

# 1.4542 (X5CrNiCuNb16-4)

## Material Designation

1.4542 DIN  
S17400 UNS  
630 AISI  
17-4 PH

## Standards

ASTM A564M  
DIN EN 10088-3

## Chemical Composition Mass-%

	C	Si	Mn	P	S	Cr	Ni	Cu	Nb+Ta
min.	-	-	-	-	-	15,0	3,0	3,0	5xC
max.	0,07	0,7	1,0	0,04	0,03	17,5	5,0	5,0	0,45

Customer specific restrictions upon request

## Properties

1.4542 is a precipitation hardenable corrosion resistant martensitic steel with high yield strength, high wear resistance and corrosion resistance (PREN >15) under mild acidic conditions.

Even available as remelted variant (VAR or ESR) for highest homogeneity and cleanliness requirements.

## Delivery Condition

- ✖ solution annealed (+AT)
- ✖ solution annealed, precipitation hard. (+P)

## Application Area

High mechanical loads (stress and wear) at low and elevated temperatures in corrosive environment.

## Typical Applications

- ✖ Nonwovens industry
- ✖ Technical textiles
- ✖ Chemical and petrochemical industry
- ✖ Aerospace
- ✖ Turbine blades
- ✖ Sensors and weighing technology

## Mechanical Properties

Condition		Yield strength	Tensile strength	Elong.	Hardness	Impact toughness
ASTM	DIN	[N/mm <sup>2</sup> ]	[N/mm <sup>2</sup> ]	[%]	[HBW]	[J] Charpy-V
A	+AT	-	≤ 1200	-	≤ 363	-
-	+P800	≥ 520	800 - 950	≥ 18	-	≥ 75 [at RT]
H1150D	-	≥ 725	≥ 860	≥ 16	255 - 311	≥ 41 [at RT]
H1150	≈ +P930	≥ 725	≥ 930	≥ 16	≥ 277	≥ 41 [at RT]
H1100	≈ +P960	≥ 795	≥ 965	≥ 14	≥ 302	≥ 34 [at RT]
-	+P1070	≥ 1000	1070 - 1270	≥ 10	-	-

## Heat Treatment Guideline Values

	ASTM	DIN	Temperature [°C] / Duration	Cooling medium
Solution annealing	A	+AT	1025 - 1055	Air below 32 °C
Precipitation hard.	-	+P800	760 / 2h + 620 / 4h	Air below 32 °C
Precipitation hard.	H1150D	-	620 / 2h + 620 / 4h	Air below 32 °C
Precipitation hard.	H1150	≈ +P930	620 / 4h	Air below 32 °C
Precipitation hard.	H1100	≈ +P960	595 / 4h	Air below 32 °C
Precipitation hard.	-	+P1070	550 / 4h	Air below 32 °C

## Quality

- ISO 9001
- ISO 14001
- ISO 50001
- Approvals acc. to standards like ABS, BV, DNV ...
- Customer specific approval certificates

## Innovation

- Fully automated ultrasonic testing up to dia. 1000 mm
- CO<sub>2</sub>-reduction by innovative heat treatment solutions

## Flexibility

- Product range from fine wire to forging
- Directly from stock close at hand

## Individuality

- Dimensions
- Tolerances
- Surface qualities
- Delivery conditions

## Your personal contact:

## BGH Edelstahlwerke GmbH

Am Stahlwerk 1  
01705 Freital  
+49 351 646-0  
www.bgh.de

