

STANDARD REFERENCE:
UNI EN 10087: 1998 (Hot-rolled products) | UNI EN 10277-3: 2008 (Bright products)
RODACCIAI REFERENCES AND COMPARABLE STANDARDS

| EUROPE | | ITALY | GERMANY | | FRANCE | UK | USA |
|------------------------------------|--------|---------------|---------------|--------|------------------|------------------|-----------|
| EN 10087: 1998 EN 10277-3: 2008 | | (UNI 4838-80) | (DIN 1651-88) | | (NF A 35-562-86) | (BS 970 pt.3-91) | ASTM A 29 |
| Grade | N° | | Werkstoff | N° | | | |
| 35S20 | 1.0726 | - | 35 S 20 | 1.0726 | - | - | - |

CHEMICAL COMPOSITION (CAST ANALYSIS) (%)

| C | Si / max | Mn | P / max | S |
|-----------|----------|-----------|---------|-----------|
| 0,32÷0,39 | 0,40 | 0,70÷1,10 | 0,06 | 0,15÷0,25 |

MECHANICAL PROPERTIES - AS ROLLED CONDITION

| Size mm | as Rolled and/or as Rolled + Turned (+SH) | | as Rolled and/or as Rolled + Turned + Quenched + Tempered (+SH +QT) | | |
|------------|---|----------------------|---|----------------------|------------------------|
| | Hardness HB* | R _m (MPa) | R _{p0,2} (MPa) min | R _m (MPa) | A ₅ (%) min |
| ≥5 ≤10 | - | 550÷720** | 430 | 630÷780 | 15 |
| >10 ≤16 | - | 550÷700** | 430 | 630÷780 | 15 |
| >16 ≤40 | 154÷201 | 520÷680 | 380 | 600÷750 | 16 |
| >40 ≤63 | 154÷198 | 520÷670 | 320 | 550÷700 | 17 |
| >63 ≤100 | 149÷193 | 500÷650 | 320 | 550÷700 | 17 |

* For reference only **Values valid only for hot rolled products
For size <5 mm the mechanical properties may be agreed at the time of enquiry and order

MECHANICAL PROPERTIES - COLD DRAWN CONDITION

| Size mm | Cold Drawn (+C) | | | Cold Drawn + Quenched + Tempered (+C +QT) | | | Quenched + Tempered + Cold Drawn (+QT +C) | | |
|------------|-----------------------------|----------------------|------------------------|---|----------------------|------------------------|---|----------------------|------------------------|
| | R _{p0,2} (MPa) min | R _m (MPa) | A ₅ (%) min | R _{p0,2} (MPa) min | R _m (MPa) | A ₅ (%) min | R _{p0,2} (MPa) min | R _m (MPa) | A ₅ (%) min |
| ≥5 ≤10 | 480 | 640÷880 | 6 | - | - | - | 490 | 700÷900 | 9 |
| >10 ≤16 | 400 | 590÷830 | 7 | - | - | - | 490 | 700÷900 | 11 |
| >16 ≤40 | 360 | 560÷800 | 8 | 380 | 600÷750 | 16 | 455 | 650÷850 | 12 |
| >40 ≤63 | 340 | 530÷760 | 9 | 320 | 550÷700 | 17 | 400 | 570÷770 | 13 |
| >63 ≤100 | 300 | 510÷680 | 9 | 320 | 550÷700 | 17 | 385 | 570÷750 | 14 |

WORKING TEMPERATURES RECOMMENDED

| Operation | Hot forgings deformation | Normalizing | Soft annealing | Quenching in oil or water | Tempering |
|-----------|--------------------------|-------------|----------------|---------------------------|-----------|
| °C | 950÷1200 | 870÷900 | 670÷700 | 860÷890 | 540÷680 |