TRANSFORMER MANUFACTURING REPAIR,MAINTENANCE



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DISTRIBUTION & POWER TRANSFORMERS TECHNOLOGY
YILDIRIM
TRANSFORMERS TECHNOLOGY



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YILDIRIM TRANSFORMATÖR SANAYİ VE TİCARET LTD ŞTİ., from the day of its establishment, has always adopted the fundamental philosophy of driving toward better through the use of mental, science and technology elements. Vibrant senior management, the dynamism of the young staff and their production capabilities, backed by robust engineering information, help YILDIRIM TRANSFORMATÖR LTD ŞTİ. make a difference in the industry every day.
Yıldırım TRANSFORMATÖR product portfolio, oil-lubricated power and distribution transformers up to 2500KVA in the voltage class of 36kV are exported across four continents to more than forty countries, mainly Turkmenistan,Jordan, Nigeria, Iraq, Egypt.

Yıldırım TRANSFORMATÖR, ısa 9001 :2008 Quality Management System performs production within the framework of ısa 14001 :2004 Environmental Management System.

We manufacture transformers for many industries as well as electrical distribution organizations to match our customer demand. Some of them include oil chemistry plants, cement plants, iron steel plants, infrastructure facilities, renewable energy projects. Our transformers are used in almost every city in Turkey, in forty-four countries, and in many fields.

Every product is meticulously prepared and controlled from its design to its shipment with our staff and their accessories. We act with awareness of our responsibilities to the environment in all our productions and try to contribute to the protection of our environment and nature by using products with reduced losses.
Our references are the assurance of our commitments. We would be honoured to serve you.

We are the BEST



Windings

They are wound in modern winding machines. Distribution Transformers Windings: The low voltage winding conductor is copper or aluminium. Layer insulation in sheet windings is provided with thermally improved resin paper (DPP). The High Voltage winding conductor is copper or aluminium. Windings are enamelled coated round copper or aluminium wire, insulated paper coated flat copper or aluminium wire. Layer windings are wound with computer-controlled fully automatic machines, layer insulation is created in wedge form with strip-shaped electrical insulation papers (electrical craft, thermally improved craftand resin thermal paper).

This layer insulation structure increases the strength of the winding against excessive voltage pulses and this method leads to the production of solid coils with excellent properties. Power Transformers Windings: The low voltage and high voltage winding conductor is copper. Windings are wound using insulated paper coated copper wire as fold winding, continuous disk winding, helical winding or screw winding depending on transformer power.

Transformer Core

The transformer core is manufactured from cold drawn and crystals oriented. siliceous sheet. it is composed of ZDHK, MOH, M1, M2, M3, M4and M5quality electrical silica sheets depending on the unloaded losses requested by the customer. These metal sheets are sliced with zero burrs and lengthened as desired with modern sized cutting machines. it is possible to create the cores in all shapes as step-pap, overlap, 90° cut forms, with and without perforations.

Active part and cap

The core coil and cap assembly are formed in a manner that shall withstand the foreseen short circuit mechanical forces. in standard transformers, the active part including the cap is fastened to the boiler with bolts; there are also active part applications fastened directly to the boiler; depending on the customer request, transformers are also manufactured in this application. AII fasteners on the cap and HV bushing arcing horns are made of specially coated material that may be stainless or corrosion-resistant. Cap top arrangement is created according to insulators, hood, accessories, customer requests and specifications.



Boiler

Transformer boilers and caps are manufactured from medium hardened steel. in Distribution Transformers, boiler surfaces also consist of wave wall panels fulfilling coolant function. The pan part of the tank is joined by boiling walls and frame. it is also possible to use radiator groups with various slices as cooling surfaces. Generally, removable radiator groups are used in Power Transformers.
it is also possible to use wave wall panels as coolant surfaces in transformers up to4000 KVA. Each boilerwhose welding is completed is taken to pressure test before being painted. If there are welding leakage points, they are detected and leakages are eliminated. Each boiler and cap whose workmanship is completed is subjected to sandblasting process. The standard sandblasting procedure applied complies with the DiN norm.
If the customer has a special request or specification value related to sandblasting, this can be provided. it is possible to cover the boilers with hot-dip galvanized method when desired. IEC 144 STD depending on customer request. Suitable protective box made of sheet metal can close bushings on the cover or cable boxes can be mounted on transformer side surfaces in accordance with 8S2562.

Painting, Drying and Lubrication

Boilers whose production is completed are painted with spray method. The standard painting consists of a primer and two coats of final paint. The total film thickness is not less than 10 5µ. The standard transformer colour is RAL7033 , called cement grey. it is possible to paint in different structures (such as zinc coating}, different thickness and different colour codes depending on the customer's request.



