

# LEDERER

Geneva Watch Days  
August 2023 - Press Kit

NO EMBARGO

## The final two expressions of the new face of chronometry

### Lederer Watches presents the Central Impulse Chronometer in a steel version and in a rose gold version

*On the occasion of Geneva Watch Days 2023,  
Bernhard Lederer is delighted to present the final two series – Series 3 & Series 4 —  
which bring to a close the amazing adventure of his celebrated **Central Impulse Chronometer**.*

*In all, only 100 pieces will have been offered to collectors:*

- Series 1 : 25 pieces in **white gold**, 'Light Rhodium' dial, presented in 2021
- Series 2 : 25 pieces in **white gold**, 'Deep Blue' dial, presented in 2021
- Series 3 : 25 pieces in **rose gold**, '**Black Rhodium**' dial, presented in August 2023
- Series 4 : 25 pieces in **904L steel**, '**Pacific Green** dial, presented in August 2023

*The latter two series, designed for discerning and refined collectors, will be highly coveted,  
firstly for the metal they are made of: 25 pieces in 18K rose gold, more precious and more elegant, and  
25 pieces in 904L steel, a superalloy that is even more complex to machine and exceptionally durable.*

*As a showcase for remarkable horological engineering and ingeniousness, they also represent  
the ultimate opportunity to acquire a watch that has thrilled experts the world over and is considered  
one of the most ambitious and demanding chronometric projects – the development of the  
escapement – of recent decades.*

**After winning the *Prix de l'Innovation*, the Innovation Award at the *Grand Prix d'Horlogerie de Genève* in 2021,  
this high-performance chronometer with its revolutionary escapement now finds itself housed in a 44mm case  
available either in a rare 904L steel version with a Pacific Green grey-green open dial, or in an 18K rose gold  
version with a Black Rhodium grey-black open dial.**

**Within the case, Bernhard Lederer's exceptional, multiple-award-winning caliber combines a new type of  
constant-force escapement with a double gear train. This duality is manifest with two perfectly synchronized  
seconds hands – a unique and unprecedented development in watchmaking – running in opposite directions  
within two intertwined apertures that together form a majestic figure eight. The refined craftsmanship and  
finishing down to the smallest detail further amplify the movement's architecture and performance, reflecting  
Bernhard Lederer's characteristic perfectionism.**



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Following an admiring reception from experts at the initial presentation of the concept in September 2020 (the first two series were sold within weeks in 2021), Lederer Watches today unveils the two final series of the Central Impulse Chronometer. As with the first two, they are strictly limited to 25 pieces each. Thus is brought to a definitive close what will be known in the history of *Haute Horlogerie* as one of the most ambitious and challenging chronometric projects of recent decades.

The Lederer Central Impulse Chronometer's case is 44mm in diameter and 12.2mm in thickness, with two domed crystals to underline the slim silhouette of this horological masterpiece. The first two series brought out in 2021 were both in white gold and had an open dial. These final two come in either pink gold with a galvanically treated black rhodium dial (Series 3) or 904L steel with a "Pacific Green" dial in shades of green and grey (Series 4). The material of the latter is particularly difficult to process, and it is for this reason that most case manufacturers prefer to avoid it. Bernhard Lederer, on the other hand, has overcome this difficulty to give his series a particularly fine luster and rare longevity.

The "8" formed by the two symmetrical circular openings on the exceptional moving mechanism further underline a resolutely artistic vision of the passage of time, dramatized by the two seconds hands synchronously moving in opposite directions. Intertwined, the two circles also convey a symbolic message of harmony, infinity and rebirth, and, in many cultures, of good fortune and prosperity, too.

There is something very special about what Lederer succeeds in doing, this symbiosis between lived watchmaking and "German rigor" which can be recognized and measured in his creations. One sometimes gets the impression that, while most watchmakers might consider that a functional prototype means their work is done, for Lederer, the exciting part of perfecting the product has only just begun.

## **Near-perfect chronometry – over the entire power reserve**

During the prototyping phase, Bernhard Lederer noticed a marginal but nonetheless disturbing fact: Despite the presence of constant-force remontoire in each of the two independent gear trains, the watchmaker noted a slight increase in the oscillation amplitude of the balance towards the end of the movement, inducing a tiny rate deviation in the running rate.

