

PRESS RELEASE

Lengnau, Switzerland – June 2023

RADO
SWITZERLAND
MASTER OF MATERIALS

Rado – Virtuosity in design, Mastery in materials

Wonderful things can be said, quite justifiably, about the special, unmistakable feel of Rado High-Tech Ceramic, under human touch. Yet, this highly innovative product is just one of many iconic markers along the fascinating journey travelled by the "Master of Materials", turning Rado's timeless motto from dream to reality: *"If we can imagine it, we can make it. And if we can make it, we will."* Featuring the iconic Captain Cook Limited Edition model, the brand has produced a new video that details with brilliant visual poetry and atmosphere, the symbolic coming together of materials and inspiration, to bring that timepiece to life. The film highlights why watch lovers everywhere say, about high-tech ceramic, that it "feels like nothing else". Absolutely. Created from the timeless minerals of earliest stars and shaped by human innovation, high-tech ceramic is totally unique.

Since its founding over a century ago, Rado has continuously widened the search for new alloys and materials to add to its watch designs and production. Bringing together the best of engineering, chemistry and physics has allowed the brand to create landmark alloys or introduce existing ones into their designs, such as the use of tungsten carbide "Hardmetal" in their 1962 DiaStar 1 model, the first watch ever to bring together a scratch-proof case and a sapphire crystal glass. Those were truly exceptional materials in the early Sixties, and production itself required tremendous innovation, partly responsible for the remarkable and quite unique shape of the first DiaStar. Innovation in materials was breeding synergies and bringing about new technics, improving every facet of production at Rado.

While such exceptional, noble materials were finding their way into product lines, research was ongoing, into further materials and innovation. Some of the most creative of these processes involved clever technical improvements such as the addition of polymer binding agents to allow injection-moulding, or the use of a titanium-nitride-based CVD treatment to create extremely resistant finishes that brilliantly emulated gold or other similar alloys. Simultaneously, Rado continued to raise the standards in extremely resistant sapphire crystal production, milling and shaping. Among the most iconic timepieces to feature such exquisite work were the Captain Cook series with their distinctive box-shaped glass, at once a perfect match for the rugged character of the watch and the gorgeous geometrics that compose the design.

While the Nineties saw strong exploration in technics and materials aiming to achieve permanent, intrinsic colour for Rado's "High-Tech Ceramic" introduced in 1986, it was really the turn into the current millennium that asserted the brand's expertise in the field of coloured ceramics. Out of the darker, simpler colours of the early years suddenly emerged beautiful pastel shades and delightful, brilliant colours that complemented the material's sensuous feel. What had begun as a mostly monochromatic material began to speak and sing in a variety of colours, counting more than 20 at present, much to the market's predictable delight. Early conversation had focused largely on an interesting grey material with impressive properties, as was the case with "Hardmetal" but suddenly new ones came downstream, with Ceramos™ and then High-Tech Ceramic and its broad range of colours. Not only were the latest watches incredibly lightweight and sensuous to touch, but they were showing up in fabulous colours, including all those radiant, polychromatic shades in the Le Corbusier product line. Somehow, thanks to the magic of the human senses, the colours appeared to enhance yet further the perception and feel of that exquisite high-tech ceramic texture. Gold colour and rose-gold and many other durable and credible metallic-looking finishes arrived, along with ingenious production technics such as injection-moulding and plasma and a mysterious sapphire-crystal breeding process, to make entire lines of breathtaking timepieces possible, from the "Master of Materials".

The new video gives a tiny glimpse into the magical world of high-tech ceramic and sapphire crystal, part of the outstanding journey of Rado, "Master of Materials".





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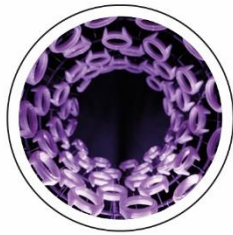
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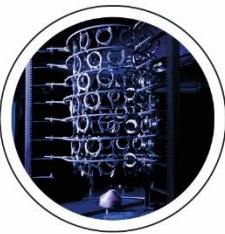
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07A

07B



08.

09.



1. MOULD DESIGN

A mould is created from drawings by our designer.

2. INJECTION MOULDING

The mould is placed deep inside a mighty machine, where the injection process takes place.

