



FULLY INSULATED BUS BAR SYSTEM

For indoor and outdoor applications
up to 40.5 kV / 8000 A



GERMANY HAMBURG • KIRCHAICH • DRESDEN
AUSTRIA MARCHTRENK | HUNGARY KECSKEMÉT | CHINA SHANGHAI | USA HARTWELL



RITZ INSTRUMENT TRANSFORMERS GMBH – EXPERIENCE AND SOLUTIONS | TOGETHER!

Experience

RITZ is one of the leading specialists worldwide in the field of instrument transformers, cast resin applications and fully insulated bus bar systems.

The origins of the company date back to 1904. Today, the RITZ parent company in Hamburg combines the experience of „RITZ Messwandler (RITZ)“, „Messwandlerbau Bamberg (MWB)“, the „Transformatoren- und Röntgenwerk“ in Dresden (TuR and Duromer) and the „Wandler- und Transformatoren-Werk Wirges (WTW)“.

RITZ owns seven production sites, spread across Europe, China and the United States of America. Our customers include well known companies from the energy supply sector and electrical industries throughout the world.

Solutions

RITZ offers a broad portfolio. We develop your standard equipment, but also transform your specific ideas into customised products and deliver both small and large quantities.

To achieve this, we rely on the knowledge and commitment of our employees at all our locations. Tell us your requirements and we will develop the solution.

Together!

Our top priority at RITZ is always to find the best solution – together with our customers.

