

As Good

Lange's new Tourbograph is €380,000 of watchmaking excellence

James Gurney



A Lange & Söhne's announcement that it was going to unveil an "exceptional" piece engaged my curiosity with a jolt, as the Saxon master has never been quite so free with language as other watchmakers tend to be. And I wasn't alone; the invitation even sparked online competitions to guess what the watch might be! In the end, very few were disappointed. The Tourbograph 'Pour le Mérite' might be Lange's second tourbillon wristwatch with a 600-part-chain and fusée torque regulator, but it is the first in the world to include a rattrapante chronograph function, and the first Lange piece to receive such an assiduous, perfectionist level of finish. The tourbillon cage alone takes two days to chamfer.

On arrival at Lange's headquarters in the east of Germany, there was a noticeable sense of occasion. It was intriguing to see quite how pleased and keyed-up the Lange management was with the occasion. Indeed, the excitement even got to the normally taciturn Hartmut Knothe, who made a rare public sally in English.

As a teaser, there was a short presentation recounting the recent history of A Lange & Söhne followed by a tour around some of the atelier where this mystery masterpiece is to take shape. Luckily for our sense of self-respect, the beautifully finished components being shown in the atelier were quickly identified as adding up to

As It Gets



The Tourbograph 'Pour le Mérite' (€380,000) is limited to 101 pieces in platinum and gold. It unites the two most complex inventions for the optimisation of rate stability - a tourbillon and fusée-and-chain mechanism. First attributed to Lange's 1994 tourbillon model, the 'Pour le Mérite' accolade alludes to the order of merit created by King Frederick William IV in 1842 for outstanding scientific and artistic accomplishments. It derives from the Order of Generosité, established in 1667 to reward Prussian subjects for outstanding services



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(Left) The two column wheels that control the rattrapante chronograph are visible through the Tourbograph's caseback. The rattrapante function splits the sweep-seconds hand, allowing comparative timings of up to one minute.

(Right) The elegantly curved tourbillon cage is comprised of 84 parts. The watchmaker here is attaching to the balance wheel one of the tiny screws that are used to adjust and regulate the wheel's poise.

a chronograph tourbillon, with the sinuous lines of tourbillon bridges and fusée-and-chain components recognisable from 1994's Tourbillon 'Pour le Mérite'.

The presentation afterwards was not, however, an anti-climax. Beginning with a clearly heartfelt tribute to the late Günter Blümlein whose intelligence and vision helped make A Lange & Söhne a reality, the presentation moved on to introduce Giulio Papi of Renaud & Papi, who helped to develop the watch. This was unique. It is virtually unheard-of for a top-echelon watch house to admit the involvement of any external aid in developing watches - a coyness that is all too often practiced to the point of absurdity. Even though the involvement of a firm such as Renaud & Papi (a sort of watchmaking Cosworth or McLaren, owned by Audemars Piguet) in the

development of a new movement is a virtual guarantee of horological sophistication, most of its work is zealously concealed. Yet here we were being treated to a short disquisition on the Le Locle firm's contribution to the development of the fusée-and-chain mechanism.

By Lange standards, the manner of the launch and the Pour le Mérite appellation is putting on the Ritz in no uncertain terms. So what of this watch, which bears such weight of expectation? The watch itself is a split-seconds chronograph, with tourbillon and fusée-and-chain mechanism. Which is a rather bald way to say "as good as it gets" in watchmaking terms.

Chain reaction

One small detail that should be understood right from the start is that this is a watch with an



(Above) Decorating the bridge with one of the 14 different diameters of perlage (circular graining) used on the movement.

expected retail price of €380,000, so any description of the watch is also an attempt to explain such phenomenal cost. There are watches that cost more than this, but very few that limit the use of diamonds to endstones in the movement. Very definitely not contributing to the value of this watch is its name. The 'Tourbograph' is apparently so-called because the chronograph element derives from the Datograph and its successor the Double Split. Luckily, this name does not appear on the dial.

