GARBA 188L

Stainless spring wire

GARBA 188 is a general-purpose austenitic stainless steel, which is used for springs and other components requiring good fatigue resistance. GARBA 188L has a higher formability as compared to GARBA 188 due to its lower carbon content.

CHEMICAL COMPOSITION

C (%)	Si (%)	Mn (%)	P max. (%)	S max. (%)	Cr (%)	Ni (%)
0.08	1.00	2.00	0.040	0.015	18.00 - 20.00	8.50 - 10.00

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MECHANICAL PROPERTIES

FOR ROUND WIRE

Diameter (mm)	Tolerance (± mm)	Tensile Strength (N/mm^2)
0.30 - 0.50	0.005	-
0.51 - 0.70	0.008	-
0.71 - 0.83	0.009	-
0.84 - 1.00	0.010	-
1.01 - 1.60	0.011	-
1.61 - 2.50	0.014	-
2.51 - 4.00	0.018	-
4.01 - 6.30	0.022	-
6.31 - 8.00	0.028	-
0.30 - 0.40		1785 - 2000
0.41 - 0.70		1700 - 1910
0.71 - 1.00		1650 - 1830
1.01 - 1.50		1530 - 1740
1.51 - 2.00		1445 - 1650
2.01 - 2.80		1360 - 1570
2.81 - 4.00		1275 - 1490
4.01 - 6.00		1190 - 1400
6.01 - 8.00		1105 - 1320

SURFACE CONDITIONS

Surface performance
AC-surface 0.30–8.00 mm Ø. The AC-coating can be removed before heat treatment by using a 10-20% nitric acid pickle at room temperature.

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PHYSICAL PROPERTIES

E AND G MODULUS OF ELASTICITY

Abt. 180 kN/mm^2 in drawn condition.
Abt. 185 kN/mm^2 after heat treatment.

E AND G MODULUS OF SHEAR

Abt. 70 kN/mm^2 in drawn condition.
Abt. 73 kN/mm^2 after heat treatment.
Density: 7.90 kg/dm^3.

HEAT CONDUCTIVITY

Temperature °C	20	100	200	400
W/(m* °C)	15.0	15.5	17.5	20.0

LINEAR EXPANSION

Pro °C	30-100	30-200	30-300
x10^{-6}	17.0	17.5	18.5

STANDARDS

NEAREST EQUIVALENT STEEL GRADES

EN/DIN 1.4301, AISI/SAE 304, JIS SUS 304

NEAREST EQUIVALENT STANDARDS

ASTM A313, BS 2056 304 S15, JIS G4314

RECOMMENDATIONS

HEAT TREATMENT

As soon as possible after coiling, the springs should be stress relieved.
Recommended temperature for compression springs or tension springs without initial tension is approx. 350ºC for 0.5 - 3 hours.