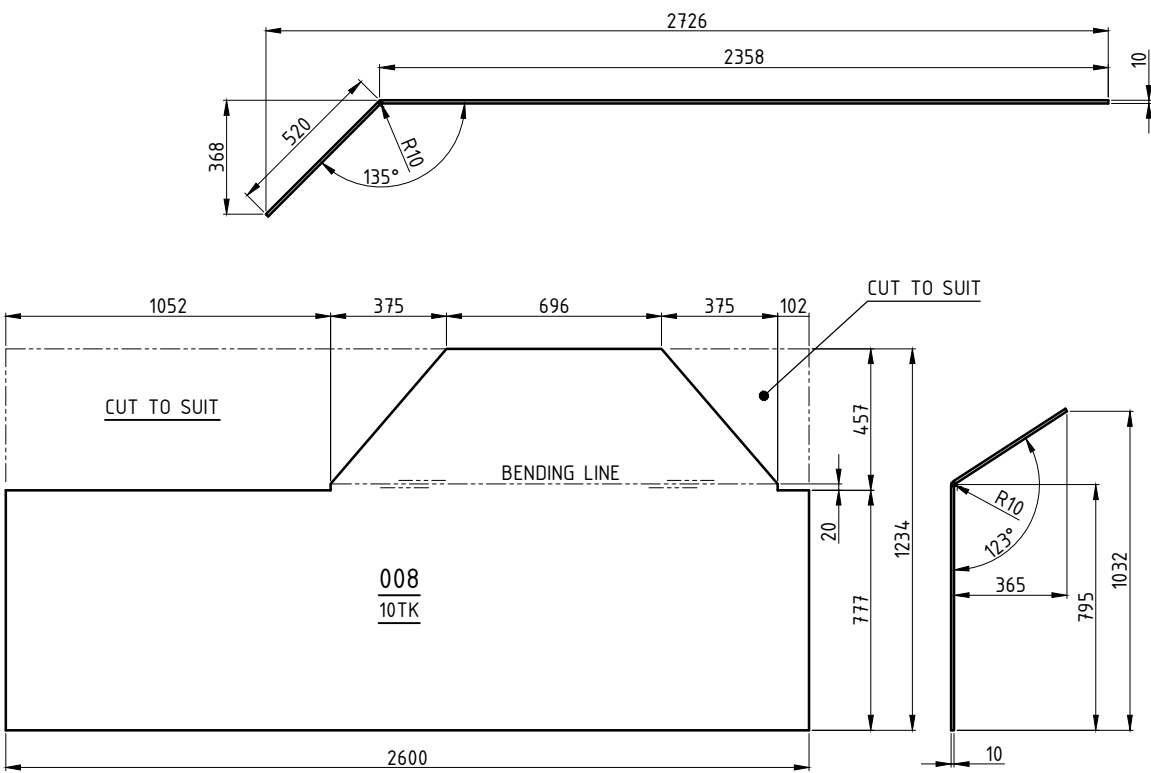
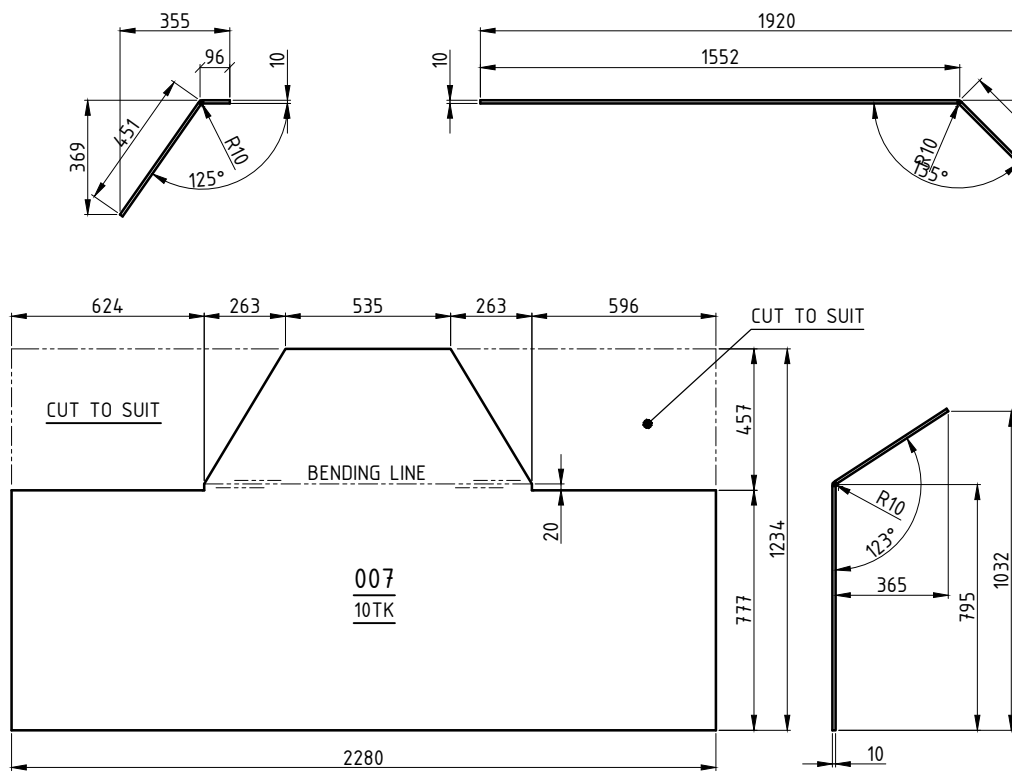
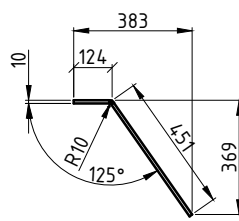
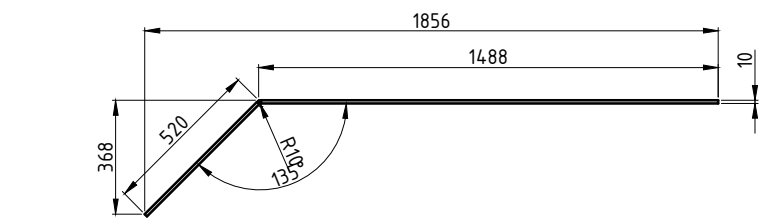
