



Lemi Trafo[®]

PROFIL KOMPANIJE

COMPANY PROFILE



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LEMI TRAF0

LEMI TRAF0 je osnovana 1996. godine, sa obimom delatnosti - proizvodnja i trgovina elektrotehničkim materijalima i proizvodnja električne opreme. Postepeno se delatnost uvećavala i kompanija je kupila zavod za električne remonte u industrijskoj zoni grada Pernik, sa ukupnom izgrađenom površinom od 8000m². Tokom nekoliko godina pogon je potpuno rekonstruisan i opremljen savremenim mašinama i opremom za proizvodnju uljnih distributivnih transformatora. Kao rezultat odlične saradnje između kompanije LEMI TRAF0 i svetski poznate grupe TMC Transformers, kao i sve većeg interesovanja za suve transformatore, osnovano je Društvo sa ograničenom odgovornošću pod imenom TMC Bulgaria, sa obimom delatnosti – proizvodnja suvih transformatora zalivenih smolom. Za potrebe nove kompanije izgrađena je fabrika pored kompanije LEMI TRAF0, sa površinom od 2800m² i mogućnošću za proširenje do 8000m². Fabrika je opremljena neophodnim mašinama i savremenom laboratorijom za ispitivanje, što garantuje kvalitet proizvedenih transformatora.

Danas je LEMI TRAF0 poznata kompanija, ne samo u Bugarskoj, već i na međunarodnom tržištu. Sa našim stabilnim razvojem i savršenim timom težimo da ojačamo naše pozicije i da povećamo broj naših klijenata. Naša želja da ispunimo sve zahteve klijenata, kao i da obezbedimo kvalitetan proizvod, razlozi su zbog kojih smo okarakterisani kao kompanija koju odlikuju tačnost, kvalitet i konkurentne cene.



LEMI TRAF0

LEMI TRAF0 was created in 1996, with a scope of activity - production and trade with electrical materials, as well as construction of electrical equipments. Gradually the activity enlarges and the company purchases an electrical-repair plant in the industrial area of Pernik town, with a total built-up area of 8000m². In the course of a few years the plant was basically reconstructed and equipped with modern machines and installations for production of oil-immersed distribution transformers. In result of the excellent cooperation between LEMI TRAF0 and the world-famous group TMC Transformers, as well as the growing interest towards the dry-type transformers it was established Limited Liability Company called TMC Bulgaria with scope of activity – production of cast resin transformers. For the needs of the new company was built a plant next to LEMI TRAF0, with an area of 2800m² and a possibility for expansion till 8000m². The plant was equipped with the necessary installations and modern testing-room, which guarantees the quality of the produced transformers.

Today LEMI TRAF0 is well-known company, not only in Bulgaria, but also at the International market. With our stable development and perfect team we are aspired to strengthen our positions and to increase our clients. Our desire to fulfill the requirements of the clients, as well as to provide a qualitative product is the reason that we are defined like a company distinctive with correctness, quality and competitive prices.





CERTIFICATES



Kao odgovor na visoke zahteve klijenata po pitanju kvaliteta proizvedenih transformatora i u skladu sa međunarodnim trendovima, LEMI TRAF0 je podneo aplikaciju kod kompanije Bureau Veritas Certification, kao vodeće i bezuslovno priznate globalne sertifikacione organizacije, kako bi usvojila sistem menadžmenta. Nakon uspešne inspekcije, kompanija LEMI TRAF0 je dobila sertifikat za Sistem upravljanja kvalitetom ISO 9001:2000. U narednih nekoliko godina usvojili smo i sisteme za Uslove bezbednosti i zdravlja na radu OHSAS 18001:1999 i za Upravljanje zaštitom životne sredine ISO 14001:2004. Sve to nas navodi da verujemo da će naši klijenti biti u potpunosti zadovoljni kvalitetom ponuđenih transformatora.

TRAF0 CONTROL

Brz rast kompanije i usmeravanje naših napora na proizvodnju distributivnih transformatora dovela je do potrebe za stvaranjem inspeksijskog tela koje bi nam omogućilo da izvršimo ispitivanja na proizvedenim transformatorima. U tu svrhu stvorena je nezavisna služba u kompaniji LEMI TRAF0 pod nazivom „TRAF0 Control“ koja je ovlašćena za kontrolu od tipa C i akreditovana od

strane Bugarske akreditacione službe (BAS) akreditacionim sertifikatom br. 142 OKC, sa sledećim opsegom delovanja:

Kontrola nad:

- Električnim instalacijama i opremom za napon do 1000V
- Električnim instalacijama i opremom za napon do i preko 1000V
- Električnim motorima za naizmeničnu i jednosmernu struju do 1000V
- Električnim zaštitnim uređajima
- Energetskim vodovima za napone do i preko 1000V
- Energetskim transformatorima do 35kV
- Mernim transformatorima do 20kV
- Transformatorskim uljem

In response to the high requirements from the customers' side concerning the quality of the produced transformers and in conformity with the international trends, LEMI TRAF0 applied to Bureau Veritas Certification as leading and unconditionally admitted world-wide certifying organization, in order to adopt a management system. After a successful audit LEMI TRAF0 acquired a certificate for Quality management system ISO 9001:2000. In the next few years we adopted also systems for Safety and Health Conditions of Labour OHSAS 18001:1999 and for the Environmental Management ISO 14001:2004. All of this makes us to believe that our customers will be at most satisfied with the quality of the offered transformers.

TRAF0 CONTROL

The quick growth of the company and turning our efforts towards the production of distribution transformers necessitated creation of inspection body allowing us to perform tests on the produced transformers. For this purpose was created an independent unit in LEMI TRAF0 called „TRAF0 Control“, it is authorized unit for control from the type C, accredited by the Bulgarian Accreditation Service (BAS), with

accreditation certificate №142 OKC. The range of is as follows:

Control over:

- Electrical installations and equipments for tension up to 1000V
- Electrical installations and equipments for tension up to and above 1000V
- Electrical engines for alternating and constant current up to 1000V
- Electrical protection devices
- Power cable lines for tension up to and above 1000V
- Power transformers up to 35kV
- Measurement transformers up to 20kV
- Transformer oil



Lemi Trafo
Transformers



PROIZVODNJA I TEHNOLOŠKA OPREMA

Odeljenje za izradu magnetnih jezgara

U skladu sa visokim tržišnim zahtevima za kvalitet distributivnih transformatora, LEMI TRAF0 je investirala u nabavku robusnih mašina sa velikom preciznošću u obradi silicijumskog čelika od lidera u proizvodnji ovakvih mašina, kompanije HEINRICH GEORG GmbH.

PRODUCTION AND TECHNOLOGICAL EQUIPMENT

Plant for magnetic cores

In a view of the high market requirements for quality regarding distribution transformers, LEMI TRAF0 invested in purchasing of heavy-duty machines with great precision in processing the silicon steel from the leader in production of this kind of machines HEINRICH GEORG GmbH.



Lemi Trafo
Transformers



PROIZVODNJA I TEHNOLOŠKA OPREMA

Odeljenje za izradu transformatorskih sudova sa valovitim stranicama

Transformatorski sudovi koje mi proizvodimo se prave od potpuno ravnog čelika. Za proizvodnju smo integrisali mašinu za sečenje plazmom velike preciznosti, digitalnu mašinu za savijanje i mašinu za ispitivanje gustine ulja. Pre farbanja sudovi se peskiraju kako bi imali bolju adheziju, nakon čega se prelivaju ekološkom farbom rastvorljivom u vodi.

