

Convincing technology creates compact performance

The GEAFOLE Neo: the optimum foundation
for power distribution as well as static converter
applications





Contents

03	The GEAFOLE Neo: A true GEAFOLE and more!	14	Accessories
07	Construction and features	15	Sensformer™
08	Selection of ordering data	16	Innovative housing design
12	Truck dimensions	17	Standard housing
13	Terminal dimensions (LV)	19	Selection of housing order data

The GEAFOLE Neo: A true GEAFOLE and more!

Tailor-made design

The GEAFOLE Neo represents the further development of the proven GEAFOLE Basic. It's based on more than 55 years of proven GEAFOLE technology and quality, but it also offers numerous innovations that have allowed us to provide it with several very special characteristics. Its design takes into account several requirements for special applications that we wouldn't have dared dream of when the original GEAFOLE was being developed.

As a result, for example, the GEAFOLE Neo distribution and static converter transformers with a maximum rated power of 6,3 MVA are almost ten percent lighter than comparable models from the proven GEAFOLE series. And this "slimming down" also has a positive effect on the dimensions.

Universal use

The highest safety requirements must be met whenever distribution transformers are operated in the direct vicinity of humans.

GEAFOLE Neo transformers are the perfect solution in this case, because their proven GEAFOLE design is coupled with proven operational reliability and a long service life. What's more, they've got the seal of approval because all GEAFOLE Neo transformers meet the specifications of VDE 0532-76-11/IEC 60076-11/ DIN EN 60076-11. Other standards, such as GOST, SABS, or CSA/ANSI/ IEEE, can also be taken into account on request. Our GEAFOLE transformers are always tested by UL/CSA/TÜV as well.

They meet the highest requirements for safe installation in residential and work environments with Climatic Class C3, Environmental Class E3, and Fire Classification F1.

Optimal combination

Keeping the distance between the transformer and consumers as short as possible considerably reduces both the complexity of the electrical network and losses in the transmission and distribution of energy. Frequently, however, there is a shortage of space in the vicinity of the consumer.

The GEAFOLE Neo distribution and static converter transformers represents an optimal combination of performance, safety and small dimensions. In addition, the high degree of standardization ensures the best possible cost-benefit ratio. Thanks to their compact shape and comprehensive safety certification, GEAFOLE Neo transformers can be used in almost every environment.



Maximum efficiency in use and economical, resource-saving production: the compact GEAFOLE Neo.



Thanks to its technical characteristics, the GEAFFOL Neo is well suited to a large number of applications. And you don't have to take the limitations of classic transformer technology into account when planning. Use in a load center allows optimum network designs to be realized – with corresponding advantages in terms of cost and efficiency.

In addition, the GEAFFOL Neo makes it possible to dispense with special safety precautions, such as coolant collecting troughs. And with its small dimensions, the GEAFFOL Neo permits more power to be installed in the same space. On request, GEAFFOL Neo transformers can also be designed for converter loads and specific mechanical stresses.

Further development of proven technology

With well over 150,000 transformers in use worldwide, essential parts of the GEAFFOL technology have already proven themselves over the long term. These include the strip winding and foil winding made from aluminum, which we adopted without change for the new GEAFFOL Neo in order to ensure reliability and a long service life. For this purpose, the mechanical construction and high voltage windings were redesigned to make them lighter and smaller for a truly clean solution. As a result, it was possible to considerably improve heat dissipation. With fewer horizontal surfaces, less dust is deposited, which leads to a further reduction in the already minimal time and effort needed for maintenance and also increases operational reliability.

Everything that's needed for the future

The GEAFFOL Neo is also setting new standards when it comes to being prepared for the future. Even though the end of its service life is still a long way off, the GEAFFOL Neo already has the perfect answer to the question of recycling. All metal parts as well as the cast resin can be recycled in an environmentally friendly way.

Regardless of the application: The GEAFFOL Neo's low weight, small dimensions and high operational reliability with the lowest possible maintenance make it the first choice.



EU guidelines: Ecodesign Directive of the European Commission

Since July 1, 2015, transformers that are installed within the European Economic Area (EEA) must meet the ecodesign requirements of the new directive, provided that they fall within the scope of the directive.

Because the directive is a measure to implement Ecodesign Directive 2009/125/EC, the CE mark is used as evidence of compliance. GEAFOLE Neo transformers are designed accordingly and are particularly low-loss and economical. The transformers fulfill standard DIN EN 50588-1.

In addition, the GEAFOLE Neo can already be configured in accordance with stage two of the Ecodesign Directive, which sets even stricter minimum standards for energy efficiency and must be implemented by July 1, 2021. They then meet the standard EN 50708-2-1 and EN 50708-3-1.

GEAFOLE Neo – the intelligent further development of an excellent technology.

Built-in safety

The coils of the GEAFOLE Neo's high-voltage winding are manufactured from aluminum foil (copper windings on request). This foil winding combines simple winding techniques with high electrical safety, because its insulation is subject to less electrical stress than other types of windings. In the case of a conventional round-wire winding, the turn-to-turn voltages amount to

double the voltage between layers. In the case of a foil winding, however, no more than the simple turn-to-turn voltage occurs because each layer consists of one turn. The result is great power frequency and impulse voltage strength. In addition, the epoxy-resin vacuum casting of the high-voltage windings is performed at a high temperature, which avoids hazardous entrapped gas and allows for a high level of freedom from partial discharges up to twice the rated voltage. A high level of process expertise guarantees excellent product quality as reflected in, among other things, an excellent MTBF (meantime between failure) Index.

Reliable design

The conductive material for the low-voltage strip winding is also made of aluminum (copper on request), with the width of the aluminum strip practically equivalent to the length of the coil in order to considerably reduce the axial short-circuit forces in the transformer. It's these characteristics that make the design of the GEAFOLE Neo possible. The conductive and insulating materials are bonded to each other by heat treatment and form a compact unit that also reliably handles radial forces. The ends of the windings are encapsulated in resin.

Using vacuum switches with GEAFOLE transformers

Transformers are the key operating elements at hubs in the distribution system. Switches must control the switching of distribution and static converter transformers reliably and safely, with no need for overvoltage protection.

An important parameter in transformers is the magnetization current, one of the “small inductive currents”. Interrupting these currents naturally creates marked transients but no unacceptably high switching overvoltages that would pose a threat to connected transformers are permitted.

Extensive trials using a combination of Siemens GEAFOLE transformers and vacuum switches have proven that the GEAFOLE medium voltage windings can handle switching overvoltages with no difficulty - providing further proof of their high product quality and operational safety.

The GEAFOLE Neo – overview of features and advantages:

- Innovative clean design
- Power range up to 6,3 MVA and voltages up to 40,5 kV (MV) or 1000 V (LV)
- Variants available for static converter operation (on request)
- Mechanically reinforced designs available (on request)
- Up to approx. 10% lower weight than standard GEAFOLE
- Up to approx. 50% increase in power possible through forced-air cooling (depending on type)
- Proven GEAFOLE technology and quality
- Optimal combination between size and power
- Certified in accordance with VDE 0532/IEC 60076-11/DIN EN 60076-11
- Loss-optimized designs taking into account Ecodesign Directive 2019/1783 to implement the Ecodesign directive 2009/125/EC for installation within the European Economic Area (Tier 1 and 2)
- Climatic Class C3*), Environmental Class E3*), and Fire Classification F1
- Maintenance-free windings embedded in moisture-proof, fire-resistant, self-extinguishing insulating material that is suitable for the tropics
- High electrical safety thanks to foil winding. Excellent properties in combination with vacuum circuit breakers (tested).
- HV winding free of partial discharges (< ambient noise level) up to twice the rated voltage

*) further climate and environment classes on request.

