

AISI 316/316L STAINLESS STEEL BALLS

Austenitic stainless steel balls with higher corrosion resistance than AISI 304 balls. They show good toughness. AISI 316L has a lower carbon content (maximum 0,030%). Balls are provided in the passivated condition.

Applications

Special bearings, pumps and valves, aerosol and dispenser sprayers. Utilised in the foodstuff, paper, chemical, rubber, military, and textile industry. Applications in photographic devices, medical instruments, quick couplings, recirculating balls, ink cartridges, jewels.

Chemical composition

Type	%C	%Si	%Mn	%P	%S	%Cr	%Ni	%Mo	-	-	-
316	0.080 max	1.00 max	2.00 max	0.045 max	0.030 max	16.00-18.00	10.00-14.00	2.00-3.00	-	-	-
316L	0.030 max	1.00 max	2.00 max	0.045 max	0.030 max	16.00-18.00	10.10-14.00	2.00-3.00	-	-	-

International standards

ITA	USA	GER	FRA	UK	RUS	CHN	JAP
X5CrNiMo1712	316	1.4401	Z6CND17.11	316S16	08KH16N11M3	0Cr17Ni12Mo2	SUS316
X2CrNiMo1712	316L	1.4404	Z3CND17-11-02	316S11	03KH17N14M2	0Cr19Ni12Mo2	SUS316L

Physical / mechanical / thermal / electric / magnetic properties

Property	Symbol	U.o.M.	Type	Notes	Values
Density	δ	[g/cm ³]	Physical	Room temp.	7.95
Young's modulus	E	[GPa]	Mechanical	-	200
Specific heat	c	[J/kg·K]	Thermal	Room temp.	500
Coefficient of linear thermal expansion	α	[10 ⁻⁶ /°C]	Thermal	($\Delta T=0-100^{\circ}C$)	17
Thermal conductivity	λ	[W/(m·K)]	Thermal	Room temp.	15.0
Electric resistivity	ρ	[$\Omega \cdot m \cdot 10^{-9}$]	Electric	-	730
Relative magnetic permeability	μ	-	Magnetic	Paramagnetic	1.020*

Technical data

Property	Type	U.o.M.	Values	U.o.M.	Values
Hardness	Mechanical	[HRC]	10 - 25 (1)*	[HRC]	25 - 39 (2)*
Ultimate tensile strength	Mechanical	[MPa]	550 - 1250	[psix10 ³]	80 - 180
Service temperature	Thermal	[°C]	-196 / 600	[°F]	-320.8 / 1112

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

Very good corrosion resistance with respect to organic substances, good resistance to several strong acids (acetic, phosphoric, sulphuric acid) and on sea water. They are subjected to pitting and crevice corrosion in presence of hot chloride solutions and to stress corrosion when temperature exceeds 60°C. They do not resist in contact with hydrochloric and hydrofluoric acids, aqua regia, iron and magnesium chlorides.

Notes

Property	Description
Hardness*	Balls can be supplied in the ANNEALED (HRC 10-25) or COLD WORKED (HRC 25-39) conditions.
Magnetism	Eventual magnetism of AISI 316 balls and in general of all austenitic stainless steels strictly depends by the manufacturing process, specific inquiries for not magnetic balls should requested.
Precision grade**	On specific request and for big quantities, we can supply G10 and G16 precision grade balls. Diameters from 3.000 mm to 1/2".