PRODUCTION AND TECHNOLOGICAL EQUIPMENT

Plant for corrugated tanks

The tanks produced by us are manufactured totally from flat steel. For the production we integrated a machine for plasma cutting with high precision, digital bending machine and machine for testing of oil-density. Before painting the tanks they are blasted to acquire better adhesion, after that they are poured over with ecologically water-soluble paint.





Lemi Trafo
Transformers



PROIZVODNJA I TEHNOLOŠKA OPREMA

Odeljenje za izradu namotaja

Kako bi garantovali kvalitet električnog dela koristimo izolacione materijale najviše klase. NN namotaji za transformatore snaga od 250kVA do 3150kVA se izrađuju od bakarne folije namotane pomoću mašine TUBOLY. 2010. godine smo kupili još dve mašine za izradu visokonaponskih namotaja od iste kompanije - TUBOLY.

PRODUCTION AND TECHNOLOGICAL EQUIPMENT

Winding sections

To guarantee the quality of the electrical part we use insulation materials from highest class. The transformers with power from 250kVA up to 3150kVA are wound with copper foil with the use of a machine TUBOLY. In the middle of 2010 year we expect the delivery of two more machines for winding of high voltage coils from the same company TUBOLY.





Lemi Trafo[®]
Transformers



ULJNI TRANSFORMATORI

LEMI TRAFI proizvodi trofazne uljne transformatore nominalnih snaga u rasponu od 25kVA do 3150kVA. Naši transformatori su prilagođeni za instalaciju u montažnim, stubnim i svim ostalim tipovima trafo stanica.

Postoje dve osnovne vrste transformatora iz masovne proizvodnje koje nudimo u zavisnosti od konstrukcije suda – hermetički zatvoreni ili sa konzervatorom. Hermetički zatvoreni transformatori koje proizvodimo imaju nominalnu snagu od 25kVA do 800kVA, a oni sa konzervatorom od 25kVA do 3150kVA. Svi transformatori u ponudi su sa standardnim ili sniženim gubicima.

STANDARDNE KARAKTERISTIKE:

Hermetički zatvoreni uljni transformatori (25kVA – 800kVA)

- Sud sa valovitim stranicama
- Visokonaponski i niskonaponski izolatori u skladu sa DIN 42530 i DIN42531
- Bezteretni petopoložajni regulator napona na VN strani
- Ušice za dizanje
- Priključci za uzemljenje
- Džep termometra
- Kontaktne termometre >630kVA

- Otvor sa poklopcem za nalivanje ulja
- Sigurnosni ventil
- Natpisna tablica
- Točkovi sa mogućnošću zakretanja do 90°C.

Uljni transformatori sa konzervatorom (25kVA - 3150kVA)

- Sud sa valovitim stranicama
- Visokonaponski i niskonaponski izolatori u skladu sa DIN 42530 i DIN42531
- Bezteretni petopoložajni regulator napona na VN strani
- Konzervator
- Pokazivač nivoa ulja
- Ušice za dizanje
- Priključci za uzemljenje
- Džep termometra
- Kontaktne termometre >630kVA
- Buholc relej >800kVA
- Otvor sa poklopcem za nalivanje ulja
- Sigurnosni ventil
- Natpisna tablica
- Točkovi sa mogućnošću zakretanja do 90°C.





OIL-IMMERSED TRANSFORMERS

LEMI TRAFO produces three-phase oil-immersed transformers with nominal power in the range of 25kVA - 3150kVA. Our transformers are adapted for installation in electrical substations, steel-lattice poles and complete transformer substations.

The mass production transformers offered by us are two types depending on the performance - hermetically sealed or with conservator. The hermetically sealed transformers which we produce are with nominal power from 25kVA up to 800kVA, and those with conservator from 25kVA up to 3150kVA. All the transformers are offered with standard or reduced losses.

STANDARD FEATURES:

Hermetically sealed oil-immersed transformers (25kVA-800kVA)

- Tank made of corrugated walls
- High and low voltage bushings in accordance with DIN 42530 and DIN42531
- Off-circuit tap changer in 5 positions
- Lifting lugs
- Earthing terminals

- Thermometer pocket
- Contact thermometer >630kVA
- Whole with cap for filling with oil
- Safety valve
- Rating plate
- Run Routes which can be oriented at 90°.

Oil-immersed transformers with conservator (25kVA-3150kVA)

- Tank made of corrugated walls
- High and low voltage bushings in accordance with DIN 42530 and DIN42531
- Off-circuit tap changer in 5 positions
- Conservator
- Level gauge
- Lifting lugs
- Earthing terminals
- Thermometer pocket
- Contact thermometer >630kVA
- Buchholz relay >800kVA
- Whole with cap for filling with oil
- Rating plate
- Run Routes which can be oriented at 90°.

DODATNA OPREMA ZA ULJNE TRANSFORMATORE ACCESSORIES FOR OIL-IMMERSED TRANSFORMERS



Kontaktni termometar sa dva kontakta /220V/:
Upozorenje i isključenje

Contact Dial Thermometer /220V/:
alarm and trip



Anti-vibracione podloške
Za uljne i smolom zalivene transformatore
25kVA÷2500kVA

Anti-vibration pads
For cast resin and oil-immersed transformers
25 kVA÷2500 kVA



Provodni izolator sa priključkom sa spoljašnjim
konusom tipa PPS za visoki napon
10kV i 20kV/250 i 630A

Bushing with plug connection with
outer cone PPS for HV
10kV and 20kV/ 250 and 630 A



Sigurnosni ventil
50VG - 20÷80kPa
25VG - do 30kPa

Safety valve
50 VG - 20÷80 kPa
25 VG - up to 30 kPa



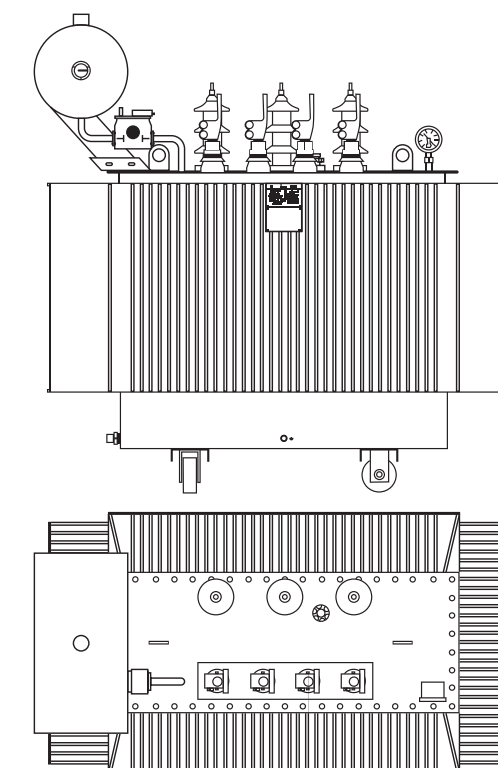
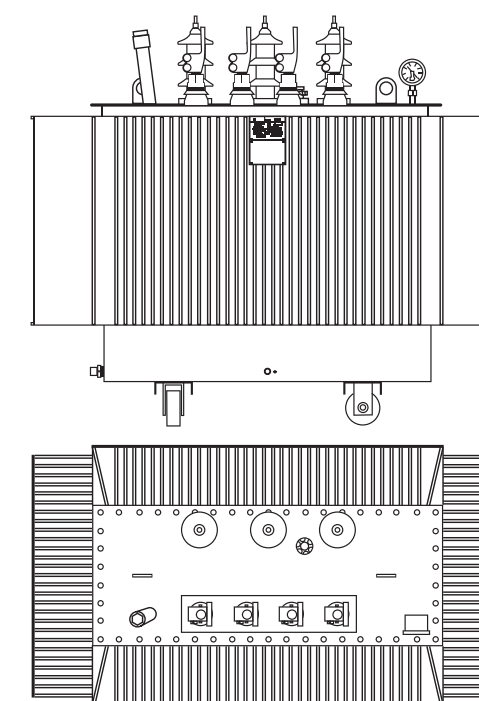
Termometar
Sa pokazivačem