Construction and features

A new design for your success – the reliable, space-saving GEAFOLE Neo

- 1 Three-limb core** made of grain-oriented, low-loss electric sheet steel insulated on both sides
- 2 Low-voltage winding** made of aluminum (alternatively copper) strip; turns are permanently bonded with insulating sheet (Prepreg)
- 3 High-voltage winding** made of individual aluminum (alternatively copper) coils using foil technology and vacuum casting
- 4 Lifting eyes integrated into the upper core frame** for simple transport
- 5 Delta connection tubes with HV terminals**
- 6 Clamping frame and truck**
Convertible rollers for longitudinal and transverse travel
- 7 Insulation made of an epoxy-resin/quartz powder mixture** makes the transformer extensively maintenance-free, moisture-proof and suitable for the tropics, fire-resistant, and self-extinguishing
- 8 High-voltage tappings $\pm 2 \times 2.5\%$ (on the HV terminal side) to adapt to the particular network conditions; reconnectable in de-energized condition**



Temperature monitoring with PTC thermistor detector in the low-voltage windings (alternatively: Pt100 sensors)

Painting of steel parts
Two-component coating, RAL 7016, on request: special two-component coating for particularly aggressive environments

Structure made of individual components

For example, windings can be individually assembled and replaced on site

Climatic Class C3^{*)}

Environmental class E3^{*)}

Fire classification F1

^{*)} other climate and environment classes on request

Selection of ordering data

GEAFFOL Neo transformers according to Ecodesign Directive 2009/125/EC, EU Regulation No. 2019/1783, Tier 2 (as of July 1, 2021)

Rated power	Rated primary voltage tapping $\pm 2 \times 2.5\%$	Rated secondary voltage (no-load)	Insulation level HV (AC/LI)	Insulation level LV (AC/LI)	Impedance voltage at rated current	No-load losses	Load losses	Noise level	Order No.	Total weight ¹⁾	Dimensions ¹⁾		
											Length	Width	Height
S_N [kVA]	U_{HV} [kV]	U_{LV} [kV]	[kV]	[kV]	U_z [%]	P_0 [W]	P_{k120} [W]	L_{WA} [dB]		[kg]	[mm]	[mm]	[mm]
100	10	0,4	28/75	3/-	4	252	1800	49	4GB5044-3FY	800	1250	695	985
	20	0,4	50/95	3/-	4	252	1800	49	4GB5064-3FY	1060	1310	765	1250
160	10	0,4	28/75	3/-	4	360	2600	52	4GB5244-3FY	1120	1320	710	1125
	20	0,4	50/95	3/-	4	360	2600	52	4GB5264-3FY	1390	1450	785	1145
250	10	0,4	28/75	3/-	4	468	3400	55	4GB5444-3FY	1700	1450	730	1235
	20	0,4	50/95	3/-	4	468	3400	55	4GB5464-3FY	1760	1510	765	1260
315	10	0,4	28/75	3/-	4	558	3878	57	4GB5544-3FY	1990	1510	820	1345
	20	0,4	50/95	3/-	4	558	3878	57	4GB5564-3FY	1930	1560	855	1300
400	10	0,4	28/75	3/-	4	675	4500	58	4GB5644-3FY	2250	1560	825	1410
	20	0,4	50/95	3/-	4	675	4500	58	4GB5664-3FY	2050	1550	855	1435
500	10	0,4	28/75	3/-	4	812	5630	59	4GB5744-3FY	2530	1590	830	1510
	20	0,4	50/95	3/-	4	812	5630	59	4GB5764-3FY	2370	1580	855	1530
630	10	0,4	28/75	3/-	6	990	7100	61	4GX5844-3EY	1920	1445	845	1465
	20	0,4	50/95	3/-	6	990	7100	61	4GX5864-3EY	2220	1520	885	1560
	20	0,4	50/125	3/-	6	990	7100	61	4GX5863-3EY	2250	1515	880	1610
	30	0,4	70/145	3/-	6	1140	7800	61	4GX5875-3EY	3060	1750	935	1750
800	10	0,4	28/75	3/-	6	1170	8000	63	4GX5944-3EY	2310	1530	860	1555
	20	0,4	50/95	3/-	6	1170	8000	63	4GX5964-3EY	2590	1585	895	1620
	20	0,4	50/125	3/-	6	1170	8000	63	4GX5967-3EY	2590	1575	890	1730
	30	0,4	70/145	3/-	6	1350	8800	63	4GX5975-3EY	3300	1750	935	1890
1000	10	0,4	28/75	3/-	6	1395	9000	64	4GX6044-3EY	2720	1610	990	1620
	20	0,4	50/95	3/-	6	1395	9000	64	4GX6064-3EY	3150	1695	1000	1740
	20	0,4	50/125	3/-	6	1395	9000	64	4GX6067-3EY	3120	1670	995	1810
	30	0,4	70/145	3/-	6	1600	9900	64	4GX6075-3EY	3760	1780	1025	2055
1250	10	0,4	28/75	3/-	6	1620	11000	66	4GX6144-3EY	3220	1660	990	1730
	20	0,4	50/95	3/-	6	1620	11000	66	4GX6164-3EY	3650	1760	1010	1820
	20	0,4	50/125	3/-	6	1620	11000	66	4GX6167-3EY	3730	1770	1010	1890
	30	0,4	70/145	3/-	6	1860	12100	66	4GX6175-3EY	4110	1805	1030	2170
1600	10	0,4	28/75	3/-	6	1980	13000	67	4GX6244-3EY	3820	1735	990	1895
	20	0,4	50/95	3/-	6	1980	13000	67	4GX6264-3EY	4240	1835	1020	1900
	20	0,4	50/125	3/-	6	1980	13000	67	4GX6267-3EY	4350	1860	1025	1970
	30	0,4	70/145	3/-	6	2280	14300	67	4GX6275-3EY	4990	1915	1045	2310
2000	10	0,4	28/75	3/-	6	2340	16000	69	4GX6344-3EY	4750	1870	1280	2050
	20	0,4	50/95	3/-	6	2340	16000	69	4GX6364-3EY	5200	1885	1280	2190
	20	0,4	50/125	3/-	6	2340	16000	69	4GX6367-3EY	5030	1905	1280	2130
	30	0,4	70/145	3/-	6	2690	17600	69	4GX6375-3EY	5890	1990	1280	2500
2500	10	0,4	28/75	3/-	6	2790	19000	70	4GX6444-3EY	6070	2025	1280	2170
	20	0,4	50/95	3/-	6	2790	19000	70	4GX6464-3EY	6560	2080	1280	2285
	20	0,4	50/125	3/-	6	2790	19000	70	4GX6467-3EY	6210	2010	1280	2360
	30	0,4	70/145	3/-	6	3210	20900	70	4GX6475-3EY	7300	2155	1280	2545
3150	10	0,4	28/75	3/-	6	3420	22000	73	4GX6544-3EY	7810	2160	1280	2475
	20	0,4	50/95	3/-	6	3420	22000	73	4GX6564-3EY	8180	2205	1280	2525
	20	0,4	50/125	3/-	6	3420	22000	73	4GX6567-3EY	7570	2165	1280	2565
	30	0,4	70/145	3/-	6	3930	24200	73	4GX6575-3EY	8740	2385	1280	2635

All GEAFFOL Neo transformers comply with DIN VDE 0532-76-11/DIN EN 60076-11/IEC 60076-11/DIN EN 50708-2-1 and 50708-3-1. Power ratings > 3150 kVA, different voltages and designs as well as special equipment on request.

