

BZ 2

Processing Center



Highly-efficient flow production for your increase in value

Bihler offers manufacturers of precision components powerful manufacturing systems to safeguard their competitive advantage. The Bihler Processing Center BZ 2 is a universally applicable material transfer, manufacturing and assembly line, which excels through the highest production performance, flexibility, process reliability and excellent manufacturing quality.

Subject to customer requirements the modular, open machine concept enables differently dimensioned machine layouts to be realized. These can be adapted individually and be equipped with additional manufacturing processes. As a result, both stamped and formed parts as well as complete assemblies can be produced economically.

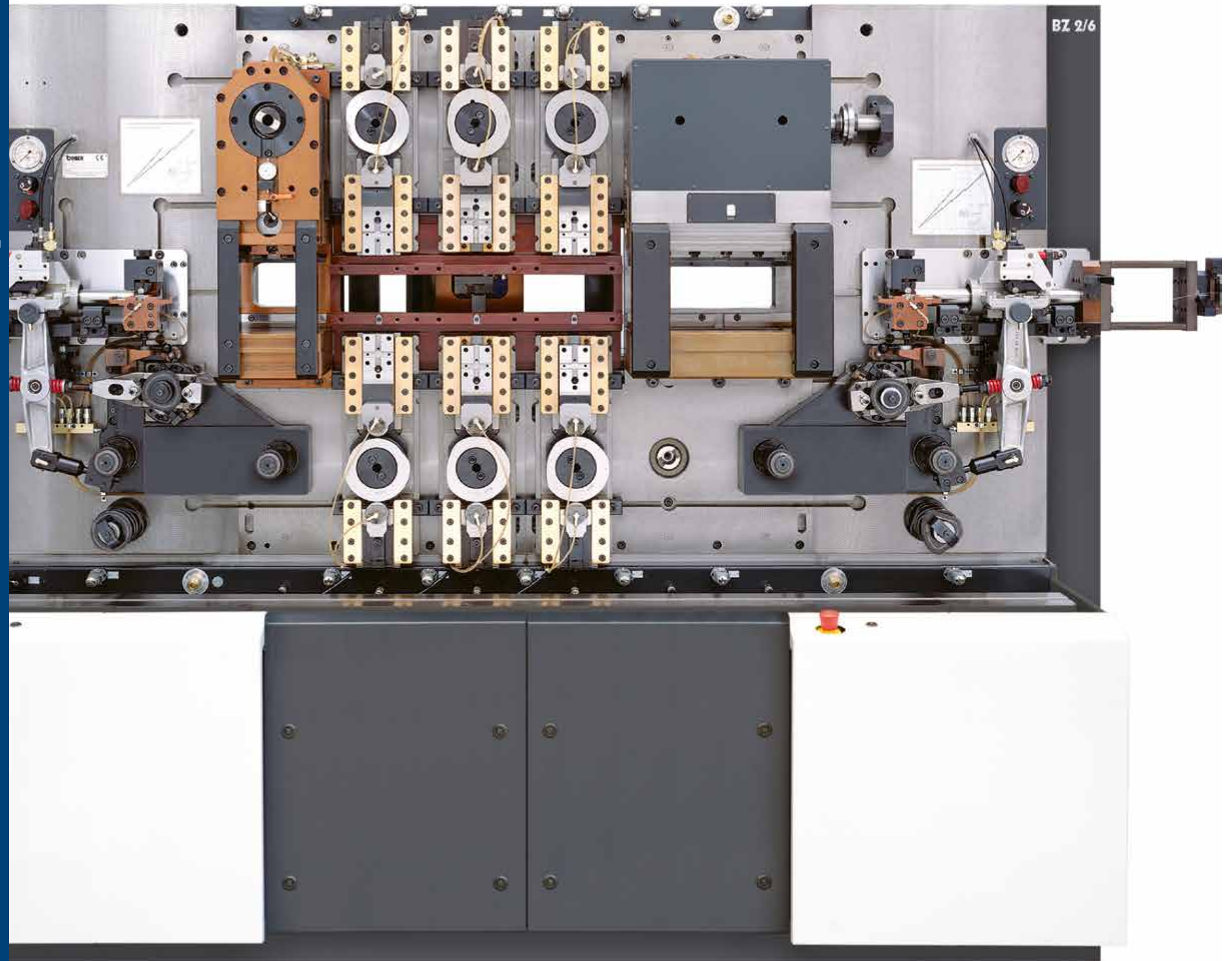
With a Bihler Processing Center your production leads automatically to success.

