

S275JR [1.0044]

MATERIAL DESIGNATION

S275JR

MATERIAL NUMBER

1.0044

MECHANICAL PROPERTIES

Tabellenbuch Metall, p. 147; applicable product standard as indicated by the source

CONDITION

Hot-rolled

Key Features

- Unalloyed structural steel for steel construction and mechanical engineering

Applications

- Simple machine parts
- Welded constructions in steel and mechanical engineering
- Levers, bolts, axles, shafts

Documented in the source jointly for S235JR / S235J0 / S235J2 and S275JR / S275J0 / S275J2.

Product Description

S275JR [1.0044] is an unalloyed hot-rolled structural steel of quality group JR. The yield strength depends on the product thickness; the applicable values are given in the mechanical-property table below.

Mechanical Properties

Values from Tabellenbuch Metall, p. 147. The source cites DIN EN 10025-2 (2019-10) as the applicable product standard and states the values jointly for S275JR, S275J0 and S275J2. Value class: normative requirement.

PROPERTY	PRODUCT THICKNESS MM	VALUE
Yield strength, R_e	≤ 16	275 N/mm ²
Yield strength, R_e	$> 16 \dots 40$	265 N/mm ²
Yield strength, R_e	$> 40 \dots 63$	255 N/mm ²
Yield strength, R_e	$> 63 \dots 80$	245 N/mm ²
Tensile strength, R_m	3 ... 100	410 ... 560 N/mm ²
Elongation, A	3 ... 40	23 %
Impact energy, KV		27 J at 20 °C

Elongation applies to longitudinal specimens with gauge length $L_0 = 5.65 \sqrt{S_0}$.

Physical Properties

Value class: group value — stated by the source for the material group, not for S275JR individually.

PROPERTY	VALUE	UNIT	VALUE CLASS	
Modulus of elasticity, E	210	GPa	Group value	Stahl, Stahlguss
Density	7.85	g/cm ³	Group value	unalloyed steel

Additional Properties

PROPERTY	STATEMENT	VALUE CLASS	
Weldability	Weldable by all processes	Block value	quality groups JR, J0, J2, K2

Increasing strength and increasing product thickness increase the risk of cold cracking.

Sources

Primary source — Tabellenbuch Metall

PAGE	CONTENT USED
147	Table “Unlegierte Baustähle, warmgewalzt”, entry S275JR, 1.0044: impact energy, R_m , R_e by product thickness, A, applications; statement on weldability
43	Table “Elastizitätsmodul E in kN/mm ² (Mittelwerte)”, column “Stahl, Stahlguss”: modulus of elasticity (group value)
133	Table “Stoffwerte von festen, flüssigen und gasförmigen Stoffen”, row “Stahl, unlegiert”: density (group value)

Tabellenbuch page numbers are the printed page numbers of the source.

Reference

This data sheet is manufacturer-independent. Values are classified as normative requirements, block values or group values as indicated. Users should verify the data’s relevance and suitability for their specific application and consult the applicable standard for any normative requirement.