¹⁾ Dimension drawing: page 12, indications are approximate values.

Selection of ordering data

GEAFFOL Neo transformers according to Ecodesign Directive 2009/125/EG, EU Regulation No. 2019/1783, Tier 1 (as of July 1, 2015)

Rated power	Rated primary voltage tapping $\pm 2 \times 2.5\%$	Rated secondary voltage (no-load)	Insulation level HV (AC/LI)	Insulation level LV (AC/LI)	Impedance voltage at rated current	No-load losses	Load losses	Noise level	Order No.	Total weight ¹⁾	Dimensions ¹⁾		
											Length	Width	Height
S_r [kVA]	U_{HV} [kV]	U_{LV} [kV]	[kV]	[kV]	U_{tr} [%]	P_0 [W]	P_{k120} [W]	L_{WA} [dB]		[kg]	[mm]	[mm]	[mm]
100	10	0,4	28/75	3/-	4	280	2050	51	4GB5044-3FY	740	1220	690	970
	20	0,4	50/95	3/-	4	280	2050	51	4GB5064-3FY	860	1240	750	1200
160	10	0,4	28/75	3/-	4	400	2900	54	4GB5244-3FY	840	1240	695	1100
	20	0,4	50/95	3/-	4	400	2900	54	4GB5264-3FY	970	1280	725	1180
250	10	0,4	28/75	3/-	4	520	3800	57	4GB5444-3FY	1170	1340	715	1125
	20	0,4	50/95	3/-	4	520	3800	57	4GB5464-3FY	1380	1420	750	1225
315	10	0,4	28/75	3/-	4	650	4500	59	4GB5544-3FY	1280	1390	820	1115
	20	0,4	50/95	3/-	4	650	4500	59	4GB5564-3FY	1540	1490	840	1215
400	10	0,4	28/75	3/-	4	750	5000	60	4GB5644-3FY	1360	1370	820	1270
	20	0,4	50/95	3/-	4	750	5000	60	4GB5664-3FY	1600	1450	835	1355
500	10	0,4	28/75	3/-	4	900	6400	61	4GB5744-3FY	1540	1430	820	1270
	20	0,4	50/95	3/-	4	900	6000	61	4GB5764-3FY	1770	1520	845	1390
630	10	0,4	28/75	3/-	6	1100	7600	62	4GX5844-3EY	1740	1390	840	1465
	20	0,4	50/95	3/-	6	1100	7600	62	4GX5864-3EY	1930	1465	875	1510
	20	0,4	50/125	3/-	6	1100	7100	62	4GX5863-3EY	2380	1545	985	1635
	30	0,4	70/145	3/-	6	1265	7810	62	4GX5875-3EY	2760	1705	925	1775
800	10	0,4	28/75	3/-	6	1300	8000	64	4GX5944-3EY	2070	1495	855	1465
	20	0,4	50/95	3/-	6	1300	8000	64	4GX5964-3EY	2440	1590	895	1550
	20	0,4	50/125	3/-	6	1300	8000	64	4GX5967-3EY	2390	1560	990	1655
	30	0,4	70/145	3/-	6	1495	8800	64	4GX5975-3EY	3020	1715	930	1895
1000	10	0,4	28/75	3/-	6	1550	9000	65	4GX6044-3EY	2640	1595	990	1640
	20	0,4	50/95	3/-	6	1550	9000	65	4GX6064-3EY	2750	1635	990	1680
	20	0,4	50/125	3/-	6	1550	9000	65	4GX6067-3EY	2880	1660	990	1770
	30	0,4	70/145	3/-	6	1780	9900	65	4GX6075-3EY	3390	1745	1020	2010
1250	10	0,4	28/75	3/-	6	1800	11000	67	4GX6144-3EY	2990	1620	990	1730
	20	0,4	50/95	3/-	6	1800	11000	67	4GX6164-3EY	3310	1695	1000	1820
	20	0,4	50/125	3/-	6	1800	11000	67	4GX6167-3EY	3430	1715	1000	1890
	30	0,4	70/145	3/-	6	2070	12100	67	4GX6175-3EY	3990	1820	1030	2090
1600	10	0,4	28/75	3/-	6	2200	13000	68	4GX6244-3EY	3640	1750	990	1810
	20	0,4	50/95	3/-	6	2200	13000	68	4GX6264-3EY	3810	1755	1010	1900
	20	0,4	50/125	3/-	6	2200	13000	68	4GX6267-3EY	3960	1840	1020	1890
	30	0,4	70/145	3/-	6	2530	14300	68	4GX6275-3EY	4740	1955	1055	2130
2000	10	0,4	28/75	3/-	6	2600	16000	70	4GX6344-3EY	4370	1870	1280	1890
	20	0,4	50/95	3/-	6	2600	16000	71	4GX6364-3EY	4770	1935	1280	1980
	20	0,4	50/125	3/-	6	2600	16000	70	4GX6367-3EY	4780	1900	1280	2130
	30	0,4	70/145	3/-	6	2990	17600	70	4GX6375-3EY	5740	2045	1280	2340
2500	10	0,4	28/75	3/-	6	3100	19000	71	4GX6444-3EY	5630	2005	1280	2130
	20	0,4	50/95	3/-	6	3100	19000	71	4GX6464-3EY	5890	2050	1280	2180
	20	0,4	50/125	3/-	6	3100	19000	71	4GX6467-3EY	5470	1975	1280	2220
	30	0,4	70/145	3/-	6	3565	20900	71	4GX6475-3EY	6730	2140	1280	2495
3150	10	0,4	28/75	3/-	6	3800	22000	74	4GX6544-3EY	7260	2140	1280	2455
	20	0,4	50/95	3/-	6	3800	22000	74	4GX6564-3EY	7600	2185	1280	2510
	20	0,4	50/125	3/-	6	3800	22000	74	4GX6567-3EY	7350	2205	1280	2570
	30	0,4	70/145	3/-	6	4370	24200	74	4GX6575-3EY	7840	2280	1280	2615

All GEAFFOL Neo transformers comply with DIN VDE 0532-76-11/DIN EN 60076-11/IEC 60076-11/DIN EN 50588-1.

Power ratings > 3150 kVA, different voltages and designs as well as special equipment on request.

