WALTHER
SYSTEMTECHNIK



Conveying. Dosing. Applying.

Dispensing and application technology for liquid and paste-like media

WALTHER Systemtechnik GmbH

WALTHER SYSTEMTECHNIK

Controlled supply, transfer and application of liquid and paste-like media

WALTHER Systemtechnik develops and offers dispensing and application technology for the industrial processing of liquid and paste-like media. The focus is on processes in which technical media are applied to components in defined quantities and at precise locations.

Different media. Different requirements.

Adhesives · Sealants · Lubricants · Primers · and many other technical media

The medium determines the technical operating conditions. Highly viscous greases and pastes require different flow and pressure conditions than low-viscosity oils. For adhesives and sealants, curing mechanisms and temperature dependence also affect processing. These factors result in different requirements for dosing principles and application technology.





Precise application of a defined small quantity

Experience meets application expertise

WALTHER Systemtechnik has been delivering technical solutions for industrial applications since 1974. From its roots in machine and fixture engineering, dispensing and application technology has developed into the company's core area of expertise over several decades.

The company is based in Germersheim in the Southern Palatinate region of Germany. At its in-house technical lab, fluid supply, dosing and application processes are tested and evaluated using original media and components under conditions representative of industrial applications. An international sales and service network provides support to customers worldwide.

1974

SINCE 1974
Delivering technical solutions for industry

TECHNICAL LAB
Trials using actual media and workpieces

DEVELOPMENT
In-house development of components and systems

BRD

MADE IN GERMANY
Engineering and assembly in Germersheim

NETWORK
International sales and service network

SERVICE
Commissioning, maintenance and repairs

PORTFOLIO OVERVIEW

From individual components to customised dispensing solutions

WALTHER Systemtechnik offers components and systems across the entire fluid application process chain. Depending on requirements, the range extends from individual components through complete fluid application systems to customised dispensing stations and automated production systems.



Components

Covering individual functions within the process chain

Standardised and configurable assemblies for fluid supply, conditioning, dosing and application, as well as measurement and control functions.



from Page 6

Fluid Application Systems

Designing integrated dispensing systems

Individual components combined to form a complete dispensing system – designed to suit the medium, task and process conditions.



from Page 30

Custom Machinery & Automation

Integrating dispensing technology into production

Customised machinery and automation solutions combining dispensing and application technology with workpiece handling, motion systems and machine controls.



from Page 34

Technical support for industrial dispensing processes

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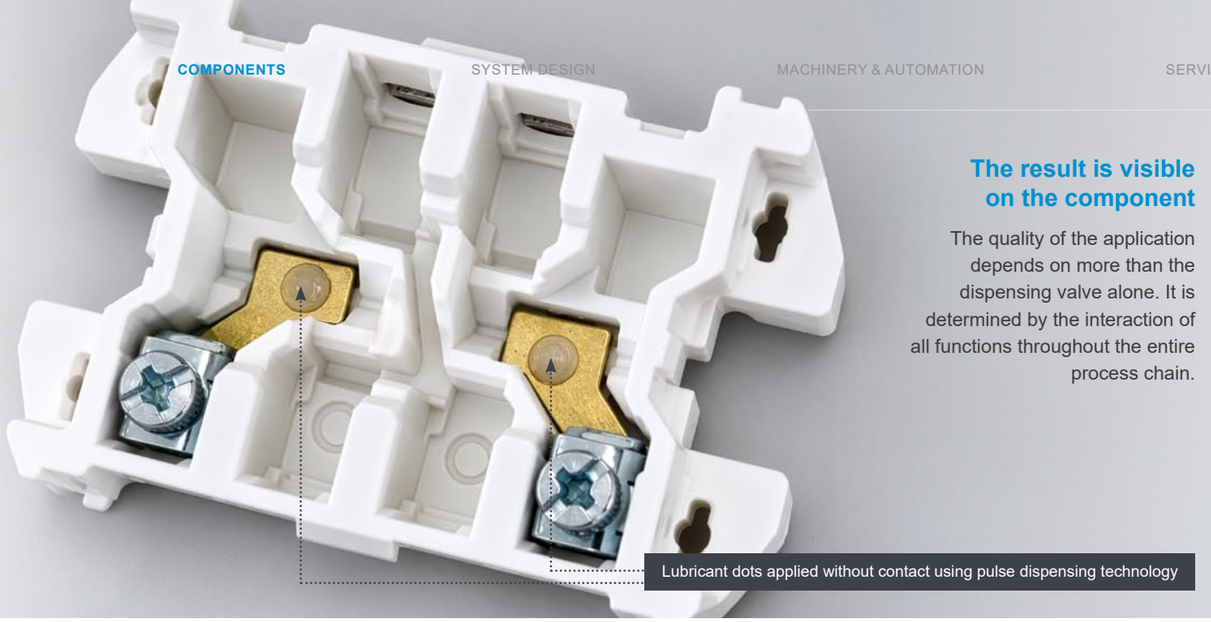
TRIALS | APPLICATION SAMPLING | ENGINEERING | INSTALLATION | COMMISSIONING | TRAINING | MAINTENANCE | OPTIMISATION

