

## Transformer Specialists



EN50708  
ECODESIGN TIER 2

**50Hz**

**Cast Resin**  
**Distribution Transformers**



2023

# TMC

## TRANSFORMERS

ESTABLISHED 1936

## Tried and Trusted for more than 85 years

Transformers Manufacturing Company Pty Ltd - the original TMC - was established in Melbourne Australia in 1936 as a manufacturer of oil cooled and dry type transformers.

Following rapid technological developments in the field of epoxy resins during the 1980s, TMC began specialising in vacuum cast epoxy resin transformers.

Over the ensuing decades TMC has evolved as a top tier supplier to both domestic and international markets with products that enjoy a reputation for the highest quality and reliability.

By focusing solely on transformers for more than eight decades, TMC has developed specialist design knowledge and manufacturing expertise in its production plants in Australia and Spain.

The technical and production expertise of TMC Australia and TMC Spain combine synergistically to facilitate the design and manufacture of a broad range of products ranging from standard distribution transformers to complex, sophisticated induction equipment, transformers and reactors, in a highly efficient and cost-effective manner.



WIND

MEDICAL

INFRASTRUCTURE

MARINE

## TMC CAST RESIN TRANSFORMERS

### Negligible Partial Discharge

Internal partial discharge, which is a major cause of erosion and failure in insulation system voltages  $\geq 3.6\text{kV}$ , is effectively eliminated in TMC cast resin transformers, significantly extending the service life.

### Environmentally Safe

TMC cast resin transformers contain no liquid to pollute the ground or water supplies and no special measures are required to guard against spillage.

### Fire and Flame Resistant

The resin formulations used in TMC cast resin transformers are self-extinguishing, increasing safety and reducing the risk to people and property in the event of a fire.

### Lightning Impulse Withstand Voltage (BIL)

TMC cast resin transformers are designed to withstand lightning impulse voltages without the aid of surge protection devices.

### High Thermal Conductivity

TMC cast resin transformers are mechanically resistant and thermally tolerant to short term overloads.

### Inherent Superior Dynamic Strength

Increased ability to withstand short circuit is inherent in a cast resin transformer.

### Superior Plant and Manufacturing Practices

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

A further major electrical advantage over conventional wire or strip windings is that the interlayer voltage never exceeds the individual voltage of each turn. This results in lower internal electrical stress and a more reliable product than that of competitors using inferior wire winding technologies.

### International Standards

TMC transformers are manufactured in Spain and Australia in accordance with strict international and local Standards.



SOLAR

MINING

EV FAST  
CHARGING

TRACTION

DISTRIBUTION

INDUSTRY

## STANDARD COMPONENTS

### Lifting Lugs

Four lifting lugs are provided on the top core clamps.

### Three-limb Core

The core is manufactured from prime quality, high permeability, low loss, grain oriented ferro-silicon steel laminations, individually coated with high temperature, inorganic insulation. The completed core is treated with a high temperature, electrically stable coating, to prevent corrosion in service.

### High Voltage (HV) Windings

HV windings consist of vacuum cast, fibreglass reinforced aluminium or copper foil. The foil is edge conditioned and wound in continuous discs onto a precision former. This system of winding guarantees the accuracy required for close tolerance casting in precision moulds.

### Epoxy Resin Insulation

The windings are reinforced with fibreglass mesh and vacuum cast in high temperature epoxy resin. The resin ensures the transformer is maintenance-free, moisture-free, tropicalised, flame-resistant and self-extinguishing.

### High Voltage Terminals

HV terminals are available with variable arrangements to permit optimum installation.

### High Voltage Tappings

For off-circuit adaptation to the supply network.

### Low Voltage (LV) Windings

LV windings are produced with aluminium or copper foil covering the full winding length. The foil conductor edges are conditioned prior to winding and each LV 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.

### Low Voltage Terminals

Tinned aluminium or copper.

### Low Voltage Terminal Insulators

Strengthen LV terminal palms against mechanical forces.

### Resilient Supports

Provide insulation for core and windings against mechanical vibrations.

### Temperature Monitoring

Detectors in the LV winding.

### Bi-directional Metallic Wheels

### Hot Dipped Galvanised Core Feet



## STANDARD CHARACTERISTICS

The following characteristics **are standard for the transformers depicted in this brochure**. Further tailored options and configurations are available upon request.

	STANDARD	COMMON OPTIONS
International Standards	IEC 60076-11	
European Standards	EN 50708-1-1 EN 50708-2-1 EN 50708-3-1	Tier 2
European Regulations	(EU) 2019/1783 amending (EU) 548/2014 on implementing Directive 2009/125/EC	
High Voltage Classes	7.2kV, 12kV, 17.5kV, 24kV, 25kV, 36kV	52kV and 72kV
Low Voltage Class	≤1.1kV	≥1.1kV
Frequency	50Hz	60Hz
Vector Group	Dyn or Yyn	Other Vector Groups
Insulation Temperature Class	F 155°C or H 180°C	Class 200
Winding Material	Aluminium	Copper
Installation Altitude	≤ 1000 mamsl	Higher Altitude
Maximum Ambient Temperature	40°C	Higher Temperature
Type of Cooling	AN and AN/AF	AN/WF

## INTERNATIONAL ACCREDITATIONS



ISO 9001  
Quality Assurance



ISO 14001  
Environmental Management



ISO 45001  
Occupational Health and Safety



TMC is listed by Canadian Standards Association (CSA) Group as certified up to 5MVA, 25kV, Class F and Class H insulation, NEMA 3R enclosure. CSA Record No. 271663.

## OPTIONAL ACCESSORIES

Range includes:

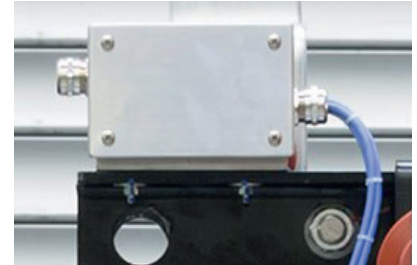
### Temperature Measurement



RTD, PTC, Infrared, Fibre Optic Temperature Monitors with Analogue, Digital or Ethernet interface



Analogue Temperature Monitors



Temp Measuring Device Marshalling Boxes in Stainless Steel or PVC

### Temperature Control



Fixed Speed Cooling Fans

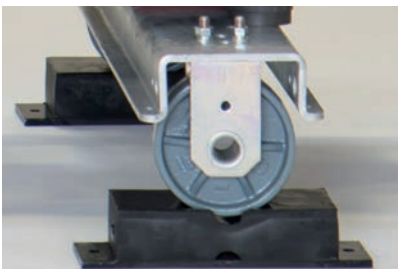


Cooling Fan Controller - Fixed Speed



Variable Speed Cooling Fan System

### Vibration & Seismic Control



Wheel Type Vibration Dampeners



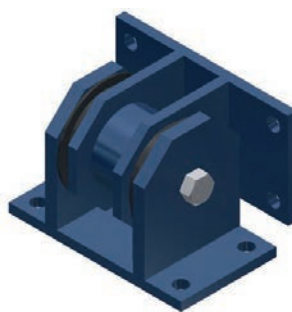
GPO3 Coil Support Blocks



Fixed Type Anti Vibration Devices



Seismic Springs



Seismic Snubbers



Seismic Reinforcement



## MANUFACTURING OPTIONS

Range includes:

- High efficiency (reduced losses)
- Reduced temperature rise
- Reduced sound level
- Multiple primary voltage windings
- Multiple secondary windings
- Aluminium or copper windings
- Hybrid aluminium / copper windings
- Particular vector groups
- Low voltage / low voltage
- Sealed or cast low voltage windings
- Silicone free
- Enhanced K-Factors (4, 9, 13, 20)
- Variable impedance voltage
- Enhanced insulation levels (BIL)
- Enhanced corrosion protection
- Hot dipped galvanised core clamps
- Seismic reinforcement / springs / snubbers
- Bespoke terminations (bussing)
- Different location options of high and low voltage connection terminals
- Variable speed drives, rectifiers and excitation transformers (6, 12, 18 and 24 pulse)
- Varying coupling factor from 0.15 to 0.9
- Enclosure Protection – see pages 21 to 24

## PACKING OPTIONS

TMC recommends and offers a range of packing options for IP00 and enclosures depending on the destination and freight conditions.