¹⁾ Dimension drawing: page 12, indications are approximate values.

Selection of ordering data

GEAFFOL Neo transformers

Rated power	Rated primary voltage tapping $\pm 2 \times 2,5\%$	Rated secondary voltage (no-load)	Insulation level HV (ACLI)	Insulation level LV (ACLI)	Impedance voltage at rated current	No-load losses	Load losses	Noise level	Order No.	Total weight ¹⁾	Dimensions ¹⁾		
											Length	Width	Height
S_r [kVA]	U_r HV [kV]	U_r LV [kV]	[kV]	[kV]	u_{tr} [%]	P_0 [W]	P_{k120} [W]	L_{WA} [dB]		[kg]	[mm]	[mm]	[mm]
100	10	0,4	28/75	3/-	4	440	1850	61	4GX5044-3CY	600	1190	685	920
	10	0,4	28/75	3/-	4	320	1850	51	4GX5044-3GY	780	1230	690	985
	10	0,4	28/75	3/-	6	360	2000	61	4GX5044-3DY	580	1200	690	910
	10	0,4	28/75	3/-	6	290	2000	51	4GX5044-3HY	710	1210	690	1040
	20	0,4	50/95	3/-	4	600	1750	61	4GX5064-3CY	690	1230	750	1035
	20	0,4	50/95	3/-	4	400	1750	51	4GX5064-3GY	880	1290	760	1085
	20	0,4	50/95	3/-	6	460	2050	61	4GX5064-3DY	700	1270	765	1040
	20	0,4	50/95	3/-	6	340	2050	51	4GX5064-3HY	780	1260	725	1120
160	10	0,4	28/75	3/-	4	610	2600	65	4GX5244-3CY	840	1270	700	1005
	10	0,4	28/75	3/-	4	440	2600	54	4GX5244-3GY	940	1270	700	1105
	10	0,4	28/75	3/-	6	500	2750	65	4GX5244-3DY	790	1280	710	980
	10	0,4	28/75	3/-	6	400	2750	54	4GX5244-3HY	860	1310	710	990
	20	0,4	50/95	3/-	4	700	2500	65	4GX5264-3CY	910	1330	770	1085
	20	0,4	50/95	3/-	4	580	2500	54	4GX5264-3GY	1070	1340	735	1130
	20	0,4	50/95	3/-	6	650	2700	65	4GX5264-3DY	850	1330	775	1075
	20	0,4	50/95	3/-	6	480	2700	54	4GX5264-3HY	950	1360	745	1095
250	10	0,4	28/75	3/-	4	820	3200	68	4GX5444-3CY	990	1320	705	1045
	10	0,4	28/75	3/-	4	600	3200	57	4GX5444-3GY	1140	1340	710	1125
	10	0,4	28/75	3/-	6	700	3300	68	4GX5444-3DY	940	1350	715	1045
	10	0,4	28/75	3/-	6	560	3300	57	4GX5444-3HY	1100	1380	725	1070
	20	0,4	50/95	3/-	4	880	3200	68	4GX5464-3CY	1100	1360	740	1155
	20	0,4	50/95	3/-	4	800	3300	57	4GX5464-3GY	1290	1400	745	1210
	20	0,4	50/95	3/-	6	880	3400	68	4GX5464-3DY	1040	1400	750	1115
	20	0,4	50/95	3/-	6	650	3400	57	4GX5464-3HY	1180	1430	755	1135
315	10	0,4	28/75	3/-	4	980	3500	68	4GX5544-3CY	1150	1370	820	1075
	10	0,4	28/75	3/-	4	730	3500	59	4GX5544-3GY	1350	1390	820	1155
	10	0,4	28/75	3/-	6	850	3900	68	4GX5544-3DY	1080	1370	820	1120
	10	0,4	28/75	3/-	6	670	3700	59	4GX5544-3HY	1190	1410	820	1125
	20	0,4	50/95	3/-	4	1250	3500	68	4GX5564-3CY	1310	1440	835	1190
	20	0,4	50/95	3/-	4	930	3500	59	4GX5564-3GY	1470	1470	840	1210
	20	0,4	50/95	3/-	6	1000	3800	68	4GX5564-3DY	1250	1450	840	1200
	20	0,4	50/95	3/-	6	780	3800	59	4GX5564-3HY	1350	1480	840	1190
400	10	0,4	28/75	3/-	4	1150	4400	68	4GX5644-3CY	1320	1400	820	1225
	10	0,4	28/75	3/-	4	880	4400	60	4GX5644-3GY	1470	1390	820	1325
	10	0,4	28/75	3/-	6	1000	4900	68	4GX5644-3DY	1250	1410	820	1220
	10	0,4	28/75	3/-	6	800	4900	60	4GX5644-3HY	1450	1460	820	1240
	20	0,4	50/95	3/-	4	1270	3800	68	4GX5664-3CY	1460	1460	840	1310
	20	0,4	50/95	3/-	4	1100	3800	60	4GX5664-3GY	1670	1520	845	1310
	20	0,4	50/95	3/-	6	1200	4300	68	4GX5664-3DY	1370	1480	845	1275
	20	0,4	50/95	3/-	6	940	4300	60	4GX5664-3HY	1540	1530	850	1320
500	10	0,4	28/75	3/-	4	1300	5900	69	4GX5744-3CY	1480	1450	820	1180
	10	0,4	28/75	3/-	4	1000	5300	61	4GX5744-3GY	1630	1420	820	1345
	10	0,4	28/75	3/-	6	1200	6400	69	4GX5744-3DY	1390	1450	820	1255
	10	0,4	28/75	3/-	6	950	6400	61	4GX5744-3HY	1540	1490	820	1250
	20	0,4	50/95	3/-	4	1700	4900	69	4GX5764-3CY	1650	1510	845	1370
	20	0,4	50/95	3/-	4	1300	4900	61	4GX5764-3GY	1830	1520	845	1385
	20	0,4	50/95	3/-	6	1400	5100	69	4GX5764-3DY	1530	1520	855	1270
	20	0,4	50/95	3/-	6	1100	5100	61	4GX5764-3HY	1750	1560	860	1355

All GEAFFOL Neo transformers comply with DIN VDE 0532-76-11/DIN EN 60076.
Power ratings > 2500 kVA, different voltages and designs as well as special equipment on request.

¹⁾ Dimension drawing: page 12, indications are approximate values.

