



COMBITEC

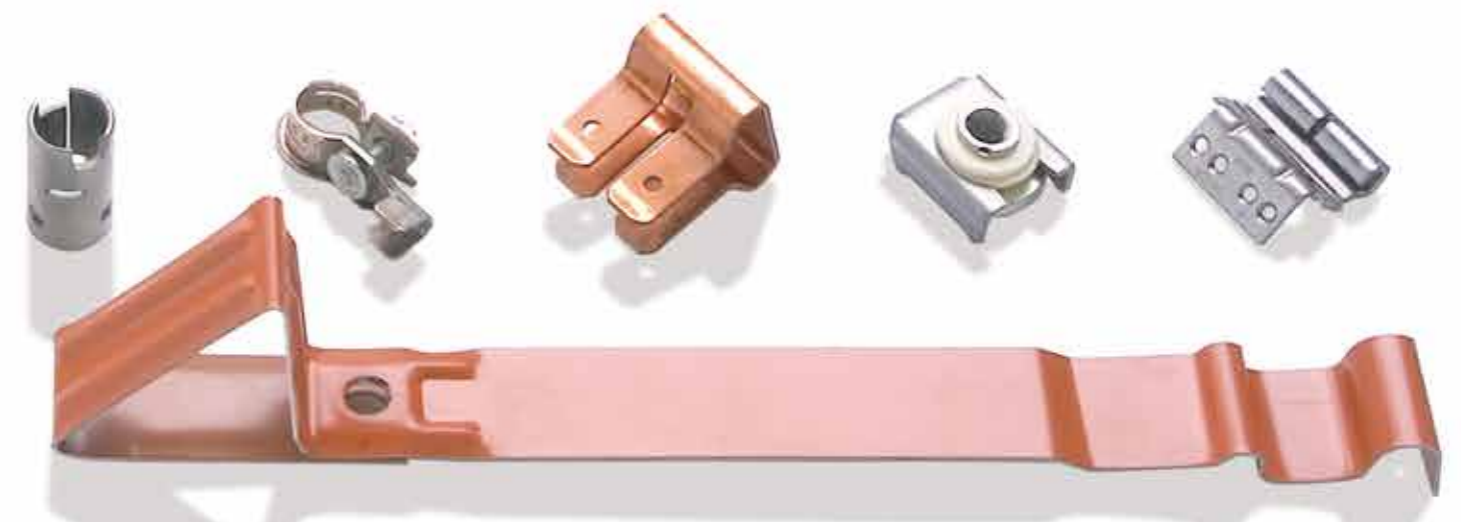
Forming Center



More power and free space for new perspectives

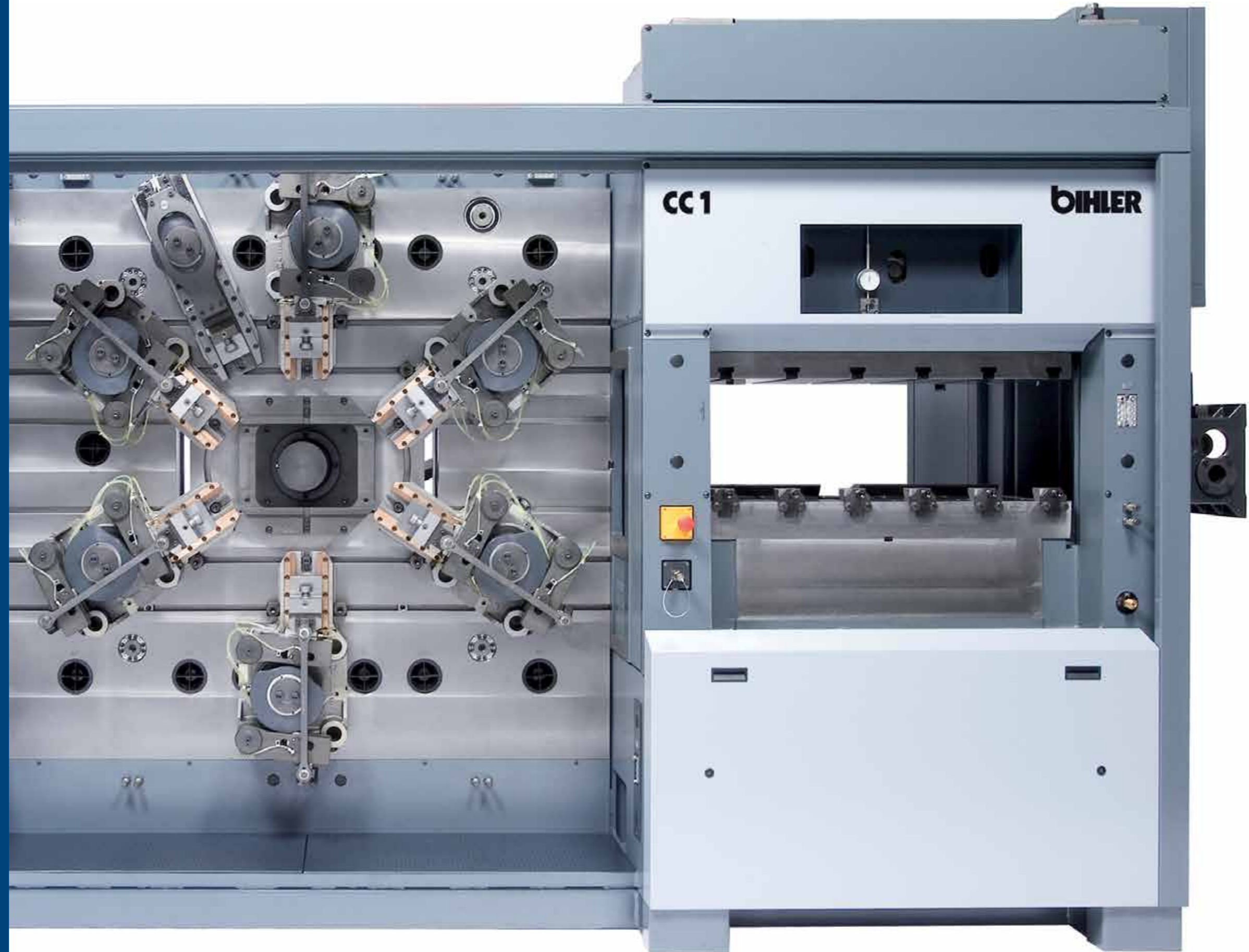
The powerful COMBITEC forming center introduces new perspectives for your production. With extremely high stamping forces and superior production speeds, the CC 1 is perfectly designed for the highly efficient production of long, bulky components and assemblies.

With its arrangement of the spacious 800 kN press next to the work plate, the COMBITEC provides you with plenty of space for stamping, forming and assembly processes as well as for the integration of additional value-added technologies. Setup times are reduced to a minimum with the rapid tool clamping system. The VariControl machine and process control system ensures the safe and comfortable control of your manufacturing system.



The highlights at a glance

- Powerful production system for manufacturing longer and larger-sized parts
- High production speeds of up to 200 1/min.
- 800 kN eccentric press arranged beside the work plate
- Extended space for larger cutting tools
- Entire work plate available for additional processing steps
- Large aperture in face plate to allow for several central mandrels
- Short changeover times with rapid tool clamping system
- NC feed units available for long feed pitches
- Convenient operation with VC 1 machine and process control system





Highly precise NC feed units

The NCR-2P roller feed unit features servo-controlled drive rollers with hydraulic material clamping with the possibility of intermediate opening by means of a hydraulic system or instantaneous motor cutout.

The gripper feed is driven by one servo-motor and one ball spindle. The actuation of gripper feed and non-return gripper is hydraulic. Beginning and end of advance and return movement are freely programmable. The feed unit is designed for mounting on the right-hand side of the press. In addition, the Radial Gripper Feeder RZV 2 can be mounted.