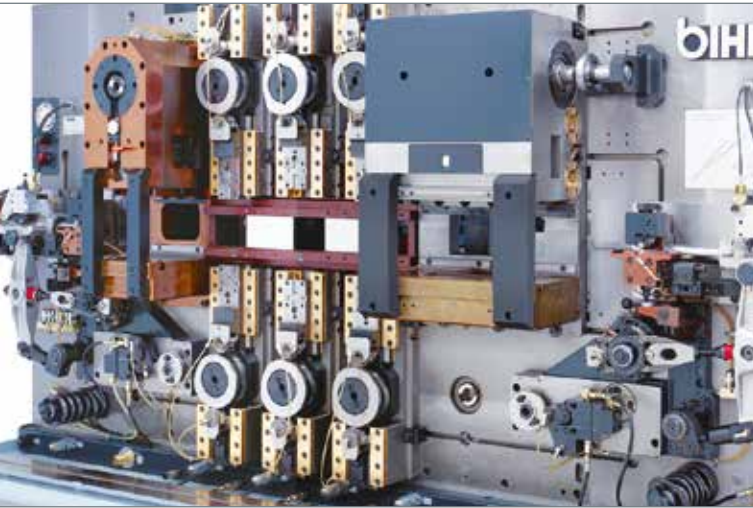
BZ 2

Processing Center

The highlights at a glance

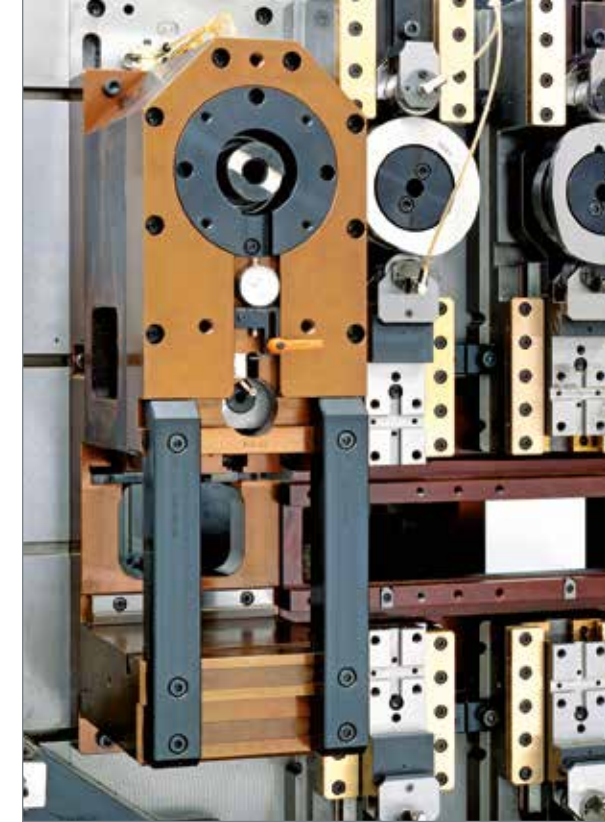
- Compact, universal material-transfer, manufacturing and assembly line for economical flow production
- Open machine concept guarantees easy access for rapid and easy tool changeover and tool maintenance
- Flexibly expandable through third, horizontally positioned level for integrating additional processing units
- Perfect adaptation for individual customer solutions following the module design principle
- Integration of all key technologies like thread forming, screw insertion, welding, etc
- BZ 2 is easy to insert and network into existing or planned production lines
- Highest process reliability due to Bihler control VariControl VC 1





Machine design

Two parallel processing planes are arranged vertically, one behind the other, on the basic body. Since both faces are absolutely identical, all units may be fitted at the front or rear face. Where necessary, these two planes may be supplemented by a third, horizontal plane in front or behind the vertical processing planes. As a result, the possibility exists to integrate additional units in the production concept and to produce increasingly complex components and assemblies.