Selection of ordering data

GEAFOL Neo transformers

Rated power	Rated primary voltage tapping $\pm 2 \times 2.5\%$	Rated secondary voltage (no-load)	Insulation level HV (AC/LI)	Insulation level LV (AC/LI)	Impedance voltage at rated current	No-load losses	Load losses	Noise level	Order No.	Total weight ¹⁾	Dimensions ¹⁾		
											Length	Width	Height
S_T [kVA]	U_T HV [kV]	U_T LV [kV]	[kV]	[kV]	u_{2T} [%]	P_0 [W]	P_{k120} [W]	L_{WA} [dB]		[kg]	[mm]	[mm]	[mm]
630	10	0,4	28/75	3/-	4	1500	7300	70	4GX5844-3CY	1660	1460	820	1335
	10	0,4	28/75	3/-	4	1150	7300	62	4GX5844-3GY	1880	1480	820	1430
	10	0,4	28/75	3/-	6	1370	7500	70	4GX5844-3DY	1760	1550	835	1350
	10	0,4	28/75	3/-	6	1100	7500	62	4GX5844-3HY	1900	1560	835	1370
	20	0,4	50/95	3/-	4	2000	6900	70	4GX5864-3CY	1900	1550	855	1405
	20	0,4	50/95	3/-	4	1600	6900	62	4GX5864-3GY	2090	1520	845	1570
	20	0,4	50/95	3/-	6	1650	6800	70	4GX5864-3DY	1800	1590	865	1370
800	10	0,4	28/75	3/-	6	1250	6800	62	4GX5864-3HY	2140	1650	880	1400
	10	0,4	28/75	3/-	4	1800	7800	72	4GX5944-3CY	2020	1520	820	1520
	10	0,4	28/75	3/-	4	1400	7800	64	4GX5944-3GY	2280	1550	830	1540
	10	0,4	28/75	3/-	6	1700	8300	72	4GX5944-3DY	2000	1610	845	1345
	10	0,4	28/75	3/-	6	1300	8300	64	4GX5944-3HY	2240	1640	855	1370
	20	0,4	50/95	3/-	4	2400	8500	72	4GX5964-3CY	2140	1550	855	1615
	20	0,4	50/95	3/-	4	1900	8500	64	4GX5964-3GY	2360	1580	860	1605
1000	20	0,4	50/95	3/-	6	1900	8200	72	4GX5964-3DY	2120	1650	875	1445
	20	0,4	50/95	3/-	6	1500	8200	64	4GX5964-3HY	2340	1670	885	1450
	10	0,4	28/75	3/-	4	2100	10000	73	4GX6044-3CY	2560	1600	990	1635
	10	0,4	28/75	3/-	4	1600	10000	65	4GX6044-3GY	2980	1640	990	1745
	10	0,4	28/75	3/-	6	2000	9500	73	4GX6044-3DY	2390	1620	990	1580
	10	0,4	28/75	3/-	6	1500	9500	65	4GX6044-3HY	2650	1660	990	1560
	20	0,4	50/95	3/-	4	2800	9500	73	4GX6064-3CY	2580	1590	990	1790
1250	20	0,4	50/95	3/-	4	2300	8700	65	4GX6064-3GY	2860	1630	990	1810
	20	0,4	50/95	3/-	6	2300	9000	73	4GX6064-3DY	2460	1660	990	1645
	20	0,4	50/95	3/-	6	1800	9000	65	4GX6064-3HY	2760	1700	990	1680
	10	0,4	28/75	3/-	6	2400	11000	78	4GX6144-3DY	2710	1720	990	1655
1600	10	0,4	28/75	3/-	6	1800	11000	68	4GX6144-3HY	3220	1780	990	1715
	20	0,4	50/95	3/-	6	2700	11200	78	4GX6164-3DY	2850	1780	990	1695
	20	0,4	50/95	3/-	6	2100	11200	68	4GX6164-3HY	3150	1800	990	1710
	10	0,4	28/75	3/-	6	2800	13600	76	4GX6244-3DY	2970	1705	990	1710
2000	10	0,4	28/75	3/-	6	2100	13600	68	4GX6244-3HY	3340	1745	990	1730
	20	0,4	50/95	3/-	6	3100	13200	76	4GX6264-3DY	3200	1765	1010	1810
	20	0,4	50/95	3/-	6	2400	13200	68	4GX6264-3HY	3570	1800	1015	1860
	10	0,4	28/75	3/-	6	3500	15500	78	4GX6344-3DY	3640	1805	1280	1815
2500	10	0,4	28/75	3/-	6	2600	15500	70	4GX6344-3HY	4090	1855	1280	1850
	20	0,4	50/95	3/-	6	3900	15800	78	4GX6364-3DY	3700	1785	1280	2025
	20	0,4	50/95	3/-	6	2900	15800	70	4GX6364-3HY	4070	1820	1280	2055
	10	0,4	28/75	3/-	6	4300	20000	81	4GX6444-3DY	4380	1895	1280	2045
2500	10	0,4	28/75	3/-	6	3000	20000	71	4GX6444-3HY	5030	1920	1280	2085
	20	0,4	50/95	3/-	6	4400	19000	81	4GX6464-3DY	4590	1900	1280	2150
	20	0,4	50/95	3/-	6	3500	19000	71	4GX6464-3HY	5070	1990	1280	2135

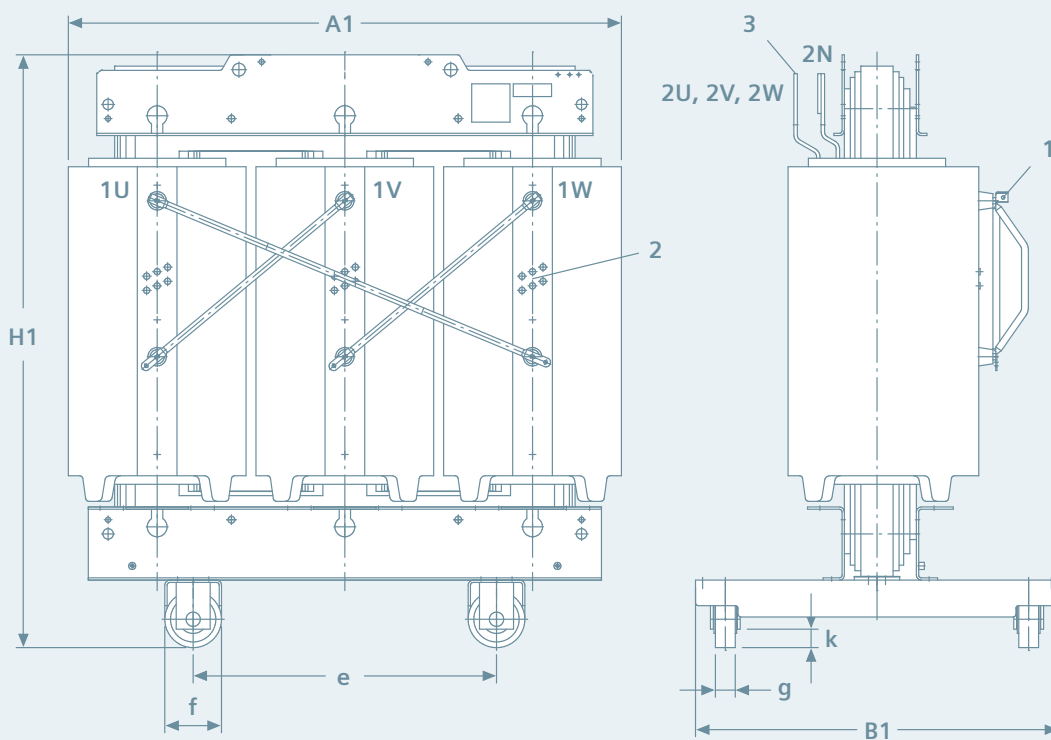
All GEAFOL Neo transformers comply with DIN VDE 0532-76-11/DIN EN 60076-11/IEC 60076-11.

