WAFIOS BM HS Series – Bending in High-Speed Mode with Maximum Flexibility, at Highest Dynamics and Precision

At WAFIOS, the abbreviation HS stands for the most powerful generation of machines used for the flexible production of highly complex wire bending parts. Its focus is on large quantities, while meeting highest quality standards.
The design of the new series is trend-setting for the entire WAFIOS machine portfolio and, with the distinctive hood, protected as a registered design. It features improved ergonomics and a complete redesign of the machine structure.

Increased output thanks to new drive technology combined with *iQsmartbend*

The new generation of machines has been completely revised in terms of control using highly dynamic drives and control devices. Highest working speeds can be achieved with the mass-optimized bending head.
Thanks to ***iQsmartbend***, which is already included in the basic price of the BM HS series as a 5-year license, the CNC high-end wire bending machines achieve up to 40 percent higher output, depending on the workpiece produced. ***iQsmartbend*** is the successful further development of ***iQbend***, the solution patented in numerous countries to avoid the whip effect. Process-related vibrations occurring during bending are actively suppressed by automatically adjusting the tool motion profiles via the online interface to the WAFIOS cluster. The connection to the WAFIOS cluster is only required during the calculation. Only the required geometry and motion profiles are transferred. The increase in output and the quality improvement attainable with ***iQsmartbend*** can be realized across the entire component spectrum and contribute to a reduction in unit costs.

Various design innovations increase process reliability and quality

The modular design allows the combination of the previously separate BM and BMU series from WAFIOS. The tubular wire guide with the newly designed maintenance-friendly feed unit increases process reliability, especially for small wire diameters and soft wires. The bend-back clearance can be freely selected by adjusting the infeed carriage on linear guides. Depending on the machine size, this is done manually from 160 mm to max. 1,400 mm, or optionally by CNC-controlled, free, in-process displacement. For the first time, the bend-back clearance can be reduced to 160 mm (BM 36HS). This provides greater dynamics in the rotary motion of bent parts around the wire axis and more stability, especially with small wire diameters from 1.5 mm, as well as with soft materials like copper.

The modular structure with its many design innovations provides the flexibility and freedom for the broad production spectrum of bent parts

The combination options of servomotor-displaceable infeed, rotary straightening (BM 43 HS) and displaceable cutting unit (BM 43 HS) are united for the first time in a modular concept, thus creating maximum flexibility and enabling a wide spectrum of components.
With numerous options such as chamfering device, bending after the cut, and welding and transport device, the BM-HS series offers high degrees of freedom and flexible configuration options to suit customer requirements, or product specifications.
The revised cutting unit, positioned on the left side of the bending head, increases the bending clearance due to its flat design and positioning, and allows the bend-back clearance to be reduced.
The newly developed chamfering device, with or without extraction unit, ensures the economical production of bent wire parts with chamfered ends.

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High-end: WAFIOS WPS 3.2 EasyWay control system with *iQ*smartbend and numerous optional *iQ* functions for process optimization

The standard premium features of WAFIOS machines include the hand-held operating device and the large touchscreen for clear and fast setup of bent parts. The intuitive and user-friendly user interface of the WAFIOS WPS 3.2 EasyWay allows geometry programming of lengths, angles, or coordinates and facilitates a quick setup of tools, materials, and bent parts. Based on digital twins, the integrated intelligent software optimizes all available bending programs fully automatically at the request of the customer, thus saving setup times and increasing the overall availability of the machine.
In addition to ***iQ****smartbend*, further ***iQ*** functions can be selected by the customer:
- ***iQ****wire* for real-time simulation to determine cycle times and collision monitoring, as well as ***iQ****wire+* for automatic determination of the collision-free sequence, positioning of the table axis and optimized cycle time calculation.
- ***iQ****inspect* for transferring nominal/actual geometries and correction values from a measuring system to the WAFIOS WPS 3.2 EasyWay programming system.
- ***iQ****convert* automatically converts CAD data from IGES or Step to WPS geometry programs and vice versa.
- ***iQ****bendcontrol* for in-process measurement and regulation of bending angles using the optical camera system, which ensures consistently high quality of the bent parts.
- ***iQ****torque* for in-process workpiece and tool breakage monitoring ensures a high level of safety, even in unmanned operation, and reduces scrap.

The great number of available options of the BM-HS series allow market requirements to be met without compromise and customized systems to be designed for the automotive supply, furniture, electrical, white goods, or consumer goods industries, to name just a few. Technical innovations, such as chamfering device, servomotor-displaceable infeed and straightening unit with tubular wire guide, highly flexible drives and many additional options set standards in machine availability, flexibility, quality, and output, while underlining the claim of technological leadership of the current WAFIOS BM high-speed generation.