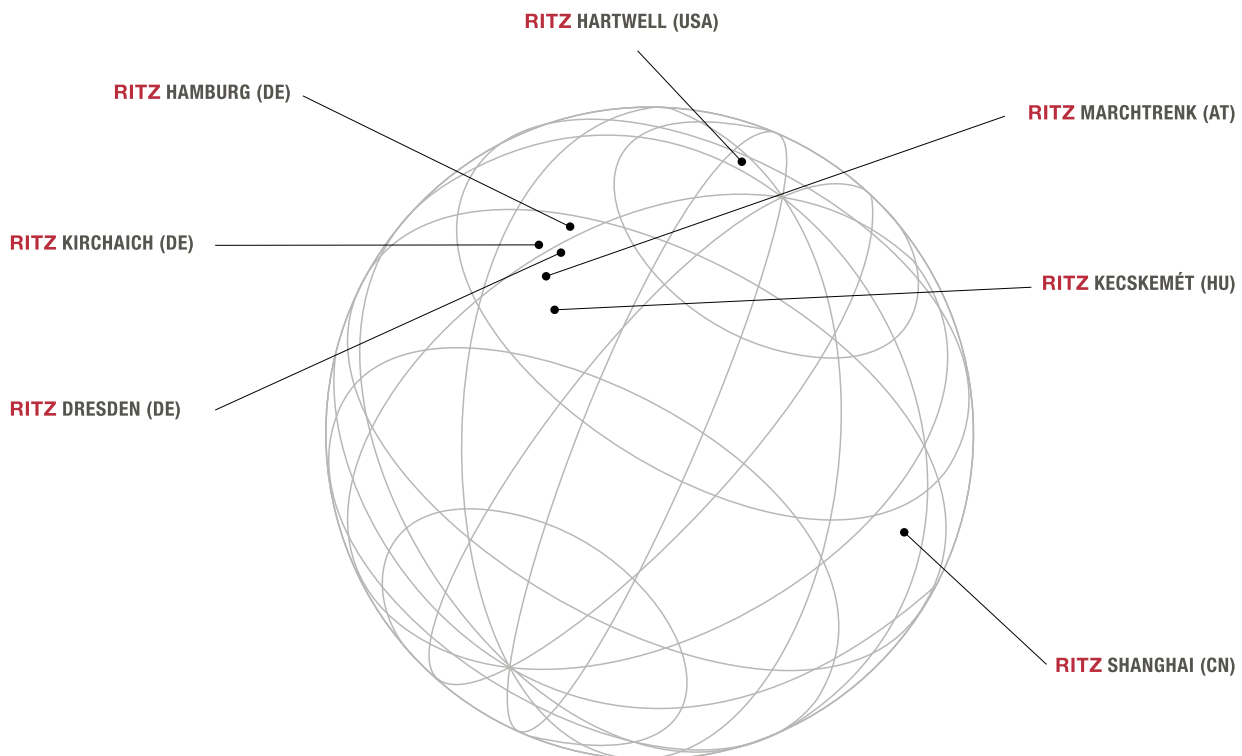


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CONSTRUCTION AND PROPERTIES

The fully insulated bus bar system SIS* provides touch safe, reliable connections between medium voltage equipment.

Clients use RITZ SIS bus bars between capital-intensive equipment where high current transmission and/or limited space are critical factors, such as:

- Generators
- IPBs
- Transformers
- Generator circuit breakers
- Reactors
- Switchgear Panels

ELECTRICAL PARAMETERS

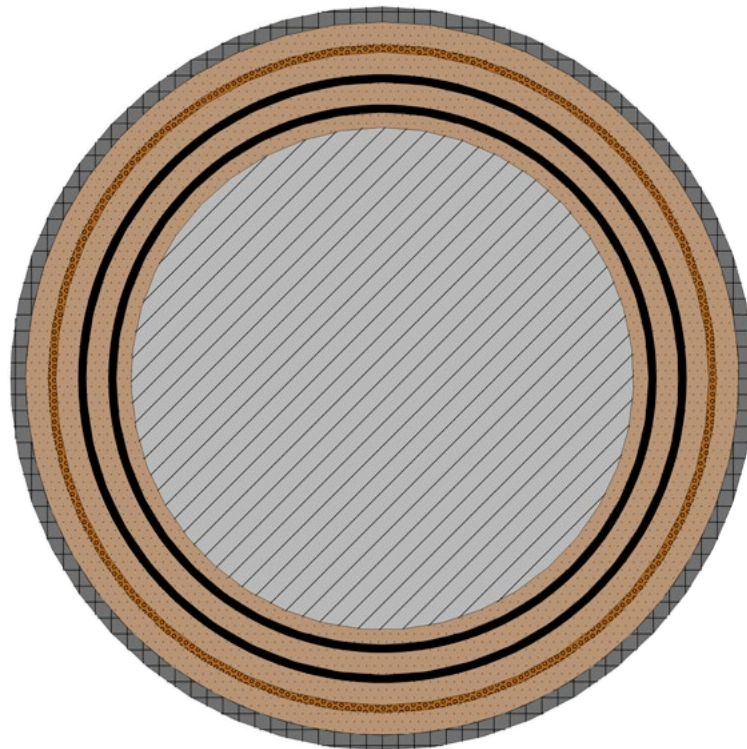
- System voltage up to 40.5 kV
- Currents up to 8000 A, others on request
- No partial discharge acc. to IEC 60137






The bus bars are insulated by a composite insulation comprising ERIP (epoxy resin impregnated paper) with capacitive grading and embedded earthing layer. The epoxy resin is cast under vacuum and cured at an elevated temperature.

Systems are available for ambient temperature ranges from -60°C to +55°C. Depending on the requirement, we can deliver systems for indoor, outdoor or combined applications.

Almost any geometric configuration is possible for individual bus bars. The lengths are only limited by the local installation possibilities and transport.

This means that our bus bar system can be adapted to all local conditions.



-  Conductor material: Aluminium or copper
-  Insulation: Cast resin impregnated paper
-  Capacitive grading layers
-  Earthing layer
-  Surface: Indoor shrinking sleeve/outdoor stainless steel pipe

* SIS = Solid Insulated Bus Bar System

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CONNECTION OPTIONS

There are various ways to connect bus bars or other components.

