

Dynamic Testing For:

MOVING APPLICATIONS

Ed. 1 // EN

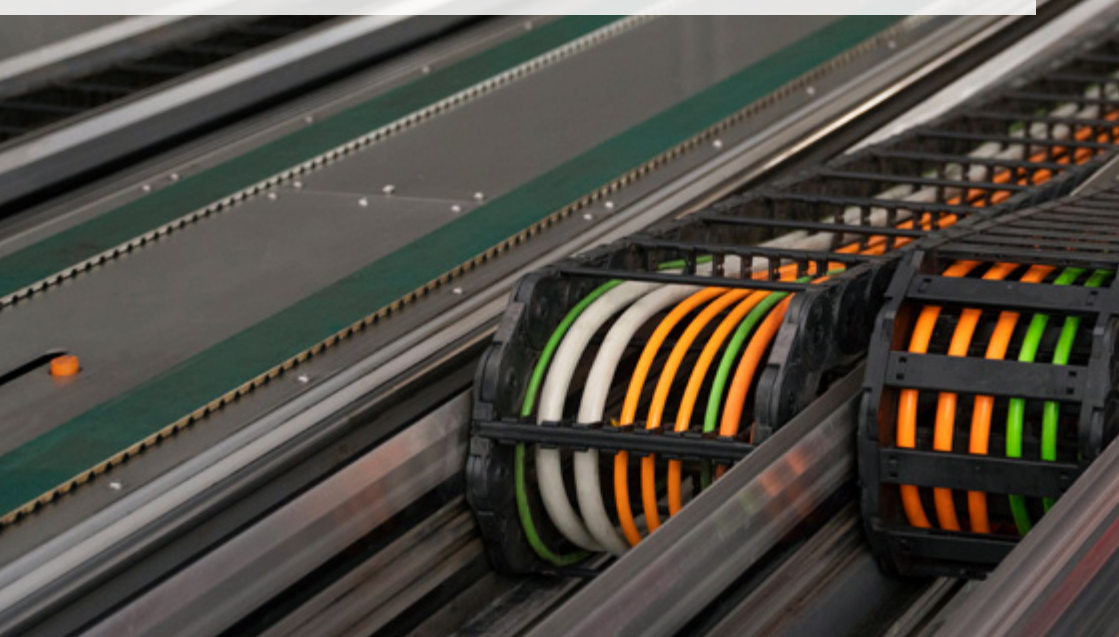


**(Channeling
POWER)** 

Thoroughly Tested for Your Safety

Whether it be in mechanical and plant engineering, robotics or industrial automation, our cables and wires are exposed to high dynamic loads in many applications. Repetitive bending and torsional movements put considerable stress on the materials used. Nevertheless, users expect our products to be reliable, long-lasting, to perform consistently and prevent system malfunctions, failures and safety risks. For this reason, at HELUKABEL we subject our cables and wires to extensive tests

and inspections. In the testing laboratories at our production site in Windsbach, Germany, we use ultra-modern equipment to simulate the stresses applied to our cables and wires, which exceed those encountered in practice. In this way, we ensure that every product consistently meets the high demands of our customers, and that you always receive the quality that you expect from us as a leading supplier of cables, wires and accessories for more than 40 years.





Bending Tests

Bending tests are used to evaluate the mechanical strength of cables and wires under bending stress. In practice, frequent directional changes after a while may lead to cable breaks, especially at weak points. With our testing equipment, we simulate various loads and bending radii to ensure that our products reliably withstand the stresses and strains that come with everyday use.

