Trihal connected, for enhanced safety and performance

Best-in-class dry-type distribution transformers for medium voltage applications with scalable connectivity

se.com/trihal

Life Is On Schneider Electric

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An innovative solution for customers in the following sectors:

Buildings

Data Centers

Automotive

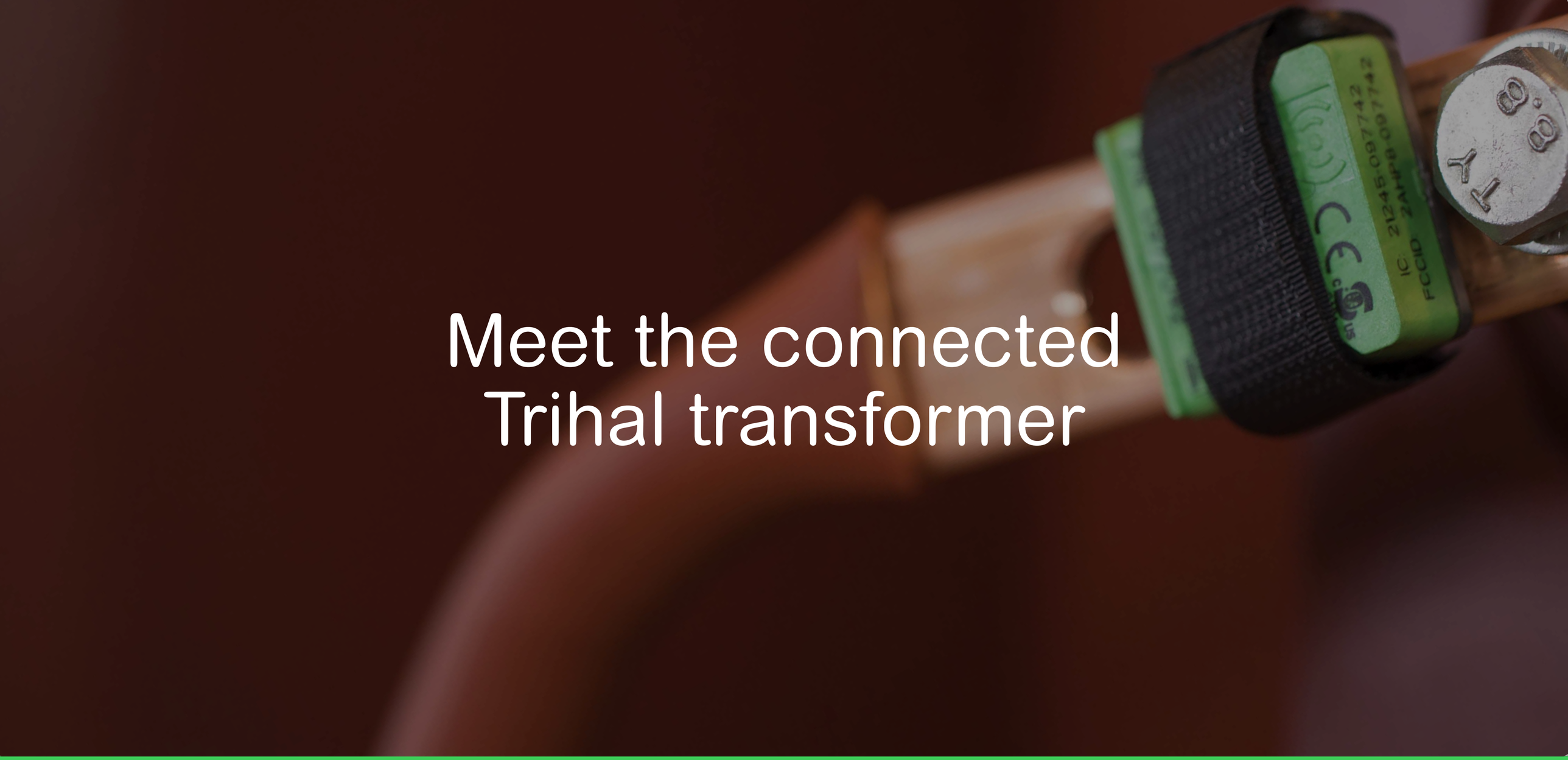
Mining, Minerals, & Metals

Nuclear

Wind

Food & Beverage

Oil & Gas



Meet the connected Trihal transformer

Introducing the New Electric World

The consumption of electricity will double within the next 20 years, helping people and businesses to thrive in a growing world of decarbonized electricity.

The New Electric World improves our overall electrical distribution systems through the integration digital technologies, is more decentralized and powered by distributed renewable energy sources and storage systems.

As a result, the distribution and consumption of electricity is changing significantly.

This poses a challenge for electrical networks and grid operators, however this also presents a great opportunity. Businesses and industries can use the New Electric World and its digital technologies to improve cost, reliability and safety of their everyday operations.

CO_2

emissions need to be halved by 2040

85%

of CO_2 emissions are related to energy

Source: IEA 2013

2x

electricity demand in the next 20 years

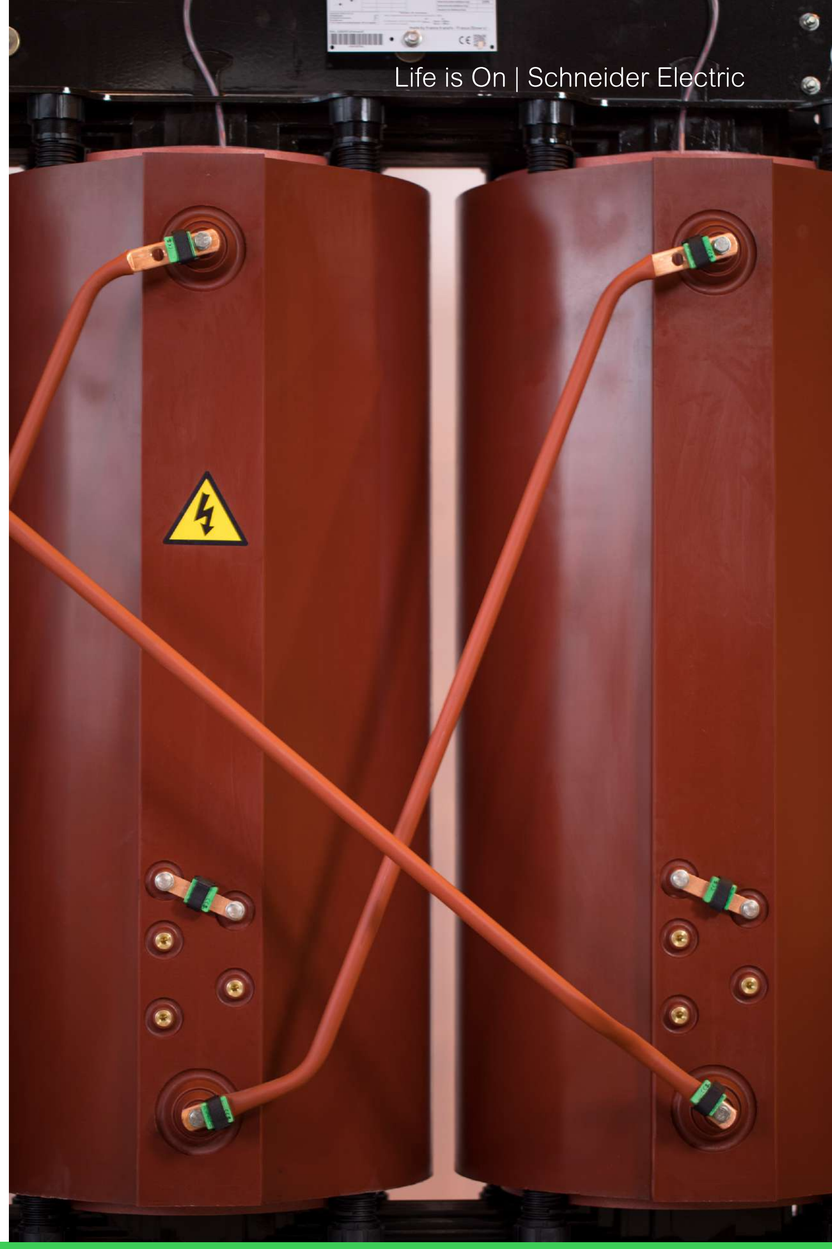
Setting a new standard for cast resin transformers

Our latest Trihal transformer leads the pack when it comes to enhanced safety and reliable performance with a long service life. The first transformer certified to the latest revision of international standard IEC 60076-11:2018, Trihal's high performance allows your business to benefit from best-in-class performance in F1, C4 and E4 certifications.

With over 35 years proven experience, Trihal transformers are designed to serve customers around the world, from mid-sized buildings to large industries such as textile, food & beverage, and transportation.

Now with new digital and IoT capabilities, Trihal connected enables you to meet new challenges in operation and maintenance of your electrical network, helping you avoid unplanned downtime, enhance safety and save time.

- **Identify electrical losses**
- **Improve safety of operations**
- **Prevent unplanned downtime**



Certified high performance for enhanced safety and reliability

Trihal offers the highest level of compliance to IEC 60076-11:2018. High performance comes as standard with fire safety and partial discharge helping to provide increased power continuity, even in the most harsh of environments, including seismic certification to AG3K1 standards.

