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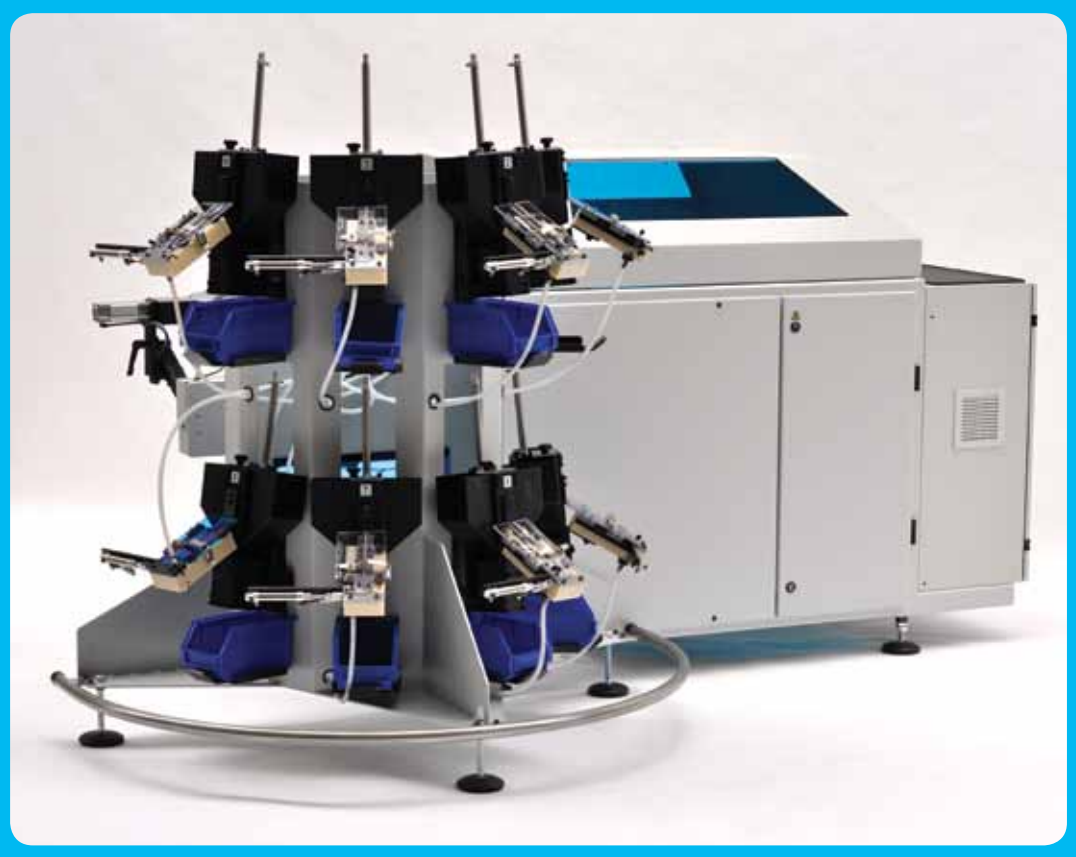
Invest in Innovation

Process Innovation at UK wheelbuilder results in higher revenues



Flexibility ranks first in the production process for customized wheelbuilder Superstar Components.

