

Mechanical movements



THE QUALITIES
OF MECHANICAL
WATCHES AND
HOW TO
PRESERVE THEM

Why do Longines' watchmakers include watches fitted with mechanical movements in their collections?

There's a simple answer: watches fitted with a state-of-the-art hand-wound or self-winding mechanical movement provide all sorts of satisfaction that no other type of timepiece can match. Of course more accurate technology is easy to find: quartz resonators for instance, but nothing beats a mechanical watch for pleasure pure and simple. Incorporating countless technical improvements, today's mechanical movements qualify as marvels of inspired ingenuity, born of centuries of fascinating history and the patient workmanship of some of the world's finest craftsmen. You need only observe a movement's intricate mechanism and rhythmically moving parts, the beauty and fineness of its components fashioned out of steel as well as various complex alloys and even gold to understand that you are looking at a shining example of applied intelligence, brought to life by Nature's most versatile tool, the craftsman's hand. And what's more, the hand-wound or self-winding mechanical movements fitted in Longines' latest timepieces are precise to within a few seconds a week, which is more than enough for the demands of everyday life !

What is a mechanical movement made of?

Essentially metal – from the most valuable to the most complex. Although the modern watch's earliest ancestor, the steeple clock, was made only of iron alloy, today's wristwatches may contain over a dozen metals, including alloys, spread over hundreds of parts and components.

Less than a millimeter thick for the most part, made in an incredible variety of shapes and sizes, some even finer than a human hair, the components that make up a watch movement are assembled and adjusted, often simply by friction, with extraordinary skill and painstaking precision. Nevertheless, the more compact the movement and the smaller its parts, the more vulnerable it is to the hazards of everyday life and the more exposed its various components are to daily wear and tear.

A long and useful life

Today, a competently designed and well built mechanical watch movement can run smoothly and well for many generations, assuming of course that it is treated with care and serviced regularly. It should be remembered that on the wrist, the movement will be regularly exposed to such things as the negative effects of gravity and magnetic fields, the repeated expansion and contraction of metal parts caused by sharp variations in temperature, much jarring and occasional hard knocks, the presence of moisture or fine particles (talc, for example) inside the case, and of course the slow deterioration of the movement's special lubricants, potentially causing friction and jamming.

The self-winding mechanism

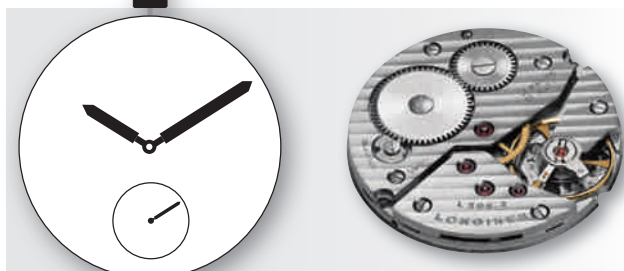
By the late 18th century, a few exceptionally inventive watchmakers had devised a mechanism that made it possible for a watch movement to wind itself automatically, simply by harnessing the wearer's body movements. This study in miniaturized horological ingenuity was later adapted to the wristwatch. It works as follows: the normal movements of the arm impel an oscillating weight, also called a "rotor", positioned against the movement, to swing around its axis. The weight rewinds a spring which, in every watch of this type, stores the mechanical energy required to keep it running. Automatic winding thus does away with the need to wind the movement manually by the crown every day, as long as the watch is worn regularly.

Manual winding if the watch stops

A self-winding wristwatch normally has a power reserve of over a full day, often some forty hours. A mechanical self-winding movement depends entirely on the movements of the wearer's arm as its energy source. The watch needs to be worn for a certain time so that it remains fully wound. This time varies, depending on how physically active the wearer is. We cannot therefore give you a precise minimum time the watch should be worn, but for the large majority of people 8 hours is a good guide. If the watch stops it will have to be rewound manually before being used again. In such cases, it is best to rotate the crown at least forty times, especially if the watch has a calendar mechanism.

