

Glashütte, January 2013

## Pinnacle of watchmaking: GRAND COMPLICATION

Limited to a mere six pieces: The most complicated and most exclusive A. Lange & Söhne timepiece ascends to the pinnacle of precision watchmaking.



Masterpiece of fine watchmaking:  
GRAND COMPLICATION

The GRAND COMPLICATION features a host of fascinating functions and yet again manifests the ability of the Saxon master watchmakers to conquer ever new peaks with their undisputed ingenuity. Beneath the lucidly configured enamel dial, the horological opus with the calibre designation L1902 incorporates scores of lavishly finished parts, bringing to life the most elaborate complications which the art of haute horlogerie has to offer: Chiming mechanism with grand and small strike, minute repeater, split-seconds chronograph with minute counter and jumping seconds as well as a perpetual calendar with moon-phase display.

The development of the GRAND COMPLICATION is an adventurous expedition into the cosmos of complexity. The result is a watch that is extraordinary in every respect, reflecting the brilliance of the Lange dynasty's forebears and the virtuosity of today's watchmakers.

### A sound of inimitable purity

Two carefully hand-wrought gongs produce the seductive tones of the minute repeater and of the hour and quarter-hour strikes. The GRAND COMPLICATION is endowed with a chiming mechanism that automatically indicates the time in the grand strike (*grande sonnerie*) or small strike (*petite sonnerie*) modes. Every fifteen minutes, when set to *grande sonnerie*, it first indicates the full hour on the low-pitched gong and then the quarter-hours with a double strike on both gongs. In the *petite sonnerie* mode, it indi-

cates the elapsed quarter-hours with one, two, or three double strikes on both gongs. At the top of every hour, it strikes the time in hours on the low-pitched gong.

It is no coincidence that the *grande sonnerie* is considered to be one of the most challenging of all complications in watchmaking. It imposes extreme requirements on the perfect interaction of intricate mechanisms crafted from materials of the highest quality by exceptionally talented and experienced watchmakers. "Free, with no shake" - that is the mantra which governs the interplay between moving parts to such a degree of accuracy that they deliver a precise strike and sound with unmatched purity.

The chiming mechanism is powered by one of a total of three mainspring barrels. They are wound with the crown. Turning the crown clockwise tensions the springs for the going train and the chronograph. The chiming mechanism barrel is wound in the opposite direction.

When the slide in the case flank is actuated, the minute repeater indicates the time on demand with two gongs: The hours sound with low-pitched tones, the quarter-hours with double-tone strikes, and the minutes with high-pitched tones. At 7:52, for instance, the melody consists of seven low tones, three double strikes, and seven high tones.

### **Accurate to one-fifth of a second**

The chronograph of the GRAND COMPLICATION is a monopusher type (*chronographe monopoussoir*) with a rattrapante function and jumping seconds (*seconde foudroyante*). This rare supplementary function makes it possible to freeze stopped times to fifths of a second. A blued-steel hand on the lower subsidiary dial performs five jumps to complete each revolution along its five-second scale while the chronograph is running. Thus, the hand precisely emulates the balance frequency of 2.5 Hz.

A gold chronograph hand and a blued-steel rattrapante hand for stopping lap times sweep the main dial from the centre. They begin to run, together with the jumping seconds, as soon as the pusher between 1 and 2 o'clock is pressed. After each revolution of the sweep hands, the minute counter hand in the dial at 12 o'clock advances by one interval.

When the pusher between 10 and 11 o'clock is activated, the blued-steel split-seconds hand will stop to indicate the lap time while the gold chronograph hand continues running. When the pusher in the left-hand flank of the case is pressed again, the split-seconds hand instantly catches up and then remains realigned with the chronograph hand. When the right-hand pusher is actuated, all four chronograph hands will stop. Pushing the button a second time resets them all to zero. Both mechanisms are precisely

and reliably controlled in the classic manner via two column wheels - one each for the chronograph and rattrapante functions.

### **A calendar for eternity**

The perpetual calendar mechanism emulates the Gregorian calendar. Not only does it know how many days each month has in the course of a year, it is also aware of the fact that February has 29 days in leap years. The mechanism first needs to be corrected by one day in the year 2100. This is because of special rule in the Gregorian calendar which stipulates that the leap year is omitted if the year is divisible by 100. The duration of each month is coded into a 48-segment wheel with recesses that are mechanically sampled by the date switching lever. The deeper the sampled recess, the shorter the current month.

