Press Release

First pipe bending press worldwide for pipes and half-shells up to 75mm wall thickness - more flexibility, time and cost savings in step bending

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Netphen/Germany. A leading global manufacturer of longitudinally welded large-diameter pipes relies on the special machine manufacturer from the Siegerland region. With the new Graebener® Pipe Bending Press, the global player optimizes its production processes and is able to manufacture an enormous range of the most diverse special pipes with a wide range of dimensions and extreme diameter-to-wall thickness ratios.

The machine manufacturer Graebener® Maschinentechnik has been building customized machines for use in pipe mills for decades. The recently developed pipe bending press is used for bending open seam pipes and half-shells in a step bending process. The special feature of this custom-built machine is its enormous flexibility, as it can be used to produce tubes of the most varied dimensions: with outside diameters from 12" to 48" (up to 100" for half-shells), wall thicknesses from 12 to 75 mm, and lengths between 6 and 13.2 m. Above all, the unique feature of the bending press is that it can also be used to produce tubes with very small diameters and high wall thicknesses. Materials with high yield strengths, such as X80, X90 and X100, are processed without any problems. For such an enormous production spectrum, large-diameter pipe manufacturer normally need several lines.

Another economic plus point common to all Graebener® Pipe Bending Presses is the enlarged stroke of the bending sword as well as its stable lateral guidance. The enlarged stroke ensures that the sword can be completely pulled out of the tube after completion of the bending process. This means that the remaining gap in the tube can be closed directly in the machine with the aid of the sword itself. The stable lateral guidance makes this process possible even for small, thick-walled tubes. An additional pipe closing press, as would be regularly used, is thus no longer necessary.

With the Graebener® Pipe Bending Press, investment volumes can be reduced and production cycles shortened - the basis for a long-term economical production process.

Technically superior

The bending press has a press force of 70,000 kN, which is achieved by six controlled hydraulic cylinders on the bending sword. Thanks to a special force distribution and control system, even the small, thick-walled tubes can be produced. For six-meter-long tubes, for example, the press achieves a press force of an exceptional 52,000 kN.

If tube diameters of up to 100" are to be produced, the press can be used to bend half-shells which are later assembled into a tube. A specially developed handling system ensures the automated removal of the half-shells after the bending process. Simultaneously, all process parameters are stored with help of the Graebener® BendPro automation system, so that the settings and travel range for recurring products can be recalled at any time.

Faster production of different batches

On the one hand, large pipe producers have to ensure high throughput with consistent quality. On the other hand, they are expected to respond flexibly and quickly to customer requirements, even for special dimensions and small batches. Frequent tool changes, however, especially for small batches, cost time and money. All Graebener® bending presses are therefore designed in such a way that the various tube

sizes in the standard dimension range can be produced flexibly and without changeover using only a single tool set. The changeover time for dimension-dependent tools is eliminated and thus contributes to increasing the efficiency of the bending process.

Limited heavy-duty route requires design rethinking

It was not only the customer's requirements that demanded special design solutions. The new pipe bending press was also a challenge for the special machine builder from a logistical point of view. Due to the required output and the resulting design, the press weighed around 1,100 tons and was not only the largest and heaviest pipe bending press in the history of Graebener®, it also required a special design of the cross beams. Since these far exceeded the maximum weight of the heavy-duty route, Graebener® carried out the construction in such a way that the individual cross beams were manufactured in two parts and welded together on site.

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Pictures and caption

„Bild1.jpg“: Flexible and efficient production of an enormous variety of pipes with the Graebener® Pipe Bending Press

Boilerplate

Graebener® is a medium-sized, family owned machine building company with locations in Netphen (Germany), Houston (USA) and Shanghai (China) as well as a variety of international representatives. Based on 100 years of experience in the metal processing business we develop and realize customized solutions for the core markets of automotive industries, hydroforming, manufacturing of large pipes, shipbuilding, wind tower production, vessel construction and renewable energies. Our product range includes hydraulic forming lines, milling and bending machines, calibration and straightening presses as well panel production lines. Graebener® stands for a holistic approach. As technology and system partner we accompany our customers along the entire process chain – from the initial idea, comprehensive engineering (including hydraulics, automation and control technology as well as intelligent Industry 4.0 applications) up to customized new machines or retrofitted existing lines.

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