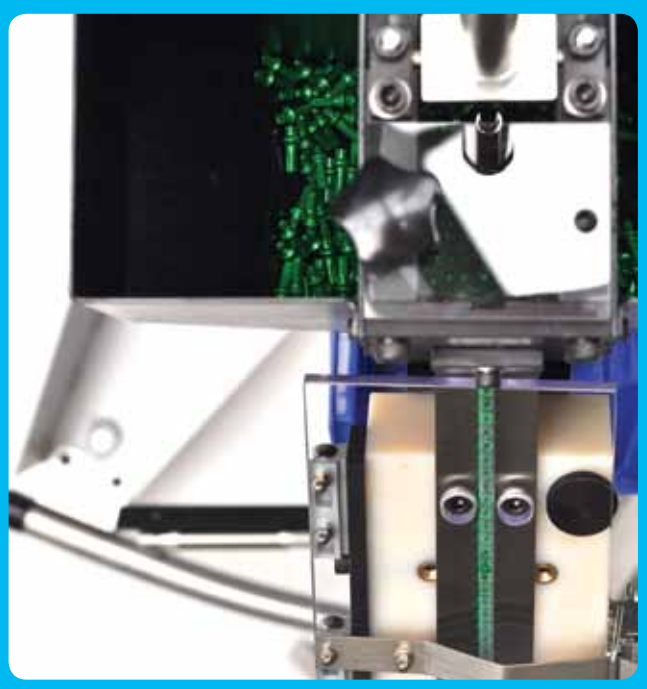
"Since one and a half years ago we have been operating a standard Holland Mechanics lacing machine offering three different kinds of colored nipples," explains Neil Wilkinson of UK-based Superstar Components, who has been in the wheel business three years. "I suggested to Holland Mechanics that I wanted to offer more options to my customers, for whom we operate a web-based custom wheelset generator.

With the recently installed ProLine consisting of an innovative lacing machine with no less than eight nipple containers, in combination with the newest OT Trueing Robot we have lean manufacturing with the maximum flexibility, " said Wilkinson.

"It was not a matter of investment but reducing the loss of revenues caused by outsourcing"

The mixed model flow where different kind of wheelsets can be produced on the same machine with low 'tact time' can meet a growing demand for customized products and short delivery times. But it's not just the one-piece flow production that made Neil Wilkinson decide to invest in Holland Mechanics machinery.

"Previously I had to choose between outsourcing during peak season or building high inventory in off season to meet demand." Both options are deadly to your profitability and service level. The acquisition of the Holland Mechanics ProLine was not a matter of investment but reducing the loss of revenues caused by outsourcing. Subcontracting in Europe was not very cost effective while outsourcing in Asia was no option for us due to lead times and high transportation cost. Components can be efficiently packed and shipped. Complete wheels however, are shipping as 95% air (inside the packaging). The close-to-market production and delivery of custom-built wheels now takes around 2-5 days."



The hub, rim, spokes, and nipples are often manufactured by different suppliers – requiring a precise production and delivery schedule. Long lead times due to long-distance and multi-modal transport, in combination with waiting and customs time, together with bottlenecks at the port terminals disturb a stable supply process. In that case the cost of ownership should be limited as much as possible and therefore the final assembly or the value creating process should be postponed until the latest possible moment.

"We want the benefits of the volume and only build what we sell with short lead times" explains Neil Wilkinson.

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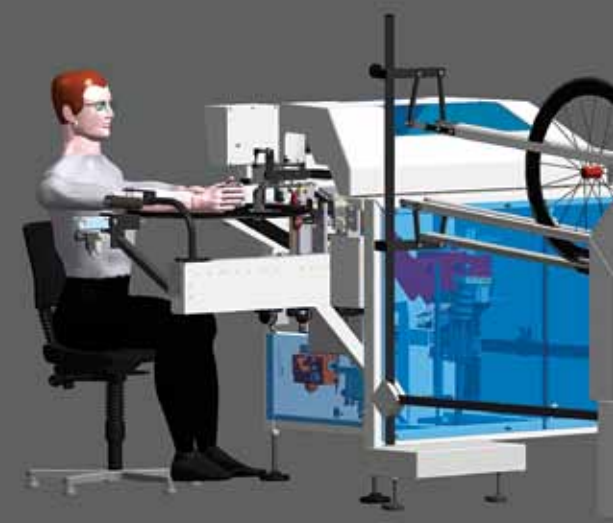
ProLine Start-Up Edition

The ProLine SUE is the perfect machine-line for companies who start with Low Volume-High Mix top-end wheel assembly. The main features are extreme flexibility and the highest wheel quality. Both machines are manually operated which makes the investment budget limited. Another advantage is that the line has a very compact footprint. The ProLine SUE exists of only two machines, the ISL Lacing & Tightening machine and the ProTruer.

