



OLJETRANSFORMATOR TYP HERMETISK  
HERMETIK OELTRANSFORMATOREN  
OIL TRANSFORMERS HERMETIC TYPE

TTO-AoBk ECO+P 24KV 50Hz  
UE 548/2014

|                                                         |                                                                                                      |                                              |             |                                             |               |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------|---------------------------------------------|---------------|
| Isolationsnivå<br>Referenz-Spannung<br>Insulation level | Sekundärspanning (i tomgång)<br>Sekundärspannung im Leerlauf<br>No-load secondary voltage (off load) | Reglerområde<br>MS - Anzapfungen<br>Tappings | ± 2 x 2,5 % | Vektorgrupp<br>Schaltgruppe<br>Vector group | Dyn11,Dyn5(*) |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------|---------------------------------------------|---------------|

|                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| Sn             | kVA   | 100   | 160   | 250   | 315   | 400   | 500   | 630   | 630   | 800   | 1000  | 1250  | 1600  | 2000  | 2500  | 3150  |  |  |
| Po             | W     | 145   | 210   | 300   | 360   | 430   | 510   | 600   | 600   | 650   | 770   | 950   | 1200  | 1450  | 1750  | 2200  |  |  |
| Pcc (75° C)    | W     | 1475  | 2000  | 2750  | 3250  | 3850  | 4600  | 5600  | 5600  | 7000  | 9000  | 11000 | 14000 | 18000 | 22000 | 27500 |  |  |
| Vcc (75° C)    | %     | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     |  |  |
| Io (75° C)     | %     | 1,8   | 1,7   | 1,6   | 1,5   | 1,4   | 1,3   | 1,2   | 1,2   | 1,1   | 1     | 0,9   | 0,8   | 0,7   | 0,6   | 0,5   |  |  |
| Lwa            | dB(A) | 41    | 44    | 47    | 49    | 50    | 51    | 52    | 52    | 53    | 55    | 56    | 58    | 60    | 63    | 66    |  |  |
| Lpa (0.3mt)    | dB(A) | 37    | 40    | 42    | 44    | 44    | 45    | 45    | 45    | 46    | 46    | 47    | 48    | 50    | 51    | 54    |  |  |
| n              | 4/4 % | 98,41 | 98,64 | 98,79 | 98,87 | 98,94 | 98,99 | 99,03 | 99,03 | 99,05 | 99,03 | 99,05 | 99,06 | 99,04 | 99,06 | 99,07 |  |  |
| cos Ø = 1      | 3/4 % | 98,72 | 98,9  | 99,02 | 99,08 | 99,14 | 99,18 | 99,21 | 99,21 | 99,24 | 99,23 | 99,24 | 99,25 | 99,23 | 99,25 | 99,26 |  |  |
| 75° C          | 2/4 % | 98,98 | 99,12 | 99,22 | 99,26 | 99,31 | 99,34 | 99,37 | 99,37 | 99,4  | 99,4  | 99,41 | 99,42 | 99,41 | 99,42 | 99,43 |  |  |
