

NEW

engineering



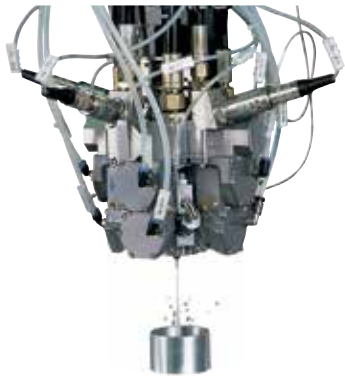
Dispensing cell SMART-L

2-/Multi-Component dosing and mixing system

Dispensing cell

SMART - L

2-/Multi-Component dosing and mixing system



MK 600 precision mixing head with
high-pressure water rinsing system

Mixtures that suit your requirements. Modular and compact, with a very small footprint.

The SMART - L is a 2-/Multi-Component dispensing cell for semi- or fully-automatic use for gasketing, gluing and potting the widest range of parts. The system enables high-precision processing of liquid, medium and high viscosity polymers, such as polyurethane, silicone, epoxy resin or other polymer reactive substances.

Quality at highest level

The SMART - L dispensing cell always processes the used materials on a constantly high quality level with regard to reproducible material consistency and dimensional accuracy. The use of cutting-edge sensors and actuators provides further reassurance of reliable system quality and process regulation. Since all setup, system, material and process data are automatically logged, the production workflow can be tracked at all times. The „Sonderhoff SAFETY“ package has been developed as a key measure for safeguarding consistently high levels of machine availability. It is primarily based on an underlying concept of preventive and scheduled maintenance.



The standard dispensing cell is equipped with
a lift door.



The 24l and 44l pressure tanks are standard
mounted on a separate platform.

Modular and flexible today and tomorrow

Whoever buys a Sonderhoff system today is assuring their ability to master the tasks of the future when processing various components involving new geometries and materials under conditions that may well change. YOUR investment is secured by the modular design of the SMART - L, the use of innovative technology and process-reliable workflows. The dispensing cell can be optionally fitted with an MK 400 / MK 425 / MK 600 / MK 625 or MK 650 precision mixing head from Sonderhoff. Thanks to its modular and compact design, the SMART - L dispensing cell can be integrated into various manufacturing concepts.

Processing with maximum comfort

Teach-in Box and „Sonderhoff-CONTROL II“ user interface

In designing its SMART - L dispensing cell, Sonderhoff consciously strived to ensure that users can perform the widest range of operations easily and reliably. The „Sonderhoff-CONTROL II“ user interface with touch screen operation is a big step forward to this direction and has proven to be particularly useful. All of the system and process parameters can be pre-set and regulated to reliably assure fully-automated production by the system. Using the „Teach-in“ learning procedure offered by the multi-functional Teach-in Box simplifies the contour programming of the processed parts considerably.

Clean and accurate dispensing

High-pressure water rinsing technology and „Stop-Drop DVS-3“ nozzle shutoff system.

Using Sonderhoff's patent-protected high-pressure water rinsing technology to clean the mixing chamber offers a series of additional benefits, including quality improvements and efficiency. Precise material output for part dispensing is assured by the pressure-regulated recirculating valve technology. The „Stop-Drop DVS-3“ nozzle shutoff system guarantees adherence to the precisely defined output rate and dimensional accuracy, especially in the coupling areas.

Improved user friendliness

Accessible from all sides

The clear layout and compact design of the SMART - L dispensing cell with its large rectangular apertures on the front and side doors improves access to the cell's mixing and dosing permitting fast and easy servicing and maintenance. The service door is available either with swing opening to full height at an angle of 180° or as a lift version. The tanks for water rinsing are mounted beneath the mixing and dispensing level on bearing slides for convenient removal and drainage.

The cell roof is also removable, thus further simplifying access to the dispensing cell. The height of the cell, without the roof and depending on the adjustable height of the feet, is 2.20 m, which is important for overseas shipment, where the ISO Standard stipulates containers with an opening height of 2.28 m. The hose layout for feeding the individual material components from dispensing pump to mixing head has been improved. A specially separated supply level at the base of the cell assures safe routing of the electrical and pneumatic lines. The lockable machine cabinet containing the dispensing periphery is located right on the rear wall of the cell. The pressure tanks for the material components are mounted on a separate base. The switch cabinet housing the control technology is separate from the SMART- L dispensing cell.



