

The principal transformer data is given on the rating plate:

○

○

SIEMENS

Contract no. 2003/RSF/466/1(GP-194)dated 15.04.2004

Traction Transformer

Serial Nr.

N311886

Transformer Type

EFAT 6144

Year of manuf. / Standard

IEC 60310

Kind of transf. / Duty / Cooling

PT continuous ODAF

Rated power { HV TW

kVA kVA

1250¹⁾ 2 x 625

Vector - group Symbol

li0, i0

Rated current { HV TW

A A

50 2 x 657.7

Rated voltage { HV TW

V V

25 000 2 x 950

Design current { HV TW

A A

55.6 2 x 730.8

Design voltage { HV TW

V V

22 500 2 x 855

Rated frequency

c/s

50

Mass of insulation liquid

kg

520²⁾

Total mass

kg

3000

Temp. rise: winding / liquid

K

55 / 35

Max. ambient temperature

°C

50

1) Range of constant power: 22.5 kV – 30 kV

2) Mineral oil according to IEC 60296 special grade inhibited

High Voltage HV		Low Voltage TW1 – TW2		
Volt	connected to	Volt	connected	Imp. Volt. %
25 000	1U – 1V	950	2U1 – 2V1	31.3 %
		950	2U2 – 2V2	30.9 %
22 500	1U – 1V	855	2U1 – 2V1	38.7 %
		855	2U2 – 2V2	38.2 %

2U1

TW 1

2V1

2V2

TW 2

2U2

HV

HV

Limb 1

Limb 2

1U

1V

N02 34 611-02 B

Silbernagel 19.01.2009

○

○

Instruction and Maintenance Manual Transformer
Document: 100121_BHB_ID_en_r1.doc

Page 8 of 90

page 1 of 2

Main standards:

The transformer has been electrically and thermally designed and checked in accordance with IEC 60310.

1.2 Overhead supply details:

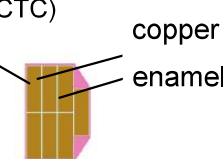
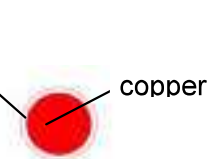
Nominal line voltage permanent	25 KV (19 to 27,5 KV)
Line voltage min. $2s < t < 10\text{min}$	16,5 KV
Line voltage max. $2s < t < 5\text{min}$	30 KV
Frequency	50 Hz (46 to 54 Hz)
Particulars of windings with their continuous rating	HV: 1250 kVA at 22,5 kV, IHV=56 A TR: 2x625 kVA at 855V, ITR=731A
Permissible duty cycles	Continuous rating. Load cycles defined by SIEMENS under worst conditions

1.3 Other electrical specifications

1.3.1 Circuit-diagram and terminal markings

As indicated in the rating plate above.

1.3.2 Layout of windings and main insulation

	Traction winding (TW1 + TW2)	High voltage winding (HV)
Number of voltage systems	2	1
Number of winding coils per limb	2 one on each limb	
Conductor material	copper E-Cu58 acc. to DIN40500	
Type of conductor	continuously transposed conductor (CTC)  Fig. 2	round conductor  Fig. 3
Elec. connection of winding coils	electrically separate coils	coils in parallel operation
Symmetry of the winding bloc	each HV-winding coil is signed symmetrically to a TW- winding coils	
Type of conductor insulation	enamel in temp. class H + Nomexpaper in temp. class H	Nomexpaper in temp. class H
Double-side thickness of conductor insulation	enamel: 0.1 mm Nomexpaper: 0.4	enamel: 0.079mm Nomexpaper: 0.2
Number of parallel conductors	1 for each winding coil	1 for each winding coil
Total cross section	144.489 mm ²	4.3744 mm ²
Rated current ref. to 22 500 V	2 x 730.8 A	55.6 A
Max. current ref. to max. load	2 x 825 A	62.7
Rated current density	4.55 A/mm ²	5.72 A/mm ²