| n              | 4/4 % | 98,23 | 98,49 | 98,66 | 98,74 | 98,83 | 98,88 | 98,92 | 98,92 | 98,95 | 98,93 | 98,95 | 98,96 | 98,93 | 98,96 | 98,96 |  |  |
| cos Ø = 0.9    | 3/4 % | 98,58 | 98,78 | 98,92 | 98,98 | 99,05 | 99,09 | 99,13 | 99,13 | 99,16 | 99,14 | 99,16 | 99,17 | 99,15 | 99,17 | 99,18 |  |  |
| 75° C          | 2/4 % | 98,87 | 99,02 | 99,13 | 99,18 | 99,23 | 99,27 | 99,3  | 99,3  | 99,34 | 99,33 | 99,35 | 99,35 | 99,34 | 99,36 | 99,36 |  |  |
| n              | 4/4 % | 98,02 | 98,3  | 98,5  | 98,59 | 98,68 | 98,74 | 98,78 | 98,78 | 98,82 | 98,79 | 98,82 | 98,83 | 98,8  | 98,83 | 98,84 |  |  |
| cos Ø = 0.8    | 3/4 % | 98,4  | 98,63 | 98,78 | 98,86 | 98,93 | 98,98 | 99,02 | 99,02 | 99,05 | 99,04 | 99,06 | 99,06 | 99,04 | 99,07 | 99,07 |  |  |
| 75° C          | 2/4 % | 98,73 | 98,9  | 99,02 | 99,08 | 99,14 | 99,18 | 99,21 | 99,21 | 99,26 | 99,25 | 99,27 | 99,27 | 99,26 | 99,28 | 99,28 |  |  |
| le/In          |       | 18    | 18    | 17    | 17    | 15    | 15    | 13    | 12    | 12    | 10    | 9     | 9     | 9     | 9     | 9     |  |  |
| T              | sec.  | 0,02  | 0,02  | 0,02  | 0,02  | 0,04  | 0,04  | 0,06  | 0,06  | 0,06  | 0,08  | 0,09  | 0,09  | 0,1   | 0,1   | 0,1   |  |  |
| In sec.        | A     | 144   | 231   | 361   | 455   | 577   | 722   | 909   | 909   | 1155  | 1443  | 1804  | 2309  | 2887  | 3608  | 4547  |  |  |
| Icc            | A     | 3600  | 5775  | 9025  | 11375 | 14425 | 18050 | 22725 | 15150 | 19250 | 24050 | 30067 | 38483 | 48117 | 60133 | 75783 |  |  |
| RI (75° C)     | %     | 1,47  | 1,25  | 1,1   | 1,03  | 0,96  | 0,92  | 0,89  | 0,89  | 0,88  | 0,9   | 0,88  | 0,88  | 0,9   | 0,88  | 0,87  |  |  |
| XI             | %     | 3,72  | 3,8   | 3,85  | 3,87  | 3,88  | 3,89  | 3,9   | 5,93  | 5,94  | 5,93  | 5,94  | 5,94  | 5,93  | 5,94  | 5,94  |  |  |
| DV cos Ø = 1   | 4/4 % | 1,54  | 1,32  | 1,17  | 1,11  | 1,04  | 1     | 0,96  | 1,06  | 1,05  | 1,08  | 1,06  | 1,05  | 1,08  | 1,06  | 1,05  |  |  |
| DV cos Ø = 0.9 | 4/4 % | 2,98  | 2,82  | 2,71  | 2,66  | 2,61  | 2,57  | 2,55  | 3,51  | 3,5   | 3,52  | 3,5   | 3,5   | 3,52  | 3,5   | 3,5   |  |  |
| DV cos Ø = 0.8 | 4/4 % | 3,43  | 3,31  | 3,22  | 3,17  | 3,13  | 3,1   | 3,08  | 4,36  | 4,35  | 4,37  | 4,35  | 4,35  | 4,37  | 4,35  | 4,35  |  |  |
| Qo             | kVAR  | 1,7   | 2,6   | 3,8   | 4,5   | 5,4   | 6,2   | 7,2   | 7,2   | 8,5   | 9,6   | 10,8  | 12,2  | 13,2  | 14,1  | 14,5  |  |  |
| Qf             | kVAR  | 3     | 5,1   | 8,3   | 10,6  | 13,7  | 17,2  | 21,8  | 34,6  | 43,8  | 55    | 68,9  | 87,6  | 109,9 | 137,7 | 174,3 |  |  |

