

The hardest  
materials  
machined  
to perfection



**S**aphirwerk is a globally operating manufacturer of high-precision components made out of ceramics.

The passion for processing the hardest materials has made us one of the leading manufacturers of balls, styli and other precision ceramic components.

Saphirwerk is an SME and belongs to the family-run Swiss holding AGZ Group. With an open corporate culture that puts people first, we have succeeded in perfecting procedures over

a number of generations since 1917. The innovative skills of our young staff and the experience of long-standing members of staff have led to sophisticated polishing and grinding procedures with a high level of process reliability and repeatability. We are constantly investing in optimising our processes.

Apart from standard components, we also cater to new customer demands and find solutions that result in high customer satisfaction.

#### **Our core segments**

Saphirwerk manufactures a broad range of precision components in various segments:

- precision balls
- metrology
- medical technology
- dosing technology
- luxury goods
- high-tech components

Striving to perfect precision is our passion



A consistent quality is a must and we strive to improve this continually.

As proof of our passion for the perfect shape of a ceramic ball, here is a quotation from the Physikalisch-Technische Bundesanstalt (PTB) (German national metrology institute): "All four balls with a diameter of 25 mm have a roundness deviation

at the equator of significantly less than 10 nm. In our calibration service of over 20 years, we have never measured any balls as good as these. Even in case of semi-balls roundness deviations under 10 nm are the exception. I think these results are confirmation of your outstanding work."

Saphirwerk has its own calibration laboratory with ex-

tremely accurate measuring equipment accredited by the Swiss Accreditation Service (SAS). This enables us to ensure the quality of our own products, as well as being able to issue SCS certificates for other companies.



The combination  
of experience  
and innovation

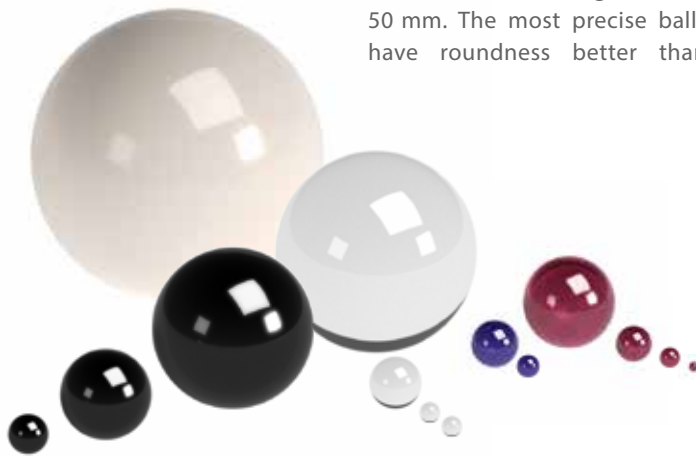




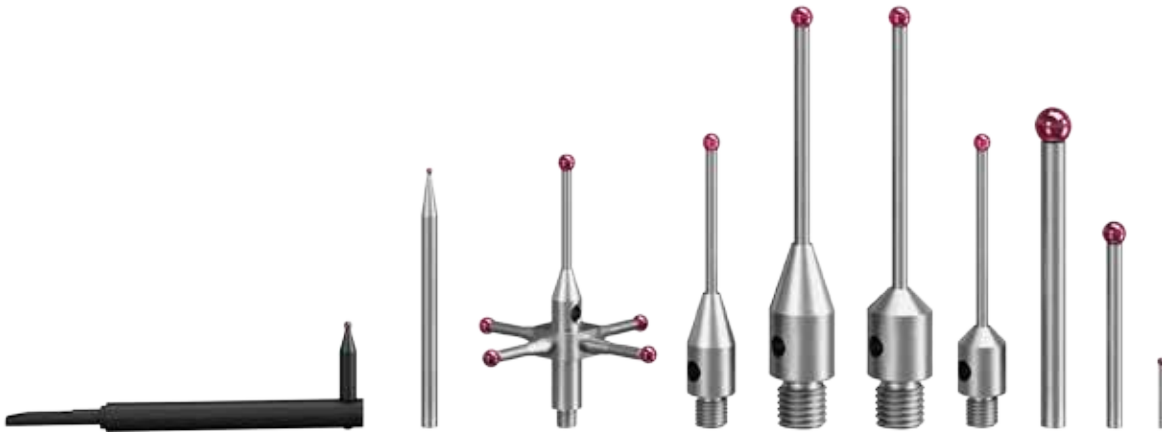
## Precision balls – of the highest grade

We are particularly well renowned as a manufacturer of the world's most precise balls. The assortment includes balls averaging a diameter of fewer than 0.2 and higher than 50 mm. The most precise balls have roundness better than

40 nm, this means 0.00004 mm. Ceramic materials such as ruby, sapphire, alumina, zirconia, silicon nitride or tungsten carbide are used. Such balls are used mainly in metrology, dosing technology and many other special applications.



## Metrology – no limits



Our precise balls are in demand as reference elements or as styli in coordinate measuring machines (CMM). There are hundreds of variant styli for a large number of

multifaceted measuring tasks in all kinds of industries from watch parts to rotor blades for wind wheels. Our clients include key global CMM producers.

## Medical technology – a finger on the pulse

Ceramic is playing an increasingly important role in medical technology. The material offers keen advantages over other materials in terms of aesthetics or compatibility. Our many years

of experience in processing medical ceramics is highly valued by our customers who order femoral heads in the orthopaedic business.



Dosing technology –  
customised

Our components are used with conviction in dosing equipment that is used mainly in the pharmaceutical sector. The equipment in this case is, e.g. ball/valve, piston/cylinder combinations. We offer a high-precision dosing equipment as a product: the MDP pump.



Luxury goods –  
pure aesthetics

The beauty of a watch lies in fine and carefully processed parts. We can make a special contribution here thanks to our keen, skilled use of all ceramic materials – from sapphire to zirconia. Our craft extends beyond the shape to surface design as well.

Ceramics have the following advantages over other traditional materials:

- scratchproof
- anti-allergic/dermatologically compatible
- low weight
- colour homogenous



## High-tech components

We help our clients to develop ceramic components. We can also offer cost savings in green machining via our associate company. Additionally, an adapted machine park allows us to produce complex shapes and guarantees the requested surface quality in finishing.

Among others the following companies rely on our quality:





SCS 073



ISO 9001:2008



ISO 13485:2010

# saphirwerk ●

swiss precision in ceramics

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