GE
Consumer & Industrial

WORLDWIDE PARTNER



Wave Cast

Cast Coil Transformers

GE imagination at work

Technical specifications

Standard products

		IEC	ANSI / IEEE
Phases		3	
Conductors		Copper or Aluminum	
Frequency (Hz)		50	60
Primary Voltages (kV)		Up to 35	
Secondary Voltages (kV)		Up to 10	
Power (kVA)		160 - 10,000	
Off-load tapping range		± 2 × 2.5%, ± 5% *	
Insulation class		F (155°C) or H (180°C)	150°C or 180°C
Ambient temperature (°C)	Max	≤40	
	Min	≥-5 (indoor), ≥-25 (outdoor)	≥-30
Altitude (m)		≤1,000	
Connection		Dyn5, Dyn11, YNd11, Yyn0 and others	
Cooling		AN, AN/AF, AF	AA, AA/FA, AFA

* Other taps are available on request.

Accessories / options

- Enclosures: IP20, IP21, IP23, NEMA 1, NEMA 3R and others
- Space heaters
- Thermostat for space heaters
- 120/240V fans for forced-air cooling ratings
- Temperature monitor/fan controller
- Rollers

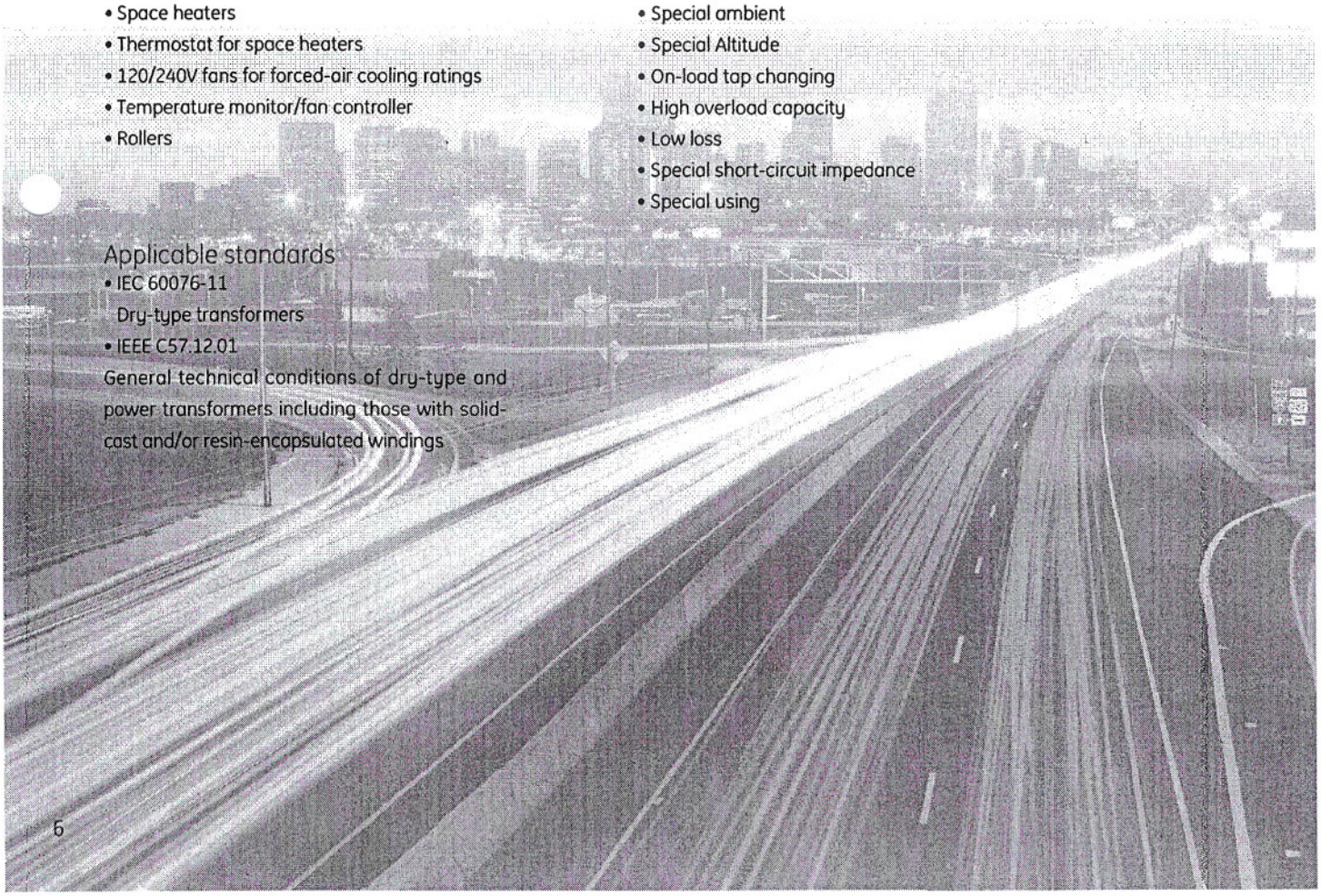
Special design or application

- Larger power
- Higher Secondary Voltage
- Special ambient
- Special Altitude
- On-load tap changing
- High overload capacity
- Low loss
- Special short-circuit impedance
- Special using

Applicable standards

- IEC 60076-11
  Dry-type transformers
- IEEE C57.12.01

General technical conditions of dry-type and power transformers including those with solid-cast and/or resin-encapsulated windings



Technical specifications

Phase number	Frequency	Service condition	Taping range of HV winding	Connection symbol	Insulation class	Temperature rise limit
3	50 Hz	Normal condition according to IEC60076-11: 2007	± 2 × 2.5% or ± 5%	Dyn, Yyn, Yd, YNd	F	100K

Copper windings, distribution transformers

h.v. Um=12kV l.v. Um≤1.1kV

Rated Power	kVA	200	315	400	500	630	800	1000	1250	1600	2000	2500	3150
No-load Loss	W	700	1000	1080	1250	1300	1550	1800	2000	2600	3500	4100	5000
Load Loss 75°C	W	2280	2990	3520	4100	5300	6500	7210	8570	10700	12800	15400	20000
