STATO 70

Oil tempered SiCr-alloyed spring wire (according to EN 10270-2 ; 2011 FD SiCr)

STATO 70 is especially intended for the manufacture of springs exposed to static or moderately high fatigue stresses. The material has good relaxation properties.

The wire is manufactured in sizes from Ø 0.50 mm to 7.00 mm. Other wire sizes on request.

Chemical composition

Element	Weight %
C	0.50% - 0.60%
Si	1.20% - 1.60%
Mn	0.50% - 0.90%
P max.	0.030%
S max.	0.025%
Cr	0.50% - 0.80%

Data last verified: 2023-04-13

Mechanical properties

Table definitions

Diameter: Other wire sizes are avaliable on request.
Tolerance: Ovality, i. e. the difference between the largest and smallest dimension of a cross section, is maximum half the tolerance range.
Tensile strength: Conversion from tensile strength to hardness values can be calculated in standard ISO EN 18265. The tensile strength Rm within one coil does not vary more than 70 N/mm2.
Reduct. of area: Min No of twists in the torsion test, Nt, are to be agreed upon.

For round wire

Diameter (mm)	Tolerance (mm)	Tensile Strength (N/mm^2)	Reduct. of area (min. %)
0.50 - 0.60	±0.010	2100 - 2300	
0.61 - 0.80	±0.010	2100 - 2300	
0.81 - 1.00	±0.015	2100 - 2300	
1.01 - 1.30	±0.020	2070 - 2260	45
1.31 - 1.40	±0.020	2060 - 2250	45
1.41 - 1.60	±0.020	2040 - 2220	45
1.61 - 2.00	±0.025	2000 - 2180	45
2.01 - 2.50	±0.025	1970 - 2140	45
2.51 - 2.70	±0.025	1950 - 2120	45
2.71 - 3.00	±0.030	1930 - 2100	45

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Diameter (mm)	Tolerance (mm)	Tensile Strength (N/mm^2)	Reduct. of area (min. %)
3.01 - 3.20	±0.030	1910 - 2080	45
3.21 - 3.50	±0.030	1900 - 2060	42
3.51 - 4.00	±0.030	1870 - 2030	42
4.01 - 4.20	±0.035	1860 - 2020	40
4.21 - 4.50	±0.035	1850 - 2000	40
4.51 - 4.70	±0.035	1840 - 1990	40
4.71 - 5.00	±0.035	1830 - 1980	40
5.01 - 5.60	±0.035	1800 - 1950	38
5.61 - 6.00	±0.040	1780 - 1930	38
6.01 - 6.50	±0.040	1760 - 1910	35
6.51 - 7.00	±0.040	1740 - 1890	35

Surface conditions

Surface condition

Surface condition – end sample test

The wire is end sample tested by means of etch testing and binocular inspection as well as microscopical inspection of the material structure.

Max. permissible depth of partial surface decarburization and surface defects, 1.5% x wire diameter. No complete decarburization allowed.

Data last verified: 2023-04-13

Technical specification

Property	Value
E modulus of elasticity	206 kN/mm^2
G modulus of shear	79.5 kN/mm^2

Steel grades and product standards

Nearest equivalent product standards	ASTM A401	BS 2803 685A55HS	JIS G3568 SWOSC-B
Nearest equivalent steel grades	EN FDSiCr	SIS 142090-05	

Recommendations

Heat treatment

As soon as possible after coiling, the springs should be stress relieved.

Hot presetting

After shot peening, the springs should be hot preset or stress relieved. In order to reach optimum fatigue and relaxation properties, the springs must be preset at an appropriate stress.

Shot peening

In order to obtain optimum fatigue properties, the process time should be adjusted to get a complete treatment. Size of shots should be adapted to wire dimension, pitch and shot peening equipment. Shot peening of the inside of the spring coils is particularly critical.

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