

# 50Hz solutions

Quality High Voltage Equipment Suppliers



# Company Profile

**50Hz Solutions Pty Ltd** supplies a range of quality high voltage equipment to customers around Australia and New Zealand. We undertake the complete range of activities for the supply of high voltage equipment including: initial product selection, liaison with manufacturer factories, local technical support, contract management, provision of contract/technical documentation, transport/delivery logistics and after sales support.

**50Hz Solutions** commenced operations in 2010 as a subsidiary of Powereng Pty Limited – a well known company that supplied high voltage equipment to the Australian power generation, transmission and distribution sectors from 1989 to 2016.

WELCOME TO  
**50Hz Solutions**

# Portfolio Snapshot

**50Hz Solutions** supplies a wide range of high voltage equipment including:

- SF6 gas handling and measuring equipment
- RIP/RIS transformer bushings
- RIP/RIS wall bushings and specialty bushings
- High voltage disconnectors and earth switches
- Power quality measuring devices and transducers
- Cast resin outdoor instrument transformers
- Indoor block type Instrument transformers
- High voltage oil/paper instrument transformers
- Air core reactors
- Line traps
- Surge arresters
- Power resistors
- Circuit breaker retrofits
- Insulated busbar



# Supplier Snapshot

50Hz Solutions supplies equipment from numerous high quality suppliers:





# Contact Us

## 50Hz Solutions Head Office

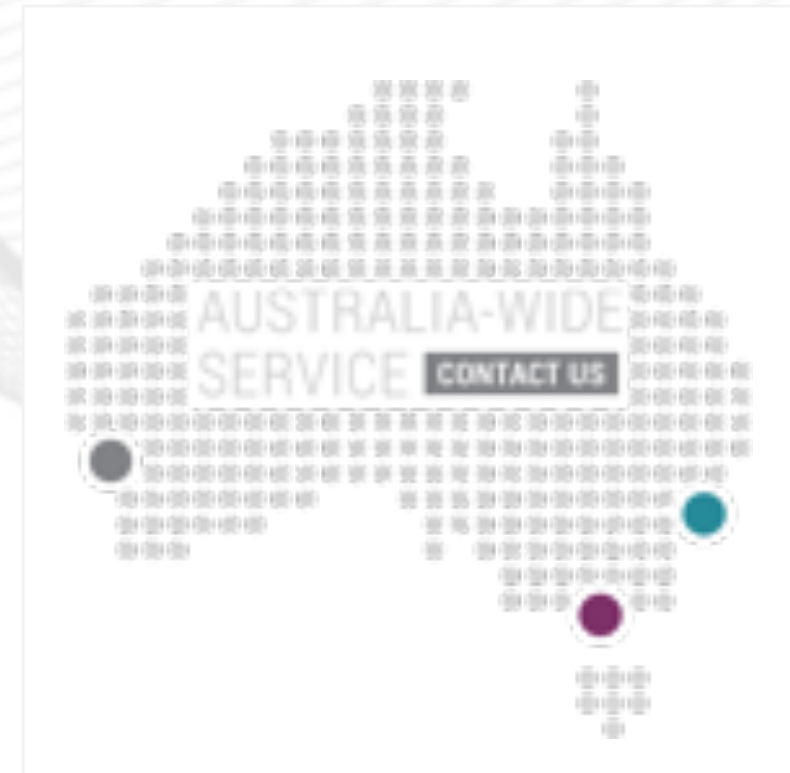
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# About Us

## Quality Management

50Hz Solutions is certified to AS/NZ ISO 9001 2015. Our QA policy can be found [here](#).

## Environmental Management

We are currently working on formalising our environmental management system to be compliant with ISO 14001. Our Environment Policy can be found [here](#).

## Occupational Health and Safety Management

We are currently working on formalising our occupational health and safety management system to be compliant with ISO 45001. Our OH&S Policy can be found [here](#).

## Privacy

50Hz Solutions operates in accordance with the Privacy Act 1988.

Our Privacy Policy can be found [here](#).