Plastic Wrap on Timber Pallet



Plastic Wrap in Open Timber Crate



Vacuum Bag on Timber Pallet



Vacuum Bag in Open Timber Crate



Vacuum Bag in Closed Timber Case

## LABORATORY TESTING

### Routine Tests – In House

The following routine tests are conducted by qualified personnel at TMC Test Laboratories on all dry-type transformers in accordance with the requirements of International Standard IEC 60076-11 “Dry-type Transformers” and are included in the transformer selling price:

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Measurement of winding resistance</li> <li>2. Measurement of voltage ratio and check of phase displacement</li> <li>3. Measurement of short-circuit impedance and load loss</li> <li>4. Measurement of no-load loss and current</li> <li>5. Applied voltage test (AV)</li> </ol> | <ol style="list-style-type: none"> <li>6. Induced voltage withstand test (IVW)</li> <li>7. Partial discharge measurement</li> <li>8. Separate-source AC voltage withstand test of auxiliary wiring*<br/> <small>* Although not listed as a Routine Test in IEC 60076-11, TMC routinely performs this test on transformers with auxiliary wiring.</small></li> </ol> |
|--|---|

Listed below are additional tests that can be performed at the request of the customer with price on application:

### Type Tests – In House

- Full wave lightning impulse test (LI)
- Chopped wave lightning impulse test (LIC)
- Temperature-rise test

### Special Tests – In House

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Measurement of sound level</li> <li>• Harmonic analysis of no-load current</li> <li>• Zero phase sequence impedance</li> <li>• Winding capacitance</li> </ul> | <ul style="list-style-type: none"> <li>• Measurement of DC insulation resistance</li> <li>• Measurement of dissipation factor (<math>\tan \delta</math>)</li> <li>• Measurement of frequency response analysis (FRA)</li> </ul> |
|--|---|

**As part of its ISO9001 certification, TMC laboratories are regularly and independently calibrated to confirm ongoing compliance of the transformer losses and efficiencies defined in EU Ecodesign Regulations.**

### Special Tests – External Laboratories

TMC has a comprehensive library of third party and independently audited special tests confirming the performance and quality of TMC transformers, including:

Climatic Test C2 Environmental Test E2 Fire Behaviour Test F1	CESI Testing & Certification Division, Milan Italy
Climatic Test C2/C3 Environmental Test E2/E3/E4	Tecnalia Electrical Equipment Laboratory, Bilbao Spain
Short Circuit Withstand Test	Tecnalia Electrical Equipment Laboratory, Bilbao Spain Testing & Certification, Sydney Australia
Seismic Qualification	Earthquake & Engineering Laboratory, Bristol UK
Traction Duty Cycle Class IX	Tecnalia Electrical Equipment Laboratory, Bilbao Spain
DNV GL Offshore Standard OS-D201	DNV GL, Oslo Norway

## PRODUCT RANGE

TMC manufactures dry type, cast resin and oil cooled transformers and reactors with power rating up to 30MVA and system voltages up to 72kV Class.

This catalogue describes one TMC range of distribution transformers up to 5MVA and 36kV Class. Further information is available on request for details of TMC induction equipment including the items listed below.

Distribution  
Power  
Rectifier / Inverter (Converter)  
Neutral Earthing  
Low Voltage  
Motor Starting Autotransformers  
Seismic Rated  
Silicone Free

Welding  
Submersible  
Induction Heating / Oven  
Water Cooled  
On Load Tap Changer (OLTC)  
Vacuum Pressure Impregnated  
Phase Shifting  
Substation / Mobile Substation

Air Cored Reactors  
Iron Cored Reactors  
Current Limiting Reactors  
Shunt Reactors  
Damping Reactors  
Tuning Reactors  
Smoothing Reactors  
Neutral Earthing Reactors

Visit [tmc.com.au](http://tmc.com.au) for more information regarding the broad range of TMC transformers.

## INSTALLATIONS

TMC manufactures transformers well suited for harsh loads, extreme, rugged environments and wherever safety is paramount. These can be found all over the globe across a range of installations including:

### Civil Infrastructure

Hospitals  
Education  
Shopping Centres  
Retail  
Stadiums  
Public Buildings  
Hotels  
High Rise Buildings

### Transport

Mass Transit Trams & Trains  
Fast Rail Networks  
Railway Substations  
Marine Substations with OLTCs  
Airports  
Roads and Tunnels  
EV Fast Charging Stations

### Utilities

Generation  
Transmission

### Industrial

Data Centres  
Petrochemical Plants  
Light and Heavy Manufacturing  
Processing Plants  
Pulp and Paper Plants  
Cement Factories  
Scientific Installations

### Mining

Underground  
Aboveground  
Infrastructure  
Oil and Gas  
Shovel Duty

### Sensitive and Extreme Environments

Nuclear Plants  
Seismic Locations  
Heavy Mechanical Vibrations  
Desert / Subzero / High Humidity  
Extreme Altitude

### Renewable Energy

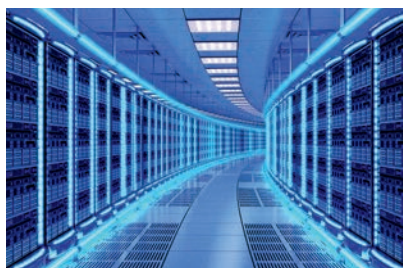
Solar farms / Photovoltaic  
Thermosolar  
Wind farms  
Hydroelectric  
Cogeneration  
Biomass  
Wave

### Marine and Offshore

Water Treatment  
Reservoirs  
Desalination Plants  
Sewerage Treatment Plants  
Ports  
Shipping  
Offshore Platforms  
Offshore Wind Farms

### Military Structures

Naval dockyards  
Aerospace Installations



# EUROPEAN ECODESIGN REGULATIONS

## Ecodesign Requirements

European Commission Regulation (EU) 548/2014 was enacted on 21 May 2014 to implement Directive 2009/125/EC of the European Parliament and of the Council regarding small, medium and large power transformers.

Regulation 548/2014 mainly covered minimum energy efficiency levels of transformers with a minimum power rating of 1 kVA that are used in 50 Hz electricity networks or in industrial applications.

Under mandate from the European Commission, the European Committee for Electrotechnical Standardization (CENELEC), acting as the responsible authority for European standardisation in the area of electrical engineering, promptly released a set of manufacturing Standards. These practical Standards incorporated, inter alia, the requirements of Regulation 548/2014.

European Standard EN50588-1:2015, was released in June 2015 to cover 50Hz medium power transformers with highest voltage for equipment not exceeding 36kV. European Standard EN50629:2015, addressed transformers with voltage above 36kV and power above 40MVA. Both documents promulgated energy performances with TIER 1 applicable from 1 July 2015 and an improved TIER 2 applicable from 1 July 2021.

CENELEC duly released a revised set of replacement European Standards in May 2020 superseding EN50588:

- EN50708-1-1:2020 (Common Part – General Requirements)
- EN50708-2-1:2020 (Medium Power) replaces EN50588-1:2015 for power  $\leq 3150\text{kVA}$  and system voltage  $\leq 36\text{kV}$
- EN50708-3-1:2020 (Large Power) replaces EN50629:2015 for power  $> 3150\text{kVA}$  or system voltage  $> 36\text{kV}$

**TMC transformers described in this brochure are designed and manufactured to comply with Ecodesign TIER 2 loss and efficiency standards prescribed in CENELEC Standards EN50708 (all Parts) which give effect to European Commission Regulations.**

In relation to transformers, the Regulations impose specific, as distinct from generic, 'Ecodesign' requirements for the integration of environmental aspects into transformer design, with the aim of improving the environmental performance of the product throughout its whole lifecycle.

