

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 ²]	[N/mm ²]	[%]	[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, DNVGL ...
- Customer specific approval certificates

Innovation

- Fully automated ultrasonic testing up to dia. 1000 mm
- CO₂-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:

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