F1 fire certification

- Self-extinguishing capability
- Suitable for installations in fire-hazard areas
- Limited formation of fumes, no toxic emissions or opaque smoke

C4 climate certification

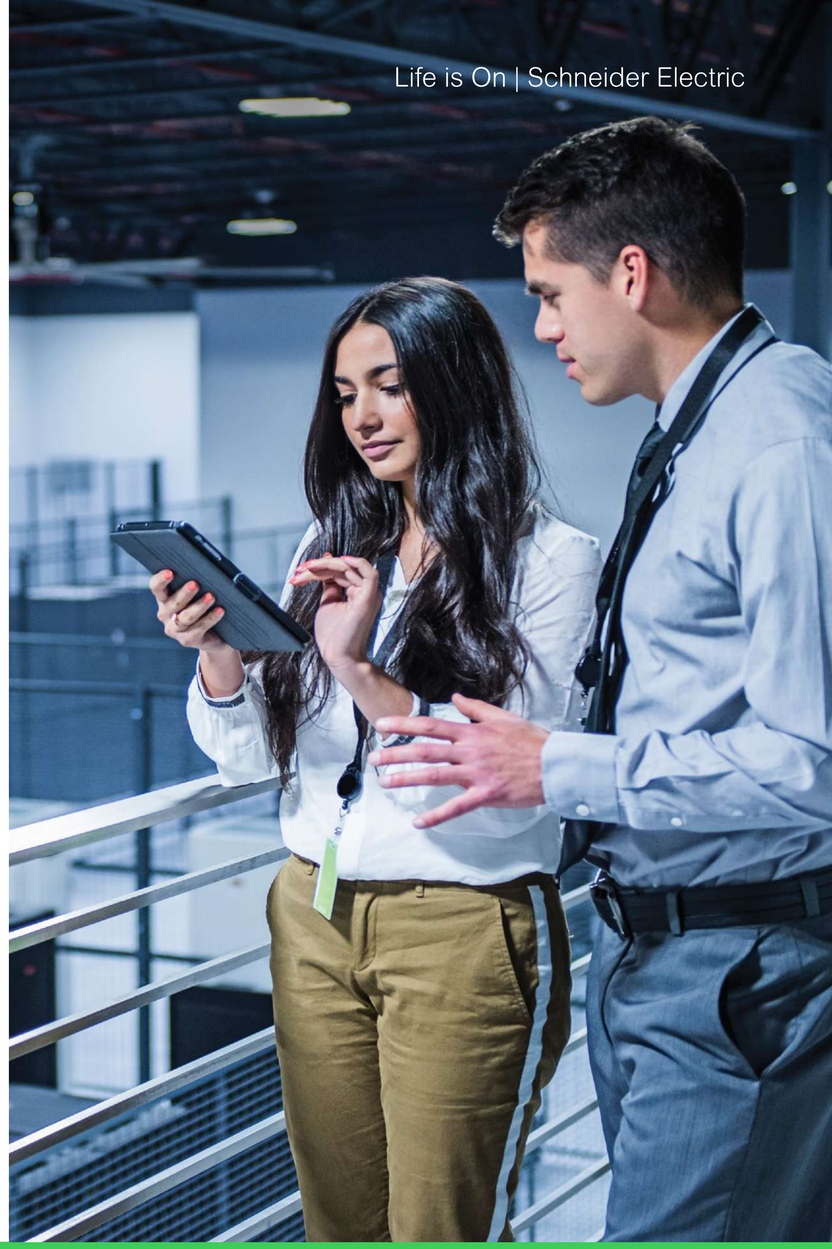
- Resistance to thermal shock
- Highest performance under severe ambient conditions
- Superior behavior on load changes

E4 environmental certification

- Highly resistant to frequent condensation, heavy pollution or a combination of both
- Withstand humidity greater than 95%
- Extended service life, even in harsh environments

Partial discharge rating of ≤ 5 pC

- Proven quality design with best-in-class reliability
- Reduced risk of an electrical breakdown
- Slower equipment deterioration



Our proven design helps you become smart

Since its launch over 35 years ago, we have manufactured 150,000+ Trihal transformers, which means that each year 5,000+ units leave our factories.

Trihal manufacturing started in **1982** in France

Since **2003** Trihal has been manufactured in China

Starting in **2015**, customized Trihal transformers have been produced in Saudi Arabia

Since **2018** Trihal leverages digital technologies around the world

Make your business future-ready with a digital transformation

With new IoT-based features, Trihal connected is the perfect choice for intelligent distribution systems. Equipped with smart sensors, and 24/7 connectivity, real-time data supports effective decision making.

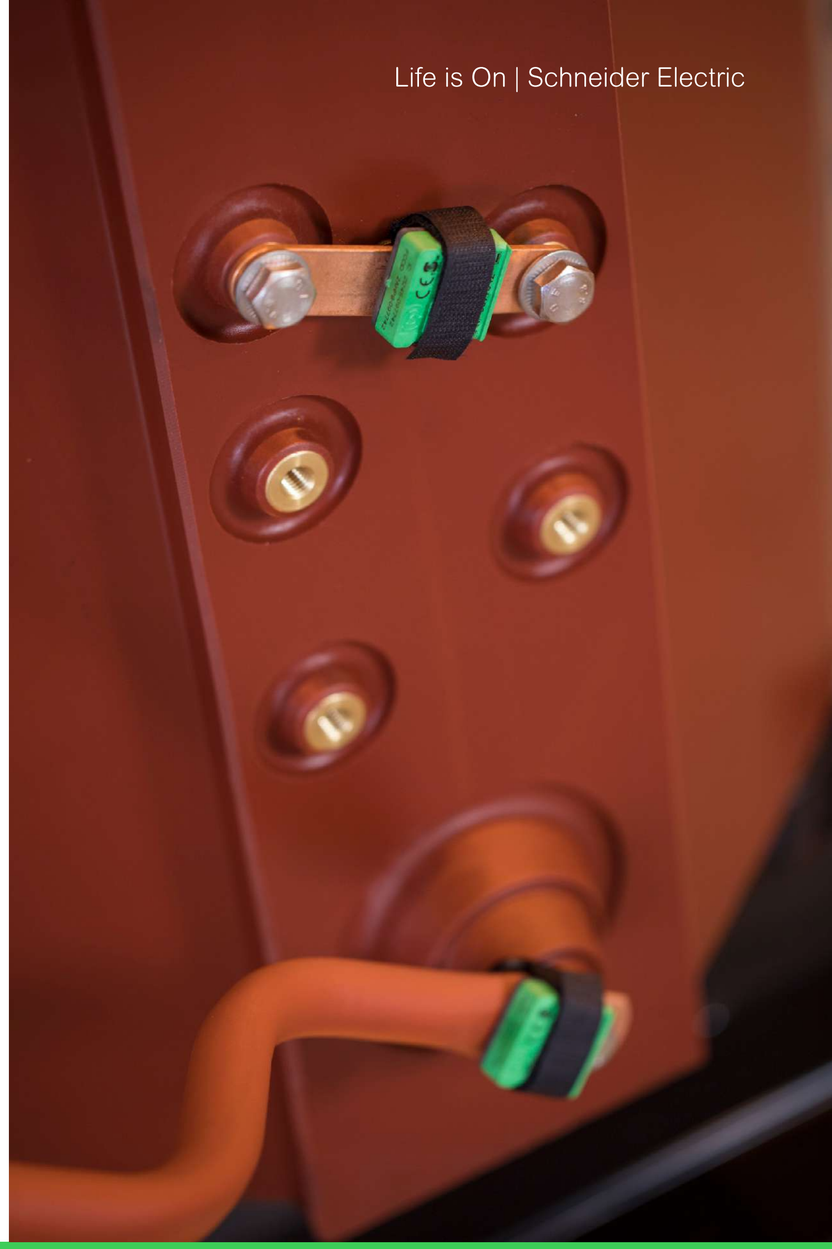
- **Enhanced safety** of both people and equipment
- **Greater reliability** with predictive maintenance helping reduce downtime
- **Simplified asset management** through digital features
- **Compliance with environmental** regulations

20%
improvement* in asset utilization

30%
reduction* in maintenance costs

25%
reduction* in unplanned downtime

*Figures based on previous customer performance. Not a guarantee of performance in every case.



New features for enhanced safety and performance

Discover your Trihal with scalable connectivity

The main causes of a transformer outage are electrical disturbances or environmental conditions. By adding IoT sensors and condition-monitoring tools to the transformer, facility managers' control and maintenance capabilities are greatly improved.

Our connected transformer is equipped with a new generation of wireless smart sensors to ensure simple, reliable, and safe communication of data.

Trihal adapts by scalable solutions to better fit your needs on three levels of connectivity:

Enabled

- Take the first step into the world of EcoStruxure

Enabled Plus

- Widen your connection with Edge Control

Combo

- Maximized benefits integrated with MV switchgear

Trihal connected Enabled

Local thermal monitoring for reduced downtime and cost

Directly monitor the quality of your power connections with simple color-coded alarms. Utilize on-demand connectivity up to 10m from your transformer, with our Easergy Thermal Connect app. With real-time thermal monitoring, detect issues early, like loose connections, and take preventive action to avoid unplanned downtime.

