RGP BALLS®

PRECISION BALLS

www.rgpballs.com

Welcome

COMPANY PROFILE

WELCOME TO OUR WORLD: PRECISION.

For over fifty years, we have been among Europe's leading companies in the manufacturing, trading and distribution of precision balls, rollers and ball transfer units.

WE MOVE MOUNTAINS TO GET THE DETAILS PERFECT

Over 70 people working together since long time in our headquarter in Cinisello Balsamo: at Rgpballs we have about 10,000 m2 of know-how and expertise. We consistently work on innovations to stay at the forefront. With us, everything is about quality.

CHOOSING RGPBALLS® MEANS CHOOSING EXPERTISE, ...

Nothing says more than time. We have over 50 years of efforts, breakthroughs, and expertise under our belts. And we keep improving everyday.

METHOD, ...

Science pushes us far, a consultative spirit keeps us close to your needs.
And this is how we manage to handle the broadest range of inquiries.

SPEED.

Time is valuable, exactly like our warehouse.
Indeed, more stock available means less time needed to satisfy any demand.

AN "EVERYTHING, RIGHT NOW" WAREHOUSE.

You also know that in an ever-changing business, speed is competitiveness.
Our warehouse is a valuable resource with more than 5,000 tons of products regularly in stock.
We can guarantee prompt delivery for most of our customers' needs worldwide.

WE HAVE MORE THAN 3,000 CUSTOMERS ALL AROUND THE WORLD, AND WE SPEAK THEIR LANGUAGES.

Our catalogue is international; wherever you are, you can select our products and consult with our experts, without worrying about physical or language barriers.
Our team can speak all major languages: Italian, German, English, French, Spanish, Ukrainian, Russian, Chinese, and Romanian.

A FAMILY BUSINESS.

We are a company that is also a big family. You won't find any board of directors with us, only the passion we put into each and every challenge. Our business is so stable that after 50 years we are still here, with all the professionalism of an international business.

10.000 m² headquarter

80 employees

4.000 tons of products

+3.000 customers

CERTIFICATION:

CERTIFICATION FOR MANAGEMENT SYSTEMS:
ISO 9001:2015 – ISO 14001:2015 – ISO 45001:2018
PRODUCT CERTIFICATION ACCORDING TO TUV-PROFiCERT PROCEDURES

GLASS

SODA LIME GLASS BALLS

Light weight glass balls, they are chemically inert and they allow to get excellent surface finishing.

Applications
Special bearings and valves, plastic bearings, low-cost check valves, metering pumps, flow meters, measurement instruments, agitators, optic fiber devices, ink cartridges, closures for bottle, shot blasting, grinding. They are used even into art and decoration fields.

Chemical composition

%SiO2	%Na2O	%CaO	%MgO	%Al2O3	%Li2O	%K2O	%TiO2	%Fe2O3	% PbO	-	-
63,00-81,00	9,00-15,00	7,00-14,00	6,00 max	2,00 max	2,00 max	1,50 max	0,80 max	0,80 max	0,010 max	-	-

Physical / mechanical / thermal / electric / magnetic properties

Property	Symbol	U.o.M.	Type	Notes	Values
Density		g/cm3	Physical	Room temp.	2,50
Young's modulus	E	GPa	Mechanical	-	70
Refractive index	n	-	Optic	-	1,518
Softening temperature	-	ºC/ºF	Thermal	Room temp./P.atm.	726 / 1340
Coefficient of linear thermal expansion		10^-6/ºC	Thermal	(T=0-100ºC)	9,4
Thermal conductivity		W/(m·K)	Thermal	Room temp.	1,00
Volume resistivity		*m	Electric	-	> 10^14
Relative magnetic permeability	μ	-	Magnetic	Diamagnetic	<~1

Technical data

Property	Type	U.o.M.	Values	U.o.M.	Values
Hardness	Mechanical	Knoop	465 - 585	Mohs	6
Ultimate compressive strength	Mechanical	MPa	900 - 1100	psix10^3	131 - 159

Property	Type	U.o.M.	Values	U.o.M.	Values
Service temperature	Thermal	ºC	0 / 200	ºF	32 / 392

Range

Diameters (min/max)	U.o.M.	Diameters (min/max)	U.o.M.	Precision grades
1,000 - 100,000	mm	3/64 - 4	"	G50-100-200-500-1000-2000

Corrosion Resistance
Basically inert material, soda lime balls resist even to strong alkaline solutions.

