

STANDARD REFERENCE:

EN 10088-3: 2014 (Hot-rolled and bright products)

RODACCIAI REFERENCES AND COMPARABLE STANDARDS

| EUROPE | | ITALY | GERMANY | | FRANCE | UK | USA |
|------------------|--------|----------------|------------------|--------|------------------|-------------------|------|
| EN 10088-3: 2005 | | (UNI 6900: 71) | (DIN 17440 - 85) | | (NF A 35-574-90) | (BS 970 pt.3 -91) | AISI |
| Grade | N° | | Werkstoff | N° | | | |
| X2CrNi19-11 | 1.4306 | X 2 CrNi 18 11 | X2CrNi19-11 | 1.4306 | Z3 CN 19 - 11 | 304S11 | 304L |

CHEMICAL COMPOSITION (CAST ANALYSIS) (%)

| C / max | Si / max | Mn / max | P / max | S / max | N / max | Cr | Ni |
|---------|----------|----------|---------|---------|---------|-----------|-----------|
| 0,030 | 1,00 | 2,00 | 0,045 | 0,030 | 0,10 | 18,0÷20,0 | 10,0÷12,0 |

MECHANICAL PROPERTIES - Rough turned (1X) in the annealed condition

| Size max (mm) | Hardness HB max*** | Rp _{0,2} (MPa) min | Rp ₁ (MPa) min* | R _m (MPa)** | A ₅ (%) min** | KV (J) min | Resistance to intergranular corrosion | |
|---------------|--------------------|-----------------------------|----------------------------|------------------------|--------------------------|------------|---------------------------------------|-------------------------|
| | | | | | | | in the delivery condition | in the welded condition |
| 100 | 215 | 180 | 215 | 460÷680 | 45 | 100 | YES | YES |

* Only for guidance ** The maximum HB values may be raised by 100HB or the tensile strength value may be raised by 200 MPa and the minimum A% value may be lowered to 20% for bars of ≤35 mm

MECHANICAL PROPERTIES - Cold drawn (2H, 2B) and ground bars (2G) in the solution annealed condition

| Size max (mm) | Rp _{0,2} (MPa) min | R _m (MPa) | A ₅ (%) min* | KV (J) min |
|---------------|-----------------------------|----------------------|-------------------------|------------|
| ≤ 10 | 400 | 600÷930 | 25 | - |
| > 10 ≤ 16 | 380 | 600÷930 | 25 | - |
| > 16 ≤ 40 | 180 | 460÷830 | 30 | 100 |
| > 40 ≤ 63 | 180 | 460÷830 | 30 | 100 |
| > 63 ≤ 100 | 180 | 460÷680 | 45 | 100 |

* Values valid only for size ≥5 mm

MECHANICAL PROPERTIES - Cold drawn wire and coils in the solution annealed condition (2D)

| Size | 0,10 ≤ d ≤ 0,20 | 0,20 ≤ d ≤ 0,50 | 0,50 ≤ d ≤ 1,00 | 1,00 ≤ d ≤ 3,00 | 3,00 ≤ d ≤ 5,00 | 5,00 ≤ d ≤ 16,00 |
|--------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| R _m (MPa) max | 1050 | 1000 | 950 | 900 | 850 | 800 |
| A (%) min | 20 | 30 | 30 | 30 | 35 | 35 |

Note: If skin passed, R_m might be increased by up to 50 MPa

MECHANICAL PROPERTIES - Cold drawn wire and coils (2H)

| Tensile strength levels | +C 600 | +C 700 | +C 800 | +C 900 | +C 1000 | +C 1100 | +C 1200 | +C 1400 | +C 1600 |
|-------------------------|---------|---------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| R _m (MPa) | 600÷800 | 700÷900 | 800÷1000 | 900÷1100 | 1000÷1250 | 1100÷1350 | 1200÷1450 | 1400÷1700 | 1600÷1900 |

Note: the desired tensile strength level shall be evaluated depending on diameter required

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STAINLESS STEELS
 AUSTENITIC

304ST


MECHANICAL PROPERTIES - Bars, wire and coils for cold heading

| Size mm | As Treated (+AT) or Peeled (+AT+PE) | | Cold Drawn (+AT +C) | | Cold Drawn + Solution annealed (+AT +C +AT) | | Cold Drawn + Solution annealed + Skin passed (+AT +C +AT +LC) | |
|------------|-------------------------------------|-----------|--------------------------|-----------|--|-----------|--|-----------|
| | R _m (MPa) max | Z (%) min | R _m (MPa) max | Z (%) min | R _m (MPa) max | Z (%) min | R _m (MPa) max | Z (%) min |
| ≥2 ≤5 | - | - | - | - | 680 | 68 | 730 | 63 |
| > 5 ≤10 | 630 | 68 | 780 | - | 630 | 68 | 680 | 63 |
| > 10 ≤25 | 630 | 68 | 740 | - | 630 | 68 | - | - |
| > 25 ≤50 | 630 | 68 | - | - | - | - | - | - |

WORKING TEMPERATURES RECOMMENDED

| Operation | Hot forgings deformation | Solution annealing (water, air) |
|-----------|--------------------------|---------------------------------|
| °C | 900÷1200 | 1000÷1100 |

