

Chain Bending Machines for Cold Bending Round Steel Chains



Series
KER x.2

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▼ Feed and straightening unit with feed control

▼ Die forming device and notching device

▼ The chain link blank transport passes the chain link to the bending station

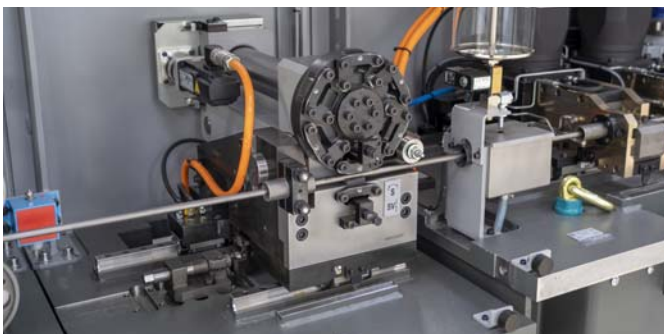


Our Accomplishments for your Benefit

- The new generation of chain manufacturing machines benefits from decades of experience in mechanical machines in order to meet the requirements of high-strength chain materials.
- The WAFIOS control system supports the operator by an easy correction of chain dimensions, its programs facilitate the repeat set-up of a chain and increases the machine's productivity.
- The newly developed chain bending machine KER 4.2 combines conventional chain production with modern servo technology which makes it an important milestone in chain production.
- The software-supported machine monitoring system supports the operator in case of errors, synchronizes the bending and welding machine and reduces rejects.
- Due to the use of servo technology and the roll bending technology of the KER x.2, expensive chain-dependent tools, such as cam segments, as well as their changeover, are no longer required. This reduces set-up times and allows chains to be produced cost-efficiently without oiling and in a surface-friendly manner.

Design Features

- Modern servodrive and control technology
- 15 Servomotors for different machine functions
- Designed for higher tensile strengths of modern chain materials
- Wire feed, die forming, notching and bending are no longer set up mechanically but electronically
- Bending technique with continuous-path control, the contouring path can be varied
- New control technology allows an electronic programming of the bending process
- Most set-up parameters are electronically saved
- Cam segments and cam must not be held available and changed



▲ KER 4.2

◀ Embossing module (option):

The embossing module is used to make a raised or recessed mark on the wire. This happens before the die forming process of the chain link's back curvature and before the notching process.

Quality, Reliability, and Efficiency - WAFIOS KER x.2 Chain Bending Machines

Mode of Operation

The chain wire drawn off the pay-off unit is straightened on two levels by the straightening unit. It is then passed to the die forming device and to the notching device that can both be displaced in wire direction. The die forming device produces a wave-shaped dent in the wire which later becomes the bent chain link's back curvature. The notching device cuts X-shaped notches at a distance of one chain link blank length between each notch into both sides of the wire. These notches will later be the chain link ends.

Next, the chain wire is transported to the cutting device where it is held by the transport gripper while it is being cut off in accordance with the chain link blank length. Then the transport gripper passes the cut-off chain link blank to the bending station. There, the chain link blank is inserted into a previously produced, vertically standing chain link that is held by the tilting tongs. In the bending station, the chain link is finish-bent around a bending mandrel by two swivel-mounted bending levers with rollers. With this bending method, wire surface damage is avoided.

Application

Chain bending machines of the KER x.2 series are used to cold bend round steel chains. The material is fed in from a wire coil. The bent chain can then immediately be electrically welded on a separate machine.

Quality

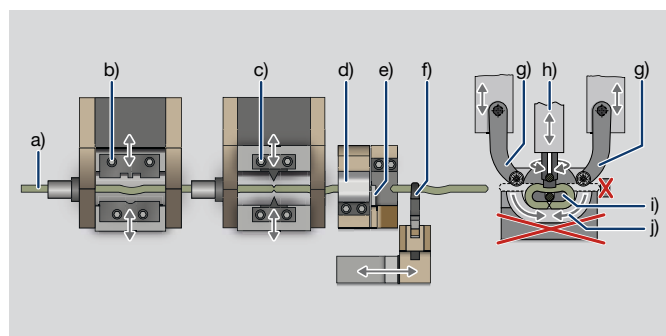
For more than 125 years, the name of WAFIOS has been synonymous with highest quality, safety standards, and technical innovations in the German machine manufacturing industry.

Reliability

Strict quality controls, state-of-the-art production systems, and many years of experience guarantee that your investment is safe in our hands. Our global service network ensures high availability of WAFIOS machinery.

Cost efficiency

High production output and a long service life will save money and shorten the amortization time of your investment.



▲ Tool design for the KER x.2 roller bending method
New: Cam segment and chain link blank stop are not required anymore.

- | | | |
|--------------------|--|--------------------|
| a) Chain material | e) Counter cutting tool | h) Tilting tongs |
| b) Dies | f) Transport gripper | i) Bending mandrel |
| c) Notching tool | g) Bending levers with bending rollers | j) Cam segment |
| d) Cutting bushing | | |

▼ Control panel with WPS 3.2 EasyWay



Technical Data	KER 4.2	KER 5.2	KER 7.2
Nominal wire Ø: Adm. tolerances in accordance with DIN EN 818-2 up to 800 N/mm ² up to 900 N/mm ² up to 1,000 N/mm ²	5.0–10.0 mm 5.0–9.0 mm	8.0–13.0 mm 8.0–12.0 mm	10.0–18.0 mm 10.0–17.0 mm 10.0–16.0 mm
Bent chain link: Pitch / inside length of chain link Outer chain link width	14.5–53.0 mm min. 2.9 x d 17.0–38.0 mm	23.0–75.0 mm min. 2.9 x d 22.0–52.0 mm	29.0–95.0 mm min. 2.9 x d 33.0–75.0 mm
Chain link blank length:	max. 155 mm	max. 210 mm	max. 250 mm
Output:	ca. 75–50 links/min	ca. 60–38 links/min	ca. 50–25 links/min
Compressed air consumption: (l/min at 6 bar)	100 l/min	not yet specified	not yet specified
Space required: (l x w x h)	ca. 3,945 x 2,677 x 2,400 mm	not yet specified	not yet specified
Net weight: Feed unit body without embossing module Bending unit body Switch cabinet	ca. 1,400 kg ca. 3,500 kg ca. 650 kg	not yet specified	not yet specified



Our product range includes a wide variety of high-quality chain machines.

- Chain bending machines, KEB x.1 and KEB x.2 series
- Chain bending machines, KER x.2 and KER 8 series
- KBA 601 chain bending machine with conduction (WED 601) heating or with induction (IEW 601) heating of chain link blanks
- Chain bending machine KBF 60 with induction heating (IEW 60) of chain link blanks
- Chain (resistance butt) welding machines, KEH x.2 and KEH 8 series
- Chain (flash butt) welding machines, KSH and KSF 60 series
- Chain calibrating machines, KPH series
- Combined chain bending and chain welding machine KBS 4.1

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