

ALUMINIUM ALLOYS BALLS SERIES 2XXX

Light balls feature good corrosion and wear resistance, very good surface finishing. 2xxx series alloys allow to get better mechanical characteristics. Balls can be provided in the passivated condition.

Applications

Special bearings and valves, sealing elements (crushed balls), they are used in automotive industry (safety devices), aviation and aerospace industry, electronic industry, welding processes.

Chemical composition

Type	%Si	%Fe	%Mn	%Cr	%Cu	%Ti	%Al	%Mg	%Zn	-	-
2017	0,20-0,80	0,70 max	0,40-1,00	0,10 max	3,50-4,50	0,15 max	balance	0,40-0,80	0,25 max	-	-
2024	0,50 max	0,50 max	0,30-0,90	0,10 max	3,80-4,90	0,15 max	balance	1,20-1,80	0,25 max	-	-

International standards

Type	Series	Description	Detail	Description
Al 2017W / Al-2024-T351	2xxx	Al-Cu alloy	T3	Solution heat treated, cold worked and naturally aged.

Physical / mechanical / thermal / electric / magnetic properties

Property	Symbol	U.o.M.	Type	Notes	Values
Density	δ	g/cm ³	Physical	Room temp.	2,78
Young's modulus	E	GPa	Mechanical	-	73
Specific heat	c	J/kg·K	Thermal	Room temp.	795
Coefficient of linear thermal expansion	α	10 ⁻⁶ /°C	Thermal	($\Delta T=0-100^{\circ}C$)	22,9
Thermal conductivity	λ	W/(m·K)	Thermal	Room temp.	136,0
Electric resistivity	ρ	$\Omega \cdot m \cdot 10^{-9}$	Electric	-	43
Relative magnetic permeability	μ	-	Magnetic	Paramagnetic	1,004

Technical data

Property	Type	U.o.M.	Values	U.o.M.	Values
Hardness	Mechanical	HV	126-137	-	-
Ultimate tensile strength	Mechanical	MPa	400-500	psix10 ³	58 - 72
Service temperature	Thermal	°C	-196 / 200	°F	-320,8 / 392

Range

Diameters (min/max)	U.o.M.	Diameters (min/max)	U.o.M.	Precision Grade (ISO 3290)
1,000 - 150,000	mm	3/64 - 6	"	G100-200-500-1000

Corrosion Resistance

2xxx series alloys are lower resistant than 1xxx series alloys due to the significant Cu content, that can generate galvanic reactions. They can be affected by corrosion under industrial and sea environments. All aluminium alloys are subjected to pitting corrosion in presence of chlorides.