

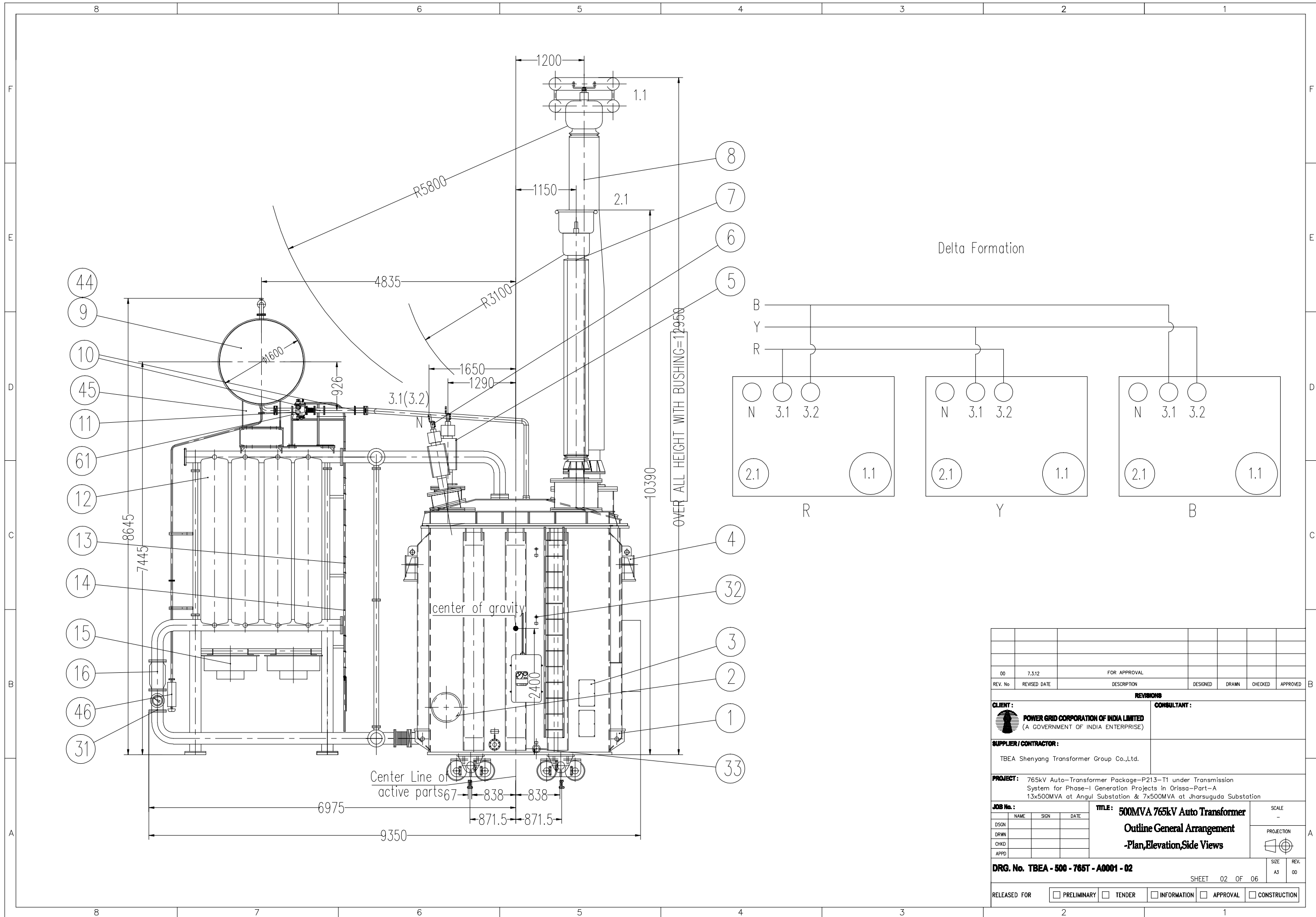
REV. No	REVISED DATE	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
00	7.3.12	FOR APPROVAL				

CLIENT : POWER GRID CORPORATION OF INDIA LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)		CONSULTANT :
SUPPLIER / CONTRACTOR : TBEA Shenyang Transformer Group Co.,Ltd.		

