

# THREE-PHASE DRY-TYPE POWER TRANSFORMERS WITH CAST RESIN INSULATION



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Three-phase dry-type power transformers with GEAFOL cast resin insulation, with voltage up to 10 kV are intended for transforming of a.c. energy in power networks and at energy consumers, of 50 Hz rated frequency.

The transformers are designed for indoor operation, under temperate climate conditions (minus 45 to plus 40 °C). Relative air humidity 75% at 15 °C. The environment shall be inexplusive, with dust content concentrations not affecting the transformer parameters to inadmissible limits. Operation altitude 1000 m max.

The transformers are equipped with SIEMENS windings. The insulation thermal-endurance is of F class. For windings insulation is applied epoxy compound with a quartz filler. Additionally the windings are reinforced with fiberglass which excludes cracking of epoxy compound even under the transformer overload. GEAFOL does not exert deleterious effect on environment, does not develop toxic gases even under arc discharges. Owing to such insulation the windings are maintenance-free.

Transformers are able to be operated in the networks exposed to lightning and switching over-voltages. They are of low noise level and of high withstandability against short-circuit currents.

Transformers provide full ecological and fire safety, can be installed in the places requiring increased safety (underground, mines, cinema, domestic and municipal buildings), in the places with high requirements for safe environment (water intake stations, athletic facilities, health resort zones), at industrial enterprises, iron-and-steel works, chemical plants, power plants in close proximity to load centers, that allows to avoid expenses connected with erection of electric power substations. The transformers provide saving of distributing bus-bars and low-voltage cables, reduce their electric losses.

Voltage regulation within  $\pm 5\%$  range is carried out by 2,5 % steps at a fully deenergized transformer through resetting of jumpers.

For overheat protection the transformers are equipped with thermister controlled devices inbuilt in LV-windings . For power increase up to 30 % transformers can be fitted with air fans automatically controlled. Noise level of transformers with operating fans does not exceed 80 dBA. At a Customer's order vibration damping supports can be delivered as an option.

Transformers are manufactured of various protection degrees: IP00, IP21, IP31. At a Customer's order the transformers may have characteristics differing from those indicated in Tables 3, 4, and be of any desired design and climatic versions.

**Table 3. Without enclosures**

Rated power, kVA	Rated high voltage, kV	Rated low voltage, kV	Winding connection/vector group	Short-circuit loss, W	Short-circuit voltage,%	No-load loss, W	Sound power level, dBA	Length, mm (L)	Width, mm (W)	Height, mm (H)	Weight, kg
<b>100</b>	10	0.4	Dyn11	1800	4.0	600	59	1250	700	1000	750
<b>160</b>	10	0.4	Dyn11	2550	4.0	700	62	1300	700	1080	800
<b>250</b>	10	0.4	Dyn11	3000	5.5	900	65	1420	1000	1245	1200
<b>400</b>	10	0.4	Dyn11	3900	5.5	1200	68	1420	1000	1395	1550
<b>630</b>	10	0.4	Dyn11	5730	5.5	1650	71	1520	1000	1530	1900
<b>1000</b>	10	0.4	Dyn11	8400	6.0	2150	74	1720	1000	1730	2550
	10	0.4	Dyn11	8400	8.0	2150	74	1720	1000	1730	2550
<b>1250</b>	10	0.4	Dyn11	10600	6.0	2250	75	1720	1000	1750	3000
	10	0.4	Dyn11	10600	8.0	2250	75	1720	1000	1750	3000
<b>1600</b>	10	0.4	Dyn11	11300	6.0	3200	76	1950	1080	1980	4300
	10	0.4	Dyn11	12800	8.0	3200	76	1950	1080	1980	4300
<b>2500</b>	10	0.4	Dyn11	16400	6.0	4400	78	2000	1400	2150	5000
	10	0.4	Dyn11	16400	8.0	4400	78	2000	1400	2150	5000