THE PROCESS CHAIN

Fluid application as an integrated process

The process chain for industrial dispensing and application comprises four functional areas. WALTHER Systemtechnik provides all the necessary components from a single source – individually or as part of complete dispensing and application systems. The functions required depend on the medium, task and production conditions.



The result is visible on the component

The quality of the application depends on more than the dispensing valve alone. It is determined by the interaction of all functions throughout the entire process chain.

01 Feed & Supply



The medium is drawn from its container or fed from an upstream supply system. It is then delivered at the pressure required for the subsequent process stage.

Typical components

Cartridge emptying systems · Pressure tank systems · Drum and pail emptying systems

Page 8

02 Transfer & Condition



The medium is conveyed to the dispensing or application point. It is filtered, degassed, temperature-conditioned or adjusted to the required pressure, as needed.

Typical components

Filters · Degassing systems · Pressure regulators · Hoses · Manifolds · Fluid diverter valves

Page 10

03 Dose & Apply



The required quantity of medium is dosed and applied to the component. Depending on the specified application pattern, it is deposited as dots, beads or over an area.

Typical components

Dispensing valves · Pulse valves · Spray valves · Dispensing tips · Nozzles and nozzle extensions

Page 14

04 Measure & Control



Sensors monitor process variables and states. Controllers define sequences and switching states. Closed-loop control corrects deviations from setpoints.

Typical components

Pressure sensors · Flow measurement systems · Valve controllers · Temperature control systems

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FEEDING & SUPPLY

Emptying containers and supplying the medium under pressure

Pumping and emptying systems extract the medium from cartridges, small containers, pails, hobbocks or drums and supply it at the pressure required for downstream processes. System selection depends on medium properties, container size, medium quantity, required pressure and the desired level of automation.

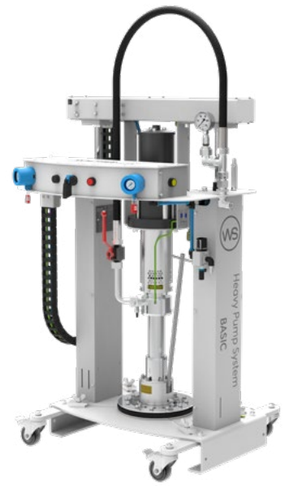












System	WKSK	WKF	WDBS	WPS Basic / Advanced	WPS Professional	WPSH Basic / Advanced
Container	Cartridges up to approx. 310 ml	Small containers; 1–5 litres	Pressure tanks; 2–40 litres	Hobbock / drum; 1–180 litres	Hobbock / drum; 14–180 litres	Hobbock / drum; 5–200 litres
Medium specification	Up to 25,000 mPa·s* (lubricants up to NLGI 1)	5,000–25,000 mPa·s* (lubricants up to NLGI 3)	Up to 8,000 mPa·s* (self-levelling)	5,000–25,000 mPa·s* (lubricants up to NLGI 3)	5,000–25,000 mPa·s* (lubricants up to NLGI 3)	Up to 2,500,000 mPa·s*
Operating principle	Pneumatic extrusion	Piston pump + follower plate	tank pressurisation	Piston pump + follower plate	Piston pump + follower plate	Scoop piston pump + follower plate
Max. medium pressure	10 bar	150 bar	Up to 6 bar **	150 bar	150 bar	360 bar
Max. delivery rate	Pressure- and medium-dependent	1,500 cm³/min	Pressure- and system-dependent	1,500 cm³/min	1,500 cm³/min	4,740 cm³/min*
Control / process functions	Optional low-level / empty indication	Optional empty indication	Integrated valve controller; optional level sensor / agitator	Automatic shutdown when empty *Advanced version comes with:* Remote on/off; low-level / empty indication; automatic pressure relief	Automated pump system with continuous level, pressure and filter monitoring; DIO / fieldbus / HMI; follower plate pressure control	Automatic shutdown when empty *Advanced version comes with:* Remote on/off; electrical low-level / empty indication
Special features	Adaptable to different cartridges; can be cascaded	Compact feed unit	Direct connection and configuration of process valves	3 sizes; *Advanced version* available as tandem configuration	2 sizes; special configurations available***	2 sizes; for highly viscous media

