

# Distribution Transformers

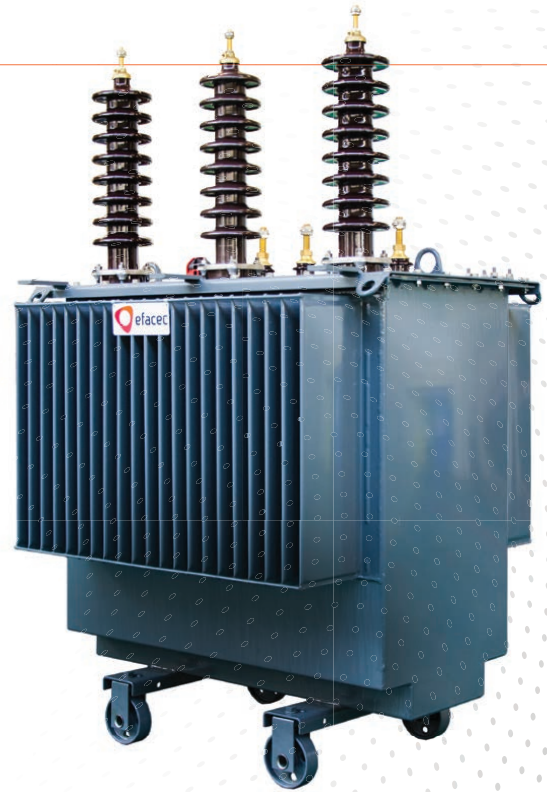
## Hermetically Sealed Non Eco-Design

### Overview

This catalogue shows the standard characteristics of the three-phase mineral oil filled and hermetically sealed non eco-design distribution transformers, from 160 to 2500 kVA. In accordance with the IEC 60076 standard.

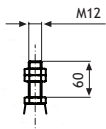
### Key features

- Rated voltages
  - High voltage: 10, 15 and 30 kV
  - Tapping range  $\pm 2 \times 2,5\%$  by off-circuit tap changer
  - Low voltage: 420 V
- Connection symbol: Dyn5
- Frequency: 50 Hz
- Insulation system temperature: 105 °C (A)
- Colour: RAL 7012
- Cooling type: ONAN
- Installation: Indoor or Outdoor
- Other characteristics under request