Price aside, there are two things that really set the Tourbograph apart from the ordinary. The first and most obvious is the fusée-and-chain mechanism. More commonly found in 16th- and 17th-century pocket watches, the fusée-and-chain is a device for equalising the torque of a gear train as the mainspring winds down. It is effectively a brake that eases off as the mainspring unwinds and the

torque value declines. When you wind the movement, the chain is drawn from the mainspring barrel onto a spiral grooved cone. In unwinding, the chain is first drawn off the narrow end of the fusée, where it acts with less leverage, meaning that the mainspring has to work harder. As the mainspring winds down, the chain pulls at the larger circumference of the fusée, requiring less torque to turn the fusée. Thus, the tapering fusée matches the diminishing strength of the spring.

All very straightforward until you try to make such mechanisms function effectively and reliably within the miniature confines of a wristwatch case. The chain alone is made from some 600 parts (each chain is hand-made and unique, therefore contains a varying number of links). The process of finding someone who knew how to make such an intricate chain took Giulio Papi all over Switzerland and

(Above) Lange's fusée-and-chain device equalises the torque fed into the gear train by the main-spring as it unwinds, using the graduated leverage of a stepped cone. Each link is handmade, so the number of parts for each chain varies around the 600 mark.

(Right) The tourbillon carriage is a master-class in finish with 73 mm of perfectly chamfered curved edges.



There is only one situation when the fusée cone rotates backwards: as the mainspring is being wound. To prevent the watch from stopping while it is being wound, Lange integrated a tiny planetary gear train inside the fusée, which assures uninterrupted delivery of power to the movement.

stretched his ingenuity to the limit. Having sourced a way of manufacturing the chain, Papi then looked at the cone itself and decided to complicate things further. Traditional fusée mechanisms are linked directly to the gear train and mainspring and stop the system during winding. M. Papi decided that the benefit of a fusée mechanism in terms of timekeeping would be entirely lost if the movement stopped every time the watch was wound. So he introduced a complex set of planetary gears *within* the fusée cone, to allow the movement to run during winding.

As Lange admits, the tourbillon adds very little *per se* to the timekeeping potential of the watch – particularly compared to the contribution made

by modern materials and painstaking assembly. So what, apart from cost, does the fusée system add? Part of the answer is, of course, the attraction of the device itself, as with the tourbillon. Nevertheless, Lange insists that the fusée-and-chain makes a measurable contribution to the watch's timekeeping ability.

Finishing first

The second element that sets the Tourbograph apart from the ordinary is not the addition of a split-seconds chronograph (though these are not exactly common); it is actually the sheer amount of time put into the finish of each element in the watch. The sinuous cage of the tourbillon is a case in point: the continuous, 73 mm chamfered edge

takes one day to form and harden, one day to prepare for assembly and a further two days' finishing. All of this for *one* part.

The nature of the movement means it is relatively deep at 8.9 mm, with 14 plates and bridges at different levels. Each of these is treated with perlage of a different diameter, despite the fact that only other watchmakers will see the majority of this work. Since perlage sticks only come in three diameters, 11 other sizes had to be made by hand to complete the 8,000 'perls' on each movement. This is a level of finish almost headache-inducing in its thoroughness.

Lange & Söhne plans to make 101 Tourbographs – 51 in platinum, followed by 50 in gold – and each watch will take 30 days to complete, thus absorbing some of Lange's best craftspeople for the next eight years or so. For a company of Lange's size, this is a seriously big investment (knocking on €10m over the life of the project?); in a way comparable to Bugatti's Veyron project, though obviously not in terms of money.

Merit

The strange thing here is that there is no sense of risk for Lange (or, more accurately, Richemont). It seems only too likely that the 100 buyers will be found with comparative ease. But looking at the economics here is to wander from the point: the Tourbograph is simply one of the most perfectly conceived watches to have been shown in recent years and marks A Lange & Söhne's occupation of the horological high ground as a permanent fixture. As for the 'Pour le Mérite' appellation, the guardians of the eponymous order of artistic and scientific merit would do well to recognise the sheer excellence encapsulated in these watches, and find a way to add Lange to a roll-call boasting Faraday, Millais, Saint-Saëns and Liszt. ○

Further information: www.langesoehne.com



(Above) Final polishing of the tourbillon bridge.

(Below) Visual inspection of a Lange baseplate with a projector. A light-projected enlargement is compared to a transparent engineering drawing at the same scale.