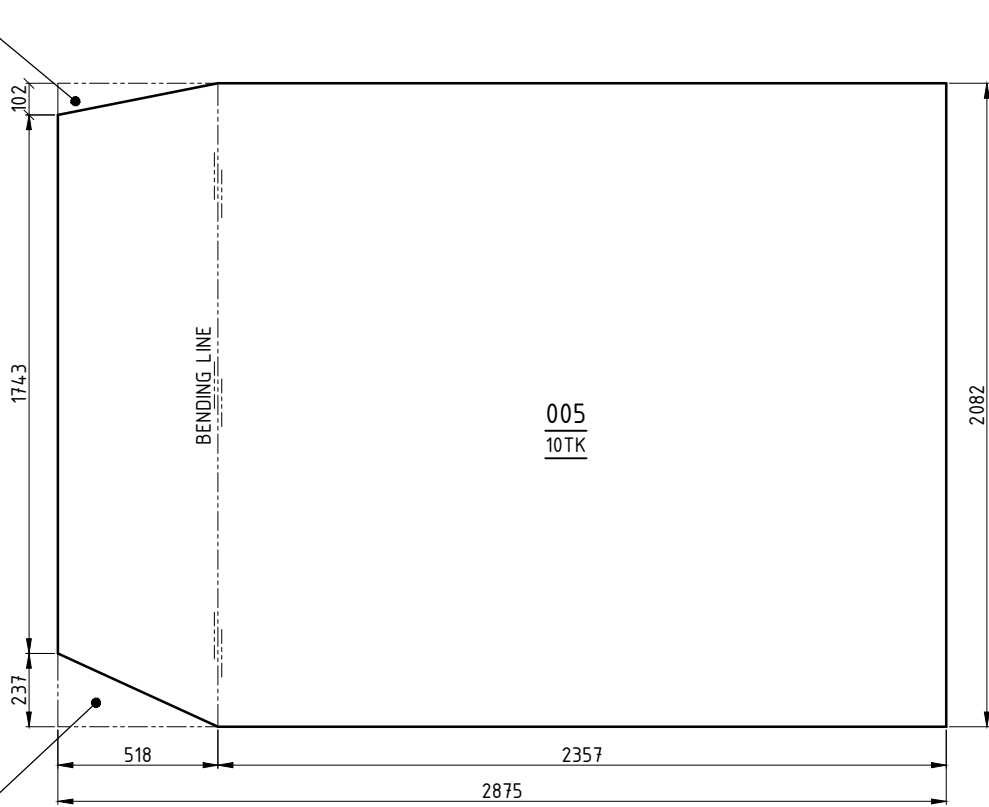
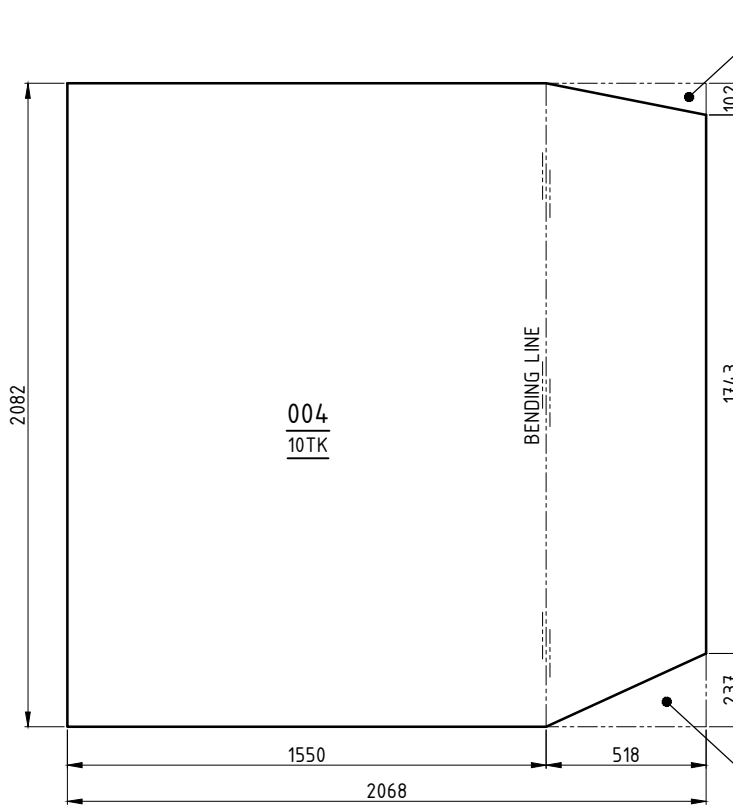
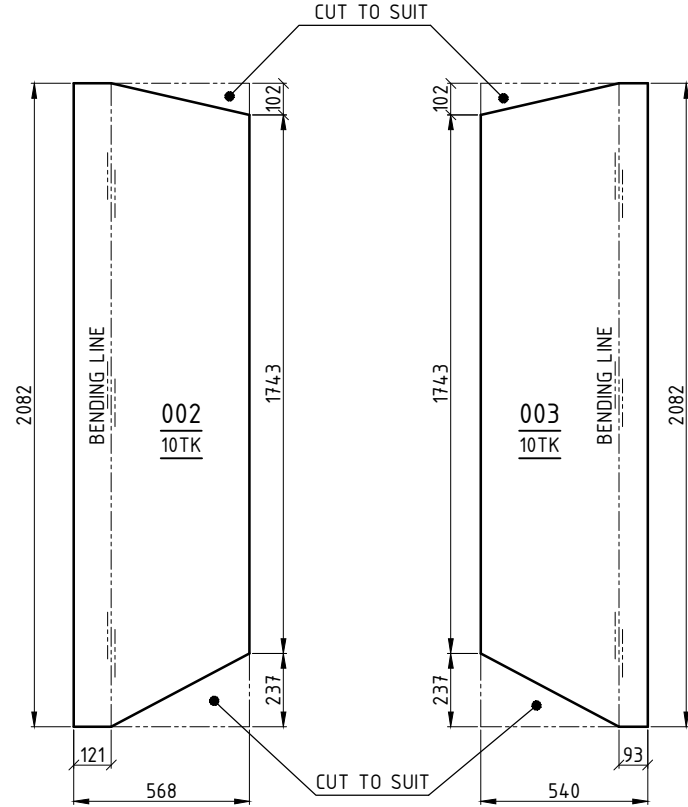
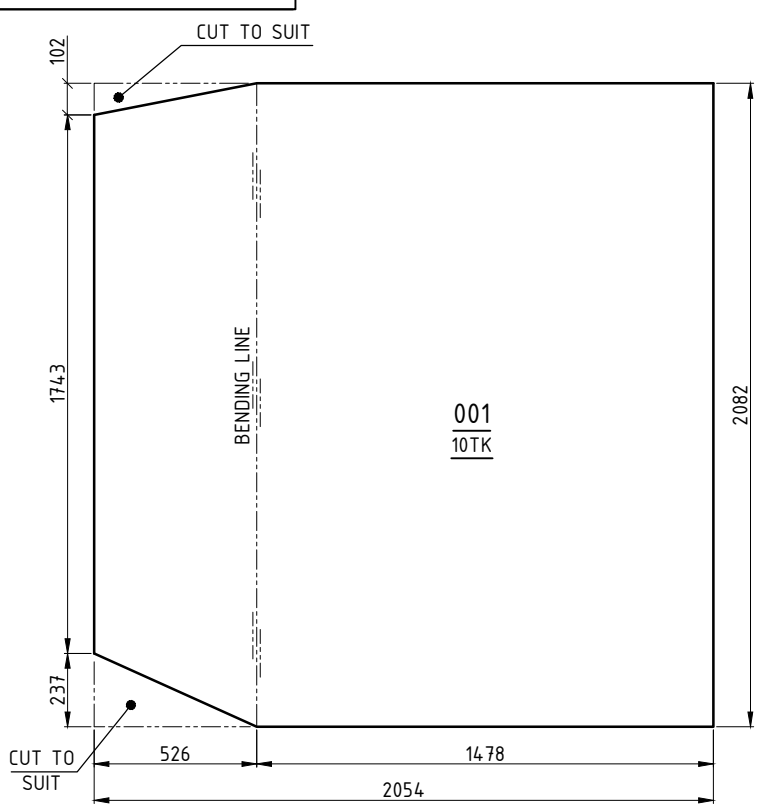
2228.3

