



17-4PH Stainless Steel

17-4PH stainless round bar, flat bar and plate

17-4PH stainless steel stockholders and suppliers, delivering throughout the UK.

17-4PH is a corrosion resistant grade which is soft and ductile in the solution annealed condition. Medium to high strength, good toughness and strength is obtained by the appropriate ageing treatment. As a martensitic precipitation hardening stainless it is characterised by high tensile strength and high yield strength obtained by solution annealing, followed by a single or double low temperature age hardening treatment. 17-4PH has corrosive properties comparable to 304 austenitic stainless steel in many environments.

Related Specifications

EN/DIN1.4542 X5CrNiCuNb16.4 AFNOR
Z6CNU17-04 ASTM-A564 Grade 630 UNS S17400
JIS SUS630 AMS 5643 5604 EN10088-3
H900 H1025 H1075 H1150D

Alternative stainless steel grades we supply

[17-4PH](#) | [FV520B](#) | [S31254](#) | [904L](#) | [316](#) | [310](#) | [304](#)
[17-4PH](#) | [440C](#) | [420](#) | [410](#) | [416](#) | [431](#)

Form of Supply

17-4PH is commonly stocked in round bar in the following conditions:-

17-4PH Condition A
17-4PH H900
17-4PH H1025
17-4PH H1075
17-4PH H1150x2

Flat bar is stocked in Condition A and can be cut to your specific requirements. We can also offer precision ground bar which can be produced and supplied ground to your required tolerances. Contact our experienced sales team who will assist you with your 17-4PH stainless steel.



- Flat
- Diameter
- Plate

Contact our experienced sales team who will assist you with your 17-4PH enquiry.

Applications

Commonly used in industries such as offshore, marine, food, paper mills, oil field and aerospace. 17-4PH is used for components such as fasteners, couplings, screws, bushings, studs, fittings, valve stems, roller, wear rings.

Analysis

Carbon	0.07% max	Silicon	1.00% max
Manganese	1.00% max	Nickel	3.00-5.00%
Chromium	15.00-17.50%	Copper	3.00-5.00%
Sulphur	0.03% max	Phosphorous	0.04% max
Niobium	0.15-0.45%		
+ Tantalum			

Forging

Heat slowly and uniformly to 1180-1200°C. Do not forge below 1010°C. Hold at temperature for one hour prior to forging the component. Cool in air to room temperature. Forged components require solution annealing before any further heat treatment.

Annealing

Heat uniformly to 840-875°C. Soak and cool very slowly in the furnace.

Corrosion Resistance

17-4PH stainless has very good corrosion resistance properties. Corrosion tests in service have shown good results in all aged conditions. With better corrosion resistance to standard hardenable stainless grades such as 431, 420 and 410. 17-4PH has corrosion resistance comparable to 304 stainless specification.

Welding

17-4PH requires similar arc and resistance welding processes to those used on standard specifications of stainless steel. Welding up to 100mm thick can be carried out without the requirement of pre heating due to its low hardness. We recommend you contact your welding consumables supplier who should provide you full assistance and information on welding 17-4PH stainless steel.

Machining

Similar in machining characteristics to 304 and 410 stainless steel specifications. Condition H900 has high hardness and strength which is the most difficult to machine and the machining of this is recommended to be carried out at 60% of the rate which is used for Condition A.

Nitriding

For increase resistance to surface wear, with a slight reduction in corrosion resistance, 17-4PH can be nitrided. When nitrided at 540°C an approximate hardness of 64-67 HRC is achievable, with a surface hardness depth of up to 0.15mm. The steel maintains a high core strength.

Solution Treatment Typical Properties

Condition	Temp °C	Hardness Time (hours)	Type of Cooling	Hardness	
				Brinell (HB)	Rockwell (HRC)
A	1038	½	Oil/Air (to below 32°C)	363 max	39 max
H900	480	1	Air	388-444	40-47
H925	495	4	Air	375-429	38-45
H1025	550	4	Air	331-401	34-42
H1075	580	4	Air	302-375	31-38
H1100	595	4	Air	293-363	30-37
H1150	621	4	Air	277-352	28-38
H1150+H1150	621+621	4 followed by 4	Air/ Air	277-311	28-33

Typical Mechanical Properties (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% Yield Strength N/mm ²	650	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	61	61	68	108	135

Heat Treatment

Heat treatment temperatures, including rate of heating, cooling and soaking times will vary due to factors such as the shape and size of each component. Other considerations during the heat treatment process include the type of furnace, quenching medium and work piece transfer facilities. Please consult your heat treatment provider for full guidance on heat treatment of 17-4PH stainless steel.

Certification

Stainless steel 17-4PH grade is available with BS EN 10204 3.1 mill certificate, please request when placing any orders.

Quality Assured Supply

17-4PH stainless steel is supplied in accordance with our ISO 9001:2015 registration.



West Yorkshire Steel Ltd
Sandbeck Industrial Estate,
Wetherby, Leeds,
LS22 7DN UK

Call: 01937 584440
Fax: 01937 580128
Email: sales@westyorkssteel.com



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