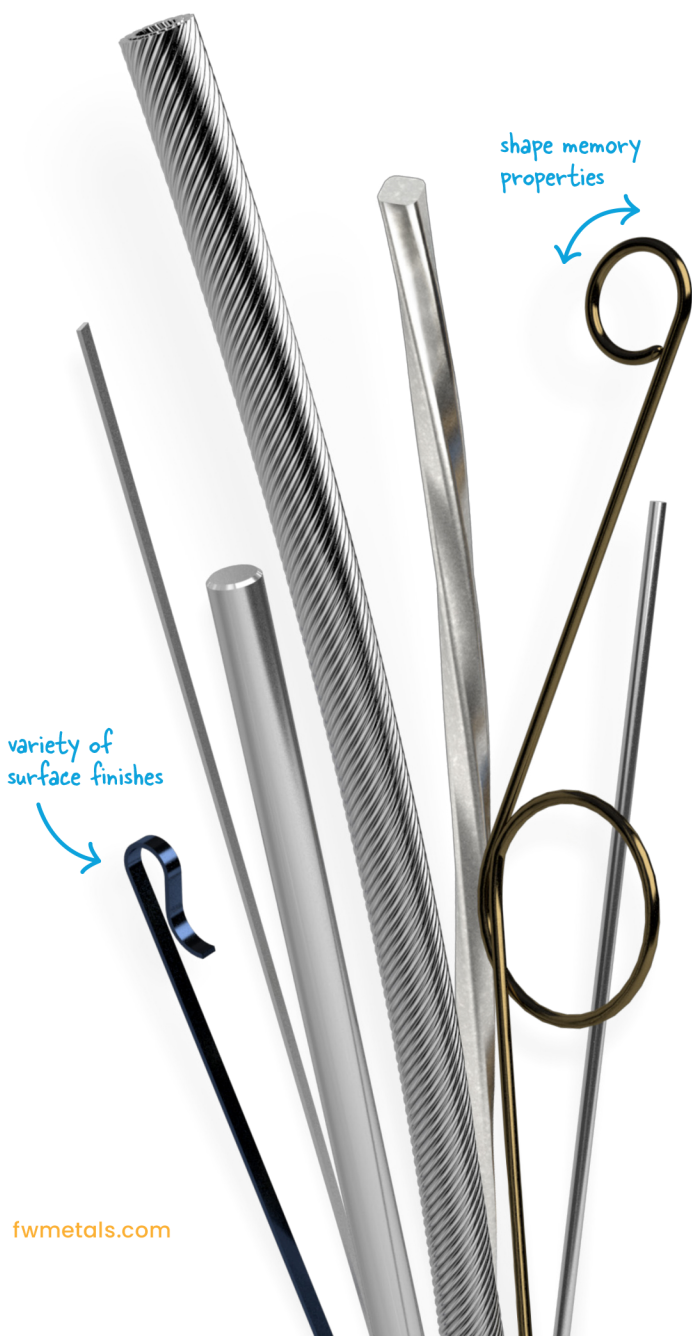




Nitinol

Unique superelastic and shape memory characteristics



Exploring Nitinol

When combined in just the right amounts, nickel and titanium create Nitinol. Known for its unique superelastic and shape memory properties — the ability to remember and return to a specified shape after deformation when exposed to a predetermined temperature — this alloy is revolutionizing the way the medical device and other high-performance industries manufacture next-generation devices.

Precision Nitinol melting



We believe in ensuring quality at the source. As a trusted melt-to-finish supplier for Nitinol to the medical device industry, we carefully control our process to ensure the Nitinol you use for critical applications is of the highest quality.

Superelasticity and shape memory

There are two primary types of Nitinol: superelastic and shape memory, which are categorized by transformation temperature. Superelastic Nitinol transformation temperatures are cooler, and shape memory Nitinol temperatures are warmer.

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].

Product forms and capabilities

BAR polished bar made to tight tolerances

› **Size range:** 1.7 mm to 6.3 mm [0.068 in to 0.250 in]

Diameters greater than 2.5 mm [0.099 in] are only available in some grades and surface conditions

DFT* WIRE the superelastic properties of a Nitinol sheath combined with benefits of an alternate material core

FLAT WIRE wire with a rectangular cross section

› **Thickness:** 0.2 mm to 0.5 mm [0.0007 in to 0.020 in]

› **Width:** 0.05 mm to 2.032 mm [0.0021 in to 0.080 in]

› **Ratio:** maximum ratio: 10:1, minimum ratio: 3:1

HHS* TUBE improved torqueability and kink resistance, plus an open working channel

MELTING high-quality raw materials carefully combined in a precision melting process

ROUND WIRE wire with a circular cross section

› **Size range:** 0.02 mm to 1.7 mm [0.0005 in to 0.067 in]

Depending on surface finish or material condition

SHAPE SETTING custom Nitinol wire constructions that can deform and return to a set shape

Available for prototypes and commercial production

SHAPED WIRE wire with specialty shaped cross sections

STRANDS AND CABLES complex wire constructions for advanced applications

SURFACE FINISHES

› **Light oxide:** diamond drawn surface with a gold to brown coloration

› **Dark oxide:** diamond drawn surface with a dark blue to black coloration

› **Etched:** chemical removal of oxide layer

› **Pickled:** heavy chemical etch resulting in a rough surface texture and a matte finish

› **Etched and mechanically polished:** chemical removal of oxide layer followed by mechanical polish - surface will have a brighter appearance similar to stainless steel

At > 40% magnification, micro scratches are present

Our custom Nitinol products

ACTUATOR WIRE Nitinol wire that can perform work through phase transformation

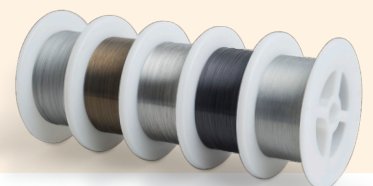
DPS* NITINOL designed to achieve high stiffness for applications requiring between 1.5% and 8% strain

HELICAL TURKSHEAD NITINOL Combines unique geometry, shape memory and superelastic properties, and torque to help enable better control of devices

LINEAR ELASTIC NITINOL engineered to provide greater pushability and strength without sacrificing 1:1 torque transmission

SILK* NITINOL an ultra-smooth oxide-free Nitinol wire

USN* WIRE engineered for applications that require increased column stiffness and buckling resistance





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