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The Encoder Experts

Metal working

Accurate high-speed processing

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Global market leader byinnovative technology
Incredibly fast and tenth of a millimetre
Position of the blade arm
Distance measurement of the workpiece
High pulse rate, high bearing loads

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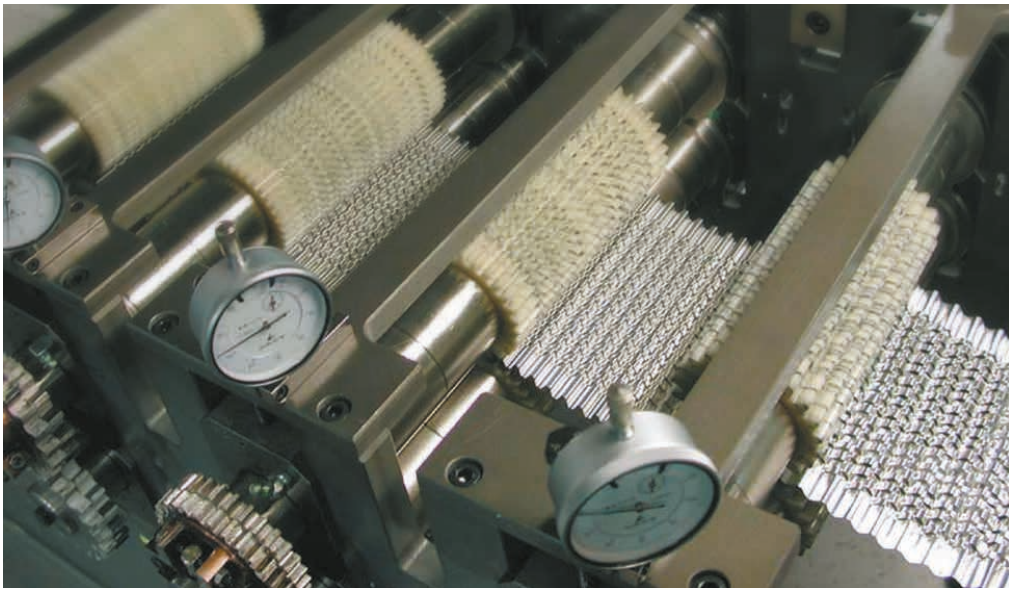
Industrie ROBUST



The perfect cut

Tube welding expert Schöler relies on Wachendorff encoders

Not far from the old Hanseatic City of Lübeck and just a short drive from the beaches of the Baltic Sea is Pansdorf, a small town in Schleswig Holstein. This is where Schöler is based, among the guesthouses, farms and cornfields. The engineering company specialises in the development and manufacture of thin-wall tubes and fins. The family business was founded in 1928 as a design office and has undergone a breathtaking expansion since then. Today, 160 employees design and build machines mainly for the manufacture of heat exchangers which require delicate tubes and fins with different properties. For many years, Schöler has supplied its solutions to customers all over the world and is regarded as a global market leader especially for the manufacture of tube mills for thin-wall brass, copper and aluminium tubing in the ranges of 0.1 mm - 0.5 mm.

