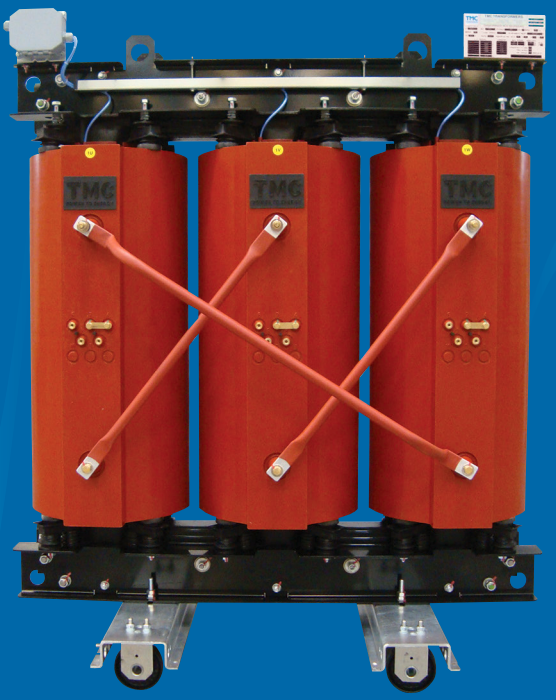
TMC
TRANSFORMERS
ESTABLISHED 1936



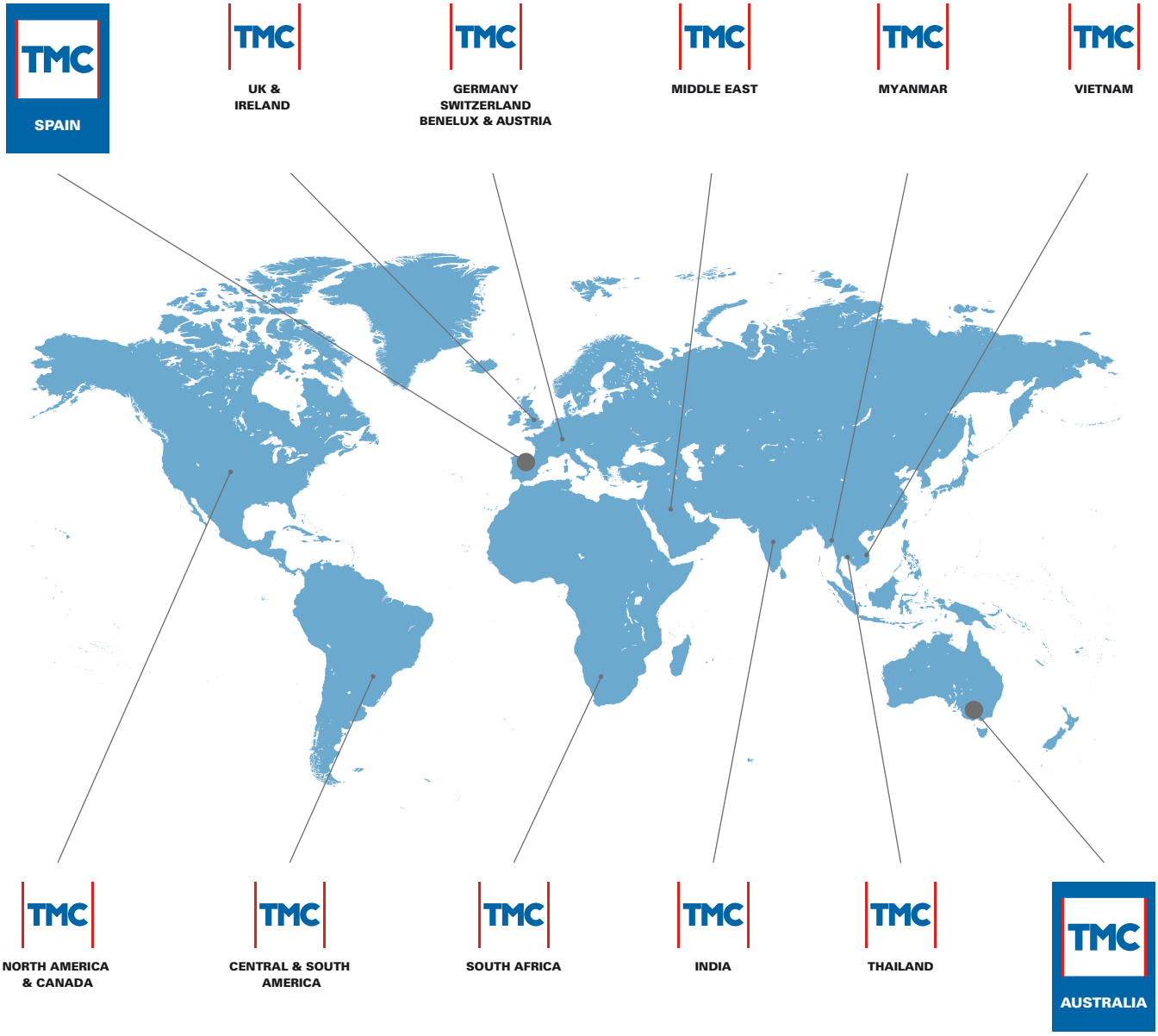
CSA C802.2-18
DOE 2016
60Hz

CAST RESIN DISTRIBUTION TRANSFORMERS

2021 EDITION

SYSTEM CERTIFICATION ISO 9001 SGS
SYSTEM CERTIFICATION ISO 14001 SGS
SYSTEM CERTIFICATION OHSAS 18001 SGS
CSA®

TMC TRANSFORMERS - GLOBAL NETWORK



EXPERIENCED

TMC Transformers – the ORIGINAL TMC – was established in Melbourne, Australia in 1936.

