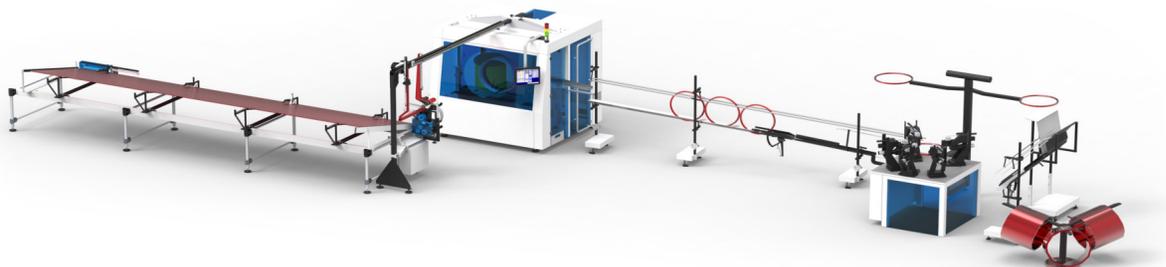


Quantity + Quality = Quattro



Many bicycle factories run their bicycle production line in a 90 seconds takt per bike this often means that the manufacturer needs a pair of wheels in that same timeframe. This was not possible until recently. With the new Robot Quattro, a new way of truing is possible. A predictive truing process where a guaranteed time of 42 seconds per wheel can be achieved. The Quattro can be implemented in 2 different ways; the TT model, whereby tightening and truing is combined, or as tightening alone whereafter the Robot DTI or SG is responsible for the final truing. This new advanced technology has been implemented in the Gazelle factory with promising results. Because the wheel quality can be controlled in a predictive way, the machine can control both spoke tension and speed, resulting in a stable output with 99% accuracy. This opens doors to synchronize the Holland Mechanics wheel building and Marchetti bicycle assembly lines for a most efficient process.

Repeating Orders For Automatic Rimline



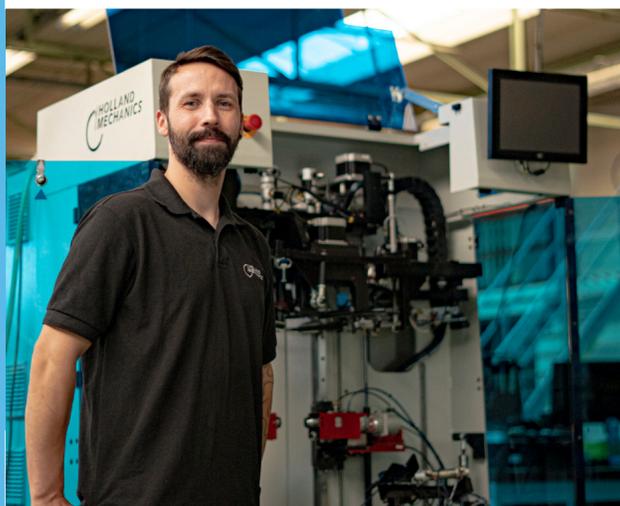
Supply chain constraints and long lead times were challenging factors to many bicycle and component factories across the globe. Rims were one of the parts that had a major shortage which caused manufacturers to ramp up production. The Holland Mechanics fully automatic rimline gained ongoing interest from these manufacturers. The rim assembly line has its benefits in speed, quality, efficiency and footprint. Besides, the footprint for a full rimline setup only takes roughly 120 square meters. Within this relatively small space you can produce 1500 rims with a compact batch of rim extrusions, which is 1/10th of the size of complete rims.

Large Diameter Hubs - LDH



With the ongoing eBike market trend, hubs have gained size. Therefore, Holland Mechanics introduces the new Hub Filling machine for large diameter hubs – the LDH. This new model allows bicycle factories to fill hubs like Enviolo, Rohloff and Bafang with high speed. A cool feature of this new Hub Filler is the software. With a new control system and code, operators can easily program a variety of hubs in the system and the machine will change-over within seconds. Pre-orders are possible on the Eurobike show – Booth C08.

HM Service Network Expansion



The acquisition of Marchetti and the exponential growth in the bicycle market came with the need for Holland Mechanics to expand its service network. New teams have been formed in the Czech Republic and Germany. These locally based engineers were trained on more than 20 different machines in the Covid-19 period and are now often dispatched at customers for installation and service. One of them is Sebastian Belkin, a skilled engineer from Germany who already had experience working with Holland Mechanics machines over the past years. He will be mostly active in German speaking countries and formally introduced during the Eurobike 2022 show.

