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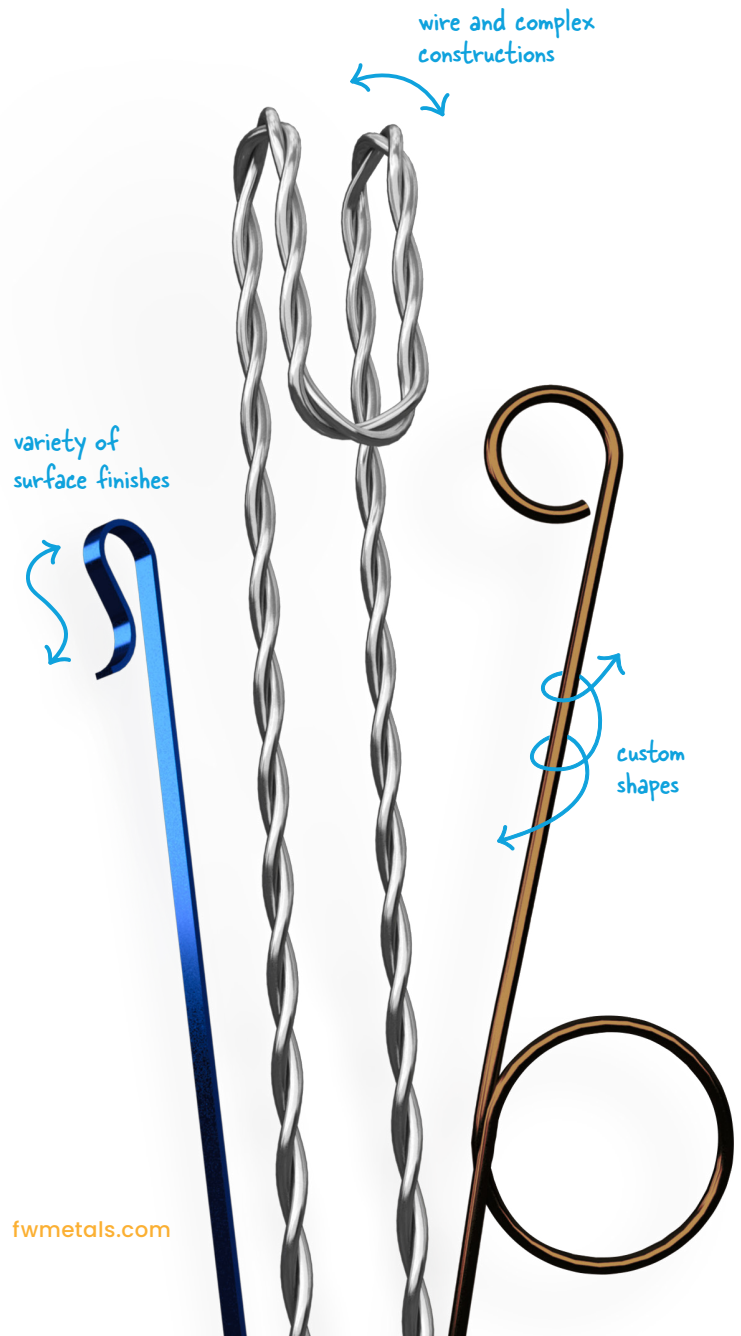
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Shape-set Nitinol

Complex parts set to custom specifications



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Custom shape-set parts

Shape-set parts are Nitinol wire shapes that can flex and return to their original form. Using a number of different product forms, such as round or shaped wire, or strand and cable configurations, shape-set parts can perform work in hard to reach places and open up new possibilities for device performance.

Typical end uses

Customizing the specifications of your shape-set part means the possibilities are practically limitless. We've seen our customers utilize shape-set Nitinol for:

- › Suture retrievers
- › Iris expanders
- › Shaped needles
- › Surgical clips
- › Retrieval baskets

Superelastic and shape memory Nitinol

SUPERELASTIC NITINOL commonly used in medical devices. Active austenite finish (A_f) transformation temperatures for superelastic grades are between -20°C to 22°C [-4°F to 71.6°F].

SHAPE MEMORY NITINOL commonly used for actuators and other industrial applications. Active austenite finish (A_f) transformation temperatures for shape memory grades are between 22°C and 80°C [71.6°F and 176°F], with some grades offering temperatures greater than 85°C [185°F].

Testing capabilities

- › Finish A_f testing using Differential Scanning Calorimetry (DSC) per ASTM F2004, Bend and Free Recovery (BFR), per ASTM F2082
- › Mechanical testing per ASTM F2516
- › Dimensional analysis of validation runs and First Article Inspection (FAI)
- › Surface roughness testing by non-contact surface profilometer



Additional end treatments

COINING/FLATTENING for end stops or location-specific widening

EDM CUTTING for tight tolerances, burr-free cuts, and square cut ends

WELD BEADS in full radius or large beads greater than wire diameter

MECHANICAL ASSEMBLY for custom crimps and fittings

Design specifications

SIZE RANGE

- › **Wire diameter:** 0.0762 mm to 2.000 mm [0.003 in to 0.0787 in]

PRODUCT FORMS AVAILABLE FOR SHAPE SETTING

- › **Round wire:** wire with a circular cross section
- › **Flat wire:** wire with a rectangular cross section
- › **Shaped wire:** wire with specialty shaped cross sections
- › **DFT® composite wire:** two dissimilar materials in a single wire construction
- › **HHS® tube:** improved torqueability and kink resistance, plus an open working channel
- › **Strands and cables:** complex constructions for advanced applications

SURFACE FINISHES

- › Natural forming oxide
- › Dark oxide
- › Etched
- › Electropolished
- › Surface conditioned

Examples of shape-set parts

Double diamond strand



Flat wire with folded ends



U-shaped with beaded end



Twisted loop with hypotube



Crown with crimp

