

Datenblatt | Data sheet

Stainless steel ball 1.4301 - 1.4307

Balls made of untempered austenitic stainless steel in V2A quality, characterized by good mechanical properties, high toughness and corrosion resistance. AISI 304L steel is characterized by a carbon content that reaches the lower permissible limit. The balls are supplied in passivated condition.

Field of application

Special bearings and pumps, pumps for aerosol, spray nozzles for horticulture and household products, microspray pumps for perfumes, joints, valves for medical applications, pumps for field sprayers, ball screws; food industry, aerospace, military.

Corrosion resistance

Excellent corrosion resistance when in contact with organic chemicals, oxidizing solutions, food and sterilizing solutions. Good resistance to atmospheric corrosion and dyes. Susceptible to pitting and crevice corrosion in the presence of warm chlorides and to stress corrosion at temperatures above 60 °C. Unresistant to sulfuric acid solutions. There is no significant difference between 304 and 304L in terms of corrosion resistance.

Material

Technical name	Alternative name	Valid standards
1.4301	AISI304, X5CrNi1810	ISO 3290-1 / DIN 5401
1.4307	AISI304L, X2CrNi18-9	ISO 3290-1 / DIN 5401

Chemical composition in %

	C	Si	Mn	P	S	Cr	Ni	N
1.4301	<= 0,080	<= 0,75	<= 2,00	<= 0,045	<= 0,030	18,00 - 30,00	8,00 - 15,00	0,100
1.4307	<= 0,030	<= 0,75	<= 2,00	<= 0,045	<= 0,030	18,00 - 30,00	8,00 - 15,00	0,100

Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	δ	g/cm ³	Physical	Environmental temp.	7,95
Modulus of elasticity	E	GPa	Mechanical	-	200
Specific heat	C	J/kg*K	Thermal	Environmental temp.	500
Coefficient of linear thermal expansion	α	10 ⁻⁶ /°C	Thermal	(DT = 0 - 100 °C)	17,5
Thermal conductivity	λ	W/(m*K)	Thermal	Environmental temp.	15,8
Volume resistivity	ρ	Ω *m ⁹	Electrical	-	710
Relative magnetic permeability	μ	-	Magnetical	solution heat treated	1,025*

* Magnetism: Since the magnetism of balls made of AISI304 and, in general, of all austenitic stainless steels is closely related to the type of processing, specific requests for non-magnetic balls must be made in advance.

Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Hardness	Mechanical	HRC	20 - 39	HV	100 - 250*
Ultimate compressive strength	Mechanical	MPa	500 - 1300	psi*10 ³	72 - 188
Operating temperature	Thermal	°C	-196 - 700	°F	-320,8 - 1292

* Hardness: Solution heat treated balls (HV 100 - 250) on request

Available with

Diameter min/max (mm)	Diameter min/max (in)	Präzisionsgrad
0,300 - 300,000	1/64 - 12,0	G 40 / 100 / 200 / 300 / 500 / 600 / 700 / 1000; G 5 and G10 on request