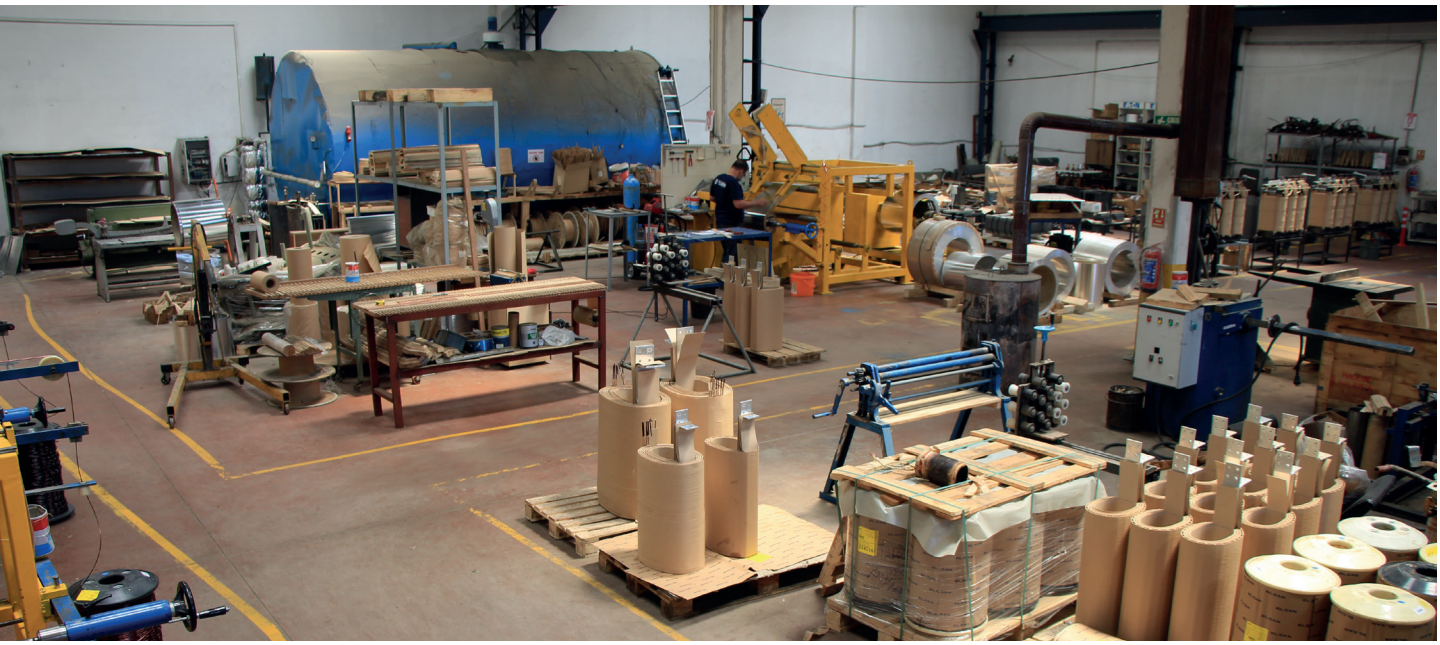
Expansion Storage Type Transformers

Expansion Storage Type Transformers Voltage levels: 1 kV-6.3kV-15.8kV-34.5kV Expansion tank transformers are the same as the core and coil structure and hermetic transformers.

As the transformers with expansion tank are open to the atmosphere, air exchange is ensured by taking the humidity of the air thanks to the oil pressure changing due to thermal effects and the silica gel (air dryer) in the transformer tank.

Hermetic Type Transformers

Voltage levels: 1 kV-6.3kV-15.8kV-34.SkV
Oil-type distribution transformers are manufactured with up to 36 kV high voltage level in 25-2500 KVA POWER RANGE three- or single-phase, lubrication, natural-cooled (ONAN), idle stage changer or automatic stage changer under load, both externally and internally. Hermetic oil type distribution transformers are manufactured with the principles of oil filling under vacuum and balancing oil pressure and atmospheric pressure at the desired temperature and refrigeration oil not coming into contact with the atmosphere.
Hermetic oil type distribution transformers have lower heights compared to the transformers with expansion tank. For this reason, it can be used in smaller areas.
As oil does not come into contact with the atmosphere in hermetic transformers, it does not require an oil change at certain periods as in transformers with expansion tank.