DISTRIBUTION DETAILS				REV NO. 1		PREP BY		CKD BY		APPD BY		DATE	
TRE	TRM	FTM		PREP BY		CKD BY		APPD BY		DATE			
3	3	10		AZD		SCH		SCH		04 AUG 2022		DRG NO 24641600118	
												SHT 1 OF 1	

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO.-2 464 16 00118



NOTES:-

1. FOR IMP. NOTES REFER TANK ASSY.
2. FOR DELINKED BOM REFER COMP. SHEET DRG.NO. 2 464 16 00118.

ADDITIONAL INFORMATION W.O.NO.-62207-A-512-01		उत्पाद का प्रकार या ग्राहक /परियोजना का नाम		500,MVA,3-PH. AUTO.TRFR.	
STATUS OF DRAWING U		TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		M/s:- PGCIL	
DISTRIBUTION OF PRINTS TRF-1, TRM-3, FTM-7		भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल		नाम AZAD	
REV 01		DATE 06.10.22		SCALE 1:1	
IN BOM AND FIG. DRG. IT.NO.001,004,006 & 008 DIMS. REVISED		DISTRIBUTION OF PRINTS TRF-1, TRM-3, FTM-7		DISTRIBUTION OF PRINTS TRF-1, TRM-3, FTM-7	
REV 01		DATE 06.10.22		SCALE 1:1	
WALL DETAIL (HV.SIDE)		DISTRIBUTION OF PRINTS TRF-1, TRM-3, FTM-7		DISTRIBUTION OF PRINTS TRF-1, TRM-3, FTM-7	

BILL OF MATERIAL	DEP NO	NO OF IT VAR		TYPE OF PRODUCT	WORK ORDER 66001X51201	DRG NO 34641500024	CORE CODE 65315306	REV 02	VER 00
	406	19	9	270MVA,1-P,GT,BIFPCL MAIT	TITLE SEATING OF VALVE SEATING FOR VAL			SHT NO 1 OF 2	

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION						DRAWING NO	IT.	MATCODE		A / C	UT	UNIT WT		G / S
							MAT SIZE								DETAILS				VAR	MAT SPEC	
				00001		001	PIPE 50NB								AA1011052334			KG	0.240		
							TK WDT LEN ID OD DIM1								AA10152						
							3.6		47		60.8										
			00001			002	PIPE 25NB								AA1011052300			KG	0.160		
							TK WDT LEN ID OD DIM1								AA10152						
							3.2		67		34.2										
		00001				003	PIPE 50NB (LENGTH=L)								AA1011052334			KG			
							TK WDT LEN ID OD DIM1								AA10152						
							3.6				60.8										
	00001					004	PIPE 80NB (LENGTH=L)								AA1011052350			KG			
							TK WDT LEN ID OD DIM1								AA10152						
							4				89.5										
						005	PIPE 100NB (LENGTH=L)								AA1011052377			KG			
							TK WDT LEN ID OD DIM1														
							4.5				115										
						006	PIPE 150NB (LENGTH=L)								AA1011052393			KG			
							TK WDT LEN ID OD DIM1								AA10152						
							4.8				166.5										
						007	PIPE 200NB (LENGTH=L)								AA1011047047			KG			
							TK WDT LEN ID OD DIM1								AA10147						
							5.6				219.1										
						008	PIPE 250NB (LENGTH=L)								AA1011047047			KG			
							TK WDT LEN ID OD DIM1								AA10147						
							6.35				273										
				00001		009	GROOVED PAD 15NB						34641500018	001				KG	1.050		
							TK WDT LEN ID OD DIM1														
			00001			010	GROOVED FLANGE 25NB						34644300157	002				KG	1.110		
							TK WDT LEN ID OD DIM1														
		00001				011	GROOVED FLANGE 50NB						34644300157	003				KG	1.870		
							TK WDT LEN ID OD DIM1														
	00001					012	GROOVED FLANGE 80NB						34644300157	004				KG	2.670		
							TK WDT LEN ID OD DIM1														