DILO

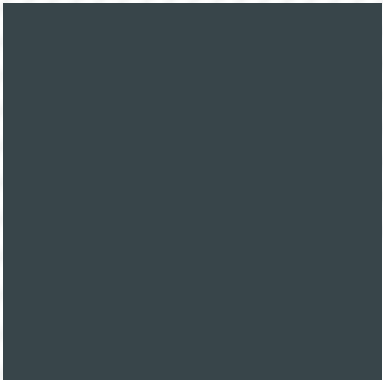


DILO continually combines the leading technology in service carts, developed over many years of experience, with the latest customer and market requirements. Whether maintenance is performed on medium voltage switchgear, high voltage switchgear or on large gas-insulated switchgear, **DILO** service equipment allows for simple, safe and economic maintenance.

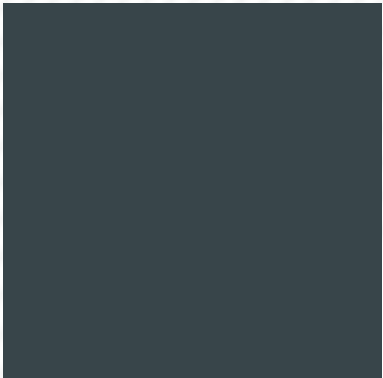


DILO's product range of maintenance units is divided into different series with various performance parameters which are designed to meet the varying requirements in SF6 gas handling. Unlike competitor products, **DILO** service carts have had performance data certified by TÜV SÜD. It is not sufficient to rely and nominal performance figures of pumps and compressors, as overall system design, pipework and other components all impact the overall performance of the service cart. A time calculation tool can be found on DILO's website at [DILO SF6 Apps](#).

No matter whether you are interested in small devices or large equipment: **DILO** products will always give you the best technology, emission-free SF6 gas handling and utmost economic efficiency.







DILLO's extensive range of SF6 handling equipment includes:

- SF6 gas refilling and evacuating devices
- SF6 service carts – mega, economy, compact, piccolo, small, mini and micro series; suction pumps, vacuum pumps
- Accessories for service carts – tanks, pre-filters, cylinders, retrofit kits
- Accessories – adapter kits, gas tight cutting devices, working protection kits
- SF6 monitoring devices – bottle scales, mass flow measurement devices
- SF6 measuring devices – multi-analyser, mirror-analyser, leak detectors, SF6 room monitors, densimeter test devices
- Valves and couplings – SF6 connections DN6 to DN40, soldering unions, screw-in-stubs, gauge connections, ball valves, rubber and wire braided hoses, transition pieces and adapters, bottle connections, distribution panels

**50Hz Solutions** offers preventative maintenance and service for SF6 service carts. We also offer calibration services for DILLO SF6 analysers.

**50Hz Solutions** is also able to provide a range of SF6 training options including SF6 gas handling; and operation of SF6 service carts and measuring devices.

For more information on **DILLO's** SF6 product range, please visit [de.dilo.com](https://de.dilo.com)



MGC Moser Glaser



**MGC Moser Glaser** was established in 1914 and is based in Switzerland. It produces insulated busbar (Duresca), wall and transformer bushings. In recent years, they have built a new state of the art facility dedicated to the production of bushings.

**MGC Moser Glaser** invented resin impregnated paper (RIP) technology in 1958 – a process that is designed to insulate electrical conductors for bushings and busbars for high and medium voltage applications. The insulation lies directly on the aluminium or copper conductor and consists of wrapped paper dried under vacuum and then impregnated with epoxy resin. For higher voltages, bushings may be constructed using fibreglass tube with foam filler rather than directly bonded technology.

Conductive grading layers are embedded in the insulation during the wrapping process to provide field control. The RIP technology provides an oil free/dry type bushing that can be created in short lengths for transformer and wall bushing applications, or up to 10m lengths for busbar systems.

Recently, **MGC Moser Glaser** have introduced the new Resin Impregnated Synthetic (RIS) technology, providing for minimal moisture absorption with better long term storage and in-service performance.





**MGC Moser Glaser** is able to provide a wide range of bushings and busbar products including:

- Transformer bushings from 24kV to 420kV
- Wall bushings from 24kV to 362kV (with included current transformers if required)
- Speciality bushings for retrofits such as bulk oil GCN circuit breakers
- Resin Impregnated Paper (RIP) and Resin Impregnated Synthetic (RIS) technology
- Directly moulded silicon rubber insulators or fibreglass tube with foam filler

**MGC Moser Glaser's** technology and manufacturing method is perfect for designing and manufacturing application specific retrofit bushings matching existing dimensions and technical parameters of old oil type bushings.