BOROSILICATE GLASS BALLS

Glass balls with high chemical and thermal stability. They are electric insulators and they are resisting even at strong external strengths and pressure variations.

Applications
Special valves, safety valves, metering pumps. They are used in the pharmaceutical field and photographic devices.

Chemical composition

%SiO2	%Na2O	%CaO	%Al2O3	%B2O3	%K2O	%BaO	-	-	-	-	-
65,00-85,00	3,00-9,00	2,50 max	1,00-5,00	8,00-15,00	2,00 max	1,00 max	-	-	-	-	-

Physical / mechanical / thermal / electric / magnetic properties

Property	Symbol	U.o.M.	Type	Notes	Values
Density		g/cm3	Physical	Room temp.	2,23
Young's modulus	E	GPa	Mechanical	-	64
Refractive index	n	-	Optic	-	1,471
Softening temperature	-	ºC/ºF	Thermal	Room temp./P.atm.	821 / 1510
Coefficient of linear thermal expansion		10^-6/ºC	Thermal	(T=0-100°C)	3,30
Thermal conductivity		W/(m·K)	Thermal	Room temp.	1,15
Volume resistivity		*m	Electric	-	> 10^15
Relative magnetic permeability	μ	-	Magnetic	Diamagnetic	<~1

Technical data

Property	Type	U.o.M.	Values	U.o.M.	Values
Hardness	Mechanical	Knoop	420 - 520	Mohs	6
Ultimate compressive strength	Mechanical	MPa	1900 - 2100	psix10^3	275 - 305
Service temperature	Thermal	ºC	0 / 200	ºF	32 / 392

Range

Diameters (min/max)	U.o.M.	Diameters (min/max)	U.o.M.	Precision grades
1,000 - 100,000	mm	3/64 - 4	"	G10-25-50-100-200-500-1000-2000

Corrosion Resistance

Borosilicate balls have excellent corrosion resistance into water, most acid compounds, salt solutions, organic solvents and halogens. They are useful to resist in strong oxidizing environments. Fairish resistance to alkaline solutions, they do not resist to strong alkaline solutions, hydrofluoric acid and hot concentrated phosphoric acid.

BLACK GLASS BALLS

High dimensional stability, these balls are resistant to corrosion and to chemical absorption.

Applications
Medical and chemical flowmeters, aircraft slips, turn indicators. Variety of functions, most common use into precision instruments.

Chemical composition

%SiO2	%Na2O	%CaO	%Al2O3	%B2O3	%K2O	%BaO	%MnO2	-	-	-	-
65,00-75,00	9,50-15,50	3,00-5,00	1,00 max	1,00-3,00	2,00-3,00	3,00-4,00	5,00-7,00	-	-	-	-

Physical / mechanical / thermal / electric / magnetic properties

Property	Symbol	U.o.M.	Type	Notes	Values
Density		g/cm3	Physical	Room temp.	2,57
Young's modulus	E	GPa	Mechanical	-	66
Refractive index	n	-	Optic	-	1,520
Softening temperature	-	ºC/ºF	Thermal	Room temp./P.atm.	650 / 1202
Coefficient of linear thermal expansion		10^-6/ºC	Thermal	(T=0-100°C)	7,2
Thermal conductivity		W/(m·K)	Thermal	Room temp.	0,76
Volume resistivity		*m	Electric	-	> 10^14
Relative magnetic permeability	µ	-	Magnetic	Diamagnetic	<~1

Technical data

Property	Type	U.o.M.	Values	U.o.M.	Values
Hardness	Mechanical	Knoop	468 - 530	Mohs	6
Ultimate compressive strength	Mechanical	MPa	750 - 950	psix10^3	109 - 138
Service temperature	Thermal	ºC	0 / 300	ºF	32 / 572

Range

Diameters (min/max)	U.o.M.	Diameters (min/max)	U.o.M.	Precision grades
1,000 - 100,000	mm	3/64 - 4	"	G25-50-100-200-500-1000-2000

Corrosion Resistance

Good corrosion resistance in contact with most acid and basic compounds.