3. SINTERING

The cases are placed inside a special oven, at extremely high temperature (1450°C). Over many hours the ceramic fully hardens and acquires its intense final colour and maximum hardness, while the polymer evaporates. During this process, the case shrinks by 23% to its final size.

4. MACHINING

Precision machining with diamond tools ensures the final dimensions are absolutely accurate.

5. POLISHING

Components destined for exceptional brilliance are plunged into a bath of tiny ceramic fragments that are vibrating at a high frequency.

6. SANDBLASTING

Sandblasting is used on components meant to have a perfectly smooth and even matt finish.

7. ENGRAVING

A laser etches various numbers and markings on the bezel, with absolutely perfect outlines and depths.

7.A PLASMA OVEN

Components destined for high-tech ceramic plasma finishing undergo further processing in an oven, which transforms the initial white surface to a permanent metallic shade and finish.

7.B PLASMA

Rado's plasma high-tech ceramic is a material with a metallic look, but with no metal content.

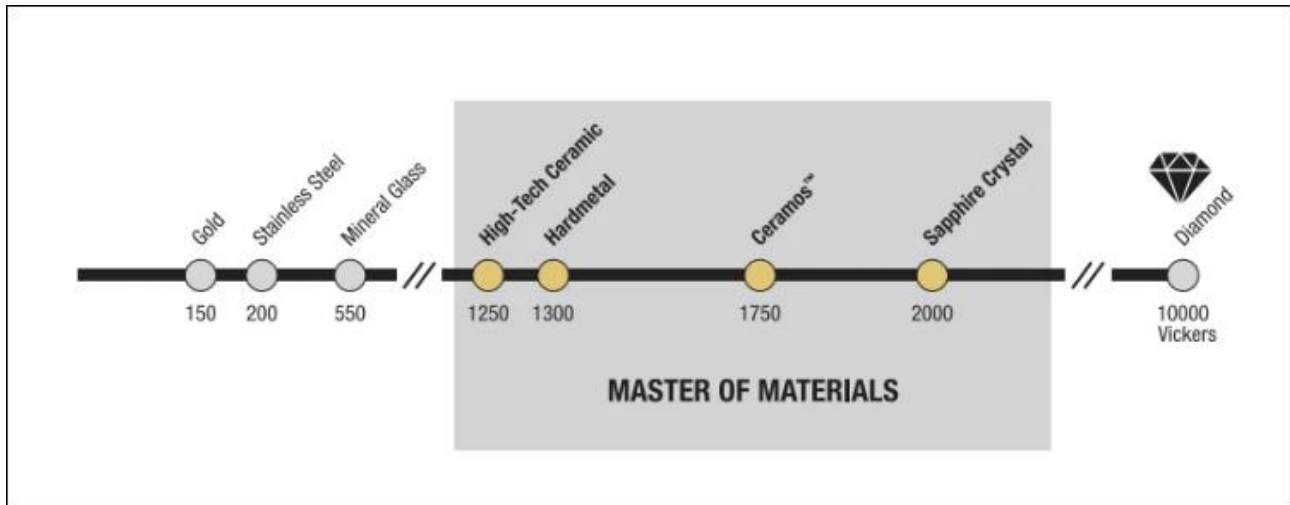
8. LACQUERING

The tiny voids made by the laser are filled with a lacquer that permanently bonds to the ceramic when dry. This delicate, dexterous work is done by our watchmakers.

9. QUALITY CONTROL

A rigorous inspection is performed to ensure the final result meets every Rado standard.

Rado Material Expertise



The Art of High-Tech Ceramic

Chronologically-speaking, high-tech ceramic was first introduced by Rado in 1986. Its sensuous feel, durability, scratch resistance and surprising light weight, quickly conquered the hearts of watch enthusiasts the world over. Though related in some respects to more common forms of ceramics we all know, high-tech ceramic is truly a product of advanced science. Under highly exacting conditions, extremely pure and finely calibrated powders of aluminium oxide, zirconium oxide and silicon nitride with perfectly uniform grain sizes, are shaped into a particular form then baked at high temperature to create an object or a watch case of the desired dimensions and properties. New methods developed by Rado involve the use of a plastic carrier medium mixed with the mineral powders, to allow injection into precision moulds at pressures around 1000 bar. Once cooled, the pieces are removed from their parent mould and the carrier agent dissolved in a standard chemical solvent process, prior to a final sintering phase at 1450°C. This precisely controlled sintering is what makes possible the extraordinary level of density and hardness of High-Tech Ceramic, over regular ceramic. The procedure is true rocket-science territory, as the dimensions of the first moulded elements shrink during sintering; the particles tighten up as porosity disappears and precise calculations must take into account this important change of around 23% in the dimensions. The reward is a case that now stands at 1,250 on the Vickers scale and is ready for final diamond-tool machining and finishing, into an impressive Rado timepiece.



