

APPENDIX 1

SCHEDULE OF REQUIREMENTS (To be completed by Project Manager/Client)

SYSTEM DETAIL

- 1.0 Transformer required for: BROODSNYERS substation/location
- 2.0 Nominal system voltage: 132 kV
- 3.0 Frequency: 50 Hz

TRANSFORMER DETAIL

- 1.0 Number of phases: Primary winding: 3 Secondary winding: 6
- 2.0 Secondary winding configuration: DELTA/STAR/STAR
- 3.0 Rated power: 10 MVA
- 4.0 Impedance %: 12,5
- 5.0 Primary voltage rating: 132 kV
- 6.0 Secondary voltage rating (1220 or 2440 V): 1,220 kV
- 7.0 Vector group: Yd11y0yno

CURRENT TRANSFORMERS

- 1.0 Built in current transformers required: Yes/No.

- 2.0 Current transformer data:

	Protection	Metering
Ratio:	<u>TBA</u>	
Class:	<u>TBA</u>	
VA Rating	<u>TBA</u> VA	VA

OFF CIRCUIT TAPPING SWITCH

- 1.0 No of positions: 5 %Steps: 2,5

TRANSFORMER DIMENSIONS

- 1.0 Dimensions (if critical)
- Length: 5350 mm. Breadth: 4450 mm. Height: 7100 mm

SPECIAL REQUIREMENTS

- 1.0 Conservator to be fitted with oil preservation bag. Yes/ No
- 2.0 Radiators galvanised. Yes/ No
- 3.0 Other special requirements:

END

INFORMATION TO BE PROVIDED BY TENDERERS

GENERAL

1.0 Manufacturers name Jiangshan Seotech Electrical Co., Ltd

TRANSFORMER DETAIL

1.0 Primary voltage rating: 132 kV

2.0 Secondary voltage rating: 1,220 kV

3.0 Rated power: 10 MVA

4.0 Impedance %: 12,5

5.0 Off Circuit Tap Switch.

No of positions: 5 %Steps: ±2,5

6.0 Vector group: Yd11y0yno

TANK AND TANK COVER

1.0 Free-breathing: Yes/No

2.0 Tank cover welded to tank: Yes/No

3.0 Radiators galvanised. Yes/No

4.0 Method of Cooling: ONAN

5.0 Overall dimensions: Length 5350 mm. Breadth 4450 mm. Height 7100 mm.

6.0 Winding material: HV COPPER LV COPPER

7.0 Mass of core and windings: 13350 kg

8.0 Oil capacity: 18110 (Litres)

9.0 Mass of transformer complete with oil: 31807 kg

10.0 Adjustable axial coils provided: Yes/No

11.0 Type of breather and dehydrating agent CONSERVATOR WITH BAG

12.0 The following information refers to the transformer when connected on the principal tapping and appropriate reference temperature for the class of insulation used.

