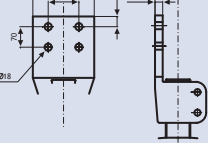
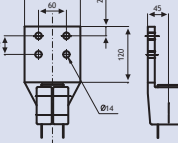
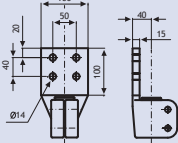
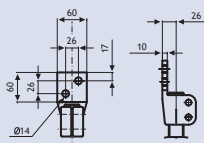
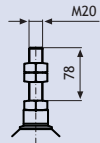
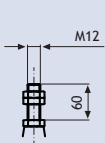


Pormenor das travessias BT  
LV bushings  
detail



250 A

630 A

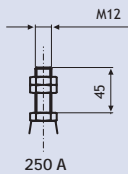
1000 A

2000 A

3150 A

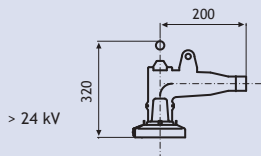
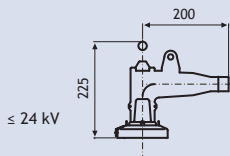
4500 A

Pormenor das travessias AT  
HV bushings  
detail

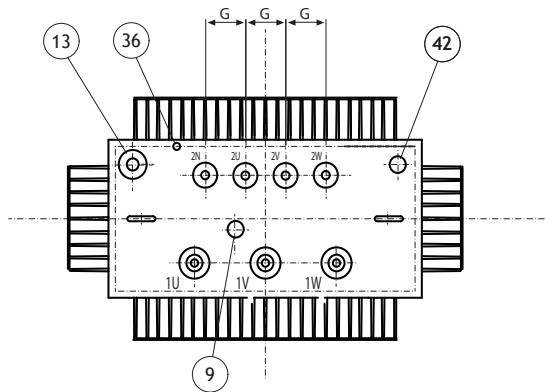
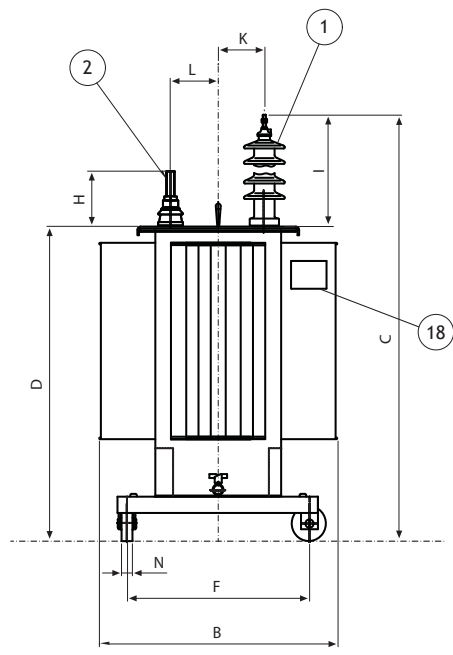
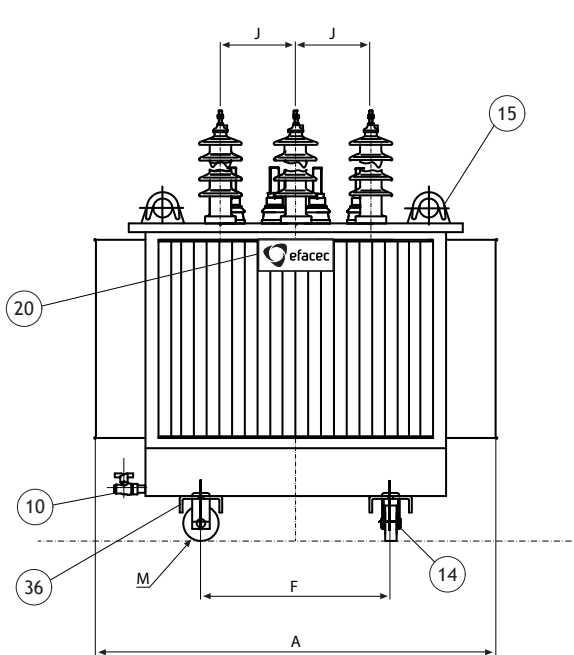


250 A

Opcional  
On request



Dimensões / Dimensions (mm)



- 1 - Travessia AT / HV Bushing
- 2 - Travessia BT / LV Bushing
- 9 - Comutador fora de Tensão / Off-circuit Tap-changer
- 10 - Válvula de esvaziamento e amostragem / Drain Valve
- 13 - Bolsa para Termómetro / Thermometer Pocket
- 14 - Rodado Bi-direccional / Wheel
- 15 - Olhal de Suspensão / Lifting Lugs Complete Transformer
- 18 - Chapa de Características / Rating Plate
- 20 - Chapa de Publicidade / Name Plate
- 36 - Terminal de Terra / Earthing Terminal
- 42 - Bujão de Enchimento / Filling Hole



Efacec Energia, Máquinas e Equipamentos Eléctricos, S.A.  
Unidade de Transformadores de Distribuição

Sede/Main Office:

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Mod. TR 08 B 1007 A1

Devido ao contínuo desenvolvimento, as características podem ser alteradas sem aviso prévio. Não é válido como elemento contratual. / Due to our policy of continuous development, specifications may change without notice. Not valid as a contractual item.

