

S355J2

Non-alloy structural steels

| | |
|------------------------|----------------|
| Material no. | 1.0577 |
| according to | DIN EN 10025-2 |
| Tensile strength class | B |

Usage

Suitability for coldforming such as bending, folding, bordering and flanging etc. can be ordered separately.

The user of these steel grades must make sure that his calculation, design and processing methods are appropriate for the material. The welding technique used must be suitable for the intended application and comply with the state-of-the-art.

With distinctly closer chemical composition values and mechanical properties, the steel grades of the S235-S355 series are used as material for wheels of passenger cars, lorries and other vehicles.

Chemical composition¹⁾

(in percent by weight)

| | min. | max. |
|------------------------------|------|---------------------|
| C | | 0.20% |
| Si | | 0.55% |
| Mn | | 1.60% |
| P | | 0.025% |
| S | | 0.025% |
| Cu | | 0.55% ²⁾ |
| C _E ³⁾ | | 0.45% |

1) Heat analysis

2) Copper contents higher than 0.400 % can cause exfoliation corrosion.

3) Maximum carbon equivalent value

$$C_E = C + Mn / 6 + (Cr + Mo + V) / 5 + (Cu + Ni) / 15$$

Mechanical properties¹⁾

| Nom. thick. e | Yield strength R _{eH} |
|---------------|--------------------------------|
| ≤ 16 mm | ≥ 355 MPa |
| > 16 mm | ≥ 345 MPa |

| Nom. thick. e | Tensile strength R _m |
|---------------|---------------------------------|
| < 3 mm | 510 – 680 MPa |
| ≥ 3 mm | 470 – 630 MPa |

| Nom. thick. e | Total elong. A ₂ (long./trans.) |
|---------------|--|
| < 3 mm | ≥ 18/16 % |
| 3 ≤ e ≤ 40 mm | ≥ 22/20 % |

1) The tensile test values given in the table apply to longitudinal samples (l); in case of strip and sheet steel of widths of ≥ 600 mm they apply to transverse samples (t).

2) It applies to nominal thickness e:
e < 3 mm: A₈₀
e ≥ 3 mm: A₅

Notch impact energy¹⁾

| Temperature | Notch impact energy |
|-------------|---------------------|
| -20°C | ≥ 27 J |

1) Average values of 3 samples; one individual value may fall short of the required minimum value by not more than 30 %. The sample width shall equal the product thickness if the latter is between 5 and 10 mm. The tests are performed by using samples similar to Charpy-V samples. The values specified in the table above are to be reduced proportionally to the sample width.

Available dimensions

Hot-rolled coils unpickled, mill edge

| Thickness in mm | Width in mm |
|-----------------|-------------|
| 2.00 – 2.24 | 900 – 1400 |
| 2.25 – 2.49 | 900 – 1450 |
| 2.50 – 2.99 | 900 – 1500 |
| 3.00 – 3.99 | 900 – 1680 |
| 4.00 – 12.70 | 900 – 1750 |

Hot-rolled slit strip

| Thickness in mm | Width in mm |
|-----------------|-------------|
| 2.00 – 2.24 | 100 – 690 |
| 2.25 – 2.49 | 100 – 715 |
| 2.50 – 2.99 | 100 – 740 |
| 3.00 – 4.50 | 100 – 800 |
| 4.51 – 6.00 | 116 – 800 |
| 6.01 – 7.00 | 175 – 800 |
| 7.01 – 8.00 | 233 – 800 |

<100 mm on request

Welding

The steel grades of the JR, JO, J2 and K2 categories are in general suitable for all welding techniques.

Condition of delivery, scope of testing and certificate

The provisions of DIN 10025-2, chapters 6.3 and 8 shall apply for delivery and inspection. Other inspections may be agreed.