

GARBA 1812Mo

Stainless spring wire

GARBA 1812Mo is an austenitic stainless steel, which as compared to GARBA 178Mo offers a higher resistance against intergranular corrosion due to lower carbon content. The higher content of molybdenum also increases the resistance against general corrosion.

Chemical composition

Element	Weight %
C	0.07%
Si	1.00%
Mn	2.00%
P max.	0.045%
S max.	0.015%
Cr	16.50% - 18.50%
Ni	10.00% - 13.00%
Mo	2.00% - 3.00%

Mechanical properties

For round wire

Diameter (mm)	Tolerance (mm)	Tensile strength (N/mm ²)
0.30 - 0.65	±0.008	
0.66 - 1.01	±0.010	
1.02 - 2.26	±0.015	
2.27 - 4.01	±0.020	
4.02 - 6.26	±0.025	
6.27 - 8.00	±0.030	
0.30 - 0.40		1675 - 1930
0.41 - 0.50		1650 - 1900
0.51 - 0.65		1625 - 1870
0.66 - 0.80		1600 - 1840
0.81 - 1.00		1575 - 1810
1.01 - 1.25		1550 - 1780
1.26 - 1.50		1500 - 1730
1.51 - 1.75		1450 - 1670
1.76 - 2.00		1400 - 1610

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Data last verified: 2023-04-13

Diameter (mm)	Tolerance (mm)	Tensile strength (N/mm ²)
2.01 - 2.50		1350 - 1550
2.51 - 3.00		1300 - 1500
3.01 - 3.50		1250 - 1440
3.51 - 4.25		1225 - 1410
4.26 - 5.00		1200 - 1380
5.01 - 6.00		1150 - 1320
6.01 - 7.00		1125 - 1290
7.01		1075 - 1240

Surface conditions

Surface condition

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.

Physical properties

Heat conductivity

Temperature °C	20	100	200	400
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W/(m*°C)	13.5	14.5	15.5	18.5
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Resistivity

Temperature °C	20	100	200	400
nΩm	750	800	850	1000

Linear expansion

Pro °C	30-100	30-200	30-400
x10 ⁻⁶	16.5	17.0	18.0

Specific heat capacity

Temperature °C	20	100	200	400
J/(kg °C)	440	480	520	560

Technical specification

Property	Value	
E modulus of elasticity	Abt. 175 kN/mm ² in drawn condition.	Abt. 180 kN/mm ² after heat treatment.
G modulus of shear	Abt. 68 kN/mm ² in drawn condition.	Abt. 71 kN/mm ² after heat treatment.
Density	8.00 kg/dm ³	

Steel grades and product standards

Nearest equivalent product standards	EN ISO 6931-1	ASTM A313	BS 2056 316 S42	JIS G4314
Nearest equivalent steel grades	EN/DIN 1.4401	AISI/SAE 316	JIS SUS 316	

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. 420 °C for 0.5 - 4 hours.