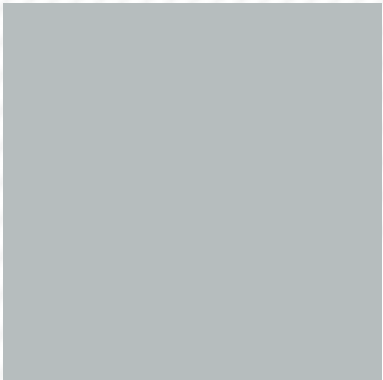
In addition to **MGC Moser Glaser's** bushing products, they manufacture the well known insulated busbar system – Duresca. A fully engineered touch safe busbar system which is perfect for high current and space limited applications where multiple cables per phase is impractical.

For more information on **MGS Moser Glaser's** product range, please visit [www.mgc.ch](http://www.mgc.ch)





EMSPEC



**EMSPEC** manufactures high quality switching equipment, including a complete range of high and medium voltage disconnect switches such as the folding vertical break, vertical break, centre break, double end break, side break, semi-pantograph, indoor and outdoor tilt switches, grounding switches, manual and motor operators and a complete range of accessories.

Innovation distinguishes a leader from a follower and **EMSPEC** is a leading innovator in the switchgear market, a global designer and manufacturer of high and medium voltage switching equipment intended for electric power transmission, substations, power generation, renewable energy, heavy energy industry and electrified public rail transportation systems.



EMSPEC's range of high voltage switches include:

- Double break disconnectors from 72.5kV to 550kV and to 4,000A
- A wide range of additional types including pantograph, vertical break, side break, centre break, hook-stick etc.
- Integrated and independent earth switches
- BT280 torsion bar and RV40b worm gear manual operating mechanisms
- MR180 motor drive operating mechanism
- Self-resilient contact fingers not requiring additional springs to provide contact pressure
- Optional mechanical and/or electrical interlocks

Key features of **EMSPEC** products include:

- High conductivity extruded aluminium blades
- Stainless steel pivot shaft and aluminium pivot housing
- Silver plated copper main contacts
- No castings

For more information on **EMSPEC's** product range, please visit [www.emspec.com](http://www.emspec.com)





# Unipower





Originating from a Swedish ABB company in the mid 80's, **Unipower** has developed a competitive edge within the field of Power Quality and Smart-Grid solutions. They focus on norm compliance power quality measurement equipment, with a special focus on the requirements for power generation, transmission and distribution.

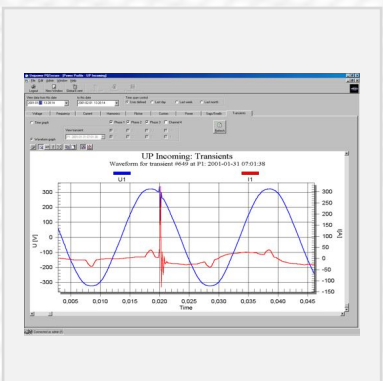
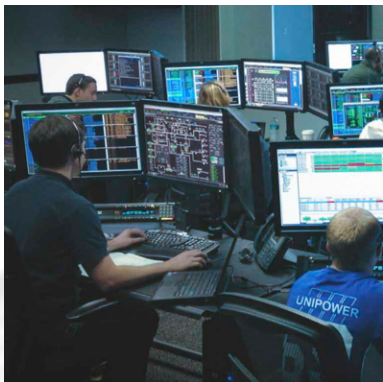
**Unipower's** product lines reach from traditional portable PQ analysers to fully integrated and automated Power Quality Management systems for continuous supervision of the energy supply.



The **UP-2210** permanent PQ meter, available in a panel or rack mounted chassis, as well as the **Unilyser U900 Portable Analyser**, works as an advanced power quality meter and at the same time as a fault recorder. All of the power quality parameters can be analysed in accordance with power quality standards such as the IEC61000-2-2, 2-12, 4-7, 4-15 and 4-30 Class A. The UP-2210 unit captures both steady state disturbances (harmonics, flicker etc.) as well as rapid voltage changes (sag/swell events and fast transients).