L506

Vibrations	21'600 A/h
ø	16½" – 36.60 mm
Height	4.50 mm
Winding	Hand-winding
Power reserve	53 hours
Base calibre	ETA 6497/2
Jewels	17



L507

Vibrations	21'600 A/h
ø	16½" – 36.60 mm
Height	4.50 mm
Winding	Hand-winding
Power reserve	56 hours
Base calibre	ETA 6498/2
Jewels	17



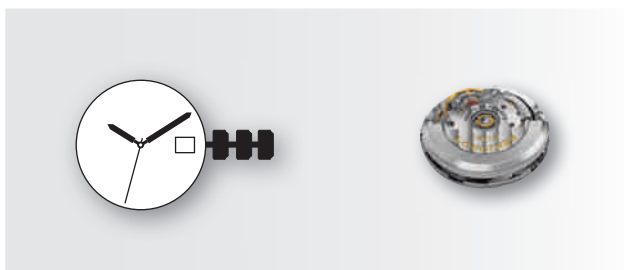
L512

Vibrations	21'600 A/h
ø	16½" – 36.60 mm
Height	4.50 mm
Winding	Hand-winding
Power reserve	56 hours
Base calibre	ETA 6498/2
Jewels	17



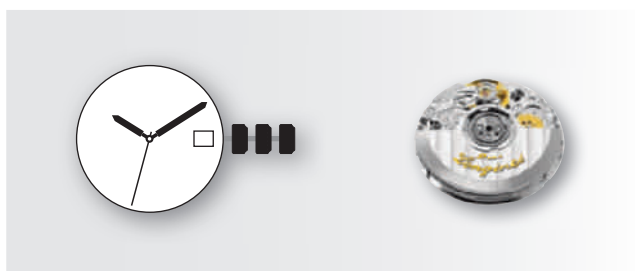
L561

Vibrations	28'800 A/h
ø	7¼" – 17.20 mm
Height	4.80 mm
Winding	Automatic
Power reserve	38 hours
Base calibre	ETA 2671
Jewels	25



L595

Vibrations	28'800 A/h
ø	8¾" – 19.40 mm
Height	3.60 mm
Winding	Automatic
Power reserve	40 hours
Base calibre	ETA 2000/1
Jewels	20



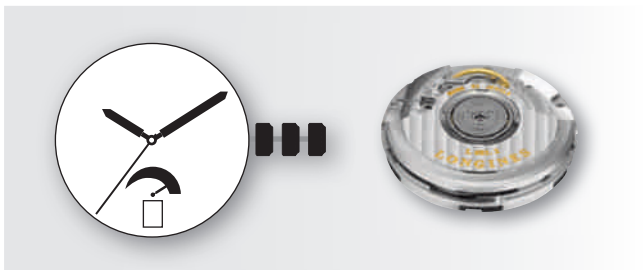
L600

Vibrations	28'800 A/h
ø	11½" – 25.60 mm
Height	5.35 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	Dubois Dépraz 9310
Jewels	21



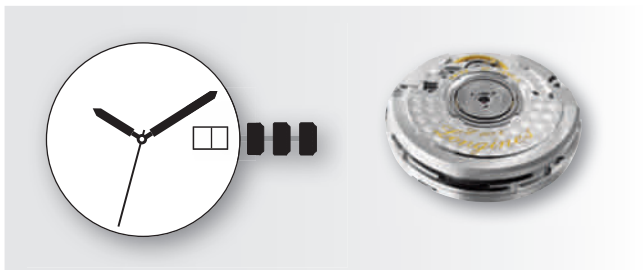
L602

Vibrations	28'800 A/h
ø	11½" – 25.60 mm
Height	4.85 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	ETA 2897
Jewels	21



L607

Vibrations	28'800 A/h
ø	11½" – 25.60 mm
Height	4.85 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	ETA 2896
Jewels	22



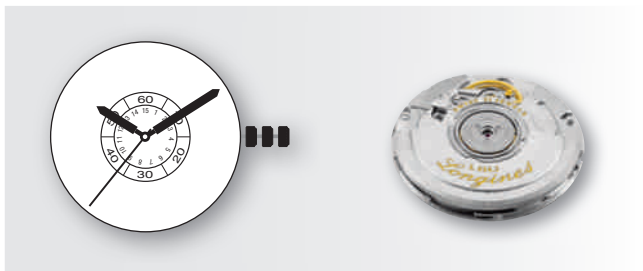
L609

Vibrations	28'800 A/h
ø	11½" – 25.60 mm
Height	4.35 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	ETA 2895/2
Jewels	27



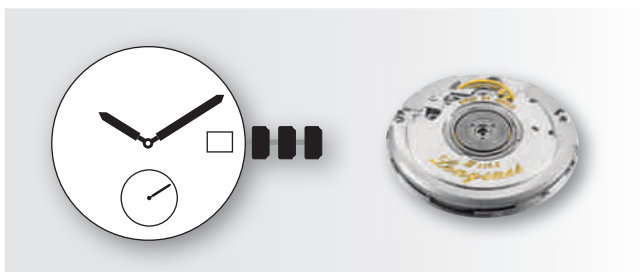
L614

Vibrations	28'800 A/h
ø	11½" – 25.60 mm
Height	3.60 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	ETA 2892/A2
Jewels	21



