

S700MC (QStE690TM)

High-strength steels for cold-forming,
thermomechanically-rolled

Material no.	1.8974
according to	DIN EN 10149-2
IMDS no.	14191
Tensile strength class	D

General

The thermomechanically rolled, micro-alloyed S700MC steel grades in accordance with DIN EN10149-2 and QStE690TM, based on the no longer valid SEW 092, feature a high yield strength of more than 700 MPa parallel to the rolling direction while also offering sufficient elongation for complex forming processes, such as square tubes and profiles. The chemical composition ensures good weldability.

Chemical composition¹⁾²⁾

(in percent by weight)

	min.	max.
C ³⁾	0.04 %	0.10 %
Si		0.60 %
Mn	1.50 %	2.10 %
P ³⁾		0.020 %
S ³⁾		0.008 %
Al _{total}	0.015 %	
Ti		0.22 %
Mo		0.50 %
B		0.005 %

1) Heat analysis

2) Deviating analyzes are possible on request.

3) According to DIN EN 10149-2 the following is applicable:

C ≤ 0.12 %, P ≤ 0.025 % und S ≤ 0.035 %

Mechanical properties

Yield strength ²⁾ R _{eH}	
longitudinal	680 – 850 MPa
transversal	690 – 870 MPa

Tensile strength R _m	
longitudinal	750 – 930 MPa
transversal	770 – 950 MPa

Total elongation A ₈₀ ⁴⁾	
longitudinal	≥ 10 %
transversal	≥ 8 %

Total elongation A ₅ ⁴⁾	
longitudinal	≥ 12 %
transversal	≥ 11 %

4) It applies to nominal thickness e:

e < 3 mm: A₈₀

e ≥ 3 mm: A₅

Available dimensions

Hot-rolled coils unpickles, mill edge

Thickness in mm	Width in mm
2.00 – 2.24	900 – 1,300
2.25 – 2.99	900 – 1,350
3.00 – 3.99	900 – 1,450
4.00 – 4.99	900 – 1,500
5.00 – 5.99	900 – 1,650

Hot-rolled coils pickled, mill edge

Thickness in mm	Width in mm
2.00 – 2.24	900 – 1,300
2.25 – 2.99	900 – 1,350
3.00 – 3.99	900 – 1,450
4.00 – 4.99	900 – 1,500
5.00 – 5.99	900 – 1,530

Thicknesses under 2 mm as well as greater widths on request.

Trimmed edge material on request.

Hot-rolled coils, slit lengthwise

Thickness in mm	Width in mm
2.00 – 2.99	100 – 640
3.00 – 4.60	100 – 690
4.61 – 5.99	100 – 740

Condition of delivery, scope of testing and certificate

The provisions of DIN EN 10149-2, chapters 7.2 and 8 shall apply for delivery and inspection. The products are delivered in a thermomechanically-rolled condition.

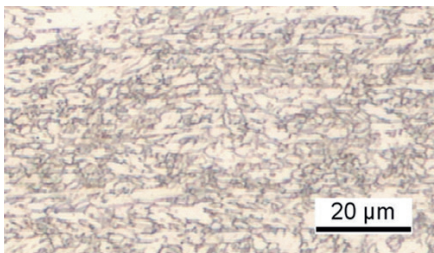
Test certificates according to DIN EN 10204 can be supplied as follows: EDP, remote data transmission, fax, e-mail, paper.

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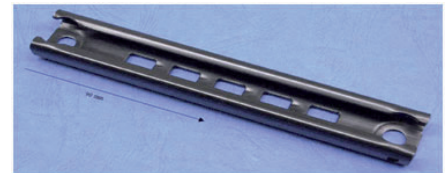
Micro structure

In the hot-rolled state, the S700MC typically forms a predominantly ferritic fine-grained structure with a typical astm grain size > 9.



Application examples

Typical applications for exploiting the high strength potential while at the same time reducing the weight of the component are mobile crane construction, longitudinal and transverse beams in trucks and trailers, safety parts in passenger cars and wagon construction.



Adjusting rail in automotive construction