# Schrauben

**M20, 8.8:**

Fp,C\* = **110 kN**

**M20, 8.8:**

Ft,Rd = k2 ⋅fub ⋅As /γM2

=0.9 ⋅64 ⋅2.45 /1.25 = 141 kN

**M24, 8.8:**

Fp,C\* = **160 kN**

**M24, 8.8:**

Ft,Rd = k2 ⋅fub ⋅As /γM2

=0.9 ⋅64 ⋅3.53 /1.25 = 203 kN

**M24, 12.9:**

Fp,C\* = **270 kN**

**M24, 12.9:**

Ft,Rd = k2 ⋅fub ⋅As /γM2

=0.9 ⋅120 ⋅3.53 /1.25 = 305 kN

**M30, 10.9:**

Fp,C\* = **350 kN**

**M30, 10.9:**

Ft,Rd = k2 ⋅fub ⋅As /γM2

=0.9 ⋅ 100 ⋅ 5.61 / 1.25 = 403.9 kN

**M30, 8.8:**

Fp,C\* = **250 kN**

**M30, 8.8:**

Ft,Rd = k2 ⋅fub ⋅As /γM2

=0.9 ⋅ 80 ⋅ 5.61 / 1.25 = 323.1 kN

**M36, 10.9:**

Fp,C\* = **510 kN**

**M36, 10.9:**

Ft,Rd = k2 ⋅fub ⋅As /γM2

=0.9 ⋅ 100 ⋅ 8.17 / 1.25 = 588 kN

# Material 1.0

***S235JR:***

σR,d = fy,k/γM = 23.5/1.0 = 23.50 kN/cm2 (t < 16 mm)

σR,d = fy,k/γM = 22.5/1.0 = 22.50 kN/cm2 (16< t ≤ 40 mm)

σR,d = fy,k/γM = 21.5/1.0 = 21.50 kN/cm2 (40< t ≤ 100 mm)

σR,d = fy,k/γM = 19.5/1.0 = 19.50 kN/cm2 (100< t ≤ 150 mm)

σR,d = fy,k/γM = 18.5/1.0 = 18.50 kN/cm2 (150< t ≤ 200 mm)

σR,d = fy,k/γM = 17.5/1.0 = 17.50 kN/cm2 (200< t ≤ 250 mm)

***S275J2+N:***

σR,d = fy,k/γM = 27.5/1.0 = 27.5 kN/cm2 (t < 16 mm)

σR,d = fy,k/γM = 26.5/1.0 = 26.5 kN/cm2 (16 < t ≤ 40 mm)

σR,d = fy,k/γM = 25.5/1.0 = 25.5 kN/cm2 (40 < t ≤ 63 mm)

σR,d = fy,k/γM = 24.5/1.0 = 24.5 kN/cm2 (63 < t ≤ 80 mm)

σR,d = fy,k/γM = 23.5/1.0 = 23.5 kN/cm2 (80 < t ≤ 100 mm)

σR,d = fy,k/γM = 22.5/1.0 = 22.5 kN/cm2 (100 < t ≤ 150 mm)

σR,d = fy,k/γM = 21.5/1.0 = 21.5 kN/cm2 (150 < t ≤ 200 mm)

σR,d = fy,k/γM = 20.5/1.0 = 20.5 kN/cm2 (200 < t ≤ 250 mm)

***S355J2+N:***

σR,d = fy,k/γM = 35.5/1.0 = 35.5 kN/cm2 (t < 16 mm)

σR,d = fy,k/γM = 34.5/1.0 = 34.5 kN/cm2 (16 < t ≤ 40 mm)

σR,d = fy,k/γM = 33.5/1.0 = 33.5 kN/cm2 (40 < t ≤ 63 mm)

σR,d = fy,k/γM = 32.5/1.0 = 32.5 kN/cm2 (63 < t ≤ 80 mm)

σR,d = fy,k/γM = 31.5/1.0 = 31.5 kN/cm2 (80 < t ≤ 100 mm)

σR,d = fy,k/γM = 29.5/1.0 = 29.5 kN/cm2 (100 < t ≤ 150 mm)

