



Bending to perfection.

New Bending Tool Reduces Cycle Times and Waste

Three become One

Previously, three process steps were required in order to manufacture bent pipe components: cutting the pipe under consideration of span length and commercial length, the bending process itself, and the final cutting of the component. In order to make this process more efficient and economical, the pipe bending machine expert Schwarze-Robitec developed a new tool solution: a cutting device integrated into the bending tool. This makes it possible to bend and cut pipe components of commercially available lengths in a single process step. The users' benefit is a reduction of material waste of up to 90% and production times that are reduced significantly.

The series production of short bent pipe systems must proceed in a fast, precise, and cost-effective manner. Here, resource-efficient production processes are the most important fundamental requirements. Schwarze-Robitec sets new standards with the cutting device, an intelligent cutting tool that can be integrated in almost all bending tools of the high performance machine series. The combination of the bending and cutting process step helps the user to reduce the production times significantly. Furthermore, waste is reduced to about 90% – a drastic cost savings. This applies in particular when it comes to high-quality materials and very short, bent pipe components. Previously, it was common practice to cut commercially available lengths to fixed length prior to the bending process. However, this included span and support lengths that are essential for bending short components. Following the metal forming process, cutting tools must be applied to cut the aforementioned additional lengths.



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This implies that the components must pass through three different process steps. Apart from this, the wasted material is enormous. It is quite common that during the production of manifold pipes – depending on the bending system used – up to 100 mm is wasted for every component produced. When applying the integrated cutting tool, this drives the production cost down considerably. For instance, if interconnecting ten pipes, the waste is reduced to one-tenth – a tremendous economic advantage.

Ingenious cutting technology

The combination of bending and cutting tool provides the option to process longer pipe units instead of cut pipe pieces. During the first step, the bending machine forms the front of the pipe according to the program geometry. Subsequently, the integrated cutting tool separates the finished component from the unmachined pipe. The latter is moved through the bending machine, formed again, and cut. This process is repeated until the pipe bending process is completed and a single piece, which cannot be used, remains. Schwarze-Robitec has developed a cutting technology that applies a clean cutting edge to all pipe components and allows to continue the processing immediately. In general, the ends of the pipes do not require any finishing process. During the cutting procedure, however, a small chip is produced that is carried away automatically.

The cutting tool processes a variety of materials – among others, high-tensile steels – reliably and precisely. It can be integrated into the new bending tool that will be ordered (or has been ordered) of the High Performance Bending machine by Schwarze-Robitec. This particular series is used for large volume production processes that include short pipes. This optimizes the cost advantages of this bending/cutting solution.



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Moreover, the combination of multi-radii bending tool, cutting tool and bend-in-bend clamp jaws offer the option to produce particularly tight radii and short intermediate length of pipe in a single operation and, thus, optimize the reduction of waste. By adding further product innovations – e. g., the new timesaving CNC control system NxG and the rapid clamping system "Quick Tool Unlock" – the bending solutions by Schwarze-Robitec offer the best premise for efficient and resource-saving production processes. For more information please visit www.schwarze-robitec.com/cutting.

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Images: Various views of bending/cutting tool
QR code with link to bending/cutting tool video

General captions

The new bending/cutting tool by Schwarze-Robitec reduces material waste by about 90 percent and lowers production times significantly.

Schwarze-Robitec GmbH – The Company

The company was founded in 1903 and is one of the internationally leading experts in the area of pipe bending machines. Currently, the specialist for cold-bending machines employs a staff of 130 at its headquarters in Cologne, Germany. Long-standing partnerships represent the company worldwide. In 1977 Schwarze-Robitec produced the first CNC-controlled tube-bending machine in the world. Currently, the company has sold 2,400 machines; many of them have been used in production processes for more than 35 years without complaint. In addition to tool bending machines and bending tools, Schwarze-Robitec range of products also offers tool perforation machines, measurement equipment, as well as solutions for special machinery. Invariably, the reference list of the pipe-bending expert includes all renowned manufacturers from the automotive industry, the energy sector, and the ship building industry. Moreover, the solutions of the company are used in aerospace engineering and in many other industry sectors. For additional information about Schwarze-Robitec, visit our website at www.schwarze-robitec.com.



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