Both hardware form factors also allow:

- Measurement up to the 100th harmonic
- Multiple time synchronisation options
- Harmonic compensation module for electromagnetic voltage transformers
- Slowscan recording capturing events over several minutes
- Earth fault recording
- Modbus and IEC61850 communication
- PSPM recording
- Synchronised phase measurement amongst other high performance features



The **PQSecure** system is a perfect solution for supervision of power quality and disturbances in the power grid. The power quality management system is:

- User-friendly
- Provides continuous monitoring of all the power quality parameters
- Allows quick and easy tracing of different disturbance events and at the same time
- Fault direction analysis

**PQSecure's** main functions include: power quality monitoring, transient monitoring, load monitoring, station control, automatic analysis, and automatic report generation.

The **PQSecure** system will automatically transfer data from the **UP-2210/U900** units to the central SQL database and analyse the measurement result graphically or via an event list.

The evaluation software is integrated into the platform and covers: analysis functions, event viewers (global/local), RMS trend diagrams, wave form diagrams, duration analysis (ITIC/CBEMA), automatic report function, export features and real-time window.

For more information on **Unipower's** PQ meters and analysis software infrastructure, please visit [www.unipower.se](http://www.unipower.se)





BVM Systems Limited



# BVM Systems





Accurate measurement of voltage harmonic levels on transmission networks is an essential aspect of assuring compliance with grid codes and operating licenses.

Several years ago **BVM Systems**, located in the UK, developed a unique and cost effective method to accurately measure high frequency transients and harmonic content using capacitor voltage transformers (CVTs). Inherent CVT inaccuracies make their use impractical for measurement of harmonics, ferro resonance and sub-synchronous resonance. High speed voltage transients cannot be accurately recorded using CVTs, whilst electromagnetic voltage transformers also introduce large harmonic measurement errors.

**PQSensor** alleviates the problems with using CVTs for harmonic measurement and provides a cost effective method to utilise existing CVT for transient and harmonic measurement without the need for costly change-out or installation of specific harmonic measuring devices such as resistive capacitive dividers (RCDs).



**BVM Systems' PQSensor** device is an analog transducer that accurately reflects the harmonic, resonant effects and transient spectrum of the primary voltage from a high voltage capacitor voltage transformer (CVT). The **PQSensor** is made up of two components: a Measurement Unit (MU) consisting of special CTs connected to the CVT; and a Signal Conditioning Module (SCM).

The output of the **PQSensor** is compatible with all commonly used power quality monitors and:

- Accurately measures frequencies up to the 100th harmonic
- Faithfully reproduces power system transients up to 1MHz
- Can be retrofitted to in-service CVTs or supplied (factory fitted) with new installations at any voltage level
- Are available for all major CVT suppliers
- Has no impact on the normal operation and measurement capabilities of the CVT

For more information on **PQSensor**, please visit [www.bvmsystems.co.uk](http://www.bvmsystems.co.uk)



**COILINNOVATION**  
POWER INDUCTORS



# Coil Innovation





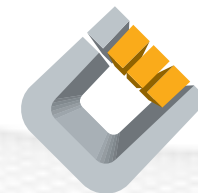
**COILINNOVATION**  
POWER INDUCTORS



**Coil Innovation** is based in Eferding, Austria and specialises in the design and manufacture of air-core reactors / power inductors for electrical power systems.

Innovation and quality are the key elements of the **Coil Innovation** strategy as evidenced by its advanced reactor design process and revolutionary, patented winding production technology. To achieve precise reactor design dimensions, an "online" feedback loop has been integrated into the winding process which monitors the actual wound length of each winding layer while adjusting the conductor dimensions in real-time. The results are extremely low inductance tolerances and an optimum current and temperature distribution in each of the individual parallel winding layers.

