

Cast Resin Transformers according to British standards





Power Sp. z o.o. manufactures a wide range of distribution and special cast resin transformers from 10 kVA and up to 5000 kVA up to 36 kV. All transformers can be provided with ventilated customised protection enclosures, designed according to specific client needs. Furthermore Power Sp. z o.o. offers customized transformers for special applications: rectifiers for 6-12-18-24-36 Pulse, Step up transformers, autotransformers & starting transformers, multi-voltage transformers for photovoltaic application, earthing transformers, different types of reactors, seismic shake proof units, traction transformers, test room transformers, etc.

All of our transformers are certified (CESI certificate No. B8009619) manufactured and tested in compliance with IEC 60076-11 standards and in particular meet the requirements for climatic (C), environmental (E) and fire (F) classes:

- **Climatic class C2:**
Transformers suitable for working, transportation and storage at temperatures down to -25°C.
- **Environmental class E2:**
Transformers suitable for working in environment where they can be subject to frequent condensation, heavy pollution or a combination of both of them.
- **Fire class F1:**
Transformers exposed to a fire hazard. They are characterised by restricted inflammability, low emission of toxic substances and opaque fumes.



Why cast resin transformers?

Extremely reduced fire risk

Cast resin mounting materials are less inflammable and can be defined as self-extinguishing. There is no need of special fire protection coatings. When engulfed in flames the heat given off from the cast resin is reduced and harmful gasses are decreased. These advantages can make cast resin transformers a perfect choice for installations inside hospitals, public buildings, airports, subways, mines, oil rigs, nuclear power plants, ships, etc.

Reduced maintenance

Cast resin transformers are designed to withstand the worst climatic and environmental conditions. Preventive maintenance consists of a few simple checks and basic cleaning.

Versatility and performances

Cast resin transformers can cope well with overloads found in most typical installations.

Low operation costs

The low losses in the magnetic core and in the windings can reduce the costs of operation and ownership.

High short-time overload capability

Current density in the windings of cast resin transformers is considerably lower than in those of liquid-immersed transformers. Short-time load peaks, such as with wind power installations, can be easily overcome without there being a need to plan the relevant oversizing.

High reliability

The modern technology employed in the manufacturing and testing process of windings gives the product a high level of reliability.