For more than 80 years TMC has been providing precision quality induction equipment to the electrical power industry.

GLOBAL

TMC Transformers owns and manages engineering and manufacturing facilities in Spain and Australia, selling directly into these markets.

TMC has strong global distribution alliances covering markets in Europe, North America, Canada, Central and South America, the Middle East and South Africa as well as emerging markets in South East Asia.

CUSTOMISED

TMC Transformers has developed proprietary, customised tools for optimised electromagnetic design.

Together with 'state of the art' production machinery and equipment, these enable TMC to consistently meet its customers' exacting specifications with economical solutions.

DESIGN AND CONSTRUCTION FEATURES

National Standards for Canada and USA
The efficiencies of TMC transformers exceed those mandated in Canada in 2012 and listed in CAN/CSA-C802.2-12 "Minimum Efficiency Values for Dry-type Transformers". They also exceed those prescribed in 2016 by the United States Department of Energy in Subpart K of 10 CFR part 431.

The third edition of the Canadian Standard is expected to be further tightened in future to align with the more stringent requirements now applicable in the United States.

The no-load and load losses quoted in this publication result in efficiencies that satisfy the requirements of both Canadian and US regulations.

Foil Windings
TMC Cast Resin Transformers are wound with either aluminium or copper foil.

One advantage of foil construction is that short circuit axial forces are eliminated, due to the matched electrical lengths of the low (LV) and high (HV) voltage coils.

State-of-the-art winding machines enable insulation and conductor materials to be simultaneously wound, resulting in a very compact winding, capable of resisting both radial and axial short circuit forces.

A major electrical advantage over conventional wire or strip windings is that the interlayer voltage never exceeds the individual voltage of each turn.

The LV foil conductor edges are conditioned prior to winding and each turn is insulated with three-ply, resin impregnated high temperature film laminate.

After winding, vacuum pressure impregnation and final oven hardening fully protect the coil from infiltration of moisture.

The HV conductor foil is also edge conditioned and wound in continuous discs onto a precision former. This system of winding guarantees the accuracy required for close tolerance mould casting.

The winding is reinforced with fibreglass mesh and vacuum cast in high temperature epoxy resin.

Different epoxy formulations are used for aluminium and copper winding material to allow for the varying coefficients of thermal expansion of these materials.

Lightning Impulse Withstand Voltage (BIL)
TMC Cast Resin Transformers are designed to withstand lightning impulse voltages without the aid of surge protection devices.

Terminations
Terminations are fabricated from generously sized solid copper or aluminium busbar.

Free of Partial Discharge
Internal Partial Discharge, which is a major cause of erosion and failure in transformer insulation systems at voltages greater than 12kV, are effectively eliminated in TMC Cast Resin Transformers.

Core
The core used in TMC Cast Resin Transformers is manufactured from prime quality, low loss, grain oriented ferro-silicon steel laminations, individually coated with high temperature, inorganic insulation. The structure consists of vertical columns interconnected with fully mitred joints at the yokes.

Resin impregnated glass bandages strap the core and ensure low noise levels. The completed core is treated with a high temperature, electrically stable coating, to prevent corrosion in service.

Environmentally Safe
TMC Cast Resin Transformers contain no liquid to pollute ground or water supplies, and no special measures are required to guard against spillage.

International Accreditation
TMC is accredited and audited for compliance to International Standards:

ISO 9001 (Quality Assurance)
ISO 14001 (Environmental Management)
OHSAS 18001 (Occupational Health and Safety)

The rigorous requirements of these International Standards, together with customers' own technical specifications ensure that TMC manufactures products that are safe, reliable and of the highest quality.

