SHP 644 Titanium (Grade 19)

Smiths High Performance

Exceptional ductility

A Beta Titanium alloy equivalent to Beta C.

SHP 644 offers one of the lowest densities of all beta-titanium alloys and achieves considerable strength after heat treatment.

SHP 644 titanium is virtually the same as SHP 38 644 but with one notable exception. Our product is solution heat treated and cold worked rather than cold drawn. While we supply SHP 38 644 in diameters up to 16mm and release it to AMS 4957, SHP 644 offers the same mechanical properties at a much greater maximum diameter (40mm). Note that only SHP 644's chemistry is released to AMS 4957.

Advantages:

The development of our product provides a titanium alloy that offers the same benefits as SHP 38 644 but with increased diameters, which affords engineers improved design flexibility - our material benefits from high strength and exceptional ductility while being highly corrosion resistant. The alloy can be solution-treated (annealed) or solution-treated and aged (STA).

When solution treated and aged, the alloy still provides good ductility and low modulus of elasticity but with up to 40% increased tensile strength.

Applications:

- High strength structural parts
- Torsion bars
- Fasteners
- Coil springs

Benefits:

- High strength
- Exceptional ductility when solution-treated (annealed)
- Excellent corrosion resistance
- Available in greater diameters

About Smiths High Performance

Smiths High Performance is a leading stockholder and supplier of high-performance engineering materials. We are material supply chain partners supporting **high-technology market sectors**.

SCAN ME

Further technical data available on the reverse of this Datasheet

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Chemical Composition (weight, %)

Element	Min	Max
Vanadium	7.50	8.50
Chromium	5.50	6.50
Molybdenum	3.50	4.50
Zirconium	3.50	4.50
Aluminium	3.00	4.00
Iron		0.30
Oxygen		0.14
Carbon		0.05
Nitrogen		0.03
Hydrogen		0.030 (300 ppm)
Yttrium		0.005 (50 ppm)
**Palladium		0.10
Others, Each		0.15
Others, Total		0.40
Titanium		Rem

* Properties as per AMS 4957

** Determination only required if intentionally added

Capability Test after Ageing

A suitable sample taken from the centre of the bar shall be aged for 4 hours at 510 ± 10°C after prior solution treatment and cold working.

Pyrometry shall be in accordance with AMS 2750.

Tensile Strength MPa	0.2% Proof Strength MPa	Elongation %
1,400 (min)	1,350 (min)	9 (min)

Stock Availability:

Available in solid round bars from 0.630" (16mm) diameter to 1.575" (40mm) diameter.

Product Density:

0.174 lbs/" (4.82gm/cm^3)

...where performance matters...

When you purchase high-performance materials from **Smiths High Performance**, you will join some of the biggest and best global engineering companies. We are a Tier 1 supply chain partner to the world's leading motorsport companies. Our unique business structure and ethos allow us to offer services otherwise unavailable in this market sector.

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