* Depending on the required volumetric flow rate. | ** Depending on vessel size and configuration. | *** Available with a medium reservoir to maintain supply during container changes, a homogenisation unit for media prone to separation or an integrated degassing unit to reduce air inclusions.



WKSK

Cartridge Emptying System

For supplying media from cartridges. Can be cascaded to ensure an uninterrupted supply.



WKF

Small-quantity Conveyor System

For direct emptying of manufacturer-specific small containers holding medium- to high-viscosity media.



WDBS

Pressure Tank System

For low-pulsation delivery of low- to medium-viscosity media, optionally with an agitator.



WPS Basic / Advanced

Pump System with Follower Plate

For viscous media supplied in larger original containers. Advanced version also available as a tandem system.



WPS Professional

Automated Pump System

For demanding applications requiring a maximum of operator guidance, process monitoring and reliable media supply.



WPSH Basic / Advanced

Heavy-duty Pump System

For conveying highly viscous adhesives, sealants and lubricants from drums up to 200 litres.



Follower plates for controlled container emptying

In our WKF, WPS and WPSH systems, follower plates support continuous medium withdrawal, wipe the medium from the container walls and shield the medium surface from the surroundings. Plate geometry and sealing material are selected to suit the container and medium.

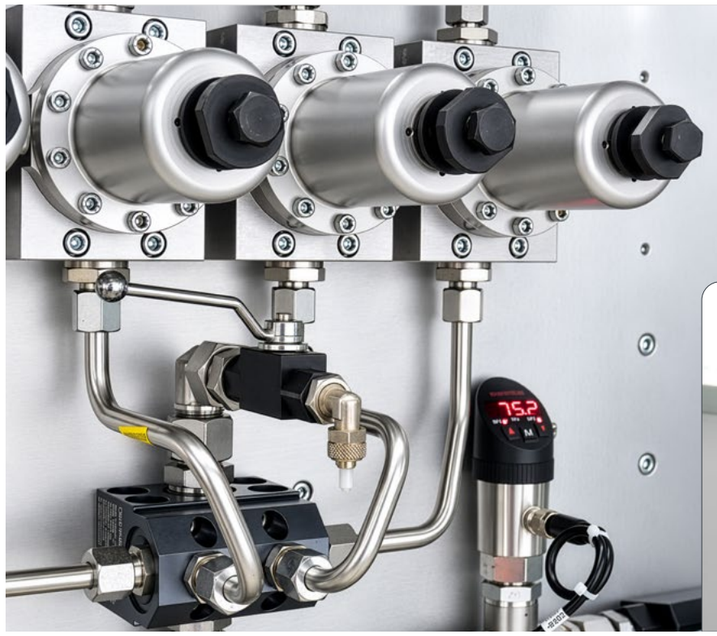
TRANSFER & CONDITIONING

Controlled conditions before dosing

Between the fluid supply and the dispensing or application equipment, the required process conditions are established. The medium is transferred through pipes or hoses. Additional components set the required medium pressure, limit the volumetric flow rate, filter out contaminants, remove air inclusions or adjust the medium temperature.

The modules of the WALTHER MODULAR range are combined to suit the application and directly joined using tie rods. This allows several functions to be combined into a single functional unit within a compact module block along the fluid transfer path.





One component range – different system configurations

Whether connected by pipework or directly joined into a module block, standardised modules reduce engineering effort provide the basis for tailored fluid application systems.



Feed unit



WMDR

Medium Pressure Regulation

Reduce and adjust the incoming medium pressure to the level required for the downstream process.



WFS

Filtration

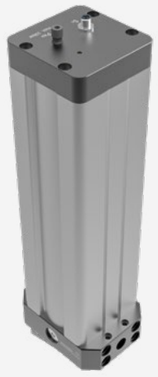
Remove particles and contaminants from the medium and protect downstream components from solid debris.



ABPS

Air Detection & Purging

Continuously monitor the medium flow for entrained air and automatically purge affected portions.



