

**V174****STANDARD DESIGNATIONS:**

AISI	EN
630 (17-4PH)	1.4542 (X5CrNiCuNb16-4)

DESCRIPTION:

Precipitation hardening Cr-Ni-Cu stainless steel. It shows high mechanical properties and good toughness at room temperature and under zero.

CHEMICAL ANALYSIS (approximate):

C %	Si %	Mn %	Cr %	Ni %	Mo %	Cu %	Nb %	P %	S %
≤ 0,07	≤ 0,7	≤ 1,5	15 - 17	3 - 5	≤ 0,6	3 - 5	0,15 - 0,45	≤ 0,04	0,015 - 0,03

PHYSICAL PROPERTIES:

Density (gr / cm ³ a 20°C)	7,8		
Modulus of elasticity (N / mm ²)	200.000		
Mean thermal expansion coefficient (10 ⁻⁶ m / m °C)	20ñ200 °C 10,8	20ñ400 °C 11,7	
Heat conductivity (W / m K a 20°C)	15		
Specific electric resistance (Ω × mm ² / m a 20°C)	0,77		
Magnetizable	Magnetic		

MECHANICAL PROPERTIES:

Delivery condition:	HB	R_m (N / mm ²)	R_{p0,2} (N / mm ²)	A₅ %
Solution heat treated (Condition A)	363 max			
Age hardened H900	388 - 444	≥ 1310	≥ 1170	≥ 10
Age hardened H1150	277 min	≥ 930	≥ 725	≥ 16
Age hardened H1150 Double	255 - 311	≥ 860	≥ 725	≥ 16

HEAT TREATMENTS:

	Heating temperature	Cooling system
Solution heat treated (Condition A)	1050°C	Water
Age hardened H900	480°C	Air
Age hardened H1150	620°C	Air
Age hardened H1150 Double	620°C Double	Air

HOT WORKING:

HOT FORGING	Temperature range	Cooling system
	1050 - 1200°C	Furnace slow cooling

CORROSION RESISTANCE:

V174 shows corrosion resistance comparable to AISI 304 SS. It can substitute AISI 304 for many applications. Anyway, the choice of this steel is due, most of all, to its high strength.

WELDABILITY:

It can be welded without problems. If the weld bead must shows properties near to base metal, the electrodes shall have similar composition; otherwise, the electrodes shall be in austenitic steel. Residual thermal stresses can be removed with a post welding heat treatment (200 - 300°C).

APPLICATIONS:

Engineering applications, nuclear, naval, chemical industry, transportations, weaponry, constructions.