SEIKO

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SEIKO, the only manufacture with every watchmaking expertise

The story of SEIKO is the story of a company unafraid to dream and with the will and resources to take on the seemingly impossible. Throughout its 127 years of history, the company has sought to meet challenges and realize dreams, technical, commercial and environmental, that at one time have seemed beyond reach. Examples of such challenges abound: To build Japan's first watch in 1913, using components, including the balance wheel, that were built entirely in-house. To re-start production less than one year after the Tokyo earthquake of 1923 had entirely destroyed both the headquarters and the factory. To be the first watch company in the world to eliminate CFC's*1 in its entire watch production in 1992. The list of challenges met is long.

But it is in the area of timekeeping technology that the company's determination to realize dreams is most evident. In particular, SEIKO has always striven to be at the leading edge of the technologies of watch making, and to expand the boundaries of the possible. This relentless pursuit of new goals has led to SEIKO's mastery of no less than four timekeeping technologies, two of which are unique to SEIKO.

The power of synergy

Mastery of these four timekeeping technologies, Spring Drive, mechanical, Kinetic, and quartz has been made possible by SEIKO's unique ability to develop all its technologies in-house. Because SEIKO has skills in all areas of the watchmaker's art, each new development in one area opens up new possibilities in other areas. Thus, Kinetic could not have been developed without the existence within SEIKO of high level skill in both mechanical and quartz watchmaking, and Spring Drive would not be possible without the creation of both a new type of IC and a new type of mainspring. Similarly, a 'magic lever' was invented in 1959 for SEIKO's automatic watch and, almost half a century later, it played an important role in making the dream of Spring Drive a reality. In these and many other ways, it has been the inter-action of these skills that has driven forward the SEIKO dream of realizing the impossible.

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Meeting the challenge of 4 technologies

1) SEIKO Mechanical : Fusing precision and craftsmanship into mechanical watchmaking

SEIKO Automatic Chronographs

Caliber 6139 (1969) Caliber 8R28 (2008)

Caliber 6139 was the world's first automatic chronograph
to use both a column wheel and a vertical clutch.

SEIKO first produced mechanical watches in 1913, and therefore has almost a century of uninterrupted expertise in the creation of traditional timepieces. But it was in the 1960's that the most rapid and important developments took place, as Seiko sought to make its mechanical watches the best in the world. Throughout the early 60's, Seiko watches won all the top places in Japan's accuracy competitions and new challenges were sought to stimulate further improvements. As SEIKO looked further afield for new competition, the Neuchatel Observatory competitions in Switzerland graciously welcomed SEIKO's participation in 1963. For four years, SEIKO strove to make movements that could compete and, in 1967, two SEIKO timepieces were awarded the second and third places. As the Neuchatel competition was then closed, SEIKO sought to compete in Geneva and, in 1968, with 7 pieces in the top 10, won first place overall. From that moment on, with collections like Grand Seiko, and movements like the automatic mechanical chronograph caliber 6139, which was installed with a column wheel and vertical clutch, SEIKO has been at the leading edge of mechanical watch technology. Thus, the new mechanical caliber 8R28, presented here at Baselworld 2008 is but the latest chapter in a long history of challenges accepted and dreams realized.

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2) SEIKO Quartz : Inventors and innovators in quartz since 1969

SEIKO launched the world's first quartz watch, the SEIKO *Astron* in 1969. It was offered in a limited edition of just 100 pieces at the price of 450,000 Yen, a then enormous price for a watch, roughly equivalent to the price of a normal sized car.

SEIKO Astron (1969)

Double Retrograde Chronograph (2008)

The world's first quartz watch was marketed on Christmas Day, 1969.
40 years on, SEIKO's innovation in quartz finds new expression in this new double retrograde chronograph.

The race to quartz had started many years earlier when, in the 1930's, quartz clocks were developed by a Canadian telecommunications expert at the Bell Telephone Laboratories, but the dream remained elusive because of the many problems of miniaturisation. Like many other companies, SEIKO was working steadily on these problems, but in 1968, the management became exasperated with the slow progress and issued a challenge to the team. The management told them they had just one year to bring quartz to market. A new dedicated team at SEIKO's facility set to work. They created, in-house and from scratch, the three key elements needed to realize the quartz dream: a new crystal oscillator, a new type of 'open' stepping motor and a new C-MOS IC - all within a year. The quartz challenge was met, with just one week to spare, on December 25, 1969. In 2004, SEIKO received the IEEE*2 Milestone Award in recognition of this world's first achievement. Since that momentous day, SEIKO has had unrivalled mastery of quartz technology and the design of the quartz oscillator developed by SEIKO is now the standard for the industry. Furthermore, SEIKO's design is used far beyond the field of watches; it is used in mobile phones, computers, automobile clocks and in many other everyday applications, and the C-MOS IC technology that SEIKO developed has even found applications in the world's most advanced image-capture systems.

