



ITEM: 001
Quantity: 17
Customer Code:

SEA ref.: RDO2018.5686G
Date: 22/01/2019 15:21:25
Model: TTO-4 CEI EN 50464-1
SEA Code:

Oil immersed transformer hermetic type

3300 kVA

33 kV

$\pm 2 \times 2,5 \%$

660 V

ELECTRICAL DATA

Rating power:	3300	kVA
Service:	Photovoltaic service	
Cooling:	ONAN	
Fn:	50	Hz

No load primary voltage:	33	kV
Primary Voltage Regulation:	$\pm 2 \times 2,5 \%$	
No-load secondary voltage:	660	V
Vector group:	Dy11	

Insulating level at I°:	36 / 70 / 170	kV
Insulating level at II°:	1,1 / 3 / --	kV
Insulating class I°/II°:	A / A	
Primary/Secondary winding conductors:	Al / Al	
Primary bushings protection degree:	IP00	
Secondary bushings protection degree:	IP00	

Designed max ambiente temperature:	-25 +50	°C
Overtemp. Oil / Windings:	50 / 55	°C
Altitude of installation:	≤ 1000	mt
Installation:	Outdoor	

Po at 1 Vn:	4000	W
Pcc at 75°C and Sn:	22500	W
Vcc at 75°C and Sn:	8	%

Io at 1 Vn:	0,45	%
Lp(A) at 0.3mt (ONAN):	70	dB(A)

Painting / Colour:	C4-M / RAL5008	
Tank execution:	Corrugated tank	
Oil type:	Mineral oil according IEC60296	
Transformer overall dimensions (LxWxH):	2110 x 1670 x 1985	mm
Wheelbase:	1070	mm
Transformer weight:	7650	kg
Oil weight:	1750	kg

INCLUDED STANDARD ACCESSORIES

Off-load tap-changer on the cover for primary tapplings
No. 2 grounding provisions
Lifting lugs
Haulage hooks
No. 1 rating plate
No. 1 thermometer pocket
No. 1 oil drain valve

INCLUDED ACCESSORIES

N.6 passbar 2x2500 A.
Set of N.1 PT100 sensor for oil temperature detection (without 4-20 mA.)
Tank oil valve for drain and sample steelball type size 1" 1/2 gas.
Integrated safety detector
Overpressure relief device without contact
Set of n°3 plug-in bushings on MV side type outer cone 36 kV/400 A type "B" (only fix part)

SPECIAL EXECUTION INCLUDED

Design for ambient temperature of 50 °C.
Impedance 8%
Losses with IEC tolerances
Electrostatic screen between core and windings

TYPE AND SPECIAL TESTS ON REQUEST

Witnessed routine test (per each day)
Measurement zero sequence impedance
Measurements of no-load losses and current at 90% and 110% of rated voltage.
Heat run test with maximum THD condition <3%. (one week more for the first delivery)
Winding hot-spot temperature-rise measurement by calculation, after the temperature rise test.

SPECIAL TECHNICAL REMARKS

Permanent rating at 25°C and <1000 masl = 3630 kVA
Permanent rating at 30°C and <1000 masl = 3564 kVA
Permanent rating at 35°C and <1000 masl = 3498 kVA
Permanent rating at 40°C and <1000 masl = 3432 kVA
Permanent rating at 45°C and <1000 masl = 3366 kVA
Permanent rating at 50°C and <1000 masl = 3300 kVA
No wheels

Technical remarks	Tollerances and tests according to IEC 60076 (if not otherwise indicated) Dimensions and weight to be confirmed after PO Warranty referred at nominal power rating and nominal voltage ratio (the highest in case of double primary voltages) Sound pressure level referred at 0.3 meter with ONAN cooling and +3 dB tolerance
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Efficiency	4/4	3/4	2/4	1/4	Voltage drop	4/4	3/4	2/4	1/4		4/4	3/4	2/4	1/4
n cos Ø = 1.0	99.2	99.33	99.42	99.35	DV cos Ø = 1.0	1.0	0.69	0.42	0.19	RI cos Ø =1.0	0.68	0.51	0.34	0.17
n cos Ø = 0.9	99.12	99.26	99.36	99.28	DV cos Ø = 0.9	4.32	3.2	2.1	1.04	XI cos Ø =1.0	7.97	5.98	3.99	1.99
n cos Ø = 0.8	99.01	99.17	99.28	99.19	DV cos Ø = 0.8	5.51	4.1	2.71	1.34					

Standards Standard test according IEC60076 included. Type and special tests at cost if required.