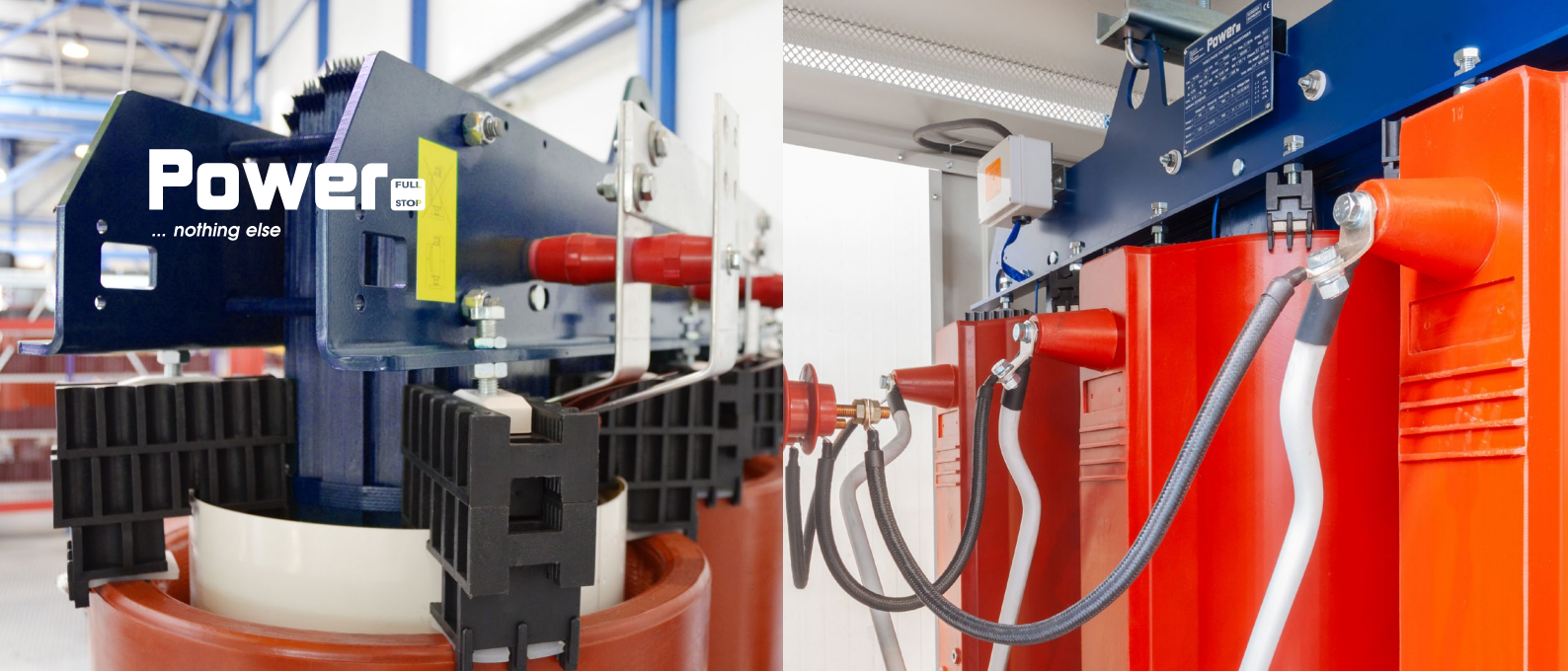
No special cooling liquids required

Cast resin transformers are exclusively air cooled. There are no liquid coolants of chemical type, which could be released into the environment. There is therefore less maintenance of cast resin transformers, compared to liquid-filled types.

Advantages of IP enclosure

Instead of traditional transformer bays, simple IP enclosures can be used for access prevention and protection of cast resin transformers. IP enclosures come in different types and colours depending on the client's needs and preferences.

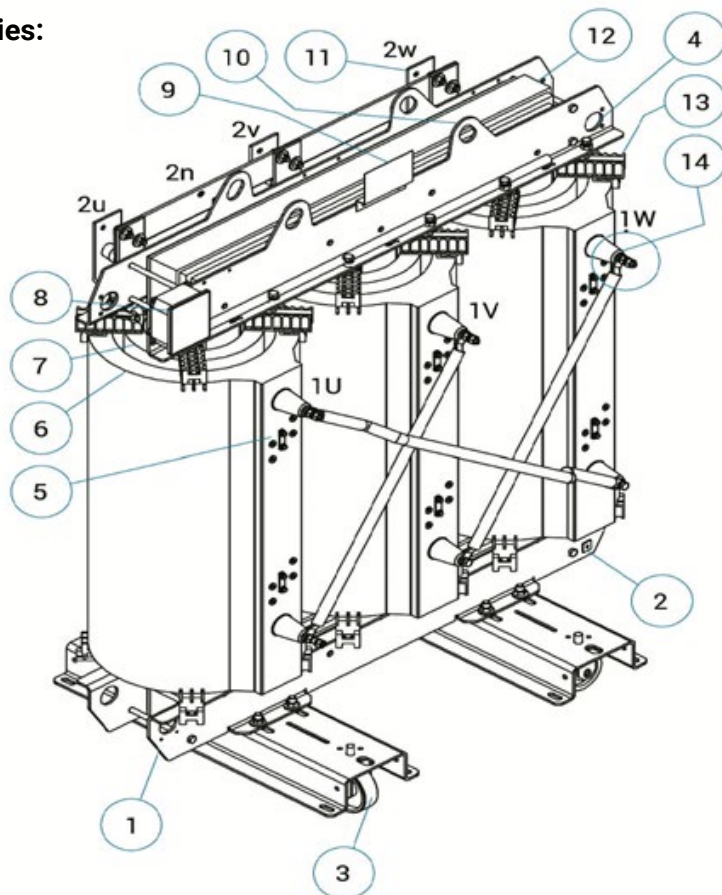




Standard accessories & accessories upon request

Standard components and accessories:

1. Steel frames
2. Earthing lugs
3. Bi-directional wheels
4. Haulage holes
5. HV tapping links
6. High voltage windings
7. Low voltage windings
8. Auxiliary box
9. Rating plate
10. Lifting eyebolts
11. LV terminal bars
12. Magnetic core
13. Winding end blocks
14. HV terminal pins