„Sonderhoff-CONTROL II“ user interface



Multi-functional Teach-in Box



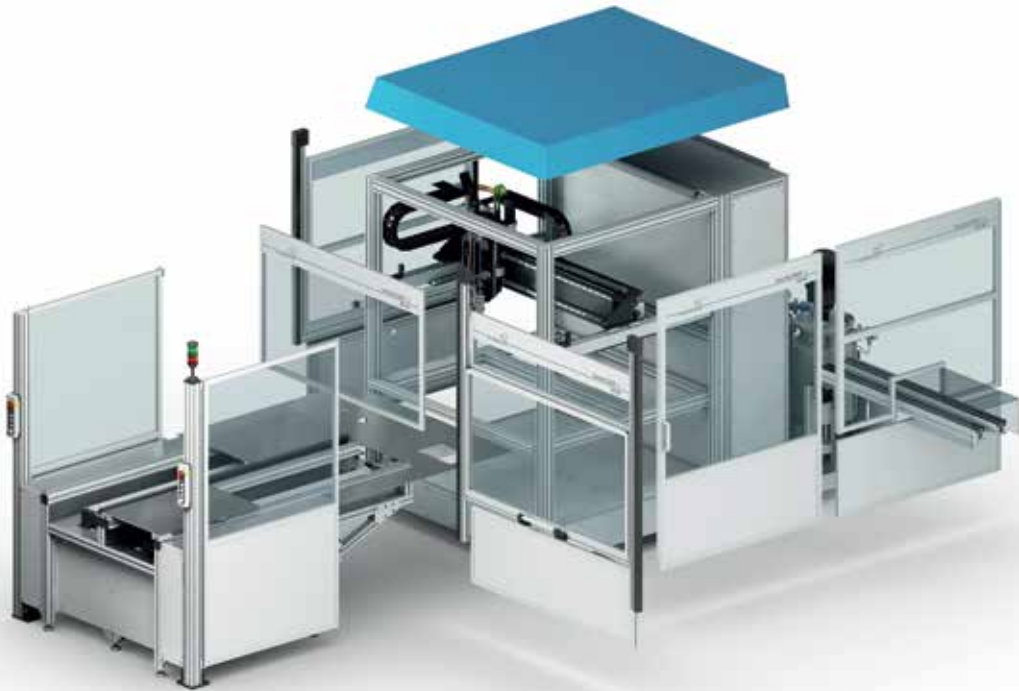
Bearing slides on the side for easy removal of the rinsing water tanks



The machine cabinet is integrated in the cell body and contains the dispensing periphery.

Modular and flexible adjustable to different manufacturing concepts

The design of the compact SMART - L dispensing cell is modular, featuring standardised individual components. The mixing and dosing area and the linear robot share a base frame in the dispensing cell. Little planning effort is required to later modifications of the dispensing cell due to changed manufacturing concepts. Different modules, such as optical part recognition, are available for application scenarios and part quantities that change frequently. Various part applications can be freely programmed with the SMART - L dispensing cell.



Process-optimised part feeding

Manual – semi-automatic – fully automatic

The standard version of the SMART - L dispensing cell is fitted with a lift door at the front. The parts awaiting gasketing, gluing or potting are manually loaded onto the dispensing cell work area.

Alternatively, part feeding to the dispensing cell can be controlled semi- or fully automatically. Part feed to the dispensing cell is a user-friendly process that either involves a single-level shuttle table, or the parts are transferred on a conveyor belt running through the cell.