60Hz

Nominal System Voltage 5kV

Power kVA	Po W	Pk 75°C W	Pk 115°C W	Io %	Ucc %	L_A dB(A)	a1 mm in	b1 mm in	b2 mm in	h1 mm in	e mm in	Ø mm in	t mm in	Mass kg lb	Term Type	Encl Type
100	410	1300	1450	1.1	6	49	1150 46	600 24	700 28	1150 46	520 21	125 5	40 2	600 1300	B	1B / 1C
112.5	440	1390	1550	1.0	6	49	1200 48	600 24	700 28	1150 46	520 21	125 5	40 2	650 1450	B	1B / 1C
150	530	1670	1870	0.9	6	50	1250 50	600 24	700 28	1150 46	520 21	125 5	40 2	800 1750	B	1B / 1C
160	540	1750	1960	0.9	6	51	1300 52	600 24	750 30	1200 48	520 21	125 5	40 2	850 1850	B	1B / 1C
200	600	2070	2320	0.9	6	53	1300 52	600 24	750 30	1200 48	520 21	125 5	40 2	900 2000	B	1B / 1C
225	640	2280	2550	0.8	6	53	1300 52	600 24	750 30	1200 48	520 21	125 5	40 2	900 2000	B	1B / 1C
250	680	2460	2750	0.8	6	54	1300 52	600 24	800 32	1250 50	520 21	125 5	40 2	1000 2200	B	1B / 1C
300	770	2820	3150	0.8	6	55	1300 52	600 24	800 32	1350 54	520 21	125 5	40 2	1100 2450	C	1B / 1C
400	910	3560	3970	0.7	6	57	1400 56	750 30	800 32	1450 58	670 27	125 5	40 2	1350 3000	C	1B / 1C
500	1060	4310	4790	0.7	6	58	1450 58	750 30	850 34	1550 62	670 27	125 5	40 2	1600 3550	D	2B / 2C
600	1200	4830	5360	0.6	6	59	1500 60	850 34	850 34	1600 63	670 27	125 5	40 2	1800 3950	D	2B / 2C
750	1410	5620	6230	0.6	6	60	1550 62	850 34	850 34	1650 65	670 27	125 5	40 2	2100 4650	E	2B / 2C
800	1490	5780	6400	0.6	6	61	1600 63	850 34	850 34	1700 67	670 27	125 5	40 2	2200 4850	E	2B / 2C
1000	1840	6420	7100	0.6	6	62	1650 65	850 34	850 34	1800 71	670 27	125 5	40 2	2550 5600	F	3B / 3C
1250	2140	7320	8090	0.5	6	63	1750 69	1000 40	1000 40	1950 77	820 33	160 7	50 2	3150 6950	G	3B / 3C
1500	2450	8230	9090	0.5	6	64	1800 71	1000 40	1000 40	2050 81	820 33	160 7	50 2	3700 8150	H	4B / 4C
1600	2540	8630	9530	0.5	6	65	1850 73	1000 40	1000 40	2100 83	820 33	160 7	50 2	3900 8600	H	4B / 4C
2000	2900	10260	11310	0.5	6	66	1950 77	1310 52	1310 52	2200 87	1070 43	200 8	70 3	4700 10350	I	5B / 5C
2500	3410	11750	12940	0.4	6.5	67	2100 83	1310 52	1310 52	2300 91	1070 43	200 8	70 3	6000 13250	J	5B / 5C
3000	3930	14810	16260	0.4	6.5	68	2300 91	1310 52	1310 52	2500 99	1070 43	200 8	70 3	7400 16300	K	6B / 6C
3150	4090	15730	17250	0.4	7	69	2350 93	1310 52	1310 52	2550 101	1070 43	200 8	70 3	7800 17200	K	6B / 6C
3500	4460	17880	19580	0.4	7	69	2500 99	1440 57	1440 57	2700 107	1200 48	200 8	70 3	8750 19300	K	7B / 7C
3750	4730	19420	21240	0.4	8	70	2550 101	1440 57	1440 57	2750 109	1200 48	200 8	70 3	9400 20700	K	7B / 7C
4000	4990	20950	22900	0.4	8	70	2750 109	1440 57	1440 57	2950 117	1200 48	200 8	70 3	10050 22150	K	7B / 7C

Po No Load Loss
Pk Load Loss

Io No Load Current
L_A Sound Pressure

Ucc Impedance
All numbers rounded up to nearest whole number

60Hz

Nominal System Voltage 15kV

Power kVA	Po W	Pk 75°C W	Pk 115°C W	Io %	Ucc %	L_A dB(A)	a1 mm in	b1 mm in	b2 mm in	h1 mm in	e mm in	Ø mm in	t mm in	Mass kg lb	Term Type	Encl Type
100	510	1260	1410	1.2	6	49	1250 50	600 24	700 28	1200 48	520 21	125 5	40 2	700 1550	B	1B / 1C
112.5	530	1380	1550	1.1	6	49	1250 50	600 24	700 28	1250 50	520 21	125 5	40 2	750 1650	B	1B / 1C
150	620	1760	1970	1.1	6	50	1250 50	600 24	700 28	1250 50	520 21	125 5	40 2	800 1750	B	1B / 1C
160	630	1860	2080	1.0	6	51	1300 52	600 24	750 30	1250 50	520 21	125 5	40 2	850 1850	B	1B / 1C
200	700	2260	2530	1.0	6	53	1350 54	600 24	750 30	1250 50	520 21	125 5	40 2	900 2000	B	1B / 1C
225	750	2520	2810	0.9	6	53	1350 54	600 24	750 30	1250 50	520 21	125 5	40 2	950 2100	B	1B / 1C
250	790	2660	2960	0.9	6	54	1350 54	600 24	750 30	1300 52	520 21	125 5	40 2	1000 2200	B	1B / 1C
300	880	2940	3270	0.9	6	55	1350 54	600 24	750 30	1400 56	520 21	125 5	40 2	1100 2450	C	1B / 1C
400	1020	3810	4230	0.8	6	57	1400 56	750 30	800 32	1500 60	670 27	125 5	40 2	1350 3000	C	1B / 1C
500	1170	4680	5190	0.7	6	58	1450 58	750 30	850 34	1550 62	670 27	125 5	40 2	1600 3550	D	2B / 2C
600	1340	5240	5810	0.7	6	59	1500 60	850 34	850 34	1600 63	670 27	125 5	40 2	1800 3950	D	2B / 2C
750	1600	6090	6750	0.7	6	60	1550 62	850 34	850 34	1650 65	670 27	125 5	40 2	2100 4650	E	2B / 2C
800	1650	6230	6910	0.7	6	61	1600 63	850 34	850 34	1700 67	670 27	125 5	40 2	2250 4950	E	2B / 2C
1000	1860	6820	7550	0.6	6	62	1650 65	850 34	850 34	1800 71	670 27	125 5	40 2	2650 5850	F	3B / 3C
1250	2240	7890	8720	0.6	6	63	1750 69	1000 40	1000 40	1900 75	820 33	160 7	50 2	3150 6950	G	3B / 3C
1500	2630	8970	9900	0.6	6	64	1850 73	1000 40	1000 40	2000 79	820 33	160 7	50 2	3600 7950	H	4B / 4C
1600	2760	9460	10430	0.5	6	65	1900 75	1000 40	1050 42	2050 81	820 33	160 7	50 2	3750 8250	H	4B / 4C
2000	3320	11420	12570	0.5	6	66	1900 75	1310 52	1310 52	2200 87	1070 43	200 8	70 3	4300 9500	I	5B / 5C
2500	4020	12130	13340	0.5	6.5	67	2050 81	1310 52	1310 52	2400 95	1070 43	200 8	70 3	5700 12550	J	5B / 5C
3000	4580	15590	17080	0.5	6.5	68	2250 89	1310 52	1310 52	2500 99	1070 43	200 8	70 3	6650 14650	K	6B / 6C
3150	4750	16620	18200	0.5	7	69	2300 91	1310 52	1310 52	2550 101	1070 43	200 8	70 3	6900 15200	K	6B / 6C
3500	5140	19050	20820	0.4	7	69	2400 95	1440 57	1440 57	2600 103	1200 48	200 8	70 3	7550 16650	K	7B / 7C
3750	5430	20780	22700	0.4	8	70	2450 97	1440 57	1440 57	2600 103	1200 48	200 8	70 3	8000 17650	K	7B / 7C
4000	5710	22510	24570	0.4	8	70	2650 105	1440 57	1440 57	2800 111	1200 48	200 8	70 3	8550 18850	K	7B / 7C

