

Spring Drive, the world-first spring-driven watch regulated by a high-precision quartz oscillator

Registration No.	Number 00307		
Registration Date	September 14, 2021	Registration Category	Category 1

Name (Model, etc.)	SEIKO SPRING DRIVE 7R68
Location	Chuo-ku, Tokyo
	The Seiko Museum Ginza
Owner (Custodian)	Seiko Holdings Corporation
Manufacturer (Company)	Development & Production: Seiko Epson Corporation Product Planning & Sales: Seiko Corporation (now Seiko Holdings Corporation)
Year Manufactured	1999
Year first appeared	1998
Reason For Selection	Conventional mechanical watches are powered by a mainspring and regulate their speed mechanically, delivering accuracy of around ± 30 seconds per day (high-end products promise $\pm 3/-5$ seconds while mass-market watches could be as much as ± 70 seconds). A revolutionary breakthrough came with the quartz in the regulating mechanism, which delivered a major improvement in timekeeping accuracy, allowing even mass-market models to be accurate to ± 30 seconds per month. However, the button battery that powered the quartz watch had to be replaced regularly, and it did not generate sufficient power to move heavier types of watch hands. The solution was Spring Drive. It was the world-first watch, which combined a mechanical movement (where the hands are driven by mechanical energy from the mainspring) with a high-precision quartz watch unit. This particular analog watch movement is significant for achieving the high accuracy of ± 1 second per day while employing a mainspring as the power source (without using a battery, even a secondary one). Seiko's innovative design enabled to incorporate the quartz oscillator and IC to generate a high-precision signal to regulate the system.
Registration Standard	1-B (Show a uniquely Japanese scientific or technological development from an international perspective.) 2-C (Show an important event or phenomenon in the relationship between society and culture on the one hand and science and technology on the other.)

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