VC 1
VariControl

The revolution in control technology

With the VariControl VC 1 machine and process control system, Bihler emphasizes the keywords „Ease of Use" and „Process Safety" at a new, higher level. With state of the art software and hardware features, the intelligent control system guarantees greater efficiency in your production.

The highly flexible control platform allows you to easily control even the most complex automation solutions in the field of stamping and forming assembly technology – on all Bihler machine types. The „bASSIST" diagnostic and online help system assists your machine operator just like a second operator at his or her side. The continuous monitoring of all machine and tool functions guarantees maximum machine availability.

bIHLER

Simple, fast machine setup without programming experience

– Short setup times

– Minimized risk of error

– Increased machine performance

– Increased machine availability

– Reduced manufacturing costs

– Reduced tool spare parts costs

## Setup without an external programming device

– Significant cost savings

Direct programming of NC process modules via simple input screens in the controller

– Additional processes thanks to the user-friendly integration of NC modules such as slide units, feed units, presses, strip transport, tapping and screw insertion units and control mechanisms

– The VC 1's scope of application can be extended to include any required task

– Flexible enough to work with all Bihler machine's and NC-based special solutions

Freely configurable production menus and user interfaces

– Can be individually adapted for any application by the customer
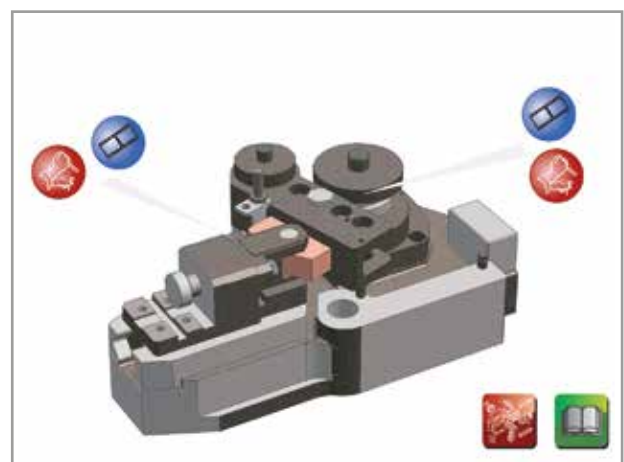
Multimedia diagnostic and online help system

– Easy to operate even for less highly qualified employees

– Clear, unambiguous instructions

– Simple integration of operating instructions, help texts, graphics, films and individual hot spots for the rapid combining of functions

Integrated recording of measured values and production data

– Efficient process monitoring

– High level of transparency during production

– Easy to integrate in all internal customer networks

– Worldwide access capability

– Automatic documentation of processes/manufactured parts

– Extremely simple networking of machines for stream-lined production planning

– Minimum downtime

Simple integration of subsequent processes

– Production systems become scalable

– The machine grows in step with the requirements (quality, throughput, level of automation)

– Low initial investment

– Reusable for new products

Remote maintenance capacity via secure Internet connection (VPN) and Bihler remote maintenance portal

– Improved support and enhanced security

– Fewer service interventions

– Very short reaction times

– Cost savings
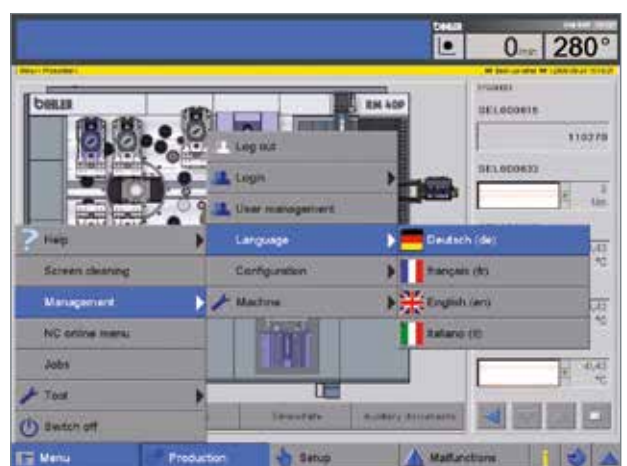
Online change of operating language

– Possible to change language during system operation

– No downtime

■ The entire controller (power supply unit, electronic control and monitoring system, operating panel) is housed in a free-standing, air-conditioned operating cabinet (width 700 mm, depth 700 mm, height 2100 mm) (Exception: with the RM series, RM-NC, GRM-NC and BNC 2 the controller is integrated in machine housing). It is connected to the machine by means of a mobile system of cable channels. Depending on the number of axes and the sizes used, the additional controls may be located in other modular cabinets or on the machine.

