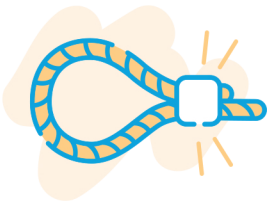
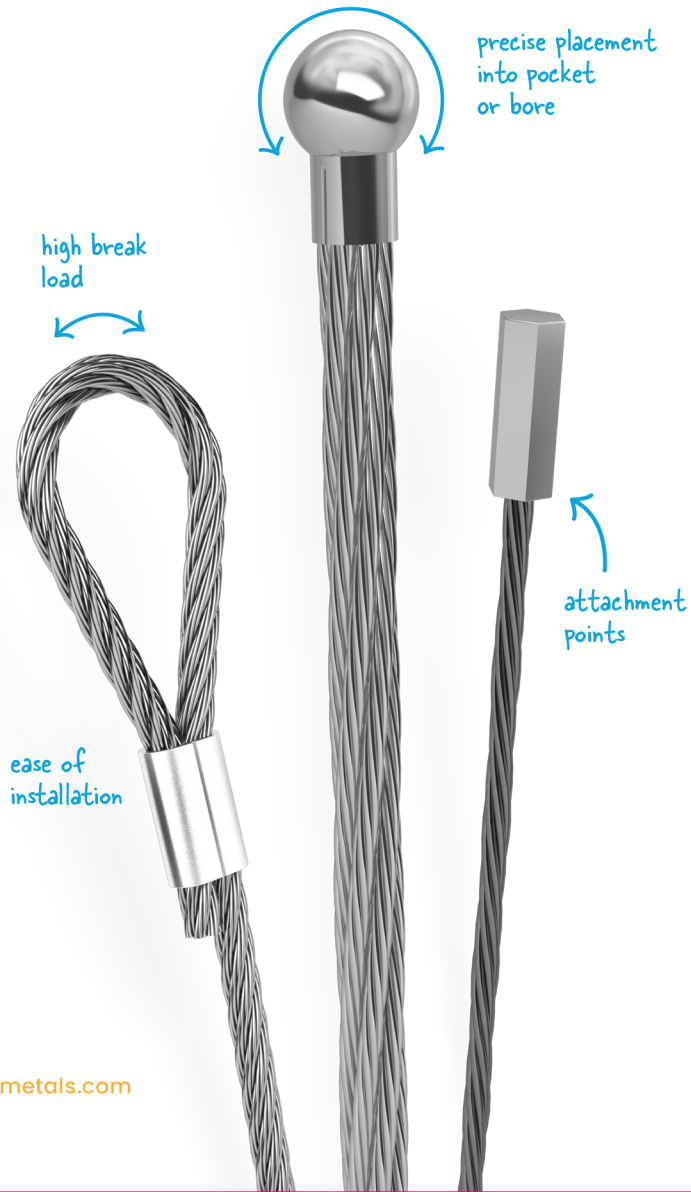


Mechanical assembly

Custom crimps, end treatments, fittings, and specialized parts



Custom **mechanical assembly**

From custom crimps and threaded fittings to midsection attachment points and end terminations, mechanical assemblies enable wire-based products to meet the needs of complicated applications. Our integrated operations and Engineering teams will help you streamline your manufacturing process and find the perfect solution.

Design specifications

Mechanical assemblies can be as basic as adjusting the ends of cut-to-length strands and cables or as complicated as creating custom terminations and midsection fittings.

Our custom fittings:

- Provide a secure attachment point
- Can be attached in the middle of a cable if pulling is expected in two directions
- Configured to maximize the break load of the assembly
- Provide tight tolerance on swaged diameter to allow for precision placement into a pocket or bore

Our end treatments:

- Provide mechanical stability, reducing fraying or breakage from vibrations, movement, or other mechanical stresses
- Offer compatibility for seamless integration into end applications
- Maintain the integrity of the wire
- Streamline your production process

Types of fittings

BALL AND SHANK SPHERICAL

- Provides near-breaking load of cable
- Allows for attachment within a spherical pocket
- Shank provides abrasion protection and higher breaking load

BALL SPHERICAL

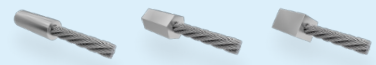
- Allows for attachment within a spherical pocket
- Allows for cable rotation and positioning

CLEVIS END

- Manufactured in a fork or eye configuration
- Provides attachment point using a cross pin where push and pull may be needed

