



PRODUCTWORLD

Bending to perfection.

Your Guide to the Schwarze-Robitec Product Range



MORE
INFORMATION ABOUT
SCHWARZE-ROBITEC



THE FUTURE OF BENDING IS FLEXIBLE

Discover CNC 40 Rotary

As the first supplier on the international market for tube bending machines, Schwarze-Robitec GmbH launches its new developed CNC 40 Rotary, a fully electric CNC-controlled tube cold-bending machine. This innovation combines the advantages of automatic bending to the right and to the left with those of a loosely mounted bend former. This is facilitated by an additional CNC axis in the innovative bending head. The CNC 40 Rotary therefore considerably increases flex-

ibility in bending processes – even in the case of tubes with shapes already preformed on the straight tube and in the case of additional functions such as the filling mandrel device. It processes tubes with diameters from 8 mm to 40 mm.

Schwarze-Robitec has developed this innovative solution in order to guarantee time and cost effective processing for future users. “To keep it simple, the use of the loosely mounted bend former allows the bending head to move independently of the tool,” explains Schwarze-Robitec Managing Director Bert Zorn. The advantage of this is that even tubes with the smallest bending radii and complex curve shapes after bending can be

easily moved out of the range of collisions and interfering contours. “As the new solution needs no second bending head, we have been able to reduce the investment volume required for the CNC 40 Rotary by around 20 percent compared with conventional solutions,” explains Hartmut Stöhr, who is also a Managing Director at Schwarze-Robitec. Aside from these massively reduced acquisition costs, the new tube bending machine, which works with up to 13 CNC-axes, stands out for its intuitive operator guidance on the control system. “One training session is enough to understand the control concept and to operate the machine intuitively,” explains Bert Zorn. In addition to the

benefits already mentioned, the CNC 40 Rotary is also optimally prepared for all requirements with respect to partially and fully automated production. Schwarze-Robitec offers a wide range of solutions for this.

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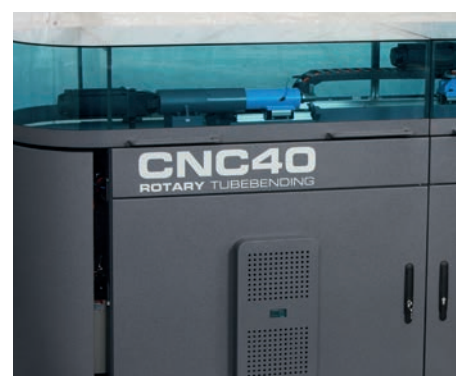
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CNC 40 ROTARY

TECHNICAL SPECIFICATIONS

Max. tube diameter:	40 x 2 mm
Min. tube diameter:	8 mm
Tube length:	2,000 mm
Bending direction:	right and left



DB SERIES

Machines for the boiler and power station industry



CNC 100/80 DB

CNC BOOSTER BENDING MACHINES

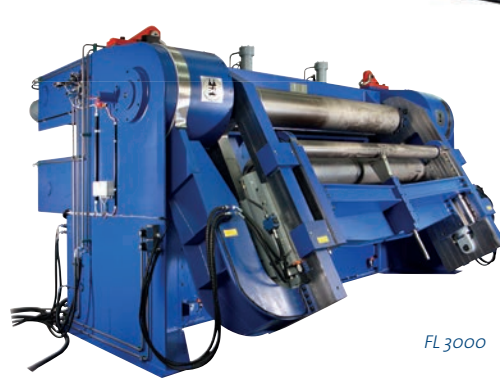
Automatic, Electro-Hydraulic Booster Bending Machines preferably suitable for the bending of boiler tubes and serpentines without mandrel, inclusive tube positioning device, with PC CNC control, and full boost unit with programmable boost pressure.

CNC DB		60	80	100/80	100	165
For tubes up to Ø	mm	63.5 x 5	88.9 x 8	88.9 x 11	114.3 x 7.1	168.3 x 7.1

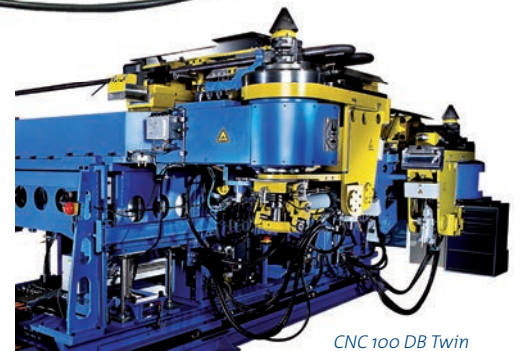
SR BOOSTER BENDING MACHINES “SEMI-AUTOMATIC”

Semi-Automatic, Electro-Hydraulic Booster Bending Machines inclusive of full boost, with clamping device, particularly suitable for bending of boiler tubes with tight radii.