Maintenance, Repair & Services

it offers transformer repair and maintenance services in our factory and engineering and on-site maintenance services outside the factory. These services are provided without compromising our quality with our expert staff and test team. Our company can provide on-site maintenance and repair service to transformers with various power and voltages.

Transformer Repair

Our company provides transformer repair maintenance and repair services at ou r factory.

- Renewal of coils and windings
- Renewal of the Isolation oil
- Renewal & repair of core
- Boiler, cap and tank repair
- Paint, vacuum and drying operations are performed at our factory.

On-site Maintenance

The maintenance and repair of transformers in your facilities or mains are carried out on-site with our technical team.

- Transformer tests
- Oil treatment
- Replacement of gasket, packing, ete.
- Elimination of oil leaks
- General transformer clean-up
- Transformer painting is operations are performed at our factory.

Laboratory

At our factory, we perform our testing in the laboratory environment with our experienced teams.

- Measuring Winding Resistance.
- Measuring the voltage reversal ratio and measuring the phase difference.
- Measuring short-circuit impedance and loss of load.
- Measuring the loss and current without load.
- Voltage test applied.
- Induced voltage AA test.
- Measuring Insulation resistance.
- Insulating liquids - determination of the pitting voltage at the power frequency.



Accreditation

The general purpose of TURKAK's ACCREDITATION is to increase the welfare of the society by ensuring that healthy and quality products are circulated in the domestic and international markets. Türkak also performs conformity assessment inspection and control in neighboring countries besides Turkey.

Our laboratory performs testing services as an approved laboratory with the assurance of TÜRKAK accreditation. From production to the final stage, intermediate tests and quality control processes of the products are carried out under the supervision of the laboratory.

We carry out all our product tests and services meticulously within the framework of our laboratory quality policy. Click for Laboratory Quality Policy.

We have accreditation services within the TSE standards stated below.

TS EN 17025 General Requirements for the Competence of Experiment and Calibration Laboratories

TS EN 60076-1 Power Transformers –
Part 1: General

TS EN 60076-2 Power Transformers -
Part 2: Temperature Rise for Liquid Immersed Transformers

TS EN 60076-3 Power Transformers –
Part 3: Insulation Levels, Dielectric Tests and External Insulation Ranges in Air

TS 3989 EN 60156 – Determination of Breakdown Voltage of Insulating Liquids at Power Frequency

Our laboratory can perform routine tests of transformers from 50 kVA to 2000 kVA.

Measuring Winding Resistance	TS EN 60076-1
Measurement of Voltage Conversion Ratio and Control of Phase Difference	TS EN 60076-1
Measuring Short Circuit Impedance and Loss in Load	TS EN 60076-1
Measuring No-Load Loss and Current	TS EN 60076-1
Applied Voltage Test	TS EN 60076-3
Induced Voltage Test	TS EN 60076-3
Temperature Rise for Liquid Immersed Transformers	TS EN 60076-2
Measuring DC Insulation Resistance Between Each Winding and Ground and Between Windings	TS EN 60076-1
Pressure Leak Test for Liquid Immersed Transformers	TS EN 60076-1
Measurement of No-Load Loss and Current at 90% and 110% of Rated Voltage	TS EN 60076-1
Insulating Fluids – Determination of Breakdown Voltage at Power Frequency	TS 3989 EN 60156