Load Loss 120°C	W	2600	3400	4000	4650	6000	7350	8100	9600	12000	14400	17000	22000
Short-circuit Impendence	%	4	4	4	4	6	6	6	6	6	6	6	6
Noise LPA	dB	48	48	48	50	50	52	52	52	54	56	58	60
Length	mm	1170	1230	1260	1310	1410	1470	1500	1580	1700	1890	2010	1970
Width	mm	750	750	750	750	750	920	920	920	920	920	1170	1270
Height	mm	930	1040	1110	1160	1170	1280	1400	1440	1570	1570	1620	1960
Weight	kg	1040	1330	1500	1750	2010	2310	2710	3190	3920	4930	5730	6400
Distance Between Rollers	mm	660	660	660	660	660	820	820	820	820	820	1070	1070

h.v. Um=24kV l.v. Um≤1.1kV

Rated Power	kVA		315	400	500	630	800	1000	1250	1600	2000	2500	3150
No-load Loss	W		1100	1200	1400	1500	1800	2100	2400	3000	3900	4400	5000
Load Loss 75°C	W		2720	4050	4920	6020	6520	7470	9440	12000	13700	17700	22700
Load Loss 120°C	W		3100	4600	5600	6800	7300	8400	10600	13500	15300	19500	25000
Short-circuit Impendence	%		4	4	4	6	6	6	6	6	6	6	6
Noise LPA	dB		50	50	52	52	54	54	54	56	58	60	62
Length	mm		1380	1370	1400	1530	1590	1650	1710	1850	2010	2100	2130
Width	mm		750	750	750	750	920	920	920	920	1170	1170	1270
Height	mm		1220	1290	1360	1360	1400	1500	1650	1760	1800	1830	2060
Weight	kg		1520	1620	1850	2080	2550	3050	3570	4500	5450	6070	7050
Distance Between Rollers	mm		660	660	660	660	820	820	820	820	1070	1070	1070

h.v. Um=40.5kV l.v. Um≤1.1kV

Rated Power	kVA					630	800	1000	1250	1600	2000	2500	3150
No-load Loss	W					1840	2100	2450	2800	3200	3900	4500	5500
Load Loss 75°C	W					5350	7100	8000	11600	12900	13900	20500	21500
Load Loss 120°C	W					6000	8000	9000	13000	14500	15500	22500	23500
Short-circuit Impendence	%					6	6	6	6	6	6	6	6
Noise LPA	dB					54	56	58	60	60	62	62	62
Length	mm					1670	1680	1770	1800	1890	1950	2100	2280
Width	mm					920	920	920	920	1270	1270	1270	1270
Height	mm					1560	1580	1620	1900	1960	2180	2180	2180
Weight	kg					2600	2800	3500	3900	4600	5700	6700	7700
Distance Between Rollers	mm					820	820	820	820	1070	1070	1070	1070

Other powers and voltages are available on request.

