

GARBAFLEX CrSi91

Flat and shaped wire for surface nitriding

GARBAFLEX CrSi91 is especially intended for application requiring extremely high fatigue properties and good relaxation properties at increased working temperatures.

Chemical composition

Element	Weight %
C	0.50% - 0.70%
Si	1.80% - 2.20%
Mn	0.30% - 0.60%
Cr	0.80% - 1.00%
V	0.05% - 0.15%
Mo	0.05% - 0.15%
P max.	0.020%
S max.	0.020%

Mechanical properties

For flat wire

Width (mm)	Tolerance (mm)
1.00 - 5.00	±0.050
5.01 - 8.00	±0.070
8.01 - 10.00	±0.100
0.30 - 0.80	±0.013
0.81 - 1.00	±0.019
1.01 - 1.60	±0.025
1.61 - 2.30	±0.050

For shaped wire

Width (mm)	Tolerance (mm)
1.50	±0.020
1.51 - 3.00	±0.030
3.01 - 5.00	±0.040
5.01 - 7.00	±0.050
7.01	±0.060

Surface conditions

Surface condition

Bright or oxide.
 Surface defects max. 1% of thickness.

Technical specification

Property	Value	
E modulus of elasticity	206 kN/mm ²	
G modulus of shear	79.5 kN/mm ²	
Camber	Max. 4 mm measured on 1 m length.	
Microstructure	Tempered martensite with no ferrite.	
Execution (flat)	Rolled on 2 sides	
Execution (shaped)	Rolled on 4 sides	Profile drawn
Coil set	Max. 20 mm measured on 1 m length.	

Steel grades and product standards

Nearest equivalent steel grades	EN/DIN 2090	AISI/SAE 2090	JIS 67SiCr5
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Recommendations

Soft shot peening

Before the nitriding process a soft shot peening process shall be applied in order to remove the oxide layer on the spring wire surface.

Nitriding

GARBAFLEX CrSi91 should be nitrided to obtain optimum fatigue and relaxation properties. Our recommendation is gas nitriding.

Additional

Additional information

Decarburisation

No total decarburisation. Partial decarburisation (no continuous zones) max. 1.2% of a corresponding round wire dimension.