The ever growing demand for electrical equipment with extremely low sound emissions has prompted **Coil Innovation** to make significant investments into the development of low-noise reactors and modern acoustic measurement tools. This investment yielded two major accomplishments – a revolutionary sound mitigation technology and a new sound measurement test laboratory. In **Coil Innovation's** specially designed acoustic laboratory, power harmonic current sources are generated to simulate operational loads, thus enabling accurate, reliable acoustic measurements



**COILINNOVATION**  
POWER INDUCTORS

**Coil Innovation** manufactures air cored reactors for an extensive range of applications including:

- Fault current limiting reactors
- Inrush current limiting for capacitor banks reactors
- Harmonic filters reactors
- Static VAR compensation (SVC) and series compensation (SC) reactors
- Electric arc furnace reactors
- Load flow control / line balancing reactors
- Neutral earthing reactors
- Shunt reactors
- HVDC smoothing reactors and AC/DC filters
- Line traps for PLC

For more information on **Coil Innovation's** product range, please visit [www.coilinnovation.com](http://www.coilinnovation.com)



# RITZ Instrument Transformers





**RITZ** is one of the world's leading manufacturers for Instrument Transformers, Cast Resin Applications, Cast Resin Insulated Busbar Systems and Cast Resin Insulated Power Transformers.

The company dates back to 1904, and whilst headquartered in Hamburg, **RITZ** today combines the expertise of RITZ Messwandler Hamburg (RITZ), Messwandlerbau Bamberg (MWB), RITZ Messwandler Dresden (TuR and Duromer) and Wandler-und Transformatoren-Werk Wirges (WTW) for a wealth of experience in design and manufacturing of case resin instrument transformers.

**RITZ** have seven production facilities across Europe, China and the USA, providing solutions to many sectors including generation, transmission, distribution, rail, mining, oil and gas.



RITZ manufactures a wide range of cast resin instrument transformers including:

- Indoor current transformers (block types) up to 36kV
- Single and double pole indoor voltage transformers (block types) up to 36kV
- Outdoor current and voltage transformers up to 72.5kV (double pole up to 36kV)
- Protection, metering, power supply and harmonic measurement applications
- Indoor metal clad current, voltage and combined current/voltage transformers up to 36kV
- Special indoor type medium voltage designs including bushing type and high current transformers
- Low voltage window type current transformers including split core and summation transformers

In addition to instrument transformers, **RITZ** also produces high quality cast resin power transformers up to 36kV for power distribution, rectifier drives, generator excitation, traction etc applications.

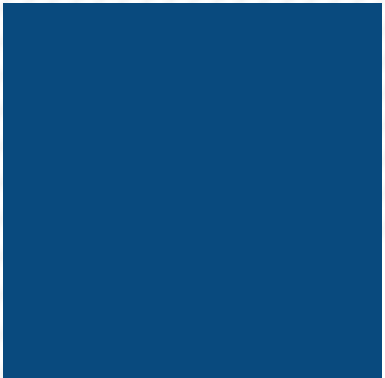
For more information on **RITZ's** full product range, please visit [www.ritz-international.com](http://www.ritz-international.com)





PFIFFNER





**PFIFFNER** is an independent manufacturer based in Switzerland and Germany, with over 80 years experience in the manufacture of high voltage instrument transformers. Their product portfolio includes both oil/paper and SF6 insulated current transformers, voltage transformers (both EMVT and CVT) and combined current/voltage transformers.