The following versions are available for connection to the equipment or system components:

- Flat terminals according to DIN 42 206
- Round bolt terminals
- Standardised and customised connector types
- Customised terminals



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PLUG TYPES

**SIEMENS
8DA/B**
up to 2500 A



**SIEMENS
8DA/B**
3150 A



**SIEMENS
NXPLUS**
up to 2000 A



NKT - 50 - C2/F
up to 2500 A



NKT - 32 - C2
up to 1250 A



**ABB
ZX2**
up to 2500 A



**Inner cone
Connection type 3**
up to 1600 A



**Inner cone
Connection type 4**
up to 2500 A



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FIXING SYSTEM

A versatile modular system is available for fixing the bus bars.

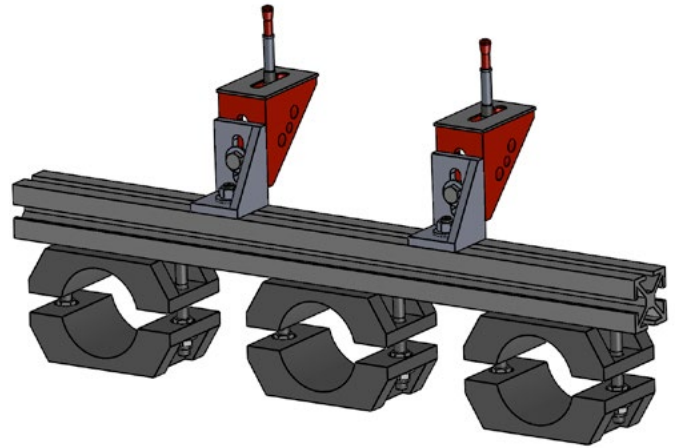
The rail fixing system comprises

- Aluminium C-profile
- Aluminium angles
- Hammerhead screws and other fixing materials
- Fixing clamps made of glass fibre reinforced plastic

The following design criteria are taken into account:

- Short circuit forces
- Natural frequency/harmonic to avoid resonances
- System mass
- Straightforward installation

The positions of the supports are recalculated individually for each project according to the given parameters. These can also be slightly adjusted on site.



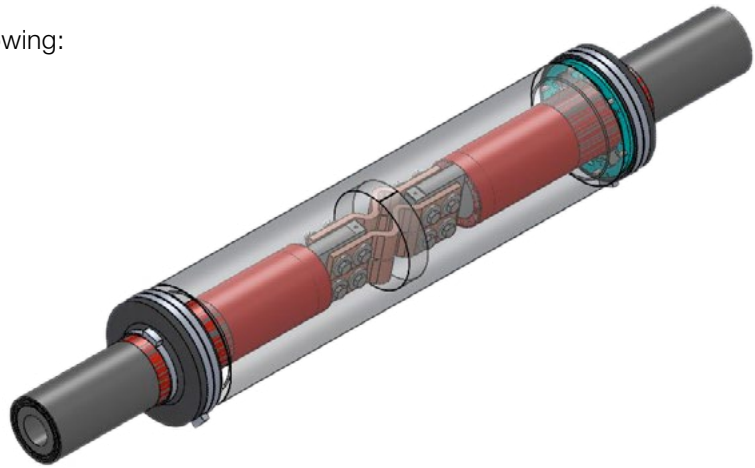
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CONNECTION SLEEVES

With longer bus bar systems, due to the following:

- Thermal expansion
- Transport dimension limits
- On-site installation requirements
- Ease of handling
- Maximum production lengths

these must be composed of sections.



In order to guarantee continuous, touch safe bus bar routing, a connection sleeve is mounted between the sections, to cover the current-carrying connection area so that it is safe to touch.

The connection of two bus bar sections inside a connection sleeve is provided by expansion straps that compensate for low length tolerances during installation, as

well as the thermal expansion of the bus bars during operation.

The insulation of the connection sleeve corresponds in its construction and manufacturing to the design of the bus bar and can also be supplied as an indoor and outdoor version.



