



COIL NEWS



a group company of
MITSUBISHI
HEAVY INDUSTRIES, LTD.

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The necessity of

Roebel bars

ROEBEL Bar production SUCCESSFULLY started

The necessity of Roebel bars

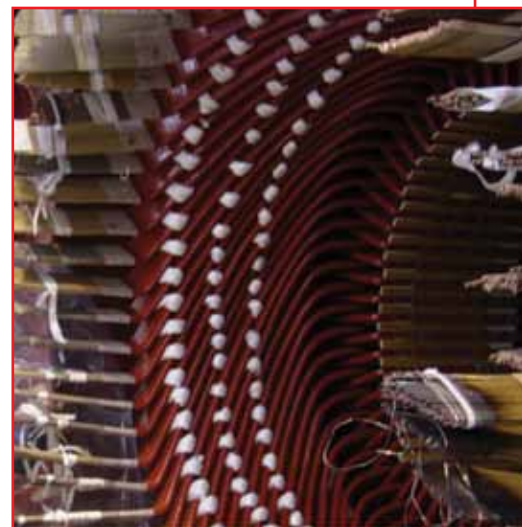
Roebel bars are an indispensable part of high power turbo generators. Due to their specific structure, these coils generate lower surface currents than conventional coils. This advantage allows for higher power generation and efficiency.

In generators, conductors are exposed to changing magnetic fields. This results in circular currents, called Eddy Currents. The greater the conductor's conductivity, the greater the currents developed in the conductor. This flux causes electrons to flow at the skin of the conductor, resulting in excess heat generation and losses.

In Roebel bars, the conductor is divided in sub conductors, which is the most effective solution to reduce Eddy Currents. Moreover, the twisted wires in Roebel bars are designed to have a much larger surface than conventional coils, which eliminates skin effect and reduces heat generation and discharge. As a result, applying Roebel bars prevents generators from overheating and typically increases the power output by 15 to 25%.

Maintenance Partners has a long track record in manufacturing coils for rotating electrical equipment. The roebel bars are custom made in MP's own Coilshop, in which decades of experience and extensive technological knowledge result in quality products such as Roebel bars for high performance generators. To assure the quality of each set of coils, MP tests every single bar thoroughly before shipping to the customer. Besides this, MP's beneficial supply chain allows customers to benefit from high quality copper wiring and short lead times. MP's customers include end users as well as manufacturers of high power generators accross Europe, North Africa and the Middle East.

*Do you seek to improve the output and efficiency of your rotating electrical equipment?
Contact us at coils@maintenancepartners.com today!*



EXPERTISE • FLEXIBILITY • CUSTOMER-ORIENTATION • INNOVATION • EAGERNESS • DYNAMISM

Roebel bars

Each strand has the same mean depth in the slot, the same leakage reactance and the same voltage induced by the both main and leakage fluxes. The picture below is a perfect example of a 180° transposition of 2 parallel copper bars of dim 15 x 13.5 mm with a cross-over in the middle of the bar. This coil is from a large ASEA generator 5.8 MVA for the Scandinavian Railways made by Maintenance Partners a few years ago.



Example of a 360° roebel bar for low voltage generator NEBB 2813 KVA type WAB-900E12W produced this year in the coilshop of Maintenance Partners Turkey.



	2009	2010	2011
Number of sets delivered	10	40	60
Amount of copper used (kg)	6.300	22.150	40.750

- **Type of coils delivered:**
 - 90% Diamond coils
 - 7% DC coils
 - 3% Roebel bars
- **Type of insulation applied:**
 - Hard coils: 30%, no need for VPI
 - Soft coils: 60%, VPI required
 - Thermoflex: 10%

QUALITY

All coilshop customers have stated to be satisfied with the quality of the coils delivered. An example of the coilshop's quality is that MP has successfully passed quality tests on coils destined for hydrogenerators conducted by EDF.



SAFETY !

- **425 DAYS WITHOUT ANY ACCIDENTS**

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