

Distribution transformers – hermetically sealed

Hermetically sealed oil-immersed distribution transformers according to standards EN 60076, SN EN 50588-1 and EU 548/2014; up to 36 kV



Characteristics

- Rated power from 100 up to 2'500 kVA, operating voltages up to 36 kV, 50 Hz
- Maximum loss values according to Regulation (EU) 548/2014 (ecodesign)
- Hermetically sealed execution without air cushion
- Tapping range on primary voltage: $\pm 2 \times 2,5\%$ or according to customer request
- Maximum ambient temperature 40°C, average annual temperature 20°C
- Maximum temperature rise of copper 65 K, top oil 60 K, natural air cooling ONAN
- Maximum installation altitude 1'000 m above sea level
- High voltage bushings: plug-in bushings according to EN 50180 or porcelain bushings according to EN 50180 for indoor- or outdoor installation
- Low voltage bushings: porcelain bushings according to EN 50386 with or without flat connection plate
- Compact and lightweight
- 2 loss ranges: normal losses and low-loss design
- Routine tests according to EN 60076
- Low-radiation execution with 8 point symmetric low voltage bushings on request
- Integrated oil retention vat on request (mounted between tank and chassis frame)
- Increased winding insulation and earthed screen between HV/LV windings for non-sinusoidal load on request
- Integrated safety detector, pressure relief valve, filling level indication on request

Technical data

Standard series

Electrical data

Power	kVA	100	160	250	400	630	1000	1250	1600	2000	2500
winding material		Cu/Cu	Al/Cu	Al/Cu	Cu/Cu	Cu/Cu	Cu/Cu	Cu/Cu	Cu/Cu	Cu/Cu	Cu/Cu
Po	W	140	200	290	415	580	750	930	1'160	1'420	1'700
Pk 75°C	W	1'480	1'800	2'350	3'060	4'180	6'500	8'400	11'700	17'500	21'000
Uk	%	4	4	4.2	4.4	4.6	5	5	6	6	6
Io (ca.)	A	0.9	0.7	0.7	0.9	1.1	1.8	2.7	3.5	4.0	4.0
Lpa (0.3m) / Lwa	dB(A)	36 / 44	34 / 42	34 / 43	38 / 47	38 / 48	38 / 48	42 / 53	50 / 62	52 / 64	54 / 67
Icc (420V)	kA	3.4	5.5	8.2	12.5	18.8	27.5	34.4	36.6	45.8	57.3

Dimensions and weights

A	mm	935	1'065	1'095	1'215	1'325	1'445	1'690	1'820	on request	on request
A1	mm	1'250	1'400	1'400	1'550	1'650	1'750	2'000	2'100		
B	mm	660	750	800	840	875	985	1'000	1'160		
B1	mm	950	1'050	1'100	1'200	1'200	1'300	1'300	1'450		
C	mm	1'280	1'200	1'380	1'420	1'480	1'610	1'640	1'700		
D	mm	520	520	520	670	670	820	820	820		
E	mm	2x265	2x265	2x300	2x300	2x300	2x300	2x300	2x300		
F	mm	3x150	3x150	3x160	3x160	3x160	3x160	3x160	3x160		
G	mm		7x60	7x60	7x60	7x60	7x65	7x65	7x65		
Oil	kg	220	280	320	330	430	600	640	770		
Oil capacity	liter	250	320	370	380	490	690	730	890		
Conductors Cu/Al	kg	170	160	250	430	600	800	860	870		
Total	kg	800	1'060	1'350	1'650	2'300	3'300	3'700	4'000		
Slenderness ratio		2.05	1.89	2.23	1.80	1.90	1.70	1.74	1.80		

Cost optimised series

Electrical data

Power	kVA	100	160	250	400	630	1000	1250	1600	2000	2500
winding material		Cu/Cu	Al/Cu	Al/Cu	Al/Al	Al/Al	Cu/Cu	Cu/Cu	Cu/Cu		
Po	W	140	200	290	415	580	750	930	1'160		
Pk 75°C	W	1'700	2'330	3'000	3'060	4'180	7'450	9'650	13'000		
Uk	%	4	4	4.2	4.4	4.6	5	5	6		
Io (ca.)	A	0.9	0.7	0.7	0.9	1.1	1.8	2.7	3.5		
Lpa (0.3m) / Lwa	dB(A)	36 / 44	34 / 42	34 / 43	36 / 45	38 / 48	40 / 50	42 / 53	50 / 62		
Icc (420V)	kA	3.4	5.5	8.2	12.5	18.8	27.5	34.4	36.6		

