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Grade 303 Stainless steel represents superior machinability over all other austenitic stainless steels due to the addition of sulphur in the material.

The sulphur however, does reduce the material's resistance to corrosion as well as causing poor weldability results.

The uses of grade 303 are as follows:

- Nuts & bolts
- Bushings
- Shafts
- Aircraft fittings
- Electrical switchgear components
- Gears

Stainless Steel 303 is available from us in bars and Hexagons in the following sizes...

Bar: from 3mm dia – 7" dia

Hexagon: from .3125" dia – 2.500" dia

Chemical & Physical Properties

Typical Chemical Composition

<i>Elements</i>	<i>Min %</i>	<i>Max %</i>
C		0.1
Cr	17.0	19.0
Fe	Remainder	
Mn	1.5	2.0
Mo		0.6
Ni	9.0	10.0
P		0.04
S	0.3	0.35
Si		0.75

Typical Mechanical Properties

Property/unit	Condition	Min	Max
Tensile Strength (N/mm²)	Cold Drawn	785	883
Yield Stress (N/mm²)	Cold Drawn	686	785
Elongation in 5 x Diameter %	Cold Drawn	30	35
Reduction of Area %	Cold Drawn	50	55
Brinell Hardness (HB)	Cold Drawn	225	240
Tensile Strength (N/mm²)	Turned	608	657
Yield Stress (N/mm²)	Turned	314	363
Elongation in 5 x Diameter %	Turned	55	60
Reduction of Area %	Turned	55	60
Brinell Hardness (HB)	Turned		180

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
Between 165mm and 200mm = +/- 2.5mm

220mm= +/- 3.0mm

250mm= +/- 4.0mm

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



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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.

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.