Index

P = Effekt  
Po = Tomgångsförluster  
Pk = Belastningsförluster  
Vcc = Kortslutningsspänning  
Ioo = Kortslutningsström  
Lwa = Ljudeffektnivå  
Lpa = Ljudtrycknivå  
h = Verkningsgrad  
le/In = Inkopplingsström  
T = Tidskonstantlängd  
In II° = Sekundärström  
Icc = Kortslutningsström  
RI = Aktiv komponent Vcc  
XI = Reaktiv komponent Vcc  
DV = Spänningsfall  
Qo = Reaktiv effekt i tomgång  
Qf = Reaktiv effekt vid full last  
Pt = Vikt transformator  
Pa = Vikt kapsling  
P BT = Maximal ström för Lsp uttag  
P MT = Maximal ström för Hsp uttag

Alla tekniska data är refererade till trefas distributionstransformatörer, med frekvens 50 Hz och omgivningstemperatur 40 °C.

Konstruktion enligt standard IEC60076-11

Tekniska data är offererade med reservation att ändringar kan ske utan att meddelande sker i förväg

Legende

Sn = Nennleistung  
Po = Leerlaufverlusten  
Pcc = Kurschlußverlusten  
Vcc = Kurschlußspannung  
Io = Leerlaufstrom  
Lwa = Schalleistungspegel  
Lpa = Schalldruckpegel  
η = Wirkungsgrad  
le/In = Einschaltstrom  
T = Zeitkonstante le/In  
In sec. = Strom  
Icc = Kurzschluss - Strom  
RI = Wirkleistungsanteil der uk  
XI = Blindleistungsanteil der uk  
DV = Spannungsabfall  
Qo = Kompensation im Leerlauf  
Qf = Kompensation unter Last  
Pt = Gewicht Transformator  
Pa = Gewicht Schutzgehäuse  
P BT = US Stromfähigkeit  
P MT = OS Stromfähigkeit

Die auf diesem Katalog angegebenen Technischen Daten beziehen sich auf Drehstrom Verteilungstransformatoren mit einer Frequenz von 50 Hz und Umgebungstemperatur von 40° C.

Fertigung gemäß IEC60076 Standard.  
Die technischen Daten sind nicht bindend; diese können ohne Mitteilung verändert werden.

(\*) nach Anfrage

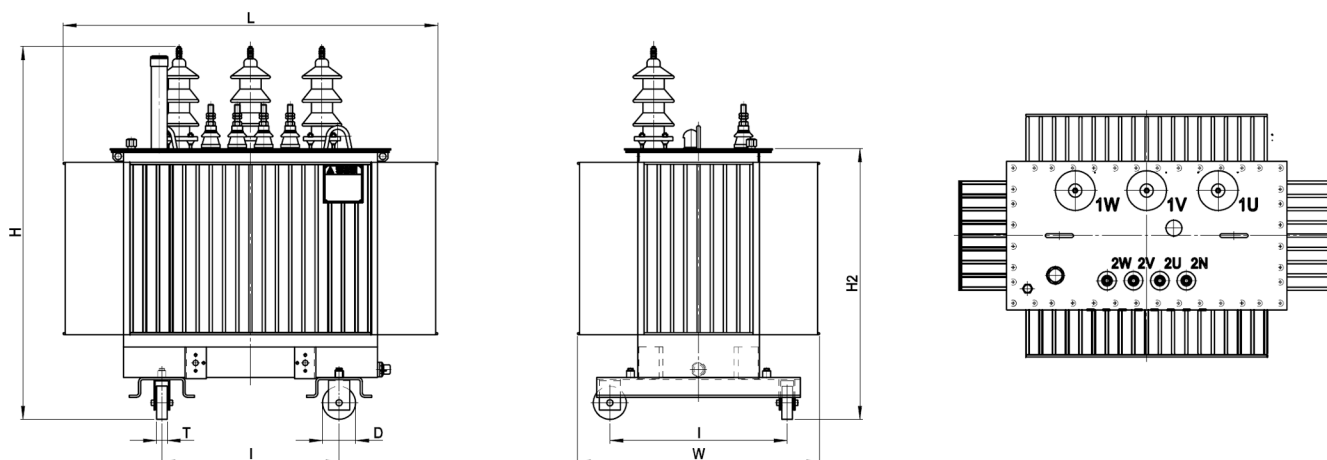
Legend

Sn = Rating capacity  
Po = No - load losses  
Pcc = Load losses  
Vcc = Impedance voltage  
Io = No - load current  
Lwa = Sound power level  
Lpa = Sound pressure level  
η = Efficiency  
le/In = In - rush current  
T = Time constant le/In  
In sec. = Secondary side current  
Icc = Short circuit current  
RI = Active part of Vcc  
XI = Reactive part of Vcc  
DV = Voltage drop  
Qo = No - load reactive power  
Qf = Full load reactive power  
Pt = Weight transformer  
Pa = Weight enclosure  
P BT = LV terminals max current  
P MT = MT terminals max current

All the technical characteristics given in this catalogue are referred to threephase distribution transformers, with frequency of 50 Hz and ambient temperature of 40° C.

Construction according to IEC60076 Std.  
Characteristics and technical data are quoted without commitment; modifications reserved without prior notice.