These specific requirements clearly impose a quantified and measurable efficiency requirement defining upper limits on energy consumption during use, as calculated for a given unit of output performance. In this way the Regulations, as distilled into the Standards, continue to push the EU transformer market towards world leading efficiencies with consequent reductions in lifecycle costs of ownership.

After five years, as required by European law, Regulation 548/2014 was reviewed in 2019. The study confirmed a positive effect on the Global Warming Potential of the TIER 1 efficiencies of power and distribution transformers being placed on the market. A replacement Regulation (EU) 2019/1783 was enacted on 1 October 2019 with amendments to EU 548/2014 and mandating compliance with the improved TIER 2 levels of efficiency.

## TMC DATA TABLES

The following tables depict typical data for the TMC range of distribution transformers specifically designed to comply with EN50708.

The tables are broadly classed according to Maximum System Voltage  $U_m$  and have the following features:

- Data for commonly used 4% Impedance value for power ratings up to 630kVA
- Data for Impedance value of 6% for power ratings up to 3150kVA
- Data for Impedance value over 6% for power ratings above 3150kVA up to 5000kVA
- Sound Pressure  $L_p(A)$  and the corresponding Sound Power  $L_w(A)$  levels
- IP00 dimension references relating to IP00 drawings on the foldout page 24 Technical Details, together with Terminal dimensions and drawings
- Enclosure Types with corresponding reference data on page 22 Indoor Enclosures and page 23 Outdoor Enclosures

## 4% Ucc

## Insulation Class 7.2kV

Power kVA	EN50708 TIER 2 Ecodesign					a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	LpA dB(A)	LwA dB(A)										
100	252	1800	0.7	38	51	1150	600	700	1200	520	125	40	800	B	1B / 1C
150	342	2460	0.7	41	54	1150	600	700	1350	520	125	40	900	B	1B / 1C
160	360	2600	0.6	41	54	1150	600	700	1350	520	125	40	950	B	1B / 1C
200	408	2950	0.6	42	55	1250	750	750	1450	670	125	40	1100	C	1B / 1C
250	468	3400	0.6	43	57	1250	750	750	1450	670	125	40	1250	C	1B / 1C
315	557	3870	0.5	44	58	1300	750	800	1550	670	125	40	1400	C	2B / 2C
400	675	4500	0.5	46	60	1300	750	800	1600	670	125	40	1550	C	2B / 2C
500	811	5630	0.5	47	61	1350	750	800	1650	670	125	40	1750	C	2B / 2C
630	990	7100	0.4	48	62	1400	850	850	1750	670	125	40	2050	D	2B / 2C

## 4% Ucc

## Insulation Class 12kV

Power kVA	EN50708 TIER 2 Ecodesign					a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	LpA dB(A)	LwA dB(A)										
100	252	1800	0.7	38	51	1200	600	700	1200	520	125	40	900	B	1B / 1C
150	342	2460	0.7	41	54	1200	600	700	1400	520	125	40	1000	B	1B / 1C
160	360	2600	0.6	41	54	1200	600	700	1400	520	125	40	1050	B	1B / 1C
200	408	2950	0.6	42	55	1250	750	750	1450	670	125	40	1200	C	1B / 1C
250	468	3400	0.6	43	57	1300	750	800	1500	670	125	40	1400	C	1B / 1C
315	557	3870	0.5	44	58	1350	750	800	1600	670	125	40	1550	C	2B / 2C
400	675	4500	0.5	46	60	1400	750	800	1650	670	125	40	1750	C	2B / 2C
500	811	5630	0.5	47	61	1400	750	850	1650	670	125	40	1950	C	2B / 2C
630	990	7100	0.4	48	62	1450	850	850	1800	670	125	40	2250	D	2B / 2C

## 4% Ucc

## Insulation Class 17.5kV

Power kVA	EN50708 TIER 2 Ecodesign					a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	LpA dB(A)	LwA dB(A)										
100	252	1800	0.7	38	51	1300	600	700	1400	520	125	40	1150	B	1B / 1C
150	342	2460	0.7	41	54	1300	600	700	1500	520	125	40	1300	B	1B / 1C
160	360	2600	0.6	41	54	1300	600	700	1500	520	125	40	1350	B	1B / 1C
200	408	2950	0.6	42	55	1350	750	800	1600	670	125	40	1500	C	1B / 1C
250	468	3400	0.6	43	57	1400	750	800	1600	670	125	40	1650	C	1B / 1C
315	557	3870	0.5	44	58	1450	750	800	1700	670	125	40	1850	C	2B / 2C
400	675	4500	0.5	46	60	1450	750	800	1700	670	125	40	2000	C	2B / 2C
500	811	5630	0.5	47	61	1450	750	850	1850	670	125	40	2150	C	3B / 3C
630	990	7100	0.4	48	62	1500	850	850	1850	670	125	40	2350	D	3B / 3C

Po No Load Loss  
Pk Load Loss  
Io No Load Current

LpA Sound Pressure Level  
LwA Sound Power Level

Dimensions and Mass subject to confirmation  
Dimensions and figures refer to Diagrams on pages 22 to 24

## 4% Ucc

## Insulation Class 24kV

Power kVA	EN50708 TIER 2 Ecodesign					a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	LpA dB(A)	LwA dB(A)										
100	252	1800	0.7	38	51	1300	600	750	1400	520	125	40	1150	B	1B / 1C
150	342	2460	0.7	41	54	1350	600	750	1500	520	125	40	1300	B	1B / 1C
160	360	2600	0.6	41	54	1350	600	750	1500	520	125	40	1350	B	1B / 1C
200	408	2950	0.6	42	55	1350	750	800	1600	670	125	40	1500	C	1B / 1C
250	468	3400	0.6	43	57	1400	750	800	1600	670	125	40	1650	C	1B / 1C
315	557	3870	0.5	44	58	1450	750	800	1700	670	125	40	1850	C	2B / 2C
400	675	4500	0.5	46	60	1450	750	850	1750	670	125	40	2050	C	2B / 2C
500	811	5630	0.5	47	61	1450	750	850	1850	670	125	40	2150	C	3B / 3C
630	990	7100	0.4	48	62	1500	850	900	1850	670	125	40	2400	D	3B / 3C

## 4% Ucc

## Insulation Class 25kV

Power kVA	EN50708 TIER 2 Ecodesign					a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	LpA dB(A)	LwA dB(A)										
100	289	1980	0.7	37	51	1600	600	850	1750	520	125	40	2050	B	21B / 21C
150	393	2710	0.7	40	54	1600	600	850	1900	520	125	40	2150	B	21B / 21C
160	414	2860	0.6	40	54	1600	600	850	1900	520	125	40	2200	B	21B / 21C
200	469	3250	0.6	41	55	1600	750	900	1950	670	125	40	2300	C	21B / 21C
250	538	3740	0.6	42	57	1600	750	950	2050	670	125	40	2500	C	21B / 21C
315	640	4260	0.5	43	58	1650	750	950	2100	670	125	40	2650	C	22B / 22C
400	776	4950	0.5	45	60	1650	750	950	2150	670	125	40	2850	C	22B / 22C
500	932	6190	0.5	46	61	1650	850	1000	2250	670	125	40	3100	C	22B / 22C
630	1139	7810	0.4	47	62	1650	850	1000	2250	670	125	40	3200	D	23B / 23C

