

#### General product description

The microalloyed steel 7MnB8 can be adjusted to individual processing and component requirements through the Xtreme Performance Technology. The combination of good strength and extreme toughness allows for the production of high-

strength components through cold forming, without additional heat treatment. The higher strength variants are used for highly stressed forming and joining parts, which also exhibit a ductile material behavior at very low operating temperatures.

#### International description

Steel number	EU/DE	ASTM	JIS	AFNOR	B.S.	SS
1,5519	7MnB8	–	–	7MnB8	7MnB8	7MnB8

#### Chemical composition (cast analysis in percentage by mass)

Element	C	Si	Mn	P	S	Al
min.	0,06	0,15	1,85	–	–	0,02
max.	0,09	0,25	1,95	0,015	0,025	0,04

The analysis complies with 7MnB8 (1.5519) according to DIN EN 10263-2. Customer-specific chemical analyses are possible upon consultation.

#### Mechanical-technological properties

Variant	R <sub>p0,2</sub> [MPa]	R <sub>m</sub> [MPa]	A <sub>5</sub> [%]	Z [%]	KV <sub>RT</sub> [J]	T <sub>27</sub> [°C]
good strength, extreme toughness	430	700	22	60	≥ 150	-101
very high strength, high toughness	850	1000	13	60	≥ 100	-50
very high strength, very good toughness	950	1100	13	60	≥ 80	-20

Typical mechanical-technological values:  
R<sub>p0,2</sub> = 0.2% offset yield strength, R<sub>m</sub> = tensile strength, A<sub>5</sub> = elongation at fracture,  
A<sub>g</sub> = uniform elongation, Z = reduction of area, KV = Charpy impact strength according to DIN EN ISO 148-1,  
RT = room temperature, T = temperature, T<sub>27</sub> = transition temperature of the Charpy impact strength at 27 J.

Customized mechanical properties are possible after consultation.

#### Carbon equivalent

Max. CET (CEV)	0,29 (0,43)
Typ. CET (CEV)	0,27 (0,40)

$$\text{CET} = \text{C} + \frac{\text{Mn} + \text{Mo}}{10} + \frac{\text{Cr} + \text{Cu}}{20} + \frac{\text{Ni}}{40} \quad \text{CEV} = \text{C} + \frac{\text{Mn}}{6} + \frac{\text{Cr} + \text{Mo} + \text{Cu}}{5} + \frac{\text{Cu} + \text{Ni}}{15}$$

#### Microstructure

The microstructure is bainitic and can be customized to customer requirements. The microscopic oxide purity level according to DIN 50602 can be agreed upon. The grain size according to ASTM E 112 is  $\geq 12$ .

#### Surface properties

The surface condition complies with the requirements of SN EN 10277. The bars are crack-tested according to surface quality class 3 as standard. In the standard version, the ends of the bars up to 50 mm are not tested.

#### Miscellaneous

Other agreements according to order.

#### Condition of delivery

- XTP®-treated bar steel
- Dimension range: 18 - 40 mm
- Delivery lengths up to 8,000 mm
- Tolerance h11 and straightness of 0.5 mm/m according to DIN EN 10278

#### Fabrication and other recommendations

Excellent weldability, comparatively good machinability, thread rolling and cutting capability, excellent cold formability, bendable.

#### Your advantages at a glance

##### Cold toughness

- Component safety even at low temperatures

##### Cold formability despite increased strength

- Higher load capacity and component safety
- Longer service life and lower maintenance costs

##### Highest quality and productivity

- Optimized diameter tolerance and straightness
- Low decarburization and scaling
- State-of-the-art process control

##### Homogeneous properties during semi-hot forming

- Fine-grained structure throughout the entire component

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Discover our Green Steel portfolio on [www.swissgreensteel.com](http://www.swissgreensteel.com)

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**Swiss Steel Group**  
Steeltec AG / Steeltec GmbH:

Düsseldorf  
[info.engineering@swisssteelgroup.com](mailto:info.engineering@swisssteelgroup.com)