

HV/LV distribution transformers

ground mounted immersed transformers

from 100 to 2500 kVA - insulation ≤ 24 kV / 400 V

DIN standards BA'



reduced losses

standards

These transformers comply with the following standards:

- IEC standards;
- DIN 42500 standard
- CENELEC harmonization document HD 398-1 to 398-5.

France Transfo guarantees that its transformers are assembled using components that are both new and PCB-free (< 2 ppm level), in strict compliance with the current standards.



electrical characteristics

rated power (kVA) ⁽¹⁾	100	160	250	315	400	500	630	630	800	1000	1250	1600	2000	2500	
rated voltage (kV) ⁽¹⁾	primary (1)	20													
	secondary	400 V between 231 V phase to neutral													
rated insulation level (kV) ⁽³⁾	24														
HV tapping range (off voltage)	+2,5% +5% ⁽¹⁾														
vector group	Dyn11 ⁽¹⁾ (delta ; star neutral brought-out)														
losses (W) BA' series	no-load	320	460	650	800	930	1100	1300	1200	1450	1700	2100	2600	3200	3800
	load ⁽²⁾	2150	3100	4200	5000	6000	7100	8400	8700	10700	13000	16000	20000	26000	32000
rated impedance voltage (%)	4														
no load current (%)	2,5														
voltage drop at full load	P.F. = 1	2,21	2,00	1,75	1,65	1,57	1,49	1,40	1,55	1,51	1,47	1,45	1,42	1,47	1,45
	P.F. = 0,8	3,75	3,66	3,54	3,49	3,45	3,40	3,35	4,68	4,65	4,63	4,62	4,60	4,63	4,62
efficiencies (%)	load 100% P.F. = 1	97,59	97,82	98,10	98,19	98,30	98,39	98,48	98,45	98,50	98,55	98,57	98,61	98,56	98,59
	load 100% P.F. = 0,8	97,00	97,29	97,63	97,75	97,88	97,99	98,11	98,07	98,14	98,20	98,22	98,27	98,21	98,24
	load 75% P.F. = 1	98,00	98,20	98,42	98,49	98,59	98,66	98,74	98,73	98,77	98,81	98,83	98,86	98,83	98,85
	load 75% P.F. = 0,8	97,51	97,76	98,03	98,12	98,24	98,33	98,43	98,41	98,47	98,52	98,54	98,58	98,54	98,57
noise level dB(A)	acoustic power L _{WA}	59	62	65	67	68	69	70	70	72	73	75	76	78	81
	static pressure LPA at 0,3m	51	53	56	58	58	59	60	60	61	62	64	64	66	69

* non standard ratings available on request.

(1) others upon request, consult us.

(2) load losses and rated impedance voltage, at 75°C.

(3) reminder of insulation levels :

Insulation level (kV)	7,2	12	17,5	24
kV r.m.s. 50Hz - 1 min	20	28	38	50
kV B.I.L. 1.2/50 μ s	60	75	95	125

(4) breathing type transformer with conservator upon request, consult us

description

- three-phase transformers, for indoor or outdoor use (installation to be specified);
- step-down type ⁽¹⁾;
- rated frequency : 50 Hz ⁽¹⁾;
- maximum ambient temperature : 40°C ⁽¹⁾;
- mineral oil immersed (1);
- hermetically sealed with integral filling ⁽⁴⁾;
- cover bolted on tank;
- ONAN type natural cooling;
- standard anti-corrosion surface treatment and coating ⁽¹⁾;
- final colour grey RAL 7033⁽¹⁾.

basic fittings

- 1 off-circuit tappings switch with padlocking located on the cover; this switch operates on the highest rated voltage to bring the transformer to the supply voltage-actual value;
- 3 fixed plug-in connectors 250 A / 24 kV - HV side ;
- 4 LV flat-bars, from 250 kVA only; for 100 and 160 kVA: 4 LV porcelain bushings;

- 2 earthing terminals on the cover; _
- 4 bi-directional flat rollers from 160 kVA;
- 1 draining device
- 2 lifting and untanking lugs;
- 1 rating plate to be fixed on 1 of the 4 sides;
- 1 filling plug;
- protection index IP 00.

options

The following fittings may be provided :

- 3 HV mobile plug-in connectors 250 A / 24 kV, straight or elbow (the cable characteristics should always be specified);
- 3 HV porcelain bushings;
- 4 LV porcelain bushings from 250 kVA;
- locking device (lock not supplied) for plug-in connectors;
- LV air-insulated terminal cover to be sealed (possible only with plug-in connectors on HV side and flat-bars on LV side);
- protection relay, thermometer, thermostat, etc.

For other option, please consult us.



