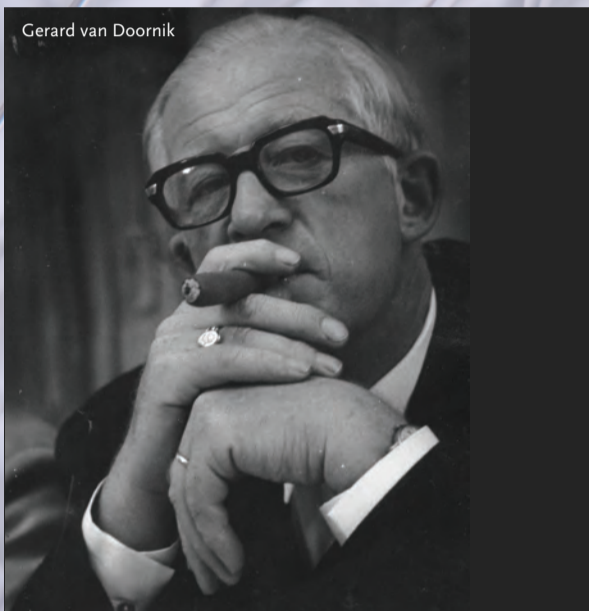


40 Years of Wheelbuilding



Gerard van Doornik



Jos van Doornik



Maarten van Doornik

Wouter van Doornik

Foto NHD/Ronald Massaut



Holland Mechanics is synonymous with wheelbuilding. Over the past 40 years the company became the bicycle industry's know-how and experience center for building high quality wheels in the most efficient way.

The company was founded in 1971 by the two former Raleigh employees Gerard van Doornik and Kees Damman, who were looking for a solution to replace the manual work of wheel building. This type of equipment was rather new in the industry, and they were the first to combine the production phases of lacing and tightening in one machine followed by truing. This innovation made it possible to reduce the wheelbuilding production process from three steps to two steps. Although the new technology was quickly adopted by the Dutch OEM's the local market was soon too small for Holland Mechanics. Further expansion of the company required a more export-oriented strategy on European markets.

The two founding fathers not only developed the first generation of machinery but also laid out the company's philosophy, which is still actual today. Holland Mechanics stands for reliability, durability, innovative and trend-setting. The quality of the machinery is emphasized by the examples of wheel builders still working with the first generation machinery. In the past decades Holland Mechanics has experienced more than once a demand from the market for new product development requiring new technology before the life cycle of the machinery is over.

The company's philosophy on reliability, durability and trendsetting is applied to the hardware as well as the service.

An all-new phase for the company began in the early Nineties of the past century, with the introduction of more flexible wheelbuilding machinery aimed at small series. Production runs became smaller and smaller. 'Just-in-time' manufacturing was introduced in the bicycle industry and this required a completely different type of machinery. By this time the family-owned company Holland Mechanics was managed by the second generation – Jos van Doornik. He launched the wheelbuilding machinery which could be converted from producing one type of wheel set to another by one push on the button. It was a revolution in our industry. At the same time

China's image as 'work shop of the world' was rising. Production of bicycles in Europe had to become more efficient and the quality of the final product improved. Holland Mechanics gave European OEM's the possibility to keep up with competition from low labor cost countries.

The transfer of the company to the third generation and current management, Maarten and Wouter van Doornik, at the beginning of this century, encompassed the company's move to China. The business became even more embedded in the bicycle industry, with production facilities at two locations, in the Netherlands and China. In the meantime the size of the production series at OEM's dropped even further than before, to runs of 100 to 10 units. Step by step OEM's were introducing special spoke designs in wheel development. Trek Bicycle corporation took the lead with the Rolf paired spoke technology (PST) design, and Holland

Mechanics was the first to facilitate automation of these developments.

