

# Technical Datasheet

## Q&T Steel 33MnCrB5-2 XTP

### General product description:

Steeltec's Xtreme Performance Technology enables the boron-containing Q&T steel 33MnCrB5-2 to be modified to meet customer-specific processing or component requirements. As 33MnCrB5-2 XTP combines very high strength and toughness, it is particularly well suited for safety-relevant parts in automotive construction, such as chassis and suspension components and drive and transmission shafts. It is also suitable for components that are exposed to extremely low temperatures.

### Mechanical-technological properties

Variant	R <sub>p0.2</sub> [MPa]	R <sub>m</sub> [MPa]	A <sub>5</sub> [%]	A <sub>g</sub> [%]	Z [%]	KV <sub>RT</sub> [J]	T <sub>27</sub> [°C]
high strength, extreme toughness	880	940	17	6	60	130	-101
very high strength, very high toughness	1090	1130	15	4	60	100	-80
very high strength, high toughness	1290	1350	12	3	60	50	-40

Typical mechanical-technological values

R<sub>p0.2</sub> = yield strength (at 0.2% offset), R<sub>m</sub> = tensile strength, A<sub>5</sub> = elongation after fracture, A<sub>g</sub> = uniform elongation, Z = reduction of area at fracture, KV = notch impact energy as per DIN EN ISO 148-1:2017-05, RT = room temperature, T = temperature, T<sub>27</sub> = transition temperature at 27 J

### Chemical composition (cast analysis by mass-%)

Variant	C	Si	Mn	P	S	Cr	B
min.	0.30	-	1.20	-	-	0.30	0.0008
max.	0.36	0.40	1.50	0.025	0.035	0.60	0.0050

The chemical analysis corresponds to 33MnCrB5-2 (1.7185).

### Maximum carbon equivalent:

Max. CET (CEV) 0.55 (0.74)

Typ. CET (CEV) 0.50 (0.68)

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

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

### Surface properties:

Bars are 100 % eddy current tested acc. to surface quality class 3 of EN 10277-1. Bar ends untested on both sides with a length of 50 mm if not otherwise requested by customer.

### Miscellaneous:

Other agreements acc. to order.

### Condition of delivery:

Bars, XTP-treated

Diameter range 18 – 40 mm, tolerance h11

Bar straightness 0.5 mm/m

### Fabrication and other recommendations:

Moderately good machinability, good cold workability, good weldability.