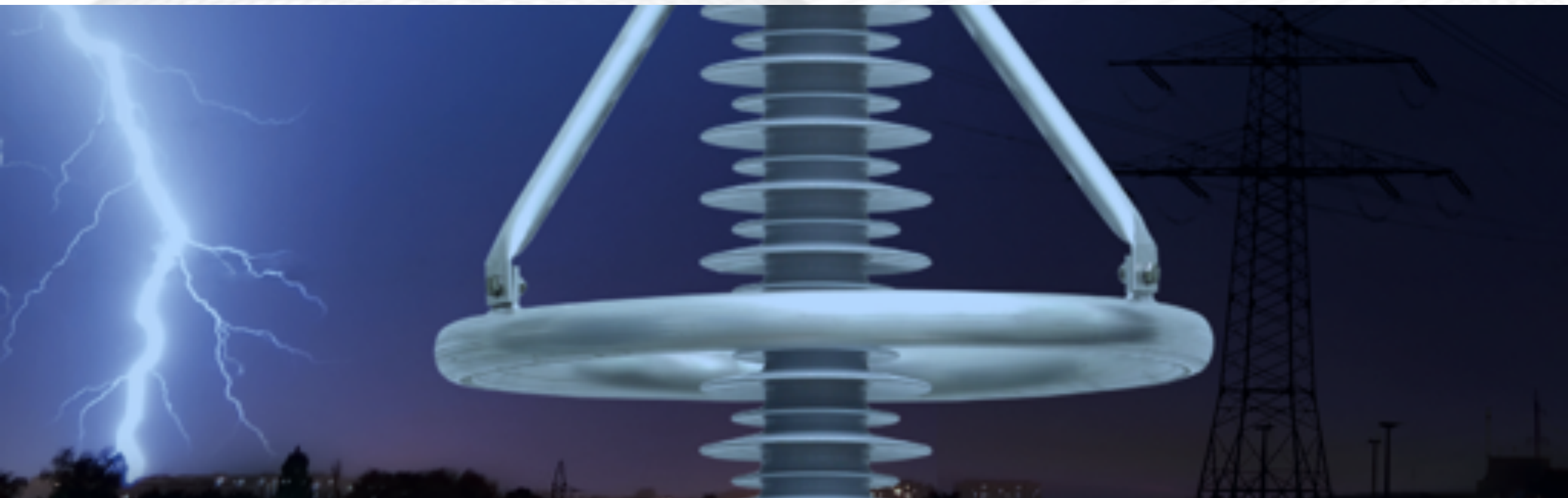
The voltage and current transformers are hermetically sealed. All products have a high level of safety against explosion hazards and meet the latest international standards. All utilise an aluminium casting and are available with silicone composite or for oil-paper insulated transformers with porcelain (C130) insulators upon request. All instrument transformers are available with various creepage and arcing distances.



PIFFNER'S range of high voltage instrument transformers include:

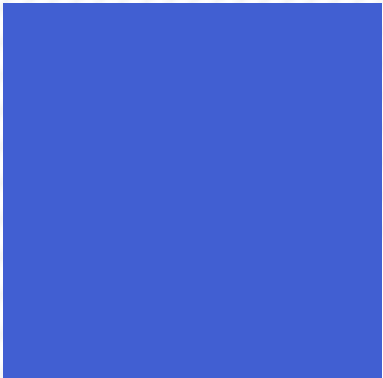
- Oil/paper current transformers from 24kV to 550kV
- Oil/paper inductive voltage transformers from 24kV to 245kV
- Oil/paper combined current/voltage transformers from 24kV to 170kV
- Oil/paper capacitive voltage transformers from 72.5kV to 550kV
- SF6 current transformers from 245kV to 550kV
- SF6 inductive voltage transformers from 245kV to 550kV
- SF6 combined current/voltage transformers from 245kV to 550kV
- Instrument transformer for gas insulated switchgear (GIS)
- Resistive capacitive dividers (RCD) from 72.5kV to 550kV
- High current "ring type" current transformers for power generation applications

For more information on PFIFFNER'S product range, please visit [www.pfiffner-group.com](http://www.pfiffner-group.com)



Tridelta Meidensha





**Tridelta Meidensha** manufactures a wide range of transmission class surge arresters up to 800kV in both polymer and porcelain technologies in their facilities in Germany. For more than 50 years **Tridelta Meidensha** has manufactured surge arresters for worldwide markets with the highest quality and reliability and proven service history. In 2015, **Tridelta Meidensha** became part of Meiden Corporation of Japan.

**Tridelta Meidensha** offers a broad portfolio of surge arresters for the application on high voltage up to 800kV. The reliable SB series is constructed with a porcelain housing, whilst the SBK, SBKC and SBKT series' utilises a moulded silicone insulator.

The broad range of **Tridelta Meidensha** surge arresters offer optimal overvoltage protection for different demand and application areas. They are perfect for applications with the very highest mechanical requirements such as for regions with high seismic activity, or when using the arrester as support.

**Tridelta Meidensha** arresters with silicone insulators use high quality LSR Silicone, which keeps its hydrophobic and UV-resistant/non ageing properties over the complete service life and ensures excellent artificial pollution performance. **Tridelta Meidensha's** outstanding sealing system prevents any moisture ingress and assures a long service life time.



