

# Wärtsilä JOVYATLAS RAIL RESISTORS



Wärtsilä JOVYATLAS develops and produces customer-specific resistors for railway applications for more than 60 years. The production of our rail resistors uses state-of-the-art manufacturing methods and high quality standards. In order to realise different performance sizes and characteristics we use our own type of resistors, which can be enlarged by different cutting patterns, lengths and thickness of material depending on the requirements.

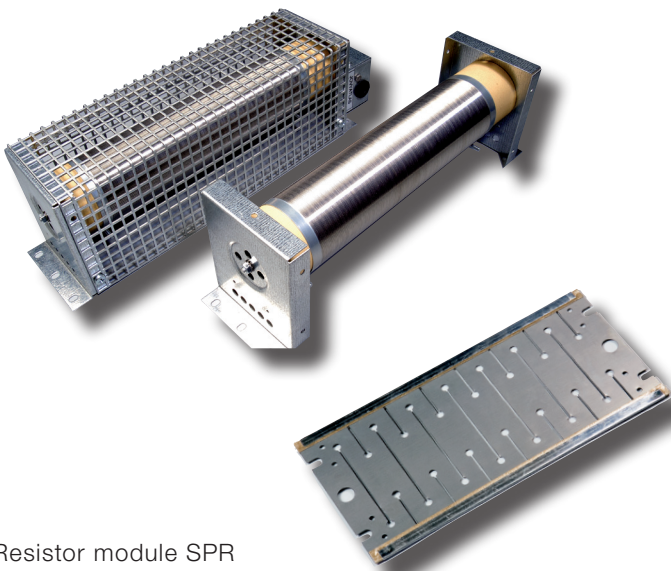
## STATE-OF-THE-ART MANUFACTURING METHODS

They offer us a maximum flexibility for customised projects. We produce our high-performance grids of the resistor type SPR on the basis of modern laser technology or conventional cutting. For the embossing of our MPR modules we use specifically designed tools ensuring a quick and flexible adaptation to the individual requirements of our customers. Our adaptable product process ensures quick reaction to our customers' requirements and an absolutely flexible customised production!

Our company collaborates with different universities in the area of construction and development. Together with these institutions we could develop computer simulation programs enabling us, e.g. to take into account temperature reaction of resistors in structural models of our resistors. This is of crucial significance especially with regard to the high loads of rail resistors.

Fig.1 Wärtsilä JOVYLOAD Type of resistors for railway application

Resistor module WW



Resistor module MPR



Resistor module SPR

Resistor module WPR

**EXTRACT OF REFERENCES****RAIL RESISTORS**

Siemens AG, Erlangen Transrapid  
AREVA, Berlin Schwedische Bahn  
Siemens AG, Erlangen Heathrow Express  
Siemens AG, Austria, Wiener Linien  
Siemens AG, Erlangen Frankfurt U4  
Adtranz, Henningsdorf ET 481 S-Bahn-Berlin  
Deutsche Bahn AG S-Bahn Hamburg  
Siemens AG, Erlangen Talgo Hotelzug  
Siemens AG, Erlangen SNK-Muldenstein  
Siemens AG, Erlangen TOKIO-Line  
Elpro, Berlin Lehrter Bahnhof  
Adtranz, Mannheim BR 101  
Deutsche Bahn AG Nahverkehr, Hamburg  
Siemens AG, Erlangen Bahn  
Siemens AG, Erlangen London Train  
Siemens AG, Erlangen AMTRAK  
Siemens AG, Erlangen TAEGU Line 1

- **LIGHT AND COMPACT STRUCTURE**
- **LOW INDUCTANCES**
- **RAPID COOLING**
- **HIGH OPERATIONAL SECURITY**
- **SHOCK-RESISTANT / VIBRATION-RESISTANT**
- **LOW COST STANDARD SERIES**
- **TESTVOLTAGE 2000 V**



Fig.2 Rail Resistor made by Wärtsilä JOVYATLAS

The illustration on the right hand shows a customised rail resistor, which Wärtsilä JOVYATLAS designed for the Berlin S-Bahn railway network. This resistor is approved according to the German Railway (DB) acceptance certificate, inspection stage 2 APZ 3.1B. The applied resistor elements are structured in meander shape and attached via spot-welding. Ceramic insulators effect insulation.