Po No Load Loss
Pk Load Loss

Io No Load Current
L_A Sound Pressure

Ucc Impedance
All numbers rounded up to nearest whole number

60Hz

Nominal System Voltage 25kV

Power kVA	Po W	Pk 75°C W	Pk 115°C W	Io %	Ucc %	L_A dB(A)	a1 mm in	b1 mm in	b2 mm in	h1 mm in	e mm in	Ø mm in	t mm in	Mass kg lb	Term Type	Encl Type
100	510	1030	1160	1.3	6	49	1300 52	600 24	750 30	1350 54	520 21	125 5	40 2	800 1750	B	1B / 1C
112.5	540	1260	1410	1.3	6	49	1300 52	600 24	750 30	1400 56	520 21	125 5	40 2	850 1850	B	1B / 1C
150	640	1960	2190	1.2	6	50	1300 52	600 24	750 30	1400 56	520 21	125 5	40 2	850 1850	B	1B / 1C
160	660	2040	2280	1.1	6	51	1300 52	600 24	750 30	1400 56	520 21	125 5	40 2	900 2000	B	1B / 1C
200	740	2380	2660	1.1	6	53	1300 52	600 24	750 30	1400 56	520 21	125 5	40 2	1050 2300	B	1B / 1C
225	800	2600	2900	1.0	6	53	1300 52	600 24	750 30	1400 56	520 21	125 5	40 2	1100 2450	B	1B / 1C
250	830	2790	3110	1.0	6	54	1350 54	600 24	750 30	1450 58	520 21	125 5	40 2	1200 2650	B	1B / 1C
300	910	3170	3530	1.0	6	55	1400 56	750 30	850 34	1450 58	670 27	125 5	40 2	1300 2850	C	1B / 1C
400	1090	4070	4520	0.9	6	57	1500 60	750 30	850 34	1550 62	670 27	125 5	40 2	1550 3400	C	1B / 1C
500	1280	4970	5520	0.8	6	58	1550 62	750 30	850 34	1650 65	670 27	125 5	40 2	1800 3950	D	2B / 2C
600	1510	5580	6190	0.8	6	59	1600 63	850 34	900 36	1700 67	670 27	125 5	40 2	2000 4400	D	2B / 2C
750	1860	6500	7200	0.7	6	60	1600 63	850 34	900 36	1700 67	670 27	125 5	40 2	2200 4850	E	2B / 2C
800	1910	6730	7450	0.7	6	61	1650 65	850 34	900 36	1750 69	670 27	125 5	40 2	2350 5200	E	2B / 2C
1000	2110	7660	8470	0.7	6	62	1700 67	1000 40	1000 40	1900 75	820 33	125 5	40 2	2950 6500	F	3B / 3C
1250	2540	8520	9410	0.6	6	63	1750 69	1000 40	1050 42	2000 79	820 33	160 7	50 2	3350 7400	G	3B / 3C
1500	2980	9380	10350	0.6	6	64	1800 71	1000 40	1050 42	2100 83	820 33	160 7	50 2	3700 8150	H	4B / 4C
1600	3180	9860	10870	0.6	6	65	1850 73	1000 40	1050 42	2150 85	820 33	160 7	50 2	3900 8600	H	4B / 4C
2000	3980	11790	12970	0.6	6	66	1950 77	1310 52	1310 52	2200 87	1070 43	200 8	70 3	4650 10250	I	5B / 5C
2500	4210	15130	15960	0.5	6.5	67	2050 81	1310 52	1310 52	2500 99	1070 43	200 8	70 3	6000 13250	J	5B / 5C
3000	4830	17680	18970	0.5	6.5	68	2250 89	1310 52	1310 52	2550 101	1070 43	200 8	70 3	6800 15000	K	6B / 6C
3150	5020	18450	19870	0.5	7	69	2300 91	1310 52	1310 52	2600 103	1070 43	200 8	70 3	7050 15550	K	6B / 6C
3500	5450	20240	21980	0.5	7	69	2400 95	1440 57	1440 57	2600 103	1200 48	200 8	70 3	7600 16750	K	7B / 7C
3750	5770	21520	23490	0.5	8	70	2450 97	1440 57	1440 57	2600 103	1200 48	200 8	70 3	8000 17650	K	7B / 7C
4000	6080	22790	24990	0.5	8	70	2650 105	1440 57	1440 57	2800 111	1200 48	200 8	70 3	8550 18850	K	7B / 7C

