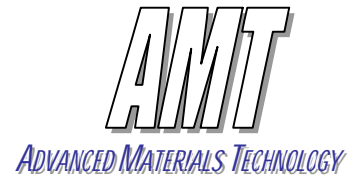


# Titanium alloys

Category:

Very high strength, Beta-Titanium



## Titanium alloy Ti-SB20

Titanium Ti-SB20 is a new ultra high strength Beta-Titanium alloy for Springs and Fasteners. It shows excellent strength values with high levels of ductility. Cold formability is excellent. Heat treatment is compared to other Beta-Titanium alloys simple. Due to its lower density and excellent fatigue resistance Springs are lighter and more reliable compared to ones made of Beta-C.

### General properties:

- Very high strength
- Excellent ductility
- Good cold formability

### Comparison with Standard alloy Beta-C:

- Advantages:**
- Higher fatigue strength
  - Lower density
- Disadvantages:**
- None

### Material composition

Chemical Composition: Ti

### Mechanical properties

Alloy	Shear Mod. GPa	Density g/cm <sup>3</sup>	Heat treatment	UTS MPa	YS MPa	EL %	RA %
Ti-SB20	40	4,70	780°C/WQ+500°C aging	1566	1500	10	30
			780°C/WQ+500°C aging	1491	1445	14	51
			500°C aging	1703	1645	6,8	10
			Solution treated, 860°C/30min.	840	810	22	52
Beta-C	41	4,82	1097°C/5hAC+927°C/0.5hAC+510°C/24hAC	1178	1120	12,5	15,8
(For comparison)			1097°C/5hAC+816°C/0.5hAC+534°C/24hAC	1173	1103	4,5	9,2

### Fatigue resistance:

R=-1, >750 MPa

R=0.1, >1.000 MPa

### Potential F1 chassis applications

- High performance Springs, Typically up 20% lighter compared to Beta-C, up to 50% lighter compared to ultra high strength spring steels.
- Fasteners
- Clips

### Delivery form

- Bars

Fasteners made of Ti-SB20 are readily available.  
Bar material could be supplied within some weeks.  
AMT offers also fully designed and manufactured Springs.