## 4% Ucc

## Insulation Class 36kV

Power kVA	EN50708 TIER 2 Ecodesign					a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	LpA dB(A)	LwA dB(A)										
100	289	1980	0.7	37	51	1600	600	850	1750	520	125	40	2050	B	21B / 21C
150	393	2710	0.7	40	54	1600	600	850	1900	520	125	40	2150	B	21B / 21C
160	414	2860	0.6	40	54	1600	600	850	1900	520	125	40	2200	B	21B / 21C
200	469	3250	0.6	41	55	1600	750	900	1950	670	125	40	2300	C	21B / 21C
250	538	3740	0.6	42	57	1600	750	950	2050	670	125	40	2500	C	21B / 21C
315	640	4260	0.5	43	58	1650	750	950	2100	670	125	40	2650	C	22B / 22C
400	776	4950	0.5	45	60	1650	750	950	2150	670	125	40	2850	C	22B / 22C
500	932	6190	0.5	46	61	1650	850	1000	2250	670	125	40	3100	C	22B / 22C
630	1139	7810	0.4	47	62	1650	850	1000	2250	670	125	40	3200	D	23B / 23C

Po No Load Loss  
Pk Load Loss  
Io No Load Current

LpA Sound Pressure Level  
LwA Sound Power Level

Dimensions and Mass subject to confirmation  
Dimensions and figures refer to Diagrams on pages 22 to 24

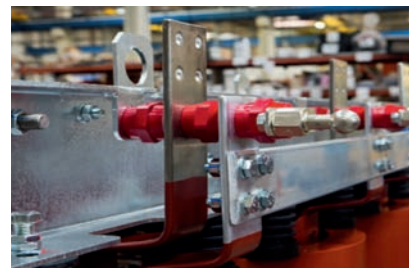
# 6% Ucc

# Insulation Class 7.2kV

Power kVA	EN50708 TIER 2 Ecodesign						a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	Z %	LpA dB(A)	LwA dB(A)										
100	252	1800	0.7	6.0	38	51	1250	600	700	1150	520	125	40	750	B	1B / 1C
150	342	2460	0.7	6.0	41	54	1250	600	700	1250	520	125	40	800	B	1B / 1C
160	360	2600	0.6	6.0	41	54	1250	600	700	1250	520	125	40	850	B	1B / 1C
200	408	2950	0.6	6.0	42	55	1250	750	750	1350	670	125	40	950	C	1B / 1C
250	468	3400	0.6	6.0	44	57	1300	750	800	1400	670	125	40	1100	C	1B / 1C
315	557	3870	0.5	6.0	44	58	1350	750	800	1550	670	125	40	1300	C	2B / 2C
400	675	4500	0.5	6.0	46	60	1400	750	800	1550	670	125	40	1400	C	2B / 2C
500	811	5630	0.5	6.0	47	61	1450	750	800	1600	670	125	40	1600	C	2B / 2C
630	990	7100	0.4	6.0	48	62	1500	850	850	1650	670	125	40	1850	D	2B / 2C
750	1117	7730	0.4	6.0	49	63	1550	850	850	1750	670	125	40	2150	E	3B / 3C
800	1170	8000	0.4	6.0	50	64	1550	850	850	1750	670	125	40	2250	E	3B / 3C
1000	1395	9000	0.4	6.0	51	65	1650	1000	1000	1850	820	125	40	2600	F	3B / 3C
1250	1620	11000	0.4	6.0	52	67	1700	1000	1000	2050	820	160	50	3150	G	4B / 4C
1500	1877	12420	0.4	6.0	53	68	1750	1000	1000	2100	820	160	50	3550	H	4B / 4C
1600	1980	13000	0.3	6.0	53	68	1750	1000	1000	2100	820	160	50	3750	H	4B / 4C
2000	2340	16000	0.3	6.0	55	70	1850	1310	1310	2250	1070	200	70	4550	I	5B / 5C
2500	2790	19000	0.3	6.0	56	71	1950	1310	1310	2400	1070	200	70	5650	J	5B / 5C
3000	3274	21300	0.3	6.0	57	73	2150	1310	1310	2450	1070	200	70	6750	K	6B / 6C
3150	3420	22000	0.3	6.0	58	74	2150	1310	1310	2550	1070	200	70	6950	K	6B / 6C
3500	PEI ≥99.382%	0.3	6.5	59	75	2150	1440	1440	2600	1200	200	90	7000	K	7B / 7C	
4000	PEI ≥99.382%	0.3	7.0	60	76	2300	1440	1440	2650	1200	200	90	7950	K	7B / 7C	
4500	PEI ≥99.385%	0.3	7.5	61	77	2450	1440	1440	2650	1200	200	90	8800	CUSTOM	7B / 7C	
5000	PEI ≥99.387%	0.3	8.0	62	78	2500	1440	1440	2700	1200	200	90	9400	CUSTOM	7B / 7C	

*Po* No Load Loss      *LpA* Sound Pressure Level  
*Pk* Load Loss      *LwA* Sound Power Level  
*Io* No Load Current      *PEI* Peak Efficiency Index  
*Z* Impedance  
 Loss values and PEI are guaranteed per EN50708

Dimensions and Mass subject to confirmation  
 Dimensions and figures refer to Diagrams on pages 22 to 24



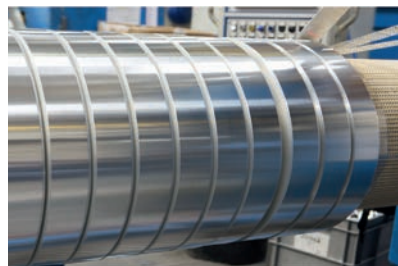
# 6% Ucc

# Insulation Class 12kV

Power kVA	EN50708 TIER 2 Ecodesign						a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	Z %	LpA dB(A)	LwA dB(A)										
100	252	1800	0.7	6.0	38	51	1250	600	700	1150	520	125	40	750	B	1B / 1C
150	342	2460	0.7	6.0	41	54	1250	600	700	1250	520	125	40	800	B	1B / 1C
160	360	2600	0.6	6.0	41	54	1250	600	700	1250	520	125	40	850	B	1B / 1C
200	408	2950	0.6	6.0	42	55	1250	750	750	1350	670	125	40	950	C	1B / 1C
250	468	3400	0.6	6.0	44	57	1300	750	800	1400	670	125	40	1100	C	1B / 1C
315	557	3870	0.5	6.0	44	58	1350	750	800	1550	670	125	40	1300	C	2B / 2C
400	675	4500	0.5	6.0	46	60	1400	750	800	1550	670	125	40	1400	C	2B / 2C
500	811	5630	0.5	6.0	47	61	1450	750	800	1600	670	125	40	1600	C	2B / 2C
630	990	7100	0.4	6.0	48	62	1500	850	850	1650	670	125	40	1850	D	2B / 2C
750	1117	7730	0.4	6.0	49	63	1550	850	850	1750	670	125	40	2150	E	3B / 3C
800	1170	8000	0.4	6.0	50	64	1550	850	850	1750	670	125	40	2250	E	3B / 3C
1000	1395	9000	0.4	6.0	51	65	1650	1000	1000	1850	820	125	40	2600	F	3B / 3C
1250	1620	11000	0.4	6.0	52	67	1700	1000	1000	2050	820	160	50	3150	G	4B / 4C
1500	1877	12420	0.4	6.0	53	68	1750	1000	1000	2100	820	160	50	3550	H	4B / 4C
1600	1980	13000	0.3	6.0	53	68	1750	1000	1000	2100	820	160	50	3750	H	4B / 4C
2000	2340	16000	0.3	6.0	55	70	1850	1310	1310	2250	1070	200	70	4550	I	5B / 5C
2500	2790	19000	0.3	6.0	56	71	1950	1310	1310	2400	1070	200	70	5650	J	5B / 5C
3000	3274	21300	0.3	6.0	57	73	2150	1310	1310	2450	1070	200	70	6750	K	6B / 6C
3150	3420	22000	0.3	6.0	58	74	2150	1310	1310	2550	1070	200	70	6950	K	6B / 6C
3500	PEI ≥99.382%	0.3	6.5	59	75	2150	1440	1440	2600	1200	200	90	7000	K	7B / 7C	
4000	PEI ≥99.382%	0.3	7.0	60	76	2300	1440	1440	2650	1200	200	90	7950	K	7B / 7C	
4500	PEI ≥99.385%	0.3	7.5	61	77	2450	1440	1440	2650	1200	200	90	8800	CUSTOM	7B / 7C	
5000	PEI ≥99.387%	0.3	8.0	62	78	2500	1440	1440	2700	1200	200	90	9400	CUSTOM	7B / 7C	