Monitoring of MV and LV transformer connections and tapping links provide up to the minute insight into the transformer's health, supported by alarms and warnings in case of an event. Performance data can be used and shared to create better long-term maintenance plans.

Just plug in our Zigbee dongle to your smartphone, and flash the NFC tag to set up your app to start scanning!

Download the app now!

Trihal connected Enabled Plus

Take maximum benefit with 24/7 condition monitoring

Trihal transformers can be enhanced with a range of optional, factory-fitted monitoring sensors to continuously track the health of your assets. Condition monitoring that is 24/7 connected helps detect issues early and prevent downtime, helping reduce OPEX costs.

Environmental monitoring

- Detect excessive humidity and poor environmental conditions that lead to fast aging

Thermal monitoring

- Identify thermal hot-spots and take preventative action against faulty connections

Substation Monitoring Device

- Collect and store data from smart sensors on up to 16 transformers
- Provide meaningful information to local monitoring HMI or smart alarms via SMS
- Flexible integration in local SCADA or our cloud-based services platform

Trihal connected Combo

Integrated condition monitoring of your complete MV substation

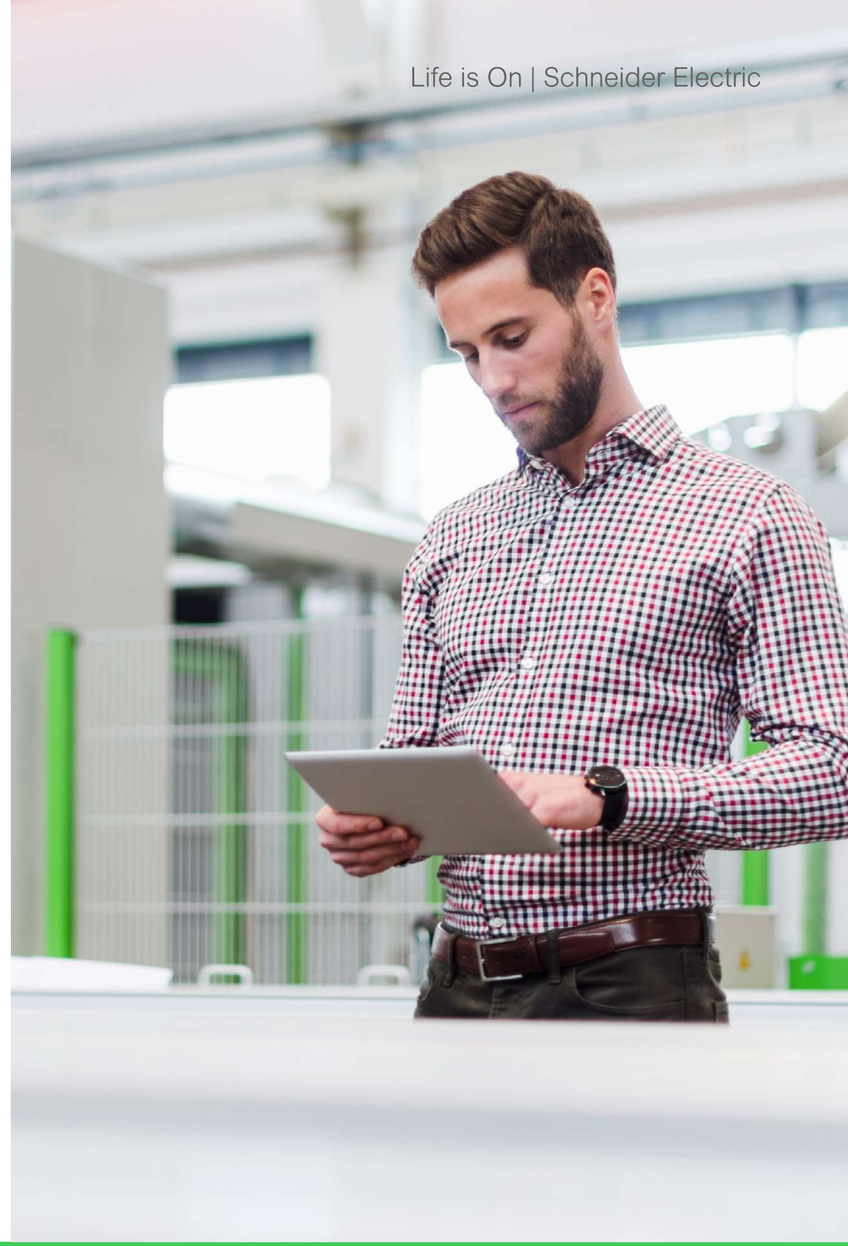
Benefit from the same 24/7 condition monitoring as our Enabled Plus option, thanks to our Substation Monitoring Device (SMD).

Monitor your complete MV substation, transformer and switchgear, with one unique system, one single interface, and only one SCADA integration.

Using the Enabled Plus architecture with a combination of any Schneider Electric medium voltage switchgear and Trihal transformers, you can monitor all MV equipment connection points and environmental conditions.

Easily detect hot-spots on all major connection points such as cables, busbars or tapping links and also excessive humidity conditions.

Condition monitoring of both the switchgear and transformer combo provides an optimized and simple solution to help you detect early signs of equipment downtime and aging.

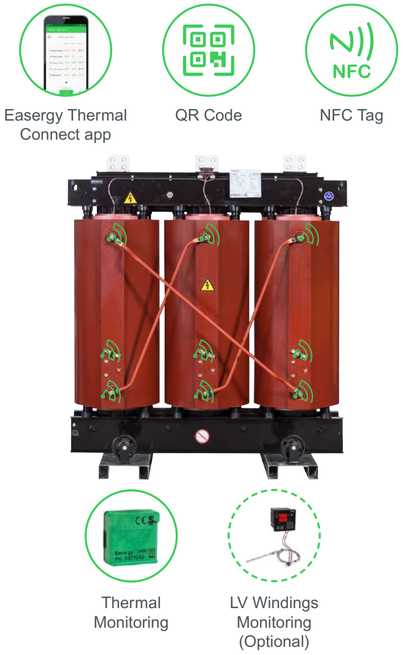


Scalable to your needs

Enabled

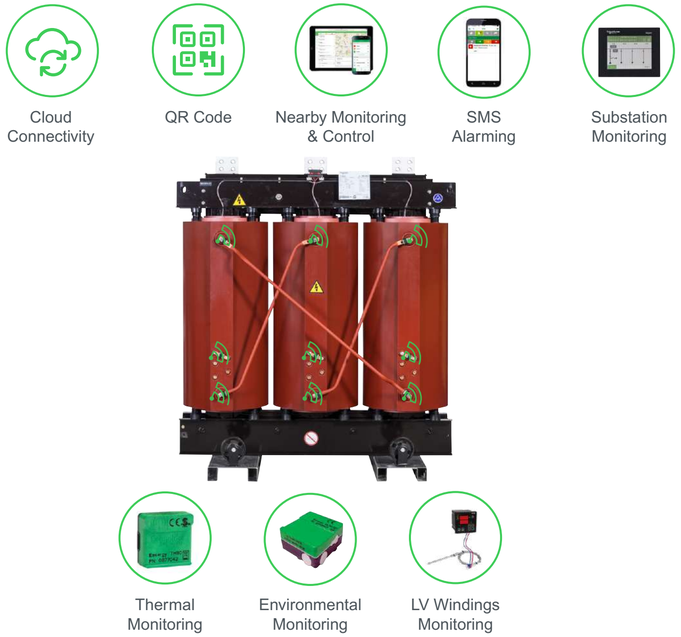
Local, on demand connectivity enables:

- Nearby thermal monitoring on your smartphone up to 10m from your transformer
- Fast access to documentation via QR code



Enabled Plus

24/7 connected condition monitoring of your transformer with local, remote and cloud based connectivity for advanced services and smart alarms.



Combo

Combine Trihal connected with our latest connected MV switchgear to provide 24/7 complete substation health assessment, anywhere, anytime.

Boost your business with EcoStruxure Power

Discover the benefits of EcoStruxure

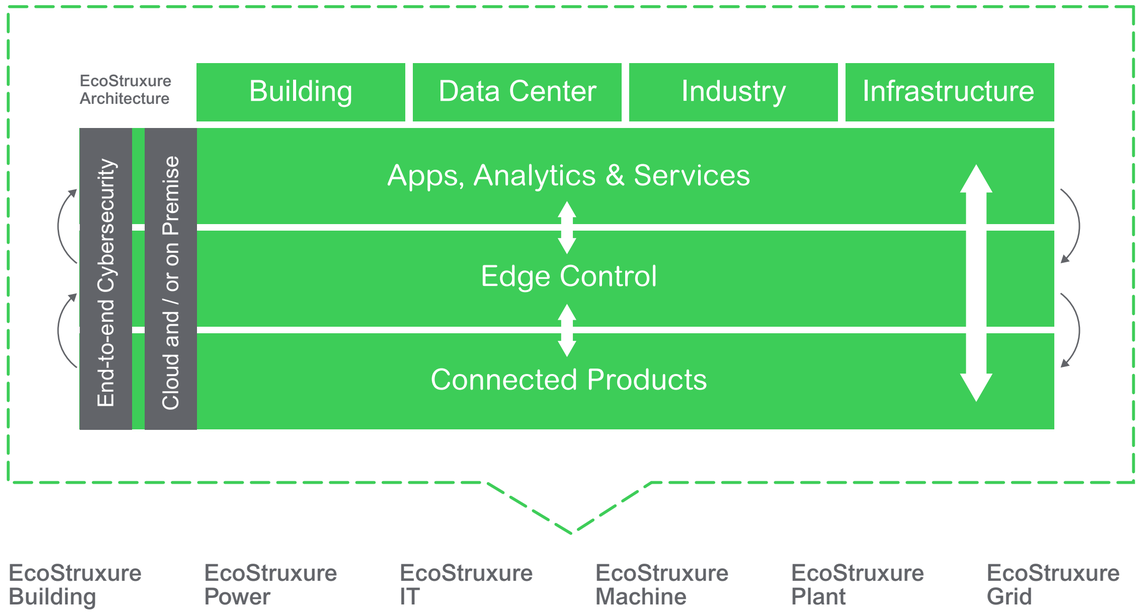
EcoStruxure Power is part of Schneider Electric's open, interoperable IoT-enabled system architecture and platform.

It delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers.

EcoStruxure Power leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver innovation at every level with solutions across three critical layers:

- Apps, Analytics & Services
- Edge Control
- Connected Products

This unified approach provides more value than a traditional network of isolated devices and is covered by end-to-end cybersecurity.



Learn more

Benefits of working with Trihal connected

Technical specifications

Specification	Value
Rated power	up to 15 MVA
Rated LV (MV) insulation level	1.1–7.2 kV
Frequency	50–60 Hz
Rated HV insulation level	Up to 36 kV (IEC)
Insulation class	F (155 C)
Vector group	Star/Delta
Manufacturing standards	IEC 60076 -11 2018, EN 50588, EN 50629
Efficiency (losses level)	Eco-Design (On request)
Class tests	C4, E4, F1, ≤ 5 pC
HV/LV coils	HV encapsulated in cast resin/ LV impregnated (cast/cast on request)
Cooling system	Standard: AN (natural air). Option AF (air forced)

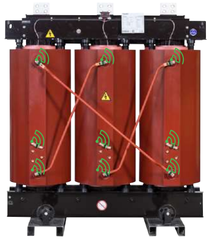
Specific demands available upon request

For full specifications and technical information, click here to view the Trihal catalogue.

Discover Trihal Connected Catalog

Three levels of scalable benefits

- Included
- Optional
- Not Available



	Enabled	Enabled Plus	Combo
Thermal monitoring – On demand	✓	✓	✓
Thermal monitoring – 24/7 connected	—	✓	✓
Environmental monitoring – 24/7 connected	—	✓	✓
LV winding monitoring	○	✓	✓
Monitoring – On SCADA	—	✓	✓
Monitoring – On the Cloud	—	○	○
Monitoring – Complete MV substation	—	—	✓
SMS or Smart alarming	—	○	○
Web dashboard	—	○	○
Expert support from our Connected Service Hub	—	○	○

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For more information visit:

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EcoStruxure™
Innovation At Every Level

Set series

Trihal

Cast Resin Transformer up tp 3150 kVA

Catalog 2021

Eco Design
Medium Voltage Distribution Transformer

se.com

Life Is On | Schneider Electric

Same technology, same offer, simpler names

We're making it easier for you to navigate across the wide range of our world-class digital products and select the offers that are right for you and your needs with confidence.

EcoStruxure Architecture

To enable brand consistency, relevance and impact, we are reinforcing our EcoStruxure™ architecture and digital customer lifecycle tools to help ensure a seamless experience from the CAPEX to OPEX phases of each project, bridging our entire ecosystem of partners, services providers and end users.

EcoStruxure is our IoT-enabled open and interoperable system architecture and platform. EcoStruxure delivers enhanced values around safety, reliability, efficiency, sustainability and connectivity for our customers. EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity technologies to deliver Innovation At Every Level from Connected Products, Edge Control, Apps, and Analytics & Services: our IoT technology Levels.

Old names	New names
Ecodial	EcoStruxure Power Design
Ecoreal	EcoStruxure Power Build
Ecoreach	EcoStruxure Power Commission
MasterPact MTZ mobile App/Easergy mobile App	EcoStruxure Power Device App

Pact and **Set** Series

Featuring outstanding medium-voltage (MV) and low-voltage (LV) switchboards, motor control centers and power distribution solutions for high-performance power applications, Schneider Electric's Pact and Set Series are best-in-class solutions based on high levels of safety and an optimized footprint. Built on a modular architecture and incorporating smart connected devices for maximum safety, reliability, performance and energy efficiency, the Set Series is delivered to customers directly from our Schneider Electric plants or via a global network of licensed partner panel builders, who are trained and audited to provide quality equipment and support.

Old names	New names
HVX	EvoPact HVX
Premset	PremSet
Compact	ComPact
Masterpact	MasterPact
Transferpact	TransferPact
Fupact	FuPact

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Overview
Ecodesing

PM105926

Cast resin, 50 Hz, three-phased distribution transformers with the following characteristics: Indoor use / Outdoor use with properly designed enclosure.

- Thermal class F - Temperature rise 100 K
- Ambient ≤ 40°C, altitude ≤ 1000 m
- Medium voltage windings encapsulated in cast resin
- Pre-impregnated low voltage windings
- Natural air cooling system (AN type)
- Core and frame covered with protective coating-suitable for C2 medium according ISO12944 standards

These transformers comply with standards:

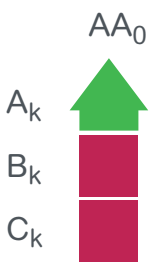
- IEC 60076-11,
- EN 50708-1-1
- Ecodesign Directive EU 548-2014 and its amendment EU 2019/1783

Schneider Electric guarantees that its transformers are tested with IEC 60076-11 :2018:

- C4 Climatic class*
- E4 Environment
- F1 Fire behaviour class
- Partial discharge free - Acceptance level:
  - ≤ 10 pC Routine Test
  - ≤ 5 pC can be demonstrated through special test

Ecodesing regulation EU 2019/1783

- Maximal loss levels
- Statement on loss tolerences:
  - No tolerance on transformer design
  - 5% tolerance for end user checks
- Additional data requested on the name plates
  - Loss level and measured values
  - Type and weight of mail materials use
  - CE Marking is **mandatory**



Dry Type Transformers maximum loss levels according to Ecodesign

- Insulation voltage: MV ≤ 24 kV & LV ≤ 3.6 kV: AA_0A_k up to 3150 kVA
- Insulation voltage: MV ≤ 36 kV & LV ≤ 3.6 kV: AA_0A_k up to 3150 kVA

* Also, we have thermal shock test carried out at -50°C

Overview

Standard fitting

PM105911

Trihal without enclosure

Trihal without enclosure (IP00)

- HV voltage variation by off circuit tapping links
- 4 bi-directional flat rollers
- 4 lifting holes
- 4 haulage holes on the underbase
- 2 earthing points
- 1 rating plate (on HV side)

PM106800

Trihal with enclosure

Trihal with IP31 metal enclosure (except underframe IP21)

- 2 lifting lugs for transformer and enclosure assembly
- 1 earthing point on enclosure
- access to HV tapping by removing a bolted panel
- enclosure final colour RAL9002.

Trihal Enclosure IP31 is available in 4 standards KIT upto 3150 kVA (except underframe IP21) for:

- Easy access to transformer room. No disassembling required
- Better end-of-life management, easy dismantling to sort and recycle waste
- Quick assembly and easy assembly, light parts, few and easy fixing devices

< 45 min	2 persons	Screew drivers: Ø 17 Ø 10 Ø 8	15 kg max.

Now Trihal comes with a best-in-class digital experience to help you meet new challenges and reach Industry 4.0 objectives.

With its new connected features, Trihal is the perfect choice for smart distribution systems offering you:

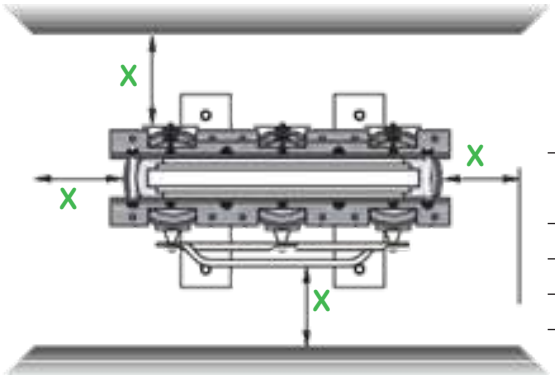
- Real-time condition monitoring to optimize assets availability and reduce unscheduled down-time
- Reduced Total Cost of Ownership thanks to optimized maintenance
- Increased operator and equipment safety
- 24/7 connectivity, with remote alarming and real-time data supporting fast decision making
- Consistent monitoring solution across our MV portfolio, for both new and modernization projects
- Integration within any existing SCADA system
- Access to Schneider Electric cloud based digital services (EcoStruxure Asset Advisor)

Connection

Connections - Trihal transformers without enclosure housing (IP 00)

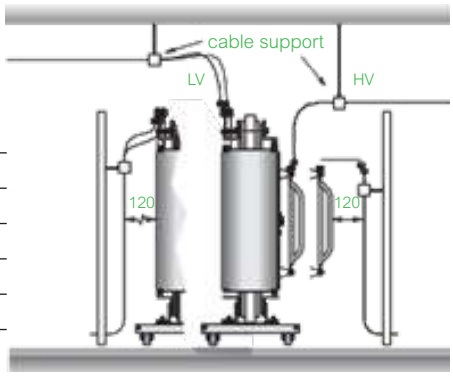
The winding resin coating and the plug-in connectors don't ensure any protection against touch when the transformer is energized. The contrator must ensure that cables and busbars are adequately supported to prevent mechanical stresses from being imposed on the transformer terminals, busbars or bushings.