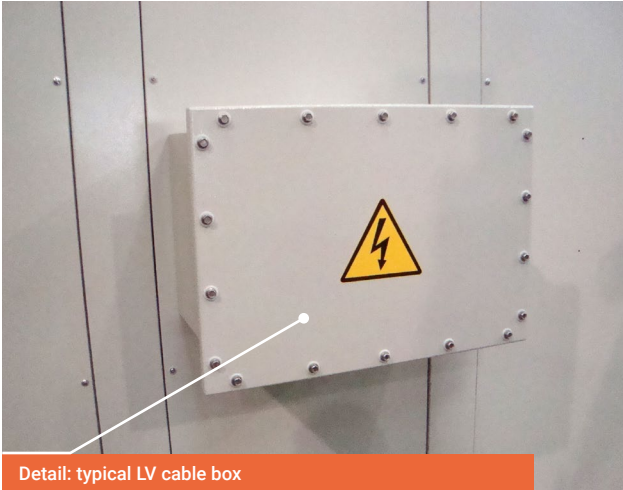


Optional components and accessories:

- Standard or customised Enclosure (IP 21-54)
- MV and LV cable boxes
- Marshaling box
- Anti-vibration pads for wheels
- Temperature protection relay
- Forced cooling system
- Further accessories upon request

Cast resin transformers according UK design

We are supplying standard and special cast resin transformers with IP rated protection enclosure, equipped and designed according to specific needs. Following to clients request, we provide LV barwork (made of aluminium or copper), marshalling box, LV cable box, HV cable box, HV bushings. Alternatively the protection enclosure may be supplied with cut-outs having gland plates. All IP enclosures may be provided with double access doors or hinged door with standard or special lock.



Detail: typical LV cable box



IP 54 protection enclosures for outdoor installation



HV neutral cable box



MV cut out with predisposition for RMU or other accessories



IP54 marshalling box with temperature protection relay



General view with open inspection panel

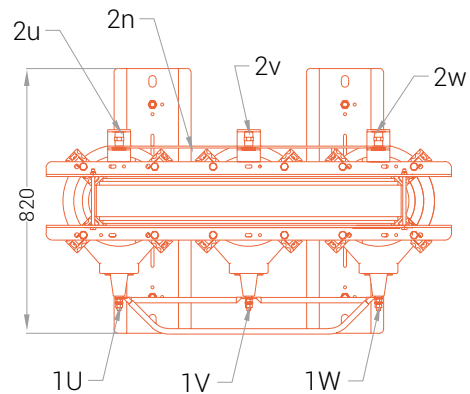
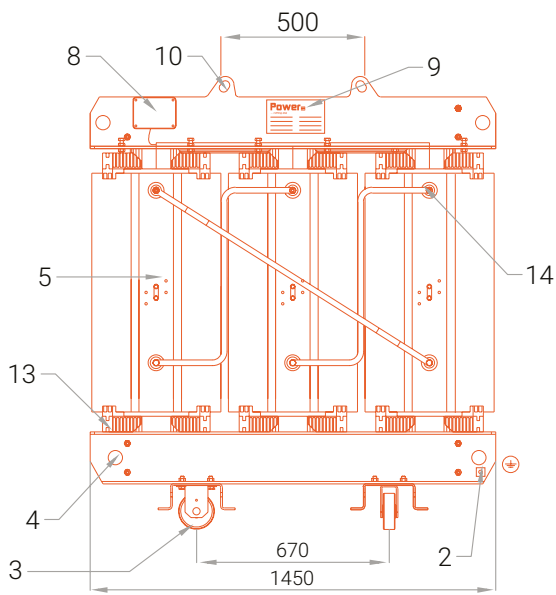


Eco Design Regulation 548/2014 En 50588-1 Tier 1 & Tier 2

The European Commission directive requires significant Energy savings as stated in the EU Regulation 548/2014 in reference came into all distribution transformers operated in the EU Countries. The first stage TIER 1 force from July 1st 2015 and is followed by the second stage TIER 2, which will be introduced officially in July 2021, reducing the current TIER1 no-load losses by 10% and short circuit losses (up to 630 kVA) by 6%.