Power ratings > 2500 kVA, different voltages and designs as well as special equipment on request

¹⁾ Dimension drawing: page 12, indications are approximate values.

Truck dimensions

Dimension drawing of the GEAFFOL Neo transformer



Dimension drawing
Dimensions A1, B1, and H1, see pages 8 to 11

Dimension e applies for longitudinal and transverse travel

- 1 High-voltage terminal
- 2 High-voltage tapping-tapping at the HV terminal side
- 3 Low-voltage terminal

Rated power in kVA	Dimensions in mm			
	e	f	g	k
630 to 800	670	125	40	45
1000 to 1600	820	160	50	55
2000 to 3150	1070	200	70	65

Terminal dimensions (low-voltage)

Hole measurements for 400 V low-voltage terminals

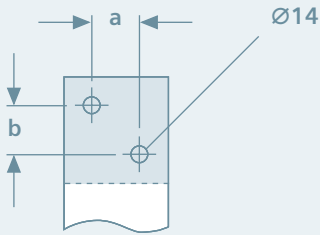


Fig. 1

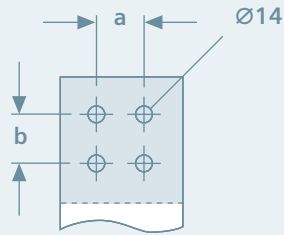


Fig. 2

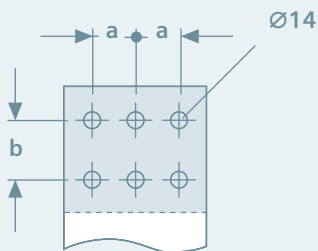


Fig. 3

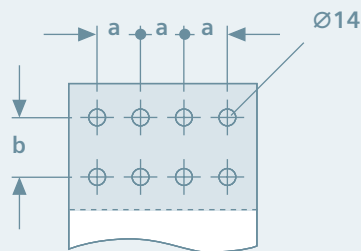


Fig. 4

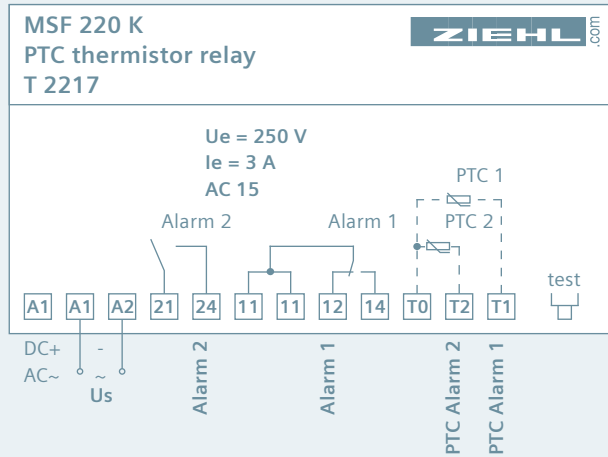
Dimensions in mm

Rated power in kVA	Fig.	Dimensions in mm	
		a	b
630	1	26	26
800 to 1250	2	60	40
1600	3	40	40
2000	3	50	40
2500	3	60	40
3150	4	60	40

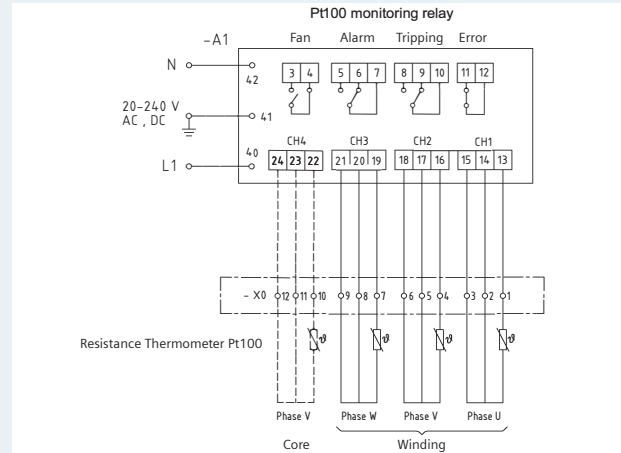
Notes

Unless otherwise indicated on the individual pages of this catalog, the specified values, dimensions, and weights in particular are subject to change without notice. The illustrations are non-binding. All product designations used are trademarks or product names of Siemens Energy or other suppliers. All dimensions in this catalog are given in mm unless otherwise stated.

Accessories^{*)}



Terminal diagram: Standard trip relay for PTC sensors



Wiring diagram tripping device for PT100 sensors (example)

Additional transformer ventilation for more power

GEAFOL Neo transformers can be equipped with fans to increase the power rating by up to about 50% (depending on type).

With a 30% increase in power rating, for example, the short-circuit losses given in the list are increased by about 69% and the short-circuit voltage increases in linear fashion by 30%.

The fans are automatically switched on or off via temperature sensors in the LV winding in connection with a fan controller.

Temperature monitoring

The temperature of GEAFOL transformers is monitored in the low-voltage winding by means of PTC thermistor detectors or by using PT 100 sensors (on request).

In the case of static converter transformers, the core temperature is also monitored.

The most cost-effective solution is monitoring with PTC thermistor detectors and trip relay without temperature indication. Every GEAFOL transformer is equipped with at least one PTC thermistor detector loop for tripping.

Function

Temperature monitoring with PTC thermistors: If two sensor systems are used to monitor temperature, one is wired up to give an alarm and the other to switch off the transformer. The nominal operating temperatures of both systems differ by 20 K. A third system can, for example, take over controlling of the fans.

The temperature sensors function as PTC-resistors: If the response temperature of a sensor is reached, the resistance rises sharply and the trip relay switches over immediately.

If the winding cools down by about 6 K below the operating temperature, the relay coil in the trip relay is fully energized and the contact switches back.

The ambient temperature of the trip relay is limited to 55° Celsius. It is therefore suitable for installation in medium or low-voltage distribution cabinets.

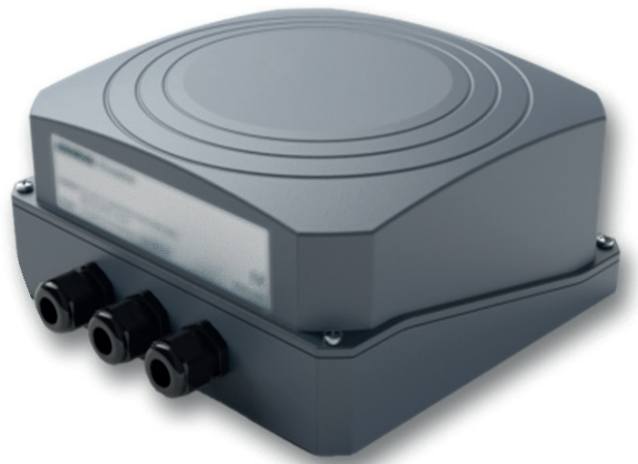
^{*)} Accessories on request

Sensformer™ – Gateway to digitization

The sensformer is collecting and transmitting transformer data to a secure storage and analytics tool.