SR DB		60	80	100	165
For tubes up to Ø	mm	63.5 x 5	88.9 x 8	114.3 x 7.1	168.3 x 7.1



FL 3000



CNC 100 DB Twin

TWIN BOOSTER BENDING MACHINES

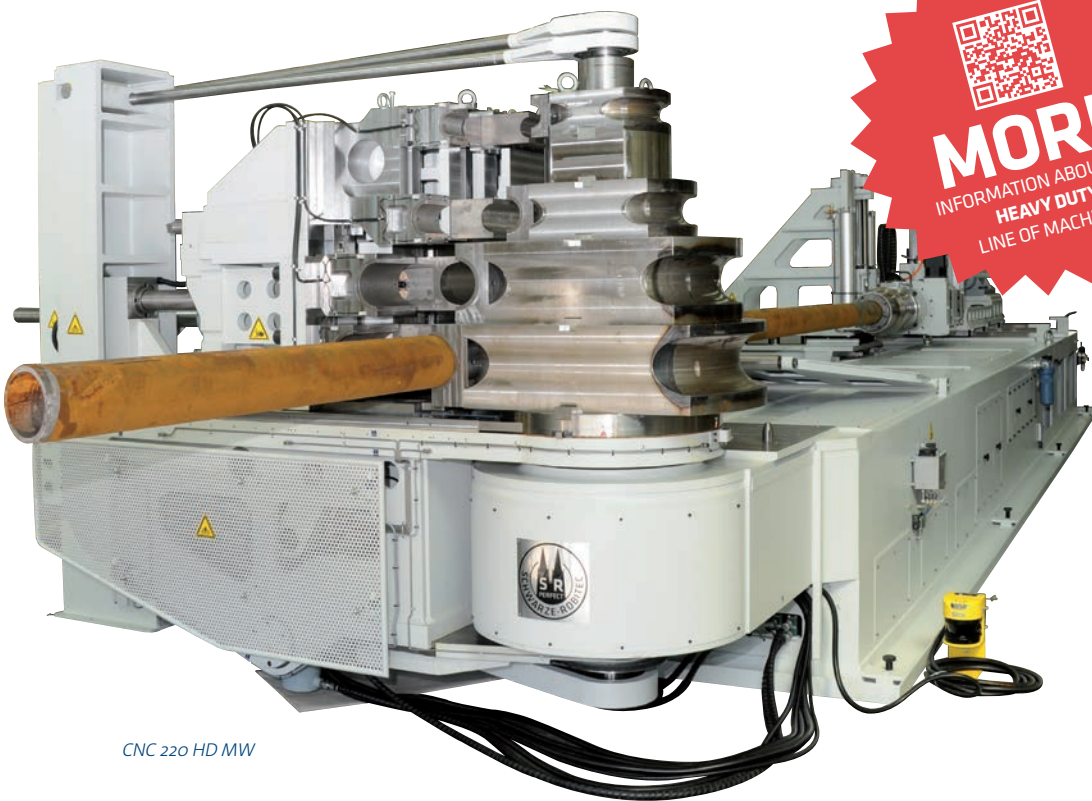
CNC-controlled Twin Head Booster bending machines, bending in two directions within a bend program. Preferably suitable for bending large serpentines and boiler systems without the need to flip the tube system over.

CNC DB TWIN		60	80	100
For tubes up to Ø	mm	63.5 x 5	88.9 x 8	88.9 x 11

COLD BENDING MACHINE FOR BENDING OF WELDED TUBE WALLS

Membrane Tube Wall Bender, suitable for the bending of membrane tube walls (panels) as well as for single bends.

FL		1000	2000	3000	3600
For tubes up to Ø	mm	70 x 5 1,000 mm	70 x 5 2,000 mm	70 x 5 3,000 mm	70 x 5 3,600 mm



CNC 220 HD MW



HEAVY DUTY

Machines for plant construction and the shipbuilding and offshore industry

CNC HD MANDREL BENDING MACHINES “SINGLE STACK”

Single stack mandrel bending machines from the Heavy Duty range are designed for serial and single-item production of tubes made from various materials with varying diameters and wall thicknesses.

CNC HD	60	80	100	165	220	220 S	265	320	350	420
For tubes up to Ø mm	60 x 5.5	89 x 7.6	114.3 x 8.6	168.3 x 11	219.1 x 12.7	219.1 x 25	273 x 15.1	323.9 x 17.5	355 x 19.1	426x 22

CNC HD MANDREL BENDING MACHINES WITH MULTIPLE BENDING TOOLS

Mandrel bending machines with option of loading several different bending tools. This saves time when changing from one tube dimension to another and ensures economic individual and serial production thanks to minimal setup time.