Material feeds

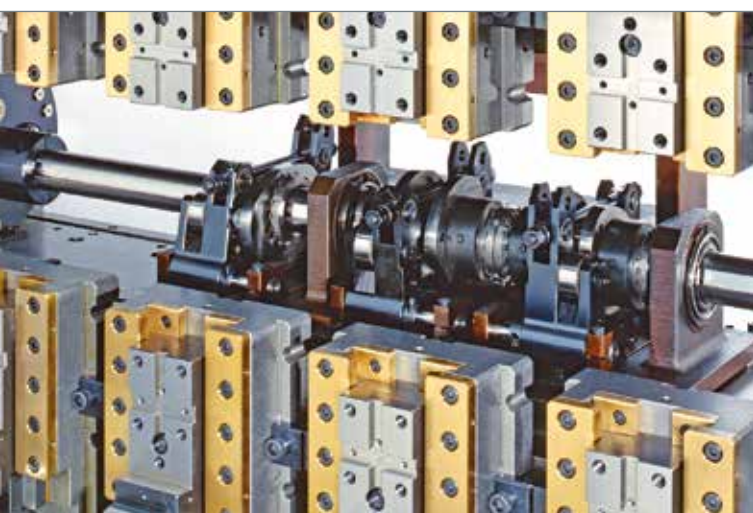
Various eccentric-controlled longitudinal and cross feed units with feed cycle reduction facility are available for all BZ 2 variants. This feature increases the control angle for extensive processing operations. All feed systems are height-adjustable and may be fitted on all sides.

In addition to the eccentric-controlled feed units, NC controlled linear gripper feed units are available for longer feed lengths as well as the innovative NC controlled gripper feed unit RZV 2 with feed lengths from zero to infinite. The setting dates are programmable using the machine control.

Presses

Two types of press can be integrated in the BZ 2 manufacturing concept – the 300 kN two-point eccentric press and the 100 kN eccentric press. When using one, two or three 300 kN two-point eccentric press units on one machine, the press force is limited depending on the position of the drive positions used. All presses are available with a wedge-shaped tie rod overlapping feature. As a result, freedom from backlash is guaranteed in the inter-

connection between upper part and table of the press. Important in the case of blanking tools with carbide punches and die plates. Material feeding from all four sides and the facility to mount the press on both faces are integral design features on the machine. The stable multi-purpose press table has a standard opening for punch waste. Use of standard die sets from the Bihler product range up to 480 mm in length.



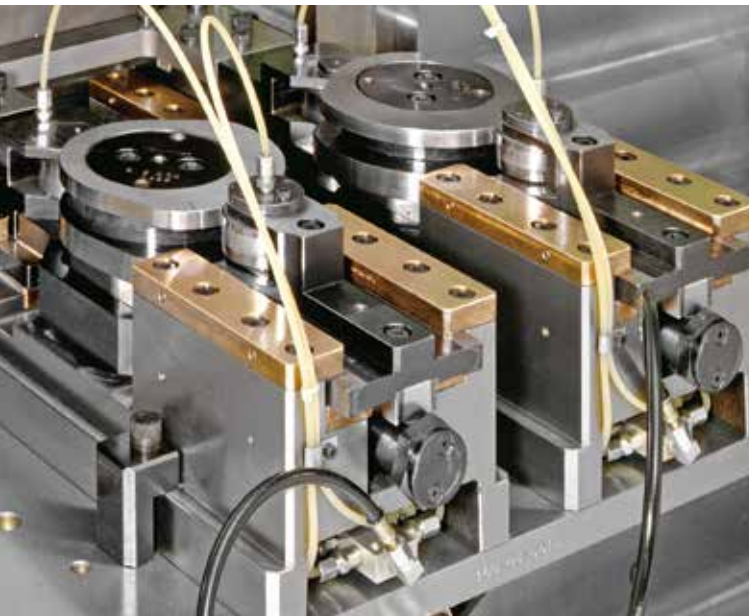
Central mandrels

The transverse opening symmetrical about the horizontal centre line of the machine is used for central movements, cross feeds or for transferring work pieces from A to B. Depending on the frame variant, an appropriate number of parallel drive positions are available above and below as well as at the rear to allow for linear arrangement of the processing modules.

Slide units

On the BZ 2 a large spectrum of different slide units can be integrated in the manufacturing concept. This range extends from normal slides, bottom slides via narrow slides to slide units with lever ratio. When used as a single unit, each version may be installed in any drive position of the machine.





The 3rd forming plane

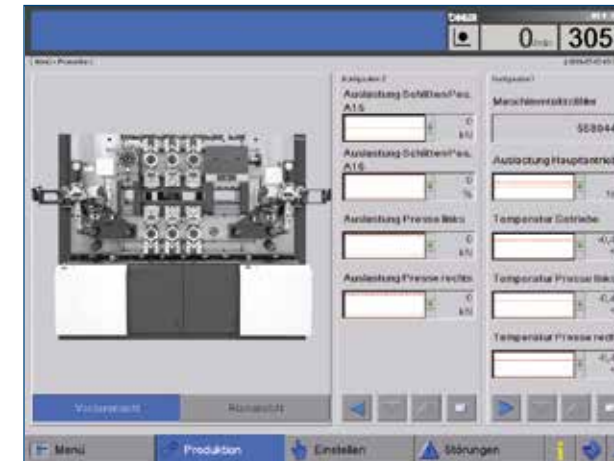
The third forming plane may be realised at the front face A and/or rear face B. The drive is effected by means of a steep-taper drive and flange-mounted bevel gearing at any lower drive position. The width of the drive block corresponds to the grid dimension of the machine. As a separate drive block is used for each central mandrel unit, the unit too may be inserted at any lower drive position of the machine. The slide units can, subject to requirements, also be used horizontally on this third forming level. The units are capable of swivelling in a horizontal level about the centre of its drive position. It is therefore also possible to work at an angle to the vertical work plate.