σR,d = fy,k/γM = 28.5/1.0 = 28.5 kN/cm2 (150 < t ≤ 200 mm)

σR,d = fy,k/γM = 27.5/1.0 = 27.5 kN/cm2 (200 < t ≤ 250 mm)

***25CrMo4:***

σR,d = fy,k/γM = 70.0/1.0 = 70.0 kN/cm2 (ϕ < 16 mm)

σR,d = fy,k/γM = 60.0/1.0 = 60.0 kN/cm2 (16 < ϕ ≤ 40 mm)

σR,d = fy,k/γM = 45.0/1.0 = 45.0 kN/cm2 (40 < ϕ ≤ 100 mm)

σR,d = fy,k/γM = 40.0/1.0 = 40.0 kN/cm2 (100 < ϕ ≤ 160 mm)

***C45+QT:***

σR,d = fy,k/γM = 49.0/1.0 = 49.0 kN/cm2 (t < 8 mm)

σR,d = fy,k/γM = 43.0/1.0 = 43.0 kN/cm2 (8 < t ≤ 20 mm)

σR,d = fy,k/γM = 37.0/1.0 = 37.0 kN/cm2 (20 < t ≤ 60 mm)

# Material 1.1

***S355 J2+N:***

σR,d = fy,k/γM = 35.5/1.1 = 32.3 kN/cm2 (t ≤ 16 mm)

σR,d = fy,k/γM = 34.5/1.1 = 31.4 kN/cm2 (16 < t ≤ 40 mm)

σR,d = fy,k/γM = 33.5/1.1 = 30.5 kN/cm2 (40 < t ≤ 63 mm)

σR,d = fy,k/γM = 32.5/1.1 = 29.5 kN/cm2 (63 < t ≤ 80 mm)

σR,d = fy,k/γM = 31.5/1.1 = 28.6 kN/cm2 (80 < t ≤ 100 mm)

σR,d = fy,k/γM = 29.5/1.1 = 26.8 kN/cm2 (100 < t ≤ 150 mm)

σR,d = fy,k/γM = 28.5/1.1 = 25.9 kN/cm2 (150 < t ≤ 200 mm)

σR,d = fy,k/γM = 27.5/1.1 = 25.0 kN/cm2 (200 < t ≤ 250 mm)

***S690:***

σR,d = fy,k/γM = 69.0/1.1 = 62.7 kN/cm2 (t ≤ 50 mm)

σR,d = fy,k/γM = 65.0/1.1 = 59.1 kN/cm2 (50 < t ≤ 100 mm)

σR,d = fy,k/γM = 63.0/1.1 = 57.3 kN/cm2 (100 < t ≤ 150 mm)

***42CrMo4:***

σR,d = fy,k/γM = 90.0/1.1 = 81.8 kN/cm2 (d ≤ 16 mm)

σR,d = fy,k/γM = 75.0/1.1 = 68.2 kN/cm2 (16 < d ≤ 40 mm)

σR,d = fy,k/γM = 65.0/1.1 = 59.1 kN/cm2 (40 < d ≤ 100 mm)

σR,d = fy,k/γM = 55.0/1.1 = 50.0 kN/cm2 (100 < d ≤ 160 mm)

σR,d = fy,k/γM = 50.0/1.1 = 45.4 kN/cm2 (160 < t ≤ 250 mm)

***30CrNiMo8:***

σR,d = fy,k/γM = 105.0/1.1 = 95.45 kN/cm2 (ϕ ≤ 40 mm)

σR,d = fy,k/γM = 90.0/1.1 = 81.81 kN/cm2 (40 < ϕ ≤ 100 mm)

σR,d = fy,k/γM = 80.0/1.1 = 72.72 kN/cm2 (100 < ϕ ≤ 160 mm)

σR,d = fy,k/γM = 70.0/1.1 = 63.63 kN/cm2 (160 < ϕ ≤ 250 mm)

σR,d = fy,k/γM = 63.0/1.1 = 57.27 kN/cm2 (250 < ϕ ≤ 500 mm)

σR,d = fy,k/γM = 59.0/1.1 = 53.63 kN/cm2 (500 < ϕ ≤ 1000 mm)