

Datenblatt | Data sheet

Tungsten carbide ball with TC K20 Cobalt binder

The balls made of this type of material are used for applications where extreme hardness and resistance to wear, abrasion, impact and deformation are required. High degrees of precision can be achieved. Standard chemical composition for this article (Co content 5-7%).

Field of application

Special valves and precision hydraulic valves, couplers, flow meters, spray nozzles, ball screws, high load bearings, linear bearings, machine tools, sliding guides, precision measuring instruments, medical instruments.

Corrosion resistance

In general, the carbides with co-binder have good corrosion resistance when immersed in solutions, while they are unresistant to acidic solutions.

Material

Technical name	Alternative name	Abbreviation	
WC20	-	-	

Chemical composition in %

WC	Co		
93,00 - 95,00	5,00 - 7,00		

Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	δ	g/cm ³	Physical	Environmental temp.	14,95
Modulus of elasticity	E	GPa	Mechanical	-	650
Specific heat	C	J/kg*K	Thermal	Environmental temp.	225
Coefficient of linear thermal expansion	α	10 ⁻⁶ /°C	Thermal	(DT = 0 - 100 °C)	5,2
Thermal conductivity	λ	W/(m*K)	Thermal	Environmental temp.	83,0
Volume resistivity	ρ	Ω *m ⁹	Electrical	-	180
Relative magnetic permeability	μ	-	Magnetical	Slightly ferromagnetic	Max. 12

Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Grain size	Physical	μ m	~ 1,2		
Hardness	Mechanical	HRA	90,0 - 91,5	HV	1550 - 1780
Break load compression	Mechanical	MPa	4900 - 5800	psi*10 ³	797 - 841
Operating temperature	Thermal	°C	-196 / 540	°F	-320,8 / 1004

Available with

Diameter min/max (mm)	Diameter min/max (in)	Precision grade
0,200 - 127,000	1/64 - 5,0	G 5 / 10 / 16 / 20 / 25 / 28 / 40 / 60 / 100

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