*Po* No Load Loss      *LpA* Sound Pressure Level  
*Pk* Load Loss      *LwA* Sound Power Level  
*Io* No Load Current      *PEI* Peak Efficiency Index  
*Z* Impedance  
 Loss values and PEI are guaranteed per EN50708

Dimensions and Mass subject to confirmation  
 Dimensions and figures refer to Diagrams on pages 22 to 24



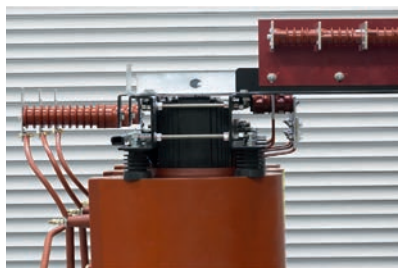
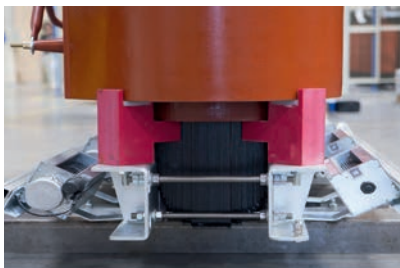
# 6% Ucc

# Insulation Class 17.5kV

Power kVA	EN50708 TIER 2 Ecodesign						a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	Z %	LpA dB(A)	LwA dB(A)										
100	252	1800	0.7	6.0	38	51	1300	600	700	1300	520	125	40	850	B	1B / 1C
150	342	2460	0.7	6.0	41	54	1300	600	700	1400	520	125	40	950	B	1B / 1C
160	360	2600	0.6	6.0	41	54	1300	600	700	1400	520	125	40	1000	B	1B / 1C
200	408	2950	0.6	6.0	42	55	1350	750	800	1500	670	125	40	1150	C	1B / 1C
250	468	3400	0.6	6.0	44	57	1400	750	800	1500	670	125	40	1250	C	1B / 1C
315	557	3870	0.5	6.0	44	58	1450	750	800	1600	670	125	40	1450	C	2B / 2C
400	675	4500	0.5	6.0	46	60	1450	750	800	1650	670	125	40	1650	C	2B / 2C
500	811	5630	0.5	6.0	47	61	1450	750	800	1650	670	125	40	1800	C	2B / 2C
630	990	7100	0.4	6.0	48	62	1550	850	850	1650	670	125	40	2050	D	2B / 2C
750	1117	7730	0.4	6.0	49	63	1650	850	900	1800	670	125	40	2400	E	3B / 3C
800	1170	8000	0.4	6.0	50	64	1650	850	900	1800	670	125	40	2500	E	3B / 3C
1000	1395	9000	0.4	6.0	51	65	1700	1000	1000	1900	820	125	40	2900	F	3B / 3C
1250	1620	11000	0.4	6.0	52	67	1800	1000	1000	2100	820	160	50	3400	G	4B / 4C
1500	1877	12420	0.4	6.0	53	68	1850	1000	1000	2150	820	160	50	3900	H	4B / 4C
1600	1980	13000	0.3	6.0	53	68	1850	1000	1000	2200	820	160	50	4100	H	5B / 5C
2000	2340	16000	0.3	6.0	55	70	1950	1310	1310	2350	1070	200	70	4950	I	5B / 5C
2500	2790	19000	0.3	6.0	56	71	2000	1310	1310	2500	1070	200	70	5800	J	5B / 5C
3000	3274	21300	0.3	6.0	57	73	2200	1310	1310	2600	1070	200	70	6800	K	6B / 6C
3150	3420	22000	0.3	6.0	58	74	2200	1310	1310	2650	1070	200	70	7050	K	6B / 6C
3500	PEI ≥99.382%	0.3	6.5	59	75	2250	1440	1440	2650	1200	200	90	7100	K	7B / 7C	
4000	PEI ≥99.382%	0.3	7.0	60	76	2350	1440	1440	2650	1200	200	90	8350	K	7B / 7C	
4500	PEI ≥99.385%	0.3	7.5	61	77	2450	1440	1440	2700	1200	200	90	8800	CUSTOM	7B / 7C	
5000	PEI ≥99.387%	0.3	8.0	62	78	2500	1440	1440	2700	1200	200	90	9650	CUSTOM	7B / 7C	

*Po* No Load Loss      *LpA* Sound Pressure Level  
*Pk* Load Loss      *LwA* Sound Power Level  
*Io* No Load Current      *PEI* Peak Efficiency Index  
*Z* Impedance  
 Loss values and PEI are guaranteed per EN50708

Dimensions and Mass subject to confirmation  
 Dimensions and figures refer to Diagrams on pages 22 to 24



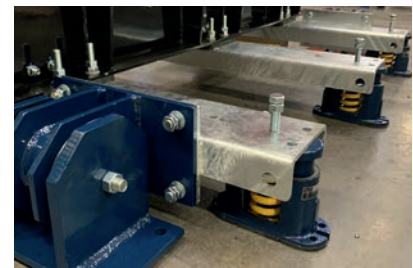
# 6% Ucc

# Insulation Class 24kV

Power kVA	EN50708 TIER 2 Ecodesign						a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	Z %	LpA dB(A)	LwA dB(A)										
100	252	1800	0.7	6.0	38	51	1300	600	700	1300	520	125	40	900	B	1B / 1C
150	342	2460	0.7	6.0	41	54	1300	600	700	1400	520	125	40	1000	B	1B / 1C
160	360	2600	0.6	6.0	41	54	1300	600	700	1400	520	125	40	1050	B	1B / 1C
200	408	2950	0.6	6.0	42	55	1350	750	800	1500	670	125	40	1150	C	1B / 1C
250	468	3400	0.6	6.0	44	57	1400	750	800	1500	670	125	40	1300	C	1B / 1C
315	557	3870	0.5	6.0	44	58	1450	750	800	1600	670	125	40	1450	C	2B / 2C
400	675	4500	0.5	6.0	46	60	1500	750	850	1650	670	125	40	1700	C	2B / 2C
500	811	5630	0.5	6.0	47	61	1500	750	850	1650	670	125	40	1850	C	2B / 2C
630	990	7100	0.4	6.0	48	62	1550	850	900	1700	670	125	40	2100	D	2B / 2C
750	1117	7730	0.4	6.0	49	63	1650	850	900	1800	670	125	40	2450	E	3B / 3C
800	1170	8000	0.4	6.0	50	64	1650	850	900	1800	670	125	40	2550	E	3B / 3C
1000	1395	9000	0.4	6.0	51	65	1700	1000	1000	1900	820	125	40	2950	F	3B / 3C
1250	1620	11000	0.4	6.0	52	67	1800	1000	1000	2100	820	160	50	3450	G	4B / 4C
1500	1877	12420	0.4	6.0	53	68	1850	1000	1000	2150	820	160	50	3950	H	4B / 4C
1600	1980	13000	0.3	6.0	53	68	1850	1000	1000	2200	820	160	50	4150	H	4B / 4C
2000	2340	16000	0.3	6.0	55	70	1950	1310	1310	2400	1070	200	70	5100	I	5B / 5C
2500	2790	19000	0.3	6.0	56	71	2000	1310	1310	2500	1070	200	70	5950	J	5B / 5C
3000	3274	21300	0.3	6.0	57	73	2200	1310	1310	2600	1070	200	70	7300	K	6B / 6C
3150	3420	22000	0.3	6.0	58	74	2250	1310	1310	2650	1070	200	70	7500	K	6B / 6C
3500	PEI ≥99.382%	0.3	6.5	59	75	2250	1440	1440	2650	1200	200	90	7600	K	7B / 7C	
4000	PEI ≥99.382%	0.3	7.0	60	76	2350	1440	1440	2650	1200	200	90	8350	K	7B / 7C	
4500	PEI ≥99.385%	0.3	7.5	61	77	2450	1440	1440	2700	1200	200	90	9050	CUSTOM	7B / 7C	
5000	PEI ≥99.387%	0.3	8.0	62	78	2550	1440	1440	2750	1200	200	90	9700	CUSTOM	7B / 7C	