13.0 Iron loss (Watts): 11000

14.0 Copper loss at full load: 85000 at 75 °C

15.0 Total load losses (Watts): 96000 at 75 °C

16.0 Impedance at full load (%Z): 12,5

17.0 Reactance (% X): 12,4

18.0 Regulation at full load at: 1.0 PF 0,85 Percent, 0.8 PF 6,26 Percent at 75 °C

19.0 Efficiency at full load at: 1.0 PF 99,05 Percent, 0.8 PF 98,81 Percent at 75 °C

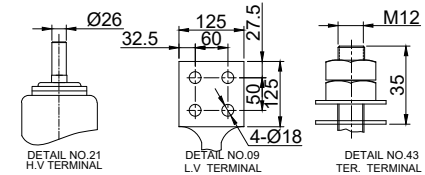
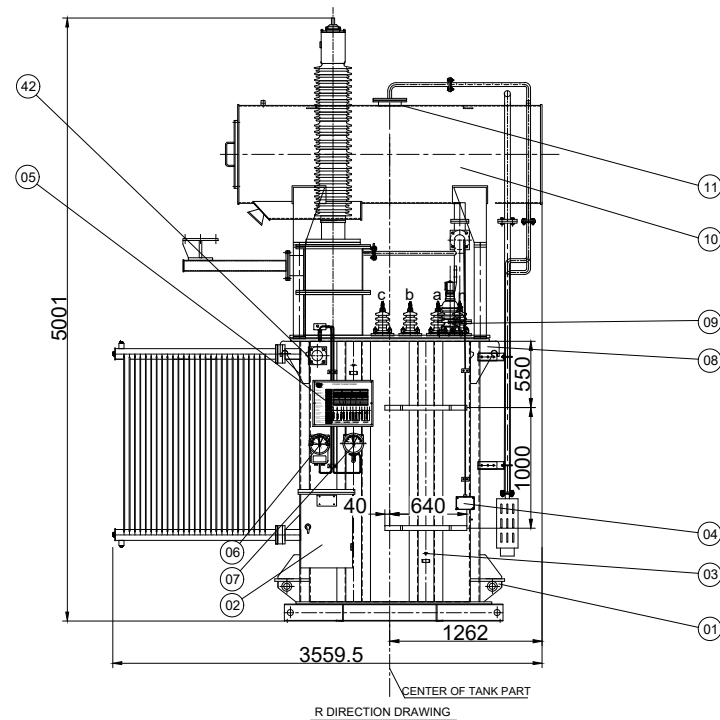
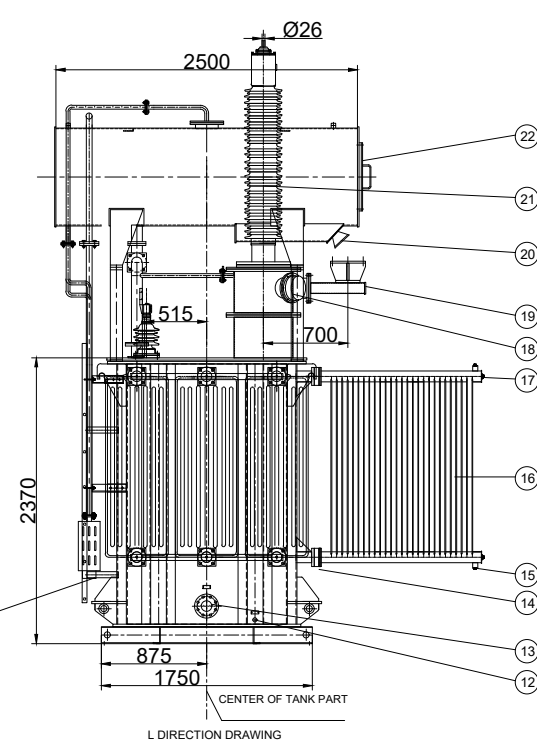
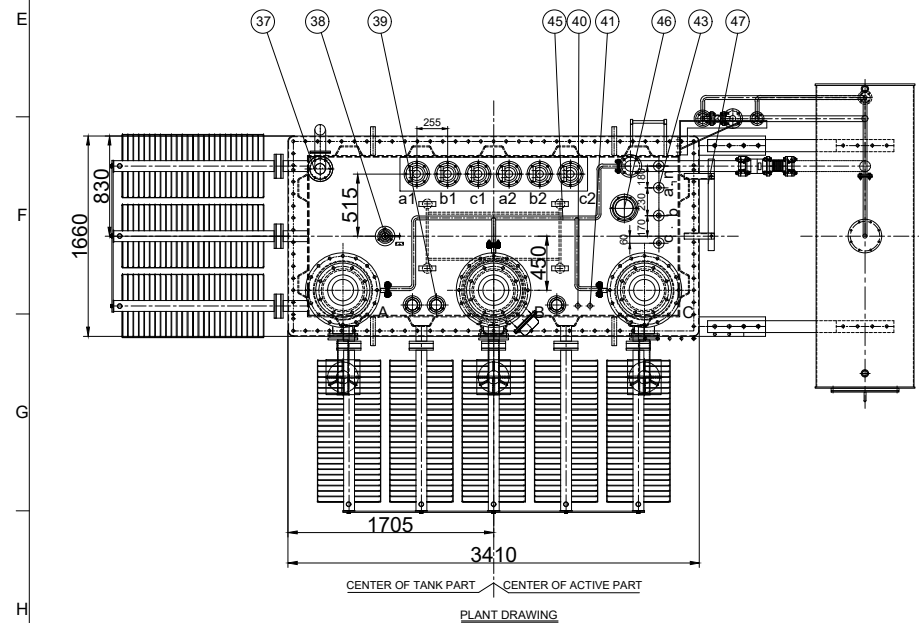
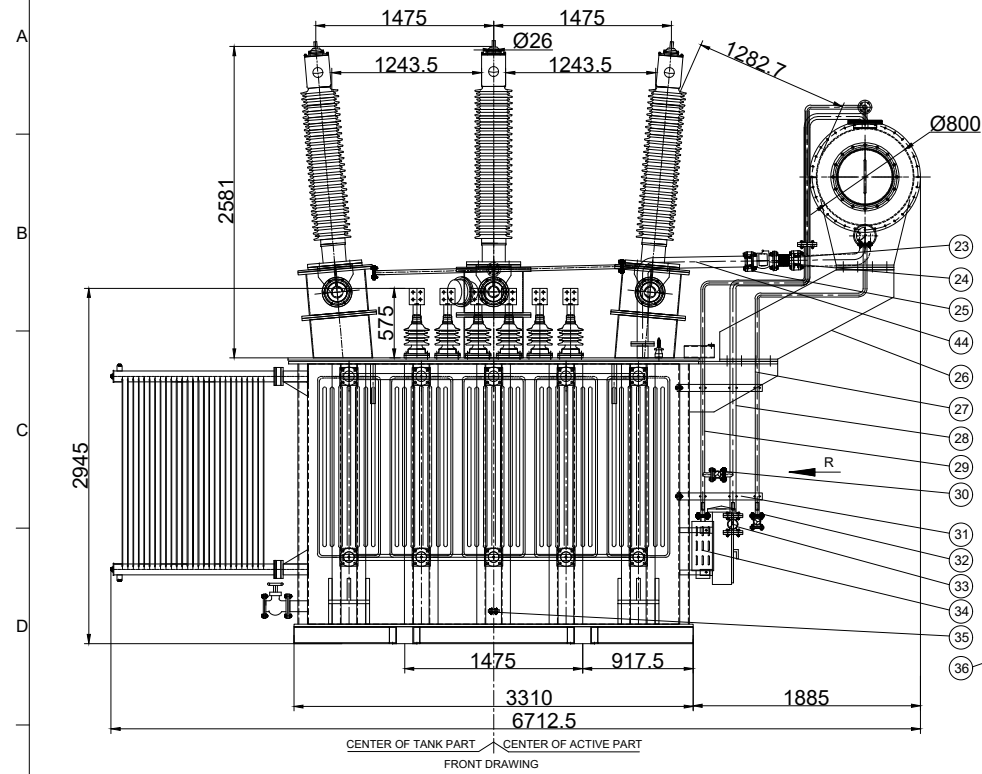
20.0 Temperature rise at rated voltage and power of:

Windings: 65 °C

Top oil: 50 °C

21.0 Transformer Short Circuit withstand ability 0,35kA (HV, ZS)

END



No.	Code	Qty	Name
48	02	02	SUPPORT FOR TERTIARY CABLE
47	01	01	SUPPORT FOR TERTIARY CABLE
46	BCT3-10a	01	CT TERMINAL BOX FOR TER.
45	Ø25	01	VENT-PIPE
44	Ø80	01	MAIN VENT-PIPE
43	BJL-10/100	04	TERTIARY BUSHING
42	Ø80	01	UPPER FILTERING VALVE
41	01	01	POCKET FOR WT1 ELEMENT
40	01	01	POCKET FOR OT1 ELEMENT
39	WDT II 250/132-6x5	03	OFF-CIRCUIT TAP CHANGER
38	BJL-10/100	01	EARTHING BUSHING FOR CORE
37	YSF-55/80	01	PRESS RELIEF DEVICE WITH CONTACT
36	01	01	LADDER WITH SAFETY GUARD
35	02	02	EARTHING TERMINAL
34	3 Kg	01	AIR BREATHER OF MAIN CONSERVATOR
33	Ø50	01	VACUUM VALVE FOR CONSERVATOR TANK
32	Ø25	01	DRAINING AND FILLING VALVE OF MAIN CONSERVATOR
31	01	01	SUPPORT OF PIPE
30	01	01	CONNECT VALVE FOR CONSERVATOR AND RUBER BAG
29	Ø25	01	AIR BREATHER PIPE OF MAIN CONSERVATOR
28	Ø40	01	VACUUM PIPE FOR CONSERVATOR TANK
27	Ø25	01	DRAINING AND FILLING PIPE OF MAIN CONSERVATOR
26	02	02	SUPPORT OF CONSERVATOR
25	DF-80-3.00	02	ISOLATING VALVE OF MAIN CONSERVATOR
24	QJ4-80	01	RELE BUCHHOLZ
23	Ø80	01	FLEXIBLE PIPE
22	01	01	MANHOLE OF CONSERVATOR
21	BRDLW-145/630	03	H.V BUSHING
20	UZF-175	01	OIL LEVEL INDICATOR FOR MAIN CONSERVATOR
19	03	03	SUPPORT OF SURGE ARRESTERS
18	BCT4-15a	01	CT TERMINAL BOX FOR H.V
17	04	04	FLAT OF RADIATORS
16	PC1500-25/520	08	COOLING RADIATOR
15	01	01	EXHAUST STOPPER OF COOLING RADIATOR
14	Ø80	16	RADIATOR VALVE
13	Ø80	01	BOTTOM DRAINING AND FILLING VALVE
12	01	01	BOTTOM DRAINING PLUG
11	Ø810x2510	01	RUBER BAG FOR CONSERVATOR
10	Ø800x2500	01	CONSERVATOR
09	BFWC-12/3150	06	L.V BUSHING
08	04	04	LIFTING LUGS OF COMPLETE TRANSFORMER
07	BWY-803A	01	OIL TEMPERATURE INDICATOR WITH CONTACT
06	BWR-04	01	WINDING TEM.INDICATOR SECONDARY WITH CONTACT
05	01	01	NAMEPLATE
04	DQIII-25/4	01	AIR RELEASE AND DRAINING DEVICE OF BUCHHOLZ
03	02	02	OIL SAMPLING DEVICE (UPPER / LOWER)
02	01	01	MARSHALLING BOX
01	04	04	JACKING PAD