PROJECT : 765kV Auto-Transformer Package-P213-T1 under Transmission System for Phase-I Generation Projects in Orissa-Part-A 13x500MVA at Angul Substation & 7x500MVA at Jharsuguda Substation			SCALE : -
JOB No. :	TITLE : 500MVA 765kV Auto Transformer	PROJECTION : First Angle	
DSN	NAME	SIGN	DATE
DRWN			
CHKD			
APPD			

DRG. No. TBEA - 500 - 765T - A0001 - 01	SHEET 01 OF 06	SIZE : A3	REV. : 00
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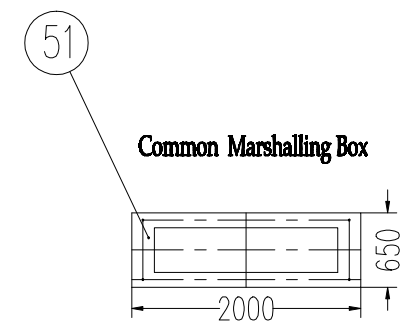
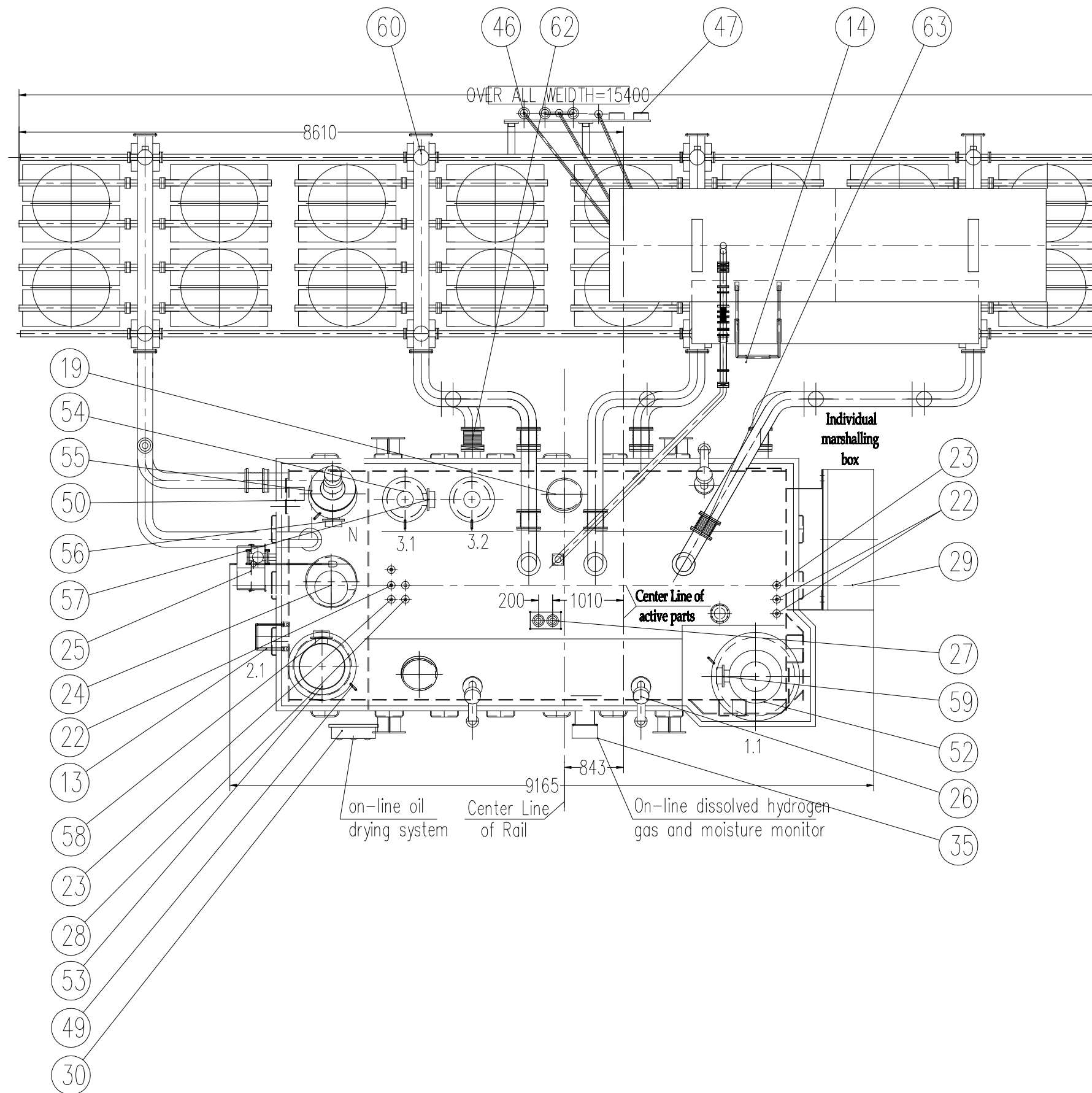
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JOB No. :	TITLE : 500MVA 765kV Auto Transformer	PROJECTION : A	
DRSN :	Outline General Arrangement		
CHKD :	-Plan, Elevation, Side Views		
APPD :		SIZE : A3	REV. : 00