Another special feature of the calendar is that it advances all displays, with the exception of the moon phase, at midnight. The calendar indications are positioned at 3, 9 and 12 o'clock. The subdial on the left indicates the date, the upper one the month in the four-year cycle, and the one at right the day of the week. The upper half of the jumping seconds dial exposes the blue-enamelled, solid-gold moon disc that precisely tracks the synodic lunation of the earth's companion.

### **Tribute to a grand tradition**

The face that conceals the complex movement of the GRAND COMPLICATION is a multi-part white enamel dial with Arabic numerals, a railway-track minute scale, and the four characteristic, symmetrically arranged subsidiary dials. A suite of time-consuming process steps is needed for each of the five dial elements to assure the flawless appearance of the composite dial. The heart of the exclusive manually wound movement is a balance that beats with a frequency of 18,000 semi-oscillations per hour. As a tribute to Ferdinand A. Lange, who established Saxony's watchmaking heritage, the watch incorporates a Glashütte lever escapement based on one of his early inventions. Its lever and escape wheel are made of hardened 18-carat gold. The lever is designed to be in perfect equilibrium. A slight camber of the covered pallets prevents any adhesion with the escape wheel. The perfect execution of these intricate design features contributes to the enhanced rate accuracy of the watch. The oscillator is paired with a balance spring crafted in-house. When the mainspring is fully wound, it delivers a power reserve of 30 hours.

All parts of the complex manual winding movement are manufactured and lavishly finished by hand to the strictest Lange quality criteria. At several points, Lange's master watchmakers took the amount of work invested in finissage to unprecedented levels: For example, all chronograph levers are black-polished. The exclusive collectors' item in the 50-millimetre pink gold case comes in a limited edition of six watches. Thus, the GRAND

COMPLICATION is not only immaculate from the technical point of view, it is also a rare horological work of art.

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**About A. Lange & Söhne**

When Ferdinand A. Lange, a Dresden watchmaker, established his watch manufactory in 1845, he laid the cornerstone of Saxony's precision watchmaking. His precious pocket watches remain highly coveted among collectors all over the world. The company was expropriated after World War II, and the name A. Lange & Söhne nearly fell into oblivion. In 1990, Ferdinand A. Lange's great-grandson Walter Lange had the courage to relaunch the brand. Today, Lange crafts only a few thousand wristwatches in gold or platinum per year. They are endowed exclusively with proprietary movements that are lavishly decorated and assembled by hand. In a period of little more than 20 years, A. Lange & Söhne developed over 40 manufacture calibres and secured a top-tier position among the world's finest watch brands. Its greatest successes include innovative time-keeping instruments such as the LANGE 1 with the first outsize date in a series produced wristwatch as well as the LANGE ZEITWERK with its supremely legible, precisely jumping numerals. Meanwhile, both models have become icons of a brand rich in tradition.

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<b>GRAND COMPLICATION</b>		<b>Ref. 912.032</b>
Movement	Lange manufacture calibre L1902, manually wound, crafted to the most exacting Lange quality standards, decorated and assembled by hand; precision-adjusted in five positions; plates and bridges made of untreated German silver; balance cock engraved by hand; chronograph levers black-polished	
Jewels	67	
Screwed gold chatons	7	
Escapement	Glashütte lever escapement, lever and escape wheel in 18-carat gold	
Oscillator	Shock-resistant screw balance, superior-quality balance spring manufactured in-house, frequency 18,000 semi-oscillations per hour, precision index tail adjustment system with lateral setscrew and whiplash spring	
Power reserve when fully wound	Going train: 30 hours; grand strike: 30 hours; small strike: 42 hours	
Functions	Time display with hours and minutes; chiming mechanism with grand and small strike; minute repeater; split-seconds chronograph with minute counter and jumping seconds; perpetual calendar with date, day of week, month in four-year cycle; moon phase	
Operating elements	Crown for winding the watch and setting the time; one pusher each for operating the chronograph and the rattrapante mechanism; lever for activating and deactivating the chiming mechanism; lever for selecting small and grand strike; slide for actuating the minute repeater; correction push pieces for advancing the date, day of week, month, and moon phase	
Case dimensions	Diameter: 50.0 millimetres; height: 20.3 millimetres	
Movement dimensions	Diameter: 40.5 millimetres; height: 14.2 millimetres	
Crystal and caseback	Sapphire crystal (hardness 9)	
Case	Pink gold	
Dial	Five-part enamel dial	
Hands	Pink gold; minute counter, rattrapante hand and jumping seconds hand blued steel	
Strap	Hand-stitched crocodile strap, red-brown	
Buckle	Lange deployant buckle in pink gold	