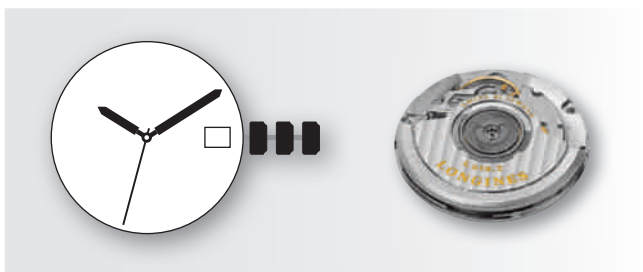
L615

Vibrations	28'800 A/h
ø	11½" – 25.60 mm
Height	4.35 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	ETA 2895/2
Jewels	27



L619

Vibrations	28'800 A/h
ø	11½" – 25.60 mm
Height	3.60 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	ETA 2892/A2
Jewels	21



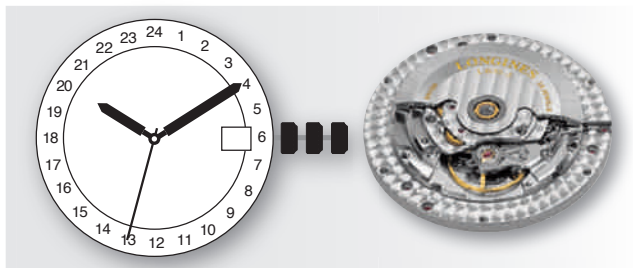
L633

Vibrations	28'800 A/h
Ø	11½" – 25.60 mm
Height	4.60 mm
Winding	Automatic
Power reserve	38 hours
Base calibre	ETA 2824/2
Jewels	25



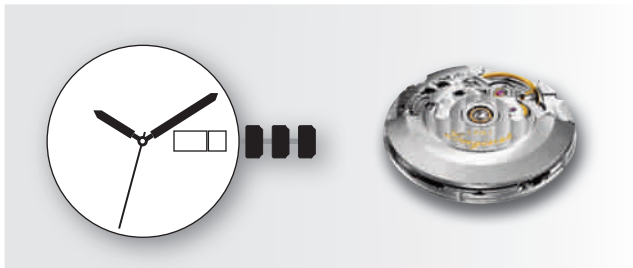
L635

Vibrations	28'800 A/h
Ø	14¼" – 33 mm
Height	6.55 mm
Winding	Automatic
Power reserve	38 hours
Base calibre	ETA 2824/2
Jewels	33



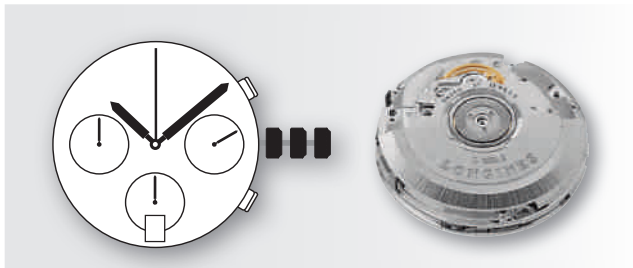
L636

Vibrations	28'800 A/h
Ø	11½" – 25.60 mm
Height	5.05 mm
Winding	Automatic
Power reserve	38 hours
Base calibre	ETA 2836-2
Jewels	25



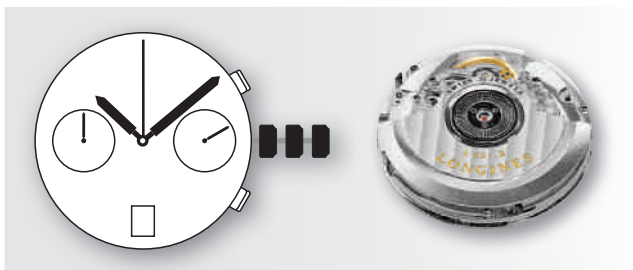
L650

Vibrations	28'800 A/h
Ø	12½" – 28.00 mm
Height	6.10 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	ETA 2894/2
Jewels	37



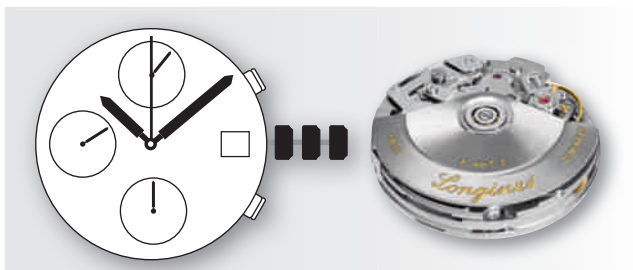
L651

Vibrations	28'800 A/h
Ø	12½" – 28.00 mm
Height	6.10 mm
Winding	Automatic
Power reserve	42 hours
Base calibre	ETA 2894/2
Jewels	37



