

Green efficiency

MF

Trasformatori

OIL-FILLED

from 100 to 2500 kVA with
insulation cl. <24 kV
Losses Ao - Ak according to
IEC EN 50464-1

TO-PA

GENERAL INFORMATION

At present, the improvement of the energy efficiency cannot be considered a slogan anymore, but a need of our time. TO-PA series high efficiency transformers are created for this purpose guaranteeing:

- savings in operating costs of the plant, due to low values of losses.
- consumption reduction of energy resources.
- reduction of CO₂ emissions

A

B

C

D

E

Ao Ak

ANNUAL SAVINGS (MAXIMUM) COMPARED TO TRANSFORMERS WITH NORMAL LOSSES

RATED POWER kVA	50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LOW CONSUMPTION MWh	7,3	12,7	19,2	26,7	37,9	52,5	58,3	64,2	67,9	86,7	112,6	128,3
LOW EMISSIONS CO ₂ (TON)	5,5	9,5	14,4	20,0	28,4	39,4	43,7	48,2	50,9	65,0	84,4	96,3
ENERGY SAVINGS TOE*	1,4	2,4	3,6	5,0	7,1	9,8	10,9	12,0	12,7	16,2	21,0	24,0

* TON OF OIL EQUIVALENT

PARTICULARITIES OF AN OIL-FILLED TRANSFORMER

The extreme flexibility of the heat reducing waves present on the transformer tank, allows to compensate the volume increases of the insulating fluid related to its operating temperature.

The leak-proofness of the transformer tank prevents the absorption of humidity, making it "Maintenance free".

Reference Norms :

- CEI EN 60067-1 to 10
- CEI EN 50464-1

The phases of design and building, in addition to their compliance with IEC EN norms, take into account the following rules:

- ISO 9001 : 2008 regarding the quality standards and procedures.
- ISO 14001 : 2004 regarding the environmental issues.

MF TRASFORMATORI guarantees the use of PCB free insulating fluids free from PCB. The magnetic core is built of grain-oriented electrical steel sheets and they use the step lap technique for their cut and assembly to reduce the abnormal overheating risks and to decrease the noise.

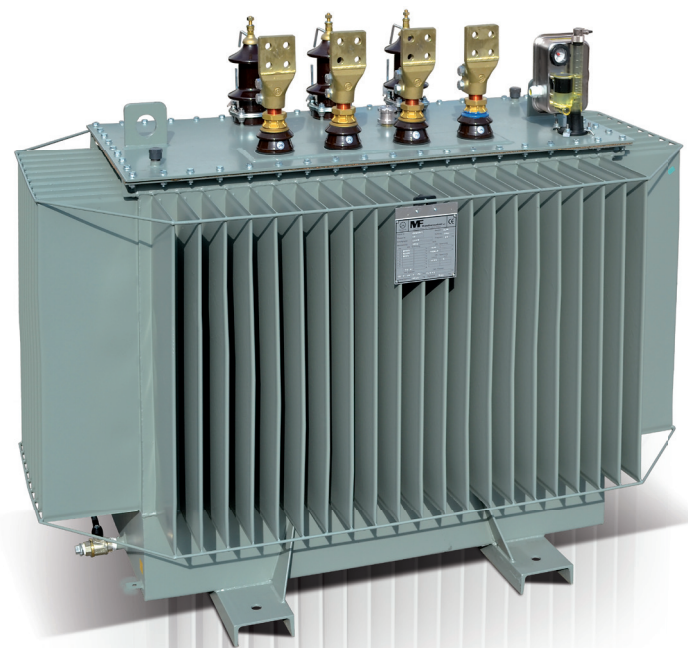
The coils are designed and built so that the transformer may operate on full-load conditions in strict compliance with A thermal class.

Note: on request, we may provide transformers with the same electrical features but with a conservator.

DESCRIPTION

The oil-filled distribution transformers have the following features

- Cooling ONAN.
- They may be installed either inside or outside.
- Anti-corrosion surface treatment.
- Suitable for heavy working conditions.
- Tested according to IEC 60296 standards.



PROVIDED STANDARD ACCESSORIES

- Bushings for MV and LV connections.
- Primary voltage regulator with 5 positions installed on the tank.
- Rating plate.
- Lifting lugs.
- 2 Earthing points.
- 4 Bi-directional flat rollers.
- Filling valve.
- Drain valve according to IEC EN 50216-4.