Optional: Part fixture with a single-level shuttle table fitted to the dispensing cell



Optional: Part feeding on a transfer belt running through the cell

Fit for the future

The control of the SMART - L dispensing cell is based on the very latest industrial PC technology using a realtime operating and bus system. The industrial PC is equipped with a 2GB CFast memory card and 5 USB and 2 Ethernet interfaces. It has an Intel Celeron CPU with 1024 MB RAM and a 1.4GHz processor. Mechanical wearing parts, such as hard drives, are not needed. The industrial PC has cooling fins rather than a fan.

All of the system and program data are stored on Compact Flash memory cards. External devices can be easily connected and linked via plug & play, without having to first set the parameters. Using onboard and remote diagnostics via modem or TCP/IP our service team performs for you worldwide.

Servo motors and servo controllers for higher resolution and path accuracy

The EnDat encoders on the new range of servo motors are now digital rather than analogue, and with better resolution. This enables outstanding path accuracy of the servo axes when moving the mixing head. The use of an electronic typeplate in the servo motor offers the advantage of being able to automatically set the servo controller parameters to the parameters presently set on the connected motor.

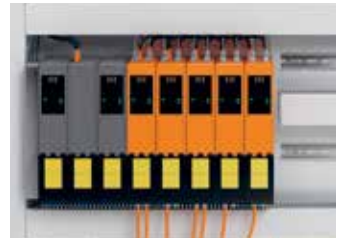
The incorporation of an absolute encoder eliminates the need to reference the servo axes of the linear robot on the SMART - L dispensing cell. Once the controller has booted up, the axes are immediately ready for use.

The servo technology in the SMART - L dispensing cell has been improved. Individual dual or single servo controllers are simply clicked onto a mounting system – which enables very easy replacement of the servo controllers during servicing. A central module supplies power to several servo controllers and is also used for communicating with the control unit. As a result, less wiring is required, leaving more room for possible upgrades in the switch cabinet.

New safety features Programmable, easy, fast

The new SMART - L dispensing cell also places work safety right at the top of its list of priorities. The use of cutting edge, integrated safety logic allows the implementation of safety features such as protecting door switches or optional light grids or pressure mats, but also more complex safety functions, such as SLS (Safely Limited Speed), for example. Added to which, the new safety technology takes up less space in the switch cabinet of the SMART - L dispensing cell.

Up until now, electromechanical safety switchgear was used for the conventional safety circuits in the electrical system. Because of the fixed wiring, this solution offered little flexibility. The new, programmable safety logic enables much easier and faster implementation of adjustments to the safety functions. The safety functions of the linear robot's servo axes and the optional single-level shuttle table are fully integrated into the programmable safety logic and can therefore also respond very quickly to any safety incidents.



New servo technology in the SMART - L dispensing cell with integrated safety logic and central power supply



Industrial PC from B&R without mechanical wearing parts



Central safety technology



Switch cabinet with optional air conditioning on the roof if the ambient temperature rises above 25° C.

Dispensing cell SMART – L

Technical Data

CONTROL CONCEPT

- Self-explaining operator guide with interactive menu-based programming using soft keys, function keys and touchbuttons; multifunctional mobile panel with integrated 6.5" touchscreen; optionally available: stand-alone operator panel with display elements and operating keys, visualization on a 15" touchscreen
- Modular "IPC" control fitted in the electrical switch cabinet and Power-Link
- EMERGENCY STOP deactivation with proved and tested "Sonderhoff-SAFETY" concept, real-time bus system
- Pluggable switch cabinet
- Preselection of set-up / standby / manual / automatic modes, data safety with USB memory stick, serial interface or LAN
- Recipe management, operator password protection with four selectable levels
- Programmable potlife monitoring, shot size selection, automatic rinsing and material conditioning (air nucleation, mixing stirrer, etc.)
- Automatic and spontaneously available material feed adjustment by pressure control
- Timer with automatic switch-on function
- Monitoring of the component pressure using the digital display
- Open periphery interface
- Central control of additional periphery/automation possible
- Data for operating system and system programs stored on Compact Flash

DRIVE TECHNOLOGY

Speed-controlled servo gear motor with speed indicator and adjustment on the display

Drive performance:	Pumps	Mixing head MK 400/425	Mixing head MK 600/625	Mixing head MK 650
kW	1,01	1,01	1,01	0,33
rpm	1 - 250	1 - 6.000	1 - 6.000	1 - 6.000