- **ISL Pro** – Is made for Straight Drill Rims and has the unique feature that the holes are scanned by the most accurate CMOS Camera Scanning system. Changing over between wheel sizes is automatic from a programmable database.
- **ProTruer** – Most accurate manual trueing stand in the world. This high-tech trueing stand has all features you can think. Spoke Tension Analyzer, Stabilizing Units, De-Winding Units, Barcode Scanning, Label Printer, Wheel Certificate Printer. All data is stored in the easy to operate Touch-Screen Computer.



ProLine Carbon Edition

The Carbon Edition exists of the **Carbon Lacer** and the **Robot OT**. With these two machines you can build the most accurate and variety of wheels.

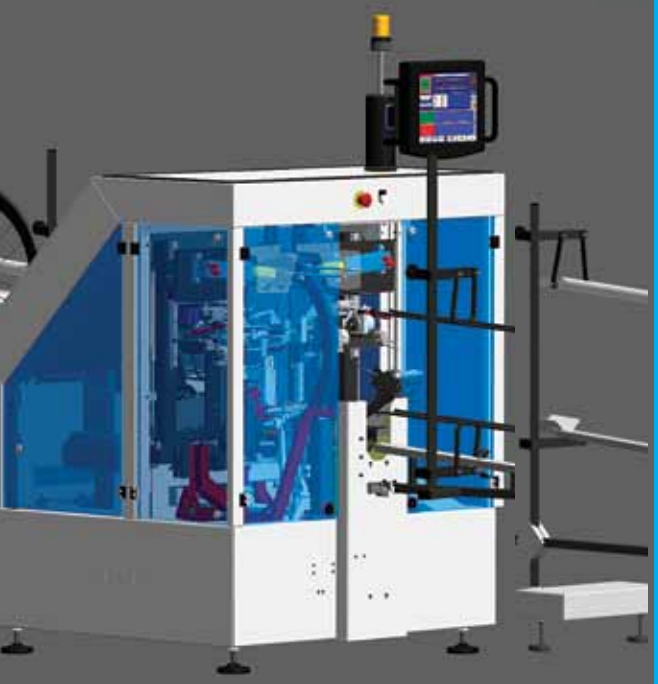
- **The Carbon Lacer** has the same scanning system as the ISL Pro. The difference is that you can lace standard and angle drilled rims. It is also easy to lace the popular inverted drilled rims. The added value of this line is that the machines are ultra-flexible.
  With the newly available shuttle with 8 nipple containers the lacing machine is better equipped for its multi colour tasks than ever before. Also other configurations and different numbers of containers are available for the lacing machines.
- **The Robot OT** can automatically recognize the wheel type and trues the wheel according to the tolerances set in the machine.

