

# Coiled products for railway applications



**J. Schneider**  
**Elektrotechnik**



SLV certified:  
Welding of railway vehicles  
and components  
according to DIN EN 15085-2

## ■ Transformers / Reactors for railway applications

# Coiled products for railway applications

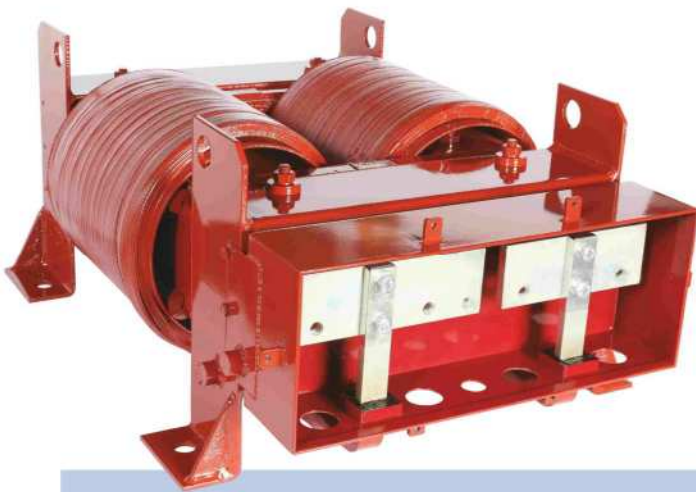
## ■ More than 60 years experience

The company J. Schneider Elektrotechnik GmbH has more than 60 years experience with the development and production of transformers and choking coils.

Basing on the know-how gathered during this time, J. Schneider has become a reliable partner for the delivery of transformers and choking coils for railway applications.

Products made by J. Schneider are used in the power supplies of locomotives and traction units for many years already; they are an important part of rectifier substations of rail power supply stations.

The product portfolio of the company J. Schneider Elektrotechnik GmbH covers a wide range of coiled products for railway applications. The coiled products always comply with all requirements of the international railway standards with respect to mechanical, electrical or safety-related specifications.



- Mains chokes
- Absorption circuit chokes
- Chopper chokes
- Smoothing chokes
- Filter chokes
- Boost/buck converter chokes

### Versions as:

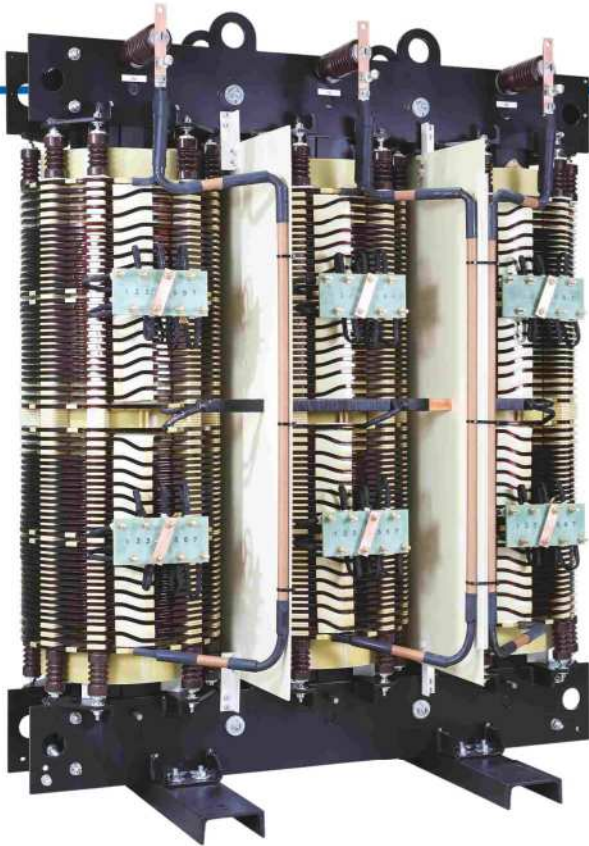
- Iron-cored choke
- Air coils
- Air-insulated designs for natural or forced cooling
- Air-insulated designs with direct or indirect water cooling
- Oil-insulated/cooled designs for the integration into the main transformer tank







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### **Air-insulated converter transformers for use in rectifier substations**

The air-insulated coil construction offers decisive advantages as compared to encapsulated coils:

- high thermodynamic standards
- minimum fire load
- good recyclability of the materials (separation without increased mechanical effort)

Available up to:

- Network voltages 36 kV
- Power up to 8 MVA
- Versions for 6 pulse, 12 pulse, 24 pulse rectifier installations
- Protection degrees up to IP54