Schöler is particularly well known for its high-speed tube cutting equipment which cuts tube sections at high speeds to the tenth of a millimetre with the help of a rotating blade. These units are used not only in their own equipment - other machine builders also utilise tube cutting equipment Made in Pansdorf for their solutions. The equipment is available as a ready-to-install module in a variety of designs and has already been used in more than 150 applications worldwide.
Thomas Ossoulenko, who is in charge of electrical engineering and software development at Schöler, shows us a tube mill which is destined for a customer in China. The starting product is a brass strip of 0.12 mm thickness which is wound on a coil, from where it unwinds and passes through a roll forming process, until tin-plated finished tubes of the required length can be removed at the end. These tubes will later be responsible for transporting coolant in heat exchangers.
The tube cutting technology developed by Schöler works by using a high-speed rotating blade arm. While rotating, the arm crosses over the endless tube which, at that moment, is cut by the blade attached to the end of the blade arm. The difficulty of defining the exact penetration point of the blade into the tube becomes apparent when one considers the high speeds that the continuous tube reaches when travelling through the machine. After all, Schöler tube mills can reach production speeds of up to 200 metres per minute.
The movement of the rotating blade arm must be precisely controlled during the entire production process in order to achieve high-precision cutting results. This is the point where Wachendorff equipment is used: An encoder ensures that the position of the blade arm on its rotational path is continually monitored because the controller of the cutting equipment needs this information for its commands. Another encoder determines the distance travelled by the welded tube. Based on this measurement data, the controller of the cutting equipment defines the exact timing of the cut. This is the only way to continually cut the tube to the desired length with precision even at variable production speeds.
The electronic controller which forms the basis for the precision of Schöler cutting equipment has also been developed in-house by the North German company. It is supplied with every tube cutter purchased and can be installed as a compact board in the control cabinet. Due the interaction of the two components - shearing mechanism and machine control - tube cutting technology has embarked on its road to global success, always accompanied by two Wachendorff encoders.
„We needed a particularly high number of impulses for our application, which Wachendorff was able to supply.“ explains Thomas Ossoulenko, who has relied on Wachendorff as a trusted partner for many years. In order to be used by Schöler, the encoders needed a special shaft. However, this was not a problem for Wachendorff who are prepared to make modifications according to customer requirements, even for small orders and who despite this don‘t have to be afraid of price comparisons. Some customers require a different shaft diameter, a different flange, a different connector assignment, a higher protection class or, as in the case of Schöler, a very specific cable/plug combination. Thanks to the flexibility of production, this did not present a problem

for Wachendorff, as optimal solutions and absolute customer satisfaction are top priority.
The robustness of Wachendorff components was another decisive factor for Thomas Ossoulenko. „Most of the components used in our equipment are manufactured in-house, in order to meet our own quality standards. We choose our suppliers very carefully and accept only the best quality.“ All shafts used in Wachendorff encoders have double bearings with no play, resulting in extreme durability.
That is why Thomas Ossoulenko continues to rely on Wachendorff products and ensures that equipment from the Rheingau region and systems from the Baltic Sea start their journey around the world together.

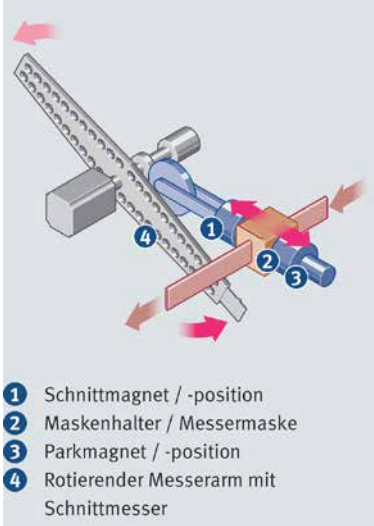


Image 1
Mode of operation (Schöler): Shows the operation of the rotating blade arm. Due to the high speed, precision is of paramount importance.

Image 3
Encoder arm (Wachendorff): This encoder registers the rotating speed and thus the exact position of the rotating arm and relays these values to the controller.

Image 4
Finished tube (Wachendorff): This is an example of tubes that have been welded from metal strips.

Image 2
Overall view (Schöler): This shows a tube mill - the metal strip goes in at the front - the finished tube sections drop out at the back.

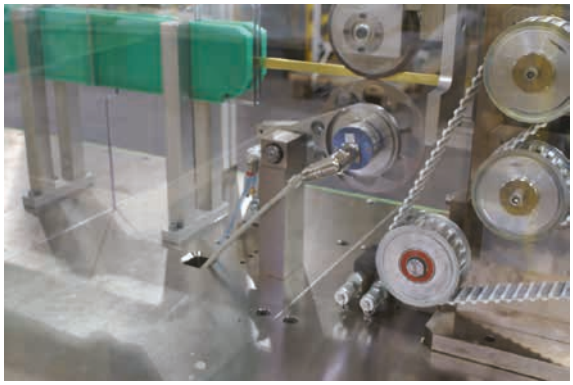


Image 5
Encoder counter (Wachendorff): The second encoder calculates the exact speed of the finished tube in order to determine the exact time of the cut. This ensures that the tube sections have the desired length to the nearest millimetre.

Image 6
Board (Wachendorff): This is where the brains of the tube cutting equipment are located. The controller has been developed by Schöler. Both Wachendorff encoders supply important information.

Any Questions? Just call us at +49 (0) 67 22 / 99 65 414, send us an E-Mail to support-wa@wachendorff.de or call your local distributor: **www.wachendorff-automation.com/distri**

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