

AISI 440C STAINLESS STEEL BALLS

Martensitic hardened stainless steel balls, they feature remarkable hardness, wear resistance, surface finishing, and narrow dimensional tolerances. For that reason this type of steel is frequently used in precision devices. Balls are provided in the passivated condition.

Applications

Precision bearings, anti-friction bearings, special valves, conveyor belts and rollers, ballpoint pens. They are used in foodstuff, medical instruments, quick couplings, recirculating ball bearings, knotting devices, oil refinery devices.

Chemical composition

%C	%Si	%Mn	%P	%S	%Cr	%Mo	-	-	-	-
0.95-1.20	1.00 max	1.00 max	0.040 max	0.030 max	16.00-18.00	0.75 max	-	-	-	-

International standards

ITA	USA	GER	FRA	UK	RUS	CHN	JAP
X 105CrMo17	440C	1.4125	Z100CD17	-	95X18	9Cr18Mo	SUS440C

Physical / mechanical / thermal / electric / magnetic properties

Property	Symbol	U.o.M.	Type	Notes	Values
Density	δ	[g/cm ³]	Physical	Room temp.	7.75
Young's modulus	E	[GPa]	Mechanical	-	210
Specific heat	c	[J/kg-K]	Thermal	Room temp.	450
Coefficient of linear thermal expansion	α	[10 ⁻⁶ /°C]	Thermal	($\Delta T=0-100^{\circ}C$)	10.2
Thermal conductivity	λ	[W/(m·K)]	Thermal	Room temp.	19.6
Electric resistivity	ρ	[$\Omega \cdot m \cdot 10^{-9}$]	Electric	-	680
Relative magnetic permeability	μ	-	Magnetic	Not hardened	> 700

Technical data

Property	Type	U.o.M.	Values	U.o.M.	Values
Hardness	Mechanical	[HRC]	57 - 65	-	-
Ultimate tensile strength	Mechanical	[MPa]	1900 - 2000	[psix10 ³]	275 - 290
Service temperature	Thermal	[°C]	0 - 400	[°F]	32 - 752

Range

Diameters (min/max)	U.o.M.	Diameters (min/max)	U.o.M.	Precision Grade (ISO 3290)
0.300 - 300.000	[mm]	1/64 - 12	["]	G10-16-20-25-28-40-50-60-100-200-500-1000-2000

Corrosion Resistance

The material resists to corrosion in contact with freshwater, steam, oil, petrol, alcohol. They are subjected to pitting corrosion in sea water environments. Poor corrosion resistance in acid environments.