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Tool steel M2

Balls made of tool high-speed steel AISI M2 with tungsten and vanadium. Good toughness and abrasion resistance.

Field of application

Special bearings, ball screws

Corrosion resistance

Balls made of M2 have the highest corrosion resistance among tool steels, despite being a material subject to corrosive attack by aggressive substances.

Material

HS 6-5-2	M2 / T11302	1.3343

Chemical composition in %

Type	C	Si	Mn	S	Cr	V	W
M2 Standard	0,78 - 0,88	0,20 - 0,40	0,20 - 0,40	≤ 0,03	3,75 - 4,50	1,60 - 2,20	5,00 - 6,75
M2 with increased carbon	0,95 - 1,05	0,20 - 0,40	0,20 - 0,40	≤ 0,03	3,75 - 4,50	1,60 - 2,20	5,00 - 6,75

Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	δ	g/cm^3	Physical	Environmental temp.	8,16
Modulus of elasticity	E	GPa	Mechanical	-	218
Specific heat	C	J/kg*K	Thermal	Environmental temp.	418
Coefficient of linear thermal expansion	α	10^{-6}/°C	Thermal	(DT = 0 - 100 °C)	10,6
Thermal conductivity	λ	W/(m*K)	Thermal	Environmental temp.	24,0
Volume resistivity	ρ	$\Omega*m^{-9}$	Electrical	-	570
Relative magnetic permeability	μ	-	Magnetical	ferromagnetic	> 500

Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Hardness	Mechanical	HRC	62 - 66		
Ultimate compressive strength	Mechanical	MPa	2300 - 2500	$psi*10^3$	334 - 362
Operating temperature	Thermal	°C	0 / 400	°F	32 / 752

Avaliable 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

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