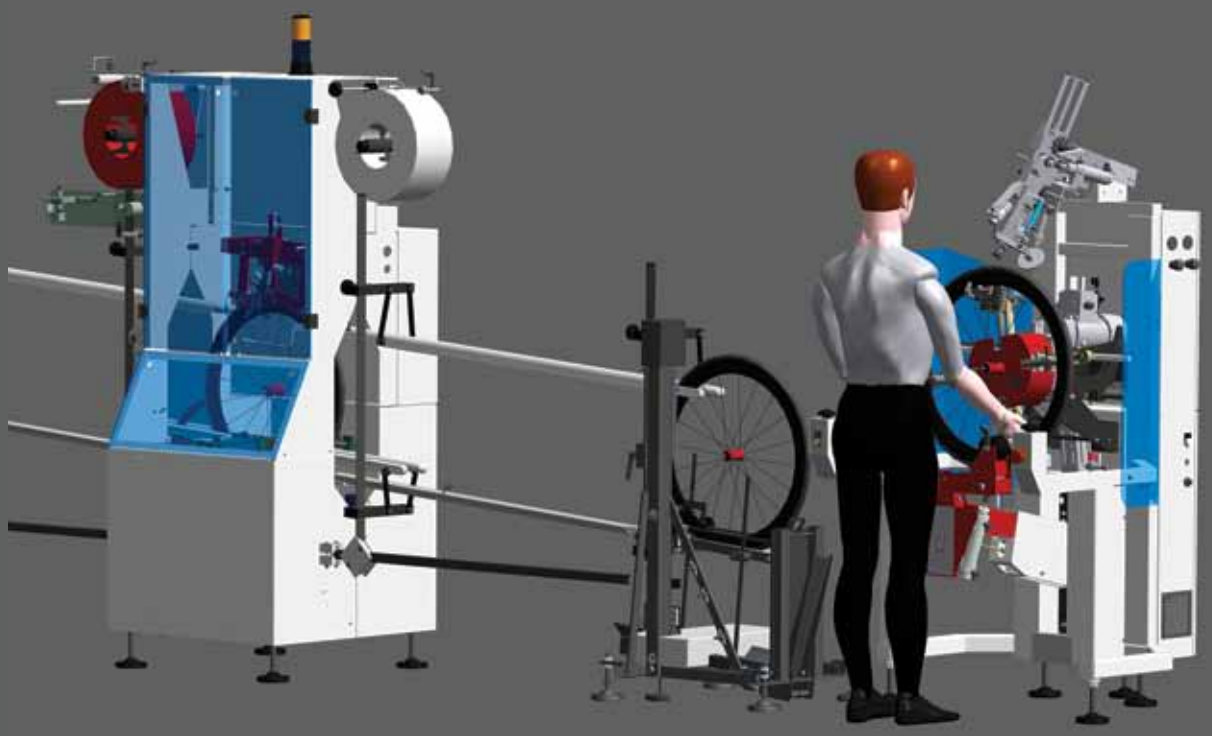
PROLINE EDITION 2014

ProLine Extension: Tape & Tyre

The ProLine can be extended with the Tape & Tyre Solution. This makes the line complete for full wheel assembly. The two machines are placed in line with the Carbon Lacer and Robot OT.

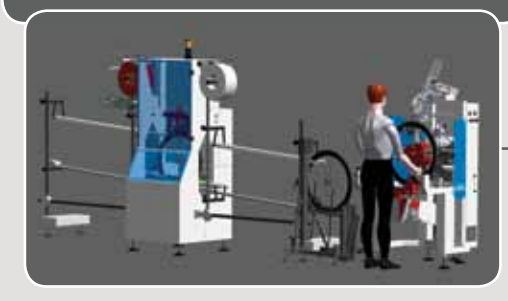
- **Tape "Less Flats"** Less Flats with precise Rimtape Fitting. The Automatic Rimtaper is one of Holland Mechanics most successful innovation of the last years. Therefore Holland Mechanics have broadened the QTape range with the introduction of two new tapes, Tubeless Tape and High-Pressure Tape. The Tubeless Tape is an airtight sealing tape which turns every wheel into a tubeless wheel. The second tape is a Premium Tape especially developed for High-Pressure road tyres.
- **Tyre "Guard-Fitting"** The TMC Tyre Fitter can easily fit the various rim-tyre combinations. The special developed TMC rim-clamping system guards the trueing tolerances of the wheel. This so-called "Guard Fitting" refers to keeping the trueing tolerances when fitting the tyre on the last station of the wheel assembly line. The practice of guard fitting increases confidence that a product complies with the required specifications which are met and controlled by the Robot OT.