FROM 100 TO 2500 KVA WITH
INSULATION CL. 24 KV
LOSSES A₀ - A_k ACCORDING TO
IEC EN 504641

Green
efficiency

OIL-FILLED
TO-PA

RATED POWER kVA		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
NO-LOAD LOSSES	W	90	145	210	300	430	560	650	770	950	1.200	1.450	1.750
LOAD LOSSES AT 75 °C	W	750	1.250	1.700	2.350	3.250	4.800	6.000	7.600	9.500	12.000	15.000	18.500
NO-LOAD CURRENT I ₀	%	1	0,9	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,4	0,4	0,4
SHORT CIRCUIT VOLTAGE VCC	%	4	4	4	4	4	6	6	6	6	6	6	6
INPUT CURRENT I _{E/IN}		11,6	10,6	10,10	9,2	9,4	9	8,4	8,4	8,8	8	7,6	7,5

OUTPUT AT 75°C

COSφ 1 100% LOAD	%	98,35	98,62	98,82	98,95	99,09	99,16	99,18	99,18	99,18	99,18	99,18	99,20
COSφ 1 75% LOAD	%	98,65	98,88	99,04	99,14	99,25	99,31	99,33	99,33	99,33	99,34	99,34	99,36
COSφ 0,9 100% LOAD	%	98,17	98,47	98,69	98,84	98,99	99,06	99,08	99,08	99,08	99,09	99,09	99,11
COSφ 0,9 75% LOAD	%	98,51	98,76	98,93	99,05	99,17	99,24	99,26	99,26	99,26	99,27	99,27	99,28

VOLTAGE DROP AT 75° C

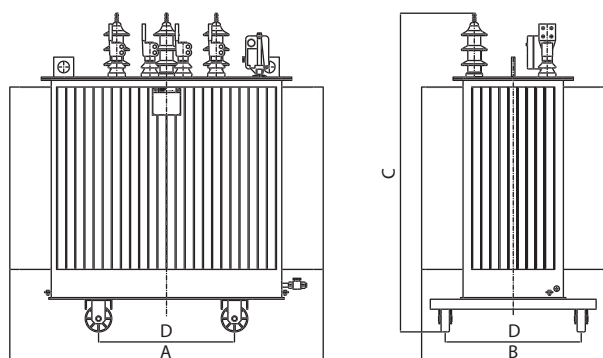
COSφ 1 100% LOAD	%	1,57	1,32	1,14	1,02	0,89	0,94	0,93	0,93	0,93	0,93	0,93	0,92
COSφ 0,9 100% LOAD	%	3,00	2,82	2,68	2,59	2,49	3,41	3,4	3,4	3,4	3,4	3,4	3,39

NOISE

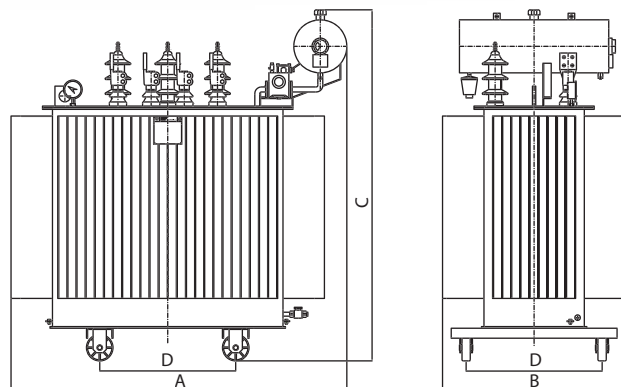
SOUND POWER LEVEL (L _{wa})	dB(A)	39	41	44	47	50	52	53	55	56	58	60	63
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SIZES AND WEIGHTS (APPROXIMATE)

Hermetically Sealed Transformer



Transformer with conservator



HERMETICALLY SEALED TRANSFORMER		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	1.000	1.000	1.050	1.150	1.250	1.600	1.750	1.750	1.850	1.900	2.200	2.250
DEPTH (B)	mm	600	600	600	600	600	900	1.000	1.000	1.100	1.100	1.200	1.300
HEIGHT (C)	mm	1.425	1.425	1.425	1.425	1.425	1.500	1.600	1.600	1.600	1.700	2.050	2.250
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	150	170	210	260	330	510	650	670	670	810	1.050	1.200
TOTAL WEIGHT	kg	710	800	1.025	1.300	1.625	2.300	3.000	3.150	3.250	4.150	5.200	5.850

TRANSFORMER WITH CONSERVATOR		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	1.000	1.000	1.050	1.150	1.250	1.600	1.750	1.750	1.850	1.900	2.200	2.250
DEPTH (B)	mm	600	600	600	600	600	900	1.000	1.000	1.100	1.100	1.200	1.300
HEIGHT (C)	mm	1.525	1.525	1.505	1.545	1.525	1.600	1.820	1.920	1.800	1.900	2.250	2.400
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	150	170	210	260	340	530	670	690	690	830	1.070	1.250
TOTAL WEIGHT	kg	715	810	1.045	1.325	1.650	2.325	3.025	3.175	3.285	4.190	5.250	5.900