(\*) On request



| Sn | kVA | 100 | 160 | 250 | 315 | 400 | 500 | 630 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 |  |  |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|--|--|
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|--|--|

Hermetisk transformator - Hermetiktransformator - Hermetic Transformer

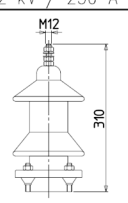
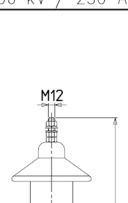
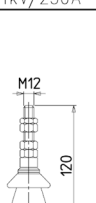
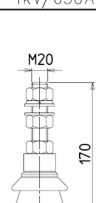
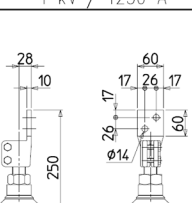
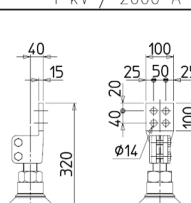
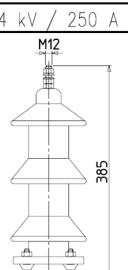
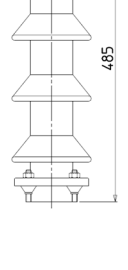
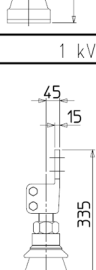
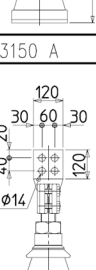
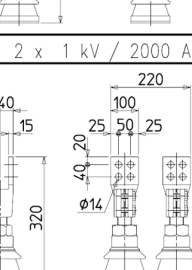
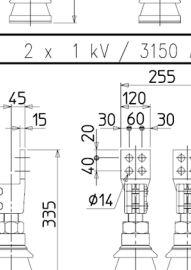
| L  | mm | 950  | 1000 | 1070 | 1120 | 1150 | 1200 | 1250 | 1350 | 1400 | 1450 | 1560 | 1900 | 2080 | 2060 | 2160 |  |  |
|----|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|
| W  | mm | 740  | 750  | 770  | 860  | 870  | 880  | 890  | 900  | 920  | 1060 | 1080 | 1080 | 1290 | 1290 | 1320 |  |  |
| H  | mm | 1350 | 1450 | 1500 | 1600 | 1620 | 1750 | 1770 | 1690 | 1710 | 1870 | 1890 | 2060 | 2120 | 2270 | 2350 |  |  |
| OW | kg | 150  | 185  | 220  | 270  | 300  | 350  | 400  | 430  | 470  | 570  | 630  | 750  | 850  | 1030 | 1250 |  |  |
| TW | kg | 750  | 950  | 1160 | 1380 | 1580 | 1850 | 2150 | 2100 | 2540 | 2950 | 3250 | 3900 | 4440 | 5330 | 6200 |  |  |

Allmänna data - Allgemeine Daten - Common Data

| H2 | mm | 950 | 1030 | 1110 | 1200 | 1220 | 1350 | 1370 | 1290 | 1310 | 1470 | 1490 | 1660 | 1720 | 1870 | 1950 |  |  |
|----|----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|
| I  | mm | 520 | 520  | 520  | 670  | 670  | 670  | 670  | 670  | 670  | 820  | 820  | 820  | 1070 | 1070 | 1070 |  |  |
| D  | mm | 125 | 125  | 125  | 125  | 125  | 125  | 125  | 125  | 125  | 160  | 160  | 160  | 200  | 200  | 200  |  |  |
| T  | mm | 40  | 40   | 40   | 40   | 40   | 40   | 40   | 40   | 40   | 50   | 50   | 50   | 70   | 70   | 70   |  |  |

Terminaler - Anschlüssen - Terminals

| P BT     | A | 250 | 250 | 630 | 630 | 630 | 1250 | 1250 | 1250 | 1250 | 2000 | 2000 | 3150 | 3150 | 2000 | 3150 |  |  |
|----------|---|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|--|--|
| P MT     | A | 250 | 250 | 250 | 250 | 250 | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |  |  |
| P Neutro | A | 250 | 250 | 630 | 630 | 630 | 1250 | 1250 | 1250 | 1250 | 2000 | 2000 | 3150 | 3150 | 4000 | 6300 |  |  |

|              | 12 kV / 250 A                                                                       | 36 kV / 250 A                                                                       |                   | 1kV/250A                                                                            | 1kV/630A                                                                            | 1 kV / 1250 A                                                                        | 1 kV / 2000 A                                                                         |
|--------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1U - 1V - 1W |  |  | 2N - 2U - 2V - 2W |  |  |  |  |
|              |  |  |                   |  |  |  |  |