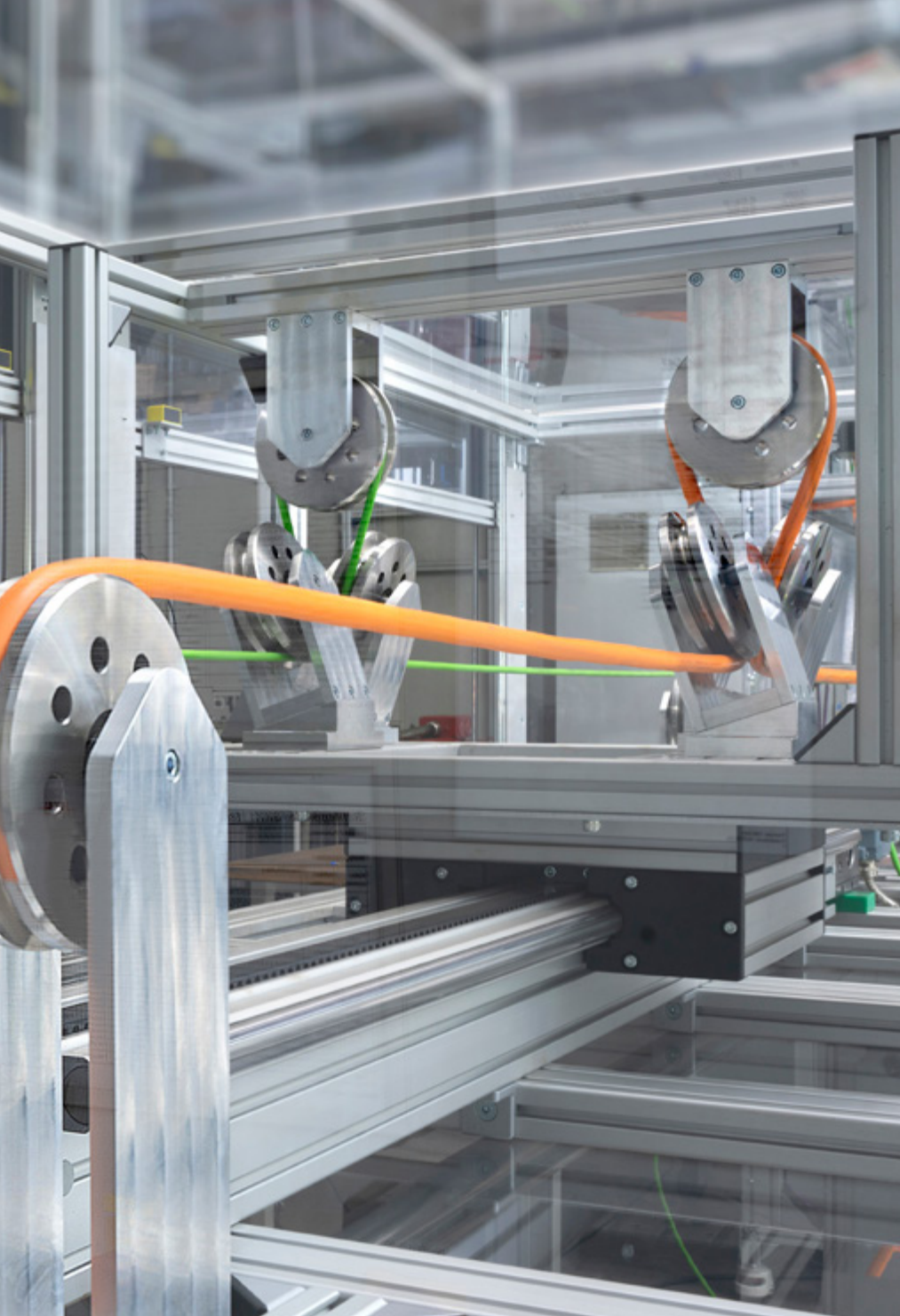
Alternating Bending Tests with Two Reels

- Test in alignment with DIN EN 50396 6.2
- Max. speed: 4 m/s
(Target: constant speed of 0.33 m/s)
- Max. acceleration: 6 m/s²
- Max. movement distance: ±160 cm

Alternating Bending Tests with Three Reels

- Tests in alignment with DIN EN 50396 6.3
- Max. speed: 0.5 m/s
(Target: constant speed of 0.1 m/s)
- Max. acceleration: 3.5 m/s²
- Max. movement distance: ±70 cm





A close-up photograph of an industrial abrasion testing machine. A bright green cable is being fed through a series of rollers and a clamping mechanism. A yellow measuring tape is visible on the left side of the machine. In the background, there is a tray containing several small, cylindrical metal components. The machine is constructed from dark grey metal parts.