WGC

Medium Storage

Temporarily store medium and maintain supply during interruptions to the incoming flow.



WBP

Pressure Boosting

Increase medium pressure when the available pressure is insufficient for downstream transfer or dosing.



WGV

Flow Routing & Distribution

Shut off, divert or distribute the medium flow and supply multiple points of use from a common source.



WSB

Flow Rate Limiting

Limit the maximum volumetric flow rate within the supply line to a defined level.



Application valve

WHDS

Line routing & Connection

Connect medium supply, conditioning and application components and convey the medium along the supply line.



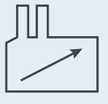
STABLE PROCESS CONDITIONS
for reproducible dosing results



FEWER CONTAMINANTS
and air inclusions in the medium



LONGER SERVICE LIFE
of downstream components



HIGHER SUPPLY RELIABILITY
and system availability



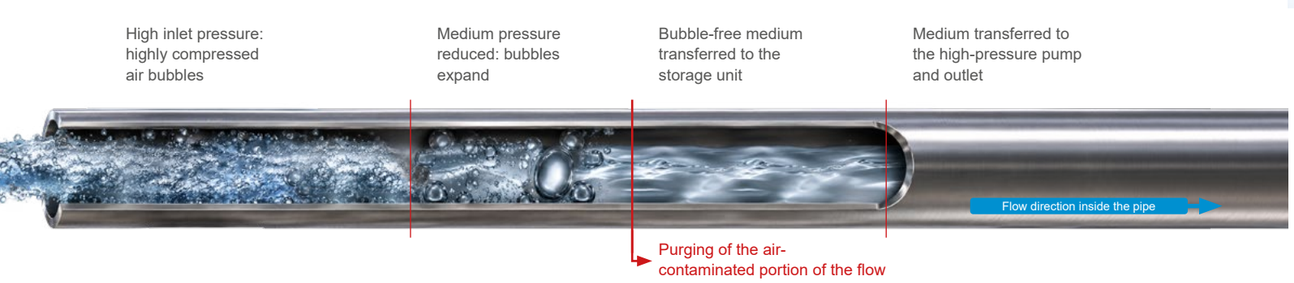
WADS – WALTHER ADVANCED DEGASSING STATION

Detecting air inclusions and selectively purging affected medium

Air inclusions in the medium can alter the actual quantity dispensed and cause interruptions or irregularities in the application.

The WALTHER Advanced Degassing Station detects air inclusions in the flowing medium and selectively purges the affected portion of the flow. An integrated medium buffer maintains supply to the downstream dispensing process during conditioning.

Conditioning the medium in four process steps



01 Reduce pressure

After the medium is supplied, its pressure is reduced. This causes existing air inclusions to expand, allowing reliable detection by the downstream sensor system.

02 Detect air inclusions and purge

The sensor continuously monitors the medium as it flows past. Air inclusions are detected and the affected portion of the flow is selectively purged. The remaining medium stays in the process.

03 Buffer the medium

The conditioned medium is temporarily stored in a buffer unit. This maintains supply to the downstream process during purging or brief interruptions to the medium feed.

04 Restore pressure

After conditioning, an integrated high-pressure pump raises the medium pressure to the required level. An outlet pressure of up to 250 bar is available for the downstream supply line.

SELECTIVE PURGING
Remove only the portion of the flow containing air inclusions

INTEGRATED MEDIUM BUFFER
Maintain medium supply during conditioning

Tailored to medium and process

The WALTHER Advanced Degassing Station (WADS) can be adjusted to the medium and the requirements of the supply and dispensing process. Parameter-driven settings for air inclusion detection, purging, buffer management and process monitoring allow application-specific configuration. The WADS therefore supports reliable supply to downstream dispensing systems under varying medium and process conditions.



Adjustable process parameters

Detection sensitivity

Adjust sensitivity to suit the medium's signal response.

Purging

Set the purge duration for detected air inclusions.

Medium buffer

Define filling and refilling behaviour via buffer hysteresis.

Process monitoring

Set alarm limits for relevant process metrics.



Direct access to key parameters

Relevant process parameters such as detection sensitivity, purge duration, fill volume and buffer hysteresis can be adjusted via the user interface. The Teach function also supports medium-specific adjustment of the detection settings. This allows commissioning, fine adjustment and process monitoring to be carried out directly at the system.