Po No Load Loss
Pk Load Loss

Io No Load Current
L_A Sound Pressure

Ucc Impedance
All numbers rounded up to nearest whole number

60Hz

Nominal System Voltage 34.5kV

Power kVA	Po W	Pk 75°C W	Pk 115°C W	Io %	Ucc %	L_A dB(A)	a1 mm in	b1 mm in	b2 mm in	h1 mm in	e mm in	Ø mm in	t mm in	Mass kg lb	Term Type	Encl Type
100	600	850	950	1.6	7	49	1550 62	600 24	850 34	1700 67	520 21	125 5	40 2	1300 2850	B	11B / 11C
112.5	620	1040	1160	1.5	7	49	1550 62	600 24	850 34	1750 69	520 21	125 5	40 2	1350 3000	B	11B / 11C
150	700	1620	1810	1.4	7	50	1550 62	600 24	850 34	1750 69	520 21	125 5	40 2	1350 3000	B	11B / 11C
160	720	1760	1960	1.4	7	51	1550 62	600 24	850 34	1800 71	520 21	125 5	40 2	1400 3100	B	11B / 11C
200	800	2330	2600	1.3	7	53	1550 62	600 24	850 34	1800 71	520 21	125 5	40 2	1450 3200	B	11B / 11C
225	850	2690	3000	1.2	7	53	1550 62	600 24	850 34	1800 71	520 21	125 5	40 2	1450 3200	B	11B / 11C
250	880	3000	3350	1.2	7	54	1550 62	750 30	950 38	1800 71	670 27	125 5	40 2	1500 3300	B	11B / 11C
300	960	3640	4050	1.1	7	55	1550 62	750 30	950 38	1800 71	670 27	125 5	40 2	1600 3550	C	12B / 12C
400	1190	4290	4770	1.0	7	57	1650 65	750 30	950 38	1850 73	670 27	125 5	40 2	1850 4100	C	12B / 12C
500	1420	4940	5490	1.0	7	58	1700 67	750 30	950 38	1850 73	670 27	125 5	40 2	2100 4650	D	12B / 12C
600	1600	5530	6130	0.9	7	59	1750 69	850 34	1000 40	1950 77	670 27	125 5	40 2	2400 5300	D	12B / 12C
750	1880	6430	7110	0.9	7	60	1800 71	850 34	1000 40	2050 81	670 27	125 5	40 2	2750 6050	E	13B / 13C
800	1960	6700	7410	0.9	7	61	1850 73	850 34	1000 40	2100 83	670 27	125 5	40 2	2900 6400	E	13B / 13C
1000	2320	7800	8620	0.8	7	62	1850 73	1000 40	1100 44	2200 87	820 33	125 5	40 2	3300 7300	F	13B / 13C
1250	2570	9520	10500	0.8	7	63	1950 77	1000 40	1100 44	2300 91	820 33	160 7	50 2	3850 8500	G	14B / 14C
1500	2830	11250	12390	0.7	7	64	2000 79	1000 40	1150 46	2350 93	820 33	160 7	50 2	4400 9700	H	14B / 14C
1600	3040	11420	12580	0.7	7	65	2050 81	1000 40	1150 46	2400 95	820 33	160 7	50 2	4700 10350	H	14B / 14C
2000	3890	12130	13340	0.7	7	66	2150 85	1310 52	1310 52	2550 101	1070 43	200 8	70 3	5700 12550	I	15B / 15C
2500	4380	14720	16150	0.6	7.5	67	2250 89	1310 52	1310 52	2600 103	1070 43	200 8	70 3	6500 14350	J	15B / 15C
3000	5250	17720	19390	0.6	7.5	68	2450 97	1310 52	1310 52	2750 109	1070 43	200 8	70 3	7700 17000	K	16B / 16C
3150	5510	18620	20360	0.6	7.5	69	2500 99	1310 52	1310 52	2800 111	1070 43	200 8	70 3	8100 17850	K	16B / 16C
3500	6120	20720	22630	0.6	7.5	69	2600 103	1440 57	1440 57	2850 113	1200 48	200 8	70 3	8900 19600	K	17B / 17C
3750	6560	22220	24260	0.6	8	70	2650 105	1440 57	1440 57	2900 115	1200 48	200 8	70 3	9500 20950	K	17B / 17C
4000	6990	23720	25880	0.5	8	70	2850 113	1440 57	1500 60	3100 123	1200 48	200 8	70 3	10150 22400	K	17B / 17C