DISTRIBUTION DETAILS					REV NO. 2		PREP BY		CKD BY		APPD BY		DATE 13 SEP 2021		
TRE	TRM	TRX	FTM		PREP BY		CKD BY		APPD BY		DATE				
1	3	1	7		D.TI		BNT		SCH		08 JAN 2019		DRG NO 34641500024		SHT 1 OF 2

BILL OF MATERIAL				DEP NO	NO OF IT	VAR	TYPE OF PRODUCT	WORK ORDER 66001X51201	DRG NO 34641500024	CORE CODE 65315306	REV 02	00
				406	19	9	270MVA,1-P,GT,BIFPCL MAIT	TITLE SEATING OF VALVE SEATING FOR VAL				SHT NO 2 OF 2

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION	DRAWING NO	IT.	MATCODE	A / C	UT	UNIT	WT	G / S
							MAT SIZE	DETAILS		MAT SPEC			QTY		ZONE
						013	GROOVED FLANGE 100NB	34644300157	005			KG		4.640	
							TK WDT LEN ID OD DIM1								
						014	PLAIN FLANGE 150NB	TR20015F	007			KG		4.800	
							TK WDT LEN ID OD DIM1								
						015	PLAIN FLANGE 200NB	TR20015F	008			KG		9.000	
							TK WDT LEN ID OD DIM1								
						016	PLAIN FLANGE 250NB	TR20015F	009			KG		13.430	
							TK WDT LEN ID OD DIM1								
						018	PIPE 50NB			AA1011052334		KG		0.419	
							TK WDT LEN ID OD DIM1			AA10152					
							3.6 82 60.8								
						019	ELBOW 50NB	44994300015	001			KG		0.650	
							TK WDT LEN ID OD DIM1								

2.67 1.87 1.27 1.29

DISTRIBUTION DETAILS					REV NO. 2		PREP BY		CKD BY		APPD BY		DATE 13 SEP 2021	
TRE	TRM	TRX	FTM		PREP BY		CKD BY		APPD BY		DATE			
1	3	1	7		D.TI		BNT		SCH		08 JAN 2019		DRG NO 34641500024	SHT 2 OF 2

34641500024

DRG.NO.

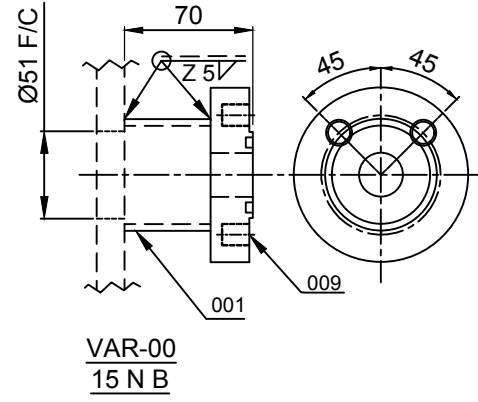
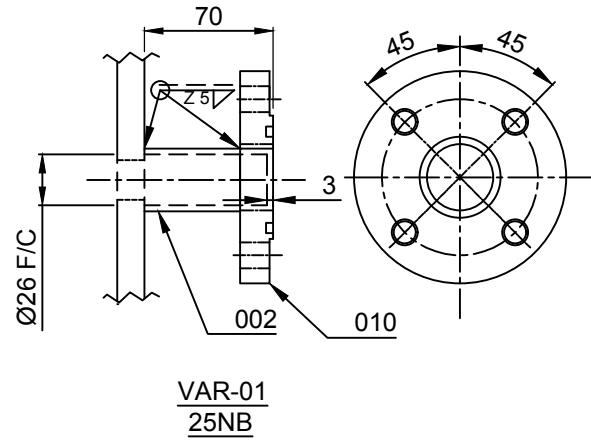
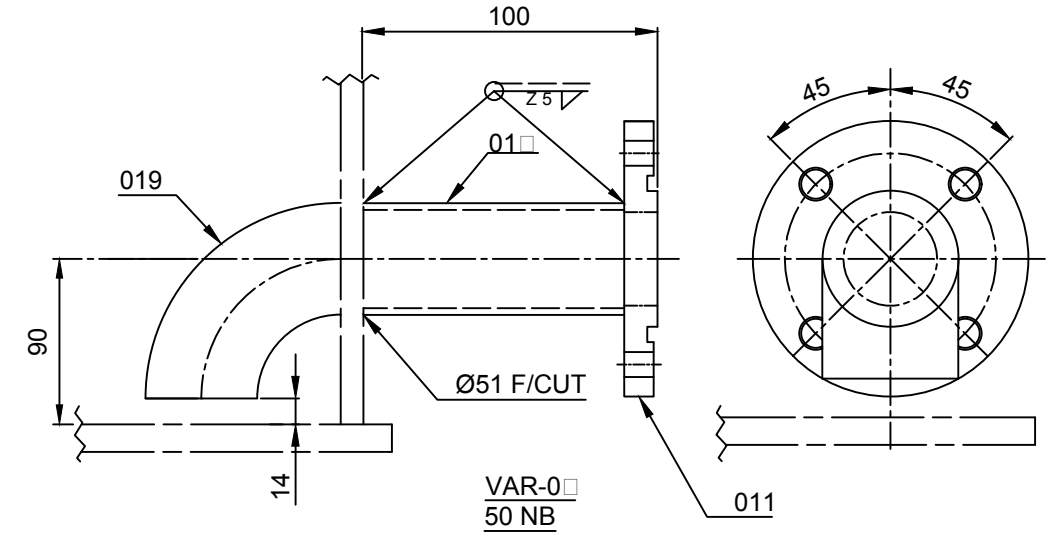
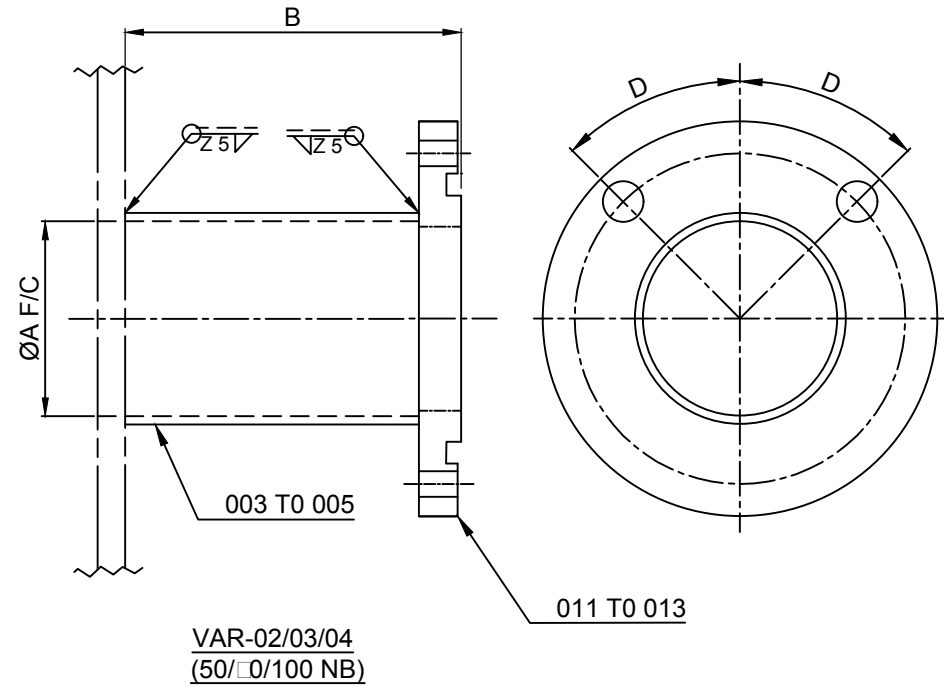
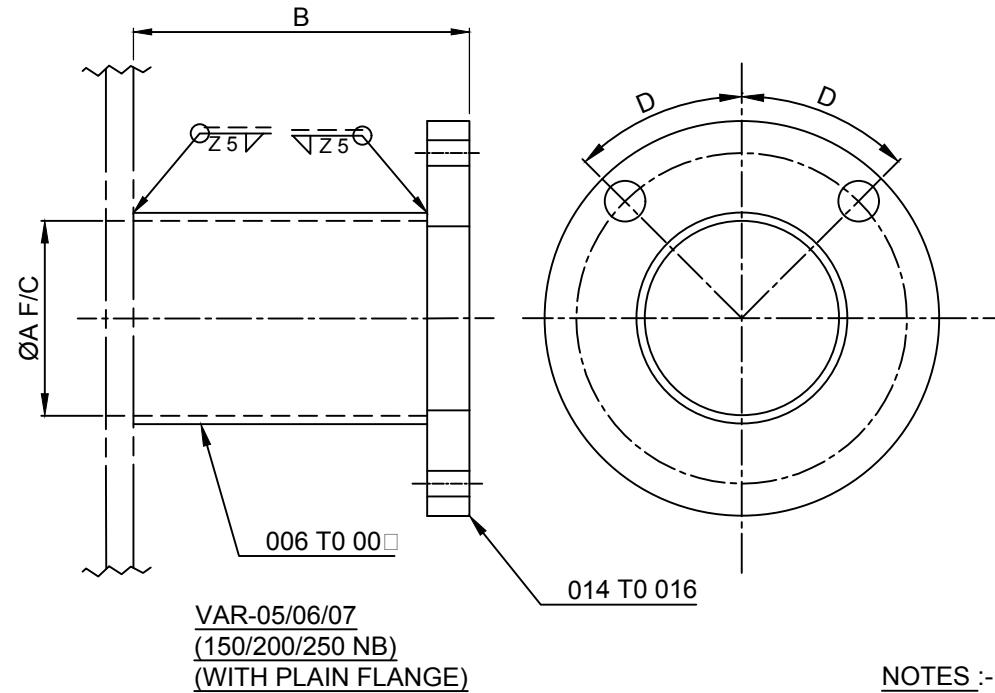
VAR-00
15 NBVAR-01
25NBVAR-0
50 NBVAR-02/03/04
(50/0/100 NB)VAR-05/06/07
(150/200/250 NB)
(WITH PLAIN FLANGE)