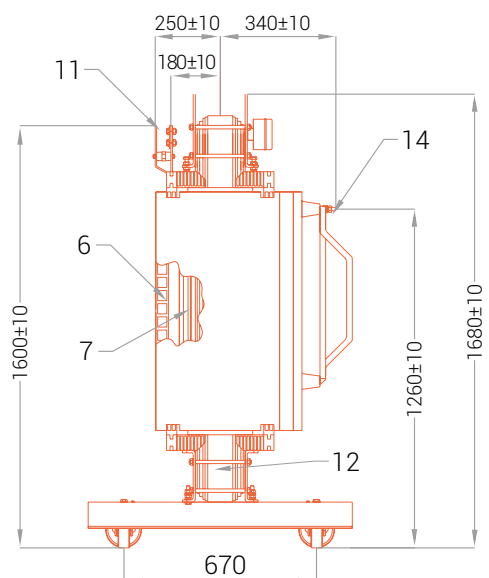
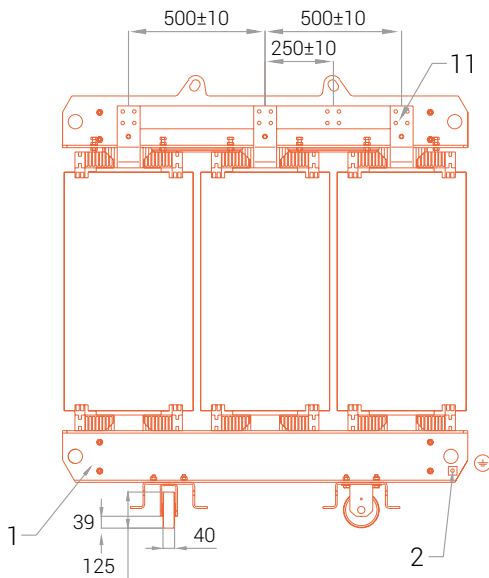
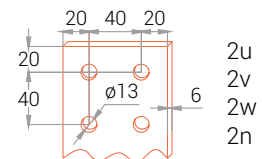
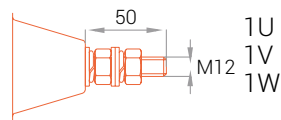
Power. Sp. z o.o. is ahead of the new challenge and has already been offering cast resin transformers with losses which are in line with TIER2 of Regulation 548/2014. Thanks to extensive experience in the production of magnetic cores, efficient and effective design of transformers and constant research of new materials, we offer our customers the best optimisation of their operating costs by using our TIER 2 transformers. We exclusively employ highest quality certified magnetic laser steel and accurately select the best materials for windings. Power transformer designs have shown very reduced level of magnetic induction, to give significantly lower no-load losses.

Example of transformer designed according to Eco Tier 2



Hv bushing terminal

LV bushing terminal



DESCRIPTION	
1	Lamination holder
2	Earth tapping M12
3	Orthogonal wheels
4	Transfer eyebolts
5	MV regulation tapping
6	MV windings
7	LV winding
8	Centralization aux. box
9	Label with electrical features
10	Lifting eyebolts
11	Output lv bars
12	Magnetic core
13	Windings preassure plugs
14	Input mv terminals

DESCRIPTION	
EMITTED	
CHECKED	
POWER [KVA]	630 [50Hz]
VOLTAGES [KV]	20,000 +/- 2x2.5% / 0.400
VECTOR GROUP	Dyn5
WEIGHT [KG]	1800 (+5%/-10%)

Datasheet cast resin transformer according to stage 2/2021 - EU 548/2014



Position	1		
Standards	IEC 60076-1, IEC 60076-11, EU 548/2014 – Eco Stage 2, EN 50588-1		
Type	TPZ3K12.0630	Application	Distribution
Rated Power – AN	630 kVA	Duty Class	I
Type of Cooling	AN	Frequency	50 Hz

CHARACTERISTICS			
	HV	LV	
Voltage	11 kV	415 V	
Current	33,07 A	876,46 A	
Insulation Level	12/28/75 kV	1,1/3/- kV	
Tapping	±2x2,5%	-	
Material	Aluminium	Aluminium	
Insulation Class	F	F	
Temperature Rise	100 K	100 K	
Level of Losses	TIER2		
No-load Losses (Po)	990 W		
On load Losses (Pk) at 120°C	7100 W		
Tolerance on the losses	0%		
Impedance (Uk)	6%		
Power Noise LwA (dBA)	≤ 61 dB(A)		
Pressure Noise LpA (dBA)	≤ 47 dB(A)		
Ambient Temperature	-25°C ; + 40°C		
Installation height	≤ 1.000 m		
Environmental- (E) Climatic- (C) Fire (F) Classes	F1/E2/C2		
Dimensions IP00 (AxBxC)	1450 × 820 × 1680 mm	Wheel base (D)	670 mm
Wheels Diameter (E)	125 mm	Weight IP00	2050 kg

STANDARD ACCESSORIES
Earthing terminal
Primary voltage tapping links
MV insulators
Output bars from LV windings
Eyebolts for horizontal and vertical movements
Name plate EU 548/2014
4 bi-directional wheels
3xPT100 sensors for temperature control
Routine tests report according to IEC 60076
Operation & Maintenance Manual

For further information and questions please do not hesitate to contact us at office@powerfullstop.com.

Thank you for your attention!

Your Power Team **Power**
... nothing else