



CHRONIFER®

17-4 PH

martensitic
Hardenable Stainless Steel

| Material No. | DIN Abbreviation | AFNOR | AISI/SAE/ASTM | ISO | Euro Standard EN | Others |
|--------------|------------------|--|------------------------------------|----------------|---------------------------|--|
| 1.4542 | X5CrNiCuNb16-4 | X5CrNiCuNb16-4 (former Z 7 CNU 17.04) | AISI 630 (17-4 PH) ASTM F899 | X5CrNiCuNb16-4 | X5CrNiCuNb16-4 10088-3 | NF S 94-090 UNS S17400 JIS ~ SUS 630 |

Distinctive feature & main attribute: a precipitation hardenable, rust-proof chromium-nickel-steel alloy, precedingly refined by an electroslag remelting process (ESR), combining an excellent corrosion resistance in normal air atmosphere, withstanding corrosion in fresh water, approximative the serie AISI 300, 303, 304, and an adequate final hardness (up to 44 HRC after precipitation hardening). A single-step aging treatment develops a high yield strength with good ductility and toughness.

Use & application range: this alloy matches medical instruments and cognate branches but also other industries such as pump shafts, gear wheels, ball bearing, mechanical components, bolts and spindles, pulp and paper industry, temperature sensor products etc.

| REFERENCE ANALYSIS % | C | Si | Mn | P | S | Cr | Mo | Ni | Cu | Nb/Ta | Fe |
|----------------------|------------------|------------------|------------------|------------------|------------------|------------------------|------------------|----------------------|----------------------|----------------------|---------|
| | max. 0.07 | max. 0.70 | max. 1.00 | max. 0.04 | max. 0.03 | 15.00 17.00 | max. 0.60 | 3.00 5.00 | 3.00 5.00 | 0.15 0.45 | balance |

| | |
|--|--|
| EXECUTION DELIVERY FORM STANDARD SIZES AVAILABILITY | <ul style="list-style-type: none"> • Execution in 3 m round bars as well as in coils for Escomatic • Standard size in stock: see Product range • Other sizes on request |
|--|--|

| | |
|-------------------|--|
| TOLERANCES | <ul style="list-style-type: none"> • $\varnothing < 2.00$ mm, cold drawn, polished; ISO h8 • $\varnothing \geq 2.00$ mm, cold drawn, ground, polished; ISO h7; surface finish Ra 0.4 (N5) • Coil, drawn, polished • Tighter tolerances on request |
|-------------------|--|

| | |
|------------------------------|--|
| MECHANICAL PROPERTIES | At delivery status (in annealed condition): <ul style="list-style-type: none"> • Tensile strength(R_m): 800 – 1150 MPa • Hardness after age hardening: ~ 44 HRC |
|------------------------------|--|

| | |
|-----------------------|---------------------------|
| HEAT TREATMENT | (See chart & spreadsheet) |
|-----------------------|---------------------------|

| | |
|----------------------|---|
| CUTTING RATES | $v_c \sim 25 - 35$ m/min , value depending on the lubrication oil, cutting tools and shape of parts. <ul style="list-style-type: none"> • Cutting oil: e.g. INOX or ORTHO NFX of Motorex |
|----------------------|---|

Modifications will not be adjusted automatically

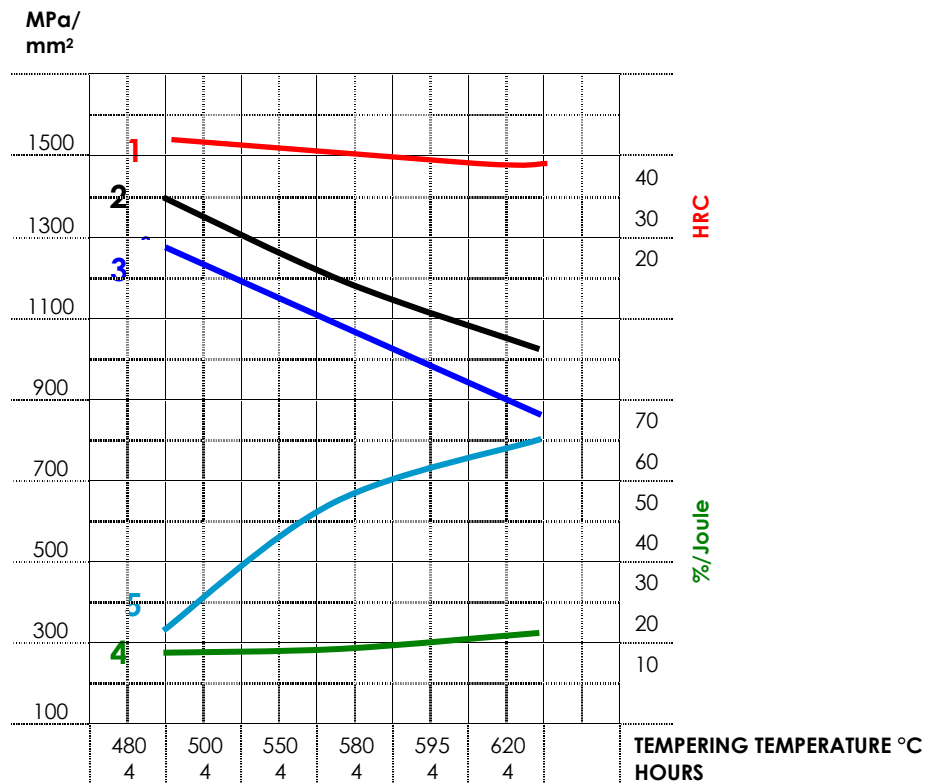
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CHART FOR PRECIPITATION HARDENING (in annealed condition)



- 1: Hardness Rockwell HRC
- 2: Tensile strength R_m (MPa)
- 3: Yield strength $R_e 0.2$ (MPa)
- 4: Ductile yield $A \epsilon$ (%)
- 5: Impact ductility KCV (J/cm²)

The above curves indicate the results of determinate section of a curtain size. The result after heat treatment can be slightly different than shown on this curve, depending on the shape and size of the part.

SPREADSHEET

| Standards | TTH | Rm (MPa) | Re 0.2 % (MPa) | A 4d % | Z % | HB | HRC | KCV (J/cm²) | Weldability | Corrosion |
|-------------------|-------------------|----------|----------------|--------|-----|-------|-----|-------------|-------------|-----------|
| X5CrNiCuNb16.4630 | solution annealed | | | | | < 360 | | | good | *** |
| | H900 | 1310 | 1172 | 10 | 40 | 388 | 40 | - | | |
| | H925 | 1172 | 1069 | 10 | 44 | 375 | 38 | 9 | | |
| | H1025 | 1069 | 1000 | 12 | 45 | 331 | 35 | 25 | | |
| | H1075 | 1000 | 862 | 13 | 45 | 311 | 32 | 34 | | |
| | H1100 | 965 | 793 | 14 | 45 | 302 | 31 | 42 | | |
| | H1150 | 931 | 724 | 16 | 50 | 277 | 28 | 51 | | |
| H1150M | 793 | 517 | 18 | 55 | 255 | 24 | 94 | | | |

Average value

Modifications will not be adjusted automatically

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