Fig. 1 WAFIOS BM 43 HS

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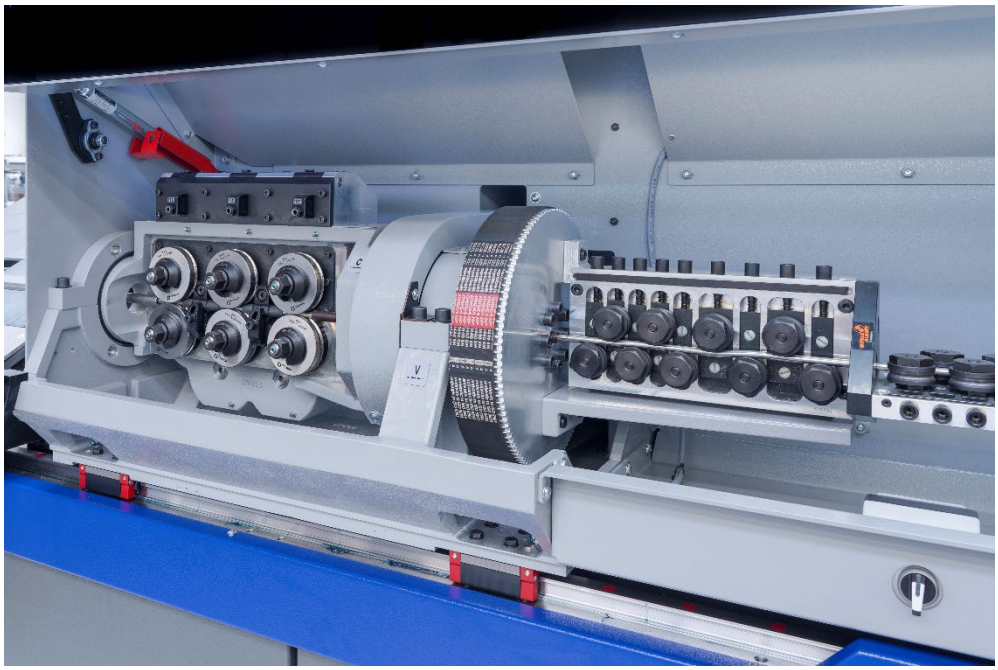

Fig. 2 Infeed and straightening device

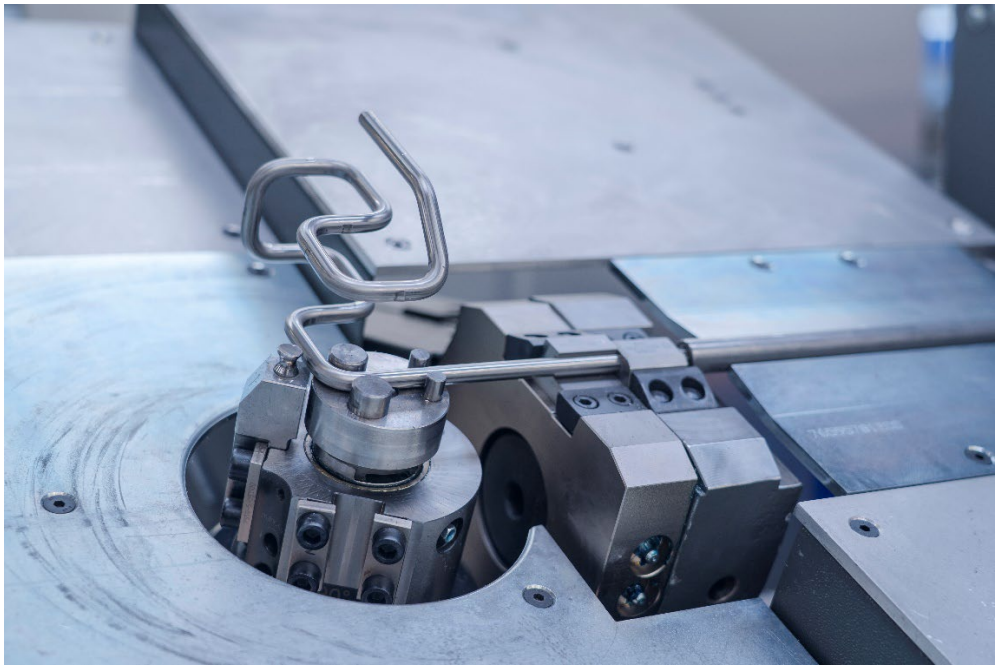

Fig. 3 Bending head

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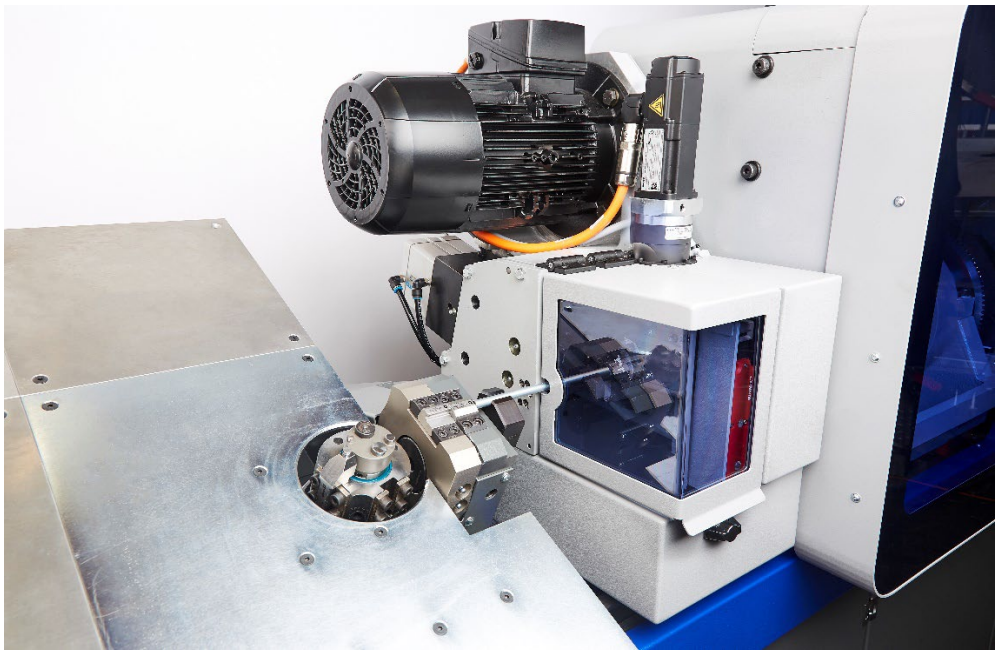

Fig. 4 Chamfering device without extraction unit

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