DRG. No. TBEA - 500 - 765T - A0001 - 02	SHEET 02 OF 06
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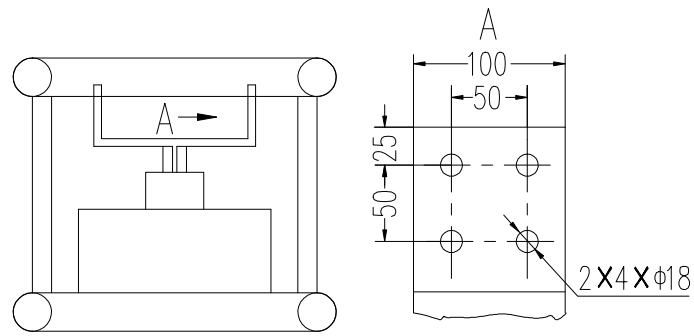
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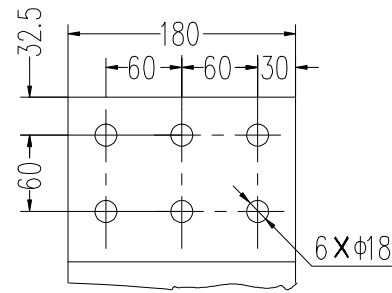
The position of Common Marshalling Box which installed fall to the ground supplied by user

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JOB No.:		TITLE : 500MVA 765kV Auto Transformer			SCALE : -	
DSGN	NAME	SIGN	DATE			
DRWN						
CHKD						
APPD						
DRG. No. TBEA - 500 - 765T - A0001 - 03			SHEET 03 OF 06		SIZE A3	REV. 00
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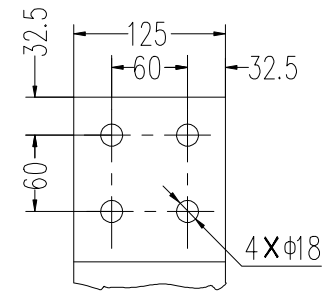
Connection terminal for HV bushing



