FAGERSTA Stainless

R565.10

EN: **1.4542**
Type: **630**
17-4 PH

R565.10 (17-4 PH) is a martensitic precipitation-hardening steel used for applications requiring high strength and a moderate level of corrosion resistance. This grade is martensitic in annealed condition and is after cold working further strengthened (see graph below) by a low temp. treatment, which precipitates a copper-containing phase that can only be seen i SEM-microscope. The precipitation conducted at a temp. of 480-630°C (900-1150°F) depending on the desired combination of strength and toughness, gives a limited effect on the surface properties. Typical applications are wire for bolts and fasteners, pump shafts and gears for chemical and petrocehmical industry and welding wire.

CHEMICAL COMPOSITION (Nominal) %

C	Si	Mn	Cr	Ni	Mo	Cu	Nb/Cb	
0.025	0.40	0.70	15.9	4.85	<0.50	3.5	0.30	

PRE: 17 (PRE = Cr + 3.1 x Mo + 25 x N)

Comments:

THERMAL TREATMENT

Annealing temperature	1030-1070	°C
	1890-1960	°F
Age hardening temperature	480-620 *)	°C
	900-1150	°F

*) Depends on combination of strength and toughness desired

PHYSICAL PROPERTIES

Condition: Annealed

Density	7.8	g / cm^3
Moduls of elasticity, E	200 000	GPa
Specific heat 0-100°C	460	J / kg°C

MAX. OPERATING TEMPERATURE

Operating temp. in air	320	°C
	610	°F
Scaling temp. in air	1000	°C
	1830	°F

TYPICAL MECHANICAL PROPERTIES

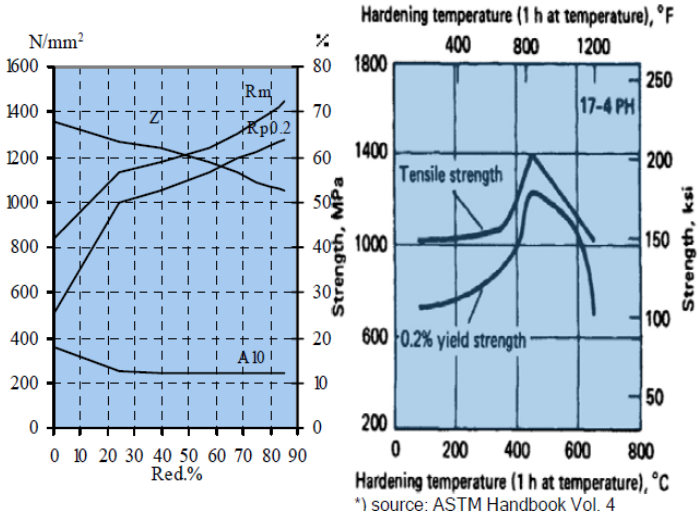
Condition: Annealed + precipitation hardened

Proof strength	**Rp0.2**	min. 600	N / mm^2
Tensile strength	**Rm**	850-950	N / mm^2
Elongation	**A10**	min. 15	%

THERMAL CONDUCTIVITY

100 °C	18.4	W / mK
500 °C	22.7	W / mK

DEFORMATION GRAPH



*) source: ASTM Handbook Vol. 4

THERMAL EXPANSION

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

100 °C	10.9
300 °C	11.1
430 °C	11.3

RESISTIVITY

20 °C	800	µΩmm