Dimensions and weights

A	mm	935	1'065	1'095	1'325	1'400	1'425	1'690	1'820		
A1	mm	1'250	1'400	1'400	1'650	1'800	1'750	2'000	2'100		
B	mm	660	750	800	845	875	955	1'000	1'160		
B1	mm	950	1'050	1'100	1'200	1'250	1'300	1'300	1'450		
C	mm	1'280	1'200	1'380	1'510	1'640	1'580	1'640	1'700		
D	mm	520	520	520	670	670	820	820	820		
E	mm	2x265	2x265	2x300	2x300	2x300	2x300	2x300	2x300		
F	mm	3x150	3x150	3x160	3x160	3x160	3x160	3x160	3x160		
G	mm		7x60	7x60	7x60	7x60	7x65	7x65	7x65		
Oil	kg	220	280	320	440	520	550	640	770		
Oil capacity	liter	250	320	370	500	600	630	730	890		
Conductors Cu/Al	kg	140	140	200	250	420	680	700	750		
Total	kg	800	1'060	1'350	1'850	2'620	2'950	3'700	4'000		
Slenderness ratio		2.05	1.89	2.23	2.02	2.23	1.57	1.74	1.80		

Loss values for type 16.8 +/- 0.5 - 0.42 kV, loss values for other voltages on request.

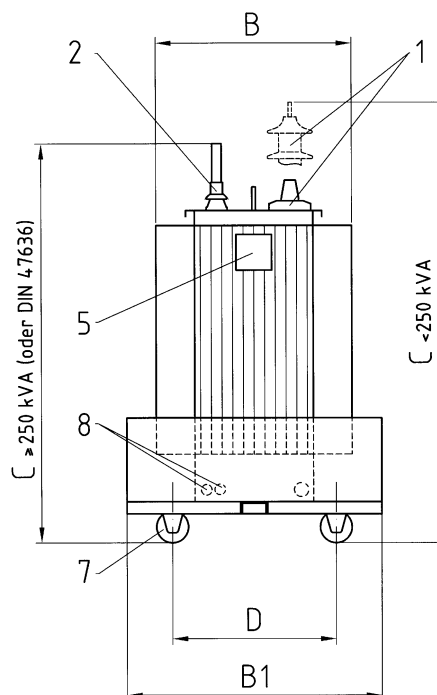
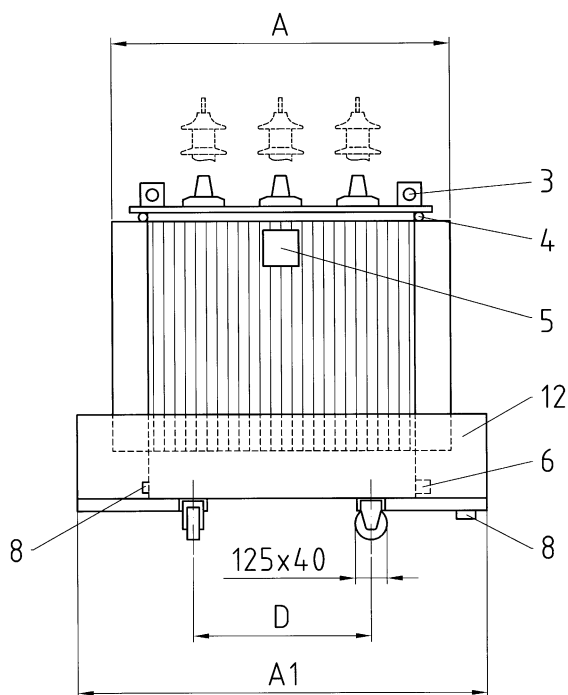
Different executions are available on request (with different electrical data and different dimensions).