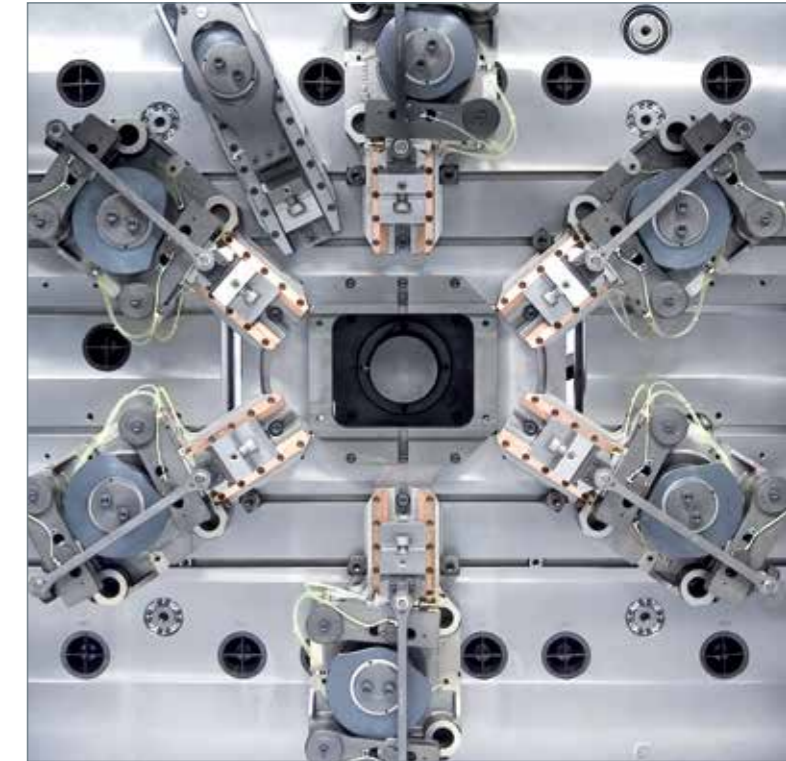
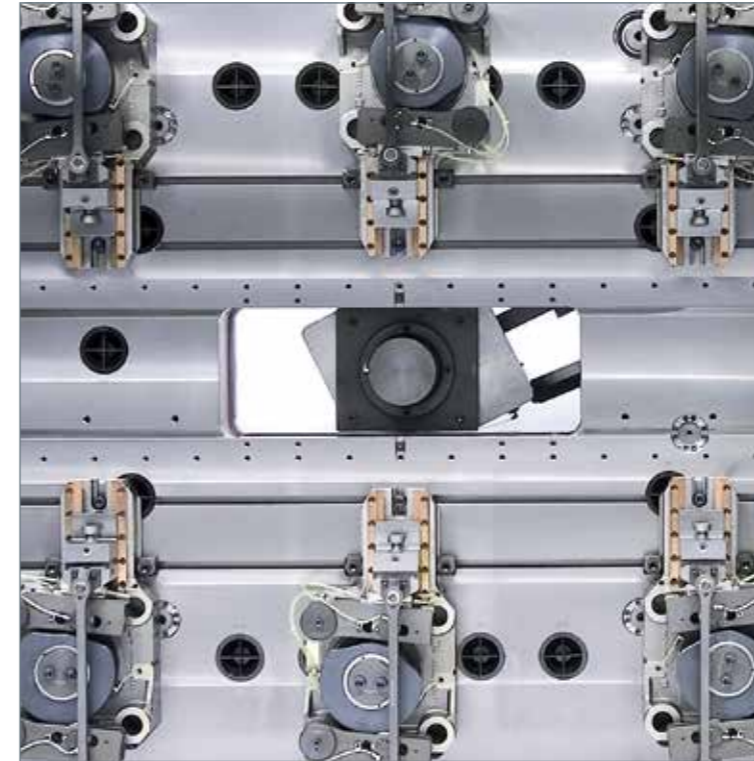
Separate press module

The CC 1 has a stable eccentric press with a nominal stamping force of 800 kN. The press is integrated in a housing pre-tensioned with four columns, and installed separately alongside the work plate. With a table length of 1.000 mm and a table width of 500 mm it offers ample space for larger cutting tools. Due to the increased nominal stamping force even greater sheet-metal thicknesses can be processed. Electronic press force monitoring and an appliance for rapid change of the die-set are additional press features.