Safety equipment

The machine, when used as prescribed, complies with EC machine guideline 89/392 EEC and updates and bears the CE mark. Mandatory equipment includes an enclosure for noise suppression and personnel protection with electrically interlocked doors front and rear, emergency stop buttons at both sides of the machine and at the control cabinet, as well as an electrical safety system integrated into the machine design for monitoring all functions.

Machine and process control

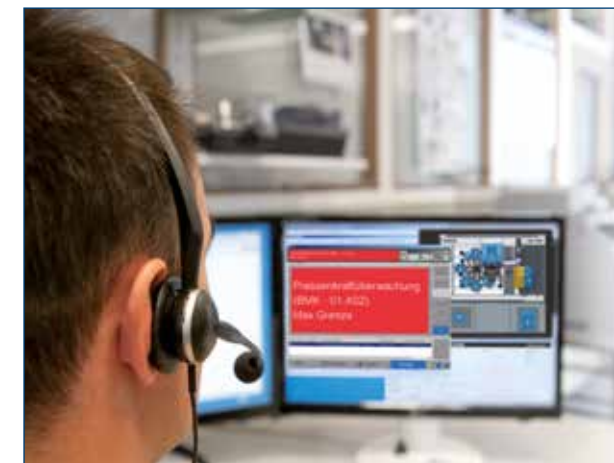
The BZ 2 is equipped with the Bihler process control VariControl VC 1. The control system ensures simple handling and monitoring of complex production and assembly processes via a 15" touch display and a multifunctional keyboard. Help functions as for example explanatory texts, 3D animations, photos and videos make the VC 1 exceptionally user-friendly.



Monitoring system of production and machine sensing data



Direct programming of NC process modules



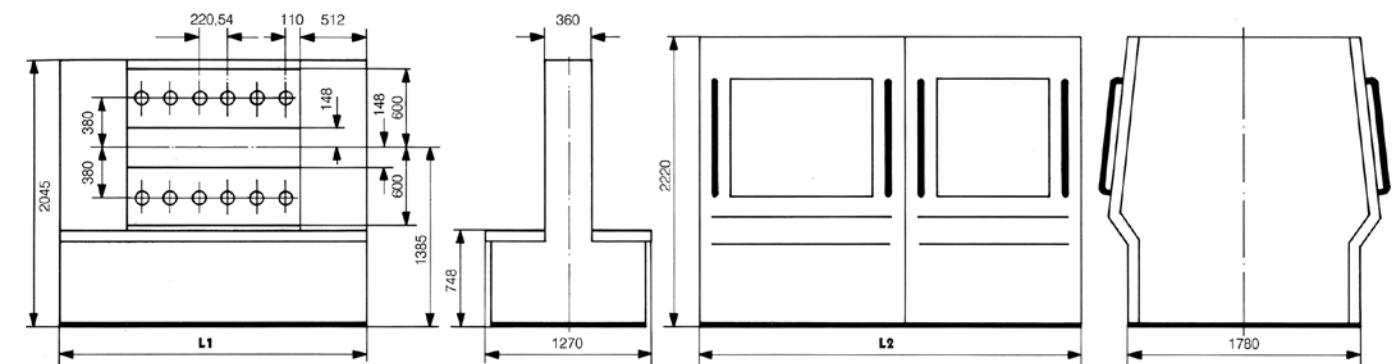
Remote diagnostic assistance

The highlights at a glance

- Simple, versatile machine setup without programming knowledge and without external programming device
- Direct programming of NC process modules via a simple input screen
- Multimedia diagnostic and online help system
- Customized production menus and user interfaces
- Integrated monitoring system of production and machine sensing data
- Remote diagnostic assistance via secure internet connection (VPN) and the Bihler remote maintenance portal
- Can be used for all Bihler machine types and non-Bihler manufacturing units
- Online selectable user language