CYLINDRICAL, HEXAGONAL, AND SQUARE END STOP

- Provides attachment points
- Offers customized dimensions

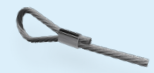


FLANGED STOP

- Beneficial when cylindrical end stop does not provide enough shoulder
- Eliminates need for washer to prevent pull-through

LOOPED

- Provides attachment point where loop is secured over a pin



PUCK

- Flat top and bottom, resembling a hockey puck
- Tight dimensional tolerances
- Cylindrical sides offer better fit than ball fittings ground to similar geometry

RADIUSED END STOP

- Center with a bore or pocket
- Offers holding strength to near-breaking load of cable
- Allows for cable rotation and positioning

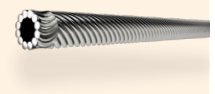
THREADED

- Allows for secure attachment and adjustability
- Shank and thread diameter customizable
- Can be used to precisely set tension
- Adjustable to remove cable slack

Types of end treatments

BAND WELD

- Circumferential laser weld applied to a strand or HHS® tube to join filars together, typically followed by an EDM cut for a square end
- Fuses the outer layers of filars
- Multi-layer constructions may experience layer shift, a face weld may also be recommended



BEAD AND SWAGE

- Filars are joined together and a beaded dimension is produced
- Swaging with press or hammer reduces the bead diameter, producing a solid cylindrical section

BEADED

- Filars are joined together and a beaded dimension is produced
- Beads are larger than the diameter of the material

BULLET NOSE

- Rounded end feature that does not exceed the overall material diameter

COINING

- Flattening of material to form a flat parallel surface
- May provide a larger surface area for coating adhesion, welding, or identifier point

DEBURR

- Removal of the sharp edge on the end of a part
- Provides smooth end needed for sliding and reduced friction

ENCAPSULATED

- All filars are melted together, producing a rounded end
- Individual filars are not visible and treatment prevents fraying

FACE WELD

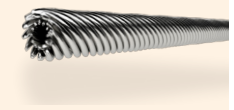
- Laser welding applied to end tube to join filars
- Fuses multi-layer constructions
- Often used with a band weld to secure all filar layers

FUSED END

- Ends are fused but not encapsulated
- Individual filars may be visible, treatment prevents fraying

SHEAR CUT

- Produces filars with jagged ends, ideal if ends will be removed or are not critical to further processing
- Highly efficient for end termination



SHRINK TUBE

- A discrete layer of polymer tube
- Slips over material and when heated, it shrinks
- Provides a surface to electrically or mechanically isolate a point

SQUARE CUT

- Achieved with a wire EDM machine that produces a clean straight cut
- Filars and layers may shift without welding

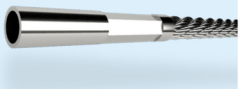
Additional processing capabilities

We can further customize your mechanical assemblies with additional processing, such as:

COATING, available in dielectric or lubricious options, can yield a variety of benefits, from providing electrical insulation to chemical separation or improved lubricity

LASER ABLATION is a non-mechanical process for removing coating from select sections on a wire, meaning you get clean, undamaged wire exposed in just the right places.

HYPODERMIC TUBING



- Thin tube to add stiffness and pushability where needed
- Customizable in size and tensile strength

Construction end treatments

When you need HHS® tube, strands, or cables cut to length, we use the following end treatment options to ensure they arrive ready for use.

HHS® TUBE END TREATMENT OPTIONS

- Band weld
- Face weld
- Shear cut
- Square cut

STRANDS AND CABLES END TREATMENT OPTIONS

- Bead and swage
- Beaded
- Encapsulated
- Fused end
- Shear cut
- Square cut

Typical end uses

When you're designing a custom mechanical assembly, you define the end uses. We've seen our customers put their designs to work in:

- Articulation devices
- Laparoscopic or robotic surgery devices
- Minimally invasive surgical instruments

Scan to visit our website for additional information on this topic and more.

LOCATIONS AROUND THE WORLD

Global Headquarters
Fort Wayne, Indiana, U.S.A.

European Headquarters
Castlebar, Co. Mayo, Ireland

Advanced Materials Development
Columbia City, Indiana, U.S.A.

International Sales Support
Shanghai, China
Augsburg, Germany
Potheri Chennai, India
Savyon, Israel
Kobe, Japan
Seoul, Korea

U.S.A. Sales Support
San Mateo, California
Ridgefield, Connecticut
Chanhassen, Minnesota

Find your Sales Representative
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