TECHNICAL DATA LINEAR ROBOT

Max. sliding speed:	20 m/min
Max. acceleration:	5 m/s ²
Repeat accuracy:	+/- 0,1 mm
Traversing range:	1000 x 800 x 250 mm (x/y/z)

PRECISION GEAR PUMPS (OPTIONAL)

Size: 0.05 / 0.10 / 0.20 / 0.3 / 0.6 / 1.2 / 3.0 / 6.0 / 12.0 / 20.0 ccm/R
Special pumps on inquiry

PNEUMATIC SYSTEM

Pneumatic system with filter-pressure reducer, maintenance unit including pressure monitoring and valve connection plate to control the pneumatic loads

CONNECTION RATINGS

Electricity:	according to EN 60 204-1
Electrical power supply:	3 x 400 V, 50 Hz or 60 Hz, or according to country-specific requirements
Rated power:	approx. 10 kVA
Average consumption:	approx. 4 kVA
Compressed air value:	approx. 150 l/min at 6 - 7 bar
Water connection value:	approx. 13 l/min at min. 4 bar

DIMENSIONS

Width:	1,700 mm (without operator panel)
Height:	2,400 mm
Depth :	1,985 mm (without pressure tank platform)
Operating height:	950 mm

GENERAL

Chassis:	closed-cell construction with Makrolon windows
Platform cover:	galvanized grid, separately standing
Mixing ratio:	from 100 : 1 to 1 : 100, infinitely variable
Output quantity:	from approx. 0.2 to approx. 3.0 g/s (MK 425 / MK 625), from approx. 3.0 to approx. 100.0 g/s (MK 400 / MK 600), from approx. 0.05 to approx. 0.2 g/s (MK 650)
Viscosity processing range:	1 - 2,000.000 mPas, other viscosities on request

Dispensing cell SMART – L

Options

CONTROL

- Display languages are available in German, English, French, Spanish, Italian and Chinese
- Other country-specific languages on request
- Strand identification
- Switch-cabinet lighting
- Operating hours counter
- Remote maintenance via modem or TCP/IP
- Adaptable to different power-supply ratings, special 60Hz version
- Air-conditioning for switch cabinet

QUALITY ASSURANCE

- Set-up and alarm logging, process data logging
- Additional quality assurance devices are adaptable according to customer requirements

MATERIAL PREPARATION

- Pressure tank with capacitive minimum filling-level sensors and shut-off valve, with compressed-air fittings and compressed-air reducer valves for controlling the tank pressure
- Safety pressure valve, TÜV type-approved
- Pressure tank 24 l and 44 l, single-walled and double-walled, galvanised steel and chrome nickel steel
- Wire mesh filter cartridges and plate disc filter
- Rotary current mixer: 22 rpm
- Rotary current mixer: 99 rpm
- Electric heating for single-walled pressure tanks
- Temperature control for double-walled pressure tanks
- Automatic air nucleation system
- Manual vacuum degassing
- Prepared to control an automatic refilling device
- Material supply for 20 to 1.000 l containers

HOSE PACKAGE

- Recirculation hose package
- Electric heating hoses with steel-reinforced teflon high-pressure hose core

MIXING HEAD TYPES

- MK 400 with recirculation or stub cable and high-pressure water rinsing
- MK 425 with recirculation or stub cable and high-pressure water rinsing
- MK 600 with recirculation and high-pressure water rinsing
- MK 625 with recirculation and high-pressure water rinsing
- MK 650 with recirculation and high-pressure water rinsing

GENERAL

- Material supply monitoring for component pumps
- MDK 6 compressed air dryer
- Workpiece automation optional with a single-level shuttle table fitted to the cell
- Workpiece automation optional with conveyor belt running through the cell
- Rinsing and filling shot container
- Cell roof out of powder coated steel
- Spare-parts packages
- Transport, set-up and instruction

We supply worldwide to more than 50 countries and our customers produce annually more than 300.000.000 seals with our products.



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