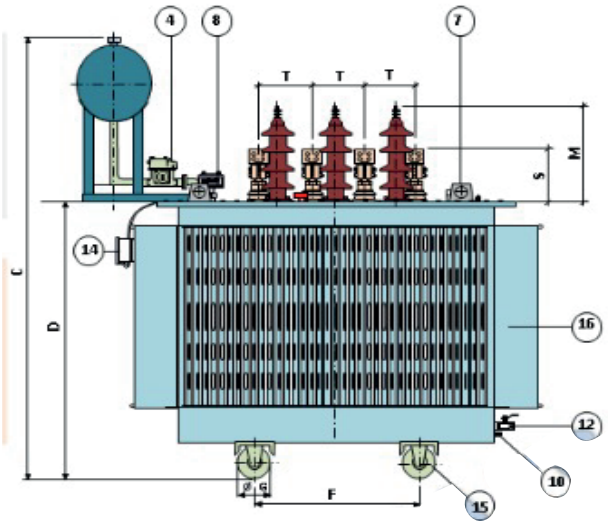


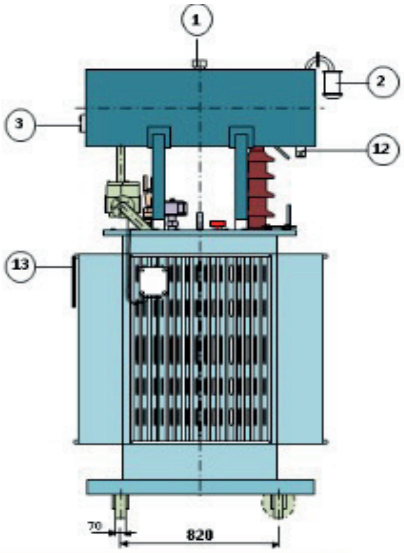


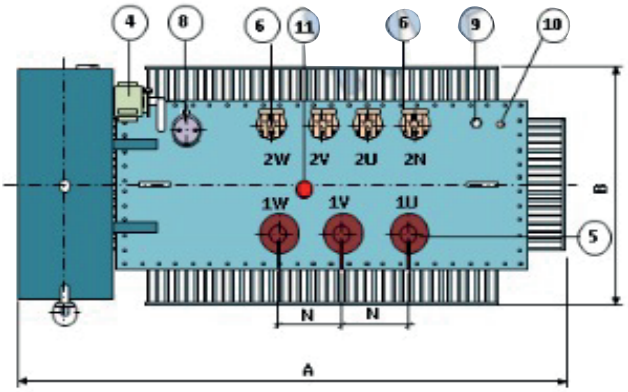
MAIN DIMENSIONS OF HERMETIC TYPE
25 kVA 2500 kVA STANDARD TRANSFORMERS

POWER	RATED VOLTAGE	OIL WEI-GHT	TOTAL WEIGHT	LENGTH A	WIDTH B	HIGHT C	D	F	N	T
25	6,3-10,5	130	540	935	680	1170	700	520	210	150
	15,8	130	540	935	680	1245	700	520	220	150
	33	120	540	920	730	1365	720	520	290	15
40	6,3-10,5	150	650	975	730	1230	760	520	265	150
	15,8	150	650	875	730	1305	760	520	265	150
	33	145	540	905	785	1450	805	520	330	150
50	6,3-10,5	170	685	1000	750	1240	770	520	265	150
	15,8	170	685	1000	750	1315	770	520	265	150
	33	155	570	920	800	1470	825	520	330	150
63	6,3-10,5	190	760	1020	750	1280	810	520	265	150
	15,8	190	760	1020	750	1355	810	520	265	150
	33	165	625	935	800	1490	845	520	265	150
80	6,3-10,5	210	840	1055	750	1325	850	520	265	150
	15,8	210	840	1055	750	1400	850	520	265	150
	33	180	685	955	810	1510	865	520	330	150
100	6,3-10,5	240	980	1100	750	1385	910	520	265	150
	15,8	240	980	1100	750	1460	910	520	265	150
	33	200	780	980	815	1540	895	520	350	150
125	6,3-10,5	255	1155	1150	750	1425	950	520	265	150
	15,8	255	1155	1150	750	1500	950	520	265	150
	33	220	890	1010	820	1575	930	520	350	150
160	6,3-10,5	280	1345	1210	750	1480	1000	520	265	150
	15,8	280	1345	1210	750	1555	1000	520	265	150
	33	245	1015	1060	830	1620	970	520	350	150
200	6,3-10,5	300	1450	1275	780	1525	1050	520	265	150
	15,8	300	1450	1275	780	1600	1050	520	265	150
	33	270	1130	1250	830	1645	990	520	350	150
250	6,3-10,5	325	1580	1355	700	1625	1105	520	265	150
	15,8	325	1580	1355	700	1700	1105	520	265	150
	33	290	1250	1550	700	1710	1015	520	350	150
315	6,3-10,5	390	1975	1500	720	1690	1170	670	330	150
	15,8	390	1975	1500	720	1765	1170	670	330	150
	33	360	1555	1590	765	1805	1105	670	350	150
400	6,3-10,5	465	2390	1660	740	1820	1250	670	330	150
	15,8	465	2390	1660	740	1895	1250	670	330	150
	33	440	1875	1640	840	1950	1220	670	350	150

