

POWER TRANSFORMERS

Oil Immersed type

from 2.5 to 30 MVA

7.2 to 36 kV systems voltage

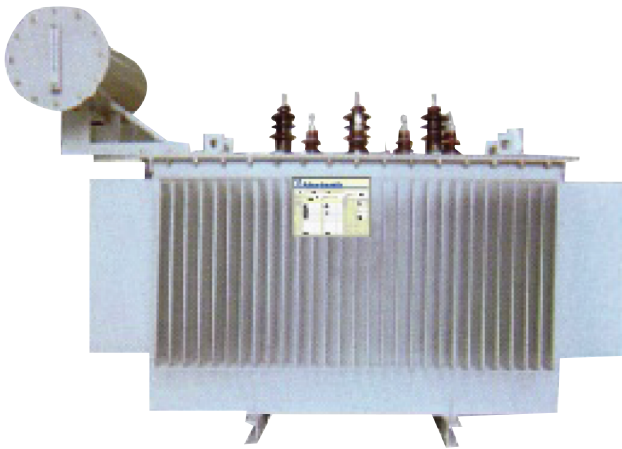


HV/MV power transformers

Oil Immersed

from 2500 to 5000 kVA - for 7.2 to ≤ 36 kV systems

IEC standards



Description

This range Consist of transformer complying with the following specification:

- Three-phase transformers, for indoor or outdoor use (installation to be specified).
- Step-down type ⁽¹⁾
- Rated frequency ; 50Hz ⁽⁵⁾
- Maximum ambient temperature 40°C ⁽⁴⁾
Mineral oil immersed
- Breathing type conservator ⁽⁶⁾
- Cover bolted on tank
- ONAN type natural cooling
- Standard anti-corrosion surface treatment and coating ⁽¹⁾
- Final colour grey ⁽¹⁾

Standards

These transformers oomph, with the following standards :

- IEC standards

(1) others upon request consult us.

(2) load losses and rated Impedance voltage at 75°C

(3) reminder of insulation levels;

rated insulation level (kV)	7,2	12	17.5	24	36
kV r.m.s 50 Hz - 1mn	20	28	38	50	70
kV B.I.L 1.2/50 μ s	60	75	95	125	170

(4) other ambient temperature (45°C, 54°C, 55°C etc...) upon request, consult. us.

(5) other rated frequency (60Hz) upon request consult us.

(6) Hermetically scaled, upon request, consult us.

Basic fittings

Each transformer includes ;

- 1 off circuit tappings switch with pad locking located on the Cover, this switch operates on the highest rated voltage to bring the transformer to the supply voltage - actual value ;
- Porcelain bushings on primary and secondary sides
- 2 Earthing terminals on the cover
- 4 Bidirectional flat rollers
- 2 Lifting and untanking lugs
- 1 Rating plate to be fixed on 1 of the 4 sides
- 1 Filling plug
- 1 draining device
- 1 conservator
- 1 silicagel breather

Options

The following fittings may be provided as an option ;

- 1 level indicator tube
- 1 Buchholz relay with 2 contacts (alarm and tripping)
- HV fixed plug-in connectors HN 52 S 61:
 - 250, 460, 630 or 1250A/ 24kV:
 - 400A 36kV
- HV mobile connectors HN 52 5 61(the cable characteristics should always be specified)
- 1 locking device (lock not supplied) for plug-in connectors
- 1 DGPT2 relay (automation 2004))
- 1 thermostat two contacts (alarm and tripping)
- 1 dial type thermometer (With Of without contact)
- 1 wiring bow with terminals board for connecting optional electrical equipment (Buchholz relay, thermostat, thermometer, etc...)

Note: the above options concern usual case and are not restrictive. For other information please consult us.

electrical characteristics

rated power (kVA) ⁽¹⁾	2500	3150	4000	5000	
rated insulation	primary 33 (36)				
level kV	Secondary 7,2 -11				
HV tapping range (off-voltage)	$\pm 5\%$ ⁽¹⁾				
vector group	Dyn 11 or YynO ⁽¹⁾				
losses (kW)	no-load	4	4.5	6.5	6.5
	load ⁽²⁾	25	30	34	41
rated impedance voltage (%) ⁽²⁾	6.5	7	7	7.5	
no-load current (%)	2.1	1.9	1.8	1.6	
voltage drop at	P.F. = 11	1.21	1.19	1.09	1.10
	full load (%) P.F. = 0.84.73	5.05	4.98	5.28	
efficiencies (%)	100% P.F. = 1	98.85	96.92	99.02	99.06
	100 % P.F. = 0.898	98.65	98.78	98.83	
	load P.E. = 1	99.05	99.10	99.19	99.22
	75 % P.F. = 0.898	98.88	98.98	99.02	

1.The electrical characteristics mentioned above are indicative only & final data will be as per customer's requirement & according to final design for productions..