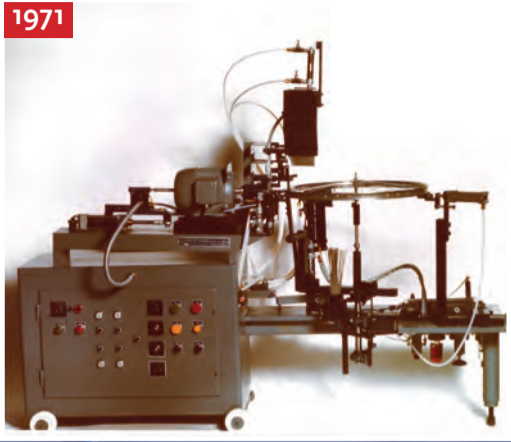
Over the years Holland Mechanics had gathered so much data on wheelbuilding that the head office in the Dutch town of Purmerend became the know-how center on wheelbuilding, often consulted by product managers. Manufacturers of wheel components even frequently seek advice on the possibility of new product designs in existing wheelbuilding equipment. Holland Mechanics new 'Step Sequence Program' makes the wheel builder leading again. This is a very important tool for the specialists who can now enter their own wheel formulas in the robot and leave the repeating work to machines without losing control over the production process.

The company's philosophy on reliability, durability and trendsetting is applied to the hardware as well as the service. Wheelbuilding has become an integrated part of the whole bicycle assembly and no one can afford a bug in that process. Therefore Holland Mechanics today offers 'off season' service contracts. This overall checkup has many advantages as it requires less off production time during peak production season and the status of the equipment is known at Holland Mechanics head office. This makes it possible to act more rapidly in case of any breakdown. Holland Mechanics invested in additional staff for this preventive maintenance after a two years test at Orbea.

For Holland Mechanics, building the best wheels in the industry will always be the ultimate challenge. We keep on investing in knowhow, quality and service to make the best possible combination between an optimum product and a professional organization.



1971



World's First Wheelbuilding machine



1971

Gerard van Doornik and Kees Damman founded the company Holland Mechanics. The first Holland Mechanics factory was established in Hoorn, the Netherlands.

1977



Introduction of first automatic Trueing Robot

1972

First export to Germany by truck. After the introduction of the world's first automatic wheelbuilding machine the export rises.



1973

The CF Lacing & Tightening machine is introduced to a broader public at the International Bicycle Exhibition in Cologne.



1985



Automatic Tyre Fitting Machine

1981

Soon after Holland Mechanics moved to a bigger premises the complete factory burned down. This is still a black page in Holland Mechanics history.



1988



Co-founder Kees Damman next to the Stabilizer I

1982

Move to Purmerend to the new facility. Factory size is doubled for the growing worldwide interest. Bicycle factories in the USA like Huffy and Murray are placing their first orders.



ANICS 1971-2011

40 YEARS OF INNOVATION



1989

Change to new young management headed by the second generation, Jos van Doornik. Introduction of the successful "Just In Time" wheelbuilding machines.

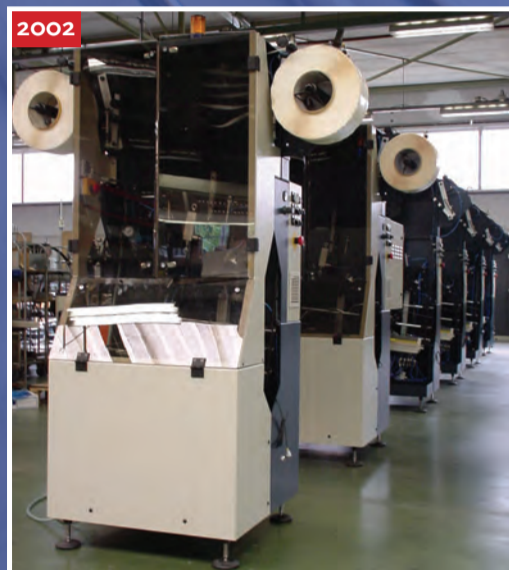


1998

Fully Automatic Hubfilling, fills a hub within 30 seconds

1994

Production increase requires move to bigger premises in Purmerend. After the succesful market introduction of the Second Generation flexible machines sales rises again.