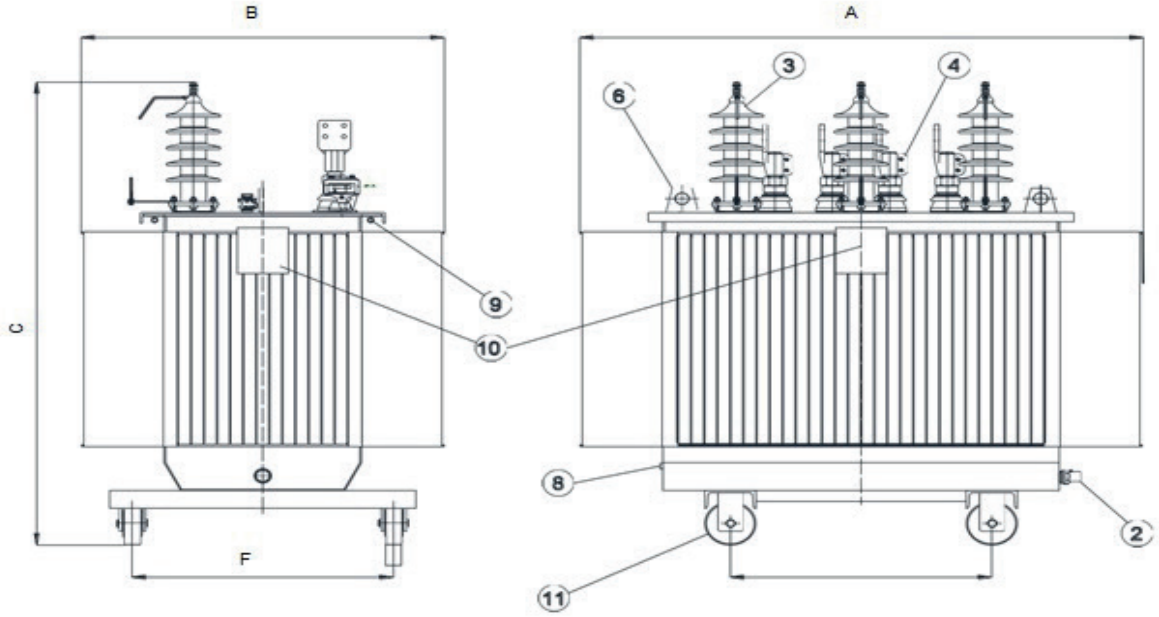
POWER	RATED VOLTAGE	OIL WEI-GHT	TOTAL WEIGHT	LENGTH A	WIDTH B	HIGHT C	D	F	N	T
500	6,3-10,5	510	2750	1680	915	1835	1300	670	330	200
	15,8	510	2750	1680	915	1910	1300	670	330	200
	33	520	2250	1700	895	2020	1270	670	350	200
630	6,3-10,5	570	3115	1700	1100	1875	1360	670	330	200
	15,8	570	3115	1700	1100	1950	1360	670	330	200
	33	605	2650	1700	970	1950	1320	670	350	200
800	6,3-10,5	630	3245	1800	950	1980	1375	820	400	220
	15,8	630	3245	1800	950	2055	1375	820	400	220
	33	730	3100	1840	1050	2155	1370	820	400	220
1000	6,3-10,5	755	4120	1950	980	2155	1545	820	400	230
	15,8	755	4120	1950	980	2230	1545	820	400	230
	33	770	3525	2005	1035	2210	1425	820	400	230
1250	6,3-10,5	810	4700	1900	1100	2190	1580	820	400	240
	15,8	810	4700	1900	1100	2265	1580	820	400	240
	33	885	3880	2000	1170	2255	1470	820	400	240
1600	6,3-10,5	900	4845	1900	1140	2215	1605	820	400	240
	15,8	900	4845	1900	1140	2290	1605	820	400	240
	33	1000	4645	2070	1330	2410	1580	820	400	240
2000	6,3-10,5	1100	6030	2205	1300	2285	1625	1000	400	250
	15,8	1100	6030	2205	1300	2360	1625	1000	400	250
	33	1085	5240	2100	1385	2465	1630	1000	400	250
2500	6,3-10,5	1335	7145	2150	1400	2315	1655	1000	400	260
	15,8	1335	7145	2150	1400	2390	1655	1000	400	260
	33	1330	6720	2270	1475	2485	1650	1000	400	260