Item	WEIGHT(Kg)
Tank & accessories	8800
Transformer active part	12850
Total oil weight	9200
Transportation weight	24930
Total weight	30850

Customer:		10MVA 132KV±2X2.5%/1.22±2/2.36KV	
DESIGNER	TECHNOLOGIST	N° Drawing	Size
CHECKER	APPROVER	1SD.001.11211	A3
VERIFIER	DATE	2014-10-29	Denomination: OVERALL DIMENSION AND ACCESSORIES

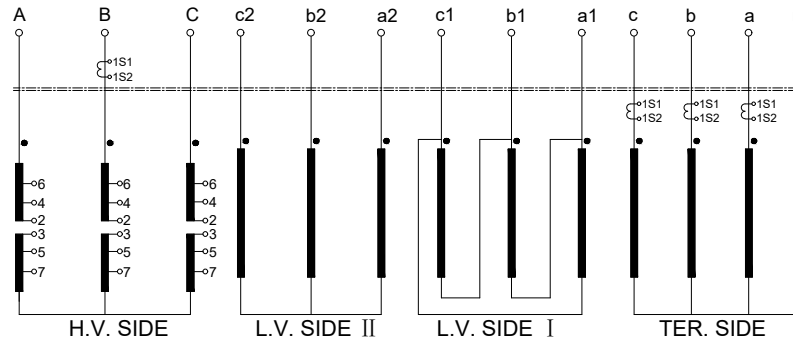


SCOTECH

POWER TRANSFORMER

TYPE	S-10000/132
STANDARD CODE	IEC60076
EX-WORKS SERIAL NO	
TRANSNET FREIGHT	
RAIL'S SERIAL NO	
INSULATION LEVEL	H.V. LI550AC230
	L.V. LI40/AC18
	TER. LI40/AC18
RATED POWER	10000KVA
RATED VOLTAGE	132±2x2.5%/1.22±2/2.36KV
VECTOR GROUP	Yd11y0yn0
RATED FREQUENCY	50 Hz
NUMBER OF PHASE	3
METHOD OF COOLING	ONAN
SERVICE TYPE	OUTDOOR
IMPEDANCE	%
REACTANCE	%
NO-LOAD CURRENT	%
NO-LOAD LOSS	KW
LOAD LOSS	KW
TANK & ACCESORIES WEIGHT	8800Kg
OIL WEIGHT	9200Kg
TRANSFORMER ACTIVE PART	12850Kg
TRANSPORTATION WEIGHT	24930Kg
TOTAL WEIGHT	30850Kg
DATE OF MANUFACTURE	