Po No Load Loss
Pk Load Loss

Io No Load Current
L_A Sound Pressure

Ucc Impedance
All numbers rounded up to nearest whole number

STANDARD CHARACTERISTICS

International Standards	:	ANSI C57.12.01 DOE 10 CFR 431.193 CSA C9-17 CSA C802.2-18 (NRCAN 2019) NEMA TR1 UL 1561/1562 ANSI/IEC 60076-11
High Voltage Tappings	:	±2.5 ±5 %
Low Voltage	:	Per customer specification
Frequency	:	60Hz
Vector Group	:	Dyn – Yyn
Insulation Temperature Class	:	F (155°C) or H (180°C)
Winding Material	:	Aluminium or Copper
Installation Altitude	:	≤ 1000 m (3300 ft)
Maximum Ambient Temperature	:	40°C
Type of Cooling	:	AN
Non Standard Characteristics	:	On request

HIGH VOLTAGE COMPONENTS

Three-limbed Core
Cold-rolled grain-oriented ferro-silicon steel sheets with inorganic silicate coating

HV Terminals
Variable arrangements to permit optimum installation

HV Tappings
Off-circuit adaptation to the supply network

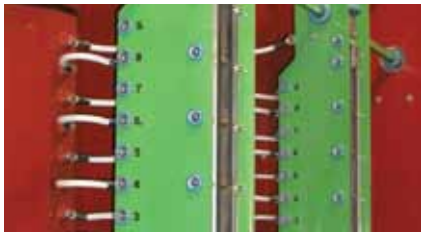
HV Windings
Aluminium or Copper strip vacuum cast in fibreglass reinforced epoxy resin

Epoxy Resin Insulation
Makes the transformer maintenance-free, moisture-free, tropicalized, flame-resistant and self-extinguishing

OPTIONAL ACCESSORIES

Temperature Measurement Devices

Switches



On-load Tapchangers

Vibration Dampeners

High Voltage Separable Connectors

Cooling Fans

LOW VOLTAGE COMPONENTS

Temperature Monitoring
Detectors in LV windings

LV Terminals
Variable arrangements on request

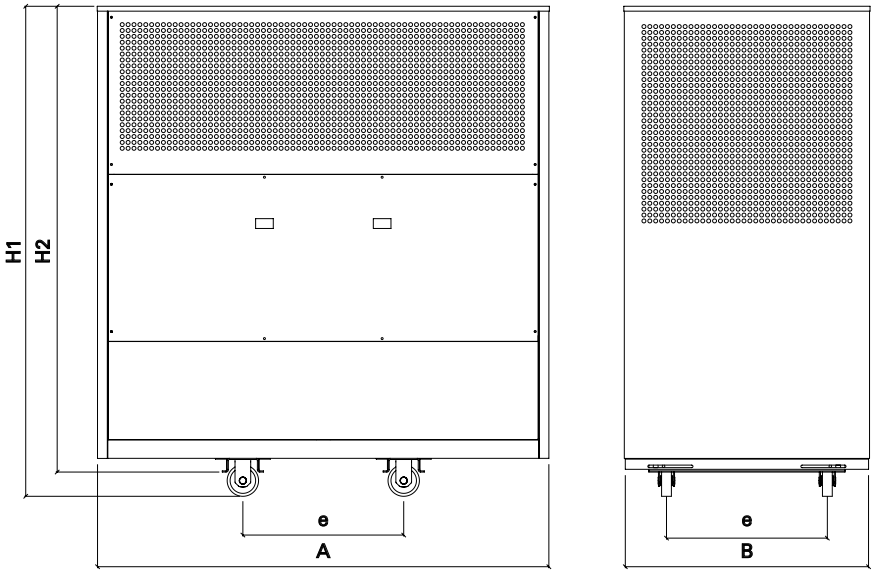
Resilient Supports
Provide insulation for core and windings against mechanical vibrations

LV Windings
Epoxy prepreg-insulated aluminium or copper strip

INDOOR ENCLOSURES

ANSI/IEC IP21 TO IP33
NEMA TYPE 1 & TYPE 2

TMC enclosures for use indoors are ventilated and conform to ANSI/IEC Standard 60529:2004 (Degree of Protection IP21 up to IP33) as well as NEMA Standard 250:2014 (Type1 or Type 2). TMC transformers installed in TMC enclosures are rated in accordance with Annex DD of IEC Standard 62271-202:2014 "HV/LV Prefabricated Substation". The core and coil assembly and removable enclosure panels are mounted on a hot dip galvanised base frame fitted with bi-directional rollers. All panels are electro-zinc coated, hot galvanized or stainless steel and epoxy powder coated.