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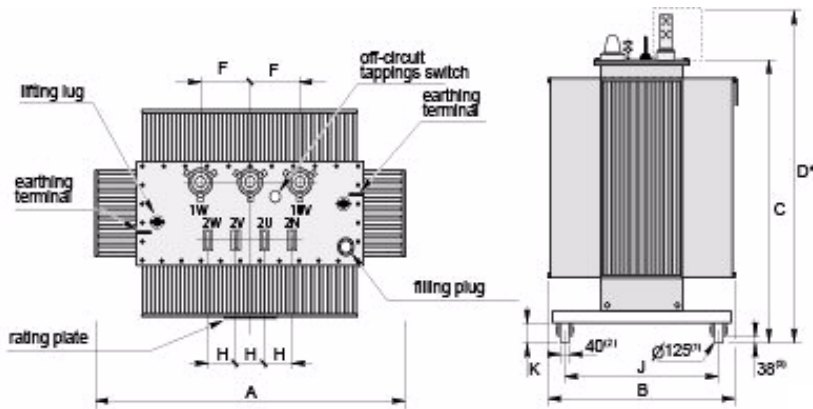
dimensions and weights

Typical dimensions and weights are indicated in the table below for mineral oil immersed transformers.

They are provided for 20kV / 400 V transformers with electrical characteristics, as described in the previous table. For other electrical characteristics (voltage, losses, etc...) or other dielectric, dimensions and weights would be different, please, consult us.

N. B.

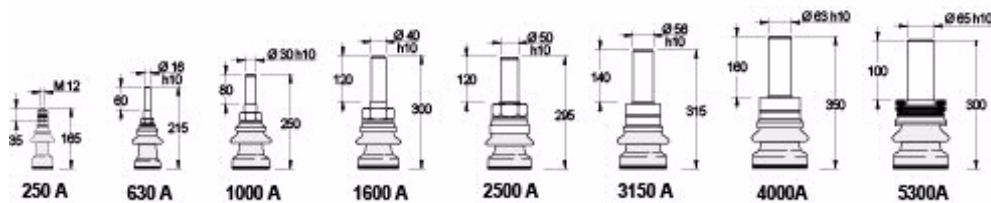
The terminal marking is in accordance with IEC standards 616 (1978), see attached diagram.



dimensions (mm)

kVA	100	160	250	315	400	500	630	630	800	1000	1250	1600	2000	2500
A	900	1120	1260	1250	1445	1425	1595	1575	1590	1745	1795	1820	1835	2345
B	700	690	760	820	820	835	825	905	940	970	1095	1200	1265	1335
C	870	975	1010	1080	1165	1165	1185	1145	1325	1420	1370	1510	1600	1600
J	520	520	520	670	670	670	670	670	670	820	820	820	1070	1070
porcelain LV	250A	250A	630A	630A	630A	1000A	1000A	1000A	1600A	1600A	2500A	2500A	3150A	4000A
flat-bars	-	-	1250	1250	1250	1250	1250	1250	1250	1600A	2500A	2500A	3150A	5000A
weights (kg)														
total	470	630	875	1025	1200	1320	1475	1545	1880	2230	2550	2930	3600	4460
minera oil	100	125	195	230	245	250	280	315	425	460	555	610	840	985

LV porcelain bushings (compulsory for 100 and 160 kVA)



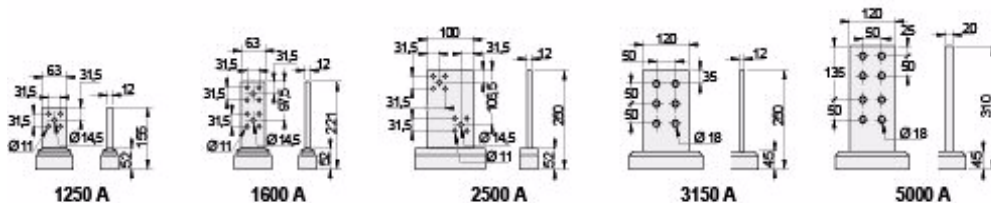
HV porcelain bushings



Nota : never use HV porcelain bushings with LV protected by a terminal cover.

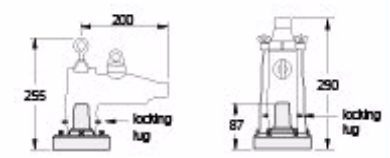
Casual arrangements such as bars and cables supports, flexible connectors, etc. are to be provided the contractors in order to avoid mechanical stresses on the transformer flat-bars and bushings.

LV flat-bars (from 250 kVA only)



LV terminal cover required for external use.

HV fixed plug-in connectors 250 A - 24 kV



with elbow mobile connector

with straight mobile connector

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Due to the evolution of standards and materials, the present document will bind us only after confirmation from technical department