MF *Trasformatori*

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WE SUPPORT



Green efficiency

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Trasformatori

OIL-FILLED

from 100 to 2500 kVA with
insulation cl. < 24 kV
Losses Bo - Ak according to
IEC EN 50464-1

TO-PB

GENERAL INFORMATION

At present, the improvement of the energy efficiency cannot be considered a slogan anymore, but a need of our time. TO-PB series high efficiency transformers are created for this purpose guaranteeing:

- savings in operating costs of the plant, due to low values of losses.
- consumption reduction of energy resources.
- reduction of CO₂ emissions

A

B

C

D

E

Bo Ak

ANNUAL SAVINGS (MAXIMUM) COMPARED TO TRANSFORMERS WITH NORMAL LOSSES

RATED POWER kVA	50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LOW CONSUMPTION MWh	7,2	12,4	18,7	26,2	37,1	51,4	56,9	62,7	66,1	84,5	109,5	124,8
LOW EMISSIONS CO ₂ (TON)	5,4	9,3	14,1	19,6	27,9	38,6	42,7	47,0	49,6	63,4	82,1	93,6
ENERGY SAVINGS TOE*	1,4	2,3	3,5	4,9	6,9	9,6	10,6	11,7	12,4	15,8	20,5	23,3

* TON OF OIL EQUIVALENT

PARTICULARITIES OF AN OIL-FILLED TRANSFORMER

The extreme flexibility of the heat reducing waves present on the transformer tank, allows to compensate the volume increases of the insulating fluid related to its operating temperature.

The leak-proofness of the transformer tank prevents the absorption of humidity, making it "Maintenance free".

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MF TRASFORMATORI guarantees the use of PCB free insulating fluids.

The magnetic core is built of grain-oriented electrical steel sheets and they use the step lap technique for their cut and assembly to reduce the abnormal overheating risks and to decrease the noise.

The coils are designed and built so that the transformer may operate on full-load conditions in strict compliance with A thermal class.

Note: on request, we may provide transformers with the same electrical features but with a conservator.

DESCRIPTION

The oil-filled distribution transformers have the following features

- Cooling ONAN.
- They may be installed either inside or outside.
- Anti-corrosion surface treatment.
- Suitable for heavy working conditions.
- Tested according to IEC 60296 standards.



PROVIDED STANDARD ACCESSORIES

- Bushings for MV and LV connections.
- Primary voltage regulator with 5 positions installed on the tank.
- Rating plate.
- Lifting lugs.
- 2 Earthing points.
- 4 Bi-directional flat rollers.
- Filling valve.
- Drain valve according to IEC EN 50216-4.

FROM 100 TO 2500 KVA WITH
INSULATION CL. 24 KV
LOSSES Bo - Ak ACCORDING TO
IEC EN 504641

Green
efficiency

OIL-FILLED
TO-PB

RATED POWER kVA		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
NO-LOAD LOSSES	W	110	180	260	360	520	680	800	940	1.150	1.450	1.800	2.150
LOAD LOSSES AT 75 °C	W	750	1.250	1.700	2.350	3.250	4.800	6.000	7.600	9.500	12.000	15.000	18.500
NO-LOAD CURRENT I ₀	%	1	0,9	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,4	0,4	0,4
SHORT CIRCUIT VOLTAGE V _{cc}	%	4	4	4	4	4	6	6	6	6	6	6	6
INPUT CURRENT I _{E/IN}		11,6	10,6	10,10	9,2	9,4	9	8,4	8,4	8,8	8	7,6	7,5

OUTPUT AT 75°C

COSφ 1 100% LOAD	%	98,31	98,59	98,79	98,93	99,07	99,14	99,16	99,16	99,16	99,17	99,17	99,18
COSφ 1 75% LOAD	%	98,60	98,84	99,00	99,11	99,22	99,29	99,31	99,31	99,31	99,32	99,32	99,33
COSφ 0,9 100% LOAD	%	98,12	99,44	98,66	98,81	98,96	99,04	99,06	99,06	99,06	99,07	99,07	99,09
COSφ 0,9 75% LOAD	%	98,45	98,71	98,89	99,01	99,14	99,21	99,23	99,23	99,23	99,25	99,25	99,26