CNC HD MW	60	80	100	165	220	220 S	265	
For tubes up to Ø	mm	60 x 5.5	89 x 7.6	114.3 x 8.6	168.3 x 11	219.1 x 12.7	219.1 x 25	273 x 15.1

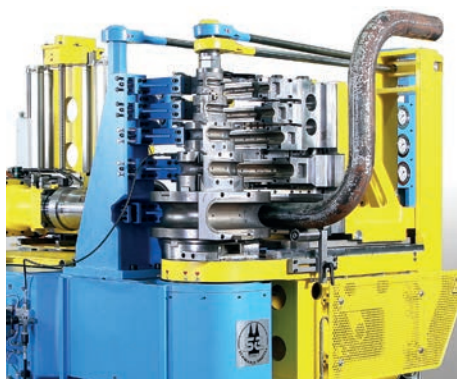
SR HD MANDREL BENDING MACHINES “SEMI-AUTOMATIC”

Semi-automatic mandrel bending machines for small serial production or single items. Ideal for manufacturing single bends.

SR	40	60	80	100	165	220	265	320	350	420
Fortubes up to Ø mm	40 x 2	60 x 5.5	89 x 7.6	114.3 x 8.6	168.3 x 11	219.1 x 12.7	273 x 15.1	323.9 x 17.5	355 x 19.1	426 x 22



SR 265



CNC 100 HD MW

HIGH PERFORMANCE

Fast. Powerful. Flexible. For serial and large-scale mass production

CNC MANDREL BENDING MACHINE “SINGLE STACK”

Freely programmable CNC controlled mandrel bending machine for efficient serial production. Can be easily incorporated into the existing production facility.

CNC	18	25	40	50	60	80/60	80	100/80	100	130	160
For tubes up to Ø mm	18 x 2	25 x 2	40 x 2	50 x 2	60 x 3	70 x 3.5	80 x 2.5	100 x 2.5	114.3 x 3	130 x 3	160 x 3.5

CNC MANDREL BENDING MACHINE “MULTI STACK”

High performance mandrel bending machines for the economic manufacture of tubes with various radii or bend on bend system. Minimal set-up times due to multiple bending tools.

CNC MR	18	25	40	50	60	80/60	80	100/80	100	130	160
For tubes up to Ø mm	18 x 2	25 x 2	40 x 2	50 x 2	60 x 3	70 x 3.5	80 x 2.5	100 x 2.5	114.3 x 3	130 x 3	160 x 3.5

CNC MANDREL BENDING MACHINES WITH TWO BENDING HEADS

Flexible CNC controlled mandrel bending machines for the efficient processing of complex tube systems. Tubes can be bent in clockwise and counter-clockwise direction without the need for modifications.

CNC TWIN	18	25	40	60
For tubes up to Ø mm	18 x 2	25 x 2	40 x 2	60 x 3



CNC ROTARY	40	60
For tubes up to Ø mm	40 x 2	60 x 3

FULLY-AUTOMATIC BENDING CELLS

Full equipped tube bending production lines with the highest level of automation – from tube separation and the manufacturing process to quality control of the bended parts.

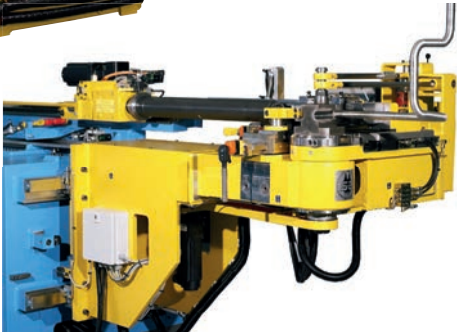
CNC VA	18	25	40	50	60	80/60	80	100/80	100	130	160
For tubes up to Ø mm	18 x 2	25 x 2	40 x 2	50 x 2	60 x 3	70 x 3.5	80 x 2.5	100 x 2.5	114.3 x 3	130 x 3	160 x 3.5



CNC 100 E TB MR




CNC 80 E TB MR



CNC 40 E TB

Please note!


 Our machines are available in the following versions: Hydraulic, hybrid and fully electric depending on customer requirements and usage needs.