Dial Thermometer
with maximum value indicator



Niskonaponski izolator
zaliven smolom
Do 1kV/1600A

Cast resin bushing HV
Up to 1kV/1600A



ULJNI DISTRIBUTIVNI TRANSFORMATORI
OIL-IMMERSED DISTRIBUTION TRANSFORMERS

Evropsko tržište
European market

Maks. ulazni napon Max. input voltage	Do 24kV Up to 24kV	Hlađenje Cooling	ONAN
Regulacija Regulation	±2x2.5%	Stepen zaštite Protection degree	IP00
Sekundarni napon Secondary voltage	400V (420V)	Materijal namotaja Material of windings	Cu
Frekvencija Frequency	50Hz	Nadmorska visina instalacije Altitude of instalation	≤ 1000m

**Dk Eo sa
konzervatorom**

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)	
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total
25	4	150	1100	750	510	1240	450	80	360
50	4	190	1350	820	520	1320	450	95	430
63	4	225	1500	820	520	1320	450	100	530
100	4	320	2150	900	550	1380	520	164	660
160	4	460	3100	975	565	1440	520	211	850
200	4	550	3250	1150	600	1500	520	228	975
250	4	650	4200	1280	680	1570	520	284	1135
315	4	770	5000	1390	770	1590	670	327	1345
400	4	930	6000	1470	800	1750	670	410	1550
500	4	1100	7200	1500	910	1720	670	440	1765
630	4	1300	8400	1560	1000	1780	670	540	2090
630	6	1200	8700	1560	1000	1780	670	542	2100
800	6	1400	10500	1710	1070	1830	670	617	2560
1000	6	1700	13000	1750	1110	1900	820	689	2925
1250	6	2100	16000	1850	1150	2150	820	843	3560
1600	6	2600	20000	2270	1260	2220	820	960	4135
2000	6	3100	26000	2400	1650	2680	1070	1280	5800
2500	6	3500	32000	2800	1880	2770	1070	1390	6400
3150	6	4400	38000	2940	2100	2870	1070	1540	6880

**Dk Eo
conservator**

**Dk Eo hermetički
zatvoren**

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)	
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total
25	4	150	1100	750	510	1120	450	70	350
50	4	190	1350	820	520	1200	450	85	420
63	4	225	1500	820	520	1200	450	95	490
100	4	320	2150	900	550	1230	520	146	640
160	4	460	3100	975	565	1290	520	193	820
200	4	550	3250	1150	600	1350	520	210	940
250	4	650	4200	1220	680	1420	520	264	1100
315	4	770	5000	1330	770	1440	670	302	1300
400	4	930	6000	1420	800	1550	670	385	1500
500	4	1100	7200	1500	920	1550	670	410	1710
630	4	1300	8400	1460	1000	1560	670	510	2020
630	6	1200	8700	1710	1000	1640	670	512	2030
800	6	1400	10500	1880	1070	1640	670	582	2480
1000	x	x	x	x	x	x	x	x	x
1250	x	x	x	x	x	x	x	x	x
1600	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2500	x	x	x	x	x	x	x	x	x
3150	x	x	x	x	x	x	x	x	x

**Dk Eo
hermetic**

Svi transformatori su kompatibilni sa evropskim normama (EN).
Tehnički podaci u ovoj tabeli su indikativni i mogu biti izmenjeni u svakom trenutku.

ULJNI DISTRIBUTIVNI TRANSFORMATORI
OIL-IMMERSED DISTRIBUTION TRANSFORMERS

Evropsko tržište
European market

Maks. ulazni napon Max. input voltage	Do 24kV Up to 24kV	Hlađenje Cooling	ONAN
Regulacija Regulation	±2x2.5%	Stepen zaštite Protection degree	IP00
Sekundarni napon Secondary voltage	400V (420V)	Materijal namotaja Material of windings	Cu
Frekvencija Frequency	50Hz	Nadmorska visina instalacije Altitude of instalation	≤ 1000m

**Bk Co sa
konzervatorom**

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)	
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total
25	4	90	550	850	600	1300	450	120	395
50	4	125	875	890	620	1490	450	145	520
63	4	190	1100	960	650	1500	450	165	590
100	4	210	1475	1180	685	1580	520	233	985
160	4	300	2000	1190	690	1630	520	235	1115
200	4	380	2350	1200	700	1680	520	265	1190
250	4	425	2750	1240	710	1720	520	295	1260
315	4	520	3250	1340	780	1780	670	305	1410
400	4	610	3850	1360	790	1790	670	360	1930
500	4	720	4600	1460	890	1820	670	430	1990
630	6	800	5600	1590	890	1945	670	470	2500
800	6	930	7000	1760	1060	1980	670	555	2960
1000	6	1100	9000	1950	1200	2100	820	740	3620
1250	6	1350	11000	2100	1250	2250	820	820	3950
1600	6	1700	14000	2150	1300	2280	820	900	5250
2000	6	2100	18000	2200	1300	2300	1070	1320	6100
2500	6	2500	22000	2300	1400	2300	1070	1450	6400
3150	x	x	x	x	x	x	x	x	x

**Bk Co
conservator**

**Bk Co hermetički
zatvoren**

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)	
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total
25	4	90	550	850	600	1190	450	105	375
50	4	125	875	890	620	1290	450	125	480
63	4	190	1100	960	650	1300	450	140	570
100	4	210	1475	1180	685	1380	520	208	940
160	4	300	2000	1190	690	1430	520	210	1070
200	4	380	2350	1200	700	1480	520	230	1150
250	4	425	2750	1240	710	1520	520	265	1220
315	4	520	3250	1340	780	1580	670	285	1380
400	4	610	3850	1360	790	1590	670	330	1870
500	4	720	4600	1400	890	1600	670	400	1960
630	6	800	5600	1440	890	1645	670	430	2420
800	6	930	7000	1560	1060	1680	670	515	2880
1000	x	x	x	x	x	x	x	x	x
1250	x	x	x	x	x	x	x	x	x
1600	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2500	x	x	x	x	x	x	x	x	x
3150	x	x	x	x	x	x	x	x	x

**Bk Co
hermetic**

All the transformers are compatible with the european norms (EN).
The technical data in this table are indicative and can be modified at any time.

ULJNI DISTRIBUTIVNI TRANSFORMATORI
OIL-IMMERSED DISTRIBUTION TRANSFORMERS

Evropsko tržište
European market

Maks. ulazni napon Max. input voltage	Do 24kV Up to 24kV	Hlađenje Cooling	ONAN
Regulacija Regulation	±2x2.5%	Stepen zaštite Protection degree	IP00
Sekundarni napon Secondary voltage	400V (420V)	Materijal namotaja Material of windings	Cu
Frekvencija Frequency	50Hz	Nadmorska visina instalacije Altitude of instalation	≤ 1000m

**Ck Eo sa
konzervatorom**

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)	
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total
25	4	120	680	830	600	1290	450	130	405
50	4	190	1100	885	620	1455	450	145	505
63	4	220	1200	950	695	1470	450	160	585
100	4	320	1750	1000	720	1490	520	175	725
160	4	460	2350	1090	745	1580	520	230	945
200	4	550	2850	1120	765	1620	520	245	1030
250	4	650	3250	1135	780	1650	520	265	1190
315	4	770	3900	1200	800	1725	670	290	1360
400	4	930	4600	1250	820	1740	670	315	1460
500	4	1100	5500	1450	860	1890	670	420	1860
630	4	1300	6500	1590	875	1930	670	460	2150
800	6	1400	8400	1760	1060	1960	670	590	2370
1000	6	1700	10500	1950	1100	2000	820	707	3350
1250	6	2100	13500	2000	1150	2195	820	790	3640
1600	6	2600	17000	2150	1175	2200	820	870	4450
2000	6	3100	21000	2200	1300	2320	1070	1260	5950
2500	6	3500	26500	2250	1320	2370	1070	1390	6220
3150	x	x	x	x	x	x	x	x	x

