

General product description

The steel 13MnSiCr7 can be tailored to meet individual processing and component requirements through the application of Xtreme Performance Technology. In addition to machining, it also offers the possibility of producing components with high lightweight potential through cold forming.

13MnSiCr7 XTP can be supplied with high 0.2% yield strength and is well-suited for components with high strength requirements. The combination of high 0.2% yield strength and very high strength makes 13MnSiCr7 XTP particularly relevant for safety components. It is also suitable for components exposed to extreme cold.

Chemical composition (cast analysis in percentage by mass)

Element	C	Si	Mn	P	S	Cr + Mo	V
min.	–	–	–	–	–	–	–
max.	0,18	0,80	2,20	0,080	0,015	1,00	0,20

The analysis corresponds to 13MnSiCr7 (1.0956) according to DIN EN 10346.

Physical and mechanical properties

Variant	R _{p0,2} [MPa]	R _m [MPa]	A ₅ [%]	A _g [%]	Z [%]	KV _{RT} [J]	T ₂₇ [°C]
good strength, extreme toughness	580	885	23	13	52	190	-101
high strength, extreme toughness	750	980	19	6	60	220	-101
very high strength, high toughness	840	1200	15	6	45	100	-80

Typical mechanical-technological properties:
 Rp0,2 = 0.2% offset yield strength, Rm = tensile strength, A5 = elongation at fracture,
 Ag = uniform elongation, Z = reduction of area,
 KV = Charpy impact strength according to DIN EN ISO 148-1:2017-05, RT = room temperature,
 T = temperature, T27 = transition temperature of the Charpy impact strength at 27 J.

Carbon equivalent

Max. CET (CEV) 0,46 (0,80)

Typ. CET (CEV) 0,36 (0,60)

$$\text{CET} = \text{C} + \frac{\text{Mn} + \text{Mo}}{10} + \frac{\text{Cr} + \text{Cu}}{20} + \frac{\text{Ni}}{40}$$

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

Surface condition

The surface condition complies with the requirements of SN EN 10277-1. 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

- Round bars, treated with XTP
- Dimension range 18 - 40 mm, tolerance h11
- Bar straightness 0.5 mm/m

Fabrication and other recommendations

Comparatively easy to machine, good weldability, good cold formability.

For further info on our product range of tool steel, stainless steel and Engineering steel please visit www.swisssteelgroup.com

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