SR CONTROL

Single axis CNC controller for semi-automatic operation

Construction

- Design according to the most modern standards
- Designed for extreme ambient conditions
- Fulfils all common safety standards
- Windows Embedded System with real time core
- Network compatible
- Touch screen input

Purpose

- Semi-automatic operation of bending machines

Function

Up to eight bending angles can be entered on this control in any desired sequence to a set of bending angles. For the bending of one of the pre-adjusted angles, the corresponding button is pressed on the touch screen. To change to another bending angle, the button for the angle in question is pressed, through which the previous one is deselected. This controller can also bend a sequence of angles consecutively. To do this you must position the tube manually after every bend, and then initiate the next bend by pressing the button on the operating panel or optional two-handed controller. These sets of bending angles can be stored in conjunction with the associated tool details.



CNC CONTROL

Multi-axis CNC controller for automatic operation

Construction

- Design according to the most modern standards
- Air conditioning of electrical cabinet is standard
- Designed for extreme ambient conditions
- Fulfils all common safety standards
- Windows System with real time core
- Fully network compatible
- Touch screen with separate keypad

Purpose

- Automatic process for bending pipe systems
- Exact positioning according to the data entered (bending programs) of
 - » bending angle of bending head
 - » angle between two bends (rotation)
 - » longitudinal feed of tube (transport)

Function

TOB data (transport/orientation/bend) or XYZ data belonging to the tube geometry (incremental or absolute) is entered into the controller using the touch screen. The machine uses this data to generate an automatic machine process which takes place without the user's involvement. You can enter any booster pressure curves, speeds or acceleration figures. It is not necessary to program the process laboriously step by step.





The team of Schwarze-Robitec: More than 120 experts!

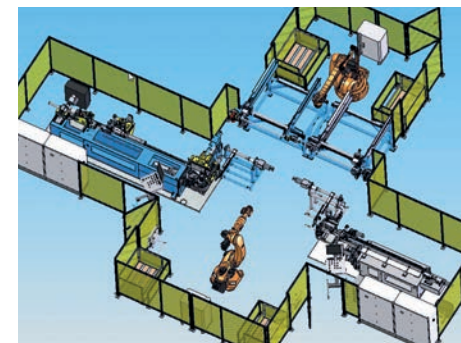
MILESTONES AND INNOVATIONS

Schwarze-Robitec is one of the world's leading manufacturers of cold-bending machines. The company, which was founded in 1903, develops and produces tube bending machines, fully equipped automatic tube bending production lines and bending tools, as well as tube perforating machines, measuring systems and solutions in special engineering. Schwarze-Robitec is a producer, supplier and service provider all in one – all

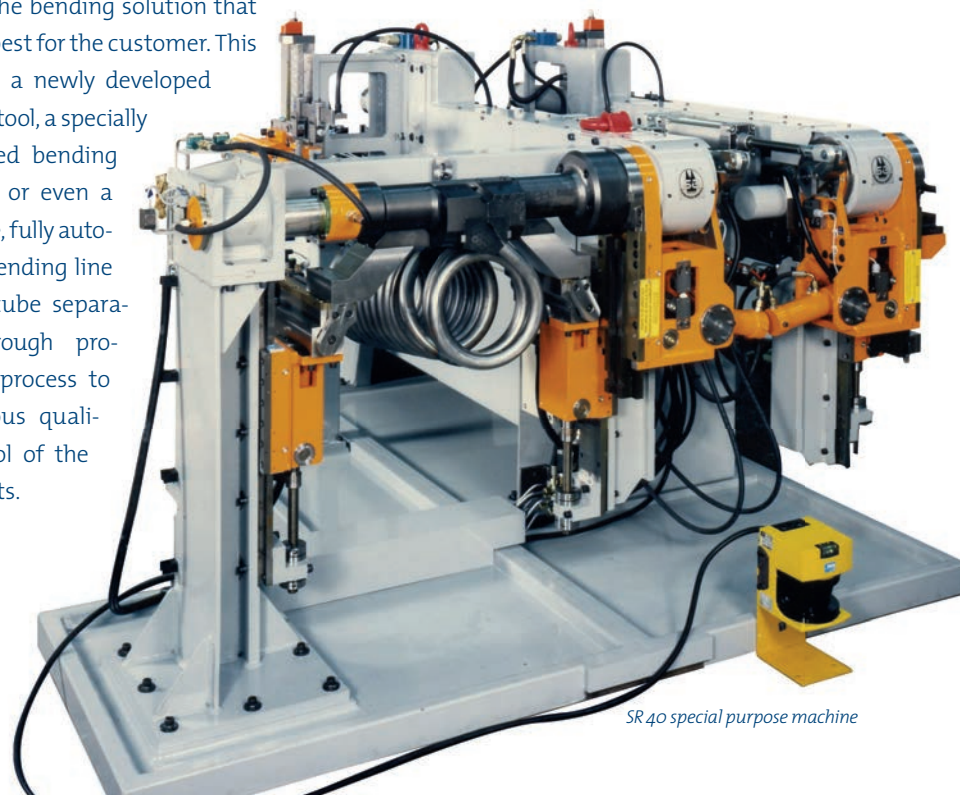
systems are quality products made in Germany. At the head office in Cologne, the cold-bending machine specialist currently employs 120 staff. Schwarze-Robitec guarantees international distribution through long-standing partner companies in central locations. Over 2,300 CNC bending solutions from the company are in use around the world today – some of them for well over 30 years.