VOLTAGE DROP AT 75° C

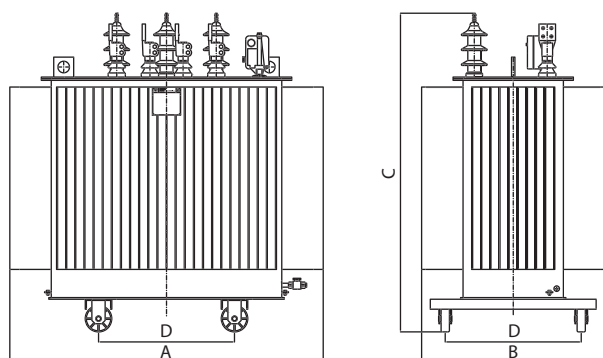
COSφ 1 100% LOAD	%	1,57	1,32	1,14	1,02	0,89	0,94	0,93	0,93	0,93	0,93	0,93	0,92
COSφ 0,9 100% LOAD	%	3,00	2,82	2,68	2,59	2,49	3,41	3,4	3,4	3,4	3,4	3,4	3,39

NOISE

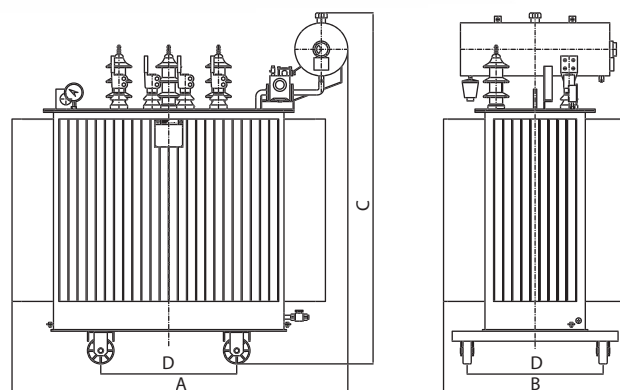
SOUND POWER LEVEL (L _{wa})	dB(A)	42	44	47	50	53	55	56	58	59	61	63	66
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SIZES AND WEIGHTS (APPROXIMATE)

Hermetically Sealed Transformer



Transformer with conservator



HERMETICALLY SEALED TRANSFORMER		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	950	1.000	1.050	1.150	1.250	1.600	1.750	1.750	1.850	1.900	2.200	2.250
DEPTH (B)	mm	530	600	600	600	600	900	1.000	1.000	1.100	1.100	1.200	1.300
HEIGHT (C)	mm	1.250	1.425	1.425	1.425	1.425	1.500	1.500	1.600	1.600	1.700	2.050	2.250
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	110	170	210	260	330	510	600	670	670	810	1.050	1.200
TOTAL WEIGHT	kg	570	800	1.025	1.300	1.625	2.300	3.000	3.150	3.250	4.150	5.200	5.850

TRANSFORMER WITH CONSERVATOR		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	950	1.000	1.050	1.150	1.250	1.600	1.750	1.750	1.850	1.900	2.200	2.250
DEPTH (B)	mm	530	600	600	600	600	900	1.000	1.000	1.100	1.100	1.200	1.300
HEIGHT (C)	mm	1.350	1.525	1.505	1.545	1.525	1.600	1.720	1.920	1.800	1.900	2.250	2.400
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	110	175	215	270	340	525	625	700	700	840	1.090	1.250
TOTAL WEIGHT	kg	575	810	1.040	1.320	1.645	2.320	3.020	3.175	3.275	4.180	5.250	5.900

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Losses Bo-Bk according to
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OIL-FILLED

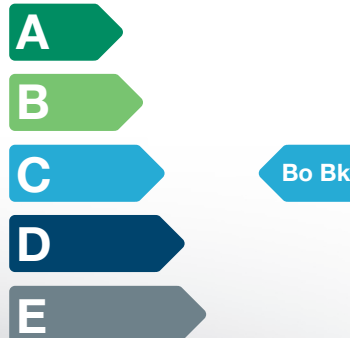
TR-PC

GENERAL INFORMATION

At present, the improvement of the energy efficiency cannot be considered a slogan anymore, but a need of our time.

TO-PC series high efficiency transformers are created for this purpose guaranteeing:

- savings in operating costs of the plant, due to low values of losses.
- consumption reduction of energy resources.
- reduction of CO₂ emissions



ANNUAL SAVINGS (MAXIMUM) COMPARED TO TRANSFORMERS WITH NORMAL LOSSES

RATED POWER kVA	50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LOW CONSUMPTION MWh	6,2	10,4	16,1	22,7	31,9	44,4	48,2	50,5	53,0	67,0	83,2	94,2
LOW EMISSIONS CO ₂ (TON)	4,6	7,8	12,1	17,0	23,9	33,3	36,1	37,8	39,7	50,3	62,4	70,6
ENERGY SAVINGS TOE*	1,2	1,9	3,0	4,2	6,0	8,3	9,0	9,4	9,9	12,5	15,6	17,6

* TON OF OIL EQUIVALENT

PARTICULARITIES OF AN OIL-FILLED TRANSFORMER

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DESCRIPTION

The oil-filled distribution transformers have the following features

- Cooling ONAN.
- They may be installed either inside or outside.
- Anti-corrosion surface treatment.
- Suitable for heavy working conditions.
- Tested according to IEC 60296 standards.