TABLE OF DIMENSIONS AND WEIGHT FOR SEATING OF VALVES

VAR	WT IN KG
00	1.29
01	1.27
0	3.24

VAR	A	D°	N B	WEIGHT IN KG
02	51	45	50	1.7 L .0051
03	0	45	0	2.67 L .005
04	100	45	100	4.64 L .0121
05	153	22.5	150	4.0 L .0197
06	200	22.5	200	9.00 L .0292
07	253	15	250	13.43 L .0417

NOTES :-

1. FOR ALL OTHER INFORMATION SEE TOP TANK ASSY DRG / WO.
2. FOR DIMENSION B SEE W.O. / MID.
3. LENGTH OF PIPE (IT 003 TO 00) L B-T WHERE T THICKNESS OF FLANGE (IT 011 TO 016) FOR VAR-02 TO 07 (ALL DIMENSIONS IN MM)
4. FOR DELINKED BOM REFER COM BOM 34641500024.

ADDITIONAL INFORMATION
WO.NO. 66001-X-512-01

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
TRE-1, TRM-3, FTM-7 TRX 1उत्पाद का प्रकार या
ग्राहक /परियोजना का नाम
270 MVA 21/420/√3KV, 1PH, GEN TRANSFORMER
TYPE OF PRODUCT OR
NAME OF CUSTOMER/PROJECT
M/S- BIFPCL, MAITREE

भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD BHOPAL	वनाया DRN जांचा CHD स्वीकृत APPD	नाम NAME RAJNEES TIWARI D.TIWARI S.CH.	हस्ता, SIGN दि. DATE 01.01.19 08.01.19 10.01.19	वेरि की संख्या NO.OF VAR 9
--	---	---	---	--

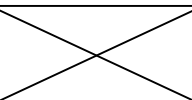
REV	DATE	ALTERED	ADG
02	13.09.021	CHECKED APPROVED	----- SCH

ZONE IN BOM ITEMS 001 TO 004 & 006 MAT.TK.WAS
3.65,3.26,3.65,4.05,4.5 RESPTLY.SAME
UPDATED INLINE WITH IS-1239 (Mmm).