Technical specifications

Aluminum windings, distribution transformers

h.v. Um=12kV l.v. Um≤1.1kV

Rated Power	kVA	315	400	500	630	800	1000	1250	1600	2000	2500	3150
No-load Loss	W	900	1000	1200	1300	1600	1800	2300	2600	3300	4000	5000
Load Loss 75°C	W	3100	3500	4200	5380	6600	7800	8900	10800	12800	14500	19500
Load Loss 120°C	W	3500	4000	4800	6100	7500	8800	10000	11600	14000	16000	21000
Short-circuit Impendence	%	4	4	4	6	6	6	6	6	6	6	6
Noise LPA	dB	48	48	50	50	52	52	52	54	56	58	60
Length	mm	1310	1320	1350	1520	1560	1610	1680	1740	1860	2070	2130
Width	mm	750	750	750	750	920	920	920	920	920	1170	1170
Height	mm	1090	1200	1300	1310	1410	1550	1640	1800	1840	1890	2050
Weight	kg	1300	1500	1700	1880	2200	2580	3060	3760	4300	5500	6400
Distance Between Rollers	mm	660	660	660	660	820	820	820	820	820	1070	1070

h.v. Um=24kV l.v. Um≤1.1kV

Rated Power	kVA	315	400	500	630	800	1000	1250	1600	2000	2500	3150
No-load Loss	W	1200	1300	1500	1600	1700	2000	2400	3000	3800	4400	5200
Load Loss 75°C	W	2300	3500	4300	6350	7700	9000	9800	11200	13000	17000	22000
Load Loss 120°C	W	2600	3750	4900	7300	8700	10200	11000	12500	14500	19000	24000
Short-circuit Impendence	%	4	4	4	6	6	6	6	6	6	6	6
Noise LPA	dB	50	50	52	52	54	54	54	56	58	60	62
Length	mm	1470	1470	1490	1590	1620	1780	1770	1890	1980	2130	2210
Width	mm	750	750	750	920	920	920	920	920	1170	1170	1170
Height	mm	1350	1390	1410	1420	1520	1650	1770	1930	1960	2040	2180
Weight	kg	1550	1650	1900	2000	2150	2650	3300	4060	4850	5800	6900
Distance Between Rollers	mm	660	660	660	820	820	820	820	820	1070	1070	1070

Other powers and voltages are available on request.

Copper windings, power transformers

h.v. Um=40.5kV l.v. Um>1.1kV

Rated Power	kVA	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500
No-load Loss	W	2700	3200	3600	4300	4500	5400	6500	8300	9000	11000	12800	14500
Load Loss 75°C	W	8500	10600	11200	13500	16000	21000	25000	3000	34000	40000	46000	55000
Load Loss 120°C	W	9600	12000	12800	15000	18000	24000	28000	34000	38000	47000	55000	62000
Short-circuit Impendence	%	6	6	6	7	7	8	8	8	8	9	9	9
Noise LPA	dB	58	60	60	61	61	62	62	63	63	65	65	67
Length	mm	1950	2010	2070	2150	2100	2430	2500	2760	2780	3000	3150	3300
Width	mm	920	920	920	1270	1270	1270	1270	1675	1675	1675	1675	1675
Height	mm	1700	1800	1880	1960	2180	2130	2260	2300	2370	2660	2750	2950
Weight	kg	3700	4500	5100	6150	6650	7850	9250	11500	13200	15300	18100	22500
Distance Between Rollers	mm	820	820	820	1070	1070	1070	1475					

Other powers and voltages are available on request. Aluminum windings are available as well.

Tests

Tests are performed in accordance with IEC60076-11 or IEEE C57.12.91.

Routine tests

Each cast coil transformer is submitted to a complete set of routine tests for ensuring transformer reliable.

