Alleima® 15R10

Strip steel

Datasheet

Alleima® 15R10 is an austenitic chromium-nickel (CrNi) stainless steel used as a base material for Alleima coated strip steel. The product is particularly suited to many types of electric load carrying spring applications, such as contact springs and tactile domes.

Alleima® 15R10 is characterized by good corrosion resistance, mechanical strength and excellent fatigue and relaxation properties, as well as superior contact properties and/or solderability, achieved through the right choice of coating layer.

Standards

- ASTM: (301)
- EN Number: 1.4310
- EN Name: X 10 CrNi 18-8

Chemical composition (nominal)

Chemical composition (nominal) %

C	Si	Mn	P	S	Cr	Ni	Mo	N
0.05 - 0.15	≤1.50	≤2.00	≤0.045	≤0.015	16.00 - 19.00	6.00 - 9.50	≤0.80	≤0.11

Applications

Alleima® 15R10 is a suitable material for high strength components that require electronic conduction on or close to the surface. Typical applications include contact springs, tactile domes and various EMC shielding components, such as fingerstocks and shielding boxes.

Corrosion resistance

Good corrosion resistance is extremely important in spring applications to ensure that spring properties are not impaired. Alleima® 15R10 is based on an austenitic stainless steel substrate, which gives good corrosion protection in most spring applications. Compared with other low alloyed spring steel Alleima® Santronic 15R10

Datasheet last updated 1/11/2024 10:29:27 AM (supersedes all previous editions)

offers superior performance. However, all austenitic steels of this type are susceptible to stress corrosion cracking (SCC) when in contact with chloride-containing solutions at elevated temperatures.

Forms of supply

Alleima® Santronic 15R10 is supplied, as standard, in the cold rolled condition with a coating on either one or both sides and shipped in coils.

Substrate dimensions

The following thicknesses and widths can be supplied as standard.

Thickness range		Width	
mm	in.	mm	in.
0.04 - 0.8	0.0016 - 0.0315	6 - 650	0.24 - 25.6

Coatings

See Alleima® Santronic surface coatings.

Surface finish

Alleima® Santronic 15R10 strip is normally supplied with a bright, cold rolled finish. Different surface brightness levels at intervals between 20-60% (reflectance value measured at a 60° angle in compliance with DIN 67530) can be supplied to meet individual customer requirements.

Surface roughness

Sandvik surface class	Class limits, Ra		Class mean, Ra	
	µm	µin.	µm	µin.
Y6	0.2 - 0.5	0.008 - 0.020	0.32	0.013
Y7	0.1 - 0.25	0.004 - 0.010	0.16	0.006
Y8	< 0.125	< 0.005	0.08	0.003

Mechanical properties

At 20°C (68°F), nominal values

Tensile strength*, R_m		Proof strength, $R_{p0.2}$		$R_{p0.2}/R_m$	Elongation, A
MPa	ksi	MPa	ksi		%
1400	203	1200	174	0.86	12
1700	247	1600	232	0.94	1.5
1900	276	1850	268	0.97	1.0
2050	297	2000	290	0.97	0.3

* Other tensile strength levels available on request.

Physical properties

Density: 7.9 g/cm^3, 0.29 lb/in^3

Resistivity: 0.8 µΩm (31.5 µΩin.)

Specific heat capacity: 500 J/kg °C (at 20°C/68°F)

Modulus of elasticity (x10^3): 185 MPa, 26 825 ksi (at 20°C/68°F)

Thermal expansion mean values in temperature ranges (x10^{-6})

Temperature, °C	per °C	Temperature, °F	per °F
20 - 100	15.5	68 - 200	8.5
20 - 200	16	68 - 400	9
20 - 300	16.5	68 - 550	9

Thermal conductivity

Temperature, °C	W/m °C	Temperature, °F	Btu/ft h °F
20	15	68	8.5
100	16	200	9
300	19	600	11

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