

SC02C. Tested in Outer Space

A mechanical chronograph tested in outer space is being released in a limited edition of 28 pieces.

The Konstantin Chaykin Manufacture presents the SC02C – a chronograph developed for Russian cosmonauts. Created as a professional instrument, it is being released for the first time in a civilian version, giving watch owners the opportunity to take part in the research project.

Four Spacewalks

The long-standing and mutually beneficial collaboration between the Konstantin Chaykin Manufacture and Roscosmos began with a practical task – creating a mechanical chronograph for extravehicular activity. Since 2018, the project has developed as an ongoing research program: each new version is tested under real spaceflight conditions, and the data collected provide the basis for the next stages.

The first outcome of the collaboration was the Space Conqueror. In April 2021, two prototypes were delivered to the orbital station: one was tested inside, while the other accompanied Oleg Novitsky outside the station on June 2 and September 9. After the watches returned to Earth, the test results were analyzed, allowing the method of securing the watch crystal to be changed for greater reliability. On August 17, 2022, the upgraded chronograph was once again used outside the ISS – this time by Oleg Artemyev.

On May 27, 2026, Sergey Kud-Sverchkov and Sergey Mikayev spent 6 hours and 6 minutes on a spacewalk with new-generation chronographs attached to their Orlan-MKS spacesuits. Thus, over the course of several years, Konstantin Chaykin watches have taken part in four spacewalks outside the station. The Manufacture is now taking the next step and presenting the SC02C as a limited edition of 28 pieces in 44 mm steel cases, adapted for everyday wear. Owners will be able to use the watches in a wide range of conditions and provide feedback on their performance, continuing the research on Earth. This stage will generate a new body of data that will complement the results obtained in space and be used in the development of the next generations of specialized watches.

Design Dictated by Purpose

Despite its classical appearance, the design of the SC02C chronograph is dictated by its professional purpose. It was created with the high legibility requirements of watches used in space in mind and developed in consultation with the cosmonauts themselves – specialists who use instruments during prolonged and demanding work on the station and beyond it. Every element therefore serves a practical purpose.

The deep black dial features three counters, large hour markers and highly legible hands. The red tip of the hour hand, continuing the visual motif of the Mars Conqueror Mk3, serves a practical function: it makes the 12-hour scale of the rotating bezel easier to use. At the start of timing, the “12” marker is aligned with the hour hand, after which the duration of the time interval is determined from the hand’s position. Luminescent material on the hands, markers and bezel ensures legibility in the dark, while the anti-reflective coating on the sapphire crystal reduces glare.

An Instrument Built for Extreme Loads

The new model is fitted with an antimagnetic cover that protects the caliber against magnetic fields of up to 4,800 A/m. The sapphire crystal is secured using a reverse “dovetail” construction: its beveled edge prevents it from being forced out under overloads and changes in pressure. The watch is water-resistant to 10 atmospheres, while the case construction is designed to operate in high-vacuum conditions at a pressure of 1×10^{-6} atmospheres.

All protective solutions have been tested by the Manufacture’s R&D division. Before being sent to the orbital station, the watches were tested in a centrifuge, on a vibration rig, at extremely high and low temperatures, and in impact tests. Each chronograph undergoes multi-stage quality control in accordance with strict internal standards: accuracy is assessed in five positions, along with power reserve, case water resistance and resistance to external factors.

Particular attention was paid to the strap: its pins feature two additional locking threads to prevent accidental unscrewing. The set includes two straps – a standard-length strap designed for wrist wear and an extended strap intended for securing the watch over a spacesuit. This feature directly recalls the SC02C’s origins as a professional instrument created for work in space.

The Legendary Caliber

While developing the SC02C, Konstantin Chaykin deliberately chose not to use an in-house caliber, although the Manufacture had the capability to do so. For a project of this scale, reliability was the primary criterion: an unproven solution cannot be sent into space. It was therefore essential to choose a base movement with a long track record in service. After an extensive search, Chaykin settled on the Poljot 3133, which was substantially modified by adding 60 components made by the Manufacture to the original movement. As a result, the hand-wound K.20-5 caliber gained a 12-hour counter, a stop-seconds function, a balance with micrometric adjustment by means of weights instead of a traditional index regulator to reduce the effects of vibration and overloads, as well as a damping ring that protects the movement.

The solid caseback also reflects the SC02C’s professional purpose and the need for additional protection of the movement. At the same time, the caliber is decorated to the standards of haute horlogerie: its components receive high-grade hand finishing, although this remains hidden from the owner during normal use. The Manufacture’s confidence in the watch’s reliability is reflected in special servicing terms: if an impact or fall causes a malfunction, full working order will be restored free of charge. Wear marks will be preserved as a record of the use of each individual piece.

The choice of the Poljot 3133 also creates a direct historical link. In 1965, Alexei Leonov made the first human spacewalk wearing a Strela from the First Moscow Watch Factory. These watches were equipped with caliber 3017, which was succeeded in the 1970s by the 3133 family.

Beyond Earth

Konstantin Chaykin's "Space Program" began in 2011 with the Lunokhod, a watch featuring a patented spherical moon-phase display. Several years later, the watchmaker's interest moved beyond near-Earth space: in 2017, Chaykin began thinking about watches for future explorers of Mars, giving rise to an entire body of proprietary developments related to measuring time on another planet.

The program included the Mars Conqueror Mk1 and the more practical Mars Conqueror Mk3, the Martian perpetual calendar, the Martian Tourbillon, and a mechanical module indicating the distance between Earth and Mars, comprising 270 parts. Many of these developments are already aimed at the future of interplanetary expeditions – a time when mechanical watches may have to operate not only in Earth orbit, but on other planets as well.

SC02C

Limited Edition – 28 Pieces

Technical Specifications

Movement: hand-wound caliber K.20-5, modified on the basis of the Poljot 3133 movement; 60 components made by the Manufacture, lever escapement, balance frequency 21,600 vibrations per hour, 25 jewels, 45-hour power reserve, rate accuracy $-15/+15$ seconds per day

Functions: hours, minutes, small seconds; central chronograph seconds hand, 30-minute and 12-hour counters; additional measurement of a time interval using the rotating bezel

Case: stainless steel, diameter 44 mm, height 14.5 mm; two flat polished chronograph pushers; large winding crown; antimagnetic protection up to 4,800 A/m; caseback with themed 3-D engraving; water resistance 10 ATM; case designed to withstand high vacuum down to 1×10^{-6} ATM

Dial: deep black, three counters, applied hour markers, large polished hands; red tip of the hour hand evoking the silhouette of a launch vehicle and continuing the signature hand motif of the Mars Conqueror Mk3; luminescent coating on the hands and hour markers

Bezel: unidirectional rotating bezel with a 12-hour scale and luminous elements, diameter 45.1 mm

Crystal: sapphire, diameter 35.5 mm, with anti-reflective coating; secured using a reverse "dovetail" construction

Strap: set of two black fabric straps: standard length and extended for wearing over a spacesuit