Central mandrels for additional movements

The large central aperture in the machine face (width 780 mm, height 280 mm) offers plenty of space for the integration of various central mandrels. Eight mounting positions are available on the machine rear side. Up to four central mandrels can be mounted in juxtaposition, positively controlled or spring-loaded version. They are driven by an angular gear. The image shows the reinforced version (max. 100 kN nominal force and max. 60 mm stroke) with wide double cam for the advance movement and positively controlled return movement by bell crank lever and cam.



Slide units with tool and cam rapid-exchange systems

Normal slide unit, equipped as standard with positive control via double flat cam and parallel four-bar mechanism for variable force requirements. Left-hand and right-hand design. The directly-controlled narrow slide unit for reduced space is available with positive control. With a nominal force of 160 kN and a max. stroke of 140 mm the angle-lever unit offers promising perspectives for the manufacturing of large components.

To achieve faster tool-exchange all slide units are equipped with an innovative rapid tool clamping system. In addition, the innovative cam system consisting of a cam carrier and driving disk ensure that the cams are rapidly exchanged.



The highlights at a glance

- Simple, versatile machine setup without external programming device
- Customized production menus and user interfaces
- Multimedia diagnostic and online help system bASSIST
- Freely configurable production menus and user interfaces
- Integrated monitoring system for production and machine sensor data

Intuitive handling

The COMBITEC is equipped with the VariControl VC 1 machine and process control system. The control system ensures simple handling and monitoring of complex production and assembly processes via a 15" touch display and a multifunctional keyboard.



Easy programming

Direct and easy programming of NC process modules (feeding unit, thread forming unit, screw insertion unit, etc.) via a simple input screen.



Support at the touch of a button

The extremely versatile remote maintenance solution (optional) fulfills even the most exacting support requirements. The portal provides full access to the machine's control system and all networked components. At the touch of a button on the control cabinet the secure connection is established.



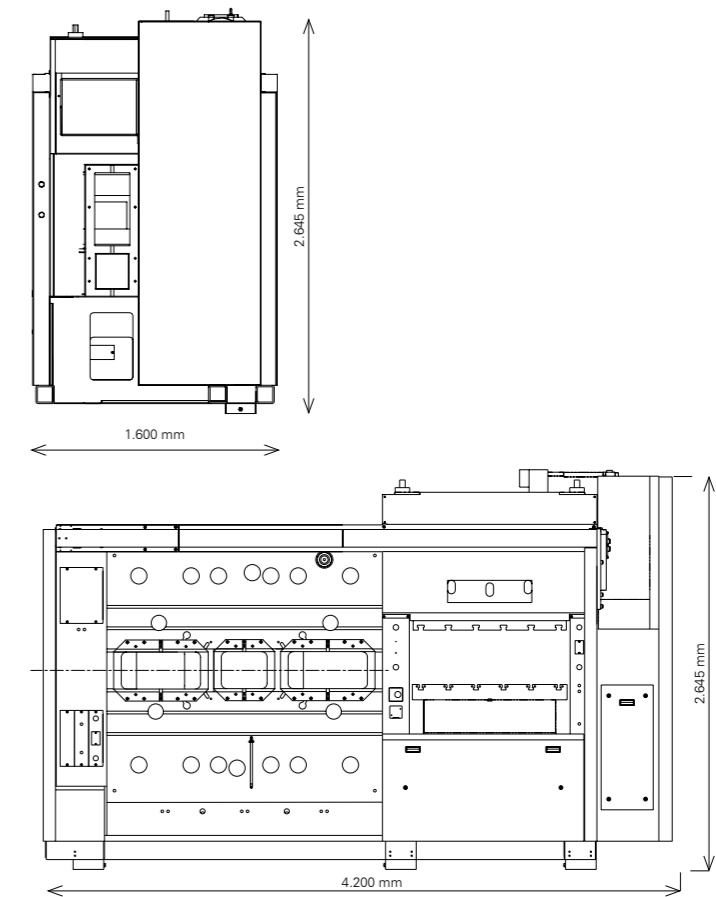
Safety as a standard

The noise suppression and personnel protection integrated in the machine concept correspond to the valid EC machine guideline 98/37 CE. Besides the emergency stop buttons on both machine sides and at the control cabinet, the machine features a total of 5 I/O bus modules for the connection of protection systems and functions. Each module features 16 channels, freely programmable for input and output signals.

