

Datenblatt | Data sheet

Chrome steel 1.3505

Low alloy martensitic chrome steel, AISI 52100 thanks to its high hardness, wear resistance, surface finishing and dimensional precision, it is widely used to manufacture mechanical components.

Field of application

Special bearings, check valves, pumps and valves that operate in aggressive environments, petroleum pumps, flow meters, measurement instruments, medical devices.

Corrosion resistance

Excellent corrosion resistance in water, salt solutions, acids, they are resistant even into aggressive environments excepted hydrofluoric, hydrochloric acids, hot sulphuric acid and strong alkaline solutions.

Material

Technical name	Alternative Name	Valid standards
1.3505	UNI100Cr6, AISI52100, 100C6	ISO 3290-1 / DIN 5401

Chemical composition in %

Cr	C	Si	Mn	P	S	Ni	Mo	Cu
1,40 - 1,65	0,95 - 1,05	0,15 - 0,35	0,25 - 0,45	≤ 0,025	≤ 0,025	≤ 0,30	≤ 0,08	≤ 0,20

Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	δ	g/cm ³	Physical	Environmental temp.	7,80
Modulus of elasticity	E	GPa	Mechanical	-	200
Specific heat	C	J/kg*K	Thermal	Environmental temp.	464
Coefficient of linear thermal expansion	α	10 ⁻⁶ /°C	Thermal	(DT = 0 - 100 °C)	12,3
Thermal conductivity	λ	W/(m*K)	Thermal	Environmental temp.	42,4
Volume resistivity	ρ	Ω *m ⁻⁹	Electrical	-	215
Relative magnetic permeability	μ	-	Magnetical	ferromagnetic	> 300

Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Hardness	Mechanical	HRC	60 - 66		
Ultimate compressive strength	Mechanical	MPa	2500 - 2600	psi*10 ³	362 - 377
Operating temperature	Thermal	°C	-60 - 150	°F	-76 - 302

Available with

Diameter min/max (mm)	Diameter min/max (in)	Precision grade
0,250 - 300,000	1/64 - 12,0	G 10/15/16/20/24/25/28/40/48/50/60/80/100/200/300/500/600/700/1000

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