Abrasion Tests

Cables used in dynamic applications are exposed to a variety of mechanical stresses – including abrasion, for example, due to contact with other machine components. In the long term, this may damage or destroy the insulation of a cable and can even result in cable breaks, malfunctions, short circuits and fires. In our testing laboratories, we therefore run abrasion tests to evaluate the suitability of our sheathing and insulation materials against the demands of everyday use.

Abrasion Test Equipment

- Max. speed: 440 mm/s
- Max. acceleration: 2000 mm/s²
- Clamping length: ± 25 cm



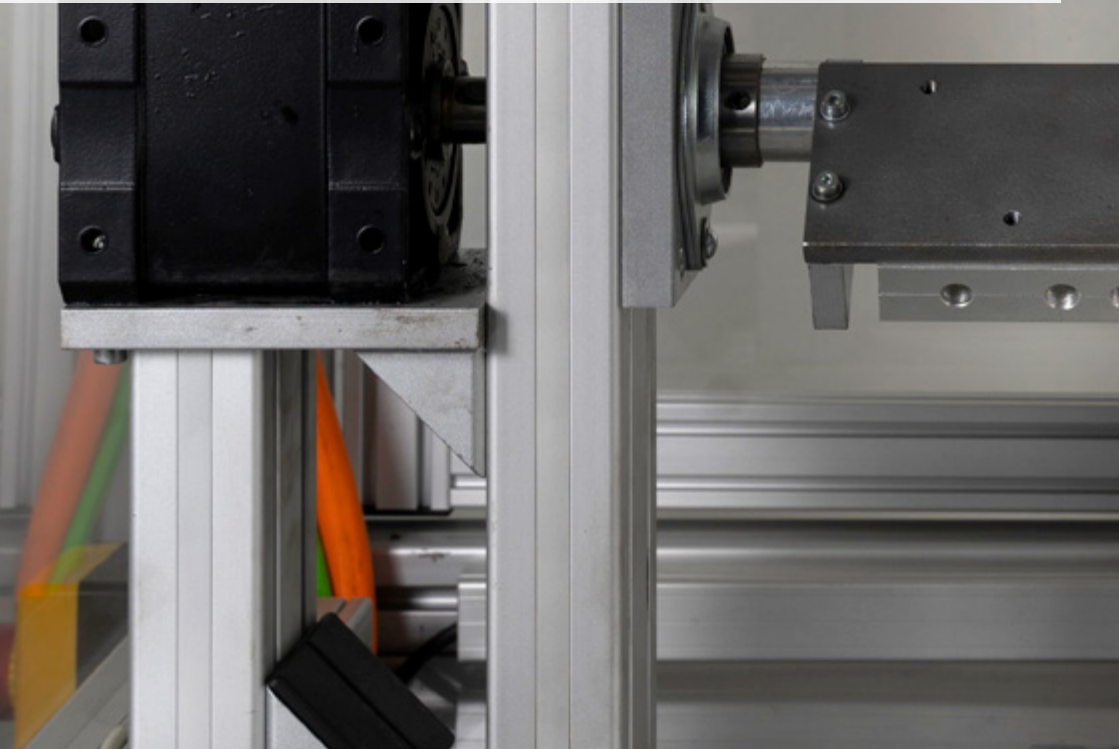


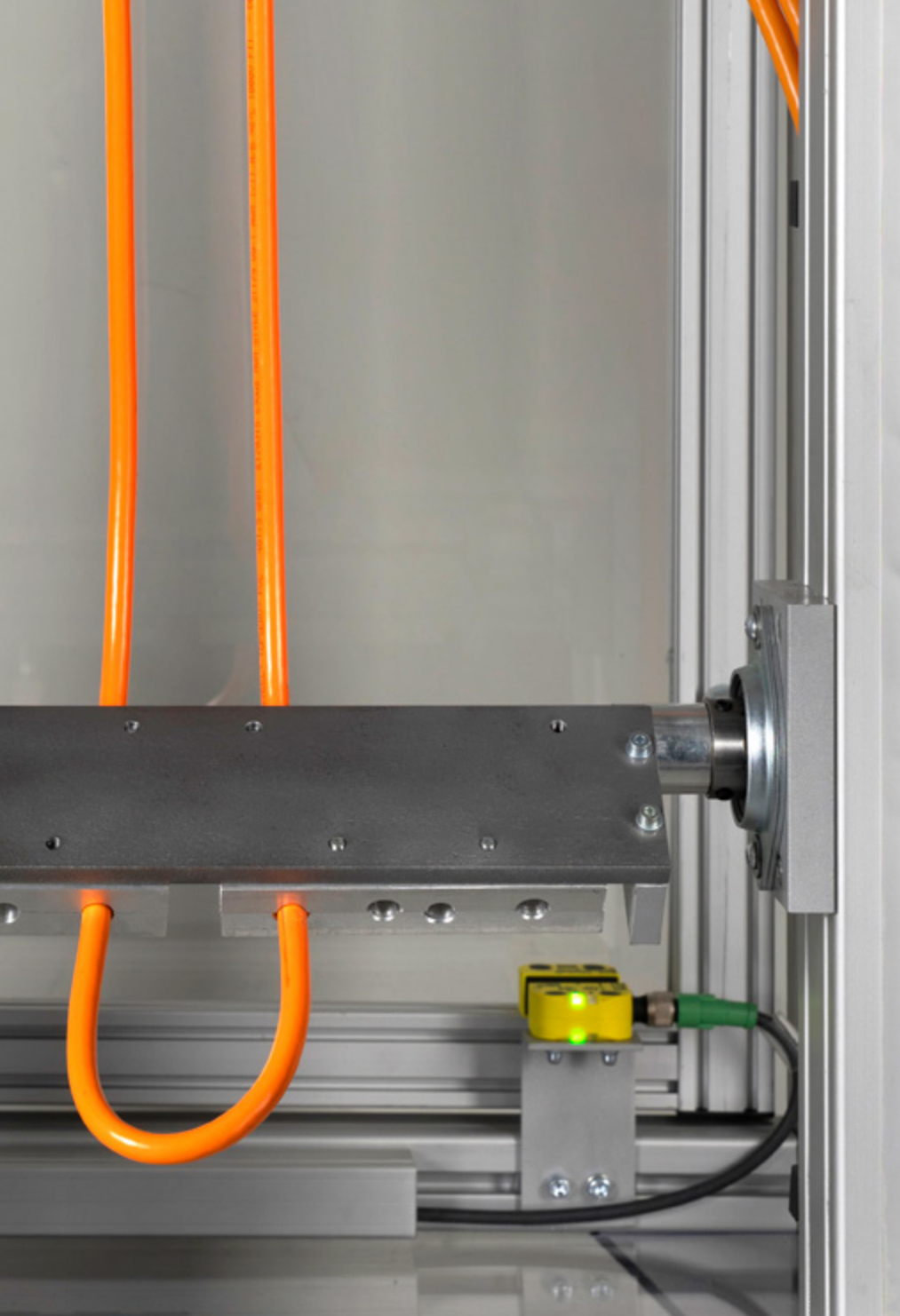
Kink Tests

Bending loads are part of everyday life for cables and wires in many moving applications. Over time, however, they can irreparably damage sheathing and conductor materials and even lead to a break, which can result in expensive malfunctions, machine failures and fire hazards. We therefore run special kink tests to assess a cable's resistance and avoid unpleasant surprises when used.