HMTODAY

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BETTER EFFICIENCY AND QUALITY WITH SYNCHRONIZED TURNKEY ASSEMBLY SOLUTIONS

Reshoring has become the embodiment of the future vision of the eBike, bicycle and component industry in both Europe and North America. The strategy of taking production closer to the market has been picked-up by the assemblers, while many components manufacturers are closely watching the outcome of this development on their own business model. While moving component production has a big implication on their daily operation, eBike and bicycle assemblers take the opportunity to take production efficiency and quality to the next level.

components. Both lean processes often can't be implemented easily in the 'old school' bicycle factories

The company's international service network is a key element for its customers. After all, it saves direct service costs but also provides continuity in production and reduces the risk of standstills."

"Taking eBike production to the next level"

Both leading names and newcomers have announced and even started substantial investment schemes over the past few years in eBike and bicycle building facilities on multiple locations. Besides the need for reshoring, also demand for more production efficiency and the global trend of Industry 4.0 production has driven investment in the latest equipment. The Europe-wide breakthrough of the eBike in the past years accelerated these trends. The rapidly increasing market value of eBikes in combination with growing demand also made investments in new factories vital for the future of the market.

As a long time specialist in technically advanced wheel building machinery and with a high profile network in the industry, Holland Mechanics took the next step to become a full line supplier of bicycle production machinery. After a 10-year cooperation, Holland Mechanics based near Amsterdam, the Netherlands fully acquired the Italian Marchetti in 2019 and stepped up the integration process of both companies. The aim of the integration was to come up with the best solution for the industry and provide a full ecosystem. Holland Mechanics can now focus on supplying a complete, aligned and lean assembly process. With a strong foothold in the industry, Holland Mechanics can adjust and develop new tooling or machinery rapidly. And even more important, all service aspects are now in one hand. This includes preventive and predictive maintenance and an new upcoming online spare parts service.

Today Holland Mechanics is the turn-key supplier for all eBike and bicycle assembly solutions. Except for painting, the company can now supply all necessary machinery for the complete assembly process. The product line now ranges from a headset press for pre-assembly, the robotized wheel building machinery up to the Airline. This flagship of Holland Mechanics comes with a motor driven continuously moving hanging assembly conveyor. The whole set-up allows for an economical assembly, including the wheel building in one, fully synchronized production flow.

Holland Mechanics underlines that for many customers, the Airline has several advantages over the Floorline. The clean floor space which makes it easier for the operators to move freely around the assembly position to access certain parts of the bicycle. Besides, it is ergonomically responsible for them. The standard clamps can move the frame in 360 degrees on a horizontal line, with the special eBike clamps the bike can be turned around 360 degrees both horizontally and vertically. In line with the Kanban principles a smooth supply of components for many different types of (e)Bikes can be provided via a so-called supermarket system. The Airline system is easily scalable and in close cooperation with the lean specialists from EMVIS AG, current users of the systems have already reached efficiency increases of more than 30%.

