PRECIPITATION HARDENING STEEL

X5CrNiCuNb15-5 (15-5PH)

Excellence in Specialty Steel

Material Designation

1.4545	DIN
S15500	UNS
XM-12	AISI
15-5 PH	

Standards

ASTM A564/A564M
ASTM A705/A705M

Chemical Composition Mass-%

	C	Si	Mn	P	S	Cr	Ni	Cu	Nb
min.	-	-	-	-	-	14,0	3,5	2,5	0,15
max.	0,07	0,7	1,0	0,04	0,03	15,5	5,5	4,5	0,45

Customer specific restrictions upon request

Properties

1.4545 / 15-5PH is a precipitation hardenable corrosion resistant martensitic steel with high yield strength and hardness in combination with excellent corrosion resistance. It offers superior toughness especially in transverse direction and for larger diameters compared to 17-4PH due to its lower ferrite content.
Also available as remelted variant (VAR or ESR) for highest homogeneity and cleanliness requirements.

Application Area

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

Typical Applications

- Engine parts
- Chemical and petrochemical industry
- Aerospace
- Food processing

Delivery Condition

- solution annealed (+AT), max. 363 HBW
- solution annealed, precipitation hard. (+AT+P)

Mechanical Properties acc. to ASTM A564, longitudinal, dia. < 300 mm

Condition	Yield strength [N/mm²]	Tensile strength [N/mm²]	Elongation [%]	Red. of Area [%]	Hardness [HBW]	Impact toughness [J] Charpy-V
A	-	-	-	-	≤ 363	-
H1025	≥ 1000	≥ 1070	≥ 12	≥ 45	≥ 331	≥ 30 [@ RT]
H925	≥ 1070	≥ 1170	≥ 12	≥ 40	≥ 375	≥ 10 [@ RT]

Heat Treatment Guideline values acc. to ASTM A564

	Condition	Temperature [°C] / Duration	Cooling medium
Solution annealing	A	1025 - 1055	Air below 32 °C
Precipitation hard.	H1025	550 / 4h	Air
	H925	495/ 4h	Air

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_2-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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