- Measurements of winding resistance
- Measurement of voltage ratio and check of phase displacement
- Measurement of insulation resistance
- Measurement of short circuit impedance and load losses
- Measurement of no-load losses and current
- Separate-source AC voltage withstand voltage test
- Induced AC withstand voltage test
- Measurement of partial discharge

Type tests

Type test is performed in case of new design or important design modification in order to confirm that the quality of transformer is compliance to related standard. They can be carried out according to custom request.

- Temperature-rise test
- Lightning impulse test

Special tests

Always performed on request.

- Sound level test
- Short-circuit test

SCB transformers had pass the following tests:

- Short-circuit test at KEMA USA on one 2.5MVA transformer
- All the routine, type and special tests at CTQC (China Transformer Quality Center) on one 2MVA distribution transformer
- All the routine, type and special tests at CTQC on one 10MVA power transformer
- The C2 climatic class, E2 environmental class, F1 fire behaviour class tests at CTQC
- Vibration test withstand the acceleration ag of the horizontal 0.6g and vertical 0.3g at Tongji University

Standard insulation level

IEC

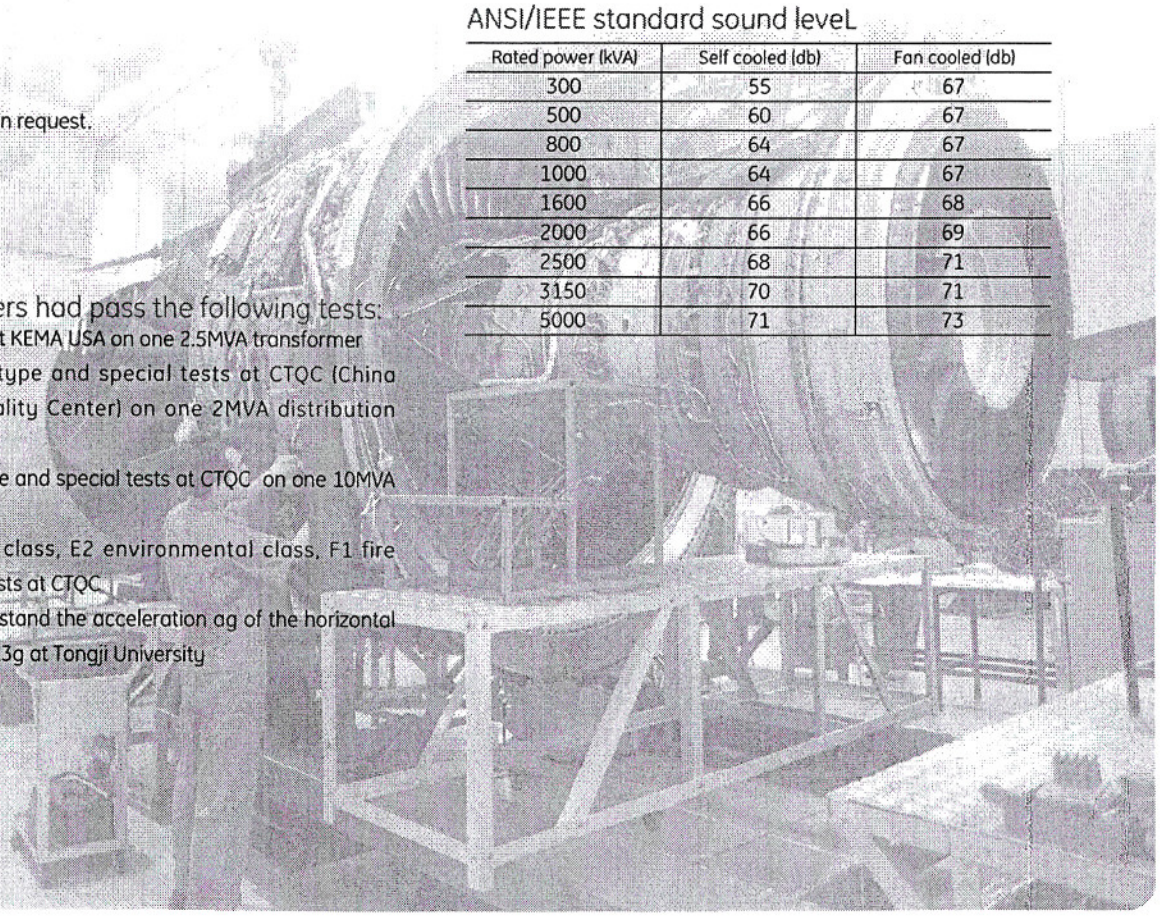
Highest Voltage for equipment Um (r.m.s) (kV)	Rated short duration separate source AC withstand voltage (r.m.s) (kV)	Rated lightning impulse withstand voltage (peak value) (kV)
≤1.1	3	-
3.6	10	40
7.2	20	60
12	28	75
17.5	38	95
24	50	125
36	70	170