2002

Succesfull HT Rimtaping machine, more than 90 sold!



2001

As world supplier Holland Mechanics opens a second production base in Yangzhou, China. Third generation, Maarten van Doornik, at the opening ceremony in China.



2007

Robot OT. The new standard in truing?

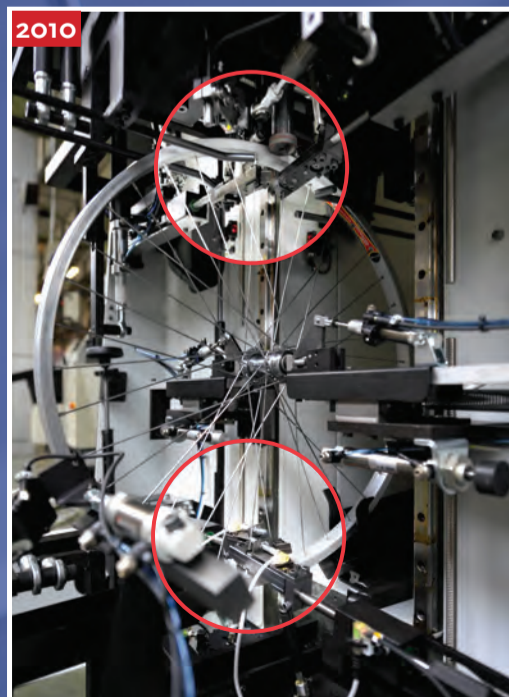
2003

Holland Mechanics China moves to larger facility in Yangzhou, China. Upscaling production for the growing Asia markets. Holland Mechanics becomes "Asian Leader in Wheelbuilding Solutions".



2011

Holland Mechanics Team worldwide reaches over 75 dedicated employees.



2010

Introduction of flexible 4 hand tightening: "The Quatro"

Robot OT: Future Trueing becoming the New Standard



In 2007 we introduced our Robot OT for trueing wheels from the tire side. This system was a revolutionary step in automated wheel assembly as till that moment all the existing trueing machines were trueing the nipple on the visible square.

Initially designed to handle internal nipples, it soon turned out that the machine was also very well capable of trueing double square and hexagonal nipples from the tire side.

In a few years many wheel and bicycle assembling companies discovered the real potential of this machine, which today is becoming the new standard for wheel assembly. Where Rodi and Trek Bicycle Company were

among the first to adopt this system we now count companies like Accell Group, Formula, Giant, Rose, Veltec, Bike Fun, Simplon, Wilkinson Wheel, No Tubes, Citec, Alex Rims to our "OT" customers.

All these companies recognised the importance of picking up the nipple from the outside of the rim, which is rather logic if you look at the way you can transfer torque to a Double Square, and keep the visible side of the nipple unmarked.

The new Outside Trueing Robot makes it possible for bicycle assemblers to use Alloy nipples as well as Brass nipples to accommodate any kind of wheel design, without scratching the nipple.

Double Square vs. Slotted Nipples

With the introduction of the Robot OT the use of outside driven nipples are going to be the standard for wheel building. This is not without a reason, we all know the traditional slotted nipple, and if we look at other automated industries we see that the slotted way of driving a screw have become obsolete. In fact the slotted head is the worst screw drive system, largely because it is utterly unsuited to automated driving. Some of its deficiencies:

- A screwdriver does not automatically line up with the slot;
- It is easy to get off centre.
- The driver can engage the head in only two possible positions, at 180° to each other.
- Cam-out: when a driver in a slotted nipple creates a force that tends to push the driver up and out of the screw head.