Following measurements will be provided by default:

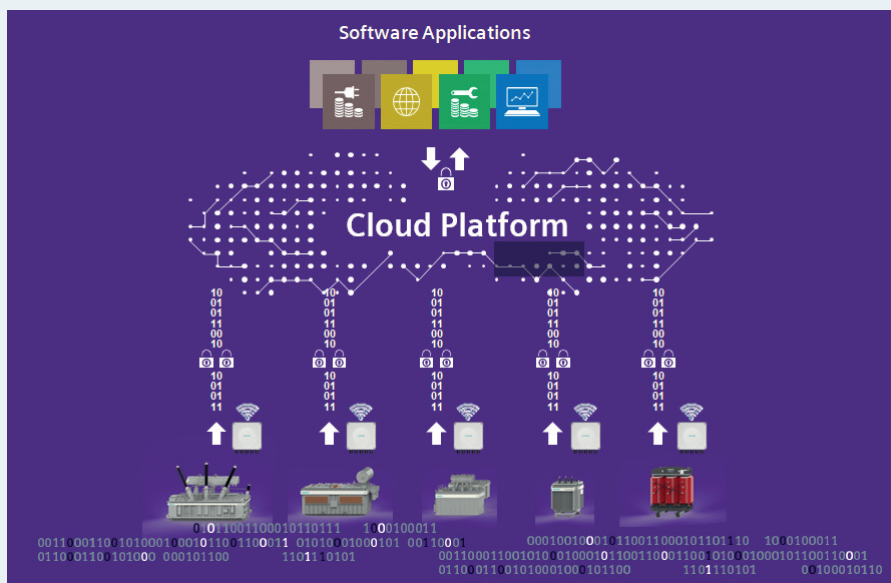
- Low-voltage winding temperature
- Low-voltage winding current
- GPS location



Features

- Safe and secure data transmission via GSM or Ethernet with cutting-edge Cyber Security measures
- Data storage as cloud solution with graphical user interface for data analysis
- Software applications for further value creation and process optimization

Further information on request.



Innovative housing design



Proven technology in a new design

Innovation is something you can also see, at least when it comes to the new, award-winning GEAFOLE housing whose stylistic idiom is based on the new transformer family design. Besides these purely visual aspects, the housing offers our customers other benefits as well.

Higher mechanical stability

Because the transformer and housing are delivered on a common base frame as a permanently mounted unit, they offer an extremely stable, robust overall configuration. This is further supported by the mechanically fixed installation of the transformer and the use of phases at the housing corners. Crossbraces can also be used at the transformer on request.

Greater flexibility and safety

The housing roof can be opened from the inside to permit hoisting by crane. The bolts connecting the housing and transformer are accommodated inside the housing for a higher degree of personnel safety. And thanks to the fully modular construction, a subsequent upgrade to a higher protection class (IP class) is possible at any time.

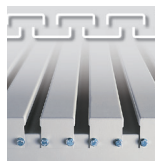
Versions for indoor and outdoor installation in multiple protection classes as well as various installation options such as, for example, "infrared window" or with air-/water heat exchanger are available. Further information upon request.

Standard housing

These housings are available in versions for indoor and outdoor installation. Standard delivery is as a construction kit.



Labyrinth arrangement of ventilation louvers provides additional security against access with wire



Roof construction of protection class IP23 (indoor installation)

Graphic: Cutaway of the ventilation slots with the roof strips.

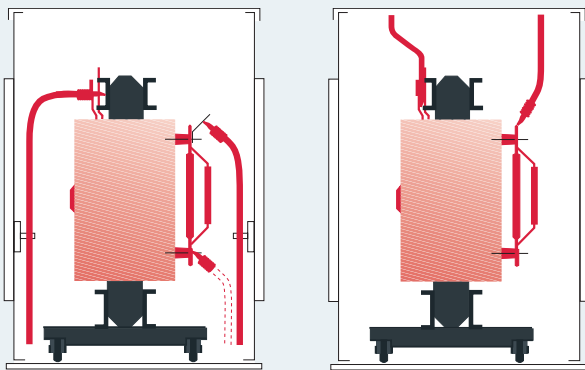
Photo: The roof strips are turned down at the side walls and screwed firmly into place.



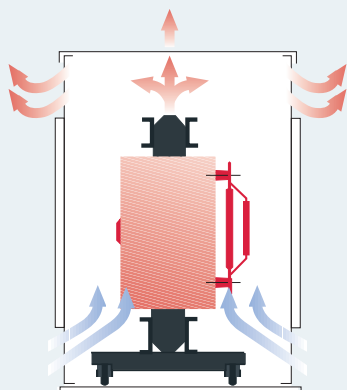
Installation	Indoor	Indoor	Indoor		Outdoor
Protection class	IP00	IP20	IP23	IP23D	IP23DW
14th character of Order No.	A	B	C	D	E
Environmental influences					
Enclosed electrical operating areas	●	●	●	●	●
Electrical operating areas	–	●	●	●	●
Water up to 60° up to the ⊥	–	–	●	●	●
Snow	–	–	–	–	●
Direct sunlight	–	–	–	–	●
Salty air	●	●	●	●	● Special paint finish
Aggressive chemical atmosphere	●	●	●	●	● Special paint finish
Accidental contact	–	●	●	●	●
Foreign matter > 12,5 mm dia.	–	●	●	●	●
Protection against access with wire ¹⁾	–	–	on request	●	●

¹⁾ Test wire diameter 1 mm according to EN 60529.

Standard housing

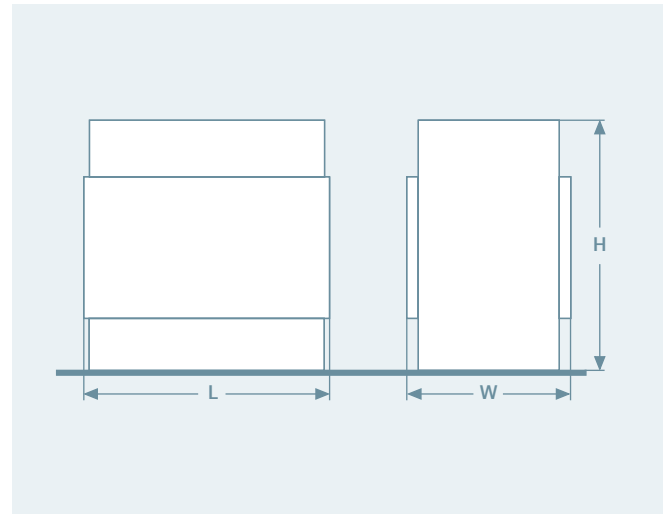


Variable connection technology:
The cable can be fed in through the floor, roof,
or one of the side walls.



A reduction in power is possible in the case of installation
inside the protective housing.