TAILOR-MADE SOLUTIONS

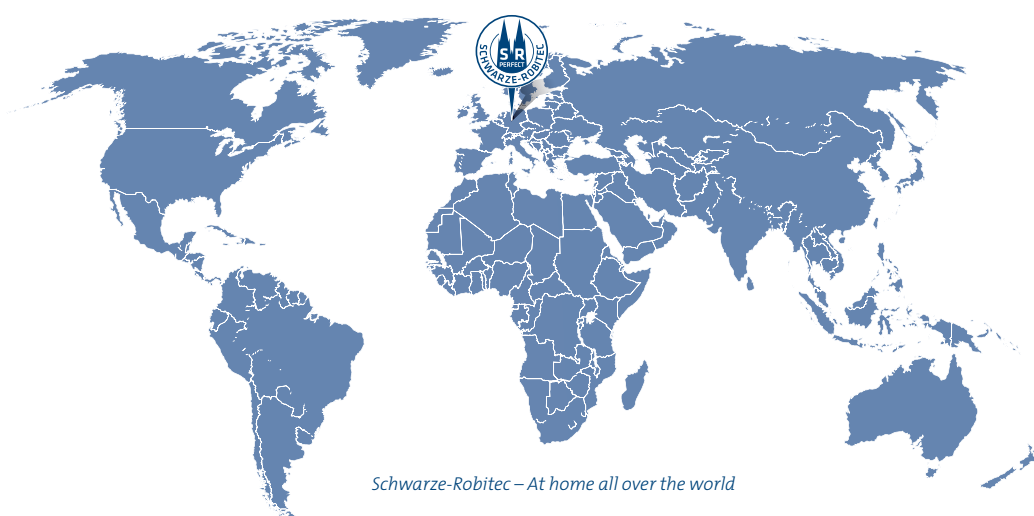
Unlike many competitors, Schwarze-Robitec sells no pre-finished series products. Instead, the bending experts offer a range of machines and accessories that can be configured in modules, flexibly extended and adapted to the specific project requirements. The result is always an individual solution that is precisely tailored to the requirements of the user. That is why every project begins with an extensive consultation with the objective of finding the bending solution that is really best for the customer. This could be a newly developed bending tool, a specially configured bending machine or even a complete, fully automated bending line – from tube separation through production process to continuous quality control of the bent parts.



3D image of the manufacturing cell



SR 40 special purpose machine



Schwarze-Robitec – At home all over the world

INTERNATIONAL SERVICE

Service means for us: help our customers to solve their problems.

Our service starts before the planning of your machine with advice on how to reach your goals. With our know-how and more than 80 years' experience, we have the best solution competence in the industry.

Our customer service provides comprehensive service for the life of our machines, whether spare parts supply, on-site maintenance or the updating of your machines.



Schwarze-Robitec also trains your staff to work with our machines in our modern training room.

Maintenance – durable efficient

Schwarze Robitec takes on the maintenance of your tube bending machine. Especially with larger lot sizes and bending machines which are involved in production chains, the lowest possible downtime of each machine is important. Through trained personnel, the lifetime of the machine can be extended, the machine availability can be increased and the use of the machine and the operating procedure can be optimised.

Our staff has decades of experience in tube bending technology, especially with the tube bending machines from Schwarze-Robitec. Thus we have the best solution competence in the industry.



Whether the supply of spare parts, advice and training for your maintenance team, or complete maintenance by Schwarze-Robitec, we can react flexibly to your requirements.



Spare Parts Supply

Schwarze-Robitec offers a high availability of spare parts over the whole lifetime of our machines. Some of our machines have been in service for over 30 years in a three-shift operation.

Inspections

To ensure availability of your machines, we recommend a regular inspection of the machine by the service personnel of Schwarze-Robitec.

Repairs

Even if the machines of Schwarze-Robitec have the highest durability and the longest economic lifetime, it is possible that there is a need for repair after an inspection or a failure.

Updates

The update potential of a machine results partly from the development of new techniques and components, especially in control engineering, but also from new conditions such as a change in engine integration in the manufacturing process.