*Po* No Load Loss      *LpA* Sound Pressure Level  
*Pk* Load Loss      *LwA* Sound Power Level  
*Io* No Load Current      *PEI* Peak Efficiency Index  
*Z* Impedance  
 Loss values and PEI are guaranteed per EN50708

Dimensions and Mass subject to confirmation  
 Dimensions and figures refer to Diagrams on pages 22 to 24



# 6% Ucc

# Insulation Class 25kV

Power kVA	EN50708 TIER 2 Ecodesign						a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	Z %	LpA dB(A)	LwA dB(A)										
100	289	1980	0.7	6.0	37	51	1600	600	850	1650	520	125	40	1650	B	21B / 21C
150	393	2710	0.7	6.0	40	54	1600	600	850	1650	520	125	40	1700	B	21B / 21C
160	414	2860	0.6	6.0	40	54	1600	600	850	1650	520	125	40	1750	B	21B / 21C
200	469	3250	0.6	6.0	41	55	1600	750	900	1850	670	125	40	1850	C	21B / 21C
250	538	3740	0.6	6.0	43	57	1600	750	950	1950	670	125	40	2100	C	21B / 21C
315	640	4260	0.5	6.0	44	58	1600	750	950	2100	670	125	40	2200	C	22B / 22C
400	776	4950	0.5	6.0	45	60	1650	750	950	2200	670	125	40	2500	C	22B / 22C
500	932	6190	0.5	6.0	46	61	1650	850	1000	2250	670	125	40	2700	C	22B / 22C
630	1139	7810	0.4	6.0	47	62	1650	850	1000	2300	670	125	40	2900	D	23B / 23C
750	1285	8500	0.4	6.0	48	63	1750	850	1000	2350	670	125	40	3250	E	23B / 23C
800	1346	8800	0.4	6.0	49	64	1750	850	1000	2350	670	125	40	3300	E	23B / 23C
1000	1604	9900	0.4	6.0	50	65	1800	1000	1100	2450	820	125	40	3800	F	23B / 23C
1250	1863	12100	0.4	6.0	52	67	1900	1000	1100	2550	820	160	50	4600	G	24B / 24C
1500	2158	13670	0.4	6.0	53	68	1950	1000	1100	2550	820	160	50	5100	H	24B / 24C
1600	2277	14300	0.3	6.0	53	68	1950	1000	1100	2600	820	160	50	5200	H	24B / 24C
2000	2691	17600	0.3	6.0	54	70	2100	1310	1310	2700	1070	200	70	6050	I	25B / 25C
2500	3209	20900	0.3	6.0	55	71	2150	1310	1310	2800	1070	200	70	6900	J	25B / 25C
3000	3765	23430	0.3	6.0	57	73	2400	1310	1310	2800	1070	200	70	8700	K	26B / 26C
3150	3933	24200	0.3	6.0	58	74	2400	1310	1310	2850	1070	200	70	9000	K	26B / 26C
3500	PEI ≥99.382%	0.3	6.5	59	75	2450	1440	1450	2850	1200	200	90	90	9300	K	27B / 27C
4000	PEI ≥99.382%	0.3	7.0	60	76	2550	1440	1450	2850	1200	200	90	90	9500	K	27B / 27C
4500	PEI ≥99.385%	0.3	7.5	61	77	2600	1440	1450	2850	1200	200	90	90	10300	CUSTOM	27B / 27C
5000	PEI ≥99.387%	0.3	8.0	62	78	2750	1440	1500	2850	1200	200	90	90	11400	CUSTOM	27B / 27C

*Po* No Load Loss      *LpA* Sound Pressure Level  
*Pk* Load Loss        *LwA* Sound Power Level  
*Io* No Load Current    *PEI* Peak Efficiency Index  
*Z* Impedance  
 Loss values and PEI are guaranteed per EN50708

Dimensions and Mass subject to confirmation  
 Dimensions and figures refer to Diagrams on pages 22 to 24



# 6% Ucc

# Insulation Class 36kV

Power kVA	EN50708 TIER 2 Ecodesign						a1 mm	b1 mm	b2 mm	h1 mm	e mm	Ø mm	t mm	Mass kg	Term Type	Encl Type
	Po W	Pk120° W	Io %	Z %	LpA dB(A)	LwA dB(A)										
100	289	1980	0.7	6.0	37	51	1600	600	850	1650	520	125	40	1650	B	21B / 21C
150	393	2710	0.7	6.0	40	54	1600	600	850	1650	520	125	40	1700	B	21B / 21C
160	414	2860	0.6	6.0	40	54	1600	600	850	1650	520	125	40	1750	B	21B / 21C
200	469	3250	0.6	6.0	41	55	1600	750	900	1850	670	125	40	1850	C	21B / 21C
250	538	3740	0.6	6.0	43	57	1600	750	950	1950	670	125	40	2100	C	21B / 21C
315	640	4260	0.5	6.0	44	58	1600	750	950	2100	670	125	40	2200	C	22B / 22C
400	776	4950	0.5	6.0	45	60	1650	750	950	2200	670	125	40	2500	C	22B / 22C
500	932	6190	0.5	6.0	46	61	1650	850	1000	2250	670	125	40	2700	C	22B / 22C
630	1139	7810	0.4	6.0	47	62	1650	850	1000	2300	670	125	40	2900	D	23B / 23C
750	1285	8500	0.4	6.0	48	63	1750	850	1000	2350	670	125	40	3250	E	23B / 23C
800	1346	8800	0.4	6.0	49	64	1750	850	1000	2350	670	125	40	3300	E	23B / 23C
1000	1604	9900	0.4	6.0	50	65	1800	1000	1100	2450	820	125	40	3900	F	23B / 23C
1250	1863	12100	0.4	6.0	52	67	1900	1000	1100	2550	820	160	50	4650	G	24B / 24C
1500	2158	13670	0.4	6.0	53	68	2000	1000	1100	2550	820	160	50	5250	H	24B / 24C
1600	2277	14300	0.3	6.0	53	68	2000	1000	1100	2600	820	160	50	5350	H	24B / 24C
2000	2691	17600	0.3	6.0	54	70	2100	1310	1310	2700	1070	200	70	6300	I	25B / 25C
2500	3209	20900	0.3	6.0	55	71	2150	1310	1310	2800	1070	200	70	6900	J	25B / 25C
3000	3765	23430	0.3	6.0	57	73	2400	1310	1310	2800	1070	200	70	8700	K	26B / 26C
3150	3933	24200	0.3	6.0	58	74	2400	1310	1310	2850	1070	200	70	9000	K	26B / 26C
3500	PEI ≥99.382%	0.3	6.5	59	75	2500	1440	1450	2850	1200	200	90	90	9300	K	27B / 27C
4000	PEI ≥99.382%	0.3	7.0	60	76	2550	1440	1450	2850	1200	200	90	90	9500	K	27B / 27C
4500	PEI ≥99.385%	0.3	7.5	61	77	2700	1440	1450	2850	1200	200	90	90	10300	CUSTOM	27B / 27C
5000	PEI ≥99.387%	0.3	8.0	62	78	2750	1440	1500	2850	1200	200	90	90	11400	CUSTOM	27B / 27C