ANSI/IEEE

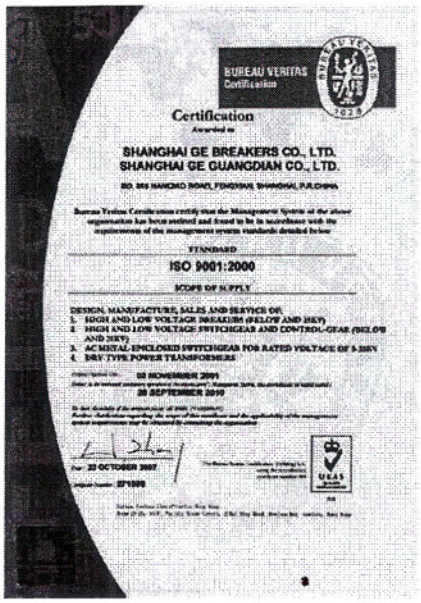
Nominal Voltage (kV)	Low-frequency voltage insulation levels (r.m.s) (kV)	Basic lightning impulse insulation level (crest) (kV)
1.2	4	10
2.5	10	20
5	12	30
8.7	19	45
15	31	60
25	37	110
34.5	50	150

ANSI/IEEE standard sound level

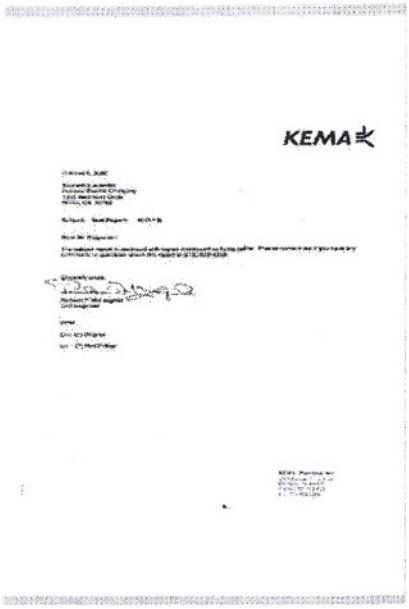
Rated power (kVA)	Self cooled (db)	Fan cooled (db)
300	55	67
500	60	67
800	64	67
1000	64	67
1600	66	68
2000	66	69
2500	68	71
3150	70	71
5000	71	73



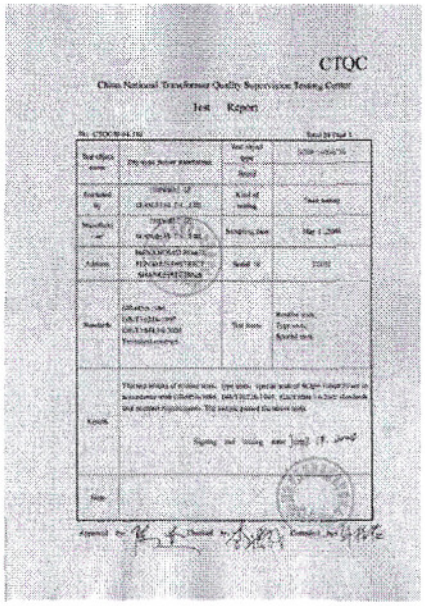
Certificates



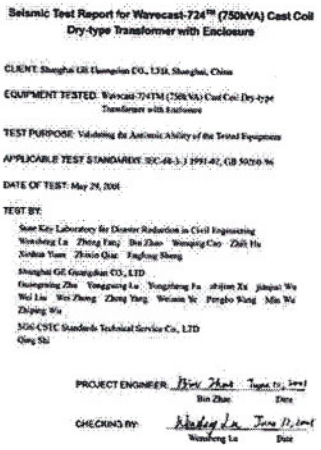
ISO 9001:2000 Certification awarded by Bureau Veritas Certification (BVQI) Hongkong



2.5MVA 12.47kV power transformer short-circuit test report at KEMA USA



10MVA 35kV power transformer test report at CTQC



Vibration test report at Tongji University