

S355K2+N

Non-alloy structural steels

Material no.	1.0596+N
according to	DIN EN 10025-2
Tensile strength class	B

Usage

These general structural steel grades are characterised by a minimum yield strength of 185–360 N/mm². Suitability for cold-forming 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 composition ¹⁾

(in percent by weight)

	min.	max.
C		0.200%
Si		0.550%
Mn		1.600%
P		0.035%
S		0.035%
C _E	0.450% ^{2) 3)}	

1) The maximum nitrogen content shall not apply if the total aluminium content of the steel is at least 0.020% or if it contains enough other nitrogen-fixing elements.

2) Maximum carbon equivalent value
 $C_E = C + Mn / 6 + (Cr + Mo + V) / 5 + (Cu + Ni) / 15$

3) The steel is suitable for hot dip galvanizing, C_E is raised by 0.2%.

Mechanical properties ¹⁾

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

Nom. thick. e	Tensile strength R _m ²⁾
< 3 mm	510 – 680 MPa
≥ 3 mm	470 – 630 MPa

Nom. thick. e	Total elongation L ₀ = 80 mm
< 3 mm	13–18 %

Nom. thick. e	Total elongation L ₀ = 5.65√S ₀
3 ≤ e ≤ 25 mm	22/20 %

Temperature	Minimum notch impact energy ³⁾
-20 °C	27 J

The samples for the tensile test are taken at right angles to rolling direction unless the product width is opposed to this.

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

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

3) 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.

Welding

No indications on weldability of steel grades S185, E295, E335 and E360 are made because there are no requirements on their chemical composition. The steel grades of the JR, JO, J2 and K2 categories are in general suitable for all welding techniques.

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 – 6.00	900 – 1750
6.01 – 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
4.50 – 6.00	116 – 800
6.01 – 7.00	175 – 800
7.01 – 8.00	233 – 800

≤ 100 mm on request

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.