*Po* No Load Loss      *LpA* Sound Pressure Level  
*Pk* Load Loss        *LwA* Sound Power Level  
*Io* No Load Current    *PEI* Peak Efficiency Index  
*Z* Impedance  
 Loss values and PEI are guaranteed per EN50708

Dimensions and Mass subject to confirmation  
 Dimensions and figures refer to Diagrams on pages 22 to 24







IP21



IP23



IP31



IP43 Marine Grade Stainless Steel



IP43



IP54



IP56

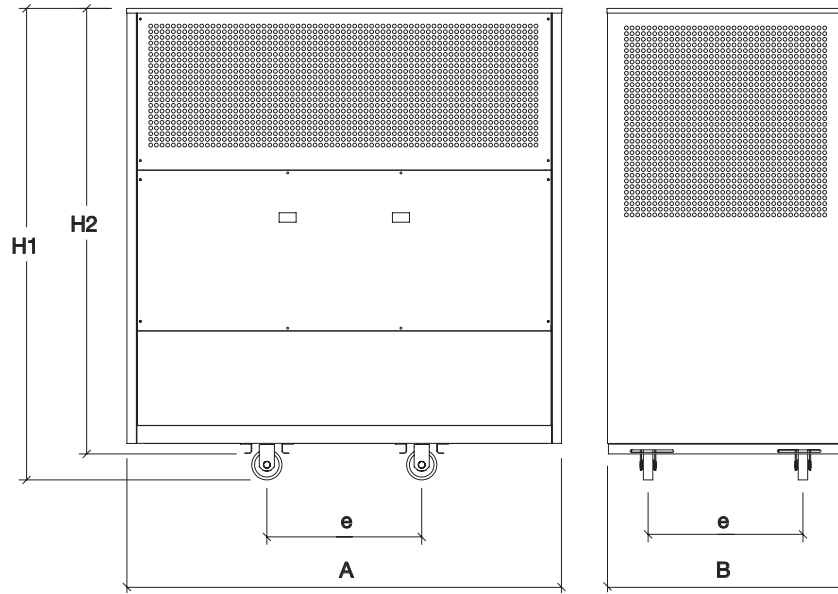


IP65

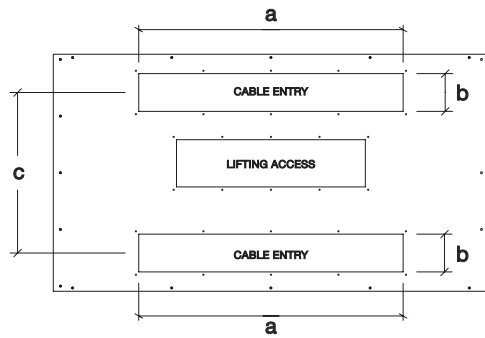


IP66

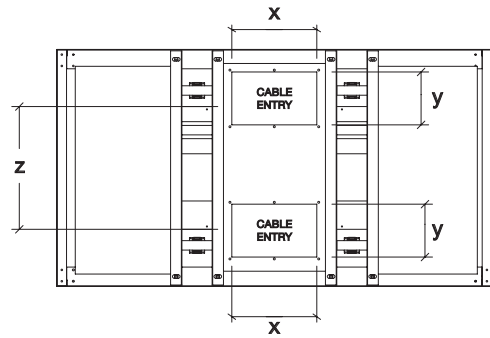
## INDOOR ENCLOSURES IP20 to IP33



**Top View**



**Bottom View**

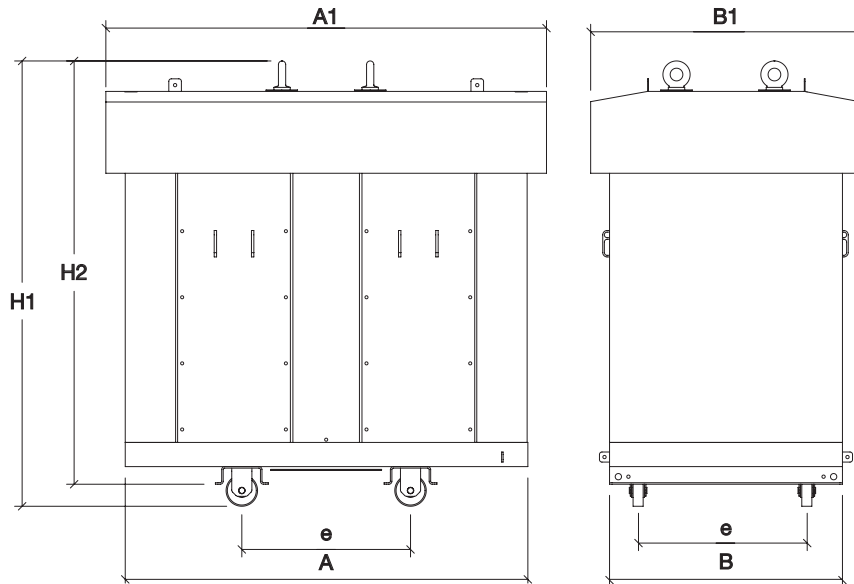


DIMENSIONS ENCLOSURES IP20 TO IP33						
Encl. Type	A mm	B mm	H1 mm	H2 mm	e	Mass kg
<b>7.2kV 12kV 17.5kV 24kV</b>						
1B	1850	1250	1710	1610	See transformer tables	170
2B	1950	1300	2010	1910		210
3B	2050	1350	2260	2160		240
4B	2250	1400	2500	2360		310
5B	2500	1450	2850	2670		330
6B	2750	1550	3050	2870		390
7B	2900	1600	3150	3110		420
<b>25kV 36kV</b>						
21 B	2300	1550	2260	2160	See transformer tables	300
22 B	2400	1600	2460	2360		320
23 B	2500	1650	2700	2600		350
24 B	2600	1700	2900	2750		380
25 B	2800	1750	3050	2900		410
26 B	3000	1800	3150	3020		450
27 B	3250	1850	3300	3260		490

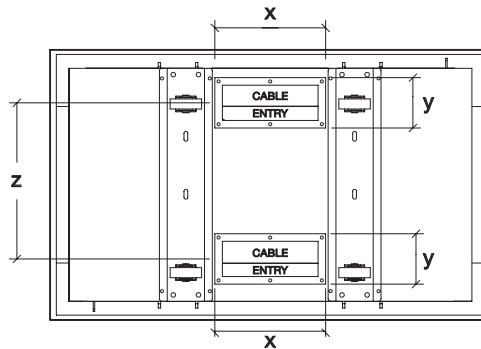
CABLE ENTRY TOP PANEL			CABLE ENTRY BOTTOM PANEL		
a mm	b mm	c mm	x mm	y mm	z mm
<b>7.2kV 12kV 17.5kV 24kV</b>					
1100	150	850	300	250	700
1200	150	700	300	300	750
1300	150	750	450	350	800
1400	200	850	450	400	850
1600	200	910	450	400	900
1900	300	950	450	400	950
1900	300	1170	450	400	1000
<b>25kV 36kV</b>					
1400	200	950	300	250	900
1400	200	950	300	300	950
1600	200	950	450	350	1000
1600	200	950	450	400	1050
1900	300	1040	450	400	1100
1900	300	1170	450	400	1150
1900	300	1170	450	400	1200

## OUTDOOR ENCLOSURES IP43 and IP44

Dimensions for greater degrees of protection provided in response to official enquiry.