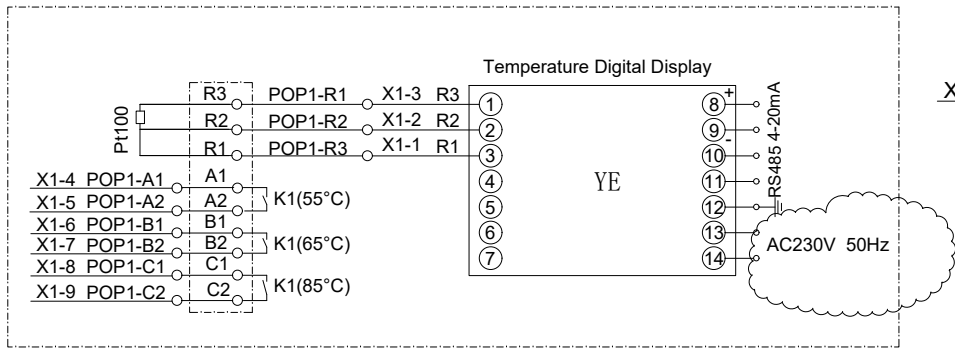
H.V SIDE					
POSICION TAP	CONMUTACIONES	VOLTAGE (V)	CORRIENTE (A)		
1	2-3	138600	41.7		
2	3-4	135300	42.7		
3	4-5	132000	43.7		
4	5-6	128700	44.9		
5	6-7	125400	46.0		
L.V SIDE I (5000KVA)		L.V SIDE II (5000KVA)		TER. SIDE (100KVA)	
VOLTAGE (V)	CORRIENTE (A)	VOLTAGE (V)	CORRIENTE (A)	VOLTAGE (V)	CORRIENTE (A)
1220	2366.2	1220	2366.2	2360	24.5
DATA OF BUSHING CURRENT TRANSFORMER					
SITE	TYPE	NO.S	CURRENT RATIO	ACCURACY CLASS	BURDEN (VA)
a b c PHASE	LRB-2.36	3	50/5	10P10	15
B PHASE(WTI)	LR-132	1	150/5	0.5	10



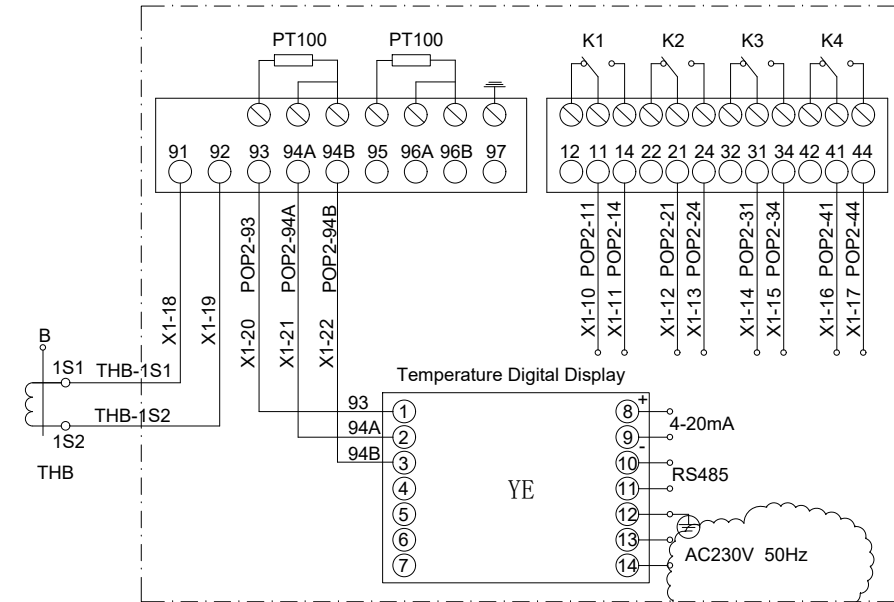
JIANGSHAN SCOTECH ELECTRICAL CO.,LTD.

www.scotech.com

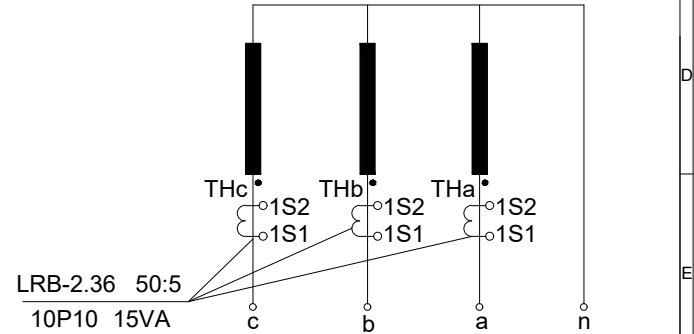
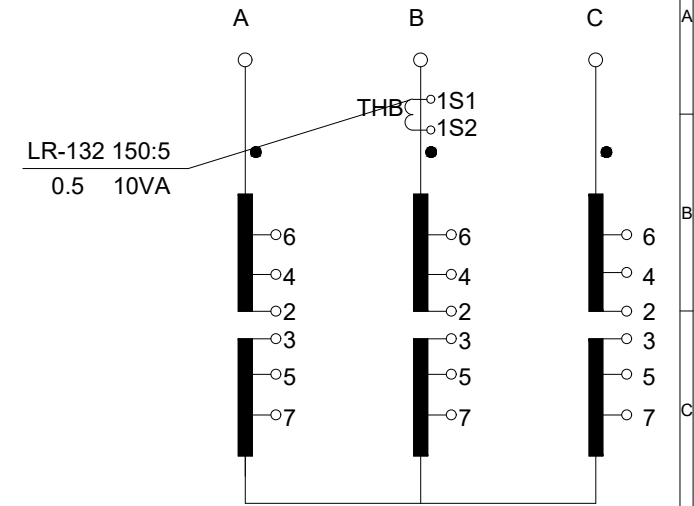
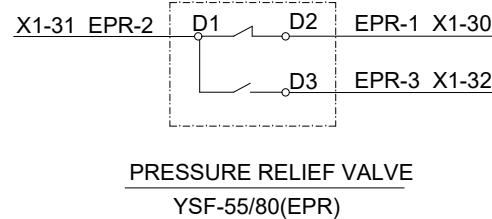
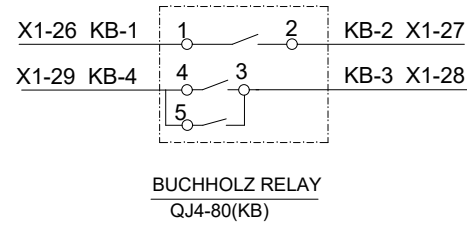
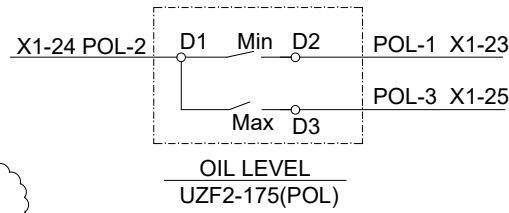
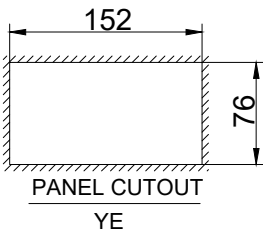
Customer:				10MVA	
				132KV±2X2.5%/1.22±2/2.36KV	
				N° Drawing	Size
DESIGNER		TECHNOLOGIST		1SD.002.11211	A3
CHECKER		APPROVER		Denomination: NAMEPLATE	
VERIFIER		DATE	2014-09-24		



OIL TEMPERATURE INDICATORS
POP1(OTI-BWY-803A/YE)



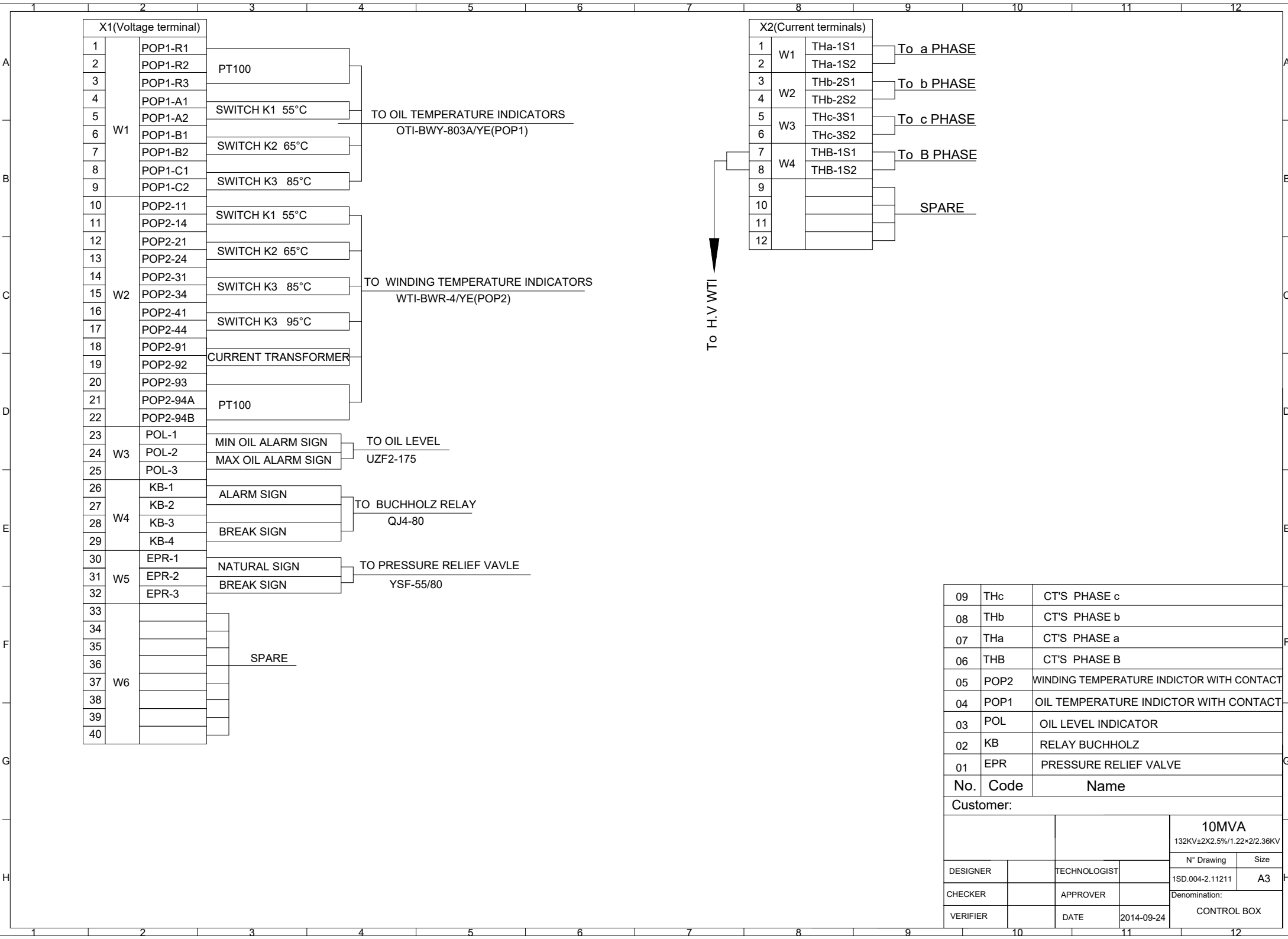
WINDING TEMPERATURE INDICATORS
POP2(132KV WTI-BWR-4/YE)



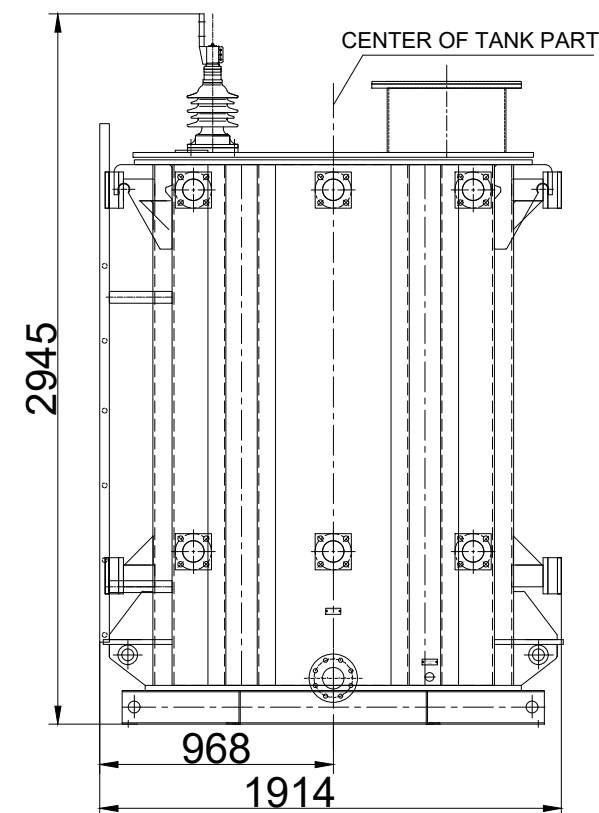
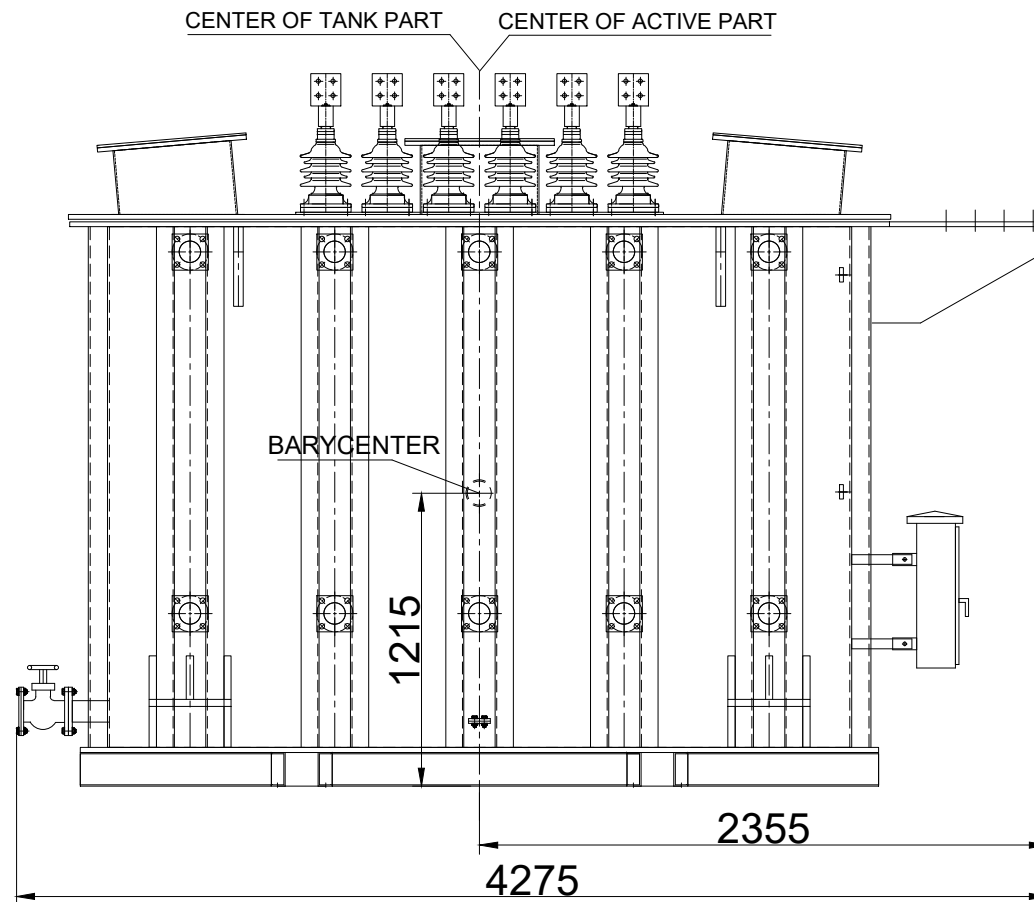
09	THc	CT'S PHASE c
08	THb	CT'S PHASE b
07	THa	CT'S PHASE a
06	THB	CT'S PHASE B
05	POP2	WINDING TEMPERATURE INDICTOR WITH CONTACT
04	POP1	OIL TEMPERATURE INDICTOR WITH CONTACT
03	POL	OIL LEVEL INDICATOR
02	KB	RELAY BUCHHOLZ
01	EPR	PRESSURE RELIEF VALVE
No.	Code	Name

Customer:					
				10MVA	
				132KV±2X2.5%/1.22×2/2.36KV	
				N° Drawing	Size
DESIGNER		TECHNOLOGIST		1SD.004-1.11211	A3
CHECKER		APPROVER		Denomination:	
VERIFIER		DATE	2014-09-24	CONTROL BOX	

DETAIL OF BUSHING CURRENT TRANSFORMER				
FASE	a,b,c			
RATIO	TERMINALES	QTY	CLASE	RATED LOAD (VA)
50:5	1S1-1S2	3	10P10	15
FASE	B(WTI)			
RATIO	TERMINALES	QTY	CLASE	RATED LOAD (VA)
150:5	1S1-1S2	1	0.5	10



09	THc	CT'S PHASE c
08	THb	CT'S PHASE b
07	THa	CT'S PHASE a
06	THB	CT'S PHASE B
05	POP2	WINDING TEMPERATURE INDICTOR WITH CONTACT
04	POP1	OIL TEMPERATURE INDICTOR WITH CONTACT
03	POL	OIL LEVEL INDICATOR
02	KB	RELAY BUCHHOLZ
01	EPR	PRESSURE RELIEF VALVE
No.	Code	Name
Customer:		
		10MVA 132KV±2X2.5%/1.22×2/2.36KV
		N° Drawing Size
DESIGNER		TECHNOLOGIST
CHECKER		APPROVER
VERIFIER		DATE
		2014-09-24
CONTROL BOX		



Notes:

- 1.THE TRANSFORMER IS TRANSPORTED FILLED OIL
- 2.DURING TRANSPORTATION ,THE INCLINATION OF TRANSFORMER OR LOAD SURFACE NOT EXCEED 15°,THE SPEED SHALL NOT EXCEED 20KM/H
- 3.THE SHIELD ONLY USED FOR SAFEGUARD DURING THE TRANSFORMER TRANSPORT WOULD REMOVE IT BEFORE THE TRANSFORMER RUNNING

WEIGHT OF TRANSPORT :24930Kg

Customer:				
				10MVA 132KV±2X2.5%/1.22×2/2.36KV
				N° Drawing Size 1SD.003.11211 A3
DESIGNER		TECHNOLOGIST		Denomination: Transportation drawing
CHECKER		APPROVER		
VERIFIER		DATE	2014-09-24	