Why was the amplitude increasing at the end of the power reserve? Because, when the torque delivered by the barrel spring weakens, the pressure of the remontoir wheel teeth on the pallets of the remontoir anchor is reduced. De facto, the resistance to winding decreases, so more force is transmitted to the escapement wheel. Ergo, amplitude increases.

To remedy this, Bernhard Lederer re-imagined the remontoire. Traditionally, it is equipped with a saw-toothed wheel. This is what traditional watchmaking treatises had always advocated, so that was the concept Bernhard Lederer spontaneously opted for. But in practice, the watchmaker realized that it was precisely this 'contact' between winding wheel and anchor that needed to be modified if the amplitude error associated with the power reserve coming to an end was ever to be totally rectified.

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Now, a straight-toothed wheel drives a pinion with a two-armed wing, which is released every 10 seconds by the winding fork for half a rotation.

The result, in terms of chronometric efficiency, was immediate: The triggering resistance was reduced by a factor of 10, as was the ratio between wheel and pinion, which considerably increased the efficiency of the remontoire. Importantly, it rendered the difference in triggering resistance negligible. Today, it is no longer possible to detect or even measure a variation in amplitude, as the Central Impulse Chronometer maintains a constant amplitude throughout the entire movement. Its regularity is quasi-perfect.

## **Breguet, Daniels, Lederer: the circle is complete**

Drawing on almost 40 years of experience and supported by his team in Saint-Blaise near Neuchâtel, Bernhard Lederer took up the torch that George Daniels had lighted with his Independent Double-Wheel Escapement. Daniels himself had taken Breguet's work a step further by solving the issues this type of escapement was known to have. That is why the Central Impulse Chronometer escapement has a very different design.

It incorporates two independent escapement wheels, each linked to its own barrel. These wheels work in alternation with a unique anchor. Its profile, its rubies, its lifting angles, its central impulse and the way it comes into contact with all the components it guides make this an extraordinary system.

## **Two escapements, two remontoires**

To optimize accuracy, Bernhard Lederer installed the two escapement wheels at the end of two separate gear trains, each equipped with its own 10-second remontoire. By smoothing out the driving force to an extremely fine level, optimizing the geometry of the escapement parts, lightening these energy-hungry components, and reducing escapement friction to a minimum, Bernhard Lederer has achieved a degree of watchmaking perfection rarely seen before. By making the two escapement wheels independent of each other, he has essentially freed them.

This sophistication also shows in the fact that the two seconds hands, each linked to an escapement wheel, are permanently synchronized, something never before seen in the watchmaking industry. They show no drift whatsoever in relation to each other.

Finally, the precision of each watch is such that the behavior of the escapement wheels has been observed with high-speed cameras, tests have been carried out with different materials, and special measuring instruments have been developed to detect and record every amplitude of the balance wheel to obtain absolute definitive results. Each new discovery this process led to was like a door that had never been opened, allowing us to see what had never been seen before. Reason enough to incorporate this new knowledge into the development and refinement of the caliber that animates this collection, which is limited to a total of 100 pieces. Each watch is delivered with a Certificate of Chronometry.

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## **The work of Bernhard Lederer: A unique symbiosis between 'lived', empirical watchmaking, and German rigor**

The initial inspiration for this project came from George Daniels. Bernhard Lederer had exchanged ideas with him on numerous occasions and set about rethinking his work in depth in order to transpose George Daniels' brilliant concept of an independent double-wheel escapement – which the master had developed for a pocket watch – into a wristwatch, with all the constraints that implied. Lederer chose a frequency of 3 Hz because the shocks endured by a watch on the wrist have repercussions on the movement's regulating organs. The latter must therefore resume normal operation as quickly as possible – a *sine qua non* for precision when a timepiece is worn. For this reason, a frequency of 3 Hz is the most appropriate.

### **Lightweight materials and constant-force winding: less inertia, improved regularity**

One of the innovations of the Central Impulse Chronometer is the choice of lightweight alloys over traditional steel for components.

Lighter and more rigid, such parts have lower inertia. They restart faster and therefore consume less energy. In other words, the impulse given by the escapement wheel to the balance wheel is optimized and disturbances are reduced, ensuring isochronism and, consequently, rate precision.

