

**NOTES:**

- (I) Mechanical properties according to EN 10088-2, June 2005
- (II) Mechanical properties according to EN 10095, March 1999
- (III) Mechanical properties according to EN 10028-7, January 2000
- (*) The notes in the column heading do not apply
- (▼) The designations of the materials in accordance with AISI/ASTM are not dependent on the type of steel product
- (1) C = cold-rolled strip; H = hot-rolled strip; P = hot-rolled plate
- (2) The values apply for test pieces with a gauge length of 80 mm and a width of 20 mm; test pieces with a gauge length of 50 mm and a width of 12.5 mm may also be used; solely for the austenitic types mentioned in EN 10088-2, June 2005, and EN 10028-7, January 2000, figures refer to the transverse direction only
- (3) The values apply for test pieces with a gauge length of $5,65 \cdot \sqrt{S_0}$. Solely for the austenitic types mentioned in EN 10088-2, June 2005, and EN 10028-7, January 2000, figures refer to the transverse direction only
- (4) For thicknesses exceeding 75 mm (martensitic and austenitic grades), mechanical properties may be agreed upon
- (5) A = annealed; QT = quenched and tempered; AT = solution annealed; P = precipitation-hardened; SR = stress-relieved
- (6) The Brinell or Vickers or Rockwell hardness is normally determined for product forms C and H in heat-treatment condition A. The tensile test shall be carried out in referee testing.
- (7) Plates may also be delivered in the annealed condition; in such cases, the mechanical properties are to be agreed at the time of enquiry and order
- (8) Delivery condition
- (9) Condition of application; other precipitation-hardening temperatures may be agreed.
- (10) If the product is ordered in the finally-treated condition
- (11) Delivery condition for further processing; final treatment according to table A.3 of EN 10088-2, June 2005
- (12) For spring-hard rolled condition see EN 10151
- (13) Solely for the austenitic types mentioned in EN 10088-2, June 2005, the solution treatment may be omitted if the conditions for hot working and subsequent cooling are such that the requirements for the mechanical properties of the product and the resistance to intergranular corrosion as defined in EN ISO 3651-2 are obtained
- (14) If, in the case of strip in rolling widths <300 mm, longitudinal test pieces are taken, the minimum values are reduced as follows:
 - proof strength: minus 15 MPa
 - elongation for constant gauge length: minus 5%
 - elongation for proportional gauge length: minus 2%
- (15) For continuously hot-rolled products, 20 MPa higher minimum values of $R_{p0.2}$ may be agreed at the time of enquiry and order.
- (16) For stretcher levelled material, the minimum value is 5% lower
- (17) Value for guidance purposes
- (18) For thicknesses exceeding 25 mm (ferritic grades), mechanical properties may be agreed upon
- (19) Value for Strip format according to AISI manual, December 1974 edition; supplement, March 1979
- (20) Value for Sheet format according to AISI manual, December 1974 edition; supplement, March 1979
- (21) Hardness value (HB) for Plate format according to AISI manual, December 1974 edition; supplement, March 1979
- (22) Properties according to ASTM A 240 / A 240 M-05a with respect to the equivalent UNS S 33228



- (23) If, in the case of strip in rolling widths < 300 mm, longitudinal test pieces are taken, minimum proof strength values are reduced by 15 MPa
- (24) HRC hardness
- (25) HV hardness
- (26) Elongation after fracture A% for thicknesses $0.5 \leq s < 3$ mm (longitudinal, transverse)
- (27) For thicknesses exceeding 25 mm (duplex grades), mechanical properties may be agreed upon
- (28) Elongation after fracture A% for thicknesses $s \geq 3$ mm (longitudinal)
- (29) Elongation after fracture A% for thicknesses $s \geq 3$ mm (transverse)
- (30) Value for Strip/Sheet formats according to AISI manual, December 1974 edition; supplement, March 1979
- (31) Value for Plate format according to AISI manual, December 1974 edition; supplement, March 1979
- (32) Product form: flat products (in general)
- (33) Hardness (HRC) according to ASTM A 240 / A 240 M-05a
- (34) Impact energy KV at room temperature in accordance with NFA 35-573, May 1990
- (35) Properties according to AISI manual, December 1974 edition; supplement, March 1979
- (36) Properties according to ASTM A 176-99 (reapproved 2004)
- (37) Value according to SEW 400, 1997
- (38) Hardness value (HRC) for Sheet format according to AISI manual, December 1974 edition; supplement, March 1979
- (39) IZOD impact test [J]
- (40) Solely for martensitic and PH types, the number after the letters identifies a specific heat treatment as per tables A.2 and A.3 of EN 10088-2, June 2005
- (41) According to ASTM A 176-99 (reapproved 2004)
- (42) According to ASTM A 240 / A 240 M-05a. In the absence of an equivalent Type, reference is made to the UNS number
- (43) According to ASTM A 693-93
- (44) Only note (15) in the column heading applies
- (45) Properties according to ASTM A 240 / A 240 M-05a
- (46) Impact energy KU at room temperature in accordance with NF A 35-578, October 1991
- (47) Value at room temperature in accordance with NFA 35-578, October 1991
- (48) Value for guidance purposes according to ASTM B 709-04
- (49) Value according to ASTM B 409-01
- (50) Value for Sheet and Strip formats. For Strip format with thickness between 0.13 and 0.25 mm, the maximum HRB value is 88