The Art of Ceramios™

The never-ending quest for ideal watchmaking materials is part of the Rado DNA. It was just a matter of time, once High-Tech Ceramic had joined the standard "Master of Materials" line-up, that the company would introduce a new substance. Focused on bringing new finishes and shades to their existing High-Tech Ceramic, as well as fine-tuning the qualities of their signature "hardmetal" material used in the 1962 DiaStar 1, Rado engineers created Ceramios™, an innovative composite material with the hardness properties of ceramics and the lustre and resistance of a metal alloy. The early version was shaped using a press-moulding process, as used in the Sintra product line in 1993, but in 2011, Rado research successfully introduced an injection-moulding method for this alloy, under the new name Ceramios™. With approximately 90% titanium carbide content, the material is quite a bit lighter than its "hardmetal" predecessor but it carries the same scratch-resistant qualities, while its unusual tone and particular lustre make it absolutely unique.



Continuous improvements in the injection process and technics have made possible a near-perfect moulding result that requires a strict minimum of machining after production. The new technics include the possibility of creating a beautiful range of additional metallic colours and shades, by adjusting the composition and proportions of the ceramic and metal components. The golden, warm tone of titanium nitride, for instance, generates gold-coloured Ceramios™ while other metallic compounds can be used to produce rose-gold or other shades.

The Art of **Hardmetal**

This versatile material, with a name taken from the typically-precise, technical German term “Hartmetall”, was Rado’s first foray into the creative alternative use of an already existing substance. Hardmetal had been developed in the early part of the 20th century by the machine industry for tool production. Throughout history, humans have created progressively more resistant materials to allow the shaping, cutting or manufacturing of other materials of a lesser hardness. Rado had the pioneering idea of using this material in the manufacturing of watch components, to create a timepiece of unparalleled resistance. The 1962 Rado DiaStar (The Original) – an icon for the brand through subsequent decades, was the first timepiece to use a hardmetal case.



Hardmetal

Creating an object out of hardmetal involves a process similar to the one used for High-Tech Ceramic. Ultra-fine tungsten carbide powder is mixed with a metal binder and a plastic carrier agent, granulated and given the desired shape through injection moulding. The parts produced are then sintered under vacuum at a temperature above the melting point of the binding agent, which allows the elements to reach their final density and hardness. Because of the gradual tightening of the molecular structure that occurs during sintering, the parts will shrink and emerge from the process somewhat smaller, a change which can be reliably forecast and calculated at the engineering stage. After sintering, the surfaces and final structures are mechanically machined and polished using diamond tools and wheels, to give the parts their characteristic high-gloss, scratch-resistant surface.

The Art of **Sapphire** crystal

Created through a dramatic industrial method called the “Verneuil Process”, sapphire crystal is a man-made substance at the high end of the Vickers scale and therefore, one of the world’s hardest materials. Produced through the precise mixing of ultra-fine aluminium oxide powder, oxygen and hydrogen in a controlled flame at 2000°C, it first emerges as a vertical monocrystalline stack called a “boule” which forms in that environment at a rate of roughly 20cm every 8 hours. The sapphire boules are then annealed at very high temperatures for several days, to release leftover tensions in the crystal structure. The structure of the sapphire produced is identical to naturally-occurring sapphire, in every way. Its appeal is twofold, for in addition to its exceptional hardness, it is characterised by a very high degree of transparency. Rado was the first manufacturer to use sapphire crystal on a large scale for a watch glass, notably in its original DiaStar 1 model in 1962. In more recent years, their watch designers have pushed the creative envelope yet further, adding custom facetting, texture, metallisation, tinting, smoke shading and anti-reflective treatments to this complex yet highly attractive, versatile material.



