

# DATENBLATT | DATASHEET

## Tool steel M50

Balls made of AISI M50 high-speed tool steel with high mechanical and hardness properties and great wear resistance at high temperatures.

### Field of application

Special bearings for aerospace applications at high temperatures.

### Corrosion resistance

Due to the Chrome portion, the corrosion resistance is higher than that of S2 tool steel.

### Material

X80MoCrV4 4	M50/T11350	1.3551
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### Chemical composition in %

C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Co	V	W
0,80 - 0,88	≤ 0,25	0,15 - 0,35	≤ 0,015	≤ 0,008	4,00 - 4,25	≤ 0,15	4,00 - 4,50	≤ 0,10	≤ 0,25	0,90 - 1,10	≤ 0,25

### Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	$\delta$	g/cm <sup>3</sup>	Physical	Environmental temp.	7,85
Modulus of elasticity	E	GPa	Mechanical	-	210
Specific heat	C	J/kg*K	Thermal	Environmental temp.	460
Coefficient of linear thermal expansion	$\alpha$	10 <sup>-6</sup> /°C	Thermal	(DT = 0 - 100 °C)	11,4
Thermal conductivity	$\lambda$	W/(m*K)	Thermal	Environmental temp.	25,0
Volume resistivity	$\rho$	$\Omega$ *m <sup>9</sup>	Electrical	-	600
Relative magnetic permeability	$\mu$	-	Magnetical	ferromagnetic	> 500

### Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Hardness	Mechanical	HRC	60 - 65		
Ultimate compressive strength	Mechanical	MPa	2500 - 2700	psi*10 <sup>3</sup>	362 - 391
Operating temperature	Thermal	°C	0 / 425	°F	32 / 797

### Available with

Diameter min/max (mm)	Diameter min/max (in)	Precision grade
1,000 - 150,000	3/64 - 6	acc. to ISO 3290-1 / DIN 5401 / AFBMA