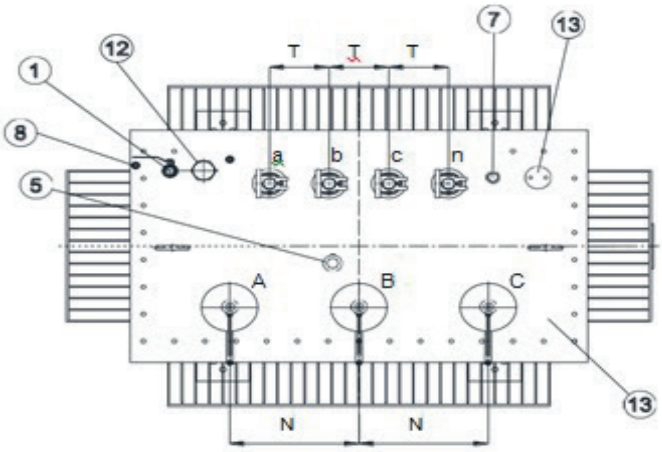




1- Oil filling pipe
2- Slicagel for dehydrating breather
3- Oil level indicator
4- Buchholz relay
5- H.V. Bushings
6- L.V. Bushings
7- Lifting lugs
8- Double contact thermometer
9- Thermometer pocket
10- Earthing screws
11- Off load tap changer
12- Oil drain screws
13- Rating plate
14- Terminal box
15- Wheels
16- Corrugated walls

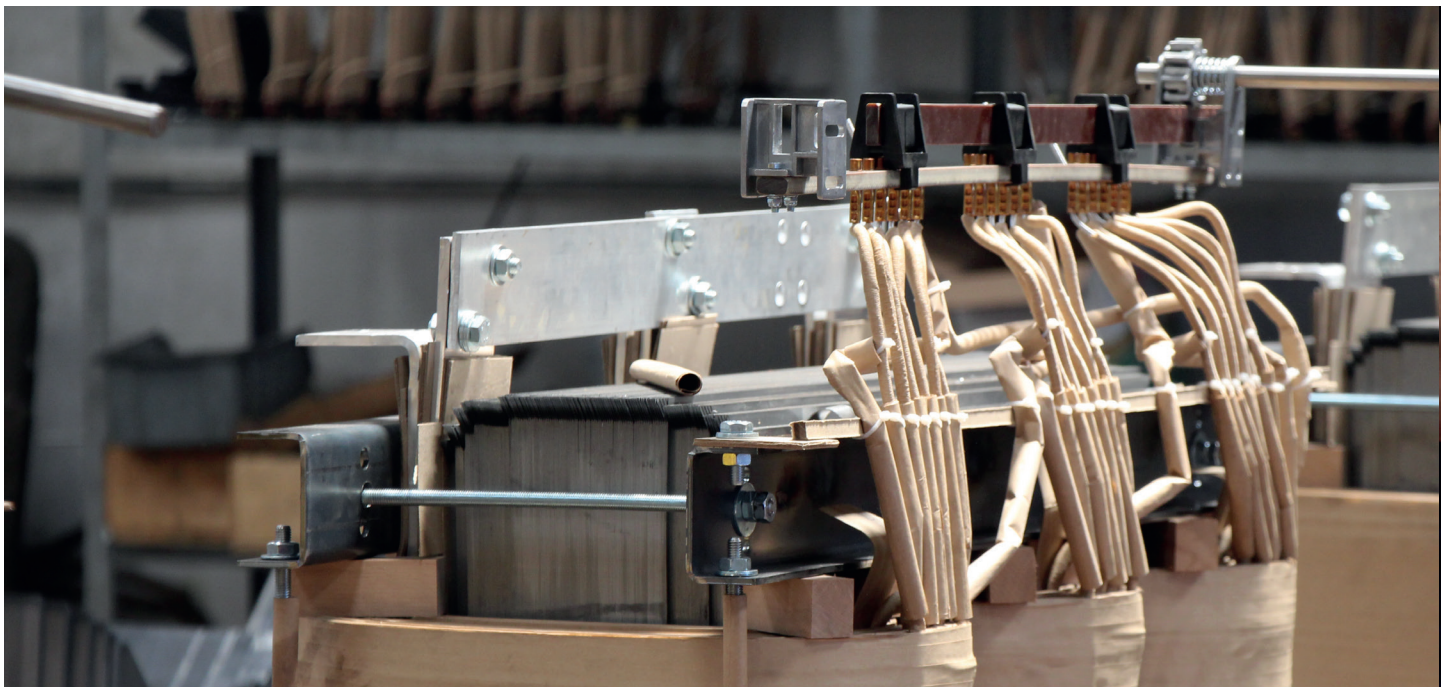


1) Oil filling valve
2) Oil drain valve
3) HV bushing
4) LV bushing
5) Tap changer
6) Lifting lugs
7) Oil level indicator
8) Earthing bolt
9) Eye bolt
10) Rating plate
11) Wheels
12) Pressure relief device
13) Thermometer

