MACSTEEL®

Data Sheet

STRUCTURAL STEELS | S690QL: HIGH YIELD STRENGTH

Description

S690QL is a high yield strength structural steel grade produced in accordance with EN 10025-6. This steel is designed to provide an excellent combination of high strength, toughness, abrasion resistance and weldability.
Material/ steel number: 1.8928

Product designation

S - Structural steel
690 - Minimum yield strength MPa
Q - Quenched and tempered delivery condition
L - Impact energy tested at -40°C

Typical applications

S69QL is a very high strength structural steel and can result in greater load-carrying capacities and lighter structures when used in place of conventional structural steels.
Uses include earthmoving equipment, dump trucks, mobile cranes, drilling rigs, high-speed fans, and bridges.

Chemical composition

C	Si	Mn	P	S	N	B	Cr	Mo	Ni	Cu
0.20	0.80	1.70	0.020	0.010	0.015	0.005	1.50	0.70	2.0	0.50

Mechanical properties

Nominal thickness (mm)	Minimum yield strength (MPa)	Tensile strength (MPa)	Minimum Elongation (%)	Minimum impact energy (J) @ -40°C	Minimum recommended inside bend radii
3 ≤ 50	690	770 - 940	14	30 longitudinal or 27 transverse	3t - transverse 4t - longitudinal (3 ≤ t ≤ 16)
> 50 ≤ 100	650	760 - 930			
> 100 ≤ 150	630	710 - 900			

Note

- Chemical composition: Ladle/ product analysis in %max
- Mechanical properties: At ambient temperature
- Typical hardness 235-295 BHN: For information purpose only, it is not a requirement for structural steels and therefore not tested
- Recommended inside bend radii: The values are applicable for bend angles ≤90°
- Dimensions and tolerances in accordance with EN 10029

Approximate equivalents

ASTM A514, EN 10149-2 Grade S700MC, AS/NZS 3579 Grade 700, AM 700, Bisalloy 80.

Fabrication

S690QL steel plate can be readily formed or bent at room temperature if adequate power is available and proper procedures are used. Generally, the power required to form S690QL will be three times that required for carbon structural steel.

Hot forming

Avoid exceeding 560°C because the initial tempering can be altered so that the mechanical properties are affected.

Standard stock list

12000 x 2500 x 6 / 8 / 10 / 12 / 16 / 20 / 25 / 30 mm
12000 x 2500 x 40 / 50 / 60 / 65 / 70 / 75 mm
6000 x 2500 x 80 / 90 / 100 / 125 / 150 mm