Standard design:

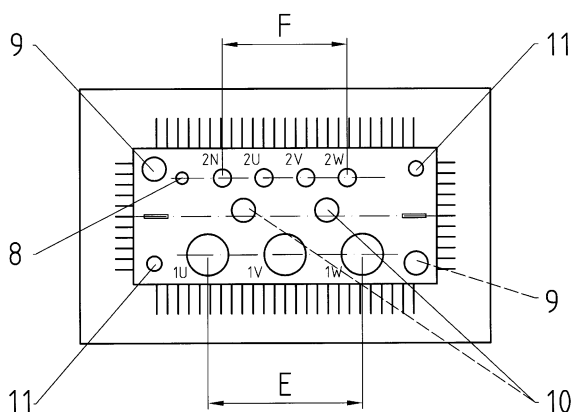
100 – 160 kVA
250 – 2'500 kVA
from 250 kVA
from 400 kVA
100 – 2'500 kVA
all sizes

Outdoor installation with porcelain bushings DT20Nf according to EN 50180
Indoor- or outdoor installation with plug-in bushings according to EN 50180
with bi-directional rollers according to EN 50216-4 in nylon, from 630 kVA in cast iron
with thermometer (with trailing pointer, no electrical contacts)
without flat connection plate on low voltage bushings
Integrated safety detector, pressure relief valve, filling level indication on request

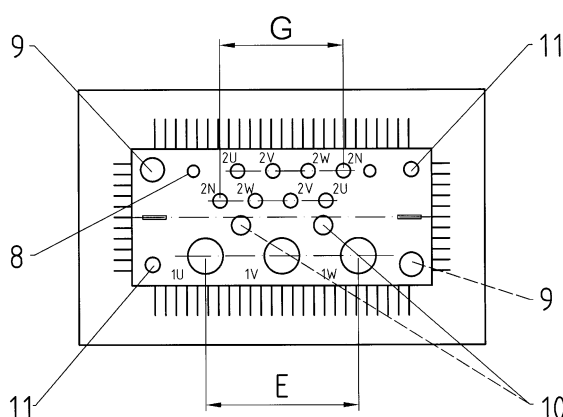
Dimensions



Exécution standard:








Exécution à faible rayonnement électromagnétique:



- 1 High voltage bushing according to EN 50180, with connection designation
- 2 Low voltage bushing according to EN 50386, standard without flat connection plate, with connection designation
- 3 Lifting lugs
- 4 Tie-down eyelet
- 5 Rating plate
- 6 Oil drain device according to EN 50216-4
- 7 Bi-directional rollers
- 8 Earthing terminal M12
- 9 Thermometer (option: integrated safety detector)
- 10 Tap changer
- 11 oil filling hole (option: pressure relief valve, filling level indication)
- 12 Oil retention vat (option)

Options

Description	Picture	Article No.
<p>Thermometer stainless steel, protection class IP 54, range 0..100°C, accuracy class 1.5, screw connection G1</p> <p>with trailing pointer (standard from 400 kVA)</p> <p>with trailing pointer, with 2 electrical contacts (microswitches)</p>		<p>17073</p> <p>17074</p>
<p>integrated safety detector R.I.S integrated safety detector with the functions:</p> <ul style="list-style-type: none"> - temperature (with trailing pointer and 2 contacts) - oil level (with 1 contact) - overpressure 100-500mbar (with 1 contact) - gas formation (with 1 contact) 		<p>15127</p>
<p>Flat connection plate according to DIN 42530</p> <p>DT630 drilled hole 1x Ø 14 mm</p> <p>DT1000 drilled hole 2x Ø 14 mm</p> <p>DT2000 drilled hole 4x Ø 14 mm</p> <p>DT3150 drilled hole 4x Ø 14 mm</p>		<p>15034</p> <p>15036</p> <p>15040</p> <p>15044</p>
<p>Rollers according to EN 50216-4, switchable for longitudinal and transverse drive</p> <p>Rating up to 400 kVA: Ø 125x40 mm, nylon, bracket M16</p> <p>Rating from 630 kVA: Ø 125x40 mm, cast iron, bracket M16</p> <p>Rating from 1600 kVA: Ø 125x40 mm, cast iron, bracket M24, colour RAL 7033</p>		<p>19119, 15261</p> <p>15262</p>
<p>Oil retention vat mounted between tank and chassis frame</p> <p>different sizes</p>		-
<p>Oil retention vat aluminium, for retrofitting or basic equipment of transformers, 1 side screwable, 2 loose U-iron provided</p>		-
<p>Increased winding insulation earthed screen between HV- and LV-winding recommended for use with converters, rectifiers, etc. (networks with harmonic content)</p>		-