Tridelta Meidensha's range of transmission class surge arresters includes:

- Silicon insulator designs utilising one of three design/construction principles – **Modular**, **Cage** or **Tube**
- **Modular** solid-core design models have a lightweight woven/wrapped construction and provide a very cost effective option available for up to LDC 3 applications to 170kV
- **Cage** design models provide a higher strength solution up to LDC 4 to 420kV voltage levels and are constructed with fibreglass reinforced plastic rods (FRP rods) to reinforce the active part
- The **Tube** design models, available up to 550kV, with their very high strength provide the highest performance arresters up to LDC 5 and are constructed using a fibre reinforced tube between the active part and silicon sheds
- Transmission line arresters which can provide an effective and economical option to protect transmission lines against lightning over voltages in order to increase grid reliability and line availability.

Tridelta Meidensha has a number of arrester accessories available to evaluate arrester performance and conditions including surge counters with and without leakage current measurement, and spark control device.

Tridelta Meidensha has developed surge arresters for the use in direct voltage (DC) networks with a rated voltage of up to 4.8kV. They are suitable, due to special varistor disks, to protect equipment in rail cars, trams or overhead lines.

For more information on Tridelta Meidensha's surge arrester product range, please visit [www.tridelta-meidensha.de](http://www.tridelta-meidensha.de)



MICROELETTRICA SCIENTIFICA  
M.S. RESISTANCES



# MS Resistances





**MS Resistances**, based in Lyon France, has been manufacturing power resistors for over 30 years.

Calculating and designing a resistor is a task that requires knowledge and a deep understanding of the characteristics of the resistive technology. Most importantly, designing a resistor for 30 or 40 years of service requires extensive experience and technical know how.

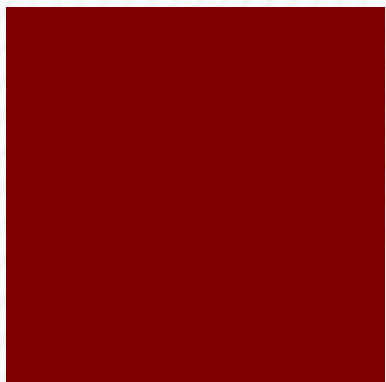
**MS Resistances** manufactures resistors using a variety of technologies:

R and C grids for applications that require high ohmic values, high continuous power absorption, very high short time power absorption or high BIL withstand. The R and C grids are made in-house with state of the art cutting, welding and assembly machinery.

JF grids are used in resistors requiring low ohmic values, very high current, very high continuous power absorption and high BIL.

Finally, SCE and SCEN wire wound designs are used for very high ohmic values (up to 5kΩ per element) and very high BIL withstands.

Each resistor is thoroughly tested before leaving the factory, including visual inspection, dimensions inspection, ohmic value measurement at ambient temperature, high voltage power frequency and insulation resistance measurement.



**MS Resistances** range of speciality resistors is suitable for a range of applications including:

- Load bank resistors – to simulate electrical loads
- Neutral earthing resistors – to limit fault currents within a three-phase power transformer or generator
- Damping resistors – to absorb harmonic currents in order to limit the distortion transmitted to the network
- Air cooled motor starting resistors – to reduce starting current
- Marine braking resistors – to apply a load to dissipate kinetic energy when braking or stopping a vessel
- Pre-insertion / discharge resistors – to limit transients during circuit energisation

Resistor banks can be supplied with integrated switches, current transformers and/or voltage transformers.

For more information on **MS Resistances'** product range, please visit [www.msresistances.com](http://www.msresistances.com)



SZM





SZM manufactures a wide range of retrofit circuit breaker solutions in Bad Muskau Germany.

They are able to supply replacement modern vacuum circuit breakers to replace older technology circuit breakers - leaving the existing switchgear fixed panels unchanged.



SZM can manufacture switchgear extensions with additional panels of the same or more modern designs.

Their circuit breaker retrofits provide a range of benefits such as improved system availability, reduced maintenance, extending the life of critical assets, upgrading and increasing operator safety.





SZM's range of retrofits include solutions for a wide range of legacy switchgear manufacturers/breaker types including:

- SAD
- SGM
- VEMBBC
- ABB
- Siemens
- F&G
- Hitachi
- ASEA
- GEC
- AEG
- Concordia/Sprecher

For more information on SZM's product range, please visit [www.szm-gmbh.de](http://www.szm-gmbh.de)



Quality High Voltage Equipment Suppliers