**Ck Eo
conservator**

**Ck Eo hermetički
zatvoren**

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)	
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total
25	4	120	680	830	600	1090	450	105	360
50	4	190	1100	885	620	1255	450	120	460
63	4	220	1200	950	695	1270	450	135	540
100	4	320	1750	1000	720	1290	520	150	680
160	4	460	2350	1090	745	1380	520	205	900
200	4	550	2850	1120	765	1400	520	225	980
250	4	650	3250	1135	780	1400	520	235	1130
315	4	770	3900	1200	800	1475	520	260	1300
400	4	930	4600	1250	820	1790	670	285	1400
500	4	1100	5500	1450	860	1590	670	380	1810
630	4	1300	6500	1590	875	1630	670	420	2070
800	6	1400	8400	1760	1060	1660	670	550	2260
1000	x	x	x	x	x	x	x	x	x
1250	x	x	x	x	x	x	x	x	x
1600	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2500	x	x	x	x	x	x	x	x	x
3150	x	x	x	x	x	x	x	x	x

**Ck Eo
hermetic**

Svi transformatori su kompatibilni sa evropskim normama (EN).
Tehnički podaci u ovoj tabeli su indikativni i mogu biti izmenjeni u svakom trenutku.

ULJNI DISTRIBUTIVNI TRANSFORMATORI
OIL-IMMERSED DISTRIBUTION TRANSFORMERS

Evropsko tržište
European market

Maks. ulazni napon Max. input voltage	Do 24kV Up to 24kV	Hlađenje Cooling	ONAN
Regulacija Regulation	±2x2.5%	Stepen zaštite Protection degree	IP00
Sekundarni napon Secondary voltage	400V (420V)	Materijal namotaja Material of windings	Cu
Frekvencija Frequency	50Hz	Nadmorska visina instalacije Altitude of instalation	≤ 1000m

**Ck Co sa
konzervatorom**

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)	
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total
25	4	120	680	830	600	1290	450	130	405
50	4	125	1100	885	620	1455	450	145	505
63	4	190	1200	950	695	1470	450	160	585
100	4	210	1750	1000	720	1490	520	175	725
160	4	300	2350	1090	745	1580	520	230	945
200	4	380	2850	1120	765	1620	520	245	1030
250	4	425	3250	1135	780	1650	520	265	1190
315	4	520	3900	1200	800	1725	670	290	1360
400	4	610	4600	1250	820	1740	670	315	1460
500	4	720	5500	1450	860	1890	670	420	1860
630	4	860	6500	1590	875	1930	670	460	2150
800	6	930	8400	1760	1060	1960	670	590	2570
1000	6	1100	10500	1950	1100	2000	820	707	3350
1250	6	1350	13500	2000	1150	2195	820	790	3640
1600	6	1700	17000	2150	1175	2200	820	870	4450
2000	6	2100	21000	2200	1300	2320	1070	1260	5950
2500	6	2500	26500	2250	1320	2370	1070	1390	6220
3150	x	x	x	x	x	x	x	x	x

**Ck Co
conservator**

**Ck Co hermetički
zatvoren**

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)	
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total
25	4	120	680	830	600	1190	450	105	360
50	4	125	1100	885	620	1255	450	120	460
63	4	190	1200	950	695	1270	450	135	540
100	4	210	1750	1000	720	1290	520	150	680
160	4	300	2350	1090	745	1380	520	205	900
200	4	380	2850	1120	765	1400	520	225	980
250	4	425	3250	1135	780	1400	520	235	1130
315	4	520	3900	1200	800	1475	670	260	1300
400	4	610	4600	1250	820	1490	670	285	1548
500	4	720	5500	1450	860	1590	670	380	1810
630	4	860	6500	1590	875	1630	670	420	2070
800	6	930	8400	1760	1060	1660	670	550	2460
1000	x	x	x	x	x	x	x	x	x
1250	x	x	x	x	x	x	x	x	x
1600	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2500	x	x	x	x	x	x	x	x	x
3150	x	x	x	x	x	x	x	x	x

**Ck Co
hermetic**

All the transformers are compatible with the european norms (EN).
The technical data in this table are indicative and can be modified at any time.

ULJNI DISTRIBUTIVNI TRANSFORMATORI
OIL-IMMERSED DISTRIBUTION TRANSFORMERS

Afričko tržište i Bliski Istok
African market and Near East

Maks. ulazni napon Max. input voltage	12 kV	Hlađenje Cooling	ONAN
Regulacija Regulation	±2x2.5%	Stepen zaštite Protection degree	IP00
Sekundarni napon Secondary voltage	415V	Materijal namotaja Material of windings	Cu
Frekvencija Frequency	50Hz	Nadmorska visina instalacije Altitude of instalation	≤ 1000m

Ck Eo 11kV sa
konzervatorom

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)		Napomene Notes
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total	
25	4	120	680	790	580	1240	450	80	340	BEZ KABLOVSKJE KUTIJE WITHOUT CABLE BOX
50	4	190	1100	868	600	1268	450	120	470	
100	4	320	1750	1080	640	1315	520	180	750	
160	4	460	2350	1120	680	1370	520	190	970	
200	4	550	3100	1265	750	1450	520	230	1060	
250	4	650	3250	1275	780	1500	520	270	1140	
300	4	770	3900	1330	800	1570	670	290	1230	
400	4	930	4600	1390	850	1630	670	320	1700	
500	4	1100	5500	1529	930	1700	670	380	1850	
630	4	1300	6500	1860	1050	1840	670	500	2440	
800	6	1400	8400	2000	1130	1890	670	595	2930	
1000	6	1700	10500	2130	1170	1970	820	740	3670	
1250	6	2100	13500	2180	1220	2080	820	940	4360	SA KABLOVSKOM KUTIJOM WITH CABLE BOX
1600	6	2600	17000	2270	1290	2230	820	1015	5270	
100	4	320	1750	1230	950	1390	520	180	750	
200	4	520	3100	1460	1000	1540	520	240	1100	
250	4	650	3200	1480	1010	1560	520	270	1180	
300	4	770	3900	1500	1040	1620	670	290	1260	
400	4	930	4600	1600	1100	1740	670	355	1740	
500	4	1100	5500	1670	1180	1780	670	400	1890	
630	4	1300	6500	1755	1350	1855	670	540	2540	
800	6	1400	8500	1990	1380	1900	670	600	2760	
1000	6	1700	10500	2000	1460	2040	820	860	3350	

Svi transformatori su kompatibilni sa evropskim normama (EN).
Tehnički podaci u ovoj tabeli su indikativni i mogu biti izmenjeni u svakom trenutku.