The Double Square nipple does not have all of these deficiencies:

- The screwdriver will automatically line up with the nipple.
- Will always stay in centre.
- Easy engagement of the nipple at four possible positions, at 90° to each other.
- No cam-out.
- Retain the nipple: screwdriver holds the DS nipple much easier (also in 60mm deep rims)

The easy change of tooling in the Robot OT will give developers and product managers more freedom in specifying the right (colored) nipple for their wheel. With the Outside Trueing it also becomes easier to design new nipples because with this technology we can use more than 100 years of Screw Head Innovations!



HM Pro Line goes Carbon



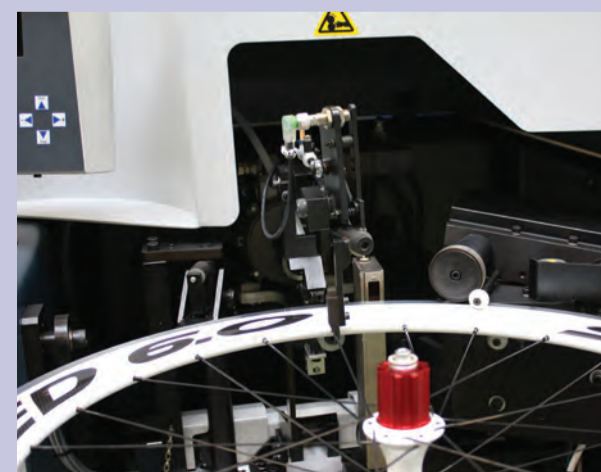
The assembly of carbon wheels has always been a manual job. With the introduction of the newest HM Pro Line, Holland Mechanics created the possibility to lace and true Carbon Wheels in the most efficient way. The Pro Line exists of the latest In-line Lacer and the Robot OT.

For the lacing step we have developed a new nipple hole scanning technology that is suitable to lace carbon rims up to 60mm deep.

The assembly of a wheel is a time consuming process, with the new lacing machine the assembly time of a carbon wheel can be reduced from an average 10 minutes to roughly 2 minutes this means an operator can reach a 5 times higher output per person.

For the OT Robot HM developed a Carbon option so now we are able to true up to 60mm deep wheels as well. Professional wheel builders can program the Robot OT in such a way that it tightens, true's and stabilizes the wheel according to their standards. They can decide in how many steps the torque must be applied, how many rounds of stabilizing the wheel needs and many other custom machine operations.

With the new HM Pro Line for Carbon Wheels you can grow your business by making the highest quality wheels on the market without investing in extra labour.



New Faces 2011

For many years Holland Mechanics is already well known about their high level of service and machine quality.

The coming years the service and quality of wheel building machines worldwide will become more important. Because of the trend in Just In Time production, Lean Production and Online Assembly producers cannot afford to have any disruptions. Wheel buffers are becoming smaller and when the wheel cannot be finished on time there is a big problem. Everybody knows: no wheels – no bicycles – no sales – no money. Therefore this year we have strengthened our service level with two new colleagues.

One of the two is not so new as it seems, Dolf Lok used to work for many years at Holland Mechanics as Customer Service Engineer. In his new job Dolf will be responsible for the International Service and Quality. With the trend in preventive maintenance he will plan the engineers in such a way that the scheduled service will be done in the low season at the customer.

In 2008 Orbea in Spain signed a preventive maintenance contract whereby we service the machines in off season so they can have full production in peak season.



Dolf Lok



Martijn Wouda

Orbea is saving money and energy because they have less machine disruptions during the season and the machines are in optimal condition before the season starts which gives a higher output per operator. During the engineers visit, operators are trained and educated which also results in a higher output.

To support the growing demand for preventive maintenance like Orbea we have also strengthened our company with an extra Customer Service Engineer, Martijn Wouda. He is a highly skilled technical engineer with the combination of a mechanical and software background. His career started in the automotive industry which is a good basis for understanding advanced HM wheel building technology. Martijn has passed his internal training course and sooner or later you may welcome him at your company.