MINI FACTORY. THE NEW SYNCHRONIZED eBIKE PRODUCTION SYSTEM

HOLLAND MECHANICS SOLUTIONS
 SUPPORTED BY **EMVIS**
 The Betterment Company

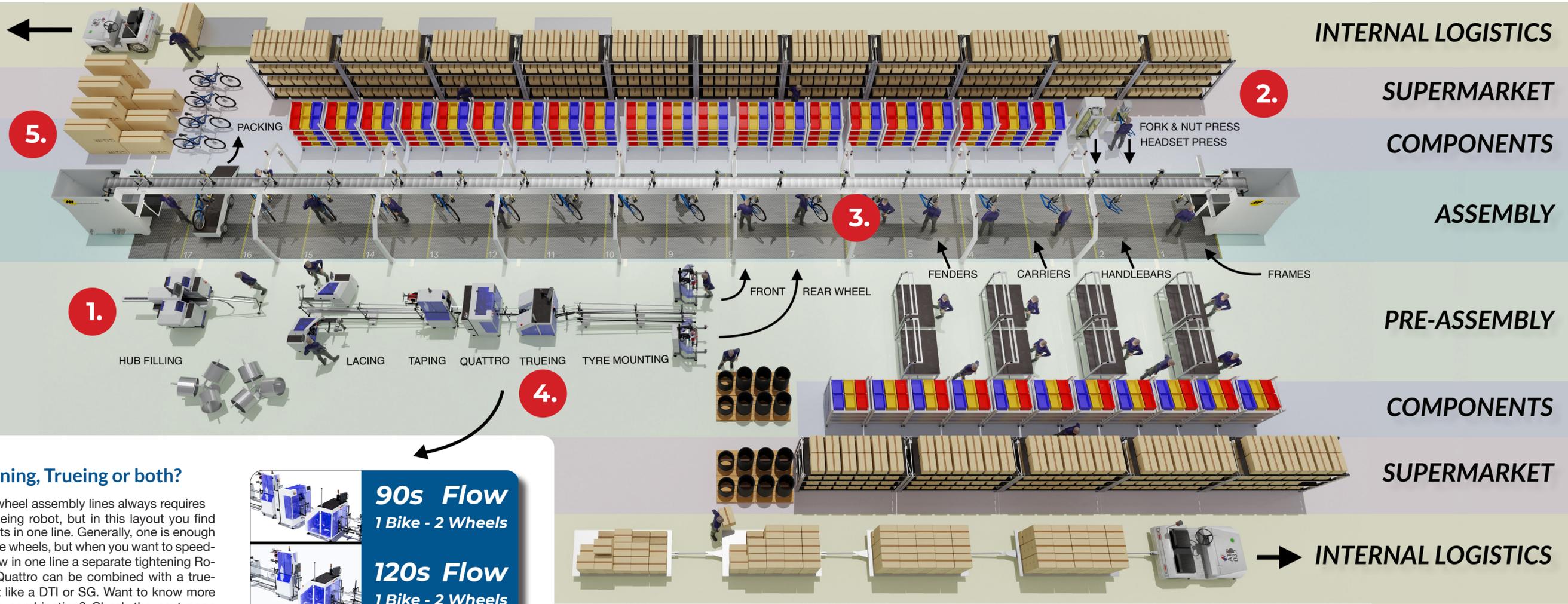
New eHub Filler

1 Filling big hubs was always done by hand, until now. Large diameter hubs can be processed on Holland Mechanics' newest Hub Filler, saving even more time the assembly process of modern bicycles. Want to know more? Read it on the next page →



Fork & Frame Preparation

2 Pre-assembly of bicycle frames can be done on short pre-assembly lines or in a longer full bicycle assembly line. Where it's done doesn't matter but doing it fast and close to the line comes with great benefits. With the Marchetti Frame and Fork preparation machines pre-assembly actions can be speed-up with a high flexibility grade due to easy change-over tooling.



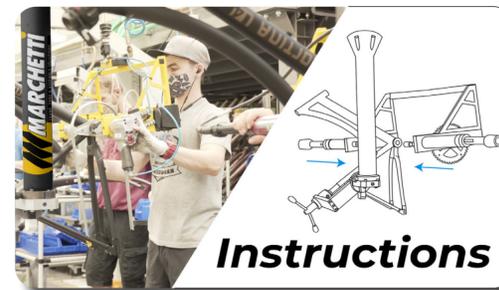
4 **Tightening, Trueing or both?**
 Most wheel assembly lines always requires a trueing robot, but in this layout you find two Robots in one line. Generally, one is enough to produce wheels, but when you want to speed-up the flow in one line a separate tightening Robot, the Quattro can be combined with a trueing Robot like a DTI or SG. Want to know more about this combination? Check the next page →

90s Flow
 1 Bike - 2 Wheels

120s Flow
 1 Bike - 2 Wheels

Airline unloading ramp.

5 Unloading heavy eBikes can be troublesome causing fatigue on workings, especially when eBikes are assembled upside-down on a traditional floorline. When assembling a bicycle in the Airline the bicycle can freely rotate, this way unloading becomes a lot easier. Marchetti can design a ramp or bike lift system to unload the bicycle at the end of the line in an effortless way. The method of choice often depends whether the bike boxing is done by lowering the bike into the top of the box, or sliding it in from the side.



Work Instruction & Power Tooling

3 With the rising prices of electric bicycles, the quality demand goes up as well. To ensure bikes are built to high standards, power tooling and work instructions can be implemented for registration and control of assembly actions. For this, screens can be stationed next to the airline showing what assembly action needs to be executed. The power tooling can then help to speed up the assembly speed on a single position and register torque for certain connections. This way all bicycles come of the line complete with quality control already done.