Minimum clearances required



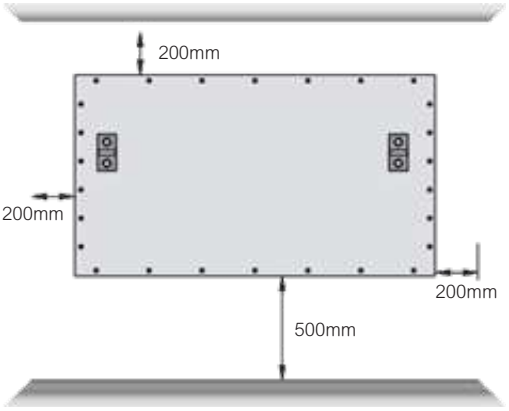
Insulation (kV)	Dimension X (mm)	
	Full wall	Grid wall
7.5	90	300
12	120	300
17.5 - 24	220	300

HV and LV connection

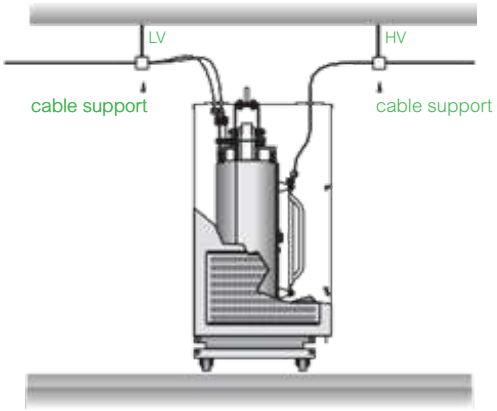


Connections -Trihal transformers with IP 31 metal enclosure

Minimum clearances required

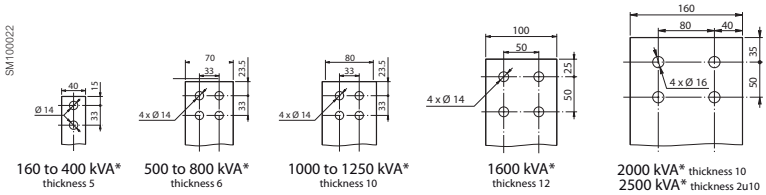


HV and LV connection



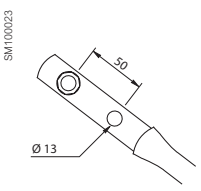
Terminations

LV Terminations



*Valid for aluminium terminations.

HV Terminations - EN 50180



Routine fittings such as bar and cable supports, flexible connectors, etc. will be supplied by the contractor, who will ensure that the transformer terminals are not subject to mechanical stresses.

Characteristics
12 kV, BIL 1

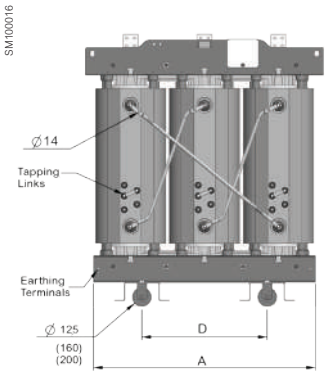
Trihal - Cast Resin Transformer
Up to 3150 kVA - 12 kV - C4 E4 F1 5pC** - BIL 1

Main electrical characteristics

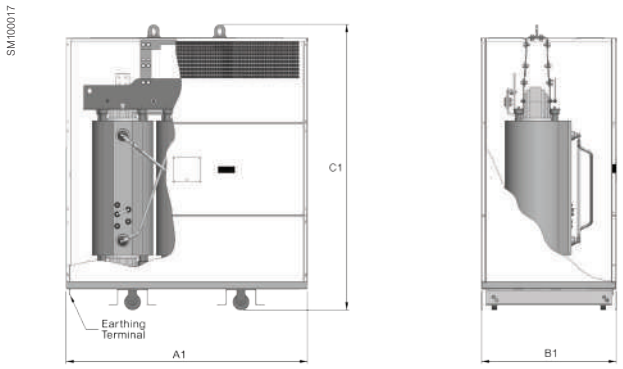
Power kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Primary voltage Secondary voltage	10kV 400 V between phases (at no load)												
HV insulation level	12 kV BIL 1 (60 / 28 kV)												
HV tapping range	+/- 2.5% and/or +/- 5%												
Vector group	Dyn 11, Dyn 5, Dyn 1 (other vector groups upon request)												
No-load losses (w)	360	468	557	675	812	990	1170	1395	1620	1980	2340	2790	3420
Load losses at 120°C (w)	2600	3400	3877	4500	5630	7100	8000	9000	11000	13000	16000	19000	22000
Impedance voltage (%)	6	6	6	6	6	6	6	6	6	6	6	6	6
Acoustic Level dB(A):													
- power L_{WA}	53	56	58	59	60	61	63	64	66	67	69	70	73
- pressure L_{PA} (1m)	41	44	46	46	47	48	50	50	52	53	55	55	58

Dimensions* and weights

Without enclosure (IP00)



With IP31 metal enclosure



Rated power (kVA)		160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Without enclosure IP00														
Dimensions (mm)	A	1120	1170	1230	1300	1400	1370	1460	1470	1660	1700	1780	1920	2070
	B	950	950	950	950	950	950	950	950	950	950	950	1270	1270
	C	1280	1370	1390	1460	1450	1780	1840	1840	1760	2030	2110	2220	2410
	D	520	520	670	670	670	670	670	820	820	820	820/1070	820/1070	1070
Total weight (kg)		850	950	1100	1350	1500	1850	2250	2300	2850	3400	3900	4700	6150
With IP31 metal enclosure														
Dimensions (mm)	A1	1640	1640	1640	1640	1640	1840	1840	1840	2090	2090	2340	2340	2340
	B1	1030	1030	1030	1030	1030	1030	1030	1030	1180	1180	1280	1280	1280
	C1	1900	1900	1900	1900	2150	2150	2150	2150	2330	2330	2700	2700	2700
Weight enclosure (kg)		150	150	150	150	150	170	170	170	220	220	270	270	270
Total weight (kg)		1000	1100	1250	1500	1650	2020	2420	2470	3070	3620	4170	4970	6420

*** Dimensions and weights without enclosure housing (IP00 & IP31)**
Dimensions and weights are for guidance only and are NON CONTRACTUAL . Only the definitive drawings following from the order will commit us contractually.
For other voltages, impedance voltages and dual-voltages, weights and dimensions are different (consult us).
** **Refer Page 4 Overview for more detail**

Characteristics
12 kV, BIL2

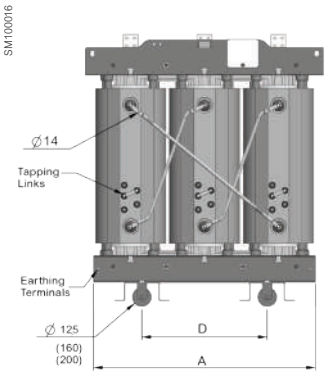
Trihal - Cast Resin Transformer
Up to 3150 kVA - 12 kV - C4 E4 F1 5pC** - BIL 2

Main electrical characteristics

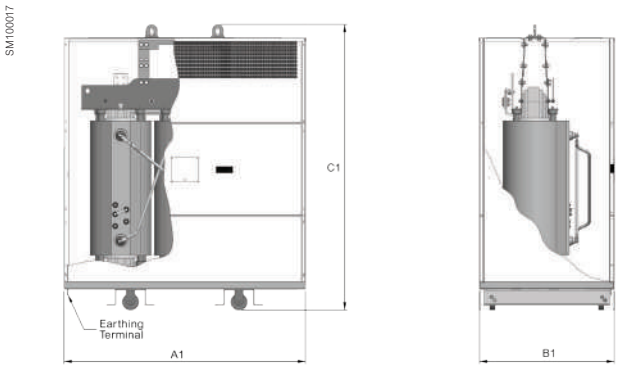
Power kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Primary voltage Secondary voltage	10kV 400 V between phases (at no load)												
HV insulation level	12 kV BIL 2 (75 / 28 kV)												
HV tapping range	+/- 2.5% and/or +/- 5%												
Vector group	Dyn 11, Dyn 5, Dyn 1 (other vector groups upon request)												
No-load losses (w)	360	468	557	675	812	990	1170	1395	1620	1980	2340	2790	3420
Load losses at 120°C (w)	2600	3400	3877	4500	5630	7100	8000	9000	11000	13000	16000	19000	22000
Impedance voltage (%)	6	6	6	6	6	6	6	6	6	6	6	6	6
Acoustic Level dB(A):													
- power L_{WA}	53	56	58	59	60	61	63	64	66	67	69	70	73
- pressure L_{PA} (1m)	41	44	46	46	47	48	50	50	52	53	55	55	58

Dimensions* and weights

Without enclosure (IP00)