PROVIDED STANDARD ACCESSORIES

- Bushings for MV and LV connections.
- Primary voltage regulator with 5 positions installed on the tank.
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FROM 100 TO 2500 KVA WITH
INSULATION CL. 24 KV
LOSSES Bo - Bk ACCORDING TO
IEC EN 504641

Green
efficiency

OIL-FILLED
TO-PC

RATED POWER kVA		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
NO-LOAD LOSSES	W	110	180	260	360	520	680	800	940	1.150	1.450	1.800	2.150
LOAD LOSSES AT 75 °C	W	875	1.475	2.000	2.750	3.850	5.600	7.000	9.000	11.000	14.000	18.000	22.000
NO-LOAD CURRENT I ₀	%	1	0,9	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,4	0,4	0,4
SHORT CIRCUIT VOLTAGE V _{cc}	%	4	4	4	4	4	6	6	6	6	6	6	6
INPUT CURRENT I _{E/IN}		11,6	10,6	10,10	9,2	9,4	9	8,4	8,4	8,8	8	7,6	7,5

OUTPUT AT 75°C

COSφ 1 100% LOAD	%	98,07	98,37	98,61	98,77	98,92	99,01	99,03	99,02	99,04	99,04	99,02	99,04
COSφ 1 75% LOAD	%	98,22	98,67	98,86	98,99	99,11	99,20	99,22	99,21	99,12	99,22	99,21	99,23
COSφ 0,9 100% LOAD	%	97,86	98,19	98,45	98,64	98,80	98,90	98,93	98,91	98,93	98,94	98,91	98,94
COSφ 0,9 75% LOAD	%	98,25	98,53	98,73	98,88	99,02	99,11	99,13	99,12	99,14	99,14	99,12	99,15

VOLTAGE DROP AT 75° C

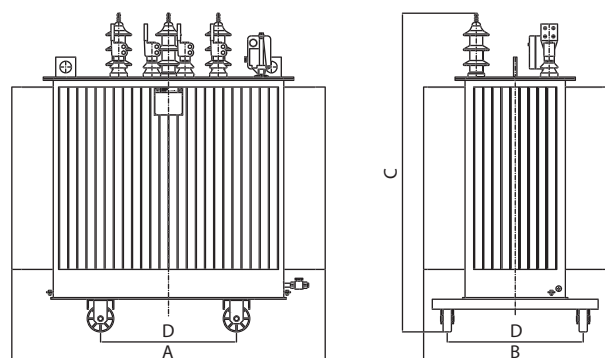
COSφ 1 100% LOAD	%	1,81	1,54	1,32	1,17	1,04	1,06	1,05	1,08	1,05	1,05	1,08	1,06
COSφ 0,9 100% LOAD	%	3,17	2,98	2,82	2,71	2,61	3,51	3,5	3,52	3,5	3,5	3,52	3,50

NOISE

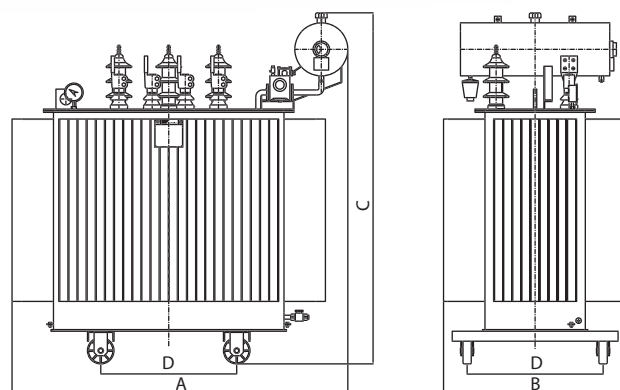
SOUND POWER LEVEL (L _{wa})	dB(A)	42	44	47	50	53	55	56	58	59	61	63	66
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SIZES AND WEIGHTS (APPROXIMATE)