Transformadores de  
Distribuição Herméticos

Hermetically Sealed  
Distribution Transformers

Transformadores de Distribuição de Energia  
Energy Distribution Transformers



Transformador Hermético/ Hermetically Sealed Transformer

Este catálogo contém as características técnicas dos transformadores trifásicos de distribuição de 160 a 2500 kVA, herméticos, imersos em óleo mineral e para a instalação interior ou exterior.

This catalogue shows the specifications for three-phase mineral oil filled and hermetically sealed distribution transformers, for indoor or outdoor installation, from 160 to 2500 kVA.

160 kVA e 250 kVA com montagem em poste em opção (montagem apoiada).

160 kVA and 250 kVA at pole mounted option (mounting supported).

Fabricados de acordo com a norma CEI 60076.

In accordance with the IEC 60076 standard.

Tensões Normalizadas

Standard Voltages

- Alta tensão: até 36 kV;  
Regulação  $\pm 2 \times 2,5 \%$  por comutador manobrável fora de tensão
- Baixa tensão: 420 V (400 V em opção).

- High voltage: up to 36 kV;  
Tapping ranger  $\pm 2 \times 2,5 \%$  by an off-circuit tap changer
- Low voltage: 420 V (400 V in option).

Ligações

Connection symbols

- Dyn5

- Dyn5

Frequência

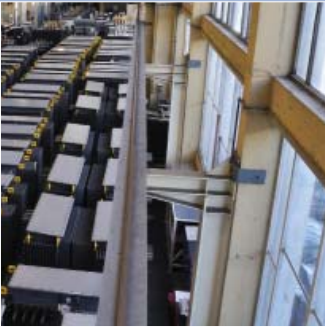
Frequency

- 50 Hz (60 Hz em opção)

- 50 Hz (60 Hz in option)







Características Técnicas  
420 V

Technical Characteristics  
420 V

Dimensões e Massas  
420 V

Dimensions and Weights  
420 V

Tensão mais elevada

≤ 17,5 kV

Highest voltage

Potência / <b>Rated power</b>	kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500
Perdas em vazio / <b>No-load losses</b>	W	460	650	770	930	1100	1300	1550	1800	2150	2550	2900	3550
Perdas devidas à carga / <b>Load losses</b> (75°C)	W	2350	3250	3900	4600	5500	6500	8200	10200	12100	14500	17500	21000
Tensão CC / <b>Impedance voltage</b> (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
Corrente nominal (BT) / <b>Rated current</b> (LV)	A	219,9	343,7	433,0	549,9	687,3	866,0	1099,7	1374,6	1718,3	2199,4	2749,3	3436,6
Corrente CC (BT) / <b>Short-circuit current</b> (LV)	kA	5,5	8,6	10,8	13,7	17,2	21,7	24,4	30,5	38,2	48,9	61,1	76,4
Rendimentos / <b>Efficiency</b> (75°C)													
cos φ = 1,0	50%	98,69%	98,83%	98,89%	98,96%	99,01%	99,07%	99,10%	99,13%	99,17%	99,23%	99,27%	99,30%
	75%	98,52%	98,68%	98,75%	98,83%	98,88%	98,95%	98,97%	99,00%	99,04%	99,11%	99,15%	99,18%
	100%	98,24%	98,44%	98,52%	98,62%	98,68%	98,76%	98,78%	98,80%	98,86%	98,93%	98,98%	99,02%
cos φ = 0,8	50%	98,36%	98,54%	98,62%	98,70%	98,76%	98,84%	98,88%	98,91%	98,97%	99,04%	99,09%	99,12%
	75%	98,14%	98,35%	98,43%	98,53%	98,60%	98,69%	98,72%	98,74%	98,81%	98,88%	98,94%	98,98%
	100%	97,80%	98,05%	98,15%	98,27%	98,35%	98,45%	98,48%	98,50%	98,58%	98,67%	98,73%	98,77%
Queda de tensão / <b>Voltage drop</b> (75°C)													
cos φ = 1,0	%	1,54%	1,37%	1,31%	1,22%	1,17%	1,10%	1,13%	1,12%	1,07%	1,01%	0,98%	0,94%
	%	3,43%	3,33%	3,30%	3,25%	3,22%	3,18%	3,49%	3,49%	3,45%	3,42%	3,40%	3,37%
Potência sonora / <b>Sound power level</b> (L <sub>Wa</sub> )	db(A)	62	65	65	68	69	70	72	73	73	74	74	76

