

R327.10

EN: 1.4835
Type: 253MA®

R327.10 (253MA) is a fully austenitic stainless steel containing small additions of the rare earth metal Cerium (Ce) which together with a relatively high Cr- and high Si- content will very rapidly form very adherent oxide which makes the steel resistant to scaling when exposed to large, rapid temp. fluctuations. This steel has a very high scaling temp, 1150°C (2110°F), and combines high oxidation resistance with high creep strength. Structural changes when used in the 600-850°C (1110-1560°F) range can lead to reduced impact toughness at room. temp. This grade shall not be used in reducing sulphurous atmosphere. Typical applications are parts for treatment furnaces like conveyor belts, fasteners and grids for sintering plants.

CHEMICAL COMPOSITION (Nominal) %

C	Si	Mn	Cr	Ni	Mo	N	Ce	
0.075	1.60	0.50	21.0	10.2	<0.3	0.165	0.06	

PRE: 26 (PRE = Cr + 3.1 x Mo + 25 x N)

Comments:

PHYSICAL PROPERTIES

Condition: Annealed

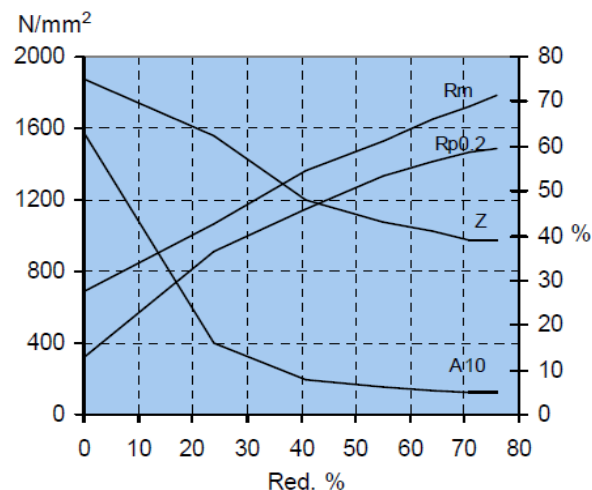
Density	7.8 g / cm ³
Modulus of elasticity, E	200 000 GPa
Specific heat 0-100°C	500 J / kg°C

TYPICAL MECHANICAL PROPERTIES

Condition: Annealed

Proof strength	Rp0.2	min.250 N / mm ²
Tensile strength	Rm	600-700 N / mm ²
Elongation	A10	min.45 %

DEFORMATION GRAPH



THERMAL TREATMENT

	°C	°F
Annealing temperature	1020-1120	1870-2050

MAX. OPERATING TEMPERATURE

	°C	°F
Scaling temp. in air	1150	2100
Oxidizing atm.	1100	2010
Oxidizing sulphurous atm.	900-1050*	1652-1922*
Reducing sulphurous atm.	600-900*	1112-1652*

*) Max. temp. depending on flue gas impurities (S, Na, V)

THERMAL CONDUCTIVITY

100 °C	15.0 W / mK
300 °C	18.0 W / mK
500 °C	21.0 W / mK
600 °C	23.0 W / mK
800 °C	25.5 W / mK
1000 °C	29.0 W / mK

THERMAL EXPANSION

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

100 °C	16.5
300 °C	17.0
500 °C	18.0
600 °C	18.5
800 °C	19.0
1000 °C	19.5

RESISTIVITY

20 °C	840 μΩmm
100 °C	930 μΩmm
200 °C	1030 μΩmm
400 °C	1220 μΩmm
600 °C	1370 μΩmm
800 °C	1430 μΩmm