2.Transformers with all kinds of voltage ratio, short-circuit Impedance and vector group is available according to the customers' requirements

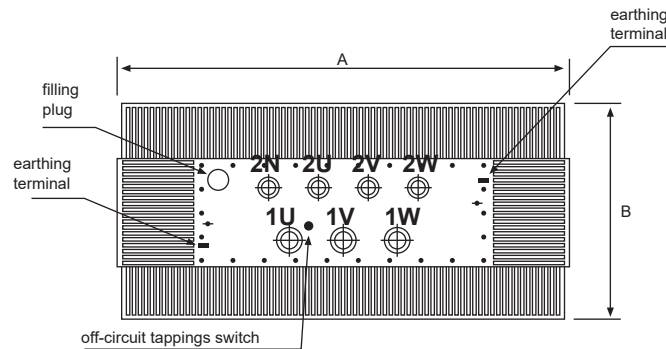
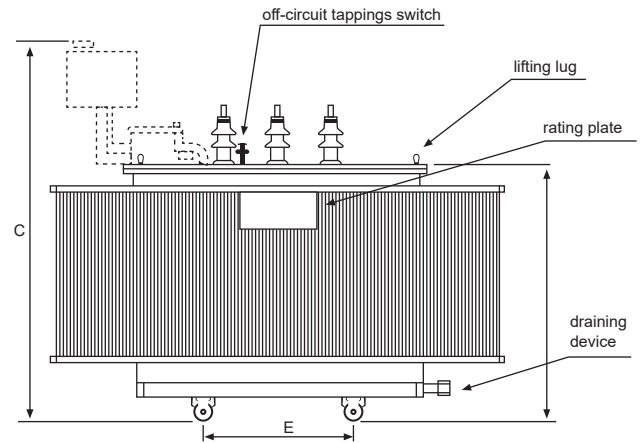
HV/MV power transformers

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from 2500 to 5000 kVA - for 7.2 to ≤ 36 kV systems
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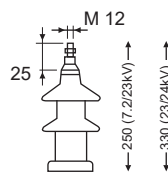
Dimensions and weights

Typical dimensions and weights are indicated in the table below for mineral oil immersed transformers, They correspond to transformers indented for system of 7.2 to 36 kV having electrical characteristics. As described in the previous table. For other electrical characteristics (voltage, losses, etc...) would be different, please, consult us,

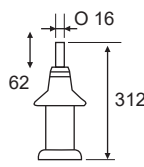
N.B:
 the terminal marking is in accordance with IEC standards 616 (1978). see attached diagram.



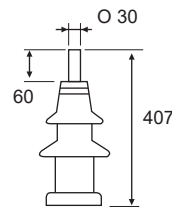
HV porcelain bushings



250A



630A



1000A

HV fixed plug-in connectors HN 52 S 61 - 250A - 24 kV (2)

Casual arrangements such as bars and cables supports, flexible connectors, etc... are to be provided the contractors in order to mold mechanical stresses or the transformers flat-bars and bushing. Due to the evolution of standard and materials. The present document will bind us only after confirmation from our technical department.

Note: The above data's are indicative and may change depending on the available materials and as per final design at the time of order acknowledgement.

HV/MV power transformers

Oil Immersed

from 5 to 30 MVA for 7.2 to 36 kV systems

IEC standards



Description

This range consist of transformer complying with the following specification:

- Three-phase transformers, for indoor or outdoor use (installation to be specified).
- Rated frequency ; 50Hz ⁽⁵⁾
- Maximum ambient temperature 40°C ⁽⁵⁾
Mineral oil immersed
- Breathing type conservator
- Cover bolted on tank or welded bell type as per specification
- ONAN , ONAF cooling type
- Standard anti-corrosion surface treatment and coating ⁽¹⁾
- Final colour grey ⁽¹⁾

Standards

These transformers oomph, with the following standards :

- IEC standards 60076

Typical characteristics are indicated in the table for a few powers. They correspond to transformers of ONAN type cooling with or without tap changer.

It is possible to develop equipment with totally different values of voltage and rated impedance voltage. In this case, dimensions and weights are also different.