Energy is transmitted from two barrels by two independent gear trains, each reserved for one of the two escapement wheels. In addition, Bernhard Lederer's movement features a constant-force remontoire. This device accumulates and stores energy in a spring similar to that of the barrel, but less forcefully. At 10-second intervals, it recharges itself, thus equalizing the driving force supplied – all with a very homogeneous level of torque that ensures that the energy delivered to the balance wheel varies very little.

### **An optimized anchor for direct impulse**

The engineering particularity of the Central Impulse Chronometer escapement also shows in the anchor. This is the watch's metronome. Here, the geometry of the central pallet has been re-imagined to improve efficiency: Now concave, the anchor has a reduced contact surface and prevents the escapement wheels from recoiling.

The impulse is direct and aligned with the centerline connecting the escapement wheel to the balance wheel – so, it is theoretically perfect. This impulse axis remains constant over time, even at a low balance wheel amplitude. As a result, there is less friction, and the balance wheel receives the energy at the ideal timing for better isochronism and stability.

### **The elegance of an authentic chronometer**

In addition to mastering the technical complexities of watchmaking, Bernhard Lederer is also a keen designer. Each of his creations bears witness to a strong artistic sensibility. And the Central Impulse Chronometer is no exception.

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The round, 44mm-cases in 5N rose gold (for Series 3) and 904L stainless steel (for Series 4) feature soft, elegant lines. Their slim, polished bezels amplify the sense of a vast dial. Two apertures around the seconds hands offer a view of the caliber 9012, its remontoires and escapements.

On the case back, a second domed sapphire crystal – particularly delicate to machine for this reason – identical to crystal in front. It offers an exceptional view of the caliber 9012's three-dimensional, symmetrical, oblique and openworked architecture. The barrel, gear, remontoire, escapement and balance bridges are all skeletonized, accentuating the liveness of their geometric shapes.

## **High-performance steel with a unique luster**

For Series 4, the final series, Bernhard Lederer chose a case made from 904L steel. This stainless steel is particularly difficult to work with is therefore rarely offered by most case manufacturers. Those who do appreciate this steel's particular luster – and its ability longevity to maintain this luster over time.

904L stainless steel is highly corrosion-resistant, much more so than 316L steel, which is most commonly used in watchmaking.

904L belongs to the family of stainless superalloys. It is generally used in the high-tech, space and chemical industries. Its excellent anti-corrosion properties, comparable to those of precious metals derive from its high chromium content. When polished, 904L steel gleams with an exceptional luster. Finally, machining 904L steel requires the utmost rigor, and calls for specific tools and processing methods.

## **In-house finishing at Ateliers Lederer in Saint-Blaise**

The two wide golden barrels contrast with the movement's finishes. The wheel spokes are tangent curves with a unique profile, a Bernhard Lederer hallmark. The level of finishing is on a par with the engineering prowess represented by the Central Impulse Chronometer. The variety and exceptional execution of hand-finishing displayed here – polishing, beveling (incoming and outgoing angles), graining, engraving, satin-finishing, matte and glossy surfaces – further sublimates the movement's spectacular three-dimensional architecture.

The Central Impulse Chronometer is a masterpiece of conscientious and discreet watchmaking, its technical excellence and design strength shining through in the accomplished craftsmanship and exceptional finishing. The model is available in two limited series of 25 pieces each, one in 5N rose gold with a black rhodium dial, and the other in 904L stainless steel with a gray-green dial in Pacific Green.

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## Bernhard Lederer Values & Vision

*Reflecting a perception in motion, Lederer is first and foremost a brand of watchmaking enthusiasts who built and continue to build their concept on 4 fundamental values:*

1. **The pursuit of technical perfection**, exploring new territories of engineering and aesthetic expression in the world of contemporary-classic watchmaking,
2. **An intimate connection with mechanics** – and with those who understand and appreciate it,
3. **The creation of an emotional experience**, a notion that transcends time as it bridges past and present,
4. Finally, **the transmission of the unique story** carried by each Lederer watch, which is linked with their durability through time.