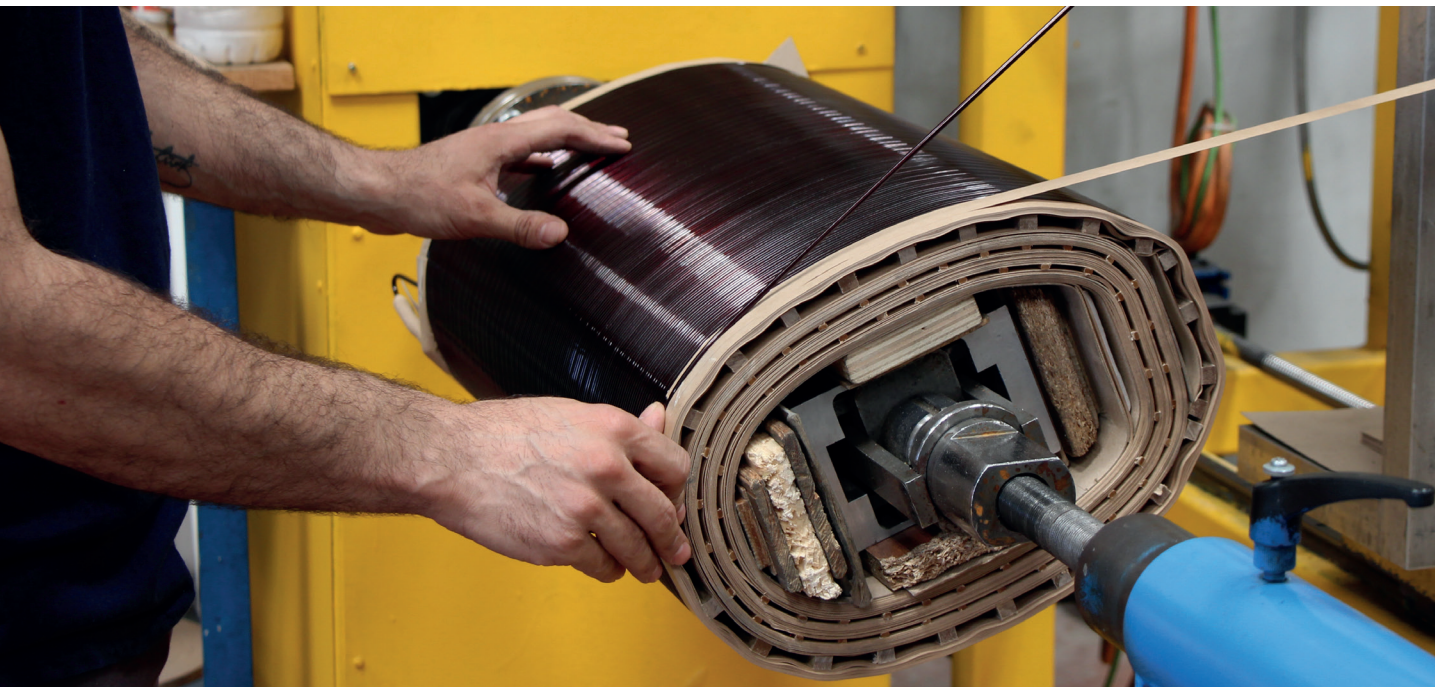


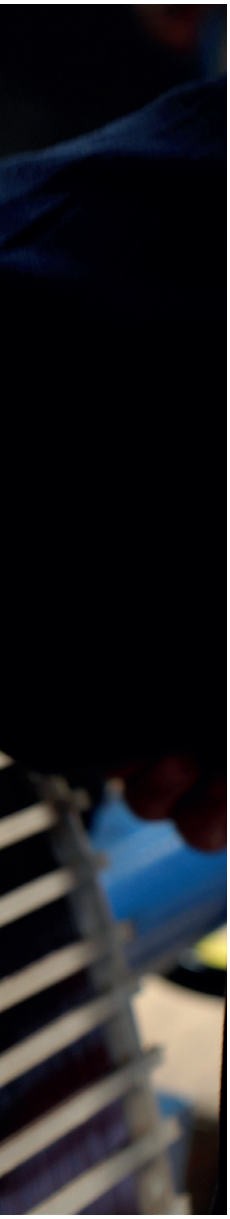
POWER	RATED VOLTAGE	NO LOAD CURRENT Io	LOAD LOSSES	NO LOAD LOSSES
kVA	kV	%	W	W
25	6,3-10,5	2,5	550	65
	15,8	2,5	550	65
	33	3,15	700	110
40	6,3-10,5	2,4	650	80
	15,8	2,4	650	80
	33	2,92	900	135
50	6,3-10,5	2,3	750	90
	15,8	2,3	750	90
	33	2,76	1050	160
63	6,3-10,5	2,25	900	110
	15,8	2,25	900	110
	33	2,62	1225	195
80	6,3-10,5	2,2	1050	125
	15,8	2,2	1050	125
	33	2,5	1400	225
100	6,3-10,5	2,1	1250	145
	15,8	2,1	1250	145
	33	2,27	1650	270
125	6,3-10,5	2	1475	175
	15,8	2	1475	175
	33	2,14	1900	330
160	6,3-10,5	1,9	1700	210
	15,8	1,9	1700	210
	33	2	2150	390
200	6,3-10,5	1,9	2025	255
	15,8	1,9	2025	255
	33	1,9	2575	470
250	6,3-10,5	1,6	2350	300
	15,8	1,6	2350	300
	33	1,8	3000	550
315	6,3-10,5	1,5	2800	365
	15,8	1,5	2800	365
	33	1,7	3575	670