System concept	Housing with one processing face; 19 drive positions for radial and linear processing; rear face with 8 drive positions suited for several central mandrels; central aperture 780 mm wide and 280 mm high
Speed	Steplessly adjustable between about 5 1/min and max. 200 1/min
Drive	Frequency-controlled; combined clutch/brake unit for short braking angles
Control	VariControl VC 1 machine and process control system in separate, stand-alone control cabinet 700×700×2100 mm with power supply unit and electronic control and monitoring system; operating panel with 15" TFT touch screen, keyboard and control elements; 1 machine-controller with I/O bus modules for the entire machine control; 1 tool-controller with I/O bus modules; standard are 3 freely-programmable modules, each of which is equipped with 8 channels as well as 1 freely-programmable module with 16 channels at the press programmable as input or output; 1 bus module programmable with 16 inputs and 16 outputs for valve actuation; 1 press force monitor, slide force monitor as option
Pneumatic system	Maintenance free unit with connections for oil-free air; normal pressure 6 bar; pressure monitoring with machine cutoff; 5 valve-controlled positions
Hydraulic system	Hydropneumatic pump with accumulator and valves for hydraulic material clamping of the feed; Pmax = 150 bar
Central lubrication	Single-line central oil lubrication for machine and system modules; with integral oil recovery resp. waste oil disposal; compressed air-operated; 4.5 litre contents; function monitoring; 20 spare quick-action couplings
Central mandrel	Up to 4 central mandrels; positively controlled or spring-loaded, can be mounted in juxtaposition; max. stroke 160 mm; max. nominal force 35 kN (3.5 Mp); reinforced version to be installed in machine center, available with a max. nominal force of 100 kN and 60 mm stroke, and reinforced version available with a max. force of 120 kN and a max. stroke of 100 mm
NC roller feed unit	To be mounted on press unit; feed pitch freely adjustable; max. strip width 160 mm; max. strip thickness 4 mm; hydraulic material clamping
NC gripper feed unit	To be mounted on press unit; max. feed pitch 500 mm; max. strip width 160 mm; max. strip thickness 5 mm; hydraulic material clamping
Press	Two-point eccentric press; nominal force 800 kN (80 Mp); stroke 30 mm; shut height in BDC 325 mm; stroke position adjustment range 8 mm; bed length 1000 mm; table width 500 mm; opening for stamping; length 780 mm length × width 160 mm; prestress 4-pillar press housing; electronic press force monitoring; handling device for fast tool changeover

Slide units
Protective measures
Dimensions
Weight

Slide units	Normal slide units positively controlled via double plate cam; left-hand / right-hand version; max. nominal force 100 kN (10 Mp) with 25 mm stroke; max. nominal force 31 kN (3.1 Mp) with max. 100 mm stroke; narrow slide unit: positively controlled via double plate cam; max. nominal force 60 kN; max. stroke 80 mm; angle-lever unit, positively controlled via double flat cams; max. nominal force 160 kN and max. stroke 140 mm; all slide units feature the quick tool-clamping system.
Protective measures	Integral full enclosure for personnel protection and noise suppression in accordance with the EC machine guidelines 98/37 CE as standard; max. noise suppression 10 dB(A) depending on frequency range of machine, tools and the unrestricted environmental noise level
Dimensions	4,270 mm long, 1,600 mm wide, 2,600 mm high
Weight	approx. 12,000 kg (subject to equipment)



Otto Bihler Maschinenfabrik GmbH & Co. KG

Lechbrucker Str. 15

87642 Halblech

GERMANY

Tel.: +49(0)8368/18-0

Fax: +49(0)8368/18-105

info@bihler.de

www.bihler.de