

SIQUAL[™] 0577, 0045, 0553

NON-ALLOYED STRUCTURAL STEEL

SIQUAL 0577, 0553 and **0045** (S355J2, S355J0 and S355JR, respectively) are non-alloyed structural steel grades used for various applications, such as building components, containers, storage tanks, rolled formed profiles, etc. They are standardized with a specified impact energy of 27 J at different temperatures (0577 at -20 °C, 0553 at 0 °C and 0045 at +20 °C) according to EN 10025-2.

STANDARDS

General technical delivery requirements according to EN 10021.
Tolerances on dimensions and shape according to EN 10029.
Delivery requirements for surface condition according to EN 10163-2.
Ultrasonic testing according to EN 10160.
Technical delivery conditions according to EN 10025-2.
Tensile testing at room temperature according to EN ISO 6892-1.
Impact testing according to EN ISO 148-1.

CHEMICAL COMPOSITION

SIQUAL 0577, 0553, 0045	C	Si	Mn	P	S	Nb
max. in %	0.18	0.55	1.40	0.02	-	0.05

*Silicon content of max. 0.25 % is available for zinc hot-dip galvanizing.

SIQUAL 0577, 0553, 0045	≤ 40 mm	40–130 mm
CEV* (max. in %)	0.43	0.47

$$CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

DELIVERY CONDITION

Hot-rolled quarto plates	Normalized rolled
Cold-rolled strip/sheet	Spheroidization annealed + temper rolled
Hot-rolled quarto plates	Normalized rolled/normalised

DIMENSIONS

SIQUAL 0577, 0553, 0045	Hot-rolled strip	Hot-rolled sheet	Cold-rolled strip	Cold-rolled sheet	Hot-rolled quarto plate	
Thickness [mm]	3–6	3–6	0.5–3	0.5–3	6–7.99	8–130
Width [mm]	100–1000	800–1000	30–1000	max. 1000	2000*	2500*
Length [mm]	-	2000–6000	-	2000–6000	max. 12500	
Internal diameter [mm]	610	-	508	-	-	-

* 2060/2560 – if plates are ordered with untrimmed rolling edges.

MECHANICAL PROPERTIES

According to EN 10028-2

Thickness [mm]	Tensile properties*		
	Rp0.2 [MPa] min.	Rm [MPa]	A5.65 [%] min.
0–1	355	510–680	12**
1.01–1.5			13**
1.51–2			14**
2.01–2.5			15**
2.51–2.99			16**
3–16	345	470–630	20
16.01–40			19
40.01–63			18
63.01–80			18
850.01–100	315	450–600	18
100.01–130	295		

* For transverse tensile flat test pieces.

** A₈₀ applies instead of A5.65.

Delivery condition	Impact toughness		
	Testing direction	Temperature [°C]	KV ₂ [J]
SIQUAL 0577	Longitudinal	–20	27
SIQUAL 0553	Longitudinal	0	27
SIQUAL 0045	Longitudinal	20	27

* Measured on standard specimen 10 x 10 x 55 mm. The specified minimum value is the average of 3 tests. One individual value may be below the minimum average value specified, provided that it is not less than 70 % of that value. For plate thickness below 12 mm, subsize specimens shall be used. The minimum values of subsize specimens shall be reduced in direct proportion to the cross-sectional area of the test piece. For thicknesses up to 6 mm, the test is not required.

TOLERANCES ON DIMENSIONS

- Hot-rolled quarto plates: EN 10029
- Hot-rolled strips/sheets: EN 10051
- Cold-rolled strips/sheets: EN 10131 or EN 10140

SURFACE CONDITION

- As-rolled (untreated)
- Shot-blasted
- Shot-blasted and anti-corrosion painted*

* The maximum width of the anti-corrosion painted plates is 2000 mm. The thickness of the coating is 20–60 µm.

INSPECTION DOCUMENTS

The type of document shall be agreed upon at the time of enquiry and order. A test certificate according to EN 10204/3.1 is issued mandatorily.

The information and data in this product data sheet are intended for informative purpose only and may be revised at any time without notice. Presented typical properties of the materials are described only to help readers make their own evaluations and decisions. They are not guaranteed.