QUARTZ (SiO2) BALLS

Pure amorphous silicone dioxide (fused silica) transparent balls, they feature elevated hardness, heat resistance, excellent optical properties (high trasmittance both in UV and IR wavelengths).

Applications
They are mainly used in optical devices and anti-reflective coatings.

Chemical composition (%)

%SiO2	% Other	-	-	-	-	-	-	-	-	-	-
99,99	0,01	-	-	-	-	-	-	-	-	-	-

Physical / mechanical / thermal / electric / magnetic properties

Property	Symbol	U.o.M.	Type	Notes	Values
Density		g/cm3	Physical	Room temp.	2,20
Young's modulus	E	GPa	Mechanical	-	73
Refractive index	n	-	Optic	-	1,459
Softening temperature	-	ºC/ºF	Thermal	Room temp./P.atm.	1650 / 3002
Coefficient of linear thermal expansion		10^-6/ºC	Thermal	(T=0-100°C)	0,5
Thermal conductivity		W/(m·K)	Thermal	Room temp.	1,42
Volume resistivity		*m	Electric	-	> 10^15
Relative magnetic permeability	μ	-	Magnetic	Diamagnetic	<~1

Technical data

Property	Type	U.o.M.	Values	U.o.M.	Values
Hardness	Mechanical	Knoop	500 - 700	Mohs	7
Ultimate compressive strength	Mechanical	MPa	1050 - 1150	psix10^3	152 - 166
Service temperature	Thermal	ºC	0 / 1000	ºF	32 / 1832

Range

Diameters (min/max)	U.o.M.	Diameters (min/max)	U.o.M.	Precision grades
0,300 - 50,000	mm	1/64 - 2	"	G10-25-50

Corrosion Resistance

Fused silica balls are insoluble in water, they resist against strong acids (chloridric, nitric, sulphuric) except hydrofluoric acid. They are not resisting against alkaline solutions (they are attacked by sodium hydroxide, potassium hydroxide, sodium carbonate).

PRECISION GRADES OF GLASS BALLS

Material	Minimum diameter	Maximum diameter	Units	Precision grade	Tolerance on diameter	Units	Roundness	Units
BSG/QUA	0,300	3,499	mm	G10	+/- 2,5	µm	0,25 max	µm
BSG/QUA	3,500	10,000	mm	G10	+/- 5	µm	0,30 max	µm
BSG	10,001	12,700	mm	G10	+/- 5	µm	0,30 max	µm
BSG/BLG/QUA	0,300	3,499	mm	G25	+/- 2,5	µm	0,63 max	µm
BLG	3,500	12,700	mm	G25	+/- 2,5	µm	0,63 max	µm
BSG/QUA	3,500	10,000	mm	G25	+/- 10	µm	0,50 max	µm
BSG	10,001	12,700	mm	G25	+/- 10	µm	0,50 max	µm
BSG/QUA	0,300	50,000	mm	G28	+/- 5	µm	1,00 max	µm
BSG	1,000	25,400	mm	G40	+/- 5	µm	5,00 max	µm
SLG/BSG/BLG	1,000	100,000	mm	G50	+/- 10	µm	10 max	µm
SLG/BSG/BLG	1,000	100,000	mm	G100	+/- 20	µm	20 max	µm
SLG/BSG/BLG	1,000	100,000	mm	G200	+/- 30	µm	30 max	µm
SLG/BSG/BLG	1,000	100,000	mm	G300	+/- 50	µm	50 max	µm
SLG/BSG/BLG	1,000	100,000	mm	G500	+/- 100	µm	100 max	µm
SLG/BSG/BLG	1,000	100,000	mm	G600	+/- 200	µm	-	-
SLG/BSG/BLG	1,000	100,000	mm	G700	+/- 300	µm	-	-
SLG/BSG/BLG	1,000	100,000	mm	G1000	+/- 500	µm	-	-
SLG/BSG/BLG	1,000	100,000	mm	G2000	+/- 1000	µm	-	-

Legend of materials

SLG	Sodalime Glass

BSG	Borosilicate Glass
BLG	Black Glass
QUA	Quartz

MAKE YOUR WORLD MOVE

® RGPBALLS S.r.l.

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