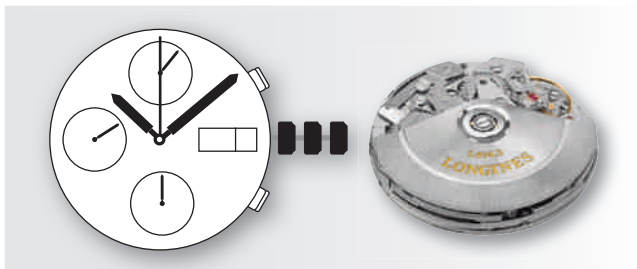
L667

Vibrations	28'800 A/h
Ø	13¼" – 30.00 mm
Height	7.90 mm
Winding	Automatic
Power reserve	48 hours
Base calibre	Valjoux 7750
Jewels	25



L674

Vibrations	28'800 A/h
Ø	13¼" – 30.00 mm
Height	7.90 mm
Winding	Automatic
Power reserve	48 hours
Base calibre	Valjoux 7750
Jewels	25



L678

Vibrations	28'800 A/h
Ø	13¼" – 30 mm
Height	7.90 mm
Winding	Automatic
Power reserve	48 hours
Base calibre	Valjoux 7751
Jewels	25



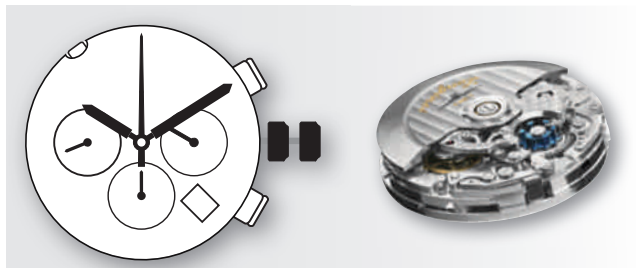
L683

Vibrations	28'800 A/h
Ø	13¼" – 30 mm
Height	7.90 mm
Winding	Automatic
Power reserve	48 hours
Base calibre	Valjoux 7753
Jewels	27



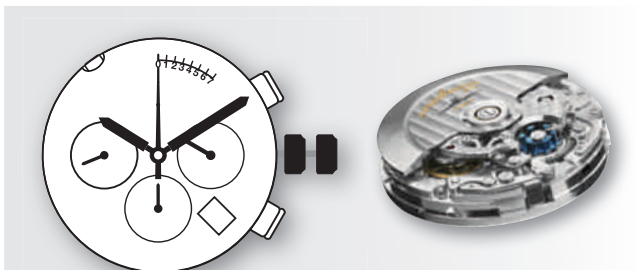
L688

Vibrations	28'800 A/h
Ø	13¼" – 30 mm
Height	7.90 mm
Winding	Automatic
Power reserve	54 hours
Base calibre	ETA A08.L01
Jewels	27



L688-Vernier

Vibrations	28'800 A/h
Ø	13¼" – 30 mm
Height	7.90 mm
Winding	Automatic
Power reserve	54 hours
Base calibre	ETA A08.L01
Jewels	27



L691

Vibrations	28'800 A/h
Ø	16½" – 36.60 mm
Height	7.90 mm
Winding	Automatic
Power reserve	46 hours
Base calibre	ETA A07 111
Jewels	24



L693

Vibrations	28'800 A/h
Ø	16½" – 36.60 mm
Height	7.90 mm
Winding	Automatic
Power reserve	48 hours
Base calibre	ETA A07 161
Jewels	24



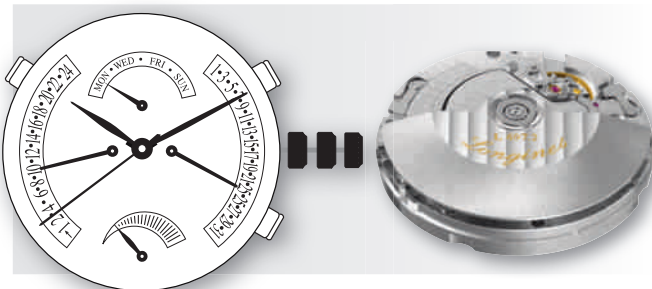
L696

Vibrations	28'800 A/h
Ø	16½" – 36.60 mm
Height	7.90 mm
Winding	Automatic
Power reserve	46 hours
Base calibre	ETA A07 231
Jewels	27