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WHY **SIS**?

We build long-term customer relationships and develop the best solution for your project together with you. Our experienced team guides you from the conceptual planning stage through to the commissioning of the SIS bus bar connections.

BENEFITS

- Very low life cycle costs
- Safe and reliable connections
- Maintenance free
- Space saving due to very small bending radii and compact design
- No active cooling required
- Low power losses (I^2R)
- Flexible connection options

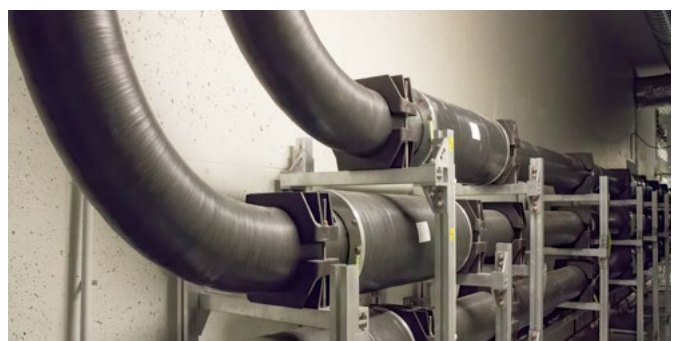
SAFETY FEATURES

- Touch safe
- Highest impact resistance (IK10)
- High operational safety due to routine testing in the factory
- Partial discharge free acc. to IEC 60137
- Phase to phase short circuit improbable
- High thermal and dynamic short-circuit strength

RITZ SERVICE MADE IN GERMANY

- Design of bus bar systems to customer requirements
- Turn key support available at early project stages
- 3D site measurement
- Manufacture and test of solid insulated bus bars
- Installation of the bus bar system or provision of an experienced supervisor (SCC certified)
- Testing of installed systems (for example VLF HV test)

RITZ is only satisfied when you are satisfied.



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REFERENCE PROJECTS



Problem statement:

- Extremely confined space conditions
- Expansion of capacity without new build or conversion of premises
- Accessibility of the premises maintained
- Reduction of power losses
- Extremely high power transmission – 12 kV/8000 A per phase

Solution:

- On-site visits for close consultations
- Constant coordination with the client based on a 3D model
- SIS12 with 8000 A (135 MW) per phase in copper conductors
- Interface coordination through weekly meetings with the customer, manufacturers of other components and other trades
- Supervision of installation



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STADTWERKE LINGEN – SCHÜTTORFER STRASSE

Problem statement:

The two rows of switchgear should be able to be electrically separated from each other quickly and easily if required, thereby enabling continued partial operation of the system.

Scope:

From planning to design, production to installation by RITZ personnel.

12 kV/2500 A per phase, double bus bar (DSS) – connection between gas-insulated ZX2 systems from ABB.

Solution:

Separation of the individual phases in a connection box through insertion of temporary insulating plates via side service aperture, ensuring safe and quick decoupling of the systems.



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ORDER INFORMATION

To be able to offer you a professional solution, we need the following information:

- Rated voltage and rated current
- Short circuit currents thermal I_{th} , dynamic I_{dyn}
- Rated frequency
- Rated temperature (working environment)
- Installation altitude
- Conductor material (Al/Cu), if specifically requested
- Required route of the bus bar connection and/or the available installation corridor
- Building drawings with indication of position of components (CAD drawing(s) in 2D or 3D, if possible)
- Dimensional drawings of the components to be connected (CAD drawing(s) in 2D or 3D, if possible)
- Further specifications to be considered

YOUR CONTACT PERSONS



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EXPERIENCE AND SOLUTIONS | TOGETHER!

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We are the leading specialist for instrument transformers, cast resin parts and fully insulated bus bars.

We not only develop your standard equipment, but also transform your ideas into customised products.

In exact accordance with your requirements!

For more information visit www.ritz-international.com

or contact us at info@ritz-international.com



GET IN TOUCH WITH US:

