
THE BIG PILOT'S WATCH SHOCK ABSORBER TOURBILLON SKELETON XPL COMBINES IWC'S SHOCK ABSORBER SYSTEM WITH A TOURBILLON

Schaffhausen/Geneva, 1st April 2025: IWC Schaffhausen presents the Big Pilot's Watch Shock Absorber Tourbillon Skeleton XPL at Watches and Wonders Geneva. This marks the first time that IWC uses its patented SPRIN-g PROTECT® shock absorber system to protect a tourbillon against shocks. The cantilever spring was completely re-designed and adapted to accommodate the IWC-manufactured 82915 calibre with a flying minute tourbillon. To reduce the mass of the movement and maximise the system's performance, the plates, bridges and the rotor are skeletonised – also offering a better view of the complicated mechanics and the bulk metallic glass (BMG) shock absorber spring inside. This highly complex watch in a technical design features a Ceratanium® case and crown. It is fitted with a black patterned rubber strap with a Ceratanium® pin buckle.

The tourbillon is one of the most sophisticated complications in fine watchmaking. The balance wheel and pallet lever are placed inside a small cage that rotates around its axis once every minute. This constant rotation contributes to offsetting the effect of gravity on the oscillating system of the watch, thereby increasing its accuracy. Its complexity also makes the tourbillon a highly delicate and fragile mechanism. As dozens of parts have to work together in a confined space, it is particularly vulnerable to damage by shocks. With the **Big Pilot's Watch Shock Absorber Tourbillon Skeleton XPL** (Ref. IW357701), IWC's engineering division XPL has now pushed the boundaries in fine watchmaking again. Marking a first for the brand, this highly complex watch combines the patented SPRIN-g PROTECT® shock absorber system with a tourbillon.

"By adapting our patented SPRIN-g PROTECT® system to a complicated movement with a tourbillon, our advanced engineering division XPL demonstrates the system's extraordinary performance. Protecting a tourbillon against the high g-forces generated by

impacts on the watch represents a major leap forward and a break-through in shock protection, proving that this innovative system can also be used for high complications," explains Lorenz Brunner, Department Manager Research and Innovation at IWC Schaffhausen.

A BREAKTHROUGH INNOVATION FROM IWC'S ENGINEERING DIVISION XPL

IWC Schaffhausen's advanced engineering division XPL develops new technologies to enhance the durability of mechanical watches and expand their range of applications to extreme environments. One area of research is movement shock protection. When a watch suffers an impact, the movement can potentially be subjected to high g-forces. If a watch case impacts a hard surface, for example, accelerations can range between 300 to 1000 g. Acceleration forces generated inside the movement can reach up to 1000 g. IWC Schaffhausen's patented SPRIN-g PROTECT® system uses a cantilever spring to cushion the movement and suspend it inside

the case. In the event of an impact to the case, the movement is protected by the compressing spring system, reducing impact forces significantly. A unique crown coupling system allows the movement to move freely inside the case when the coupling is disengaged.

RE-ENGINEERED SHOCK PROTECTION FOR THE TOURBILLON

To adapt the SPRIN-g PROTECT® shock absorber system to the IWC-manufactured 82915 calibre, the shape of the spring had to be redesigned. Each of the eight arms was recalculated using advanced simulation tools and adapted to the dimensions and weight of the tourbillon movement. The re-engineered shock absorber underwent comprehensive testing using advances measurement methods. During these tests, protected tourbillon movements have survived shocks in excess of 10,000 g.

AN ADVANCED BULK METALLIC GLASS WITH ELASTIC PROPERTIES

The key to this extraordinary performance lies in the spring's perfect form and material execution in bulk metallic glass (BMG). The spring is designed to evenly spread shock forces across its length and width. A highly complex manufacturing process gives BMG a disordered atomic-scale structure. This amorphous microstructure makes the material significantly more elastic than conventional metals – a key requirement for a shock absorber spring. Manufacturing this material, however, represents an enormous engineering challenge. The liquid metal must be cooled down extremely rapidly so that its structure remains amorphous and does not become crystalline. Otherwise, the metal loses its advantageous properties.