POWER	RATED VOLTAGE	NO LOAD CURRENT Io	LOAD LOSSES	NO LOAD LOSSES
kVA	kV	%	W	W
400	6,3-10,5	1,5	3250	430
	15,8	1,5	3250	430
	33	1,7	4150	790
500	6,3-10,5	1,4	3950	520
	15,8	1,4	3950	520
	33	1,6	4850	950
630	6,3-10,5	1,4	4600	600
	15,8	1,4	4600	600
	33	1,6	5500	41100
800	6,3-10,5	1,3	6000	650
	15,8	1,3	6000	650
	33	1,5	7000	1300
1000	6,3-10,5	1,2	7600	770
	15,8	1,2	7600	770
	33	1,4	8900	1450
1250	6,3-10,5	1,2	9500	950
	15,8	1,2	9500	950
	33	1,4	11500	1750
1600	6,3-10,5	1,1	12000	1200
	15,8	1,1	12000	1200
	33	1,3	14500	2200
2000	6,3-10,5	1,1	15000	1450
	15,8	1,1	15000	1450
	33	1,2	18000	2700
2500	6,3-10,5	1	18500	1750
	15,8	1	18500	1750
	33	1,1	22500	3200

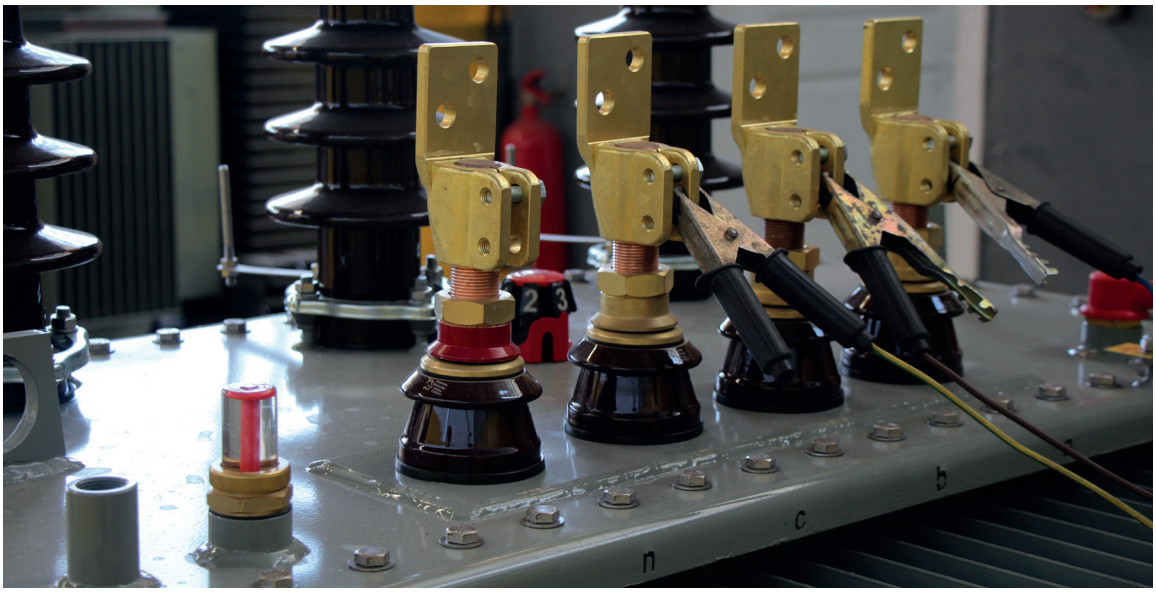














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