REV	DATE	ALTERED	ASHISH
01	27.02.19	CHECKED APPROVED	DTI SCH

ZONE ANGLE D° SHOWN IN VAR-00 TO
VAR-07. ØA F/C SHOWN IN VAR-05 TO
VAR-07.विभाग टीआरई
DEPT TRE
कोड
CODE 406

शीर्षक /TITLE

SEATING OF VALVE
(WITH GROOVED AND PLAIN FLANGE)SCALE
अनुपातभार कि.ग्रा.
WEIGHT(□)असे. डाईंग का संदर्भ
REF TO ASSY DRGमद कं.
ITEM NO.मद संख्या
NO.OF
ITEM
19DRAWING NO.
3 464 15 00024

पृष्ठ क. SHT NO. पृष्ठों की सं. NO.OF SHT.

3

4

5

6

7

8

9

10

11

12

A

B

C

D

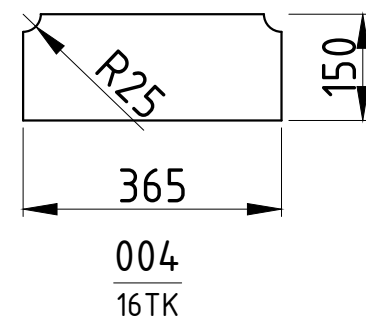
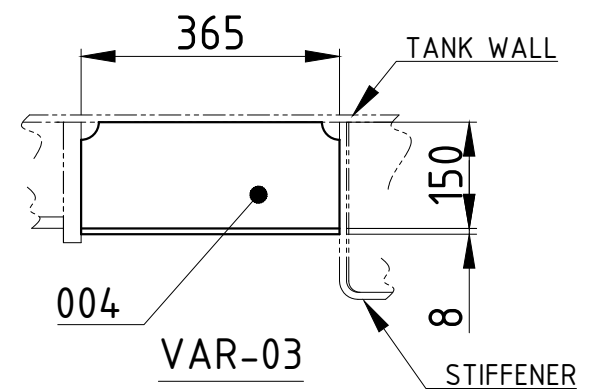
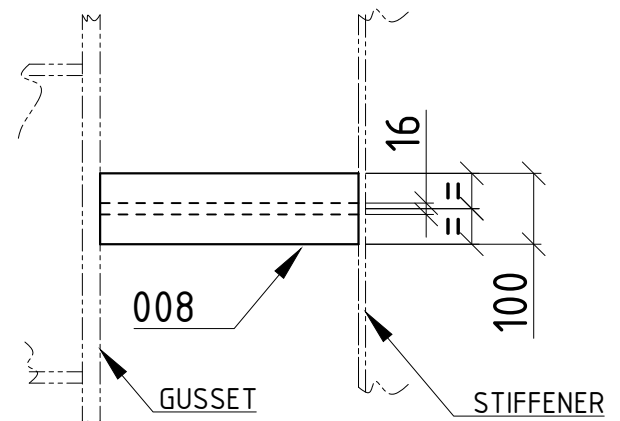
E

F

G

REF.DRG.NO.

SIGN. DATE



1. FOR ALL OTHER IMFORMATIONS SEE TOP TANK ASSY. DRG.
2. FOR DELINKED BOM. REFER COMPUTER SH. NO. 34641600233.

REV	DATE	ALTERED CHECKED APPROVED	REV	DATE	ALTERED CHECKED APPROVED	REV	DATE	ALTERED CHECKED APPROVED
ZONE			ZONE			ZONE		

उपनाम का प्रकार वा ग्राहक /परियोजना का नाम		500,MVA,3-PH. AUTO TRFR.				
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		M/s:- PGCIL				
भारत हे वी इलेक्ट्रिकल्स लिमिटेड भोपाल		क्रमांक SERIAL NO.	नाम NAME	हस्ताक्षर SIGNATURE	दि. DATE	परीक्षण TEST NO.
 BHARAT HEAVY ELECTRICALS LTD. BHOPAL		01	P.P. GAUTAM		08.10.21	04
		02	RAKESH		19.10.21	
		03	S. CHAUHAN		21.10.21	
निर्माता/कारक MFG. / FAB.	कैस CASE	स्केल SCALE	भारत फि.वा. WEIGHT(Kg)	उपनाम REF TO ASSY DRG	मार्क शीट ITEM NO.	नक्शा REV.
0406					008	00
शीर्षक/TITLE						पुनः REV.
TANK IV.WALL SUPPORT						00
DRAWING NO.				पुनः REV.		
3 464 16 00233				00		
पृष्ठ क्र. SHT. NO.				पृष्ठों की सं. NO OF SHT.		

BILL OF MATERIAL				DEP NO	NO OF IT VAR		TYPE OF PRODUCT				WORK ORDER STD		DRG NO 44691600051		CORE CODE 65316720		REV 00	VER 00
				406	2	1					125 MVAR				TITLE LASHING LUG TOP TANK			

DU	VAR03	VAR02	VAR01	VAR00	REMARKS	IT NO	DESCRIPTION						DRAWING NO	IT.	MATCODE		A / C	UT	UNIT	WT	G / S
							MAT SIZE						DETAILS		VAR	MAT SPEC			QTY	ZONE	
				00001		001	PLATE								AA1011808153			KG	7.332		
							TK	WDT	LEN	ID	OD	DIM1				AA10108					
							25	140	294												
				00001		002	PLATE								AA1011808153			KG	7.332		
							TK	WDT	LEN	ID	OD	DIM1				AA10108					
							25	140	294												

14.664

DISTRIBUTION DETAILS				REV NO. 0	PREP BY		CKD BY		APPD BY		DATE
TRE	TRM	FTM		PREP BY	CKD BY	APPD BY		DATE			
3	3	10		PKV	UKM	SCJ		12 DEC 2014			
										DRG NO 44691600051	
										SHT 1 OF 1	

(ALL DIMENSIONS IN mm)

A4 SIZE

BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL
TRANSFORMER ENGINEERING DIVISION