Tensão mais elevada

≤ 17,5 kV

Highest voltage

Tensão mais elevada

36 kV

Highest voltage

Perdas em vazio / <b>No-load losses</b>	W	500	700	820	1000	1170	1400	1650	1900	2250	2650	3050	3650
Perdas devidas à carga / <b>Load losses</b> (75°C)	W	2550	3600	4150	5050	5650	6650	8300	10400	12400	15800	18000	22500
Tensão CC / <b>Impedance voltage</b> (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
Corrente nominal (BT) / <b>Rated current</b> (LV)	A	219,9	343,7	433,0	549,9	687,3	866,0	1099,7	1374,6	1718,3	2199,4	2749,3	3436,6
Corrente CC (BT) / <b>Short-circuit current</b> (LV)	kA	4,4	6,9	8,7	11,0	13,7	17,3	22,0	27,5	34,4	44,0	55,0	68,7
Rendimentos / <b>Efficiency</b> (75°C)													
cos φ = 1,0	50%	98,58%	98,72%	98,82%	98,87%	98,97%	99,03%	99,07%	99,10%	99,14%	99,18%	99,25%	99,26%
	75%	98,39%	98,55%	98,66%	98,72%	98,84%	98,91%	98,95%	98,97%	99,02%	99,04%	99,12%	99,13%
	100%	98,09%	98,28%	98,42%	98,49%	98,64%	98,72%	98,76%	98,77%	98,83%	98,85%	98,95%	98,95%
cos φ = 0,8	50%	98,22%	98,40%	98,53%	98,59%	98,71%	98,78%	98,84%	98,88%	98,93%	98,97%	99,06%	99,07%
	75%	97,99%	98,18%	98,33%	98,40%	98,55%	98,64%	98,68%	98,71%	98,77%	98,80%	98,90%	98,91%
	100%	97,62%	97,85%	98,03%	98,11%	98,30%	98,40%	98,45%	98,46%	98,54%	98,56%	98,68%	98,69%
Queda de tensão / <b>Voltage drop</b> (75°C)													
cos φ = 1,0	%	1,70%	1,55%	1,44%	1,38%	1,25%	1,18%	1,16%	1,16%	1,11%	1,11%	1,02%	1,02%
	%	4,16%	4,07%	3,99%	3,96%	3,88%	3,84%	3,82%	3,82%	3,79%	3,79%	3,73%	3,73%
Potência sonora / <b>Sound power level</b> (L <sub>Wa</sub> )	db(A)	62	65	65	69	69	70	73	73	74	75	75	77

Tensão mais elevada

36 kV

Highest voltage

Potência / <b>Rated power</b>	kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500
Tolerância dimensionais / <b>Dimensional Tolerances</b>													± 5%
Dimensões / <b>Dimensions</b> (mm)	A	810	1174	1224	1324	1414	1424	1524	1474	1564	1924	2074	2014
	B	790	834	814	904	994	934	1074	984	1074	1074	1154	1074
(10 kV) C	1081	1132	1232	1282	1286	1336	1512	1665	1746	1815	2015	2379	
(15 kV) C	1206	1257	1357	1407	1407	1457	1557	1710	1791	1841	2041	2379	
D	821	872	972	1022	1022	1072	1172	1325	1406	1456	1656	1924	
F	520	520	670	670	670	670	670	820	820	820	820	820	
G	150	150	150	150	150	150	150	150	150	165	165	200	
H	185	180	180	180	264	264	340	340	340	359	359	455	
(10 kV) I	260	260	260	260	260	260	260	260	260	260	260	260	
(15 kV) I	385	385	385	385	385	385	385	385	385	385	385	385	
J	265	265	265	265	265	265	265	265	265	265	265	265	
K	120	140	130	150	150	140	160	190	190	160	200	190	
L	140	160	150	170	155	145	155	185	185	145	185	155	
M	125	125	125	125	125	125	125	125	200	200	200	200	
N	40	40	40	40	40	40	40	40	70	70	70	70	
Massa do óleo / <b>Oil weight</b>	kg	130	170	200	250	250	265	365	490	495	600	970	1010
Massa Total / <b>Total weight</b>	kg	670	875	1010	1200	1350	1540	1885	2260	2640	3330	4230	4950

Dimensões / <b>Dimensions</b> (mm)	A	960	1274	1274	1374	1424	1574	1624	1624	1674	2014	2194	2074
	B	850	844	864	914	954	1014	1114	1114	1094	1094	1274	1094
C	1506	1557	1657	1558	1658	1658	1758	1760	1991	2241	2241	2513	
D	921	972	1072	973	1073	1073	1173	1175	1406	1656	1656	1928	
F	520	520	670	670	670	670	670	820	820	820	820	820	
G	150	150	150	150	150	150	150	150	150	165	165	200	
H	185	180	180	180	264	264	340	340	340	359	359	455	
I	585	585	585	585	585	585	585	585	585	585	585	585	
J	340	340	340	340	340	340	340	340	340	340	340	340	
K	140	160	170	170	190	170	220	220	210	190	190	210	
L	170	190	200	200	205	185	225	225	215	185	185	185	
M	125	125	125	125	125	125	125	125	200	200	200	200	
N	40	40	40	40	40	40	40	40	70	70	70	70	
Massa do óleo / <b>Oil weight</b>	kg	205	280	330	295	385	380	550	520	620	935	1160	1100
Massa Total / <b>Total weight</b>	kg	800	1060	1230	1305	1585	1760	2175	2430	2850	3790	4635	5450