*For if Bernhard Lederer is guided by his **independence of spirit**, it nonetheless implies creativity combined with indiscipline. It means refusing to submit to established codes – to surpass oneself, transcend oneself and assert oneself through technical and aesthetic creation. **It is also about perseverance** in the face of technical or technological constraints and challenges, and always about finding solutions to go further.*

*Exploring the possibilities of new materials, a singular movement architecture, an original and sophisticated construction; seeking ultimate precision, a unique design with uncluttered geometry, a perfect alliance of technique and aesthetics. Lederer watches have earned an unmatched reputation, thrilling experts the world over, thanks to their technical sophistication and the savoir-faire of the great Swiss watchmaking tradition. Bernhard Lederer reinterprets this great tradition by infusing his ultra-precise watches with an **illusion of simplicity**.*

*Because a Lederer watch is not an object like any other: the link between object and wearer is a powerful bond. You have to take the time to look at all the details that make the Central Impulse Chronometer unique to understand the **quest for perfection** that drives the mind who wanted it that way. The  **tiniest elements**, including those that cannot be seen, have been conceived, designed, manufactured, assembled, tested and decorated **by hand** to the highest standards; they have been polished, satin-finished and flame-blued. It is also in the finishing touches that the Lederer signature can be recognized, in this quest for ultimate technicality combined with **invisible beauty**.*



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*Because a Lederer watch is a creation made to accompany its owner over a lifetime, perhaps to be passed down. Rooted in the great tradition of watchmaking, Bernhard Lederer's timepieces are designed to cultivate and share his expertise not only with his team and peers, but also with his customer-collectors who understand and seek this **intimate connection with mechanical excellence**. Combining engineering mastery and contemporary inspiration, technical and artistic prowess, Lederer watches are forged with a deep respect for tradition and the pursuit of excellence.*

*At Lederer watches, the permanent quest for technical perfection is a **state of mind** that develops its own dynamic, from design to finishing. That is because technical mastery expands the scope of creative and aesthetic experimentation. One of way of defining Lederer watches would be to say that Bernhard Lederer creates "the illusion of simplicity". When it comes to watchmaking excellence, the challenge is to get the material to bend to the demands of precision and meticulousness, whilst guaranteeing **exceptional quality and precision**, and thus **the timelessness and the durability of the finished product**. The quest for the best is core to high-precision mechanics. The very act of conceiving the watch is carried out under high-tech conditions. The parts are then assembled by hand, with the encasing and various control protocols subsequently carried out in the same spirit of meticulousness and quality. Bernhard Lederer's skillful, serene, confident gestures at every stage throughout the Manufacture in Saint-Blaise guarantee ultimate precision and operational reliability. A dedication to excellence that finds its culmination in the technical prowess of the Central Impulse Chronometer.*

*So, while the face of precision may not always be what you might imagine, the quest for it transcends time, for it links the past with the present. Tradition, transmission and respect reach beyond the here and now. They conquer a time outside time. **A time with the humanity at its center**, and human knowledge opens on a timeless perspective. Like art, precision craftsmanship is a long-term endeavor. Creators and designers draw on the forms of the past to translate them into **their own language** and pass them down to future generations.*

*Bernhard Lederer's approach to watchmaking is informed by the past, present and future. Awareness of a shared history can then develop, so that true innovation becomes possible. It is the **Art of Time**, an ability to design exceptional timepieces, each telling a unique story, pushing back the limits of reasoning, technique and aesthetics.*



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## Lederer Watches Central Impulse Chronometer

### Technical Details

<b>Name:</b>	CENTRAL IMPULSE CHRONOMETER
Reference:	9012
Functions:	Hours, minutes, small seconds at 8 and 11 o'clock
<b>Case:</b>	
Metal:	5N rose gold (25 pieces) 904L stainless steel (25 pieces)
Diameter:	44mm
Thickness:	12.2mm
Case back:	Open, sapphire crystal with anti-reflective coating on both sides
Water resistance:	3 ATM
<b>Dial:</b>	Guilloché (exclusive Lederer pattern) with two interlaced circles forming a figure eight opening. Rhodium black on rose gold version; Pacific Green on 904L version
<b>Movement:</b>	Mechanical, hand-wound
Number of components:	210
Number of jewels:	45 rubies
Frequency:	21,600 vibrations per hour (3 Hz)
Diameter:	39.3mm
Thickness:	5.98mm
Special features:	Double barrels Two independent gear trains Two constant-force remontoires Double wheel escapement with central impulses
<b>Winding &amp; setting:</b>	Two-position winding stem: Position 1: manual winding Position 2: setting the time
<b>Finishing:</b>	Frosted with hand-beveled bridges, wheels with circular grinding and hand-beveled spokes.
<b>Power Reserve:</b>	38 hours
<b>Retail price:</b>	CHF 136,800 (taxes not included)