Ck Eo 11 kV
conservator

ULJNI DISTRIBUTIVNI TRANSFORMATORI
OIL-IMMERSED DISTRIBUTION TRANSFORMERS

Afričko tržište i Bliski Istok
African market and Near East

Maks. ulazni napon Max. input voltage	36 kV	Hlađenje Cooling	ONAN
Regulacija Regulation	±2x2.5%	Stepen zaštite Protection degree	IP00
Sekundarni napon Secondary voltage	415V	Materijal namotaja Material of windings	Cu
Frekvencija Frequency	50Hz	Nadmorska visina instalacije Altitude of instalation	≤ 1000m

Ck36 Eo36 33kV sa
konzervatorom

Nominalna snaga Nominal power	Napon kratkog spoja / Impedance	Gubici (W) Losses (W)		Dimenzije (mm) Dimensions (mm)				Masa (Kg) Weight (Kg)		Napomene Notes
		Po	Pk	dužina length	širina width	visina height	razmak točkova wheel-gauge	ulje oil	ukupno total	
25	4,5	130	950	1060	700	1500	450	230	580	BEZ KABLOVSKJE KUTIJE WITHOUT CABLE BOX
50	4,5	230	1450	1080	790	1545	450	265	650	
100	4,5	380	2350	1100	800	1685	520	360	870	
160	4,5	550	3250	1200	850	1720	520	380	1050	
200	4,5	650	3950	1250	865	1780	520	400	1285	
250	4,5	780	4250	1270	870	1960	520	452	1600	
300	4,5	900	4600	1360	890	1970	670	510	1850	
400	4,5	1150	5400	1500	920	1980	670	550	2150	
500	4,5	1280	6500	1850	1000	1980	670	590	2320	
630	4,5	1450	8800	1970	1170	2060	670	670	2650	
800	6	1700	10500	2080	1250	2120	670	700	3000	
1000	6	2000	13000	2240	1300	2230	820	820	3790	
1250	x	x	x	x	x	x	x	x	x	SA KABLOVSKOM KUTIJOM WITH CABLE BOX
1600	x	x	x	x	x	x	x	x	x	
100	4,5	380	2350	1125	830	1685	520	340	850	
200	4,5	650	3950	1295	875	1795	520	410	1295	
250	x	x	x	x	x	x	x	x	x	
300	4,5	900	4600	1390	910	1995	670	500	1845	
400	x	x	x	x	x	x	x	x	x	
500	4,5	1280	6500	1895	1190	2000	670	590	2390	
630	x	x	x	x	x	x	x	x	x	
800	x	x	x	x	x	x	x	x	x	
1000	x	x	x	x	x	x	x	x	x	

All the transformers are compatible with the european norms (EN).
The technical data in this table are indicative and can be modified at any time.

Ck36 Eo36 33 kV
conservator



SUVI TRANSFORMATORI ZALIVENI SMOLOM (CAST RESIN)

TMC Bulgaria predstavlja deo grupe TMC Transformers, koja ima filijale u zemljama kao što su: Australija, Italija, Španija, Argentina, Francuska, Nemačka, Izrael i druge. Kompanija proizvodi suve transformatore zalivene smolom u rasponu od 160kVA do 3150kVA, koji su izuzetno pogodni za instalaciju na mestima sa visokim protivpožarnim i ekološkim zahtevima. Proizvode karakteriše visok kvalitet i pouzdanost, jaka konstrukcija, dug životni vek i nizak nivo buke. Inženjerski tim TMC Group nudi standardne transformatore, kao i transformatore sa sniženim gubicima, posebnu vrstu razvoja koja zadovoljava zahteve klijenata i konkurencije na tržištu. Transformatori su testirani u CESI laboratorijama, u skladu sa ekološkom klasom E2, klimatskom klasom C2 i klasom ponašanja pri požaru F1. Svi proizvedeni transformatori se podvrgavaju rutinskim ispitivanjima, a na zahtev klijenata nudimo neka specijalna ispitivanja.

Rutinska ispitivanja uključuju:

- Merenje odnosa transformacije i faznog pomeraja i provera sprege
- Merenje gubitaka i struje praznog hoda
- Merenje napona (impedanse) kratkog spoja i gubitaka usled opterećenja

- Ispitivanje stranim naponom
- Ispitivanje indukovanom naponom
- Merenje nivoa parcijalnih pražnjenja
- Verifikacija dokumentacije
- Verifikacija dodatne opreme
- Verifikacija distanci.

Specijalna ispitivanja uključuju:

- Test zagrevanja
- Ispitivanje impulsnim naponom
- Merenje nivoa buke.

OPREMA ZA SUVE TRANSFORMATORE ZALIVENE SMOLOM

Suvi transformatori zaliveni smolom koje proizvodi TMC Group u ponudi su sa sledećom standardnom i dodatnom opremom po zahtevu:

Standardna oprema:

- SN priključci sa čvrstim izolatorom u svakoj fazi
- NN priključci sa aluminijumskim pločicama posebno tretiranim za ostvarenje spoja sa bakarnim šinama
- Kuke za horizontalno vučenje i ušice za dizanje

- Priključci za regulaciju SN u opsegu $\pm 2 \times 2,5\%$ kada transformator nije pod opterećenjem
- Točkovi koji se mogu zakretati do 90°C
- Priključci za uzemljenje
- Natpisna tablica u skladu sa IEC standardima.

Dodatna oprema po zahtevu:

- SN priključci maksimalnog napona do 36KV i maksimalne struje do 400A
- Bočna zaštita srednjeg napona korišćenjem poklopaca kako bi se izbegao slučajni kontakt i sprečilo taloženje prašine i drugih čestica iz okruženja na SN priključke
- Zaštita klem za regulaciju napona
- Gumena potpora za smanjenje problema uzrokovanih vibracijama koje se prenose metalnim konstrukcijama i buke (anti-vibracione podloške)
- Sistemi za prinudno hlađenje za povećanje nominalne snage do 35%.
- Zaštitna kućišta od IP20 ili IP23 do IP31
- Dodatne sonde opremljene senzorima za proveru

temperature namotaja transformatora

- Elektrostatički monitor između primarnog i sekundarnog namotaja (dodatna oprema napravljena posebno za transformatore koji napajaju sisteme koji koriste jednosmernu struju)
- Kontrolna oprema za vizualizaciju temperaturnih očitavanja koja se instalira na komandnu tablu. Pomoću ove opreme moguće je podesiti dve temperaturne vrednosti koje odgovaraju unapred definisanim nivoima za upozorenje i prekid napajanja u skladu sa termičkom klasom izolacije. Moguće je podesiti i uključivanje prinudnog hlađenja, ukoliko je to potrebno.