ProLine Start Up Edition

ProLine Carbon Edition



ProLine Extension: Tape & Tyre

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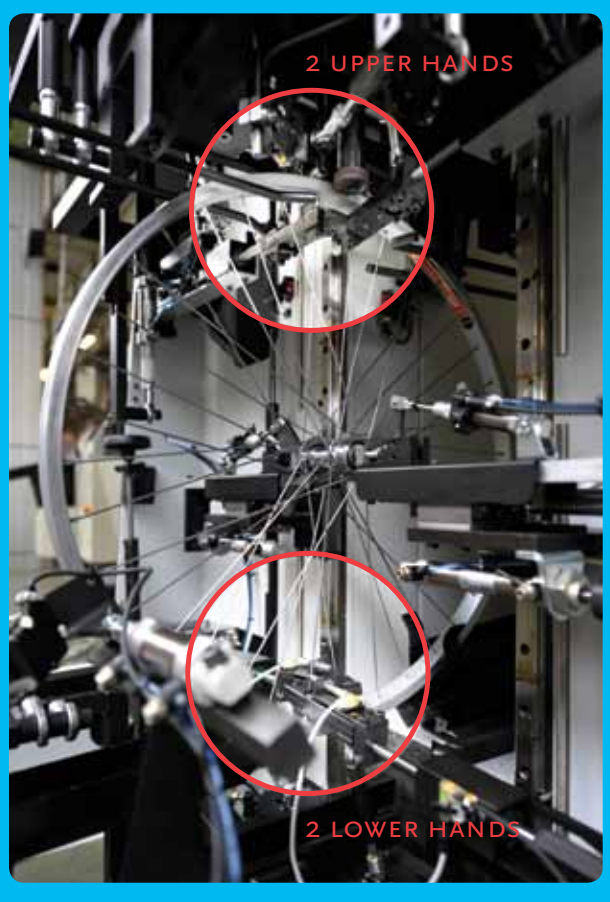
Sales Success: Robot Quattro



More and more customers see the benefits of the Quad Tightening process. This 4-Hand Tightening process makes the balance between the Lacing machine and the Robot more stable. Customers realize a predictable process which is becoming more important in today's market. Faster tact-times, higher quality, quickly change over and in between wheel stocks can be reduced to a minimum.

The Quattro is developed as a Flexible-Mass production system. Hereby it is important to have high output with fast machine change over time. The Quattro is equipped 4 nipple hands and a wheel database whereby you change over by just selecting a new wheel. The machine changes over fully automatically within seconds.

New entry level lacing and tightening machine

Most of the Holland Mechanics Lacing machines are equipped with the advanced CMOS Camera scanning technology. For customers with a limited budget Holland Mechanics has re-introduced the SL Sensor. Sensor scanning is a less accurate scanning system, however in some cases a good alternative for the more advanced CAM versions.

Stabilizing vs. De-Winding

For many years master wheelbuilders have the discussion about what is better: "Stabilizing or De-Winding". In 1989 Holland Mechanics introduced a new quality standard called Stabilizing. The patented process was described as "applying a high force to the middle of the spokes from both sides of the wheel". For standard wheels with aluminium rims and J-Bend spokes this is still the best solution because it makes the spoke neck stronger and it improves the nipple seating. The invention simulates the process of hand squeezing which is always done manually by professional wheelbuilders. With the trend of building wheels with aluminium nipples and thinner spokes the risk of Spoke Wind-Up is becoming higher. For high quality wheelbuilding the best solution is to prevent Wind-Up with the TCS Spokes (see article hereunder).

For medium range wheelsets Holland Mechanics have introduced a second quality application in the Robot: De-Winding. This is an extra operation that can be set in the tightening and trueing sequence of the Robot, and removes wind up from the spokes.


DE-WINDING


STABILIZING

TCS Spokes

Spoke Wind-Up; a situation where the spoke gets twisted between nipple and hub is a disaster for high-end wheel building.
This situation arises at spokes that have a lower resistance to torsion, then the force needed to apply and tighten the nipple. Especially thin spokes and aero-bladed spokes have a very low torsion resistance and are very vulnerable to Wind-Up. Also the use of Aluminium nipples and in some cases the lack of good lubrication enhances friction between nipple and spoke leading to Wind-Up.
If a spoke gets twisted during the assembly of the wheel, it will completely jeopardize the trueing actions, as you are completely unsure how much of the nipple rotation went up in Wind-Up and how much really went into tightening the spoke. Next to this if a spoke gets seriously twisted it is already damaged that much that it will never reach its maximum strength anymore and it has to be replaced. When professionally assembling wheels these situations have to be avoided at all times, as it kills the profitability of the assembly process.

There is only one solution that really works well, and that is the TCS Spoke. The TCS Spokes have a little square just above the nipple, where a gripper is able to hold the spoke in an area where no Wind-Up can occur. The distance between the nipple and the gripper is so small < 3mm that it is impossible to rotate the spoke at that point. The major advantage of the TCS Spoke and gripper are that any trueing action is directly transferred to spoke tension and deviation compensation, which makes the process quicker and the final spoke tension and tolerances much more accurate.