Hermetically Sealed Transformer



Transformer with conservator



HERMETICALLY SEALED TRANSFORMER		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	850	950	1.050	1.150	1.250	1.600	1.650	1.700	1.750	1.850	2.350	2.200
DEPTH (B)	mm	530	600	600	700	700	900	1.000	1.000	1.100	1.100	1.200	1.300
HEIGHT (C)	mm	1.250	1.425	1.425	1.425	1.425	1.500	1.500	1.500	1.600	1.600	1.950	2.100
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	110	140	180	240	300	470	550	570	610	750	940	1.110
TOTAL WEIGHT	kg	550	720	825	1.175	1.475	2.100	2.500	2.750	3.000	3.700	4.650	5.300

TRANSFORMER WITH CONSERVATOR		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	950	1.000	1.050	1.150	1.250	1.600	1.750	1.750	1.850	1.900	2.200	2.250
DEPTH (B)	mm	530	600	600	600	600	900	1.000	1.000	1.100	1.100	1.200	1.300
HEIGHT (C)	mm	1.350	1.525	1.505	1.545	1.525	1.600	1.720	1.820	1.800	1.800	2.150	2.250
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	115	145	185	250	310	480	560	585	625	775	970	1.140
TOTAL WEIGHT	kg	555	730	840	1.190	1.495	2.120	2.520	2.780	3.030	3.730	5.700	5.350

MF *Trasformatori*

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WE SUPPORT



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At present, the improvement of the energy efficiency cannot be considered a slogan anymore, but a need of our time. TO-PD series high efficiency transformers are created for this purpose guaranteeing:

- savings in operating costs of the plant, due to low values of losses.
- consumption reduction of energy resources.
- reduction of CO₂ emissions



ANNUAL SAVINGS (MAXIMUM) COMPARED TO TRANSFORMERS WITH NORMAL LOSSES

RATED POWER kVA	50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LOW CONSUMPTION MWh	5,5	9,2	14,4	20,1	28,3	39,9	42,9	43,8	44,7	56,9	72,8	82,3
LOW EMISSIONS CO ₂ (TON)	4,1	6,9	10,8	15,1	21,2	29,9	32,2	32,9	33,5	42,7	54,6	61,8
ENERGY SAVINGS TOE*	1,0	1,7	2,7	3,8	5,3	7,5	8,0	8,2	8,4	10,6	13,6	15,4

* TON OF OIL EQUIVALENT

PARTICULARITIES OF AN OIL-FILLED TRANSFORMER

The extreme flexibility of the heat reducing waves present on the transformer tank, allows to compensate the volume increases of the insulating fluid related to its operating temperature.

The leak-proofness of the transformer tank prevents the absorption of humidity, making it "Maintenance free".

Reference Norms :

- CEI EN 60067-1 to 10
- CEI EN 50464-1

The phases of design and building, in addition to their compliance with IEC EN norms, take into account the following rules:

- ISO 9001 : 2008 regarding the quality standards and procedures.
- ISO 14001 : 2004 regarding the environmental issues.

MF TRASFORMATORI guarantees the use of PCB free insulating fluids. The magnetic core is built of grain-oriented electrical steel sheets and they use the step lap technique for their cut and assembly to reduce the abnormal overheating risks and to decrease the noise.

The coils are designed and built so that the transformer may operate on full-load conditions in strict compliance with A thermal class.

Note: on request, we may provide transformers with the same electrical features but with a conservator.

DESCRIPTION

The oil-filled distribution transformers have the following features

- Cooling ONAN.
- They may be installed either inside or outside.
- Anti-corrosion surface treatment.
- Suitable for heavy working conditions.
- Tested according to IEC 60296 standards.



PROVIDED STANDARD ACCESSORIES

- Bushings for MV and LV connections.
- Primary voltage regulator with 5 positions installed on the tank.
- Rating plate.
- Lifting lugs.
- 2 Earthing points.
- 4 Bi-directional flat rollers.
- Filling valve.
- Drain valve according to IEC EN 50216-4.

RATED POWER kVA		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
NO-LOAD LOSSES	W	190	320	460	650	930	1.200	1.400	1.700	2.100	2.600	3.100	3.500
LOAD LOSSES AT 75 °C	W	875	1.475	2.000	2.750	3.850	5.600	7.000	9.000	11.000	14.000	18.000	22.000
NO-LOAD CURRENT I _o	%	1	0,9	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,4	0,4	0,4
SHORT CIRCUIT VOLTAGE VCC	%	4	4	4	4	4	6	6	6	6	6	6	6
INPUT CURRENT I _{E/IN}		11,6	10,6	10,10	9,2	9,4	9	8,4	8,4	8,8	8	7,6	7,5