CAST RESIN TRANSFORMERS

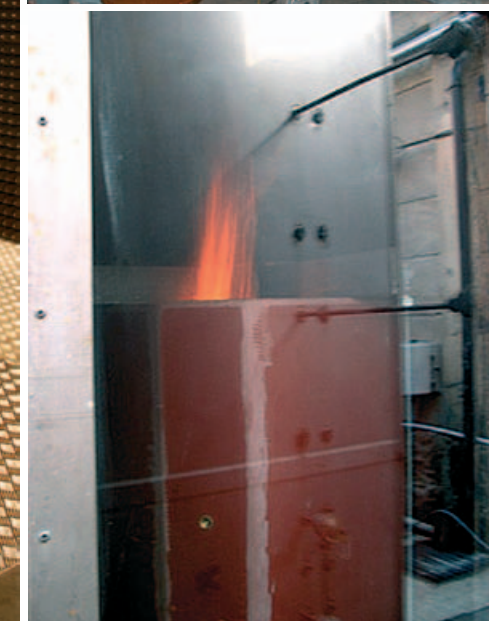
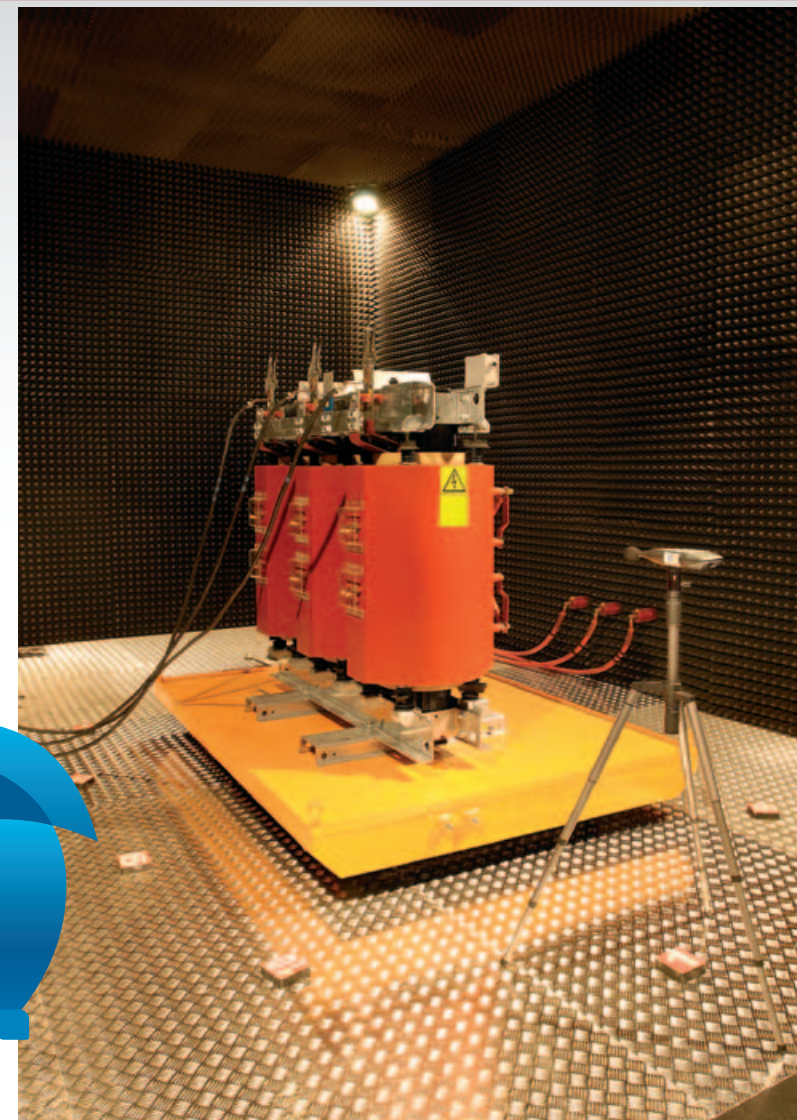
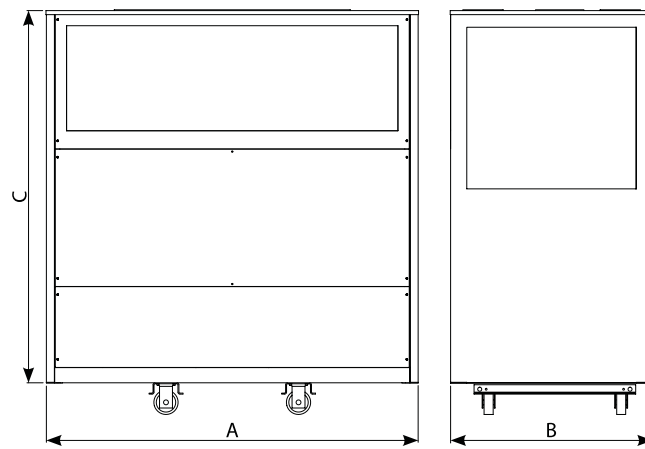
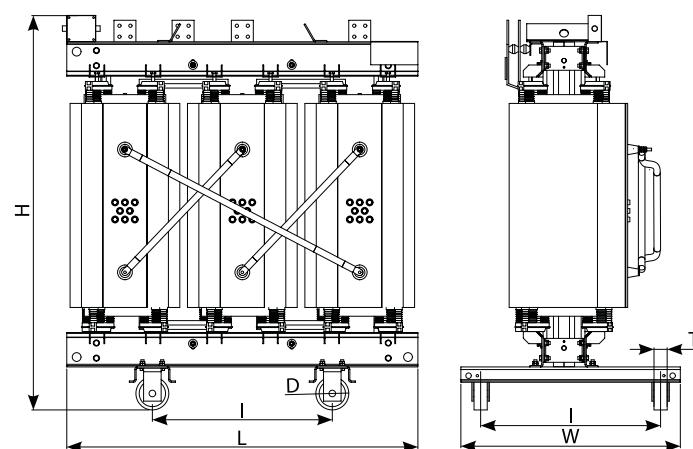
TMC Bulgaria represents part of the group TMC Transformers that has subsidiaries in countries like: Australia, Italy, Spain, Argentina, France, Germany, Israel and others. The company produces dry-type cast resin transformers in the range of 160kVA up to 3150kVA which are extremely suitable for installation in places with high anti-fire and ecological requirements. The products are characterized with high quality and reliability, strong construction, long life cycle and low noise levels. The engineer team of the TMC Group offers standard transformers as well as transformers with reduced losses, special type of developments satisfying the customers' requirements and the competition of the market. The transformers are tested in CESI's laboratories, in conformity with environmental class E2, climatic class C2, and fire behavior class F1. All the produced transformers are put to routine tests, and by request of client we offer some special tests.

The routine tests include:

- Ratio measurements and check of phase displacement and verification of connection group
- Measuring of losses and no-load current
- Measuring of short circuit current and load losses
- Tests with applied voltage
- Tests with induced voltage
- Measuring of partial discharge
- Verification of documentation
- Verification of accessories
- Verification of distances.

Special tests include:

- Heat run test
- Impulse voltage test
- Noise level measurement.



ACCESSORIES FOR CAST RESIN TRANSFORMERS

The cast resin transformers produced by the TMC Group are offered with standard and additional accessories upon request as follows:

Standard accessories:

- Medium Voltage sockets with solid insulator mediums in every phase
- Low Voltage sockets in aluminium plates treated for coupling with copper bars
- Horizontal towing hooks and eye bolts for lifting
- Voltage Change Clamps with control fields $\pm 2 \times 2.5\%$ to operate when the transformer is off load / not energised.
- Run Routes which can be oriented at 90°
- Grounding connectors
- Identification Tag to IEC standards

Additional accessories upon request:

- Plug connections on medium voltage side up to 36 KV and maximum current 400 A
- Medium voltage side protection using cover caps to avoid accidental contact and prevent dust and other particles in

the environment from depositing on the MT tangs

- Protection of voltage change clamps
- Rubber supports to reduce phenomena caused by vibrations transmitted by metallic structures and noise (anti vibration pads)
- Forced air ventilation systems to increase the nominal power up to 35%
- Protective containers from IP20 or IP23 to IP31
- Supplementary probes equipped with sensors to check the temperature of the windings of the transformer
- Electrostatic monitor between primary and secondary winding (accessory made specifically for transformers which feed systems using cc)
- Control equipment to visualize temperature readings to be installed on the switchboard. By means of this equipment it would be possible to program the two temperature values corresponding to predefined alarm levels and disconnection according to the thermal category of the insulation material. It would also be possible to program a forced cooling intervention, if necessary.

