



E STEEL SDN BHD (891338-A)

NO 3, Lorong Sungai Puloh 7/KU 6,
Kawasan Perindustrian Sungai Puloh, 42100 Selangor D.E
Tel : 03-3292 8686 / 32928666 / 32928777
Fax : 03-3292 8383



17 - 4 PH Stainless Steel , UNS S17400, 1.4548, SUS630

17-4PH is a precipitation hardening martensitic stainless steel, which combines high strength and hardness (after heat treatment) with excellent corrosion resistance, and is suitable for easy fabrication.

Solution Treatments.

As supplied 17-4 PH is usually in the solution treated condition (Condition A). It can be heat treated at different temperatures to offer a wide range of properties.

Condition	Hardening	Hardening	Type of Cooling	Hardness	
	Temperature	Time		Brinell	Rockwell C
A	1038°C	1/2	Oil/Air (to below 32°C)	363 max.	39 max.
H900	480°C	1	Air	420	44
H925	594°X	4	Air	409	42
H1025	055°X	4	Air	352	38
H1075	085°X	4	Air	341	36
H1100	595°X	4	Air	332	35
H1150	621°C	4	Air	311	33
H1150+H1150	760°C	4	Air	302	33
	760°C	4 followed by 4	Air		
H1150-M	760°C	2	Air	277	27
	620°C	4 followed by 4	Air		

Mechanical Properties of 17.4PH / SUS 630 (longitudinal)

	Condition:								
	A	H900	H925	H1025	H1075	H1100	H1150	H1150+H1150	H1150M
Tensile Strength N/mm ²	1034	1380	1310	1170	1140	1035	1000	965	860
0.2% YS N/mm ²	760	1275	1200	1140	1035	930	860	760	585
Reduction of Area %	30-60	50	54	56	58	58	60	60	68
Elongation %	6-15	14	14	15	16	17	19	20	22
Charpy Impact J	-	20	34	47	54	61	68	108	135



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Corrosion Resistance

17.4PH stainless steel has excellent corrosion resistance. Corrosion tests and service experience have shown that in all aged conditions it is superior to standard hardenable stainless grades such as SUS 420, SUS 431 and SUS 410. Its corrosion resistance is comparable to grade SUS 304 Stainless.

Welding

Arc and resistance welding processes used on standard grades of stainless steel are applicable to 17.4 PH stainless steel. The low hardness enables sections, up to 100mm, to be welded without requiring pre heating.

Fabrication

17/4PH Condition is suitable for limited cold forming, H1100, H1150 and overaged conditions are more suitable when severe cold forming is required.

Machining

17/4 PH Condition has machining characteristics similar to stainless steel grade SS302, SS304 and SS410. The high hardness and strength in Condition H900 is the most difficult to machine and the material should be machined at 60% of the rate which is used for Condition A.

Nitriding

To increase the resistance to surface wear, with a slight decrease in corrosion resistance, 17-4PH / SUS630 stainless steel can be nitrided. An approximate hardness of 64/67HRc can be achieved, with a surface hardness depth of up to 0.15mm when nitrided at 045°C, while still maintaining a high core strength.