FORM NO. TRE-2017/ TR 30007T

TITLE :- MECHANICAL TEST INSTRUCTIONS

PRODUCT- **500 MVA, 400/220/33 kV, 3 -Ph,AUTO TRANSFORMER**

W.O.- **62216A51201**

CUSTOMER- **PGCIL**

A. FOLLOWING TESTS TO BE CONDUCTED DURING FABRICATION STAGE.

1.0 TANK

1.1 VACUUM TEST AS PER TR 10107T (TO BE CONDUCTED ON ALL UNIT.)

ABSOLUTE PRESSURE **25 TORR**

DURATION **1 HOUR**

WITH DEFLECTION MEASUREMENT ON ALL UNIT

1.2 PRESSURE TEST (AS PER TR 10084T/ TR 10033T) TO BE CONDUCTED ON ALL UNIT.

AIR/HYDRAULIC/OIL **AIR**

PRESSURE (AT BASE) **0.981 Kg / cm² Or**

96.2 KN/m²

WITH DEFLECTION MEASUREMENT ON ALL UNIT
(AFTER ONE HOUR)

DURATION **4 HOUR**

2.0 CONSERVATOR

2.1 VACUUM TEST (IF REQUIRED)

ABSOLUTE PRESSURE **NA**

DURATION **NA**

2.2 PRESSURE TEST

AIR/HYDRAULIC/OIL **AIR**

PRESSURE **0.35 Kg / cm²**

DURATION **1 HOUR**

3.0 ANY OTHER REQUIREMENT

POWERGRID APPROVED MQP TO BE FOLLOWED.

4.0 CUSTOMER WITNESS FOR SL. NO. A

YES

B. FOLLOWING TESTS TO BE CONDUCTED ON ASSEMBLED TRANSFORMER IN TRM SHOP.

1.1 OIL PRESSURE TEST (AS PER TR 10083T) - **ROUTINE**

COMPLETELY ASSEMBLED TRANSFORMER FOR ROUTINE TEST (EXCLUDING PIPE WORK , COOLING BANK, PRV & CONSERVATOR) SHALL BE SUBJECTED TO AN OIL PRESSURE EQUIVALENT TO 96.2 KN/m² OR 0.981 kg/sq.cm, MEASURED AT THE BOTTOM OF TANK, FOR 12 HOURS AS PER PGCIL APPROVED MQP DURING WHICH NO LEAKAGE SHALL OCCUR.

1.2 ANY OTHER REQUIREMENT

JACKING PAD TEST FOLLOWED DP TEST

1.3 CUSTOMER WITNESS FOR SL. NO. B

YES

NOTES:- 1. DEFLECTION CHART IN FORM NO. TRE 2012 TO BE REFERRED TO TRE FOR THEIR APPROVAL.
2. TEST PRESSURE IF SPECIFIED ON THE DRGS. ARE NOT BE FOLLOWED. 3. FBM TO CONSULT TRS FOR CUSTOMER WITNESS DATES. 4. POWERGRID APPROVED QAP TO FOLLOWED

PREP- **CM**

CKD- **KGK**

APPD- **NM**

Date 20-Jun-2023

Date 22-Jun-2023

Date 22-Jun-2023



BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL
STANDARD QAP FOR TRANSFORMER TANK ASSEMBLY

QAP NO:QA/TCB/BO/136

Rev: 03

Date: 27/07/2023

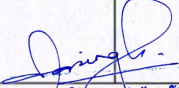
Page 1 of 3

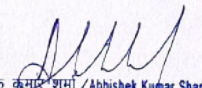
SL NO.	COMPONENT	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY		REMARKS
									M	B/T	
1a	RAW MATERIAL (MS/ SS PLATES &, PIPES)	a) Mechanical Properties, chemical properties. b) Co-relation of heat no./ cast no. with material TC.	MAJOR	Test	100%	As per BHEL Spec./ drg.		TC/TR	P	RR	1. Items to be procured from BHEL approved sources. In exceptional case of absence of co-related TCs, Test/check shall be done by supplier in presence of BHEL/TPIA at NABL accredited Lab.
									P	W	CHP
1b	RAW MATERIAL (ELECTRODE, BOLLARD BAR & OTHERS)	a) Mechanical Properties, chemical properties.	MAJOR	Test	Review	As per BHEL Spec./ drg.		TC/TR	P	RR	Electrodes shall be BHEL approved make. Audit/ surveillance check for make of electrode shall be done by BHEL/ TPIA.
2	TESTING ON RAW MATERIAL AND WPS/ PQR	a) Ultrasonic test on steel plates (>10 mm) b) Review of BHEL qualified welders record and WPS/ PQR	MAJOR	Visual, Test	100%	As per BHEL Spec./ drg.		TC/TR	P	RR	RECORD REVIEW 1. Plate and Bars shall be UT certified by source. In case UT not ensured by source, manufacturer has to submit TR of UT conducted by NDT qualified level-II Person.
3	FITUP & BACK CHIP DP TEST	a) FITUP & BACK CHIP DP TEST: Walls, Base, Channel & Cover b) Bend portion of channel assy. before gusset assy. to be DP tested.	MAJOR	Visual, Measurement, Test	100%	As per BHEL Spec./ drg.		TC/TR	P	RR	1. Back chipping shall be done in the case of full penetration welds.
4	TANK BASE/CHANNEL JOINT UT TEST/ RT TEST (IF REQ)	Tank base/Channel Joint UT Test/ RT Test (If Required)	MAJOR	Visual, Measurement	100%	As per BHEL Spec./ drg.		TC/TR	P	RR	
5	DP TEST ON LOAD BEARING JOINTS	DP Test on Load bearing Joints: a) Jacking Pad b) Lifting bollard	MAJOR	Visual, Measurement	100%	As per BHEL Spec./ drg.		TC/TR	P	W	CHP
		a) Lashing Lugs b) Other points as per Drawing.	MAJOR	Visual, Measurement	100%	As per BHEL Spec./ drg.		TC/TR	P	RR	

Satyendra Kumar Singh
 सत्येन्द्र कुमार सिंह / Satyendra Kumar Singh
 अभियंता / Engineer
 गुणता आश्वासन टैलीमी / Quality Assurance-TCB
 बी.एच.ई.एल., भोपाल / B.H.E.L., BHOPAL

Abhishek Kumar Sharma
 अभिशेक कुमार शर्मा / Abhishek Kumar Sharma
 सैरिष्ठ प्रबंधक / Sr. Manager
 शु. ए. एवं शु. टी. कार. (टैलीमी) / QA & QTR-TCB
 बी.एच.ई.एल., भोपाल / BHEL, BHOPAL