■ Power connection of 400V/50 Hz, 3 phases, N, PE

■ The control computer is an industry-standard PC with the VX-Works operating system and Ethernet-based buses (Powerlink) for the interfacing of the axis controllers. For programming and operation via industry-standard PC with Windows operating system.

■ All the axes are programmed as cams and can be flexibly connected to different master axes. All the functions, number of axes and axis movements can be configured at the controller without the need for any programming effort.

Standard functions

Machine controller for the control and monitoring of all required machine functions (main drive, clutch/brake combination, emergency shutdown, protective doors, lubrication, etc.)
– Machine operation via a large, color 15" TFT touch display and membrane control panel
– Additional multifunction keyboard for the user-friendly entry of longer texts

Tool controller: Freely programmable digital and analog I/O bus modules for tool protection (monitoring of slide units, strip material, positioning and ejection supervision etc.), tool control and control of pneumatic and hydraulic actuators (gripper feed, retainers, pneumatic cylinders etc.). Integrated rejection functions together with any required number of parts and maintenance counters.

Axis controller: Simple configuration of standard functions such as NC feeds, NC presses, NC slides, thread forming or screw insertion units, Pick & Place units. However, complex sequences can also be defined thanks to an easy-to-use cam editor. The cam editor can be used to combine different movement functions.
The following movement functions are currently available: Straight, quadratic parabola, cubic parabola, 5th order polynomial, 3rd order splines, sinusoidal (Bestehorn), speed trapezoid.

Measurement system for the monitoring of analog measured values such as press forces, lengths, temperatures or machine loads, offering freely definable measurement points as well as alarm and cut-out thresholds. Display of the last 500 measured values with indicator of the trend observed at each measurement channel.

Capture of production data: Job-specific recording of manufacturing data with date and time. All malfunctions, changes of operating mode, job changes and tool changes are recorded. It is also possible to log counter values for each event. This production data can be exported in CSV format. This makes it easy to analyze the data in external programs. The VC 1 controller also offers easy-to-use, menu-driven job management.

Logic functions: Operators can choose from a wide range of logic and combination functions when implementing complex tool interactions, for example functions can be hidden when non-compliant parts are fed to the machine. This makes it possible to combine all the I/O modules or axes using logic functions (AND, OR, XOR etc.), flags, flip-flops or shift registers. Programming is menu-driven and can be performed without programming knowledge.

Diagnostic and help system: Clearly structured malfunction and report list for the display of malfunctions and warnings. Display of the details of malfunctions and associated assistance in the form of PDF files, images or videos (can also be entered or extended by users themselves).

Customized interface and message configuration: Production images can be configured freely and independently of the employed tool. At the same time, operators can store hotspots for rapid function combinations and arrange important production data on the start page clearly and in line with their particular needs. Specific, in-house procedural instructions can be added to malfunction messages. At present, it is possible to incorporate PDF files, JPG images and WMV videos.

READY FOR
THE SMART FACTORY

- Secure communication and networking with external systems

- Minimizing downtime through constant online diagnostics of the machine and all processes

- Production optimization thanks to comprehensive transparency (MES)

- „Self-correcting stamping and forming tool" as a successful example

- Simple networking of machinery and process modules from other manufacturers with Bihler systems

- Comprehensive support for operators with setup and tool change videos, the bASSIST online help system as well as remote maintenance

- Efficient spare parts management with cross-linked ordering system

- Intelligence can be retrofitted to older Bihler machines