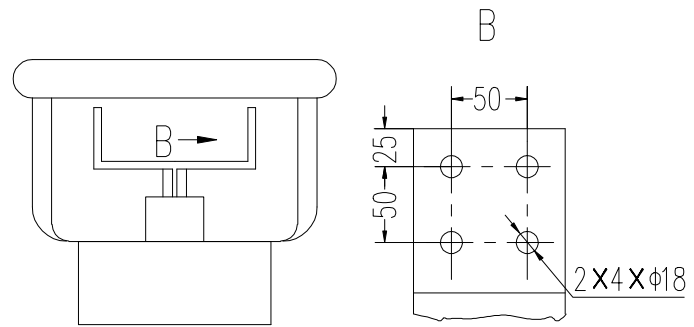
Connection terminal for LV bushing



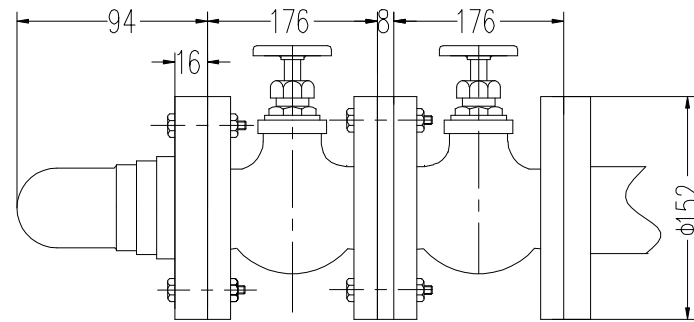
Connection terminal for Neutral bushing



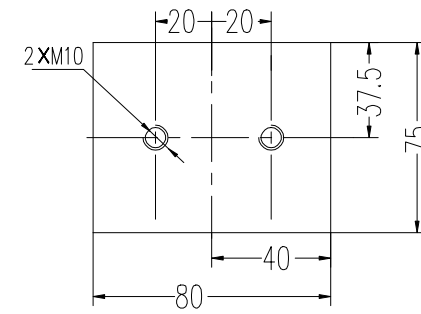
Connection terminal for IV bushing



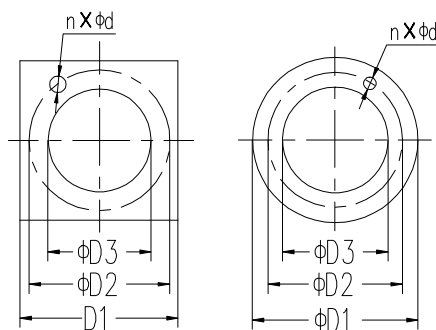
Oil sampling device (Item 33) enlarged view



Earthing Pad of Transformer on main tank (Item 34) suitable for connection to 75 x 12 mm galvanised steel flat



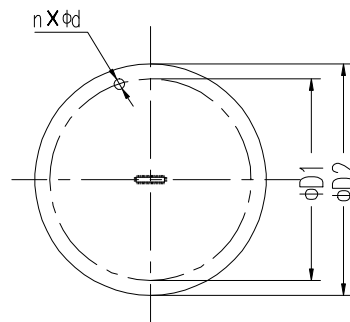
View of the dimension of gate (butterfly) valve size



one two

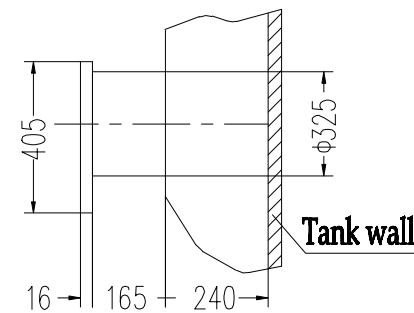
	D1	D2	D3	n×φd	Order
gate valve (25)	108	79.5	25	4×φ15	Two
gate valve (50)	152	120.5	50	4×φ19	Two
gate valve (100)	229	190.5	100	8×φ19	Two
butterfly valve (81)	160	160	80	4×φ18	One
butterfly valve (82)	150	150	80	4×φ18	One
butterfly valve (150)	280	240	150	8×φ23	Two
butterfly valve (200)	335	295	200	8×φ23	Two