Kink Test Equipment

- Max. speed: 440°/s
- Max. acceleration: 2000°/s²
- Max. torsion angle: ±180°
- Clamping length: 50 cm







Torsion Tests

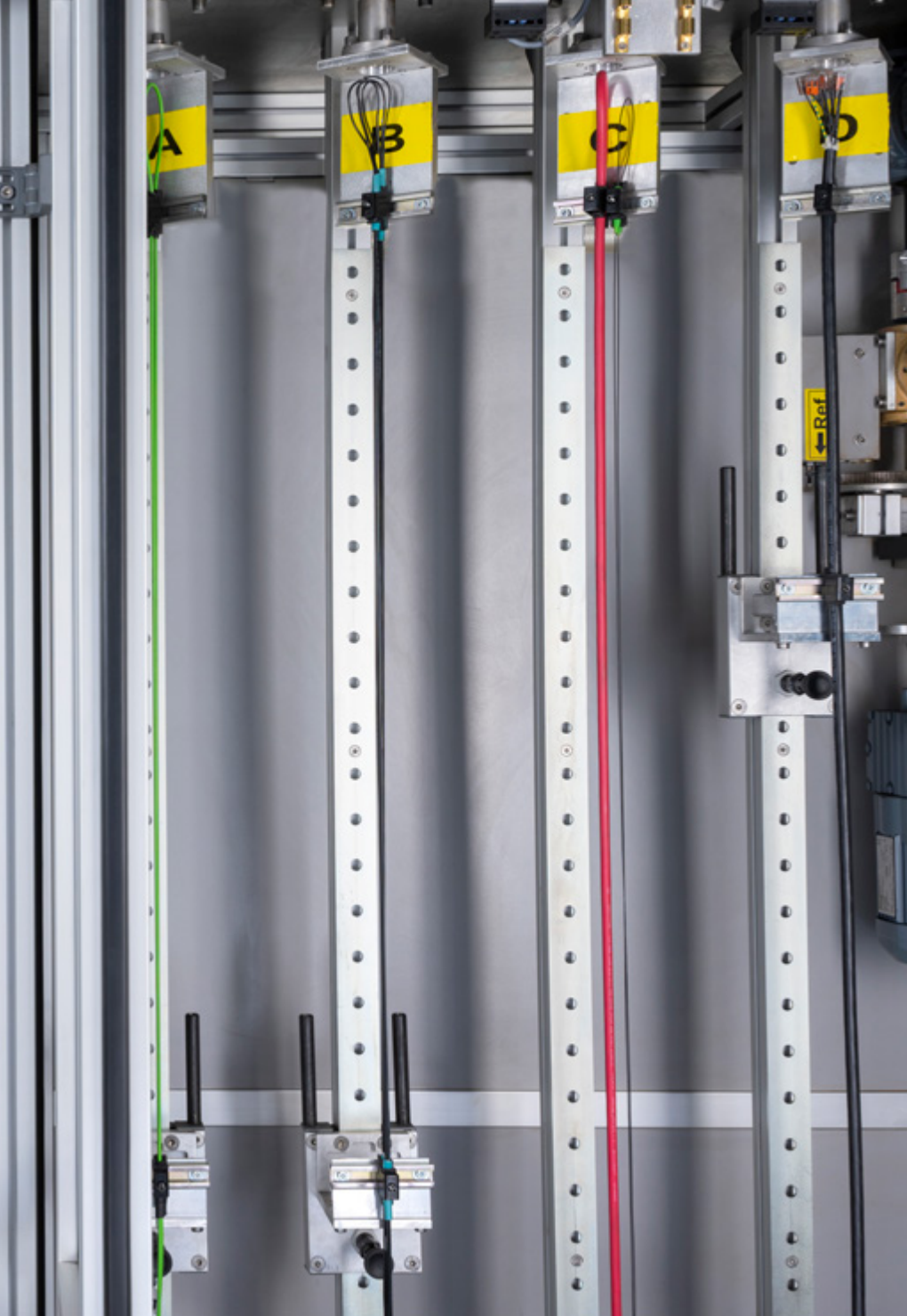
Cables applied to industrial robots and other moving machines must often withstand extreme torsional loads. We simulate this type of stress around a cable's own axis in our testing facilities. This is how we ensure that all materials used are reliable and long-lasting.