Process monitoring and alarm limits

The WADS monitors process metrics such as the number and precise point of occurrence of air inclusions and purge duration. Configurable alarm limits help identify recurring or increasing air inclusions and report deviations to the higher-level controller. This allows the quality of the medium supply to be continuously monitored and clearly displayed.

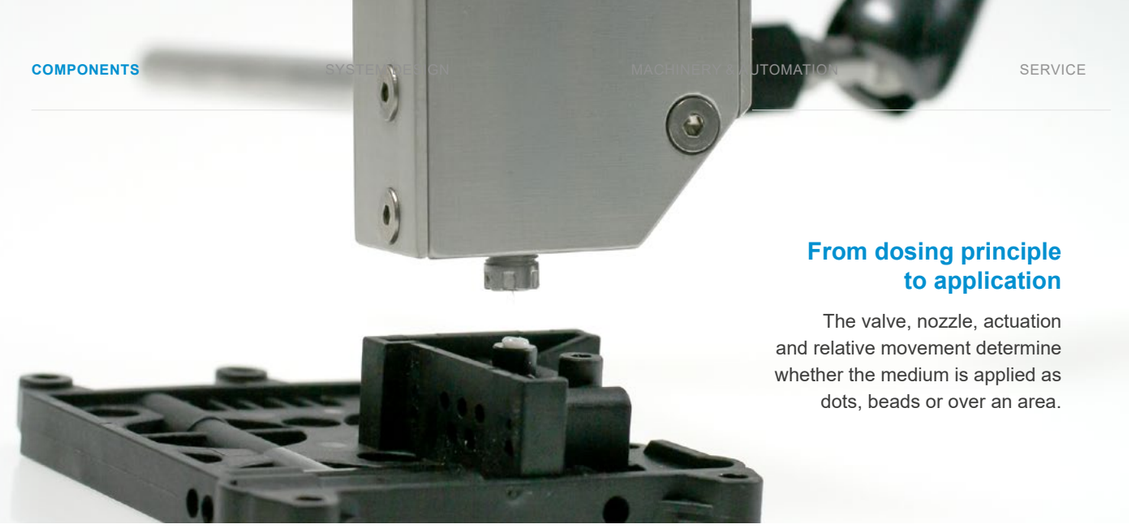
PROCESS MONITORING
Monitor detection, purging and buffer status

SYSTEM INTEGRATION
Connect and communicate via digital signals

DOSING & APPLICATION

The right dosing principle for every dosing task

The dosing principle determines the mechanism by which a volume of medium is dispensed. Depending on the dosing task, dosing is pressure/time-based, discrete volumetric or continuous volumetric. The appropriate principle depends on the medium, dosing quantity, application geometry, cycle time and required repeatability.



From dosing principle to application

The valve, nozzle, actuation and relative movement determine whether the medium is applied as dots, beads or over an area.

01 02 03

Dosing principle	Pressure/time-based dosing	Discrete volumetric dosing	Continuous volumetric dosing
Operating principle	• The valve opens, allowing the medium to flow. Medium pressure influences the volumetric flow rate, while the opening time determines the total quantity dispensed.	• Before dosing, the required volume per dosing operation is specified. A mechanical displacement element inside the valve then delivers this volume to the outlet.	• A progressive cavity rotor continuously conveys the medium to the valve outlet. A defined volume is displaced per rotational increment; the volumetric flow rate is set by the rotor speed.
Quantity determination	• Volumetric flow rate during valve opening × opening time	• Defined chamber volume per dosing cycle	• Displacement volume per revolution × number of revolutions
Factors influencing dosing volume			
Adjustable parameters (process)	• Medium pressure • Opening time • Medium temperature	• –	• Rotor speed • Dosing time
Configuration parameters (valve)	• Nozzle diameter • Needle stroke	• Chamber volume • Valve size	• Rotor/stator size
Disturbances (affecting dosing volume)	• Ambient temperature • Rheology (viscosity, shear behaviour)	• –	• –

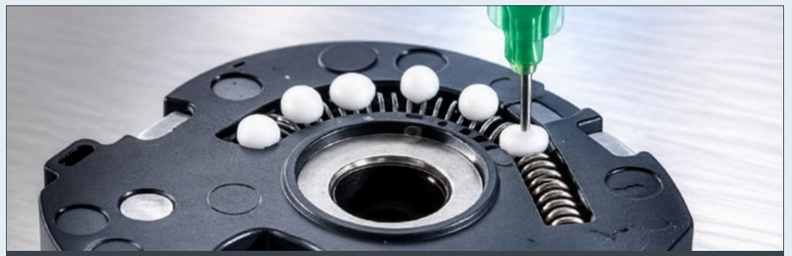


Area spray application to a moving component using pressure/time-based dosing.