Stoking rate	Automatic operation: infinitely variable from 5 to 400 s.p.m. Setting mode: infinitely from 5 to 40 s.p.m.
Drive	Main spindle drive; frequency converter for infinitely variable speed control; pneumatic clutch/brake combination. All drive positions of the machine with steep taper
Control	Highly flexible process control VariControl VC 1; operation via 15" touch-screen and multifunction keyboard; user interface layout partly definable by the user; depending on machine or tooling various requests can be made and control of pneumatic or hydraulic actuators is possible with relatively little programming effort; in addition the VC 1 can be used as multiaxis control with up to 48 NC axes; movements are defined via axis controller with integrated cam editor
Pneumatic system	Air preparation with 5µm prefiltering and 0.01 µm superfine filtering; tapping points for oil-free air; normal pressure 6 bar; pneumatic connections and control of clutch, lubricating pump and pneumatically operated hydraulic pump of the feed unit; pressure monitoring with machine shut-off; valve-controlled tapping points
Hydraulic system	Pneumatically operated hydraulic pump for material clamping by the feed gripper; control with electrical 4/2-way valve; pressure ratio 1:24; operating pressure approx. 6 bar
Central lubrication	Circulating forced-oil lubrication for the machine; pump unit with oil temperature control; 1,5 kW; delivery rate 16 litres/min.; single line central oil lubrication for the units; pneumatically operated; 4,5 litre capacity; 24 – 36 free connections depending on overall length; functions monitor; operating pressure 6 bar; oil disposal or oil recovery as option
Longitudinal feed units	Fittable to any side; height adjustment from +12 mm to –10 mm with eccentric control; with hydraulic material clamping. <ul style="list-style-type: none"> – Gripper feed; eccentric-controlled with feed cycle reduction via orbiform cam; max. feed length 120 mm; max. strip width 80 mm – Gripper feed; eccentric-controlled with feed cycle reduction via orbiform cam; max. feed length 240 mm; max. strip width 80 mm – NC gripper feed; driven by servomotor and recirculating ball screw; max. feed length 750 mm; max. strip width 60 mm – NC radial gripper feed unit RZV 2; feed pitch from 0 to infinite; max. strip width 300 mm
Cross feed units	Driven directly from one among the lower drive positions; height adjustment 12 mm upwards, 10 mm downwards; mounting on the left/right Gripper feed; eccentric-controlled with feed cycle reduction via orbiform cam; max. feed length 120 mm; max. strip width 80 mm
Press units	<ul style="list-style-type: none"> – Two point eccentric press 300 kN nominal capacity; stroke 12 mm; table length 480 mm; 14 mm stroke optional; – Eccentric press 100 kN nominal capacity; stroke 12 mm; table length 220 mm; press force monitor optional Combination of more than 2 presses per machine on request

Slide units	Standard slides with positive direct control by double flat cams. Version C: nominal capacity 50 kN; max. stroke 30 mm; Underslide version: nominal capacity 30 kN; max. stroke 25 mm; for fitting under 300 kN two-point eccentric press. Narrow slide: nominal capacity 40 kN; max stroke 50 mm; narrow slide positively controlled: nominal capacity 40 kN; max. stroke 40 mm; slide units with operating characteristic similar to RM 40 normal slide unit; normal; positively controlled; with second thrust lever; with second thrust lever and positive pull; with second cam carrier, etc.		
Bellcrank lever unit	Nominal capacity 2 to 8 kN; stroke 25 mm to max. 45 mm		
3rd bending plane	Driven by bevel gearing from any of the lower array of drive positions; separate drive for each central mandrel = slide unit		
Transverse movement	By means of central shaft; positive push or pull; max. nominal capacity 10 kN; max. stroke 50 mm; by means of bellcrank lever unit; positive operation; nominal capacity 2 to 8 kN; max. stroke 50 mm		
Straightening units	With rapid release of straightening rollers; various versions available for all permissible strip widths and wire diameters		
Protective enclosure	Full enclosure for personnel protection and noise suppression in accordance with EC machine guidelines 89/392 EEC. Sound absorption max. 20 db (A)		
Dimensions	L1 (mm)	L2 (mm)	Weights approx. (kg) with processing units BZ 2/5 – BZ 2/12: 5,000 kg – 12,000 kg
	BZ 2/5	2127	2700
	BZ 2/6	2347	2920
	BZ 2/7	2567	3140
	BZ 2/8	2787	3360
	BZ 2/12	3670	4243
	Extension possible		



Otto Bihler Maschinenfabrik GmbH & Co. KG

Lechbrucker Str. 15

D-87642 Halblech

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

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

verkauf@bihler.de

www.bihler.de