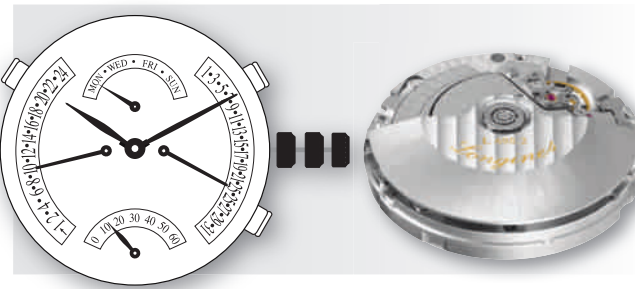
L697

Vibrations	28'800 A/h
Ø	16½" – 36.60 mm
Height	9 mm
Winding	Automatic
Power reserve	46 hours
Base calibre	ETA A07 L11
Jewels	23



L698

Vibrations	28'800 A/h
Ø	16½" – 36.60 mm
Height	9 mm
Winding	Automatic
Power reserve	46 hours
Base calibre	ETA A07 L21
Jewels	25



L699

Vibrations	28'800 A/h
Ø	16½" – 36.60 mm
Height	7.90 mm
Winding	Automatic
Power reserve	46 hours
Base calibre	ETA A07 L01
Jewels	24



L704.2

Vibrations	28'800 A/h
Ø	16½" – 36.60 mm
Height	7.90 mm
Winding	Automatic
Power reserve	48 hours
Base calibre	ETA A07 171
Jewels	24



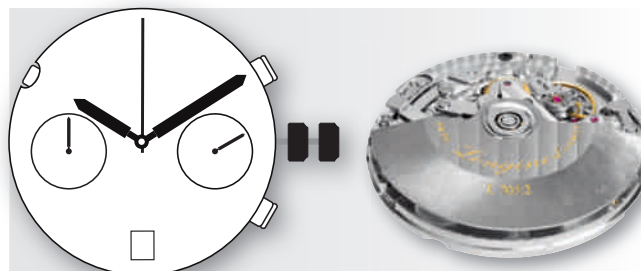
L704.3

Vibrations	28'800 A/h
ø	16½" – 36.60 mm
Height	7.90 mm
Winding	Automatic
Power reserve	48 hours
Base calibre	ETA A07 171
Jewels	24



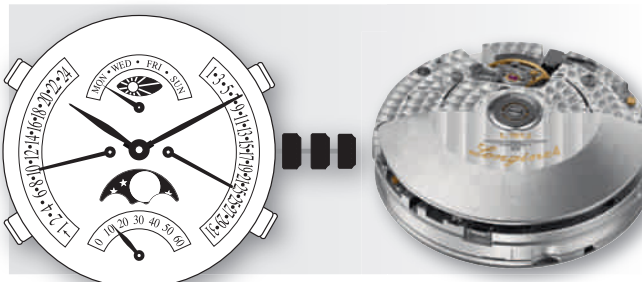
L705

Vibrations	28'800 A/h
ø	16½" – 36.60 mm
Height	7.90 mm
Winding	Automatic
Power reserve	46 hours
Base calibre	ETA A07 231
Jewels	27



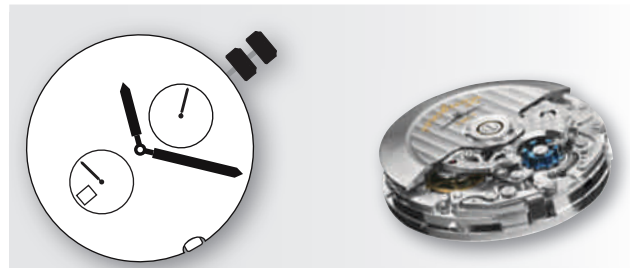
L707

Vibrations	28'800 A/h
ø	16½" – 36.60 mm
Height	10 mm
Winding	Automatic
Power reserve	46 hours
Base calibre	ETA A07 L31
Jewels	25



L788

Vibrations	28'800 A/h
ø	13¼" – 30 mm
Height	7.90 mm
Winding	Automatic
Power reserve	54 hours
Base calibre	ETA A08.L11
Jewels	27



L878

Vibrations	18'000 A/h
ø	16¾" – 37 mm
Height	4.50 mm
Winding	Hand-winding
Power reserve	40 hours
Base calibre	Longines 37.9 ABC
Jewels	17

