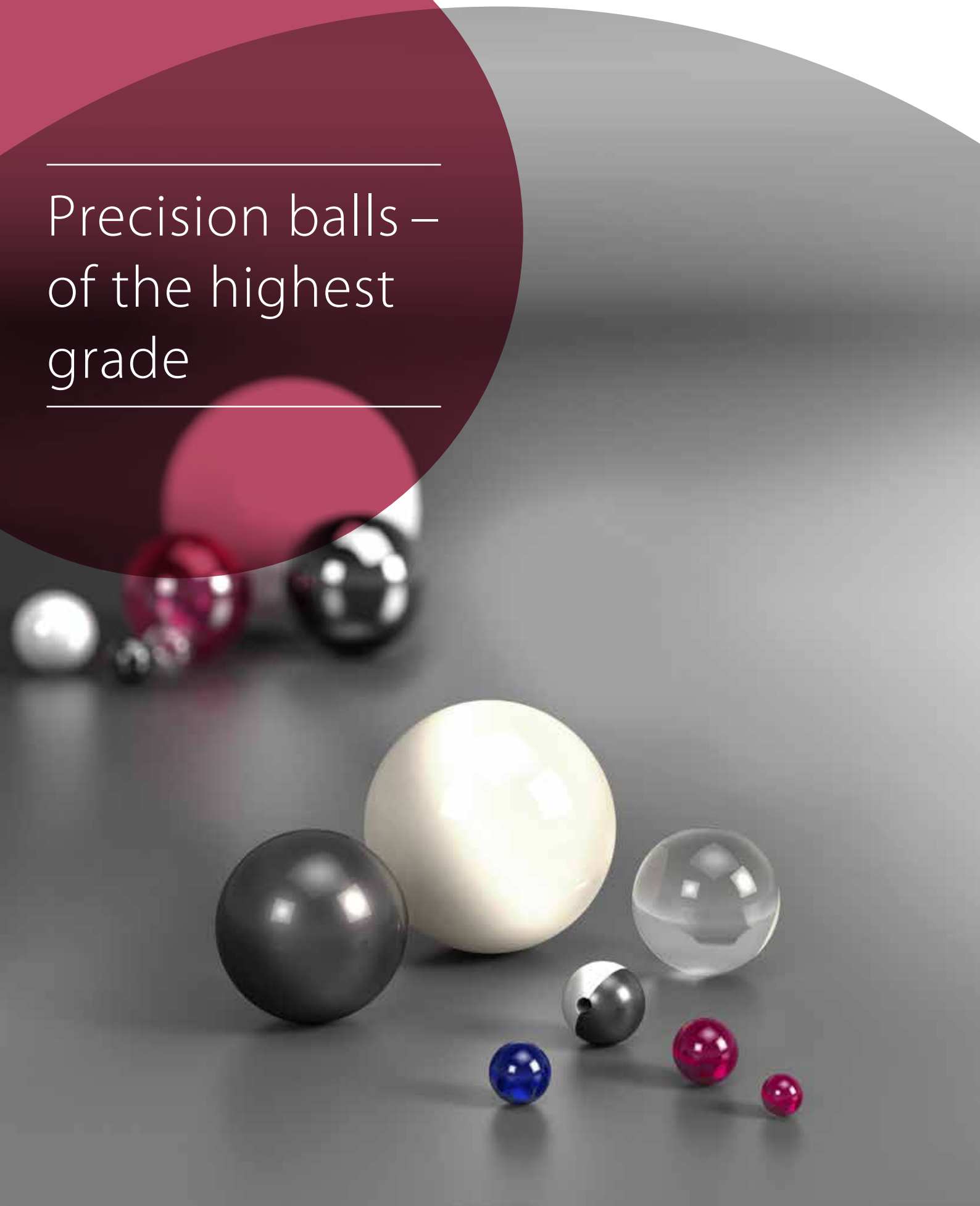
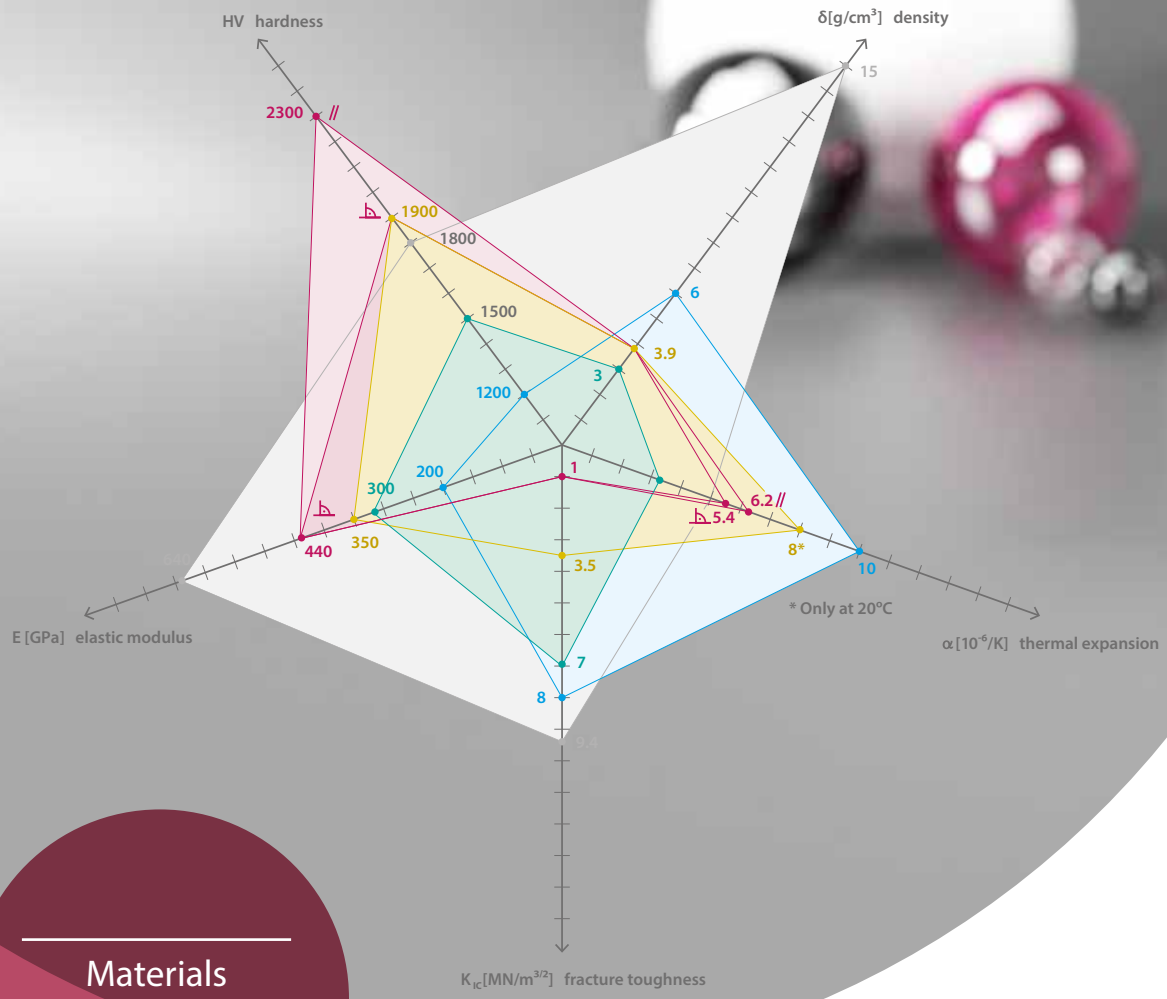
saphirwerk
swiss precision in ceramics