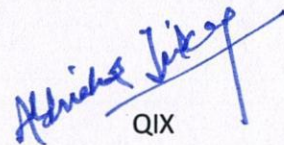
 BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL STANDARD QAP FOR TRANSFORMER TANK ASSEMBLY										QAP NO:QA/TCB/BO/136 Rev: 03 Date: 27/07/2023 Page 2 of 3
6	RIM FLATNESS	Top & Bottom/Cover Tank 1:10 Bolted Condition Without Limiter Welding As Applicable.	MAJOR	Visual, Measurement	100%	As per BHEL Spec./ drg.	TC/TR	P	W	CHP
7a	DIMENSIONS	a) Groove dimensions b) Cover cut out dimensions c) Foot Assy Dimensions d) Jacking Pad Dimensions e) Turrets Dimensions f) Conservator Dimensions g) Coil Sitting Area	MAJOR	Visual, Measurement	100%	As per BHEL Spec./ drg.	TC/TR	P	RR	1. Supplier to cover all points of this stage by raising inspection calls. 2. Critical to assembly dimensions are to be worked out with reference to drawing and same is to be listed.
7b		a) Inside Guide/ Shoe/ Locating Pin Dimension b) Height & Distance c) Additional pad d) Inside Dimension Tank e) Inside Dimension Bottom f) Limiter dimensions g) Roller Pad Dimensions h) Cover Dimension i) Shunt Mounting pad j) flatness of Pad & Clamp for prismatic gauge glass and its matching in 1:3 bolted condition	MAJOR	Visual, Measurement	100%	As per BHEL Spec./ drg.	TC/TR	P	W	CHP
8a	VISUAL CHECK IN BLACK CONDITION	a) Bottom Assy b) Top Tank/ Cover Assy c) Turrets d) Conservator e) Header (Witness) f) Pipe in black condition. (Witness by Inspection agency)	MAJOR	Visual	100%	As per BHEL Spec./ drg.	TC/TR	P	RR	W
8b	ITEMIZATION IN BLACK CONDITION	a) Bottom Assy b) Top Tank/ Cover Assy c) Turrets	MAJOR	Visual	100%	As per BHEL Spec./ drg.	TC/TR	P	W	
		d) Conservator e) Header f) Pipes	MAJOR	Visual	100%	As per BHEL Spec./ drg.	TC/TR	P	RR	

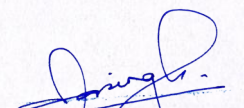

 सरोज कुमार सिंह / Saroj Kumar Singh
 अभियंता / Engineer
 गुणता आश्वासन टैलीमि / Quality Assurance-TCB
 बी.एच.ई.एल., भोपाल / B.H.E.L., BHOPAL

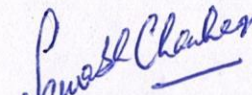

 अभिशेक कुमार शर्मा / Abhishek Kumar Sharma
 वरिष्ठ प्रबंधक / Sr. Manager
 क्वा. ए. एवं क्वा. टी. आर. (टीसीबी) / QA & QTR-TCB
 बी.एच.ई.एल., भोपाल / BHEL, BHOPAL

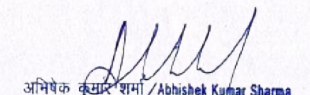
 BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL STANDARD QAP FOR TRANSFORMER TANK ASSEMBLY										QAP NO:QA/TCB/BO/136 Rev: 03 Date: 27/07/2023 Page 3 of 3
9	AT/VT	Air pressure test/ Vacuum test with deflection measurement.	MAJOR	Visual Measurement	100%	As per BHEL Spec./ drg.	TC/TR	P	W	CHP
10	LEAKAGE TEST	a) Top & Bottom/Cover Tank With Turrets b) Conservator Assy. c) Headers, Pipes	MAJOR	Visual	100%	As per BHEL Spec./ drg.	TC/TR	P	W	CHP
		a) Box Stiffener (Tank Assy).	MAJOR	Visual	100%	As per BHEL Spec./ drg.	TC/TR	P	RR	
11	MOUNTING, MATCHING AND ORIENTATION OF FABRICATED COMPONENTS	Mounting matching pad orientation of fabricated components.	Critical	Visual, Measurement	100%	As per BHEL drg	TC/TR	P	W	CHP 1. Photographs is to be taken on fully assembled condition along with OAB pipework, headers, and coolers/Radiator pipe work and to be submitted with documents.
12	SHOT BLASTING	a) Top Tank & Turrets b) Bottom Tank c) Conservator d) Headers, Pipes & Accessories e) Pickling Of Pipes	MAJOR	Visual	100%	As per BHEL Spec./ drg.	TC/TR	P	RR	
13	PAINTING DFT & ADHESION TEST	a) Top Tank b) Bottom Tank c) Conservator, Pipes and Accessories	MAJOR	Visual, Measurement	100%	As per BHEL Spec./ drg.	TC/TR	P	W	CHP 1. Supplier to cover all points of this stage by raising inspection calls.
14	VERIFICATION OF DOCUMENTS & FINAL DISPATCH CLEARANCE	a) Bottom Tank b) Top Tank & Turrets c) Conservator	MAJOR	Visual	100%	As per BHEL Spec./ drg.	TC/TR	P	RR	
M-Manufacturer, B/T-BHEL/ TPIA, TPIA-Third Party Inspection agency, P- Perform, V- Verification, RR: Record Review, W- Witness, CHP- Customer hold point. TC-Test certificate, TR- Report/QC Record/ MFG Record of Manufacturer. Note: 1) This QAP shall be read in conjunction with Customer approved QAP/RQP/MQP for specific work Order (As applicable). 2) As per PO TG Items, inside fitting, outside fittings & loose items are in the scope of vendors.										


 FBM


 QIX


 सत्यनंद कुमार सिंह / Satyendra Kumar Singh
 अभियंता / Engineer
 गुणता आश्वासन टैलीमी / Quality Assurance-TCB
 बी.एच.ई.एल., भोपाल / B.H.E.L., BHOPAL


 TRE


 अभिषेक कुमार शर्मा / Abhishek Kumar Sharma
 वरिष्ठ प्रबंधक / Sr. Manager
 क्वालिटी एंशुरन्स टैलीमी / QA & QTR-TCB
 बी.एच.ई.एल., भोपाल / BHEL, BHOPAL