12 kV

Stepen izolacije – STANDARDNI GUBICI
INSULATION class table - STANDARD LOSSES

ELEKTRIČNE KARAKTERISTIKE															ELECTRICAL DATA									
		TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S										
Pot.	kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150										
Po	W	610	820	1050	1150	1400	1500	1750	2100	2550	3000	3500	4300	5000										
Pk (75 C)	W	2350	3050	3700	4300	5250	6350	8200	9600	10900	12650	16100	18300	22650										
Pk (120 C)	W	2700	3500	4250	4900	6000	7300	9400	11000	12500	14500	18500	21000	26000										
Uk (120 C)	%	4	4	4	4	4	4	6	6	6	6	6	6	6										
Io	%	1,9	1,5	1,4	1,3	1,2	1,2	1,1	1	1	0,9	0,9	0,8	0,7										
Lwa	dB(A)	62	65	67	68	68	70	72	73	74	76	80	81	82										
Lpa 1 m	dB(A)	51	54	55	56	56	57	58	59	60	62	64	65	67										
STEPEEN KORISTNOG DEJSTVA PRI 75°C (%)															EFFICIENCY TO 75 °C (%)									
cos φ = 1	4/4	98,16	98,46	98,50	98,64	98,67	98,76	98,76	98,83	98,93	99,02	99,02	99,10	99,12										
	3/4	98,40	98,65	98,68	98,81	98,84	98,93	98,94	99,00	99,08	99,16	99,16	99,22	99,25										
	2/4	98,51	98,74	98,75	98,89	98,92	99,02	99,05	99,10	99,16	99,23	99,25	99,29	99,33										
	cos φ = 0,9	4/4	97,93	98,26	98,31	98,47	98,51	98,60	98,59	98,67	98,78	99,89	98,89	98,97	99,00									
	3/4	98,20	98,49	98,52	98,67	98,70	98,80	98,80	98,87	98,96	99,05	99,06	99,12	99,15										
	2/4	98,34	98,59	98,61	98,76	98,79	98,91	98,94	98,99	99,06	99,14	99,16	99,20	99,24										
	cos φ = 0,8	4/4	97,66	98,04	98,09	98,27	98,31	98,42	98,40	98,49	98,61	98,74	98,74	98,83	99,87									
	3/4	97,98	98,30	98,33	98,50	98,54	98,64	98,65	98,72	98,82	98,92	99,93	99,01	99,04										
	2/4	98,13	98,42	98,43	98,61	98,64	98,77	98,80	98,86	98,93	99,03	99,05	99,10	99,14										
	le/ln		11	10,05	10,05	10,05	10	10	9	9	9	8,5	8,5	8	8									
T	sec.	0,1	0,15	0,2	0,2	0,25	0,25	0,3	0,3	0,35	0,4	0,5	0,6	0,6										
Icc	KA	5,8	9	11,3	14,4	18	22,7	19,2	24	30	38,4	48	60	75,7										
PAD NAPONA (ΔV %)															VOLTAGE DROP (ΔV %)									
cos φ = 1	4/4	1,54	1,29	1,25	1,15	1,12	1,08	1,2	1,14	1,05	0,97	0,98	0,91	0,90										
cos φ = 0,9	4/4	2,98	2,8	2,77	2,69	2,67	2,64	3,62	3,57	3,5	3,43	3,44	3,38	3,37										
cos φ = 0,8	4/4	3,43	3,29	3,26	3,2	3,19	3,16	4,45	4,41	4,35	4,29	4,3	4,25	4,24										
TRANSFORMATOR IP 00															TRANSFORMER IP 00									
L	mm	1100	1150	1200	1250	1300	1350	1400	1450	1550	1700	1800	2000	2100										
W	mm	600	600	750	750	750	850	850	1000	1000	1000	1310	1310	1310										
H	mm	1150	1300	1400	1450	1510	1600	1750	1800	1950	2050	2150	2260	2400										
I	mm	520	520	670	670	670	670	670	820	820	820	1070	1070	1070										
D	mm	125	125	125	125	125	125	125	125	150	150	200	200	200										
T	mm	40	40	40	40	40	50	50	50	60	60	70	70	70										
Pt	kg	780	950	1150	1300	1500	1750	1900	2250	2700	3450	4070	5350	6300										
ZAŠTITNO KUĆIŠTE IP 20-21-23-30-31															ENCOLOSURE IP 20-21-23-30-31									
A	mm	1850	1850	1850	1900	1900	2050	2050	2300	2300	2300	2500	2500	260										
B	mm	1100	1100	1100	1100	1100	1150	1150	1250	1250	1250	1310	1310	1400										
C	mm	1400	1400	1400	1600	1600	1800	1800	2300	2300	2300	2400	2400	3000										
Pa	kg	145	145	145	155	155	175	175	225	225	225	250	250	300										
ABT	Tipo	B	B	B	B	C	D	E	F	G	H	I	L	M										
AMT	Tipo	a	a	a	a	a	a	a	a	a	a	a	a	a										

Napomena: Tehnički podaci u ovoj tabeli su indikativni i mogu biti izmenjeni u svakom trenutku.
N.B. The technical data in this table are indicative and can be modified at any time.

24 kV

Stepen izolacije – STANDARDNI GUBICI
Insulation class table - STANDARD LOSSES

ELEKTRIČNE KARAKTERISTIKE													ELECTRICAL DATA				
		TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S			
Pot.	kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150			
Po	W	660	880	980	1200	1350	1650	1850	2100	2550	3100	3600	4300	5000			
Pk (75 C)	W	2600	3300	3750	4800	5950	6800	8200	9600	10900	13950	16550	19000	22650			
Pk (120 C)	W	3000	3800	4300	5500	6800	7800	9400	11000	12500	16000	19000	21800	26000			
Uk (120 C)	%	6	6	6	6	6	6	6	6	6	6	6	6	6			
Io	%	1,9	1,5	1,4	1,3	1,2	1,2	1,1	1	1	0,9	0,9	0,8	0,7			
Lwa	dB(A)	62	65	67	68	68	70	72	73	74	76	80	81	82			
Lpa 1 m	dB(A)	51	54	55	56	56	57	58	59	60	62	64	65	67			
STEPEEN KORISTNOG DEJSTVA PRI 75°C (%)															EFFICIENCY TO 75 °C (%)		
cos φ = 1	4/4	97,97	98,33	98,50	98,50	98,54	98,66	98,75	98,81	98,92	99,94	99,99	99,07	99,12			
	3/4	98,24	98,55	98,70	98,71	98,75	98,85	98,93	98,98	99,07	99,09	99,14	99,20	99,25			
	2/4	98,38	98,65	98,79	98,81	98,87	98,94	99,03	99,06	99,14	99,18	99,23	99,28	99,33			
	cos φ = 0,9	4/4	97,70	98,11	98,30	98,30	98,34	98,48	98,57	98,65	98,77	99,79	98,86	98,84	99,00		
	3/4	98,01	98,36	98,53	98,54	98,59	98,69	98,79	98,84	98,94	99,97	99,03	99,10	99,15			
	2/4	98,18	98,48	98,64	98,66	98,73	98,81	98,91	98,95	99,04	99,08	99,13	99,19	99,24			
	cos φ = 0,8	4/4	97,40	97,86	98,07	98,07	98,13	98,28	98,38	98,47	98,60	98,63	98,70	98,80	99,87		
	3/4	97,76	98,15	98,34	98,35	98,41	98,52	98,63	98,69	98,80	98,84	98,90	98,98	99,04			
	2/4	97,95	98,29	98,47	98,49	98,57	98,66	98,77	98,81	98,91	98,96	99,02	99,08	99,14			
	le/ln		11	10,05	10,05	10	10	9	9	9	8,5	8,5	8	8	8		
T	sec.	0,1	0,15	0,2	0,2	0,25	0,25	0,3	0,3	0,35	0,4	0,5	0,6	0,6			
Icc	KA	3,8	6	7,6	9,6	12	15,1	19,2	24	30	38,5	48,1	60,1	75,8			
PAD NAPONA (ΔV %)															VOLTAGE DROP (ΔV %)		
cos φ = 1	4/4	1,79	1,39	1,39	1,37	1,36	1,25	1,2	1,14	1,05	1,05	1	0,94	0,87			
cos φ = 0,9	4/4	4,08	3,83	3,77	3,76	3,75	3,66	3,62	3,57	3,5	3,5	3,46	3,41	3,35			
cos φ = 0,8	4/4	4,83	4,63	4,58	4,57	4,56	4,49	4,45	4,41	4,35	4,35	4,32	4,28	4,22			
TRANSFORMATOR IP 00															TRANSFORMER IP 00		
L	mm	1260	1300	1300	1370	1370	1450	1450	1550	1650	1700	1850	2050	2200			
W	mm	600	600	750	750	750	850	850	1000	1000	1000	1310	1310	1310			
H	mm	1130	1350	1400	1450	1500	1600	1750	1800	1950	2050	2150	2300	2440			
I	mm	520	520	670	670	670	670	670	820	820	820	1070	1070	1070			
D	mm	125	125	125	125	125	125	125	125	150	150	200	200	200			
T	mm	40	40	40	40	40	50	50	50	60	60	70	70	70			
Pt	kg	780	980	1100	1270	1470	1700	2000	2400	2900	3450	4100	5500	7000			
ZAŠTITNO KUĆIŠTE IP 20-21-23-30-31															ENCOLOSURE IP 20-21-23-30-31		
A	mm	1850	1850	1850	1900	1900	2050	2050	2300	2300	2300	2500	2500	260			
B	mm	1100	1100	1100	1100	1100	1150	1150	1250	1250	1250	1310	1310	1400			
C	mm	1400	1400	1400	1600	1600	1800	1800	2300	2300	2300	2400	2400	3000			
Pa	kg	145	145	145	155	155	175	175	225	225	225	250	250	300			
ABT	Tipo	A	B	B	B	B	C	D	E	F	G	H	I	L			
AMT	Tipo	a	a	a	a	a	a	a	a	a	a	a	a	a			