Table 4. With enclosures

Rated power, kVA	Rated high voltage, kV	Rated low voltage, kV	Winding connection/ vector group	Short-circuit loss, W	Short-circuit voltage, %	No-load loss, W	Sound power level, dBA	Length, mm (L)	Width, mm (W)	Height, mm (H)	Weight, kg
<b>100</b>	10	0.4	Dyn11	1800	4.0	600	59	1350	1050	1400	850
<b>160</b>	10	0.4	Dyn11	2550	4.0	700	62	1350	1050	1500	900
<b>250</b>	10	0.4	Dyn11	3000	5.5	900	65	1660	1110	2165	1500
<b>400</b>	10	0.4	Dyn11	3900	5.5	1200	68	1660	1110	2165	1705
<b>630</b>	10	0.4	Dyn11	5730	5.5	1650	71	1750	1220	2130	2160
<b>1000</b>	10	0.4	Dyn11	8400	6.0	2150	74	1950	1220	2130	3150
	10	0.4	Dyn11	8800	8.0	2150	74	1950	1220	2130	3150
<b>1250</b>	10	0.4	Dyn11	10600	6.0	2250	75	1950	1220	2130	3550
	10	0.4	Dyn11	10600	8.0	2250	75	1950	1220	2130	3550
<b>1600</b>	10	0.4	Dyn11	11300	6.0	3200	76	2150	1220	2305	4660
	10	0.4	Dyn11	12800	8.0	3200	76	2150	1220	2305	4660
<b>2500</b>	10	0.4	Dyn11	16400	6.0	4400	78	2260	1620	2420	5500
	10	0.4	Dyn11	16400	8.0	4400	78	2260	1620	2420	5500

