

## ELGILOY Small-diameter Pipe

### 1. What is ELGILOY?

ELGILOY, comprised of 40% of Co, 20% of Cr, 15% of Ni, and 7% of Mo, is a certified **biocompatible** material having excellent toughness, corrosion resistance, and more abrasion resistance than that of titanium. This material is used for artificial bones due to its toughness, and for high performance springs or diaphragms due to **three times higher durability** than that of ordinal spring-steel.

### 2. The world first small pipe of ELGILOY

The photo right shows the world first ELGILPY small pipe having 1.6 mm in outer diameter and 0.7 mm in inner diameter. This small pipe has surprisingly **two times higher tensile strength** than stainless steel.

We developed  $\beta$ -titanium pipes featuring elasticity, lightness, and toughness, and has manufactured them. Now we have noticed that ELGILOY is a noteworthy material having a different property from titanium.

The possible applications are as follows:

- Structural components for its abrasion resistance, tensile strength, and hardness
- Medical devices for its biocompatibility



ELGILOY pipe

### 3. The characteristics of ELGILOY small-diameter pipe

- (1) Corrosion resistance: No corrosion with either of hydrochloric acid, lactic acid, or phosphoric acid.
- (2) Physical properties: non-magnetic, the specific gravity of 8.3, electric resistance of 99.8  $\mu\Omega\text{cm}$
- (3) The measurement results using the universal tester with the sample on the photo above are as the table below.

Properties	ELGILOY (age hardning)	SUS316L (hard-drawn)	$\beta$ -titanium (age hardning)
Tensile strength	2470 Mpa	1064 Mpa	1351 Mpa
0.2% proof stress	2056 Mpa	803 Mpa	1188 Mpa
Vickers hardness	600 HV	365 HV	390 HV
Rockwee hardness	55 HRC	37 HRC	39 HRC



Universal tester

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