

Grade 316 is the standard molybdenum-bearing grade. It is excellent in a range of atmospheric environments and is generally more resistant than grade 304.

316 tends to be regarded as the standard “marine grade stainless steel”. It also has excellent weldability.

Grade 316 is an incredibly versatile material, so as a result it has a wide range of uses...

- Food preparation equipment.
- Laboratory equipment
- Railings
- Coastal architecture
- Boat fittings
- Chemical containers
- Threaded fasteners
- Springs

We stock stainless steel 316 in the form of round bars, hexagons, flats and squares in the following sizes...

Round bar:

**From 1/6" dia – 16" dia
From 2mm dia – 90mm dia**

Hexagon:

**From 0.152" a/f – 3" a/f
From 4mm a/f – 60mm a/f**

Flats:
From 1/2" x 1/8" – 6" x 1"
From 15mm x 3mm – 100mm x 20mm

Square:
From 1/16" Sq – 5" Sq
From 4mm Sq – 50mm Sq

Chemical & Physical Properties
Typical Chemical Composition

<i>Elements</i>	<i>Min %</i>	<i>Max %</i>
C		0.08
Cr	16.0	18.0
Fe	Remainder	
Mn	1.25	2.0
Mo	2.00	2.5
Ni	10.00	11.0
P		0.04
S		0.03
Si		0.75

Typical Mechanical Properties

Property/unit	Condition	Min	Max
Tensile Strength (N/mm²)	Cold Drawn	735	834
Yield Stress (N/mm²)	Cold Drawn	637	735
Elongation in 5 x diameter %	Cold Drawn	30	35
Reduction of area %	Cold Drawn	68	74
Brinell Hardness (HB)	Cold Drawn	210	230
Tensile Strength (N/mm²)	Turned	588	637
Yield Stress (N/mm²)	Turned	294	343
Elongation in 5 x diameter %	Turned	55	60
Reduction of area %	Turned	68	74
Brinell Hardness (HB)	Turned	150	170

Tolerances

Tolerances on diameter, for general purposes.

Round Bar:

Between 10mm and 15mm= +/- 0.4mm
Between 16mm and 25mm= +/- 0.5mm
Between 26mm and 35mm= +/- 0.6mm
Between 36mm and 50mm= +/- 0.8mm
Between 52mm and 80mm= +/- 1.0mm
Between 85mm and 100mm= +/- 1.3mm
Between 105mm and 120mm= +/- 1.5mm
Between 125mm and 160mm= +/- 2.0mm

Tolerances on diameter, for precision purposes.

Round bar:

Between 10mm and 12mm= +/- 0.15mm
Between 13mm and 22mm= +/- 0.20mm
Between 24mm and 30mm= +/- 0.25mm
Between 32mm and 40mm= +/- 0.30mm
Between 42mm and 52mm= +/- 0.40mm
Between 55mm and 75mm= +/- 0.50mm

Tolerances on hexagons:

Width across flats:

Between 13mm and 15mm= +/- 0.4mm
Between 16mm and 23.5mm= +/- 0.5mm
Between 25.5mm and 33.5mm= +/- 0.6mm
Between 35.5mm and 47.5mm= +/- 0.8mm
Between 52mm and 78mm= +/- 1.0mm
Between 83mm and 98mm= +/- 1.3mm
103mm= +/- 1.5mm

Corner Radius:

Below 20.0mm= up to a 1.5mm radius.
Over 20.0mm to 28.5mm= up to 2.0mm radius.
Over 28.5mm to 48.0mm= up to 2.5mm radius
Over 48.0mm to 83.0mm = up to 3mm radius
Over 83.0mm to 103.0mm= up to 3.5mm radius

Straightness:

Below 39.5mm= not fixed tolerance in the plane.

Between 39.5mm and 83.0mm= q up to $0.004 \times L$ tolerance in the plane.

Between 83.0mm and 103.0mm= q up to $0.0025 \times L$ tolerance in the plane.

Tolerances on squares:

Size:

Between 8mm and 14mm= +/- 0.4mm
Between 15mm and 25mm= +/- 0.5mm
Between 26mm and 35mm= +/- 0.6mm
Between 40mm and 50mm= +/- 0.8mm
100mm= +/- 1.3mm
Between 110mm and 120mm= +/- 1.5mm
Between 130mm and 150mm= +/- 1.8mm

Corner radius:

Over 8mm to 12mm= up to 1mm
Over 12mm to 20mm= up to 1.5mm
Over 20mm to 30mm= up to 2mm
Over 30mm to 50mm= up to 2.5mm
Over 50mm to 100mm= up to 3mm
Over 100mm to 150mm= up to 4mm

Straightness (q):

Below 25mm= a not fixed tolerance in the plane

Between 25mm and 80mm= q up to 0.4% of L tolerance in the plane

Over 80mm= q up to 0.25% of L tolerance in the plane

Twist:

Over 8mm up to 14mm= 4 degrees/metre, max of 24 degrees

Over 14mm up to 50mm= 3 degrees/metre, max of 18 degrees

Over 50mm= 3 degrees/metre, max of 15 degrees

Out-of-squareness:

Up to 50mm= 1.5mm

Over 50mm up to 75mm= 2.25mm

Over 75mm up to 100mm= 3.00mm

Over 100mm up to 150mm= 4.50mm

Tolerances on flat bar:

Width:

Between 10mm and 40mm= +/- 0.75mm

Over 40mm up to 80mm= +/- 1.0mm

Over 80mm up to 100mm= +/- 1.5mm

Over 100mm up to 120mm= +/- 2mm

Over 120mm up to 150mm= +/- 2.5mm

Thickness:

Up to 20mm= +/- 0.5mm

Over 20mm up to 40mm= +/- 1.0mm

Over 40mm up to 80mm= +/- 1.5mm

Straightness:

Below 1000mm²= a tolerance in the plane of below 0.4% of measuring length.

1000mm² and above= a tolerance in the plane below 0.25% of measuring length.

Out-of-section:

Between 10mm and 25mm= 0.5mm

Over 25mm up to 40mm= 1mm

Over 40mm up to 80mm= 1.5mm

The information above is based on our current knowledge and is given in good faith; however the company will accept no liability in respect of any third party reliance thereon.