OUTPUT AT 75°C

COSφ 1 100% LOAD	%	97,91	98,24	98,49	98,66	98,82	98,93	98,96	98,94	98,96	98,97	98,96	98,99
COSφ 1 75% LOAD	%	98,21	98,49	98,70	98,84	98,98	99,09	99,12	99,11	99,12	99,13	99,13	99,16
COSφ 0,9 100% LOAD	%	97,69	98,04	98,32	98,51	98,69	98,81	98,85	98,83	98,85	98,83	98,84	98,88
COSφ 0,9 75% LOAD	%	98,02	98,33	98,55	98,71	98,87	98,99	99,02	99,01	99,03	99,02	99,03	99,07

VOLTAGE DROP AT 75° C

COSφ 1 100% LOAD	%	1,81	1,54	1,32	1,17	1,04	1,06	1,05	1,08	1,05	1,05	1,08	1,06
COSφ 0,9 100% LOAD	%	3,17	2,98	2,82	2,71	2,61	3,51	3,5	3,52	3,5	3,5	3,52	3,50

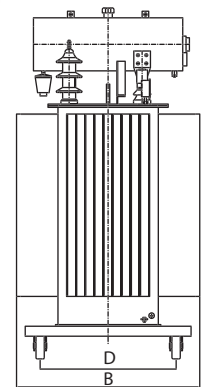
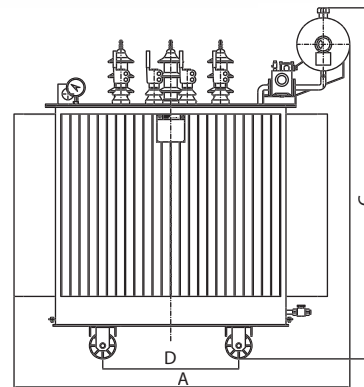
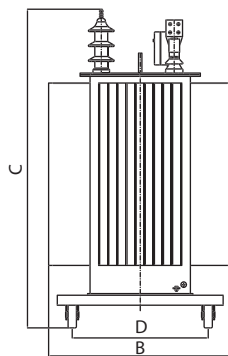
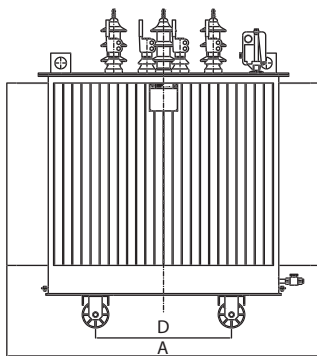
NOISE

SOUND POWER LEVEL (L _{wa})	dB(A)	55	59	62	65	68	70	71	73	74	76	78	81
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SIZES AND WEIGHTS (APPROXIMATE)

Hermetically Sealed Transformer

Transformer with conservator



HERMETICALLY SEALED TRANSFORMER		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	850	1.000	1.050	1.150	1.250	1.550	1.600	1.700	1.800	1.900	2.100	2.200
DEPTH (B)	mm	500	600	600	700	700	900	900	1.000	1.100	1.200	1.200	1.200
HEIGHT (C)	mm	900	900	1.000	1.200	1.300	1.400	1.500	1.500	1.500	1.600	1.900	1.950
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	90	130	170	230	270	430	520	580	610	730	930	1.000
TOTAL WEIGHT	kg	460	585	750	1.100	1.375	1.910	2.300	2.600	2.900	3.650	4.300	5.100

TRANSFORMER WITH CONSERVATOR		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	850	1.000	1.050	1.150	1.250	1.550	1.600	1.700	1.800	1.900	2.100	2.200
DEPTH (B)	mm	500	600	600	700	700	900	900	1.000	1.100	1.200	1.200	1.200
HEIGHT (C)	mm	1.000	1.000	1.080	1.320	1.400	1.500	1.720	1.820	1.700	1.800	2.100	2.100
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	90	130	170	240	280	440	530	590	625	745	950	1.020
TOTAL WEIGHT	kg	465	595	765	1.115	1.395	1.930	2.320	2.620	2.930	3.680	4.350	5.100



GENERAL INFORMATION

The regulations push more and more the efficiency improvement. The products offered to our customers allow energy savings and comply with the new product regulations.

All this leads to higher performance transformers allowing our customers to obtain:

- Plants management cost savings due to low values of losses.
- Energy resources consumption reduction.