SKELETONISED MOVEMENT REDUCES THE MASS TO BE PROTECTED

Reducing the mass to be protected is critical for the shock absorber system's performance. For this reason, the plates, bridges and rotor of the IWC-manufactured 82915 calibre are skeletonised. The dial is reduced to a simple black ring with the characteristic triangle at 12 o'clock and minute scale. Even the triangular hands, coated with Super-LumiNova®, are skeletonised. The flying minute tourbillon, consisting of 56 parts and weighing only 0.663 grams, is visible at 6 o'clock. This approach allowed IWC's engineers to reduce the weight of the movement as much as possible, maximising the performance of the shock absorber system. It also exposes the components and the BMG spring in a spectacular way. The movement features a Pellaton winding system reinforced with components made of ceramic. Using movements of the rotor in both directions, it efficiently builds up a power reserve of 80 hours in the mainspring.

CERATANIUM® CASE AND CROWN

The case and the crown of this watch are manufactured using Ceratanium®, an innovative material that was developed by IWC and first presented in 2017. Ceratanium® is based on a special titanium alloy. The components are milled from bars and then subsequently finished and fired in a kiln. During this heat process, they assume the properties of ceramic and also obtain their dark metallic finish. As a result, parts made of Ceratanium® are as light and unbreakable as titanium, while at the same time being similarly hard and scratch-resistant as ceramic. The Ceratanium® case features distinctive rubber bumpers on both sides. This highly complex and futuristic Big Pilot's Watch is fitted with a black rubber strap with a technical pattern, complete with a Ceratanium® pin buckle.

BIG PILOT'S WATCH SHOCK ABSORBER TOURBILLON SKELETON XPL

REF. IW357701

FEATURES

Mechanical movement – Pellaton automatic winding system – Flying minute tourbillon at 6 o'clock – SPRIN-g PROTECT® shock absorber system – Screw-in crown – Glass secured against displacement by drops in air pressure – See-through sapphire glass back – Limited to 100 pieces

MOVEMENT

IWC-manufactured calibre	82915
Frequency	28,800 vph / 4 Hz
Jewels	25
Power reserve	80 h
Winding	Automatic

WATCH

Materials	Ceratanium® case, Ceratanium® crown, black skeletonised dial, black skeletonised hands, black rubber strap with Ceratanium® pin buckle
Glass	Sapphire, convex, antireflective coating on both sides
Water-resistant	10 bar
Diameter	44 mm
Height	13.1 mm

IWC SCHAFFHAUSEN

IWC Schaffhausen is a leading Swiss luxury watch manufacturer based in Schaffhausen in the north-eastern part of Switzerland. With collections like the Portugieser and the Pilot's Watches, the brand covers the whole spectrum from elegant to sports watches. Founded in 1868 by the American watchmaker and engineer Florentine Ariosto Jones, IWC is known for its unique engineering approach to watchmaking, combining the best of human craftsmanship and creativity with cutting-edge technology and processes.

Over its more than 150-year history, IWC has earned a reputation for creating professional instrument watches and functional complications, especially chronographs and calendars, which are ingenious, robust, and easy for customers to use. A pioneer in the use of titanium and ceramics, IWC today specialises in highly engineered watch cases manufactured from advanced materials, such as coloured ceramics, Ceratanium®, and titanium aluminide.

A leader in sustainable luxury watchmaking, IWC sources materials responsibly and takes action to minimise its impact on the environment. Along the pillars of transparency, circularity, and responsibility, the brand crafts timepieces built to last for generations and continuously improves every element of how it manufactures, distributes, and services its products in the most responsible way. IWC also partners with organisations that work globally to support children and young people.

DOWNLOADS

Images of the Big Pilot's Watch Shock Absorber Tourbillon Skeleton XPL can be downloaded free of charge from press.iwc.com

FURTHER INFORMATION

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