



ALLOY-SEARCH

ALLOY-SEARCH DATASHEET 1.4542 / 1.4545 / 1.4548 – ASTM A564 630 – H1150

DESCRIPTION

17-4PH (1.4542/1.4548) and its successor 15-5PH (1.4545), also known as ASTM A564 Type 630 are martensitic stainless steels, typically age hardened via a mechanism called 'precipitation hardening'. It is available in various grades depending on the solution annealing and age-hardening cycle. Commonly applied grade is H1150 or H1150M.

APPLICABLE STANDARDS

UNS S15500 / S17400 / S45000
EN-ISO X5CrNiCuNb17-4-4 / X5CrNiCuNb16-4 / X5CrNiMoCuNb14-5
AISI 630 / XM-12 / XM-25
AMS 5604 / 5642 / 5643 / 5659 / 5862
AFNOR Z7CNU17-04 / Z7CNU15-05
BS-EN-10088-3 Grade 1.4594
NACE MR0103 / MR0175
FV520B / MSRR 6601 / 1.4540
Other standards available upon request

CHEMICAL COMPOSITION*

| Element | C | Mn | P | S | Si | Ni | Cr | Cu | Fe |
|---------|------|------|-------|-------|------|------|-------|------|---------|
| Min % | - | - | - | - | - | 3.00 | 15.00 | 3.00 | - |
| Max % | 0.07 | 1.00 | 0.040 | 0.030 | 1.00 | 5.00 | 17.50 | 5.00 | Balance |

*Per ASTM A-564 Type 630 (S17400) – Condition H1150.

MECHANICAL PROPERTIES*

| Property | Minimum |
|-----------------------|---------|
| UTS | 930 Mpa |
| Rp0.2 | 725 Mpa |
| Elongation % in 4D | 16% |
| Reduction of Area % | 50% |
| Elastic Module | 197 Gpa |
| Hardness | 277B |
| Charpy V-Notch Impact | 41 J |

*Per ASTM A-564 Type 630 (S17400) – Condition H1150.

TYPICAL PRODUCTS & USAGE

Bar
Casting
Forging
Compressors
Petrochemical
Energy
Oil & Gas
Aerospace

MATERIAL APPLICATION

17-4 PH and its successor 15-5 PH, are martensitic precipitation hardening stainless steels with additions of copper (Cu), niobium (Nb) and tantalum (Ta). The grade combines high strength and hardness values with moderate corrosion resistance. Different heat treatment temperatures can optimize mechanical properties, e.g. yield strength at 1100 – 1300MPa. 17-4 PH is used in chemical, petrochemical, paper and general metalworking industries. Approved by NACE for restricted components and environments and it has good weldability.

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