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Today, the list of SEIKO's world's first quartz movements continues to grow. At Baselworld, the tradition continues with several new quartz calibers, including the remarkable Double Retrograde chronograph in the Sportura collection.

3) SEIKO Kinetic: Powered by the movement of your body

By the early 1970's, SEIKO skills in electronic and mechanical timekeeping were well established and had set in motion a growth trend for the company that continues today. However, SEIKO's designers and movement engineers are forever restless and they sought new challenges. One dream in particular pre-occupied the SEIKO teams. Was it possible to harness the perpetual energy of a mechanical movement to the precision of an electronic watch and thus combine the best of both timekeeping worlds?

'AGS' (1988)

Kinetic Perpetual (2008)

AGS, the forerunner of SEIKO Kinetic, was launched in 1988.
The Kinetic Perpetual caliber 7D56, one of 23 Kinetic calibers, is now in production.

SEIKO Kinetic fulfilled the dream. By converting motion into electricity, SEIKO Kinetic provides a platform which, today, delivers quartz accuracy with lower than ever service requirements, less environmental impact and the potential for unlimited multi-functionality. Serious work on the project started in 1983 and a team in SEIKO's facility was given free rein to develop whatever new technologies might be needed. The key issue was immediately apparent - the power requirement was too great for a conventional quartz watch, and to solve it required a new IC, a new voltage multiplier and a new rotor using magnetic levitation.

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By 1988, all three technologies had been invented and SEIKO Kinetic was born, and over the years no less than 23 Kinetic calibers have been in production, including two remarkable chronographs. The new Kinetic Perpetual caliber 7D56 is a classical example of its powerful potential.

4) SEIKO Spring Drive: A quiet revolution in luxury watchmaking

SEIKO Spring Drive is the only watch to reflect the true nature of time. Its unique glide motion reflects the true, continuous and natural flow of time.

Spring Drive hand winding (1999)

Spring Drive Chronograph (2008)

As early as 1973, a young engineer in SEIKO Epson, Yoshikazu Akahane, was already working on a new dream, which he called the 'the eternal watch', a watch that used a mainspring but which would not have the reliability and durability problems inherent in a traditional timepiece. Mr Akahane wondered whether an electromagnetic brake could be used as a regulator. Again, the dream hinged on the ability to fuse the traditional and the modern watchmaking skills of SEIKO. The problems seemed insurmountable because of the impossibility of reconciling the high energy requirement of the IC with the low power output of a motion-based caliber.

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It took 28 years for the dream to be realised as new technologies were again required in every area of watchmaking, but in the end, it proved possible, mainly because SEIKO created a new IC that reduced energy consumption to 25 nano watts, which is only 1/1000th of the power requirement of the first quartz watch, and, in 1999, Spring Drive was bom. Spring Drive is a luxury mechanical watch in which the escapement is replaced by an entirely new regulator that uses and generates mechanical, electrical and electromagnetic power. There are again the synergies. The magic lever, which was created for SEIKO mechanical watch, was used in Spring Drive automatic models to improve the winding efficiency. Another example is the special alloy Spron 510*3. The Spron 510 was created in 1997 and was with its exceptional flexibility and durability used for the main spring, making possible the longer power in Spring Drive.

SEIKO at Baselworld 2008

Spring Drive is the perfect synthesis of tradition and high technology and it will make a major contribution to the future growth of the luxury watch market as attested by the new additions at Baselworld 2008: the Spring Drive Moon Phase, the Chronograph and the *Spacewalk*.

Thus, in all areas of timekeeping, SEIKO has achieved a leading position by refusing to give up on its dreams. Mastery of each of the four areas of the watchmaker's art has been hard earned and SEIKO remains determined to move ahead in each area, as the Baselworld 2008 SEIKO collection bears witness.

Remarks:

*1 Chlorofluorocarbon, a chemical substance which does damage to the ozone layer

*2 The Institute of Electrical & Electronics Engineers, Inc, a non-profit organization, the world's leading professional association for the advancement of technology

*3 Spron 510, a high-elastic material developed by Seiko Instruments Inc (SII), through collaboration with the Institute of Materials Research, Tohoku University and SII's registered trademark

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