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36 kV

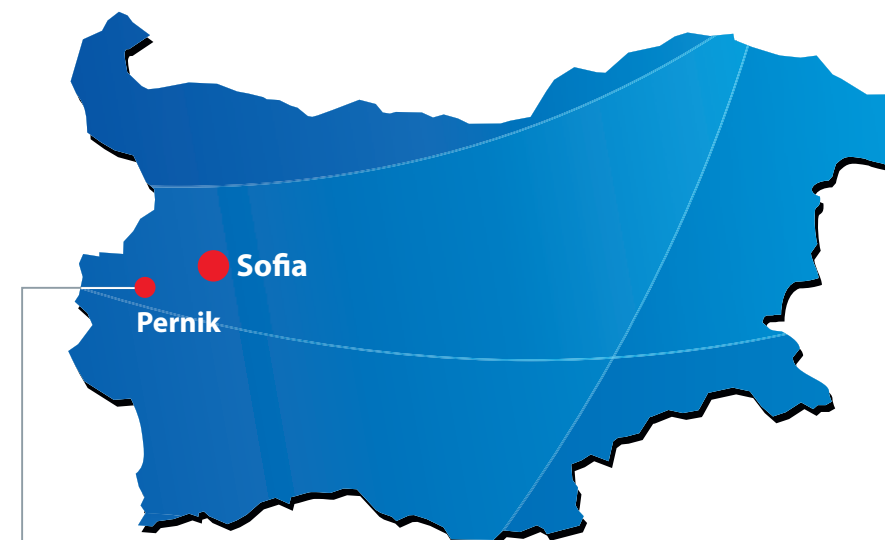
Stepen izolacije – STANDARDNI GUBICI
Insulation class table - STANDARD LOSSES

ELEKTRIČNE KARAKTERISTIKE						ELECTRICAL DATA					
Pot.	kVA	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S	TMCRES-S
		250	400	630	800	1000	1250	1600	2000	2500	3000
Po	W	1280	1500	2200	2600	3000	3050	3800	4000	5800	6700
Pk (75 C)	W	3250	4350	6700	7850	9150	12000	13050	17400	21750	21750
Pk (120 C)	W	3700	5000	8000	9000	10500	13750	15000	20000	25000	25000
Uk (120 C)	%	6	6	6	6	7	8	8	8	8	8
Io	%	1,8	1,6	1,4	1,2	1	0,9	0,8	0,7	0,6	0,5
Lwa	dB(A)	68	72	73	74	75	76	80	81	82	84
Lpa 1 m	dB(A)	56	58	59	60	64	62	64	66	67	69
STEPEN KORISTNOG DEJSTVA PRI 75°C (%)						EFFICIENCY TO 75 °C (%)					
cos φ = 1	4/4	98,20	98,54	98,59	98,70	98,79	98,80	98,95	98,93	98,90	99,05
	3/4	98,35	98,69	98,74	98,84	98,92	98,96	99,07	99,08	99,04	99,16
	2/4	98,34	98,72	98,78	98,87	98,95	99,04	99,12	99,17	99,11	99,21
cos φ = 0,9	4/4	97,95	98,34	98,40	98,52	98,62	98,62	98,79	98,77	98,74	98,91
	3/4	98,14	98,52	98,58	98,68	98,77	98,81	98,95	98,96	98,91	99,04
cos φ = 0,8	2/4	98,14	98,56	98,63	98,73	98,82	98,91	99,01	99,06	98,99	99,09
	4/4	98,68	98,12	98,19	98,32	99,05	98,43	98,63	98,60	98,56	98,78
	3/4	97,90	98,33	98,39	98,51	99,16	98,66	98,80	98,82	98,76	98,92
	2/4	97,90	98,37	98,45	98,56	99,19	98,77	98,88	98,94	98,86	98,97
le/In		10,5	10	9	9	9	8,5	8,5	8	8	8
T	sec.	0,15	0,2	0,23	0,3	0,3	0,35	0,4	0,5	0,6	0,6
Icc	KA	5,7	9,2	14,4	18,3	19,6	24,5	27,5	34,3	42,9	51,5
PAD NAPONA (ΔV %)						VOLTAGE DROP (ΔV %)					
cos φ = 1	4/4	1,47	1,26	1,39	1,16	1,16	1,28	1,13	1,19	1,19	1,04
cos φ = 0,9	4/4	3,83	3,67	3,77	3,58	4,02	4,55	4,43	4,48	4,48	4,36
cos φ = 0,8	4/4	4,63	4,49	4,58	4,42	5,02	5,7	5,6	5,64	5,64	5,54
TRANSFORMATOR IP 00						TRANSFORMER IP 00					
L	mm	1450	1550	1650	1700	1800	1900	1950	2000	2250	2400
W	mm	750	750	850	850	850	1000	1000	1310	1310	1310
H	mm	1450	1550	1700	1850	1950	2050	2400	2200	2500	2500
I	mm	520	670	670	670	670	820	820	1070	1070	1070
D	mm	125	125	125	125	150	150	150	200	200	200
T	mm	40	40	50	50	50	60	60	70	70	70
Pt	kg	1300	1650	2150	2550	2900	3300	3920	4200	6200	7350
ZAŠITNO KUĆIŠTE IP 20-21-23-30-31						ENCOLOSURE IP 20-21-23-30-31					
A	mm	1850	1900	2050	2300	2300	2300	2500	2500	2500	2800
B	mm	1100	1100	1150	1250	1250	1250	1310	1310	1310	1400
C	mm	1560	1760	1960	2460	2500	2500	2650	2650	2650	3250
Pa	kg	145	155	175	225	225	225	250	250	250	300
ABT	Tipo	B	B	C	D	E	F	G	H	I	L
AMT	Tipo	a	a	a	a	a	a	a	a	a	a

Napomena: Tehnički podaci u ovoj tabeli su indikativni i mogu biti izmenjeni u svakom trenutku.
N.B. The technical data in this table are indicative and can be modified at any time.



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