Dimension drawing of the housing



Outdoor (protection class IP23DW)

Housing size	Max. housing dimensions			Housing weight
	L	W	H	
	[mm]	[mm]	[mm]	[kg]
1	1440	1070	1540	153
2	1880	1320	1845	233
3	1880	1420	2245	267
4	2240	1540	2480	325
5	2380	1540	2950	392

Indoor (protection class IP20)

Housing size	Max. housing dimensions			Housing weight
	L	W	H	
	[mm]	[mm]	[mm]	[kg]
1	1390	1010	1335	121
2	1860	1280	1535	177
3	1860	1280	1885	211
4	2120	1500	2120	252
5	2360	1500	2340	290

Indoor (protection class IP23 and IP23D)

Housing size	Max. housing dimensions			Housing weight
	L	W	H	
	[mm]	[mm]	[mm]	[kg]
1	1390	1010	1395	134
2	1860	1280	1595	207
3	1860	1280	1945	247
4	2120	1500	2225	302
5	2360	1500	2495	370

Selection of ordering data^{*) ***) ***)}

Standard housing for GEAFOL Neo transformers

Rated power S _r [kVA]	Rated voltage U _r HV** [kV]	Type	Housing size	Rated power S _r [kVA]	Rated voltage U _r HV** [kV]	Type	Housing size
100	10	4GX5044-3CY	2	500	20	4GX5764-3CY	3
	10	4GX5044-3GY	2		20	4GX5764-3GY	3
	10	4GX5044-3DY	2		20	4GX5764-3DY	3
	10	4GX5044-3HY	2		20	4GX5764-3HY	3
	20	4GX5064-3CY	2	630	10	4GX5844-3CY	3
	20	4GX5064-3GY	3		10	4GX5844-3GY	3
	20	4GX5064-3DY	3		10	4GX5844-3DY	3
	20	4GX5064-3HY	3		10	4GX5844-3HY	3
160	10	4GX5244-3CY	3	20	4GX5864-3CY	3	
	10	4GX5244-3GY	3	20	4GX5864-3GY	3	
	10	4GX5244-3DY	3	20	4GX5864-3DY	3	
	10	4GX5244-3HY	3	20	4GX5864-3HY	3	
	20	4GX5264-3CY	3	800	10	4GX5944-3CY	3
	20	4GX5264-3GY	3		10	4GX5944-3GY	3
	20	4GX5264-3DY	3		10	4GX5944-3DY	3
	20	4GX5264-3HY	3		10	4GX5944-3HY	3
250	10	4GX5444-3CY	3	20	4GX5964-3CY	4	
	10	4GX5444-3GY	3	20	4GX5964-3GY	4	
	10	4GX5444-3DY	3	20	4GX5964-3DY	3	
	10	4GX5444-3HY	3	20	4GX5964-3HY	3	
	20	4GX5464-3CY	3	1000	10	4GX6044-3CY	4
	20	4GX5464-3GY	3		10	4GX6044-3GY	4
	20	4GX5464-3DY	3		10	4GX6044-3DY	4
	20	4GX5464-3HY	3		10	4GX6044-3HY	4
315	10	4GX5544-3CY	3	20	4GX6064-3CY	4	
	10	4GX5544-3GY	3	20	4GX6064-3GY	4	
	10	4GX5544-3DY	3	20	4GX6064-3DY	4	
	10	4GX5544-3HY	3	20	4GX6064-3H	4	
315	20	4GX5564-3CY	3	1250	10	4GX6144-3DY	4
	20	4GX5564-3GY	3		10	4GX6144-3HY	4
	20	4GX5564-3DY	3		20	4GX6164-3DY	4
	20	4GX5564-3HY	3		20	4GX6164-3HY	4
400	10	4GX5644-3CY	3	1600	10	4GX6244-3DY	4
	10	4GX5644-3GY	3		10	4GX6244-3HY	4
	10	4GX5644-3DY	3		20	4GX6264-3DY	4
	10	4GX5644-3HY	3		20	4GX6264-3HY	4
	20	4GX5664-3CY	3	2000	10	4GX6344-3DY	5
	20	4GX5664-3GY	3		10	4GX6344-3HY	5
	20	4GX5664-3DY	3		20	4GX6364-3DY	5
	20	4GX5664-3HY	3		20	4GX6364-3HY	5
500	10	4GX5744-3CY	3	2500	10	4GX6444-3DY	5
	10	4GX5744-3GY	3		10	4GX6444-3HY	5 ¹⁾
	10	4GX5744-3DY	3		20	4GX6464-3DY	5
	10	4GX5744-3HY	3		20	4GX6464-3HY	5 ²⁾

¹⁾ Different design and special equipment on request ²⁾ Version for 30 kV on request

³⁾ Verification of the exact size of the housing in case of order

¹⁾ IP20: height + 100 mm ²⁾ IP20/IP23/IP23F: width + 100 mm, height + 100 mm

Apart from standard housings, we can supply housings with frame construction and doors that can also be equipped with roof ventilators.

These housing types are also suitable for combined installation with low- and medium-voltage cabinets. Please ask us if you need them.

Selection of ordering data^{*) ***) ***)}

Standard housing for GEA FOL Neo transformers according to the Ecodesign Directive

Rated power S_r [kVA]	Rated voltage U_r , HV** [kV]	Type	Housing size	Rated power S_r [kVA]	Rated voltage U_r , OS** [kV]	Type	Housing size
100	10	4GX5044-3FY	2	800	10	4GX5944-3CY	3
	20	4GX5064-3FY	3		20	4GX5964-3HY	4
160	10	4GX5244-3FY	3	1000	10	4GX6044-3CY	3
	20	4GX5264-3FY	3		20	4GX6064-3H	4
250	10	4GX5444-3FY	3	1250	10	4GX6144-3DY	4
	20	4GX5464-3FY	3		20	4GX6164-3HY	4
315	10	4GX5544-3FY	3	1600	10	4GX6244-3DY	4
	20	4GX5564-3FY	3		20	4GX6264-3HY	4
400	10	4GX5644-3FY	3	2000	10	4GX6344-3DY	4
	20	4GX5664-3FY	3		20	4GX6364-3HY	4
500	10	4GX5744-3FY	3	2500	10	4GX6444-3DY	5 ¹⁾
	20	4GX5764-3FY	3		20	4GX6444-3HY	5 ²⁾
630	10	4GX5844-3EY	3	>2500	Housing upon request		
	20	4GX5864-3EY	3				

¹⁾ Different design and special equipment on request ²⁾ Version for 30 kV on request

³⁾ Verification of the exact size of the housing in case of order

¹⁾ IP20: height + 100 mm ²⁾ IP20/IP23/IP23F: width + 100 mm, height + 100 mm

Apart from standard housings, we can supply housings with frame construction and doors that can also be equipped with roof ventilators. These housing types are also suitable for combined installation with low- and medium-voltage cabinets. Please ask us if you need them.

Published by

Siemens Energy Global GmbH & Co. KG
Siemens Energy
Transmission
Freyeslebenstr. 1
91058 Erlangen, Germany

Transformer factory Kirchheim/Teck
Hegelstraße 20
73230 Kirchheim/Teck, Germany

Article No. EMTR-B10021-00-7600
04.2021

For more information:

Customer Support Center

Phone.: +49 180/524 70 00

Fax: +49 180/524 24 71

(Fees depending on the provider)

E-mail: support.energy@siemens.com

Subject to changes and errors.

The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

Siemens Energy is a registered trademark licensed by Siemens AG.