ETD TRANSFORMÁTORY a.s.

TECHNICAL SPECIFICATION

Three phase oil-immersed power transformer

Customer: IBG for ABENCOR
reg. no.: 99-03699/49

execution: outdoor
Number of pieces: 1

Basic technical parameters

Type: ER38P-0
Standards: IEC 76

	HV	LV
Power output [MVA]	128	128
Voltage ratio [kV]	220	13,2
Rated current [A]	336	5599
Number of steps (±)	8	
Step	1,25%	
Upm	245	17,5
	850	
LI	1050	95
AC	460	38
ACn	230	

Number of phases: 3
Frequency: 50 Hz

Impedance voltage: 12,5 % tolerance ± 7.5% (for 128 MVA)
No load current: 0,3 % tolerance +30%

Connection group: YNd11

Cooling: ONAN/ONAF : (77 / 128 MVA) Full power on all taps.
Ventilators are controlled in dependance on oil temperature on top level.

Losses [kW]:	No load	Load	Total
	96	259	355
tolerance	+15%	+15%	+10%

Sound pressure level: < 79 dB(A) at distance 2 m

Temperature rises:			
	Oil, top level	50	K
	Winding mean	55	K
Max. ambient temperature		42	K
Average ambient temperature:		27,7	°C
Max.altitude:		1550	m asl

Winding: copper

Oil: filling as per IEC 296, mineral, inhibited, without PCB

Regulation: OLTC

Bushings connection:

Voltage	Type	Connection
220 kV	Condenser	Wire
13,2 kV	Porcelain	Insulated phase busbar
200 kV - Neutra point	Condenser	Solidly grounded

Control box is situated on the transformer tank.

Auxiliary voltages: power three phase: 380/220 V, 50 Hz
control: 125 V, DC

Protection and control equipment:

Oil level indicator
Oil temperature indicator
Winding temperature indicator
Buchholz relay
Overpressure vent
Air dryer (maintenance-free)
Control box
Rubber bag in conservator
Oil level indicator of OLTC
Air dryer of OLTC (maintenance-free)
RS 2001
Buchholz relay of OLTC
Overpressure vent of OLTC
Gas sampling device
Sudden presure relay
Surge arresters on HV side

Current transformers: HV Neutral 350/1A: 5P20 (5VA) - 1pc
LV: 6000/1; class 1 (10VA) - 1pc (thermal image)

Tests and test voltages:

Transformer will be tested according to standards IEC 76 - routine tests

Approximative weights:

Total with oil	183200 kg
Oil	46500 kg
Transport without oil	122400 kg

Approximative dimensions:

	length	width	height
total	9200	4100	7200
transport	7900	3000	4300

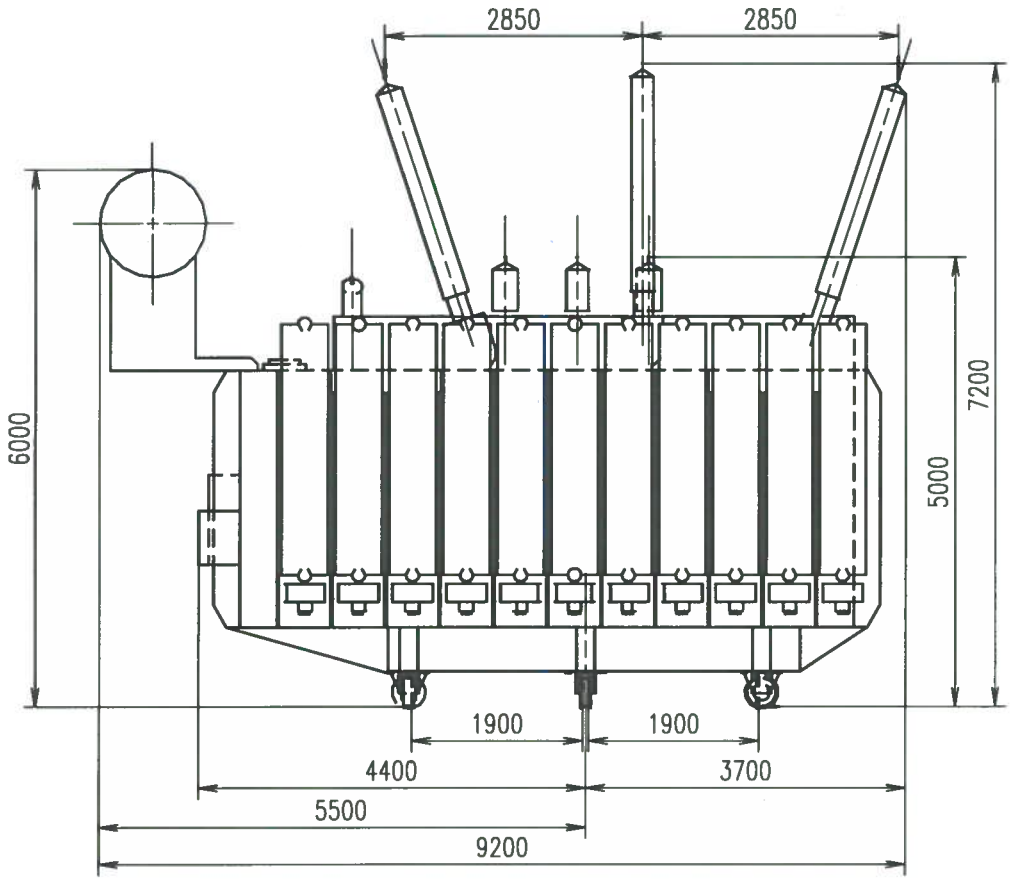
The supply of the transformer ends with bushing terminals and terminals of control boxes on the transformer. Everything else is not part of the supply of the transformer.

