

*View of a honeycomb structure.*

## Top-level precision

# Rolls – rolling round the clock

**As paper machines are increasingly becoming larger, wider and faster, it is essential for the rolls to keep up with this development. Qualified staff, state-of-the-art technologies and advanced manufacturing processes are extremely important and a prerequisite to achieve this goal.**

Every day, over 110 people are busy manufacturing rolls and contributing their experience. Many of them have been working in manufacturing for decades and have deep knowledge

around paper machine rolls. The machinery in the manufacturing hall are up to 18 m long, yet these machines are aligned for straightness tolerance of less than 0.04 mm

deviation. As the material used for manufacturing rolls changes and moves during machining, it poses a great challenge to both man and machine. Almost every roll is unique

and specially tailored to the needs of the paper machine for which it is intended. Length, diameter, weight and load data are exactly calculated and defined before production begins.

**Tibo**

In 1999, the first gun-drilling machine (Tibo 1) was installed in St. Pölten, Austria, for producing suction rolls. Tibo 2, the bigger brother to this proven machine, was installed to handle the increasing number of suction rolls. Almost 200 spindles simultaneously drill the suction holes into the duplex stainless steel. The Tibo 1 and Tibo 2 are the most advanced suction roll drilling machines in the world. For example, a continuous vibration monitoring system is used to detect drill wear and vibration in order to minimize and avoid breakage of drill bits. Up until now, Tibo 1 and Tibo 2 have drilled more than

140,000,000 holes. Placing all holes one after the other in a straight line would result in a length of more than 7,000 km, which equals the distance from New York to Budapest!

**New welding robot**

This year, a welding robot was acquired to assist the personnel in plasma jet welding operations. The welding robot achieves an extremely high accuracy, which is essential for stainless build-up welding of suction roll heads. A very high, but very short energy input leads to minimum mixing while resulting in excellent bonding to the parent material.

**Honeycomb structure**

Apart from that, honeycomb structures for forming rolls and dandy rolls are also manufactured. Spot-welding with an amperage of up to 5,000 A

produces a very light, yet very sturdy structure. Since the electrical resistance changes as the honeycomb is built, a special CNC system is used to monitor and adjust the welding parameters to stay within precise tolerances.

Consistent high quality and precision are important. The Austrian roll factory is certified according to ISO 9001/2000. This is how Voith keeps pace with the constant advancing development of paper machines.

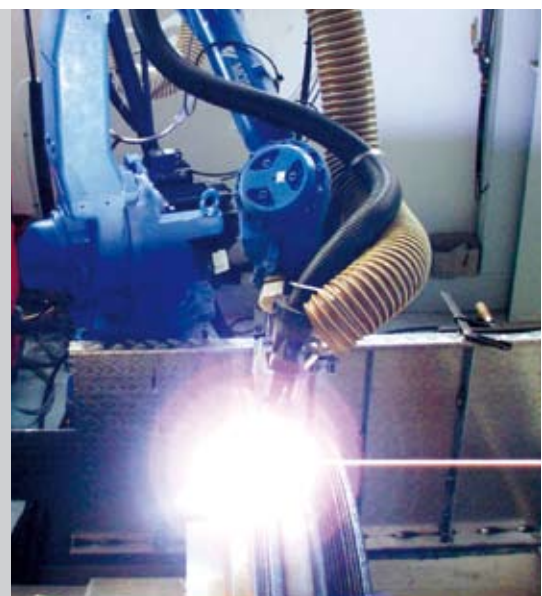
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*Made to measure: Suction holes are drilled into the duplex steel by spindles.*



*Welding robot for plasma welding.*