

## Technical data sheet – 50CrMo4 (1.7228)

- Versatile engineering steel with high strengths and simultaneously high toughness

**Applications:** Rings, discs, shafts, bushings

### Chemical composition (DIN EN ISO 683-2 (09/2018))

mass fraction in %				
<b>50CrMo4</b>	<b>C [%]</b>	<b>Si [%]</b>	<b>Mn [%]</b>	<b>Cr [%]</b>
	0,46 - 0,54	max. 0,40	0,50 - 0,80	0,90 - 1,20
	<b>P [%]</b>	<b>S [%]</b>	<b>Mo [%]</b>	<b>V [%]</b>
	max. 0,025	max. 0,035	0,15 - 0,30	
	<b>Ni [%]</b>	<b>Cu [%]</b>		
		max. 0,40		

**Addition:** Si content can be reduced if alternative agents are used for deoxidation. Better machinability can be achieved by higher sulfur contents up to about 0.10% S (including controlled sulfide morphology) or lead additions. In this case, the upper limit of the Mn content may also be increased by 0.15%.

ISO 9001: 2015 TÜV NORD certified.

## Mechanical properties (DIN EN ISO 683-2 (09/2018))

### Flat products (QT):

Dimensions	0,2% Yield strength (Rp0,2)	Tensile strength (Rm)	Elongation (A 5,65)	Constriction (Z)	ISO-V/ Charpy-V
<= 8 mm	>= 900 MPa	1.100 - 1.300 MPa	>= 9 %	>= 40 %	
8 - 20 mm	>= 780 MPa	1.000 - 1.200 MPa	>= 10 %	>= 45 %	>= 30 J
20 - 60 mm	>= 700 MPa	900 - 1.100 MPa	>= 12 %	>= 50 %	>= 30 J
60 - 100 mm	>= 650 MPa	850 - 1000 MPa	>= 13 %	>= 50 %	>= 30 J
100 - 160 mm	>= 550 MPa	800 - 950 MPa	>= 13 %	>= 55 %	>= 30 J

### Round products (QT):

Dimensions	0,2% Yield strength (Rp0,2)	Tensile strength (Rm)	Elongation (A 5,65)	Constriction (Z)	ISO-V/ Charpy-V
<= 16 mm	>= 900 MPa	1.100 - 1.300 MPa	>= 9 %	>= 40 %	
16 - 40 mm	>= 780 MPa	1.000 - 1.200 MPa	>= 10 %	>= 45 %	>= 30 J
40 - 100 mm	>= 700 MPa	900 - 1.100 MPa	>= 12 %	>= 50 %	>= 30 J
100 - 160 mm	>= 650 MPa	850 - 1000 MPa	>= 13 %	>= 50 %	>= 30 J
160 - 250 mm	>= 550 MPa	800 - 950 MPa	>= 13 %	>= 55 %	>= 30 J

Annealed: <= 248 HBW

Achievable surface hardness (inductive/flame hardening):  
56-62 HRC in max. 6mm depth