Illustrative diagram of manhole cover

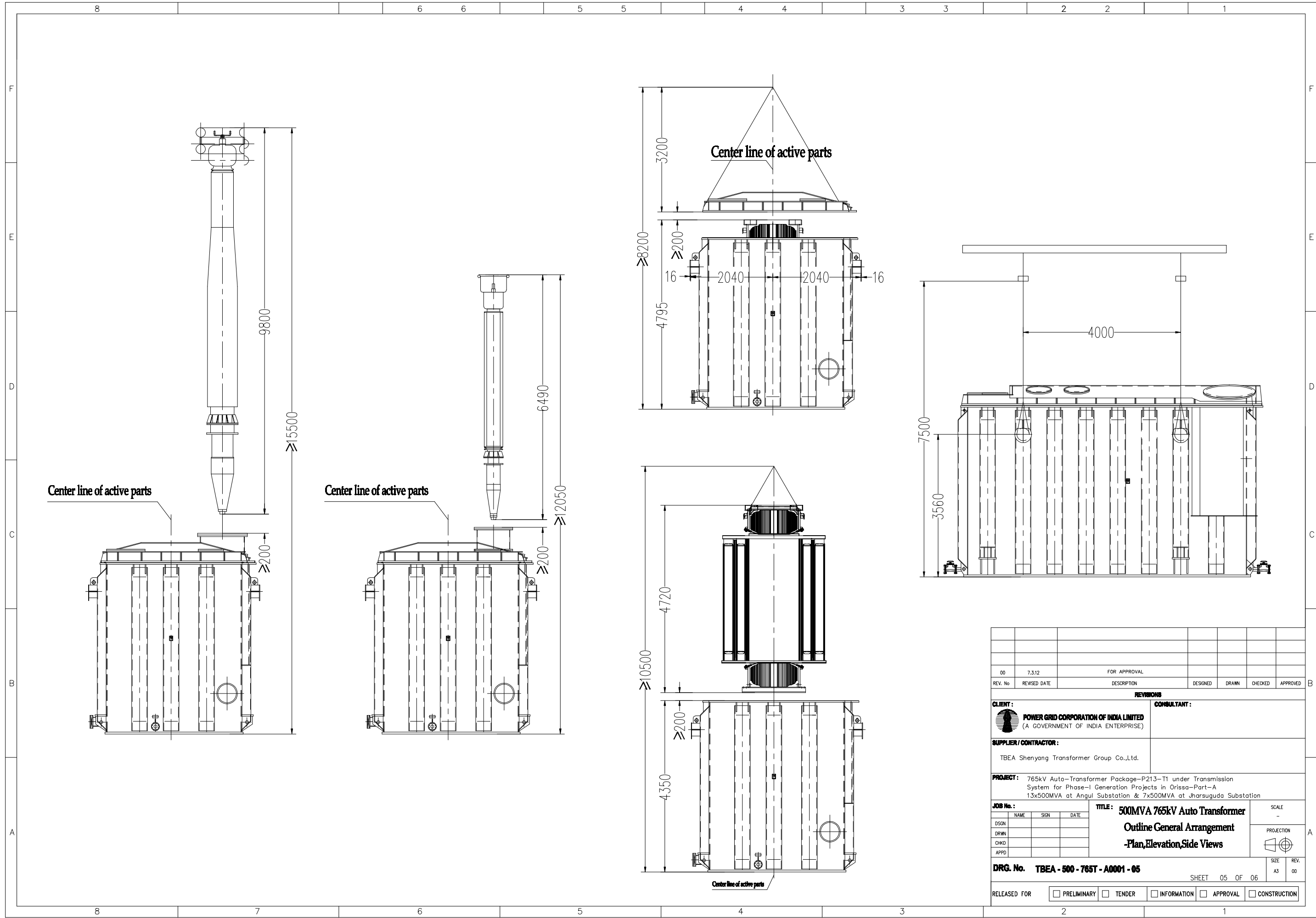


NO.	D1	D2	n×φd
19	600	630	20×φ13

Item 4 lifting lug of main tank



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JOB No.:		TITLE : 500MVA 765kV Auto Transformer			SCALE : -	
DSGN	NAME	SIGN	DATE	PROJECTION 		
DRWN						
CHKD						
APPD						
DRG. No. TBEA - 500 - 765T - A0001 - 04				SIZE : A3	REV. : 00	
SHEET 04 OF 06						
RELEASED FOR <input type="checkbox"/> PRELIMINARY <input type="checkbox"/> TENDER <input type="checkbox"/> INFORMATION <input type="checkbox"/> APPROVAL <input type="checkbox"/> CONSTRUCTION						



DO		7.3.12	FOR APPROVAL					
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REVISIONS								
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TBEA Shenyang Transformer Group Co.,Ltd.								
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JOB No. :		TITLE : 500MVA 765kV Auto Transformer			SCALE			
DSGN	NAME	SIGN	DATE				-	
DRWN							PROJECTION	
CHKD								
APPD							SIZE	
DRG. No. TBEA - 500 - 765T - A0001 - 05				SHEET 05 OF 06		REV. 00		
RELEASED FOR				<input type="checkbox"/> PRELIMINARY <input type="checkbox"/> TENDER <input type="checkbox"/> INFORMATION <input type="checkbox"/> APPROVAL <input type="checkbox"/> CONSTRUCTION				

Distance of Bushing to Earth		Phase to earth		Phase to Phase	
HV Bushing	5800mm	---			
IV Bushing	3100mm	---			
LV Bushing	480mm	530mm			
Neutral Bushing	630mm	---			

Name	Weight(kg)
Active parts	162000
Tank and Fitting	104000
Oil	94000 (104500L)
HV bushing	4000
Neutral bushing	210
IV bushing	1400
LV bushing	230*2
Total Radiators	1016*32
Weight of transportation (Nitrogen filling)	210000
Total weight	360000