IP21

IP23

IP31

DIMENSIONS IP21 TO IP33

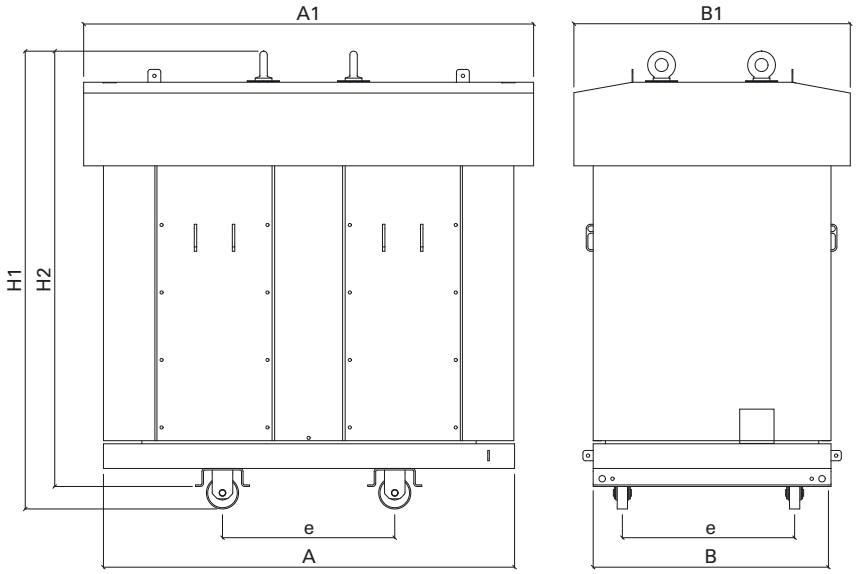
Encl. Type	A mm	A in	B mm	B in	H1 mm	H1 in	H2 mm	H2 in	e	Mass kg	Mass lbs
Nominal Voltage 5kV 15kV 25kV											
1B	1850	73	1250	50	1710	68	1610	64	See transformer tables	170	380
2B	1950	77	1300	52	2010	80	1910	76		210	470
3B	2050	81	1350	54	2260	89	2160	86		240	530
4B	2250	89	1400	56	2500	99	2360	93		310	690
5B	2500	99	1450	58	2850	113	2670	106		330	730
6B	2750	109	1550	62	3050	121	2870	113		390	860
7B	2900	115	1600	63	3150	125	3110	123		420	930
Nominal Voltage 34.5kV											
11B	2400	95	1550	62	1960	78	1860	74	See transformer tables	280	620
12B	2500	99	1600	63	2260	89	2120	84		300	670
13B	2600	103	1650	65	2460	97	2320	92		330	730
14B	2750	109	1700	67	2700	107	2520	100		370	820
15B	2950	117	1750	69	3050	121	2870	113		410	910
16B	3050	121	1800	71	3200	126	3160	125		450	1000
17B	3250	128	1850	73	3550	140	3510	139		490	1090

OUTDOOR ENCLOSURES

ANSI/IEC IP43 TO IP66
NEMA TYPE 3 & UP

TMC enclosures for outdoor uses are supplied either ventilated or sealed and conform to ANSI/IEC Degree of Protection IP43 up to IP66 or NEMA Type 3 and up. TMC transformers installed in TMC enclosures are rated in accordance with Annex DD of IEC Standard 62271-202:2014 "HV/LV Prefabricated Substation".

These bespoke enclosures can be supplied in a variety of materials and finishes, with specific features as specified by the client. Substantial hot dip galvanised base structures support the enclosure. Panels are heavy gauge hot galvanised or stainless steel and powder coated with UV resistant epoxy or polyester.