Sapphire
crystal



Sapphire crystal
with double
anti-reflective
coating

Features and advantages of High-Tech Ceramic:

- Lightweight and comfortable
- Extreme intrinsic hardness
- Tremendous scratch and abrasion resistance
- Skin friendly, highly hypoallergenic
- Durable and resistant to ageing

“Discover the comfort and design of a Rado High-Tech Ceramic watch... Feel the Rado difference!”

Rado Captain Cook High-Tech Ceramic



R32147162

Captain Cook High-Tech Ceramic Limited Edition

Movement:

Rado calibre R808, automatic, 25 jewels, 3 hands, 80-hour power reserve, antimagnetic Nivachron™ hairspring, exceeds standard test requirements from 3 to 5 positions for higher accuracy, dial side with nickel-coloured horizontal Côtes de Genève decoration, yellow-gold colour center wheel bridge, nickel-coloured back side

Case/Bracelet:

Matt black high-tech ceramic case, monobloc construction
High-tech ceramic turning bezel with a laser structured black high-tech ceramic insert

Dial:

Black, slightly black-tinted sapphire crystal

Dimensions:

43.0 x 49.8 x 14.6 (WxLxH in mm)



R32148162

Captain Cook High-Tech Ceramic Skeleton

Movement:

Rado calibre R808, automatic, 25 jewels, 3 hands, 80-hour power reserve, antimagnetic Nivachron™ hairspring, exceeds standard test requirements from 3 to 5 positions for higher accuracy, dial side with nickel-coloured horizontal brushed decoration, rose-gold brushed colour centre wheel bridge, nickel-coloured back side

Case/Bracelet:

Matt plasma high-tech ceramic case, monobloc construction
Rose-gold-coloured PVD coated stainless-steel turning bezel with a circular brushed plasma high-tech ceramic insert

Dial:

Brushed grey, grey-tinted sapphire crystal

Dimensions:

43.0 x 49.8 x 14.6 (WxLxH in mm)



R32144202

Captain Cook High-Tech Ceramic Diver

Movement:

Rado calibre R763, automatic, 25 jewels, 3 hands, 80-hour power reserve, antimagnetic Nivachron™ hairspring, exceeds standard test requirements from 3 to 5 positions for higher accuracy, meets ISO 6425 specifications

Case/Bracelet:

Matt plasma high-tech ceramic case, monobloc construction
Polished hardened stainless steel turning bezel with a circular brushed plasma high-tech ceramic insert

Dial:

Sunray grey / blue, lacquered and polished

Dimensions:

43.0 x 49.8 x 14.6 (WxLxH in mm)

Rado True Square

 R27125152	True Square Skeleton Movement: Rado calibre R808, automatic, 25 jewels, 3 hands, 80-hour power reserve, antimagnetic Nivachron™ hairspring, exceeds standard test requirements from 3 to 5 positions for higher accuracy. Dial side with horizontal Côtes de Genève decoration and anthracite coating, nickel-coloured back side Case/Bracelet: Polished plasma high-tech ceramic case and crown, monobloc construction with sandblasted titanium case back with sapphire crystal Dial: Top plate skeletonised Bottom plate decorated in continuity with the movement Dimensions: 38.0 x 44.2 x 9.7 (WxLxH in mm)
 R27124162	True Square Skeleton Movement: Rado calibre R808, automatic, 25 jewels, 3 hands, 80-hour power reserve, antimagnetic Nivachron™ hairspring, exceeds standard test requirements from 3 to 5 positions for higher accuracy. Dial side with horizontal Côtes de Genève decoration and anthracite coating, nickel-coloured back side Case/Bracelet: Polished black high-tech ceramic case and crown, monobloc construction with black PVD sandblasted titanium case back with sapphire crystal Dial: Top plate skeletonised Bottom plate decorated in continuity with the movement Dimensions: 38.0 x 44.2 x 9.7 (WxLxH in mm)
 R27073702	True Square Open Heart Movement: Rado calibre R734, automatic movement, 25 jewels, 3 hands, 80-hour power reserve, open heart with circular grain finish, movement holder with Côtes de Genève decoration Case/Bracelet: Polished white high-tech ceramic case, monobloc construction Sandblasted titanium case back with sapphire crystal Dial: White vertically brushed with yellow gold coloured bevels, jubilé 12 diamonds, 125/130 Top Wesselton, VS-SI, full cut, 0.096 carat Dimensions: 38.0 x 44.2 x 9.7 (WxLxH in mm)