No wire, no power

The wire, cable and wire-processing industry and the wire 2016 trade fair

Many areas of our modern world depend on a reliable supply of electric power. This requires not only power stations where the electricity is generated but also wires and wire-based products which then take the power to the consumer and make it usable. All these products are made by businesses operating in the wire and wire-processing industry.

A wind power station, for instance, has 120 miles of copper wire, mainly in the form of coils in ring generators, and of course also in the power line that connects the power plant to the grid. The main reason for the use of copper is that it has the highest electrical conductivity of all the possible metals that may be used. The grid consists of overhead power lines, underground cables and facilities such as switching and transformer stations. In addition to the actual conductor, a line generally also contains further wire products acting as reinforcement, preventing electromagnetic interference and transmitting signals. With overhead power lines the net weight is important, so that they are usually made from aluminium. The transfer capacity of an existing line is relatively easy to expand. It is a matter of replacing the traditional round conductor by a conductor with a sector-shaped cross section which then increases the size of the power-conducting cross section. If, on the other hand, power cables are laid within buildings, then the weight is less important. In fact, in a study entitled “Ecodesign for Power Cables in Indoor Electrical Installations”, the European Copper Institute (ECI) even recommends using copper wire with a bigger cross section. This minimises losses, so that power is transmitted more efficiently. Another highly promising energy efficiency measure has been worked out by the Ultrawire Project, sponsored by the European Commission. Coordinated by the Department of Materials Science and Metallurgy of the University of Cambridge, a range of companies are working on the industrial manufacturing of ultra-conductive copper. The project involves numerous businesses, including copper, copper wire and cable manufacturers, as well as university departments. The material, which has so far only been created in a laboratory, is almost pure copper with a very small addition of finely distributed nanocarbon. Used at room temperature, this material is almost twice as conductive as

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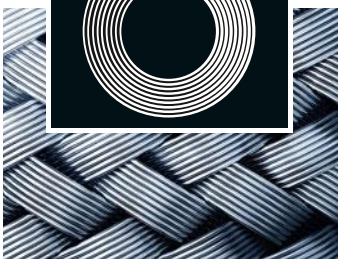

Wire, Cable, Fibre Optic, Wire Products and Machinery | Spring Making | Fastener Technology | Mesh Welding Machinery

International Wire and Cable Trade Fair
Internationale Fachmesse Draht und Kabel

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Messe Düsseldorf

Messe Düsseldorf GmbH
Postfach 10 10 06
40001 Düsseldorf
Messeplatz
40474 Düsseldorf
Germany

Telefon +49 (0) 2 11/45 60-01
Telefax +49 (0) 2 11/45 60-6 68
Internet www.messe-duesseldorf.de
E-Mail info@messe-duesseldorf.de

Geschäftsführung:
Werner M. Dornscheidt (Vorsitzender)
Hans Werner Reinhard
Joachim Schäfer
Bernhard Stempfle
Vorsitzender des Aufsichtsrates:
Thomas Geisel

Amtsgericht Düsseldorf HRB 63
USt-IdNr. DE 119 360 948
St.Nr. 105/5830/0663

Öffentliche Verkehrsmittel:
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pure copper. When engines, transformers and other components are wired with ultra-conductive copper conductors, they should therefore be much lighter than in the past. Finally, to use electric power in technical systems, it is vital to have contact elements which are both efficient and reliable. The relevant functional parts, such as pins, sleeves, springs and bent parts, are made from wire and sheet metal in a variety of alloys, e.g. copper combined with precious metal. Depending on usage conditions and the resulting loads, parts must have a certain conductivity, but also several further qualities, such dimensional stability, impact strength and abrasion resistance.

The wire 2016 trade fair

There is currently a growing trend to make increasingly better use of the physical qualities and tolerances of the materials that are processed. This automatically leads to greater requirements on production engineering. Manufacturers of wires and wire products for electrical systems therefore need innovative machinery and equipment. These and many forward-looking developments will be highlighted at the leading international industry trade fair wire which takes place together with the Tube trade fair every two years. wire 2016 will be held in Düsseldorf from 4 to 8 April 2016.

Press Contact wire 2016:

Petra Hartmann-Bresgen M.A.
☎ +49 (0)211/4560-541
+49 (0)211/4560-87 541
HartmannP@messe-duesseldorf.de