IP43

DIMENSIONS IP43

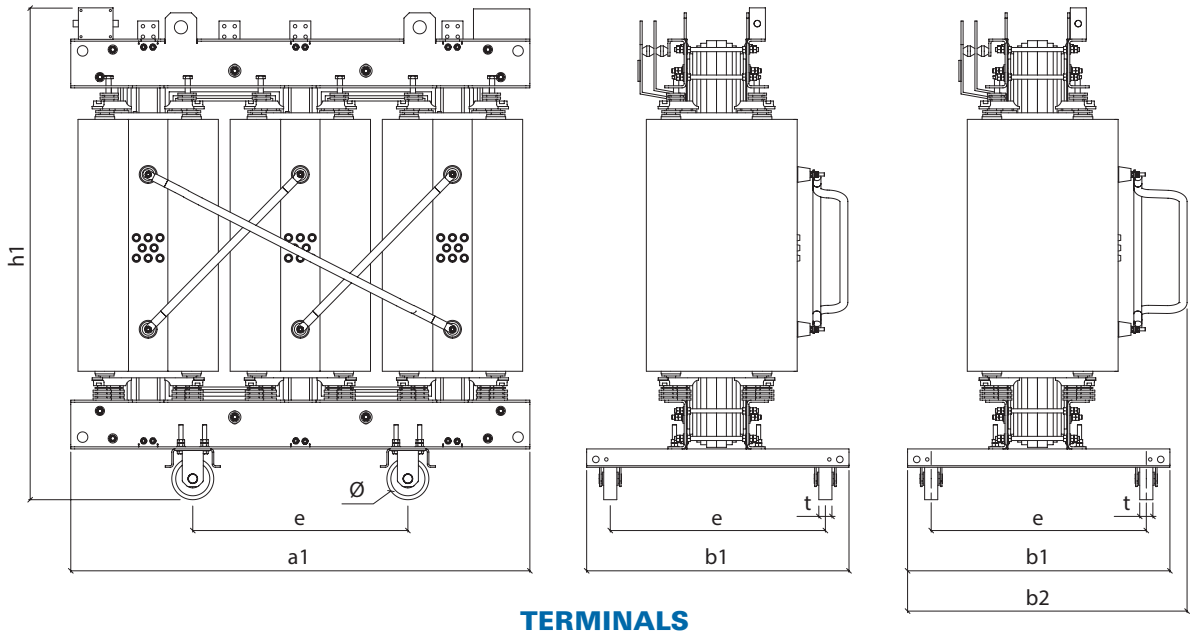
Encl. Type	A mm	A in	A1 mm	A1 in	B mm	B in	B1 mm	B1 in	H1 mm	H1 in	H2 mm	H2 in	e	Mass kg	Mass lbs
Nominal Voltage 5kV 15kV 25kV															
1C	1850	73	2150	85	1450	58	1750	69	2010	80	1910	76	See transformer tables	570	1260
2C	1950	77	2250	89	1500	60	1800	71	2210	88	2110	84		630	1390
3C	2050	81	2350	93	1550	62	1850	73	2480	98	2380	94		680	1500
4C	2250	89	2550	101	1600	63	1900	75	2700	107	2560	101		760	1680
5C	2500	99	2800	111	1700	67	2000	79	3050	121	2870	113		860	1900
6C	2750	109	3050	121	1800	71	2100	83	3250	128	3070	121		980	2170
7C	2900	115	3200	126	1900	75	2200	87	3430	136	3390	134		1090	2410
Nominal Voltage 34.5kV															
11C	2400	95	2700	107	1750	69	2050	81	2260	89	2160	86	See transformer tables	720	1590
12C	2500	99	2800	111	1800	71	2100	83	2480	98	2340	93		790	1750
13C	2600	103	2900	115	1850	73	2150	85	2680	106	2540	100		850	1880
14C	2750	109	3050	121	1900	75	2200	87	2920	115	2740	108		940	2080
15C	2950	117	3250	128	1950	77	2250	89	3250	128	3070	121		1030	2280
16C	3050	121	3350	132	2000	79	2300	91	3400	134	3360	133		1130	2500
17C	3250	128	3550	140	2050	81	2350	93	3750	148	3710	147		1250	2760

IP54

IP66

TECHNICAL DETAILS

CORE AND COIL DIMENSIONS



TERMINALS

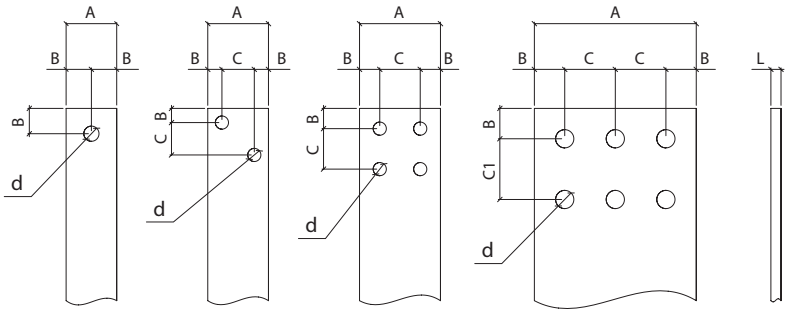


Fig.1 Fig.2 Fig.3 Fig.4

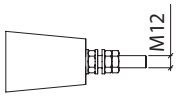


Fig.5

LV Terminals			A	L	B	C	C1	d
			mm	mm	mm	mm	mm	mm
TMC Type	NEMA Type	Fig.	LVTERMINALS 480V to 600V					
A	C1	1	30	3	15	–	–	14
B	–	1	50	5	25	–	–	14
C	–	2	60	6	14	32	–	14
D	–	2	60	8	14	32	–	14
E	C3	3	80	8	18	44	–	14
F	C4	3	100	8	28	44	–	14
G	–	3	120	10	30	60	–	18
H	–	3	120	12	30	60	–	18
I	C6	4	160	10	30	44	44	18
J	C6	4	160	14	30	44	44	18
K	C6	4	160	20	30	44	44	18

HVTERMINALS

All HV terminals per Fig.5 with thread dimension M12

TESTING PROTOCOL

Routine Tests

Extensive mechanical and electrical routine tests are carried out by qualified personnel using regularly calibrated digital test equipment. These include the following measurements and tests:

- Voltage ratio and check of phase displacement
- Winding resistance
- DC insulation resistance
- Separate-source AC voltage withstand
- Induced AC voltage withstand
- Partial Discharge
- No-load loss and current
- Short circuit impedance and load loss
- Insulation of auxiliary winding

Type and Special Tests

The following type tests can be carried out at extra cost:

- Short Circuit Withstand
- Sound Level
- Impulse Voltage
- Zero sequence Impedance
- Temperature Rise
- Harmonic Analysis
- Seismic
- Winding Capacitance

TMC has a comprehensive library of previously conducted and independently audited special tests. Copies of the test certificates are available on request.

RANGE OF PRODUCTS

Vacuum Cast Resin Transformers

Dry Type Transformers

Rectifier Transformers

Photovoltaic Transformers

Marine Transformers

Submersible Transformers

Neutral Earthing Transformers

Motorstarting Transformers

Silicone Free Transformers

Water Cooled Transformers

Aircored and Ironcored Reactors

Shunt Reactors

Motorstarting Reactors

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TRCR_60_IEC_ENG_20170608