Flexible, aluminum cables – the solution for many industries

HELUWIND®
WK POWERLINE ALU
ALUMINUM AS CONDUCTOR MATERIAL:
a lighter weight and more cost-effective alternative

Copper or aluminum? Choosing conductive metals for different industries and applications can be a challenge. Copper has become the standard in cables and wires because of its excellent conductivity and malleability. However, it is relatively heavy and expensive compared to aluminum. Switching to aluminum, which is lighter and significantly less costly than copper, is a viable option in many cases. Using aluminum successfully is a matter of understanding the capabilities of this conductive metal and how to deal with the challenges it presents.

Copper is currently priced at 5,520 EUR per ton, which is more than twice as expensive as aluminum, priced at 2,030 EUR per ton (as of Feb. ‘19). This significant difference in price is due to the greater availability of raw aluminum compared to copper. After oxygen and silicon, aluminum is the third most common element in the Earth’s upper crust, while copper is ranked 25th in availability on the list of raw materials. Assessment of current prices is further reinforced by the volatility of the raw materials market.

Looking at the numbers from the last 8 years (2011-2018), copper prices fluctuated within a range from 4,350 to 6,860 EUR per ton. In 2004, the annual average value was still at 2,417 EUR per ton. No such fluctuation range exists in the aluminum sector, which allows for better material planning.

If aluminum is used as a conductor material, its lower conductivity requires a wire size that is approximately one-third larger than that of a copper wire. In the end however, the insulating material used with the wire plays a crucial role in performance; an aluminum wire can possess the same current carrying capacity as a H07RN-F copper wire. Aluminum’s larger wire size would only be a disadvantage in applications requiring tight spacing, such as when installed in densely packed control cabinets. The facts for aluminum speak for themselves when it comes to the issue of weight. As a raw material, aluminum is approximately 70% lighter in weight than copper. This can be helpful in the efforts of numerous application fields looking to reduce the weight of all components. Naturally, when used in electrical cables, the lower weight makes them easier to install. High-voltage cables have long been made from aluminum; the lighter weight reduces the tensile force placed on wire and masts significantly. But even industries such as automotive manufacturing and the aerospace industry are switching to aluminum wires. All the cable harnesses in the Airbus A380 are already made of aluminum. Aluminum wires can be up to 60% lighter than copper wire with comparable current-carrying capacity.

Even for applications that require flexible cable connections, copper must not always be the first choice. The HELUWIND® WK POWERLINE ALU series provides a range of fine-wired cables and connection technology.

HELUWIND® WK POWERLINE ALU ADVANTAGES

- Cost reduction
- Weight reduction
- Excellent flexibility
- Easy handling
- Lower risk of theft
- More stable metal prices

The facts for aluminum speak for themselves when it comes to the issue of weight. As a raw material, aluminum is approximately 70% lighter in weight than copper. This can be helpful in the efforts of numerous application fields looking to reduce the weight of all components. Naturally, when used in electrical cables, the lower weight makes them easier to install. High-voltage cables have long been made from aluminum; the lighter weight reduces the tensile force placed on wire and masts significantly. But even industries such as automotive manufacturing and the aerospace industry are switching to aluminum wires. All the cable harnesses in the Airbus A380 are already made of aluminum. Aluminum wires can be up to 60% lighter than copper wire with comparable current-carrying capacity.

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FIELDS OF APPLICATION FOR ALUMINUM CABLES

- Combined Heat and Power Plants
- Industrial Plants
- Transformer Stations
- Media Technology
- Railway Technology
- Photovoltaic Systems
- Plant Construction
- Wind Energy
- Portable Energy Supply
- Energy Storage
These cables are also available with UL/CSA certification. The HELUWIND WK Powerline ALU may be used exclusively with the HELUKABEL® CB crimping technology.
CONNECTION TECHNOLOGY
for the HELUWIND® WK POWERLINE ALU series

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Subject to technical modifications.

ACCESSORIES for the HELUWIND® WK POWERLINE ALU series

WK-APW 18 Hydraulic Hand Press

Compression device comprised of:

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C8 Crimp dies

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Please order crimping dies separately.
WHAT SETS US APART

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FAMILY FOCUSED
Family-owned company since 1978

GLOBAL
• 52 locations in 33 countries
• Timely delivery to over 160 countries

SUCCESSFUL
• 667 million turnover
• 1,600 employees

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• 24-hour delivery service
• State-of-the-art logistics

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QUALITY-MINDED AND ECO-FRIENDLY
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