Precision balls – of the highest grade





Materials and range

Sapphire
Extremely hard material, completely transparent, monocrystalline alumina, synthetically manufactured and inert to aggressive media such as acids and alkalis.

Ruby
Red version of sapphire, contains a small amount of chromium oxide. The most widely used material for styli balls.

Alumina
Simply referred to as ceramic, this is the most widely used high-performance ceramic material. Extremely hard, good insulator. As purity enhances the mechanical properties Saphirwerk only uses the highest-purity Al_2O_3.

Zirconia
High resistance to fracture achieved through stabilisation. Thermal expansion similar to steel. Applications include rigid rods and balls for ball bearings.

Silicon nitride
Very high resistance to fracture, small elastic modulus and low thermal expansion coefficient. Particularly wear-resistant. Uses include ball bearings.

Carbide
Composite material characterised by its wearresistance due to high level of hardness. Note its high density. Used mainly for cutting tools.

Properties of processed materials by Saphirwerk AG: www.saphirwerk.com

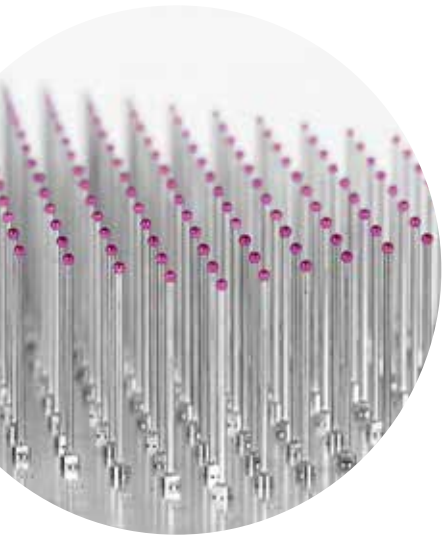
Our balls have made a name for themselves worldwide thanks to their exceptional accuracy and high quality. We have honed and perfected our process over many years, enabling us to achieve precise repeatability. Reliable and, on request, in multiple versions.

The ceramic balls are made from the toughest materials and are available in many different sizes: the smallest has a diameter of less than 0.2 mm, while the largest is over 50 mm in diameter.

Our experience and expertise will provide you with the right solution.

Dimensional and shape accuracy, roughness per DIN 5401 – Part 1

Class	Ball Ø up to	Deviation from perfect shape T_{DWS}	Surface roughness R_a max.	Diameter variation in LoS V_{DWL}
G3	12.7 mm	0.08 µm	0.010 µm	0.13 µm
G5	12.7 mm	0.13 µm	0.014 µm	0.25 µm
G10	25.4 mm	0.25 µm	0.020 µm	0.50 µm
G16	25.4 mm	0.40 µm	0.025 µm	0.80 µm
G20	38.1 mm	0.50 µm	0.032 µm	1.00 µm



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SCS 073 ISO 9001 ISO 13485

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