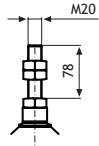


Details

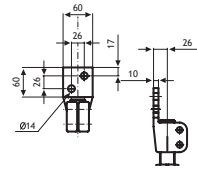
LV bushings detail



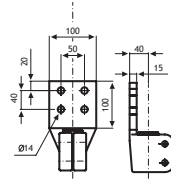
250 A



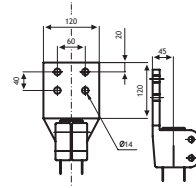
630 A



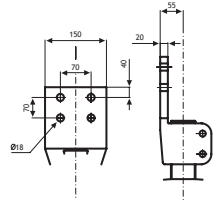
1000 A



2000 A

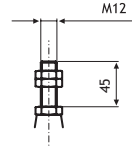


3150 A



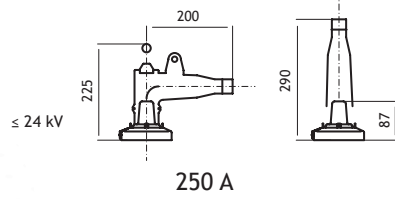
4500 A

HV bushings detail

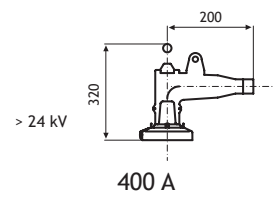


250 A

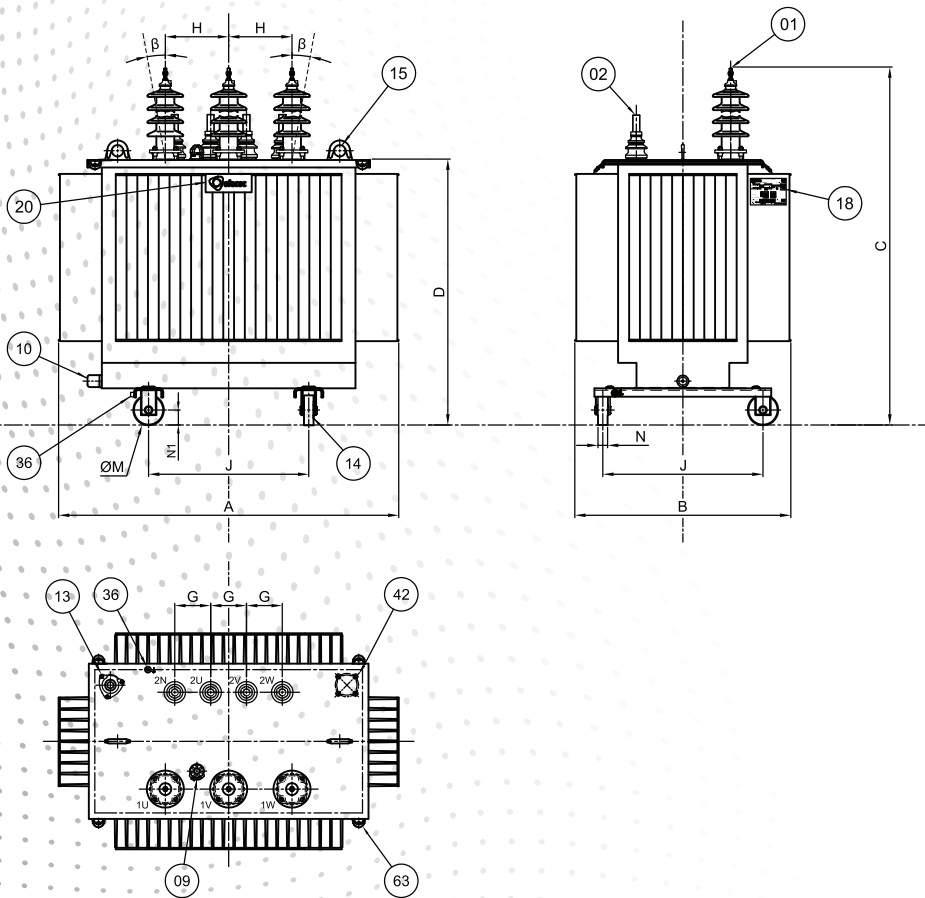
Optional



250 A



400 A



Legend:

- 01. HV Bushing
- 02. LV Bushing
- 09. Off-circuit tap changer
- 10. Drain and sampling device
- 13. Thermometer pocket
- 14. Bidirectional wheels
- 15. Lifting eye
- 18. Rating Plate
- 20. Name Plate
- 36. Earthing terminal
- 42. Filling Hole
- 63. Lashing eye

# Dimensions and Weights

## Highest voltage ≤ 17.5 kV

Rated Power	kVA	50	100	160	250	400	630	800	1000	1250	1600	2000	2500
No-load losses	W	190	320	460	650	930	1300	1400	1700	2100	2600	3100	3500
Load losses (75°C)	W	1350	2150	3100	4200	6000	8400	10500	13000	16000	20000	22000	24000
Impedance voltage (75°C)	%	4,0	4,0	4,0	4,0	4,0	4,0	4,5	4,5	4,5	4,5	4,5	4,5
MV/LV windings		Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al
Rated current (LV)	A	68,7	137,5	219,9	343,7	549,9	866,0	1099,7	1374,6	1718,3	2199,4	2749,3	3436,6
Voltage drop (75°C)													
Cos φ= 1,0	%	2,74	2,21	2,00	1,75	1,57	1,40	1,40	1,39	1,37	1,34	1,20	1,06
Cos φ= 0,8	%	3,93	3,75	3,67	3,54	3,45	3,35	3,67	3,66	3,65	3,63	3,54	3,45
Efficiency at full load (75°C)													
Cos φ= 1,0	%	97,01	97,59	97,82	98,10	98,30	98,48	98,53	98,55	98,57	98,61	98,76	98,91
Cos φ= 0,8	%	96,29	97,00	97,29	97,63	97,88	98,11	98,17	98,20	98,22	98,27	98,46	98,64

## Dimensions and weights

A	mm	850	850	1300	1350	1400	1500	1650	1800	1800	1950	2100	2250
B	mm	700	750	750	750	750	800	900	1000	1050	1100	1150	1250
C	mm	1150	1250	1500	1400	1650	1750	1750	1900	2100	2100	2100	2200
D	mm	890	990	1240	1140	1390	1490	1490	1640	1840	1840	1840	1940
G	mm	90	90	150	150	150	150	150	150	150	165	165	165
H	mm	265	265	265	265	265	265	265	265	265	265	265	265
β	°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°
J	mm	520	520	520	520	670	670	670	820	820	820	820	820
M	mm	125	125	125	125	125	125	125	200	200	200	200	200
N	mm	40	40	40	40	40	40	40	70	70	70	70	70
N1	mm	43	43	43	43	43	43	43	60	60	60	60	60
Oil weight	kg	100	130	170	230	300	390	450	535	665	790	950	1150
Total Weight	kg	370	550	700	960	1300	1750	2050	2500	2900	3450	4200	5100