### **Head End Power Transformers**

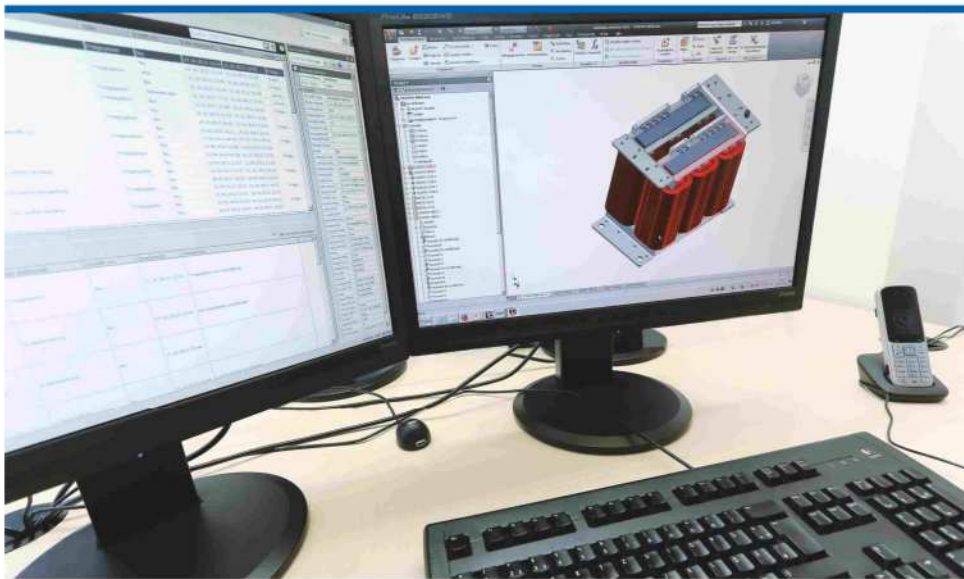
#### **Auxiliary Transformers**

Versions as:

- Transformer with integrated choke core for increasing the leakage inductance
- Dry insulated designs for natural or forced cooling
- Oil-insulated/cooled designs with oil/water heat exchanger
- Structure for interior integration
- Structure for underfloor installation



# In-House design & manufacturing: Made in Germany



■ The calculation design as well as the 3D design is performed in a close dialogue with the customer, thus allowing very fast development times.

Corresponding FEM calculations for safeguarding or proving the mechanical strength can be performed.

Due to the long-term experience in the production of coiled products, J. Schneider is able to select optimum materials with respect to function, product safety, weight and limited construction space.



■ The coils are produced with the most modern coiling machines, thus creating the basis for their high mechanical strength.



■ The transformers and chokes are assembled at correspondingly equipped workstations in order to satisfy the high quality requirements of our customers to our products.

■ Electric connections are produced as pressed connections or brazed connections.

A modern induction generator allows pinpoint heating.





- The impregnation of the transformers and chokes is performed with a vacuum pressure impregnation procedure with subsequent hardening in a circulating air drying oven. This guarantees maximum resin absorption and an optimum mechanical strength of the coiled products.



- Type and routine tests are performed in our test fields; if special testing is necessary, we order this at external accredited testing institutes.





# Repair & service



■ At the modern production facility in Offenburg, J. Schneider covers the complete multisupplier product range in preventive maintenance as well as in repairs of damaged transformers and chokes.

**Norms and standards used by J. Schneider Elektrotechnik for transformers and chokes for railway applications**

- **EN 15085 CL4**
- **DIN EN 60310/VDE 0115 Teil 420/IEC 60310:** Railway applications- Traction transformers and inductors on board rolling stock
- **EN12663-1:** Railway applications: Structural requirements of railway vehicle bodies
- **EN15085 up to EN 15085-5:** Welding of railway vehicles and components
- **IEC 61373:** Railway applications - Rolling stock equipment - Shock and vibration tests
- **EN 50125-1:** Railway applications - Environmental conditions for equipment
- **EN50124:** Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment.
- **IEC 60085:** Electrical insulation - Thermal evaluation and designation
- **DIN EN 61378 and 60076:** Converter transformers and power transformers
- **DIN EN 60076-10:** Determination of sound levels
- **UL certification** for insulations systems in heat class F/155°C and H (180°C) corresponding to UL standard **UL 1446**
- Fire protection norms: **EN 45545, DIN 5510, NFF 16-101/16-102, BS 6853**
- **IRIS certification** pending
- **SLV certified:** Welding of railway vehicles and components according to **DIN EN 15085-2**

Norms & standards



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