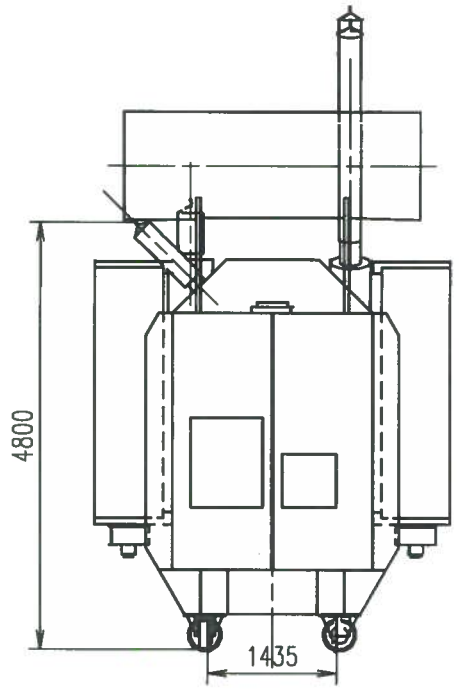
5.9.2014

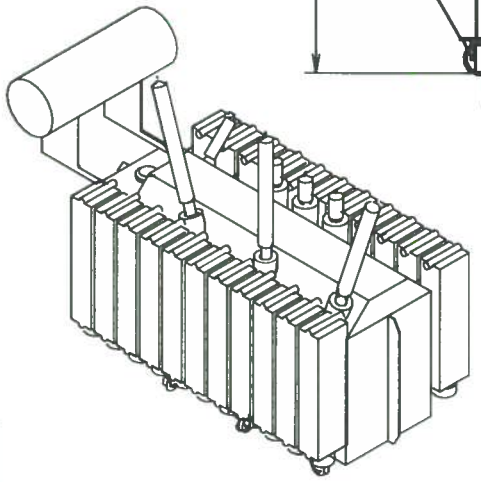
Elaborated by: Ing. Bodanský

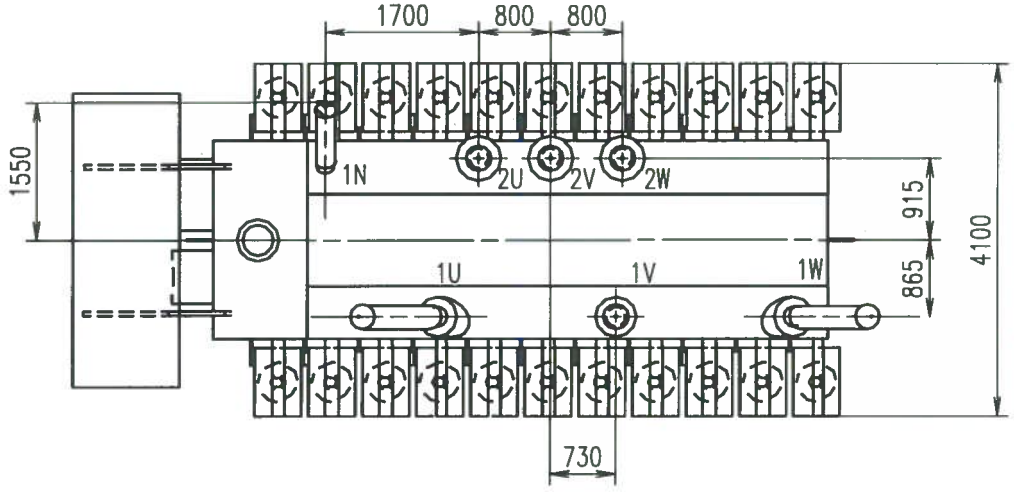
Checked by: Ing. Kadlec

Confirmed by: Ing. Hána









Transformer 128 MVA
110±8x1.25%/13.2 kV
YNd11
ONAN/ONAF

R.c.99-03699/49
5.9.2014

Valecka

Preliminary Packing List of Transformer

Transformer Characteristics: **128 MVA, 220 ± 8 x 1,25 % / 13,2 kV**
Reg. No.: **99-03699/49**

The transport dimensions and weights are informative only. Final values will be submitted additionally.
Parameters shown in this document refer to one transformer and its auxilliaries.
All masses are brutto, all dimensions are outer dimensions.

1. Transformer Body without oil

Number of Bodies	Mass (t)	Length (m)	Width (m)	Height (m)	Total Mass (t)	Total Volume (m3)
1	122,4	7,9	3	4,3	122,4	101,91

2. Wooden Boxes with Dismounted Parts

Number of Boxes	Mass (t)	Length (m)	Width (m)	Height (m)	Total Mass (t)	Total Volume (m3)
1	0,9	4,2	1,6	0,6	0,9	4,032
1	0,5	1,4	1	1	0,5	1,4
1	2,6	3	2,2	1,6	2,6	10,56
3	3,3	3	2,2	2,2	9,9	43,56
1	1,4	4	1,4	1,4	1,4	7,84
1	0,6	2,8	1,8	1,2	0,6	6,048

3. Transformer oil in barrels, 4 barrels on 1 palette

Number of Palettes	Mass (t)	Length (m)	Width (m)	Height (m)	Total Mass (t)	Total Volume (m3)
72	0,81	1,2	1,2	1	58,32	103,68

4. Transformer oil in barrels, 3 barrels on 1 palette

Number of Palettes	Mass (t)	Length (m)	Width (m)	Height (m)	Total Mass (t)	Total Volume (m3)
1	0,6	1,2	1,2	1	0,6	1,44

Grand total mass and volume of 1 transformer unit:	**197,2**	**280,5**

Date: 5.9.2014
Name: Bodanský