FSAB grade R 860.13

FAGERSTA Stainless

Corresponding standards
AISI: 330 BS: NA17
W.nr: 1.4864

R860.13 (Type 330) is an austenitic heat- and corrosion resistant grade with an exceptional combination of strength and resistance to carburization, oxidation and thermal shock. This grade has a good strength and carburization and oxidation resistance to about 1200°C (2190°F). Remains austenitic at all temp. and is not subject to sigma phase formation. Can suffer from excessive grain growth. The high Ni-content makes this grade highly resistant to chloride stress corrosion cracking. Typical applications are wire for products for elevated temp. environments like heat-treating baskets, furnace fans, mufflers and shafts and conveyors.

Chemical composition (nominal)%

C	Si	Mn	Cr	Ni	Mo	N
<0.05	1.25	0.75	18.5	34.5	<0.50	<0.080

PRE : 20
(PRE=Cr+3.1xMo+25xN)

Typical mechanical properties

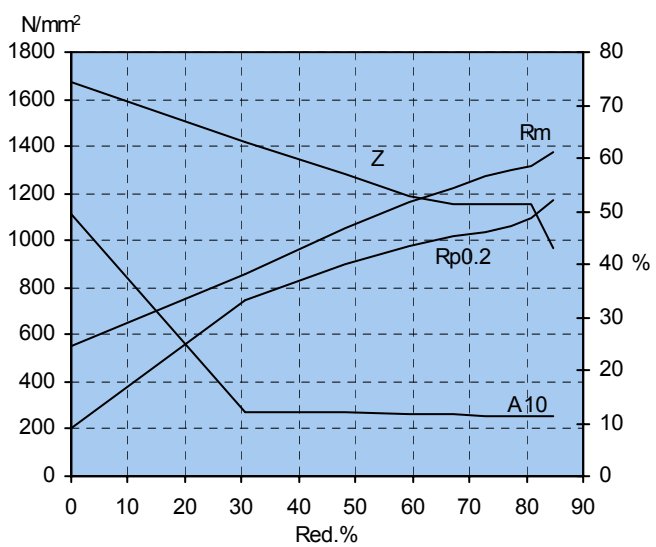
Condition: annealed

Proof strength Rp0.2 (N/mm^2)	min. 180
Tensile strength Rm (N/mm^2)	520-600
Elongation A10 (%)	min. 40

Thermal treatment

Annealing temp. 1050-1100°C/1920-2010°F

Deformation graph



Physical properties in annealed cond.

Density (g/cm^3)	8.0
Moduls of elasticity, E (GPa)	196 000
Specific heat 0-100°C (J/kg°C)	550

Resistivity (microhm - mm)

20°C	1020	650°C	1130	870°C	1240
400°C	1110	750°C	1200	1000°C	1270

Thermal conductivity (W/mK)

20°C	12.4	650°C	23.4	870°C	24.6
400°C	19.0	750°C	23.8	1000°C	26.2

Thermal expansion per °C, x 10^{-6} from 20°C to

200°C	15.0	800°C	17.5
400°C	16.0	1000°C	18.5
600°C	17.0		

Max. operating temp. in different atmospheres

Oxidizing atm. intermitt./cont.	1050°C/1150°C
Reducing and in air	1175°C/2150°F
Carburizing/carbo-nitriding atm.	870-950°C 1600-1740°F

Delivery forms

Standard sizes (mm)	5.6, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5
Tolerances (mm)	5.6 -10.0 mm ± 0.15 10.5 -13.5 mm ± 0.20
Ovality	max. 60% of the tot. tol. range
Surface condition	5.6 -10 mm seam depth ≤ 0.10 mm >10 mm max. 1% of the diameter

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