With IP31 metal enclosure



Rated power (kVA)		160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Without enclosure IP00														
Dimensions (mm)	A	1140	1200	1250	1320	1410	1420	1500	1530	1660	1750	1800	1840	1980
	B	950	950	950	950	950	950	950	950	950	950	950	1270	1270
	C	1280	1370	1410	1460	1450	1550	1680	1860	1780	1940	2130	2330	2560
	D	520	520	670	670	670	670	670	820	820	820	820/1070	820/1070	1070
Total weight (kg)		840	990	1140	1340	1460	1660	2060	2370	2880	3460	3960	4700	6120
With IP31 metal enclosure														
Dimensions (mm)	A1	1640	1640	1640	1640	1640	1640	1840	1840	2090	2090	2340	2340	2340
	B1	1030	1030	1030	1030	1030	1030	1030	1030	1180	1180	1280	1280	1280
	C1	1900	1900	1900	1900	1900	1900	2150	2150	2330	2330	2700	2700	2800
Weight enclosure (kg)		150	150	150	150	150	150	170	170	220	220	270	270	290
Total weight (kg)		990	1140	1290	1490	1610	1810	2230	2540	3100	3680	4230	4970	6410

*** Dimensions and weights without enclosure housing (IP00 & IP31)**
Dimensions and weights are for guidance only and are NON CONTRACTUAL . Only the definitive drawings following from the order will commit us contractually.
For other voltages, impedance voltages and dual-voltages, weights and dimensions are different (consult us).
** **Refer Page 4 Overview for more detail**

Characteristics
17,5 kV, BIL1

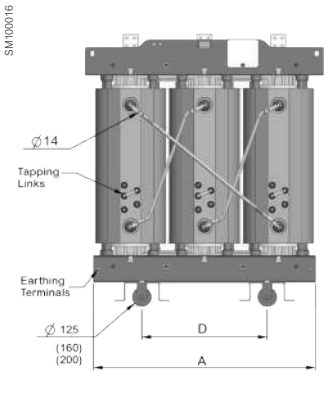
Trihal - Cast Resin Transformer
Up to 3150 kVA - 17.5 kV - C4 E4 F1 5pC** - BIL 1

Main electrical characteristics

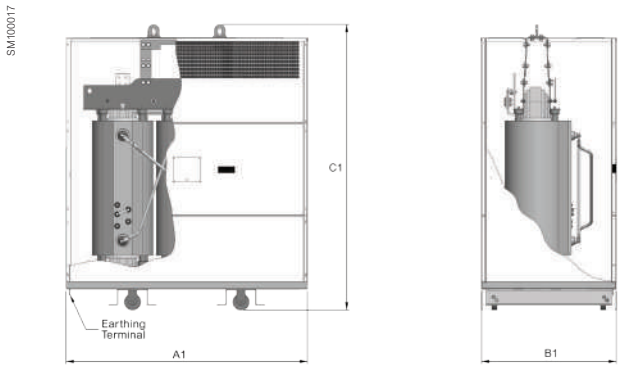
Power kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Primary voltage Secondary voltage	15 kV 400 V between phases (at no load)												
HV insulation level	17.5 kV BIL 1 (75 / 38 kV)												
HV tapping range	+/- 2.5% and/or +/- 5%												
Vector group	Dyn 11, Dyn 5, Dyn 1 (other vector groups upon request)												
No-load losses (w)	360	468	558	675	811	990	1170	1395	1620	1980	2340	2790	3420
Load losses at 120°C (w)	2600	3400	3876	4500	5630	7100	8000	9000	11000	13000	16000	19000	22000
Impedance voltage (%)	6	6	6	6	6	6	6	6	6	6	6	6	6
Acoustic Level dB(A):													
- power L_{WA}	53	56	58	59	60	61	63	64	66	67	69	70	73
- pressure L_{PA} (1m)	41	44	45	46	47	48	50	50	52	53	55	55	58

Dimensions* and weights

Without enclosure (IP00)



With IP31 metal enclosure



Rated power (kVA)		160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Without enclosure IP00														
Dimensions (mm)	A	1170	1240	1300	1350	1390	1450	1490	1600	1650	1740	1830	1890	2070
	B	950	950	950	950	950	950	950	950	950	950	950	1270	1270
	C	1310	1420	1420	1460	1540	1600	1810	1770	1930	2100	2160	2350	2440
	D	520	520	670	670	670	670	670	820	820	820	820/1070	820/1070	1070
Total weight (kg)		790	1020	1150	1320	1500	1780	2080	2400	2840	3620	4140	4930	6050
With IP31 metal enclosure														
Dimensions (mm)	A1	1640	1640	1640	1640	1640	1840	1840	1840	2090	2090	2340	2340	2340
	B1	1030	1030	1030	1030	1030	1030	1030	1030	1180	1180	1280	1280	1280
	C1	1900	1900	1900	1900	1900	2150	2150	2150	2330	2330	2700	2700	2700
Weight enclosure (kg)		150	150	150	150	150	170	170	170	220	220	270	270	270
Total weight (kg)		940	1170	1300	1470	1650	1950	2250	2570	3060	3840	4410	5200	6320

*** Dimensions and weights without enclosure housing (IP00 & Ip31)**
Dimensions and weights are for guidance only and are NON CONTRACTUAL . Only the definitive drawings following from the order will commit us contractually.
For other voltages, impedance voltages and dual-voltages, weights and dimensions are different (consult us).
** **Refer Page 4 Overview for more detail**

Characteristics

17,5 kV, BIL 2

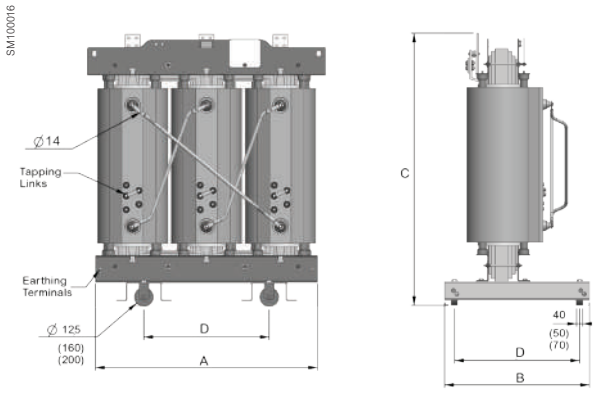
Trihal - Cast Resin Transformer
Up to 3150 kVA - 17.5 kV - C4 E4 F1 5pC** - BIL 2

Main electrical characteristics

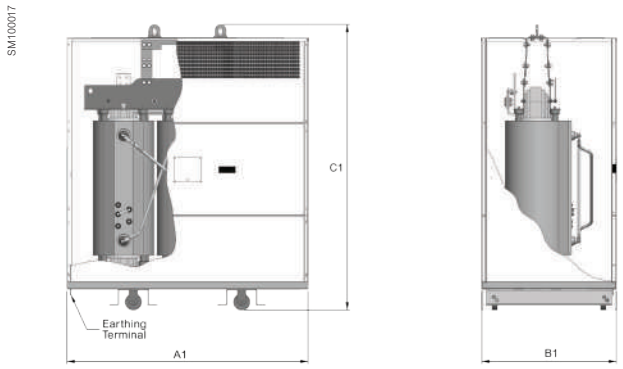
Power kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Primary voltage Secondary voltage	15 kV 400 V between phases (at no load)												
HV insulation level	17.5 kV BIL 2 (95 / 38 kV)												
HV tapping range	+/- 2.5% and/or +/- 5%												
Vector group	Dyn 11, Dyn 5, Dyn 1 (other vector groups upon request)												
No-load losses (w)	360	468	558	675	811	990	1170	1395	1620	1980	2340	2790	3420
Load losses at 120°C (w)	2600	3400	3876	4500	5630	7100	8000	9000	11000	13000	16000	19000	22000
Impedance voltage (%)	6	6	6	6	6	6	6	6	6	6	6	6	6
Acoustic Level dB(A):													
- power L_{WA}	53	56	58	59	60	61	63	64	66	67	69	70	73
- pressure L_{PA} (1m)	41	44	45	46	47	48	50	50	52	53	55	55	58

Dimensions* and weights

Without enclosure (IP00)



With IP31 metal enclosure



Rated power (kVA)		160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Without enclosure IP00														
Dimensions (mm)	A	1170	1240	1300	1350	1390	1450	1490	1600	1650	1740	1830	1890	2070
	B	950	950	950	950	950	950	950	950	950	950	950	1270	1270
	C	1310	1420	1420	1460	1540	1600	1810	1770	1930	2100	2160	2350	2440
	D	520	520	670	670	670	670	670	820	820	820	820/1070	820/1070	1070
Total weight (kg)		790	1020	1150	1320	1500	1780	2080	2400	2840	3620	4140	4930	6050
With IP31 metal enclosure														
Dimensions (mm)	A1	1640	1640	1640	1640	1640	1840	1840	1840	2090	2090	2340	2340	2340
	B1	1030	1030	1030	1030	1030	1030	1030	1030	1180	1180	1280	1280	1280
	C1	1900	1900	1900	1900	1900	2150	2150	2150	2330	2330	2700	2700	2700
Weight enclosure (kg)		150	150	150	150	150	170	170	170	220	220	270	270	270
Total weight (kg)		900	1130	1260	1430	1640	1920	2220	2580	3020	3840	4360	5150	6320