Käppner Torsion Test Equipment

- Max. speed: 1000°/s
- Max. acceleration: 775°/s²
- Max. torsion angle: ±720°
- Max. clamping length: 200 cm
- Min. clamping length: 30 cm

Audi Torsion Test Equipment

- Max. speed: 440°/s
- Max. acceleration: 2000°/s²
- Max. torsion angle: ±360°
- Clamping length: 100 cm




Torsion Tower for Wind Power Cables

Cables in wind turbines are also exposed to strong torsional forces. This may cause their mechanical and electrical functionality to deteriorate over time. We check the torsion resistance of our products in our test tower for wind power cables to prevent expensive system failures once in use.

- Height: 8 m
- Max. speed: 0.8 U/min (288°/min)
- Twist: $\pm 150^\circ$ per metre loop
- Loop height: 6 m (results in a rotation of $\pm 900^\circ$ per cycle)





Drag Chain Tests

Drag chain cables are always on the move: high accelerations, tight bending radii and constant abrasion are continuous strains on the material. Our drag chain test systems allow us to apply different travel distances and chain radii and therefore simulate various operating conditions.

Our Drag Chain Test Equipment at a Glance:

	Test 1	Test 2	Test 3	Test 4	Test 5
Max. acceleration	50 m/s ²	50 m/s ²	50 m/s ²	2 m/s ²	30 m/s ²
Max. speed m/s	5 m/s	5 m/s	10 m/s	4 m/s	10 m/s
Max. movement distance	0.9 m	3 m	5 m	18 m	20 m
Number of chain radii	2	4	4	4	8



Twister Test

There are applications where our cables and wires are exposed to torsional and bending movements at the same time. For this reason, we have the so-called twister test: this is a torsion and bending test with a special drag chain that simulates the loads applied in highly dynamic applications. The travel distance and the maximum angle of rotation are specified by the drag chain.

- Max. speed: $480^{\circ}/s$
- Max. acceleration: $5000^{\circ}/s^2$



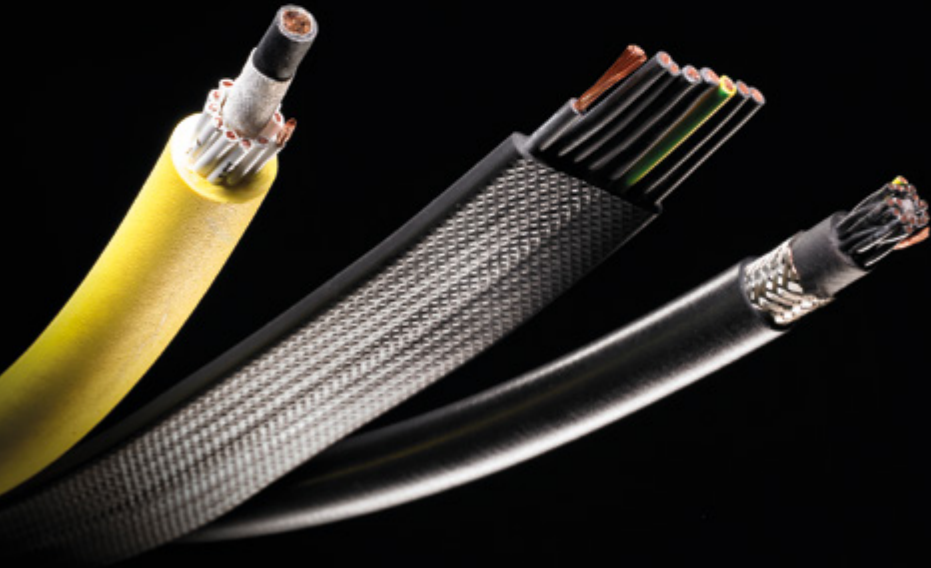


YOUR ADVANTAGES

**As a HELUKABEL customer, you can fully rely on us and our products.
You will benefit from the advantages listed below among many others:**

- Consistent, high quality, thoroughly tested products
- Long product life and reliable performance
- Extensive product range with more than 30,000 items
- Manufacturing according to the latest standards
- Customised solutions
- Fast and competent service

**Our experts will be happy to answer your questions at any time.
Contact us - we look forward to hearing from you!**





**(Channeling
POWER)** 