## Highest voltage ≤ 24 kV

Rated Power	kVA	50	100	160	250	400	630	800	1000	1250	1600	2000	2500
No-load losses	W	190	320	460	650	930	1300	1400	1700	2100	2600	3100	3500
Load losses (75°C)	W	1350	2150	3100	4200	6000	8400	10500	13000	16000	20000	22000	24000
Impedance voltage (75°C)	%	4,0	4,0	4,0	4,0	4,0	4,0	4,5	4,5	4,5	4,5	4,5	4,5
MV/LV windings		Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al
Rated current (LV)	A	68,7	137,5	219,9	343,7	549,9	866,0	1099,7	1374,6	1718,3	2199,4	2749,3	3436,6
Voltage drop (75°C)													
Cos φ= 1,0	%	2,74	2,21	2,00	1,75	1,57	1,40	1,40	1,39	1,37	1,34	1,20	1,06
Cos φ= 0,8	%	3,93	3,75	3,67	3,54	3,45	3,35	3,67	3,66	3,65	3,63	3,54	3,45
Efficiency at full load (75°C)													
Cos φ= 1,0	%	97,01	97,59	97,82	98,10	98,30	98,48	98,53	98,55	98,57	98,61	98,76	98,91
Cos φ= 0,8	%	96,29	97,00	97,29	97,63	97,88	98,11	98,17	98,20	98,22	98,27	98,46	98,64

## Dimensions and weights

A	mm	900	900	1350	1400	1450	1550	1700	1850	1850	2000	2150	2300
B	mm	700	750	750	750	750	800	900	1000	1050	1100	1150	1250
C	mm	1300	1400	1650	1550	1800	1900	1900	2050	2250	2250	2250	2350
D	mm	915	1015	1265	1165	1415	1515	1515	1665	1865	1865	1865	1965
G	mm	90	90	150	150	150	150	150	150	150	165	165	165
H	mm	265	265	265	265	265	265	265	265	265	265	265	265
β	°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°
J	mm	520	520	520	520	670	670	670	820	820	820	820	820
M	mm	125	125	125	125	125	125	125	200	200	200	200	200
N	mm	40	40	40	40	40	40	40	70	70	70	70	70
N1	mm	43	43	43	43	43	43	43	60	60	60	60	60
Oil weight	kg	160	200	250	320	380	500	560	660	770	930	1100	1300
Total Weight	kg	470	620	850	1100	1400	1950	2200	2600	3050	3700	4450	5350

# Dimensions and Weights

## Highest voltage $\leq 36$ kV

Rated Power	kVA	50	100	160	250	400	630	800	1000	1250	1600	2000	2500
No-load losses	W	230	380	520	780	1120	1450	1700	2000	2400	2800	3400	4100
Load losses (75°C)	W	1450	2350	3350	4700	6200	8800	10500	13000	16000	19200	24000	26500
Impedance voltage (75°C)	%	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0
MV/LV windings		Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al	Al/Al
Rated current (LV)	A	68,7	137,5	219,9	343,7	549,9	866,0	1099,7	1374,6	1718,3	2199,4	2749,3	3436,6
Voltage drop (75°C)													
Cos $\varphi=1,0$	%	2,98	2,45	2,19	1,99	1,66	1,52	1,43	1,42	1,40	1,32	1,32	1,18
Cos $\varphi=0,8$	%	4,77	4,55	4,42	4,32	4,13	4,05	3,99	3,99	3,97	3,92	3,92	3,84
Efficiency at full load (75°C)													
Cos $\varphi=1,0$	%	96,75	97,34	97,64	97,86	98,20	98,40	98,50	98,52	98,55	98,64	98,65	98,79
Cos $\varphi=0,8$	%	95,97	96,70	97,07	97,33	97,76	98,01	98,13	98,16	98,19	98,31	98,32	98,49

## Dimensions and weights

A	mm	900	900	1450	1450	1550	1650	1700	1750	1850	2050	2200	2400
B	mm	750	850	850	850	850	900	900	950	1000	1100	1250	1300
C	mm	1550	1700	1650	1750	1800	1900	2000	2300	2300	2300	2300	2350
D	mm	965	1115	1065	1165	1215	1315	1415	1715	1715	1715	1715	1765
G	mm	90	90	150	150	150	150	150	150	150	165	165	165
H	mm	390	370	370	370	370	370	370	370	370	370	370	370
$\beta$		10°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°
J	mm	520	520	520	520	670	670	670	820	820	820	820	820
M	mm	125	125	125	125	125	125	125	200	200	200	200	200
N	mm	40	40	40	40	40	40	40	40	70	70	70	70
N1	mm	43	43	43	43	43	43	43	43	60	60	60	60
Oil weight	kg	180	220	280	350	400	530	600	700	800	970	1150	1350
Massa total	kg	500	640	900	1150	1450	2000	2250	2650	3100	3800	4500	5400

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