

WATCH

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THE WATCH MAGAZINE REDEFINED

power Four spring barrels provide extraordinary power reserve in this new manufacture movement.

technique Impeccable finishing and an open tourbillon display the maker's legendary know-how.



VACHERON CONSTANTIN PATRIMONY
TRADITIONNELLE 14-DAY TOURBILLON

heritage Elements of the dial take inspiration from historical Vacheron-Constantin pocket watches.

88 RUE DU RHONE
BACKES & STRAUSS
BALL
BELL & ROSS
BLANCPAIN
BREGUET
BREMONT
CARL F. BUCHERER
CLERC
CVSTOS
DIOR
LOUIS ERARD
F.P. JOURNE
FORTIS
FRANCK MULLER
GERCÉ
GEVRIL
GIO MONACO
GIULIANO MAZZUOLI
GRAHAM LONDON
GRIEB & BENZINGER
GUCCI
HAMILTON
IWC SCHAFFHAUSEN
JACOB & CO.
JAEGER-LECOULTRE
KORLOFF
LUMINOX
MAURICE LACROIX
MECCANICHE VELOCI
MILUS
MONTBLANC
MOTOART
MÜHLE GLASHÜTTE
ORBITA
PANERAI
PATEK PHILIPPE
PERRELET
PIAGET
PIERRE KUNZ
RALPH LAUREN
ROGER DUBUIS
SEIKO
SISU
TAG HEUER
ULYSSE NARDIN
UNDERWOOD LONDON
VACHERON CONSTANTIN
VAN CLEEF & ARPELS
WEMPE



Christophe Claret's Soprano tourbillon minute repeater with four cathedral gongs, from \$500,000

MAKING THE
CASE FOR THE
MINUTE REPEATER

ULTIMATE Complication

BY KEITH W. STRANDBERG

CONVENTIONAL WISDOM SAYS that the tourbillon is the grandest of horological complications, the crème de la crème of watchmaking, the most difficult kind of movement to create. But not everyone agrees. There is a case to be made for the minute repeater, and some of the greatest minds in watchmaking are making it.

“It is popular because the minute repeater is one of the most complex of horological creations.”

—FRANÇOIS-PAUL JOURNE



F.P. Journe's ultrathin Repetition Souveraine with flat gong and patented striking mechanism, \$180,980

Franck Muller's Cintrée Curvex Minute Repeater Tourbillon in white gold with exhibition back, \$333,400



ATTRACTION

The minute repeater offers a unique combination of music and time. “It is popular because the minute repeater is one of the most complex of horological creations, and maybe also because it is a poetic creation; it was invented around 1710 to make it possible to tell the time during the night when there was no electricity,” says François-Paul Journe, independent master watchmaker and founder of the F.P. Journe brand. “When you activate the pusher on the side of the case, the complication ‘tells’ the time by causing small hammers to strike miniature gongs, which chime the hours, the quarters and the minutes.”

Something else that distinguishes the minute repeater is that there aren’t many manufacturers who can master this

unique complication. According to Patrik Hoffmann, CEO, Ulysse Nardin, watch connoisseurs are interested in “buying a mechanical piece of art that has a complicated inner life,” Hoffmann says.

“Striking watches represent a challenge for a watchmaker, and there is ongoing competition to optimize the sound quality of minute repeater mechanisms,” adds marketing director Stéphane Belmont of Jaeger-LeCoultre. “A real difference exists between the models on the market, and it’s a challenge for a collector to be able to find the watch with the best possible sound.”

COMPLEXITY

For many people, the tourbillon is the gold standard in complicated watches, but the fact is that the minute repeater is far more difficult to realize. “The minute repeater is much more complex than the tourbillon caliber,” confirms Christophe Claret,

“For a quality minute repeater, the entire repetition mechanism must be integrated into the movement.”

—CHRISTOPHE CLARET



Jaeger-LeCoultre's Reverso Répétition Minutes à Rideau Venise with open dial, revealing the repeater mechanism, \$327,500

principal of his own complicated movement house, which specializes in both minute repeaters and tourbillons. “The reason is simple: in the tourbillon watch, only the tourbillon cage itself is complex to achieve, the rest of the movement is conventional; for a quality minute repeater, the entire repetition mechanism must be integrated into the movement. In addition, the number of components is much greater.”

A minute repeater also requires more time on the watchmaker's bench. “A well-trained watchmaker takes three to four weeks to assemble a minute repeater,” details Ulysse Nardin's Hoffman. “The integration of all the functions of a minute repeater into the limited space of a watch is a challenge. The movement cannot be neglected, but the chiming mechanism also needs space because its sound depends greatly on the energy allocated to the hammers. In addition, sound quality is improved when free space is available in the case.”

Pierre Michel Golay, director of R&D at Franck Muller, agrees. “The design and execution of the minute repeater is most difficult,” Golay continues. “We have to find the perfect power balance between the different functions of the chimes, and we have to stabilize the speed of the chiming sequences. The search for the optimum quality of sound and the right intensity is also a challenge.”

CHALLENGES

The challenges inherent in minute repeaters are legion. The watch has to tell precise time, but the striking mechanism has to be precise as well, sound good and be reliable. It's no easy task. “Minute repeaters are living, breathing machines,” says Larry Pettinelli, president for Patek Philippe in New York. “Not only do they have to work on command but create a crisp clear sound that resonates well within the case. Optimal metals need to be explored in addition to ensuring the correct amount of space is established between the movement and the case to produce perfect sound resonance.”

Assessing the sound of a minute repeater is subjective and depends on experience. “The quality of sound is something that cannot be fully calculated in advance. It is always an empirical process with adjustments needed in order to obtain excellent sound,” says Jaeger-LeCoultre's Belmont. “The sound of a watch depends on the form of the case, its waterproof qualities and the materials used. All of those aspects have to be adjusted in order to get the best sound.”



Ulysse Nardin's Alexander the Great Minute Repeater Westminster Carillon Tourbillon Jaquemarts with animated figures, price upon request

When it all comes together in just the right way, the completed minute repeater is a truly amazing timepiece. "The harmonious sound and the motion of the delicately handcrafted parts create emotion and evoke passion considering that they are initiated by a complex mechanism of hundreds of tiny, precision pieces, such as bridges, wheels, gongs and levers," says Ulysse Nardin's Hoffmann. "In this age of high technology, this amazing mechanical complication awakens in us awe and admiration for craftsmanship and tradition."

COMBINING COMPLICATIONS

When a minute repeater and a tourbillon come together, it's more complicated than simply fitting them inside the same watch

case. "Adding a single complication can more than double the possibility of challenges arising. Multiple complications lead to more layers of a watch. In production, the layers have to coexist perfectly," points out Patek's Pettinelli. "It is the fine-tuning of the combined complications that requires the work of an expert watchmaker."

Christophe Claret agrees that combining the two involves more than just the sum of their parts. "We combined these two complications for the first time in 1992," Claret says. "The complexity of such a combination is in integrating them correctly. Indeed, there are real challenges for us with each new configuration."

The minute repeater is not only an incredibly complex complication, it is a poetic one as well. It adds the dimension of sound to timekeeping. It requires engineering, handcraftsmanship and expert fine-tuning. And for connoisseurs interested in the ultimate horological complication, it's music to the ears.

Patek Philippe's Ref. 5207R minute repeater with tourbillon and perpetual calendar, price upon request



"The harmonious sound and the motion of the delicately handcrafted parts create emotion and evoke passion."

—PATRIK HOFFMANN