RATED POWER kVA OUTPUT AT 75°C

	50	100	160	250	400	630	800	1000	1250	1600	2000	2500
COSφ 1 100% LOAD	97,01	97,59	97,82	98,10	98,30	98,45	98,53	98,55	98,57	98,62	98,57	98,60
COSφ 1 50% LOAD	97,93	98,31	98,48	98,66	98,80	98,94	99,00	99,02	99,03	99,06	99,05	99,09

PARTICULARITIES OF AN OIL-FILLED TRANSFORMER

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LOAD LOSSES AT 75 °C	W	1.350	2.150	3.100	4.200	6.000	8.700	10.500	13.000	16.000	20.000	26.000	32.000
NO-LOAD CURRENT I _o	%	1	0,9	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,4	0,4	0,4
SHORT CIRCUIT VOLTAGE VCC	%	4	4	4	4	4	6	6	6	6	6	6	6
INPUT CURRENT I _{E/IN}		11,6	10,6	10,10	9,2	9,4	9	8,4	8,4	8,8	8	7,6	7,5

OUTPUT AT 75°C

COSφ 1 100% LOAD	%	97,01	97,59	97,82	98,10	98,30	98,45	98,53	98,55	98,57	98,62	98,57	98,60
COSφ 1 75% LOAD	%	97,53	98,00	98,20	98,42	98,59	98,73	98,80	98,81	98,83	98,86	98,83	98,87
COSφ 0,9 100% LOAD	%	96,69	97,33	97,59	97,89	98,11	98,28	98,37	98,39	98,42	98,45	98,41	98,45
COSφ 0,9 75% LOAD	%	97,26	97,78	98,00	98,25	98,43	98,59	98,67	98,68	98,70	98,73	98,70	98,74

VOLTAGE DROP AT 75° C

COSφ 1 100% LOAD	%	2,74	2,21	2,00	1,75	1,37	1,55	1,48	1,47	1,45	1,42	1,47	1,45
COSφ 0,9 100% LOAD	%	3,73	3,43	3,30	3,13	3	3,9	3,84	3,83	3,82	3,8	3,83	3,82

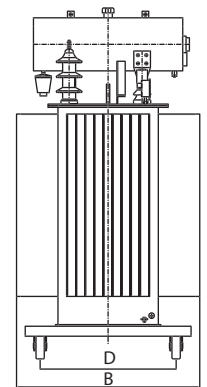
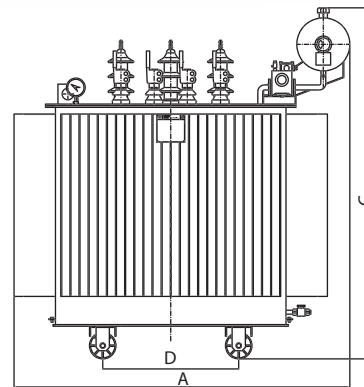
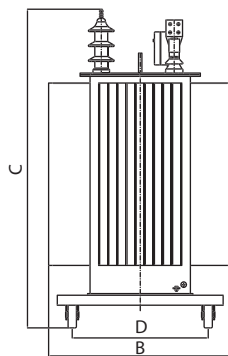
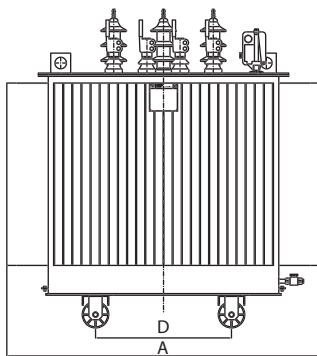
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Transformer with conservator



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DEPTH (B)	mm	500	600	600	700	800	900	900	1.000	1.100	1.100	1.200	1.300
HEIGHT (C)	mm	800	900	1.000	1.100	1.200	1.300	1.300	1.400	1.400	1.500	1.800	1.850
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	80	110	140	200	240	370	410	480	560	650	810	860
TOTAL WEIGHT	kg	400	500	650	910	1.200	1.625	1.850	2.250	2.550	3.150	3.750	4.300

TRANSFORMER WITH CONSERVATOR		50	100	160	250	400	630	800	1000	1250	1600	2000	2500
LENGTH (A)	mm	850	900	1.000	1.100	1.250	1.500	1.550	1.650	1.800	1.850	2.100	2.150
DEPTH (B)	mm	500	600	600	700	800	900	900	1.000	1.100	1.100	1.200	1.300
HEIGHT (C)	mm	900	1.000	1.080	1.220	1.300	1.400	1.520	1.720	1.600	1.700	2.000	2.000
WHEEL INTERAXIS (D)	mm	400	520	520	520	670	670	820	820	820	820	1.000	1.000
WHEEL DIAMETER	mm	150	150	150	150	150	150	150	150	150	150	150	150
OIL WEIGHT	kg	85	115	145	205	240	380	420	495	575	675	835	885
TOTAL WEIGHT	kg	405	510	660	920	1.220	1.650	1.875	2.275	2.580	3.180	3.800	4.350