**Bottom View**

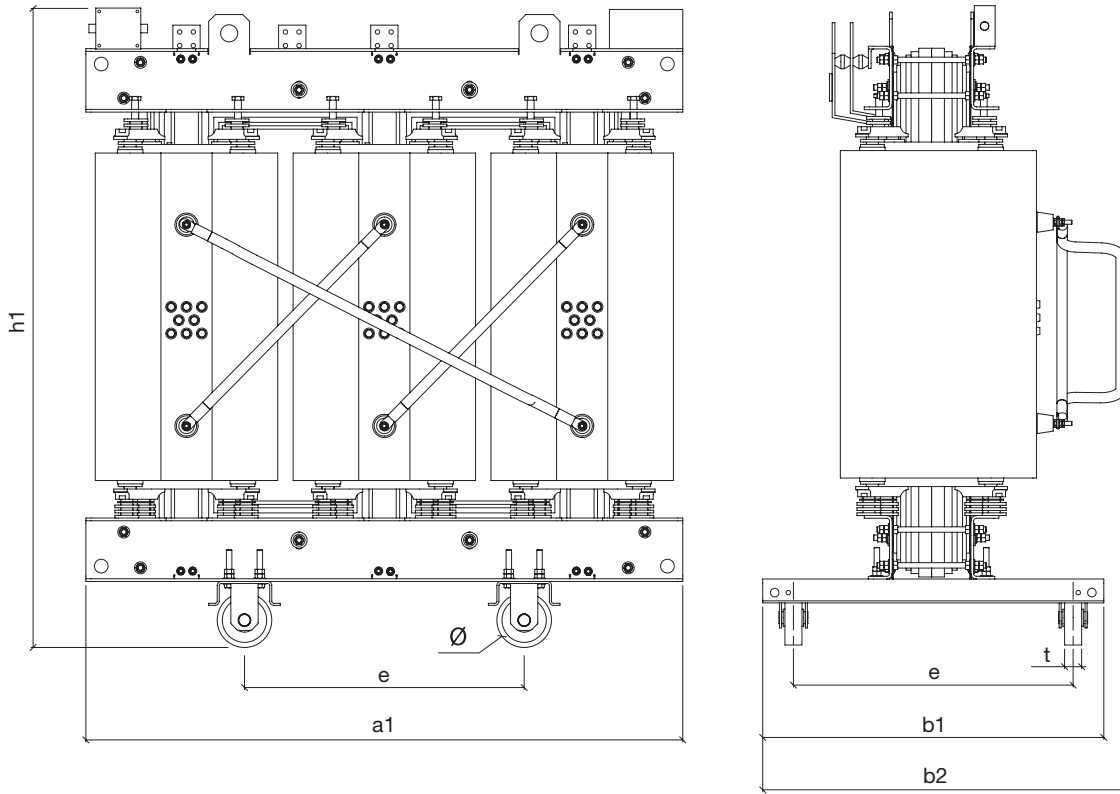


DIMENSIONS ENCLOSURE IP43								
Encl. Type	A mm	A1 mm	B mm	B1 mm	H1 mm	H2 mm	e mm	Mass kg
<b>7.2kV 12kV 17.5kV 24kV</b>								
1C	1850	2150	1450	1750	2010	1920	See transformer tables	460
2C	1950	2250	1500	1800	2220	2130		500
3C	2050	2350	1550	1850	2480	2390		580
4C	2250	2550	1600	1900	2680	2590		700
5C	2500	2800	1700	2000	3010	2890		830
6C	2750	3050	1800	2100	3250	3090		920
7C	2900	3200	1900	2100	3360	3325		1050
<b>25kV 36kV</b>								
21C	2300	2600	1750	2050	2500	2400	See transformer tables	700
22C	2400	2700	1800	2100	2700	2600		750
23C	2500	2800	1850	2150	2950	2850		850
24C	2600	2900	1900	2200	3150	3000		950
25C	2800	3100	1950	2250	3250	3070		1050
26C	3000	3300	2000	2300	3450	3270		1150
27C	3250	3550	2050	2350	3550	3510		1250

CABLE ENTRY BOTTOM PANEL			
x mm	y mm	z mm	
<b>7.2kV 12kV 17.5kV 24kV</b>			
450	250	1000	
450	300	1100	
600	320	1100	
600	370	1100	
600	400	1150	
600	400	1200	
600	400	1250	
<b>25kV 36kV</b>			
450	250	1200	
450	300	1300	
600	300	1300	
600	400	1300	
600	400	1350	
600	400	1400	
600	400	1450	

# TECHNICAL DETAILS

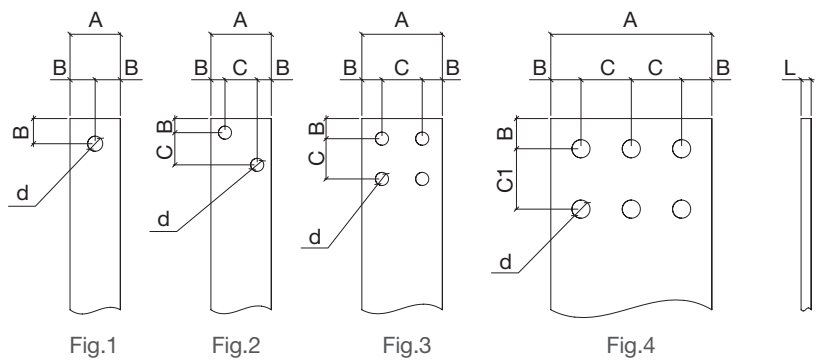
## IP00



## TERMINALS

LV TERMINALS 380V TO 480V*							
Term Type	Fig.	A mm	L mm	B mm	C mm	C1 mm	d mm
A	1	30	3	15	-	-	13
B	1	50	5	25	-	-	15
C	2	60	6	14	32	-	13
D	2	60	8	14	32	-	13
E	3	80	8	20	40	-	13
F	3	100	8	25	50	-	15
G	3	120	10	30	60	-	18
H	3	120	12	30	60	-	18
I	4	160	10	30	50	60	18
J	4	160	14	30	50	60	18
K	4	160	20	30	50	60	18

\* Data for higher voltages on application



HV TERMINALS	
All HV terminals per Fig.5 with thread dimension M12	

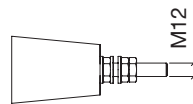


Fig.5

## OPTIONAL ENCLOSURES ACCESSORIES

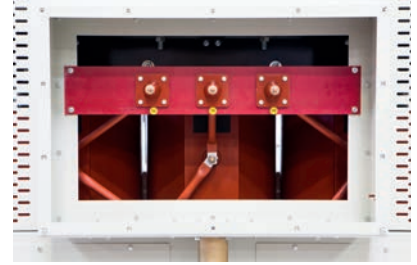
Range includes:



LV Cable Boxes



HV Cable Box with Separable Connectors



Cable Box with Bushings



External Marshalling Boxes



IP 43 (doors removed) showing Cable Box and front panel with infrared thermographic inspection windows



Space Heaters



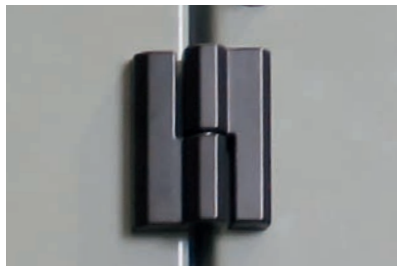
External Lifting Arrangements (Light)



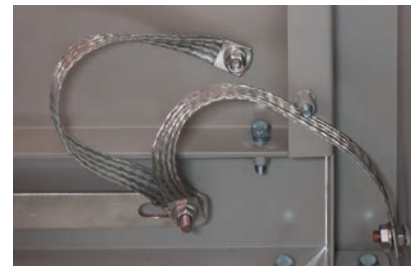
External Lifting Arrangements (Heavy)



Security Screws for Locking Panels



Door Hinges



Earthed Panels



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