Fig.2. Without enclosures

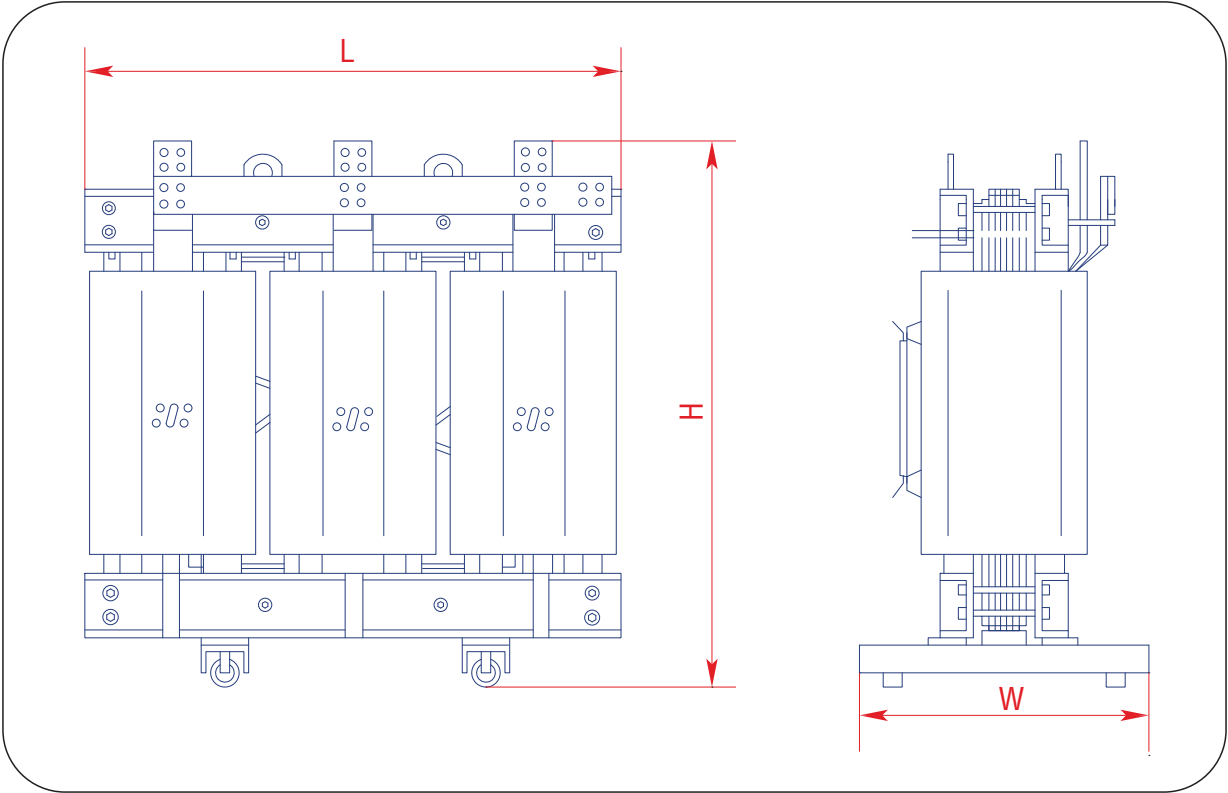
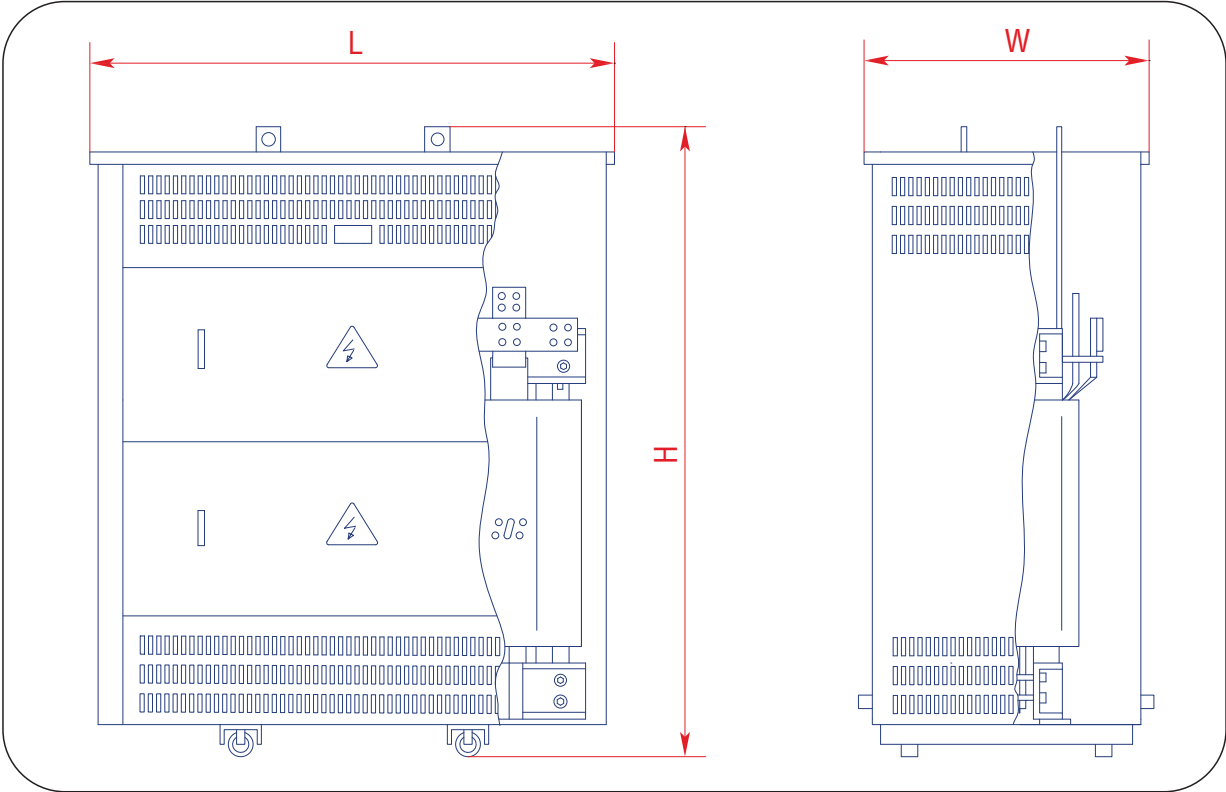


Fig.2. With enclosures



# ORDERING DETAILS

1	<b>Transformer type</b>	2	<b>Rated power</b>
	_____		_____ kVA
3	<b>HV rated voltage</b>	4	<b>LV rated voltage</b>
	_____ kV		_____ kV
5	<b>Rated frequency</b>	6	<b>Off-load changing at</b>
	<input type="checkbox"/> 50 Hz <input type="checkbox"/> 60 Hz		<input type="checkbox"/> HV <input type="checkbox"/> LV range _____ steps _____
7	<b>Short-circuit voltage</b>	8	<b>Short-circuit losses</b>
	_____ %		_____ W
9	<b>No-load losses</b>	10	<b>Winding connection/vector group</b>
	_____ W		_____
11	<b>Withstand voltage</b>	12	<b>Climatic version and installation category</b>
	HV _____ kV      LV _____ kV		_____
13	<b>Protection degree</b>	14	
	IP _____		length _____    width _____    height _____
15	<b>Transformer weight</b>		
	_____ kg		
16	<b>Additional requirements</b>		

Contact person

Phone: \_\_\_\_\_

Name/Position: \_\_\_\_\_