*** Dimensions and weights without enclosure housing (IP00 & IP31)**
Dimensions and weights are for guidance only and are NON CONTRACTUAL . Only the definitive drawings following from the order will commit us contractually.
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** **Refer Page 4 Overview for more detail**

Characteristics

24 kV, BIL 1

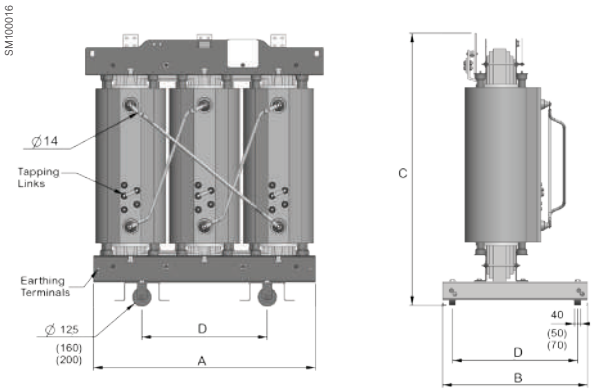
Trihal - Cast Resin Transformer
Up to 3150 kVA - 24 kV - C4 E4 F1 5pC** - BIL 1

Main electrical characteristics

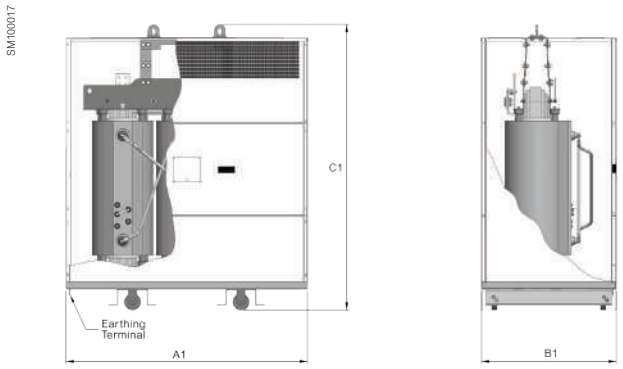
Power kVA	160	250	400	630	800	1000	1250	1600	2000	2500	3150
Primary voltage Secondary voltage	20 kV 400 V between phases (at no load)										
HV insulation level	24 kV BIL 1 (95 / 50 kV)										
HV tapping range	+/- 2.5% and/or +/- 5%										
Vector group	Dyn 11, Dyn 5, Dyn 1 (other vector groups upon request)										
No-load losses (w)	360	468	675	990	1170	1395	1620	1980	2340	2790	3420
Load losses at 120°C (w)	2600	3400	4500	7100	8000	9000	11000	13000	16000	19000	22000
Impedance voltage (%)	6	6	6	6	6	6	6	6	6	6	6
Acoustic Level dB(A):											
- power L_{WA}	53	56	59	61	63	64	66	67	69	70	73
- pressure L_{PA} (1m)	41	44	46	48	50	50	52	53	55	55	58

Dimensions* and weights

Without enclosure (IP00)



With IP31 metal enclosure



Rated power (kVA)		160	250	400	630	800	1000	1250	1600	2000	2500	3150
Without enclosure IP00												
Dimensions (mm)	A	1210	1300	1360	1430	1490	1560	1670	1750	1830	1910	2120
	B	950	950	950	950	950	950	950	950	950	1270	1270
	C	1310	1420	1540	1710	1830	1940	1910	2070	2180	2350	2500
	D	520	520	670	670	670	820	820	820	820/1070	820/1070	1070
Total weight (kg)		810	1090	1350	1760	2080	2470	2896	3570	4140	4930	6520
With IP31 metal enclosure												
Dimensions (mm)	A1	1640	1640	1840	1840	1840	2090	2090	2090	2340	2340	2440
	B1	1030	1030	1030	1030	1030	1180	1180	1180	1280	1280	1280
	C1	1900	1900	2150	2150	2150	2330	2330	2330	2700	2700	2800
Weight enclosure (kg)		150	150	170	170	170	220	220	220	270	270	285
Total weight (kg)		960	1240	1520	1930	2250	2690	3116	3790	4410	5200	6805

*** Dimensions and weights without enclosure housing (IP00 & IP31)**
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For other voltages, impedance voltages and dual-voltages, weights and dimensions are different (consult us).
** **Refer Page 4 Overview for more detail**

Characteristics

24 kV, BIL 2

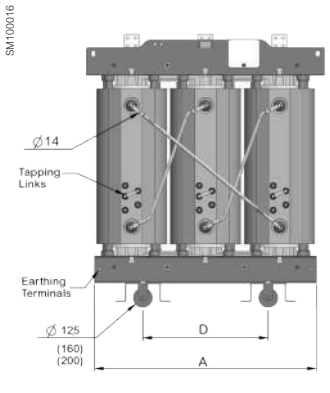
Trihal - Cast Resin Transformer
Up to 3150 kVA - 24 kV - C4 E4 F1 5pC** - BIL 2

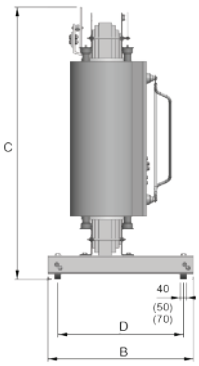
Main electrical characteristics

Power kVA	160	250	400	630	800	1000	1250	1600	2000	2500	3150
Primary voltage Secondary voltage	20 kV 400 V between phases (at no load)										
HV insulation level	24 kV BIL 2 (125 / 50 kV)										
HV tapping range	+/- 2.5% and/or +/- 5%										
Vector group	Dyn 11, Dyn 5, Dyn 1 (other vector groups upon request)										
No-load losses (w)	360	468	675	990	1170	1395	1620	1980	2340	2790	3420
Load losses at 120°C (w)	2600	3400	4500	7100	8000	9000	11000	13000	16000	19000	22000
Impedance voltage (%)	6	6	6	6	6	6	6	6	6	6	6
Acoustic Level dB(A):											
- power L_{WA}	53	56	59	61	63	64	66	67	69	70	73
- pressure L_{PA} (1m)	41	44	46	48	50	50	52	53	55	55	58

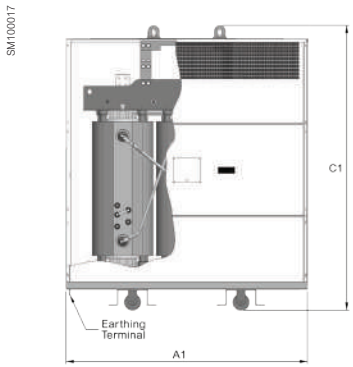
Dimensions* and weights

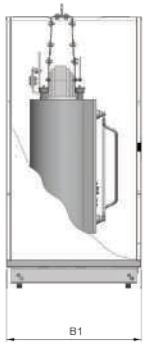
Without enclosure (IP00)





With IP31 metal enclosure





Rated power (kVA)		160	250	400	630	800	1000	1250	1600	2000	2500	3150
Without enclosure IP00												
Dimensions (mm)	A	1260	1370	1410	1450	1570	1610	1720	1860	1920	2080	2220
	B	950	950	950	950	950	950	950	950	950	1270	1270
	C	1390	1520	1620	1790	1810	1970	2120	2120	2390	2320	2640
	D	520	520	670	670	670	820	820	820	820/1070	820/1070	1070
Total weight (kg)		890	1270	1500	1820	2280	2640	3240	3960	4860	5700	7160
With IP31 metal enclosure												
Dimensions (mm)	A1	1640	1840	1840	1840	2090	2090	2340	2340	2340	2440	2540
	B1	1030	1030	1030	1030	1180	1180	1280	1280	1280	1280	1280
	C1	1900	2150	2150	2150	2330	2330	2700	2700	2700	2700	2900
Weight enclosure (kg)		150	170	170	170	220	220	270	270	270	280	300
Total weight (kg)		1040	1440	1670	1990	2500	2860	3510	4230	5130	5980	7460

*** Dimensions and weights without enclosure housing (IP00 & IP31)**
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** **Refer Page 4 Overview for more detail**

Characteristics

36 kV, BIL 1

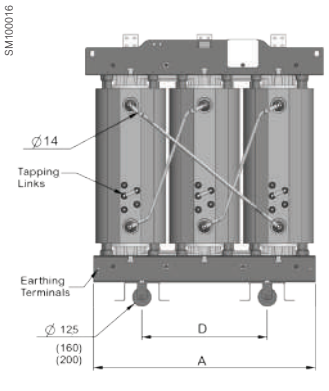
Trihal - Cast Resin Transformer
Up to 3150 kVA - 36kV - C4 E4 F1 5pC** - BIL 1

