MARCEGAGLIA
FAGERSTA STAINLESS

314 / EN 1.4841

Type 314 R823.11 / R823.13 / R823.90

EN 1.4841 R823.13

Type 314 is a heat resistant austenitic Cr-Ni-steel with good high temp. strength at elevated temp. and the highest heat resistance properties of any Cr-Ni-steel. The high Si-content increases the resistance towards oxidization and carburization but on the other hand, increases the risk of sigma phase embrittlement if exposed for long periods in temp. range 590-870°C (1020-1740°F). This steel is used when max. resistance to carburization is desired. R823.13 is subjected to carbide precipitation and embrittlement in temp. range of 430-820°C (800-1500°F) and is slightly sensitive for SO_2 and particularly gases containing H_2S at temp. above 650°C (1200°F). Typical applications are wire for furnace parts, annealing boxes and chemical processing equipment.

CHEMICAL COMPOSITION (Nominal) %

	C	Si	Mn	Cr	Ni	Mo	N	PRE
R823.11	<0.030	2.70	1.75	23.5	19.4	<0.60	<0.060	25
R823.13	<0.020	2.25	1.75	24.3	20.7	<0.50	<0.050	26
R823.90	0.050	1.80	1.50	23.3	19.2	<0.60	0.040	25

(PRE = Cr + 3.1 x Mo + 25 x N)

PHYSICAL PROPERTIES

Condition: Annealed

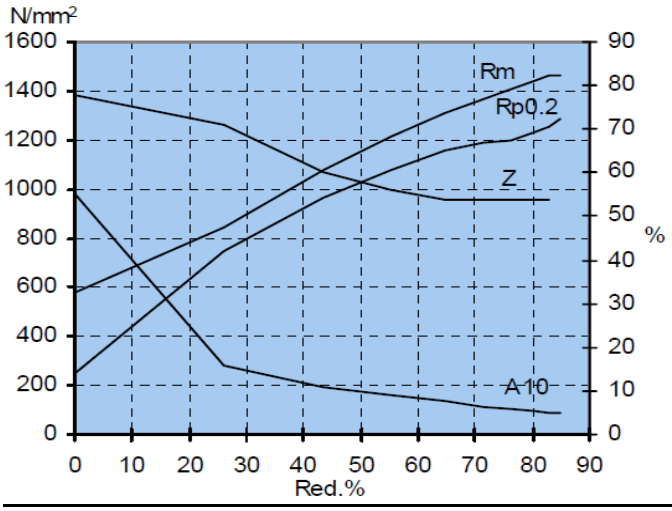
Density	7.9 g / cm^3
Moduls of elasticity, E	200 000 GPa
Specific heat 0-100°C	500 J / kg°C

TYPICAL MECHANICAL PROPERTIES

Condition: Annealed

Proof strength	**Rp0.2**	min. 200 N / mm^2
Tensile strength	**Rm**	520-620 N / mm^2
Elongation	**A10**	min. 45 %

DEFORMATION GRAPH



THERMAL TREATMENT

	°C	°F
Annealing temperature	1050-1100	1920-2010

MAX. OPERATING TEMPERATURE

	°C	°F
Scaling temp. in air	1150	2100
Oxidizing atm. intermitt. / cont.	1020-1100	1868-2012
Oxidizing sulphurous atm.	1120	2050
Carburizing/carbonitriding atm.	1120	2050
Diss. ammonia and hydrogen at.	1120	2050

THERMAL CONDUCTIVITY

20 °C	14.0 W / mK
100 °C	17.5 W / mK
500 °C	21.0 W / mK

THERMAL EXPANSION

Thermal expansion per °C x 10-6 from 20°C to:

200 °C	15.5
400 °C	17.0
600 °C	17.5
800 °C	18.0
1000 °C	19.0

RESISTIVITY

20 °C	770 µΩmm