NOS.	Detached	Fixed	Name	Qty	Remark	Unit	Total Weight	Make	NOS.	Detached	Fixed	Name	Qty	Remark	Unit	Total Weight	Make
63	✓		Expansion bellow	4	For upper radiator header												
62	✓		Expansion bellow	4	For lower radiator header												
61	✓		Expansion bellow	1	For air relief pipe to conservator												
60	✓		Earthing terminal of radiator	4													
59	✓		HV bushing CT terminal box														
58	✓		IV bushing CT terminal box														
57	✓		LV bushing CT terminal box														
56	✓		Neutral bushing CT terminal box						28		✓	Spare hole for RTD	2				TBEA
55	✓		Neutral Turret	1	with 1 CT			TBEA	27	✓		Earthing bushing -10kV	2	For core and clamp earthing			TBEA
54	✓		LV Turret	2	with 1 CT			TBEA	26	✓		Pressure relief device	3	With direction shroud pipe			Shenyang STI
53	✓		IV Turret	1	with 3 CTs			TBEA	25	✓		Driving mechanism box	1				ABB
52	✓		HV Turret	1	with 3 CTs			TBEA	24		✓	ON-load tap-changer	1				ABB
51	✓		Common marshalling box					TBEA	23	✓		RTD of OTI	2				Dalian Shiyou
50		✓	Impact recorder	1					22	✓		RTD of WTI	3				Dalian Shiyou
49	✓		Earthing lead	5	Connect turret & tank			TBEA	21	✓		Oil temperature indicator	2				Dalian Shiyou
48		✓	Valve schedule plate	1				TBEA	20	✓		Winding temperature indicator	3				Dalian Shiyou
47	✓		Sampling gas collecting device	2	With hoses			Shenyang Yinhai	19		✓	Manhole on tank cover	2				TBEA
46	✓		Breather	3				Shenyang Mingyuan	18	✓		Oil level indicator(MOLG)	1	for OLTC			Shenyang Yinhai
45	✓		Support bracket of conservator					TBEA	17	✓		Oil level indicator(MOLG)	1	for transformer			Shenyang Yinhai
44	✓		Air cell of conservator	1				Power Grid Approved	16	✓		Oil-submerged pump	4				Beijing Fute
43	✓		Roller assembly	8	Dismantled during operating			TBEA	15	✓		Fan-motor	16				Zhejiang Mingxin
42	✓		Drain plug of radiator	1 each				TBEA	14	✓		Ladder	1	on radiator			TBEA
41	✓		Air release device of main tank	4	On the main pipe to radiator			TBEA	13		✓	Ladder	1	on tank			TBEA
40	✓		Tensile rod of radiator	10				TBEA	12	✓		Radiator assembly-4#(3200*520*36)	1				TBEA
39	✓		Radiator with air vent & plug	2				Baoding Tada	11	✓		Flow Sensitive Non - Return valve					Power Grid Approved
38	✓		Air release plug of radiator	each				Baoding Tada	10	✓		Buchholz relay	2				Shenyang Yinhai
37	✓		TBEA symbol plate	1				TBEA	9	✓		Conservator	1	Main & OLTC			TBEA
36	✓		Lifting lug of conservator	3				TBEA	8	✓		HV Bushing -800kV,2500A					TBEA
35	✓		On-line dissolved hydrogen gas and moisture monitor					Power Grid Approved	7	✓		IV Bushing -420kV,2500A					TBEA
34		✓	Earthing pad of main tank					TBEA	6	✓		Neutral bushing -52kV,2500A					TBEA
33		✓	Oil sampling device	1	Bottom			TBEA	5	✓		LV Bushing -52kV,3150A					TBEA
32		✓	Oil sampling device	2	Middle and Top			TBEA	4		✓	Lifting lug	4				TBEA
31	✓		Oil flow indicator	4				Power Grid Approved	3		✓	Transformer Rating & diagram plate					TBEA
30	✓		On-line oil drying system	1				TRANSEC (UK)	2		✓	Man hole on tank wall	3				TBEA
29	✓		Individual marshalling box cum cooler control box					TBEA	1		✓	Jacking pad	4				TBEA

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SUPPLIER / CONTRACTOR:	
TBEA Shenyang Transformer Group Co.,Ltd.	
PROJECT:	
765kV Auto-Transformer Package-P213-T1 under Transmission System for Phase-I Generation Projects in Orissa-Part-A 13x500MVA at Angul Substation & 7x500MVA at Jharsuguda Substation	
JOB No.:	TITLE:
DSN	500MVA 765kV Auto Transformer
DRWN	Outline General Arrangement
CHKD	-Plan, Elevation, Side Views
APPD	
DRG. No.	SCALE
TBEA - 500 - 765T - A0001 - 06	-
	PROJECTION
	SIZE
	A3
	REV.
	00
RELEASED FOR	SHEET 06 OF 06
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