Main electrical characteristics

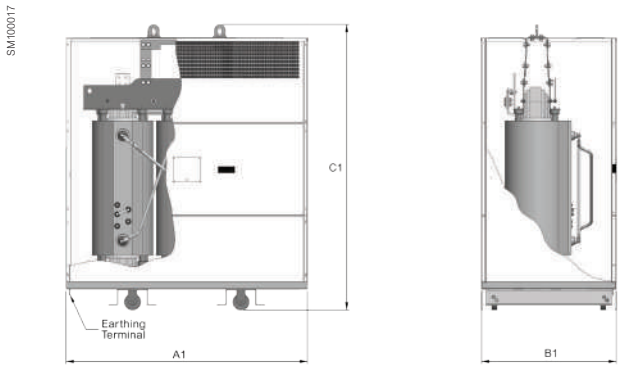
Power kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Primary voltage Secondary voltage	30 kV 400 V between phases (at no load)												
HV insulation level	36 kV BIL 1 (145 / 70 kV)												
HV tapping range	+/- 2.5% and/or +/- 5%												
Vector group	Dyn 11, Dyn 5, Dyn 1 (other vector groups upon request)												
No-load losses (w)	414	538	641	776	934	1139	1346	1604	1863	2277	2691	3209	3933
Load losses at 120°C (w)	2860	3740	4264	4950	6193	7810	8800	9900	12100	14300	17600	20900	24200
Impedance voltage (%)	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5
Acoustic Level dB(A):													
- power L_{WA}	53	56	58	59	60	61	63	64	66	67	69	70	73
- pressure L_{PA} (1m)	40	43	45	46	47	47	49	50	52	53	54	55	58

Dimensions* and weights

Without enclosure (IP00)



With IP31 metal enclosure



Rated power (kVA)		160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Without enclosure IP00														
Dimensions (mm)	A	1470	1440	1440	1490	1470	1510	1590	1660	1720	1930	1970	2050	2290
	B	950	950	950	950	950	950	950	950	950	950	950	1270	1270
	C	1710	1710	1730	1870	1890	1930	2080	2100	2270	2180	2370	2450	2530
	D	520	520	670	670	670	670	670	820	820	820	820/1070	820/1070	1070
Total weight (kg)		1450	1450	1500	1720	1820	1980	2410	2800	3320	4110	4650	5510	7220
With IP31 metal enclosure														
Dimensions (mm)	A1	2090	2090	2090	2090	2090	2090	2090	2340	2340	2340	2340	2440	2700
	B1	1180	1180	1180	1180	1180	1180	1180	1280	1280	1280	1320	1320	1400
	C1	2330	2330	2330	2330	2330	2330	2330	2700	2700	2700	2600	2700	2800
Weight enclosure (kg)		220	220	220	220	220	220	220	270	270	270	270	280	320
Total weight (kg)		1670	1670	1720	1940	2040	2200	2630	3070	3590	4380	4920	5790	7540

*** Dimensions and weights without enclosure housing (IP00 & IP31)**
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For other voltages, impedance voltages and dual-voltages, weights and dimensions are different (consult us).
** **Refer Page 4 Overview for more detail**

Characteristics

36 kV, BIL 2

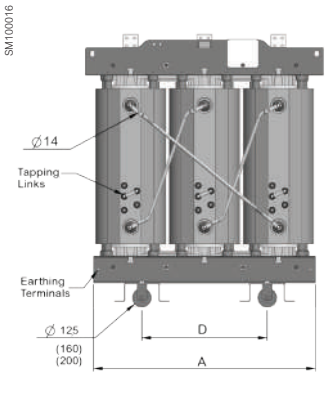
Trihal - Cast Resin Transformer
Up to 3150 kVA - 36kV - C4 E4 F1 5pC** - BIL 2

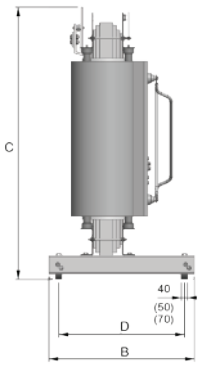
Main electrical characteristics

Power kVA	160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Primary voltage Secondary voltage	30 kV 400 V between phases (at no load)												
HV insulation level	36 kV BIL 2 (170 / 70 kV)												
HV tapping range	+/- 2.5% and/or +/- 5%												
Vector group	Dyn 11, Dyn 5, Dyn 1 (other vector groups upon request)												
No-load losses (w)	414	538	641	776	934	1139	1346	1604	1863	2277	2691	3209	3933
Load losses at 120°C (w)	2860	3740	4264	4950	6193	7810	8800	9900	12100	14300	17600	20900	24200
Impedance voltage (%)	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5
Acoustic Level dB(A):													
- power L_{WA}	53	56	58	59	60	61	63	64	66	67	69	70	73
- pressure L_{PA} (1m)	40	43	45	46	47	47	49	50	52	53	54	55	58

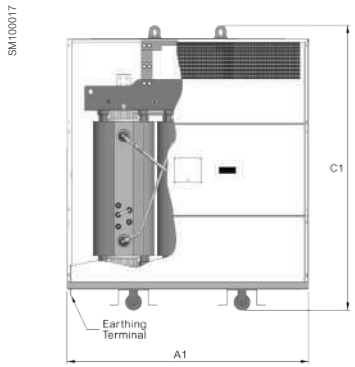
Dimensions* and weights

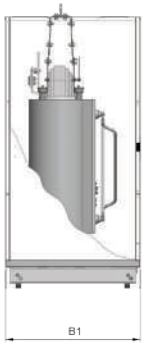
Without enclosure (IP00)





With IP31 metal enclosure





Rated power (kVA)		160	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Without enclosure IP00														
Dimensions (mm)	A	1550	1520	1520	1540	1560	1560	1670	1720	1780	1900	1970	2310	2280
	B	950	950	950	950	950	950	950	950	950	950	950	1270	1270
	C	1790	1810	1810	1970	1970	1990	2160	2180	2350	2440	2560	2670	2610
	D	520	520	670	670	670	670	670	820	820	820	820/1070	820/1070	1070
Total weight (kg)		1600	1660	1720	1890	2000	2080	2690	2920	3560	4280	4940	7450	7840
With IP31 metal enclosure														
Dimensions (mm)	A1	2090	2090	2090	2090	2090	2090	2340	2340	2340	2340	2340	2670	2670
	B1	1180	1180	1180	1180	1180	1180	1280	1280	1280	1280	1320	1320	1320
	C1	2330	2330	2330	2330	2330	2330	2700	2700	2700	2700	2800	2900	2900
Weight enclosure (kg)		220	220	220	220	220	220	270	270	270	270	280	330	330
Total weight (kg)		1820	1880	1940	2110	2220	2300	2960	3190	3830	4550	5220	7780	8170

*** Dimensions and weights without enclosure housing (IP00 & IP31)**
Dimensions and weights are for guidance only and are NON CONTRACTUAL . Only the definitive drawings following from the order will commit us contractually.
For other voltages, impedance voltages and dual-voltages, weights and dimensions are different (consult us).
** **Refer Page 4 Overview for more detail**

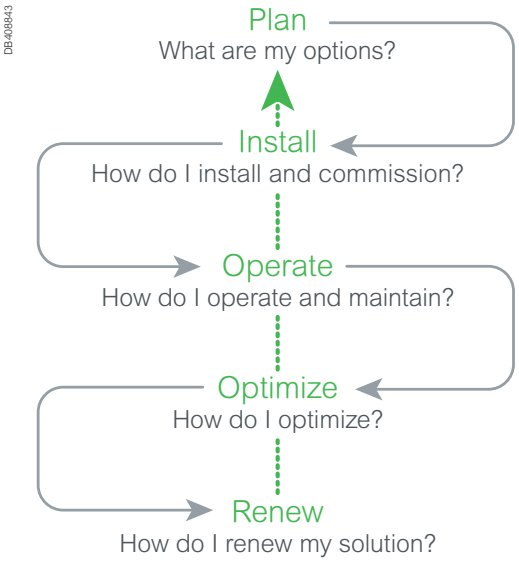
Schneider Electric Services

Greater peace of mind throughout your installation lifecycle

How can you cut costs and improve performance at the same time?

When it comes to your electrical distribution infrastructure, the answer is straightforward: get professional expertise.

Lifecycle services



When it comes to your electrical distribution installation, we can help you:

- Mitigate risk and limit downtime
- Keep equipment up to date and extend lifespan
- Cut costs and increase savings
- Improve your return on investment

CONTACT US!

https://www.schneider-electric.com/en/work/services/

Plan

Schneider Electric helps you plan the full design and execution of your solution, looking at how to make your process more dependable and optimize time:

- **Technical feasibility studies:** Design a solution in your environment
- **Preliminary design:** Accelerate turnaround time to reach a final solution design

Install

Schneider Electric will help you to install more efficient, more reliable solutions based on your plans.

- **Project management:** Complete your projects on time and within budget
- **Commissioning:** Ensure your actual performance matches the design, through on-site testing and commissioning, tools, and procedures

Operate

Schneider Electric helps you maximize your installation uptime and control your capital expenditures through its service offering.

- **Asset operation solutions:** Provide the information you need to enhance installation performance, and optimize asset maintenance and investment
- **Advantage service plans:** Customize service plans that include preventive, predictive, and corrective maintenance
- **On-site maintenance services:** Deliver extensive knowledge and experience in electrical distribution maintenance
- **Spare parts management:** Ensure availability of spare parts and an optimized maintenance budget for your spare parts
- **Technical training:** Build necessary skills and competencies to properly operate your installations

Optimize

Schneider Electric proposes recommendations to help with availability, reliability, and quality.

- **MP4 electrical assessment:** Define an improvement and risk management program

Renew

Schneider Electric's solutions extend the original life of your system, while providing upgrades.

Life Is On | Schneider Electric™

More info on se.com

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