



## DM 402/403

2- / multi- component dosing and mixing system

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and mixing system



## The individual mixture. Tailor-made with modular design for your seals.

The DM 402/403 is a 2- or multi- component high-performance semi- or fully-automatic mixing and dosing system for gasketing, glueing and potting of different types of components. The DM 402/403 precisely processes liquid, medium to high viscose media such as polyurethane, silicones, epoxy resins and other polymer reaction substances.

### Processing with maximum comfort

The new design of the Sonderhoff DM 402/403 will allow easy and safe operations, even at various and different jobs. The user interface "Sonderhoff-CONTROL II", operated by a touch screen surface, is a big step forward to this direction. The fact that all system and process parameters can be preset and controlled so that the system is able to handle full automatic production sequences. The use of the new multifunctional Teach-in-Box simplifies the contour programming for the processed parts. The modular hybrid construction facilitates the access to the machine and thus the cleaning and maintenance work.

### Quality at highest level

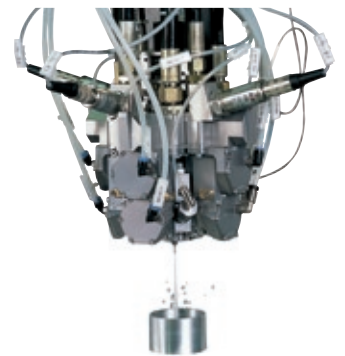
The Sonderhoff DM 402/403 processes the used materials on a constantly high quality level with regards to size and consistency of the product resulting. The state of the art sensors and actuators ensure the effective control of any system and process. The automatic logging of all set-up, material and process data enables to track any preceding production sequence. The "Sonderhoff-SAFETY" package – based on the principle of preventive maintenance – will help to gain continuously high machine availability.

### Flexible today and tomorrow

Sonderhoff system owners are already prepared for tomorrow's tasks as Sonderhoff systems are able to handle different parts with new geometries and material even under changing circumstances. The 3 component version DM 403 makes it possible to process different materials simultaneously. This future-oriented technology is adaptable to all Sonderhoff precision mixing heads. Whatever the use is – either as a module in a fully automated production line or as a stand-alone system – the DM 402/403 can be integrated into any production concept.

### High-tech – always taking the lead

High-pressure water rinsing system (part of the MK 400/MK 600 mixing head): The use of this cleaning-technology for mixing chambers patented by Sonderhoff results in a series of additional benefits, mainly with regard to quality and efficiency. The patented nucleation air measuring device "LBM-2" is responsible for keeping the material component's quality constant. The adjustable mass metering system, "FLOW CONTROL", in combination with the pressure-controlled recirculation-valve technology, will effect a precise material output. The "Stop-Drop-DVS-3" mixing chamber shut off device allows an even material flow from the beginning to the end and an accurate dimension of the gaskets, particularly in the coupling areas. The control system of the new DM 403 uses a future-oriented industry PC technology with a real-time operating and bus system. Due to this system, no mechanical parts like hard discs or fans are required anymore. All system and program data are stored on "compact flash" cards. The networking and connection of external equipment can be carried out without previous parameterisation (plug & play). Onboard and remote diagnosis by modem or TCP/IP makes our service available all over the world. Modular design, innovative technology and process-reliable sequences will promote the efficiency of your investment.



MK 600 with high-pressure water rinsing system



User interface „Sonderhoff-CONTROL II“



Multifunctional Teach-in-Box

# DM 402/403

## Technical data

### CONTROL CONCEPT

- Self-explaining operator guide with interactive menu-based programming using soft keys, function keys and touchbuttons; 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 / manual / standby / automatic modes
- Recipe management
- Operator password protection with four selectable levels
- Data backup via USB stick, serial interface or LAN
- Programmable potlife monitoring, shot size selection, automatic rinsing and material conditioning
- 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
- Deactivation through safety door with interlocking (optional when order contains a safety fence)
- 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 display and adjustment through the display
- Drive performance: Pumps: 0.94 kW Mixing head: 1.13 kW
- Drive revolutions: Pumps: 1 – 250 rpm Mixing head: 1 – 6.000 rpm

### PRECISION GEAR PUMPS (OPTIONAL)

- Size: 0,1 / 0,12 / 0,25 / 0,3 / 0,52 / 0,6 / 1,0 / 1,2 / 2,0 / 3,0 / 4,0 / 6,0 / 8,0 / 12,0 / 16,0 / 20,0 ccm/R
- Special pumps are available on request

### HOSE PACKAGE

- Length according to customer requirements with all electrical and pneumatic connections enfolded
- A-Components: textile-reinforced polyamide high-pressure hose
- B-Components: steel-reinforced teflon high-pressure hose

### PNEUMATIC SYSTEM

- Pneumatic system with filter-pressure reducer, micron oiling system, maintenance unit (FRL) 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 specification
- Rated power: approx. 10 kVA
- Compressed air: approx. 4 kVA
- Connection value: 150 l/min at 6 – 7 bar
- Water connection value: approx. 13 l/min at min. 4 bar (option: MK 600 with high pressure water cleaning)

### DIMENSIONS

- Container platform: W/H/D 600 x 160 x 860 mm
- Pump chassis: W/H/D 1.500 x 1.450 x 500 mm
- Switch cabinet: W/H/D 1.200 x 2.700 x 500 mm
- Total weight: approx. 600 kg

### GENERAL

- Chassis: modular hybrid construction, painted RAL 7035 (light grey)
  - Platform cover: grid cover with adjustable levelling feet and drip pan
  - Mixing ratio: from 100 : 1 to 1 : 100, infinitely variable
  - Output quantity: from 0.05 to 100.0 g/s (\*)
  - Viscosity processing range: from 1 to 2.000.000 mPas (\*)
- (\*) other output quantities / viscosities are available on request

# DM 402/403

## 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 (60 Hz version)
- Air-conditioning for electrical enclosure

### QUALITY ASSURANCE

- “FLOW CONTROL” throughput governor based on the Coriolis principle
- “LBM-2” nucleation air measuring device
- Set-up and alarm logging, Process data logging
- Additional quality assurance devices are adaptable according to customer requirements

### MATERIAL PREPARATION

- Pressure container with capacitive minimum filling-level sensors and shut-off valve, with compressed-air fittings and compressed-air reducer valves for controlling the container pressure
- Safety pressure valve, TÜV type-approved
- 24 l pressure container, single-walled, chrome nickel steel
- 24 l pressure container, single-walled, galvanized
- 44 l pressure container, single-walled, chrome nickel steel
- 44 l pressure container, double-walled, chrome nickel steel
- 90 l pressure container, double-walled, 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 containers
- Temperature control for double-walled containers
- 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
- Double-walled medium heating hose with teflon high-pressure hose core

### MIXING HEAD TYPES

- MK 20 with feed lines and static mixing
- MK 400 with feed lines, high-pressure water rinsing or component rinsing
- MK 400 with recirculation and high-pressure water rinsing
- MK 600 with recirculation and high-pressure water rinsing

### GENERAL

- Material supply monitoring for component pumps
- MDK 6 compressed air dryer
- Rinsing and filling shot container
- Spare-parts packages
- Protective fence after clarification of agreed scope of delivery and statutory provisions
- Transport, set-up and instruction



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