

The balance-spring

It is considered the brain of the mechanical watch, the place that measures time. Along with the balance, it is the watch's regulating organ. Its quality influences how accurately the watch runs. The small spring, wound in a spiral (between 12 and 15 turns), is attached by its ends to the balance and the cock. Owing to its elasticity, the balance-spring enables the balance to oscillate with a resonant frequency. It weighs just 1 mg and is around 0.02 mm thick – finer than a human hair!

THE STEEL BALANCE-SPRING

The traditional balance-spring is made from a steel wire, drawn and then rolled, and its shape is formed mechanically. It is fragile and sensitive to external disturbances such as knocks, the temperature, oxidation and magnetism.

THE SILICON BALANCE-SPRING

Silicon is a chemical element [Si 14] abundant on Earth in its oxidised form. You have to dig into the Earth's crust to find it in its pure form. Silicon is the basic element used for electronic chips and computer components (hence "Silicon Valley").

After extensive research, and benefiting from the latest advances in technology, the silicon balance-spring was created in the early 2000s. Its manufacture involves a number of extremely specialised industrial operations.



*The silicon balance-spring
guarantees greater accuracy
for mechanical watches.*

ADVANTAGES OF SILICON

1

The way in which it is manufactured allows for great freedom of form and excellent geometric precision.

3

It is scarcely affected by the passage of time, ageing and oxidation.

2

Owing to its physical properties, the silicon balance-spring is insensitive to the effects of magnetism, impacts (everyday knocks) and changes in temperature. Given that there are many sources of magnetism that can affect a watch's accuracy (laptops, mobile phones, magnetic handbag fasteners, medical devices, etc.), the silicon balance-spring offers the customer a clear advantage.

4

Whatever the position of the wrist, optimal stability of the calibre is guaranteed.

It is Longines' mission to strive for watchmaking excellence. The brand equips its high-end Longines Spirit and Record collection models with exclusive movements fitted with a silicon balance-spring and "chronometers" certified by the COSC.

Concerned with providing the best service for its customers, Longines has decided to extend the warranty for all models fitted with a silicon balance-spring to five years. This warranty extension includes Longines Spirit, Record collection and some high-end models. As with the current two-year warranty, the start date is the date of purchase. A specific logo has been designed to highlight this new feature.