Basic fittings

Each transformer includes ;

- 1 off circuit tappings switch with pad locking located on the Cover, this switch operates on the highest rated voltage to bring the transformer to the supply voltage - actual value (generally $\pm 5\%$, 3 or 5 positions)
- Porcelain bushings on primary and secondary sides
- 2 Earthing terminals
- 1 conservator with level indicator tube
- 1 silicagel breather
- 1 Buchholz relay with 2 contacts (alarm and tripping)
- 1 dial type thermometer (without contact)
- 4 directional flat rollers
- lifting and /or unloading lugs
- 1 rating plate
- 1 Filling plug
- 1 draining device and treatment valve with sampler

Options

The following fittings may be provided as an option ;

- 1 on-load tap changer in the main tank with:
 - 1 motor drive unit fitted on tank;
 - 1 tap changer compartment in the conservator with a level Indicator
- 1 protective relay and eventually, on request:
 - 1 parallel operation device
 - 1 voltage regulator with voltage drop equalizer
- 1 remote Indicator of tap changer position
- condenser bushings
- increased creepage distance bushings
- 1 bonnet on HV bushings:
 - in the air for connection by dry cables or busducts
 - oil immersed, hermetically sealed
- winding temperature indicator by thermal image
- current transformers.
 - "bushing" type around terminals
 - standard type for earth fault current detector
- 1 overpressure valve (with or without contact please specify)
- 1 automatic oil retaining valve (between conservator and tank)
- 1 treatment valve at the upper part of the tank
- 1 insulation valve for radiators:
- 4 jacking lugs with hauling eyes.

Note: the above options concern usual case and are not restrictive. For other information please consult us.

- (1) other possibilities upon request, please consult us.
 (2) load losses and rated irxrpedarme voltage at 75°C
 (3) each type of cooling device comes with its particular type of equipment (circulators ventilators, etc...)

(4) reminder of insulation levels:

rated insulation level (kV)	7.2	12	36
kV r.m.s 50 Hz - 1mn	20	28	70
kV B.I.L 1.2/50µs	60	75	170

- (5) other ambient temperature (45°C, 50°C, 55°C etc.) upon request, consult us.

HV/MV power transformers

Oil Immersed

from 5 to 30 MVA for 7.2 to 36 kV systems

IEC standards

Typical dimensions and weights are indicated in the table below for mineral oil immersed transformers, completely set up with a standard type cooling. They correspond to transformers intended for systems of 7.2 to 36kV having electrical characteristics as indicated in the table.

For other voltages, other characteristics or when the transformers are immersed in another dielectric. dimensions and weights would be different, please, consult us.

Major technical parameter

Three-phase oil-immersed transformer with OLTC

Rated capacity	Rated voltage		No load losses	On load losses	Impedance voltage	Weight		Outline dimension (mm)		
	(kVA)	HV				LV	(kW)	(kW)	(%)	Oil
6300			7.0	39.0		2620	12300	3475	2645	3050
8000		11	8.9	44.0	7.5	3330	15300	4900	3126	3277
10000			10.5	51.0		3750	17858	5044	3152	3397
12500	33	6.3	12.6	60.5		4215	20042	5054	3192	3432
16000			15.2	74		4900	24150	4900	3800	3680
20000			20	87.5	8.0	6120	30100	4950	3810	3690
25000			23.4	104		8500	36500	5050	3900	3850
31500			27.5	123.1		99650	46800	5130	4050	3920

The electrical characteristics mentioned above are indicative only & final data will be as per customer's requirement & according to final design for productions,

- Note:
1. For the bigger capacity of 35kV transformer in the aspect of performance parameters, overall dimensions and weight date, please contact with our company.
 2. Transformers with all kinds of voltage ratio, short-circuit impedance and vector group is available according to the customers' requirements,
 3. Transformer with capacity of 5000kVA or above can be equipped with fan cooling device according to the need of customers.
 4. The data for weight and outline dimensions are only for reference.
 5. Range and steps are depending on customers requirement, Please consult us.

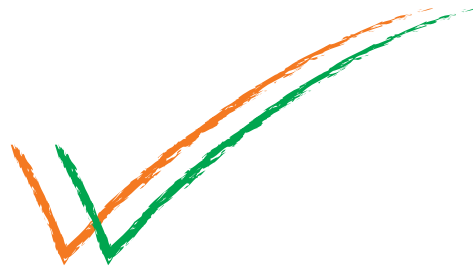
Major technical parameter

Three-phase oil-immersed transformer with off-load tap-changer

Rated capacity	Rated voltage		No load losses	On load losses	Impedance voltage	Weight		Outline dimension (mm)		
	(kVA)	HV				LV	(kW)	(kW)	(%)	Oil
6300			6.60	37.0		2320	11580	3090	2285	3150
8000		11	8.50	42.0	7.5	2500	14120	3732	3054	3287
10000			10.0	48.3		2850	16481	3387	3152	3367
12500	33	6.3	12.0	57.3		3250	18345	3550	3192	3432
16000			14.5	70.0		3750	22415	3908	3354	3582
20000		0.4	18	83.7	8.0	5700	28800	3950	3400	3620
25000			21.5	99.0		7130	35600	4950	4550	3850
31500			25.5	118.8		12200	42100	5020	4700	3950

The electrical characteristics mentioned above are indicative only & final data will be as per customer's requirement & according to final design for productions,.

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*Power is our business
we keep you ahead
with innovative ideas
and modern technics*

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