Typical systems

SMS · WSV · VMS · WMAV · MPP-01 · MPP-03 · MPP-Speed · WPV

Possible application patterns, depending on valve:
Dot · Bead · Area



Multiple-dot application with consistent volumes using discrete volumetric dosing.

Typical systems

WDV · WSDV

Possible application patterns, depending on valve:
Dot · Area



Bead application at a constant volumetric flow rate using continuous volumetric dosing.

Typical systems

RotoStream Dose! · RotoStream Spray!

Possible application patterns, depending on valve:
Dot · Bead · Area



SPRAY APPLICATION

Finely atomising the medium and selectively wetting components

During spraying, atomising air breaks the medium into fine droplets, which are applied to the component surface.

The nozzle and air cap define the basic spray pattern. Medium and atomising air pressures, spray distance and relative movement determine the application width and medium distribution.

Solutions for spray application



SMS- 04 / 11

Compact spray technology

Compact valve for confined installation spaces and varying requirements for spray width and configuration.



SMS- 02 / 20 / 22

For demanding operating conditions

Versatile, robust spray valves for applications involving high medium pressures, high viscosities and dynamic spraying processes.



WSDV

Spraying defined individual quantities

Volumetric single-shot dosing with atomisation for cyclic spraying with a consistent dose per cycle.



WSV

Integrated control and monitoring

Electrically actuated spray valve with integrated control, temperature control and process pressure monitoring.



RS Spray!

Dynamic flow rate adjustment

Continuous volumetric dosing with integrated control & atomisation, featuring dynamic volumetric flow rate control.

Valve	SMS-02	SMS-04	SMS-11	SMS-20	SMS-22	WSDV	WSV	RotoStream Spray!
Actuation	Electric / 24 V DC (switching signal)	Pneumatic, spring-closing / ext. 3/2-way valves	Pneumatic, spring-closing / ext. 3/2-way valves	Pneumatic, spring-closing / ext. 3/2-way valves	Pneumatic, air-closing / ext. 5/2- or 3/2-way valves	Pneumatic / ext. 5/2- and 3/2-way valves	Electric / 24 V DC (supply) + 3/2-way valve	Electric / 24 V DC (supply) + 3/2-way valve
Dosing principle (see p. 14)	Pressure/time	Pressure/time	Pressure/time	Pressure/time	Pressure/time	Discrete volumetric, 0.001–6.0 cm³**	Pressure/time	Continuous volumetric, 0.003–60 cm³/min**
Medium inlet pressure	50 bar	35 bar	15 bar	50 bar	50 bar	200 bar	50 bar	6 bar
Approx. dimensions*	130 × 80 × 22 mm	42 × 25 × 25 mm	79 × 30 × 42 mm	132 × 53 × 21 mm	131 × 58 × 24 mm	Depending on size	149 × 25 × 45 mm	223 × 30 × 57.5 mm ***
Approx. weight	525 g	140 g	330 g	525 g	525 g	180–891 g **	430 g	500 g
Heating / temperature range	Optional, up to 80 °C	Optional, up to 80 °C	Optional, up to 80 °C	Optional, up to 80 °C	Optional, up to 80 °C	Optional, up to 80 °C	Integrated, up to 80 °C	Integrated, up to 80 °C
Monitoring technology	Optional: pressure sensor / needle stroke sensor	Optional: needle stroke sensor	Optional: pressure sensor / needle stroke sensor	Optional: pressure sensor / needle stroke sensor	Optional: pressure sensor / needle stroke sensor	Optional: pressure sensor / piston position sensor	Integrated needle stroke and process pressure monitoring	Motor current and process pressure monitoring
Special features	Adjustable post-purge air directly at the valve	Particularly compact and lightweight	Adjustable spray width; optional with medium recirculation	Purely pneumatically actuated; versatile	Purely pneumatically actuated; particularly suitable for long nozzle extensions	Particularly high process and dosing quantity stability	Smart valve with integrated control, parameter configuration and process functions	Smart valve with dynamic volumetric flow control and up to 20 bar outlet pressure

* Dimensions refer to versions fitted with a flat spray air cap. | ** Depending on size. | *** Dimensions of RotoStream size 2: 237 × 30 × 57.5 mm.

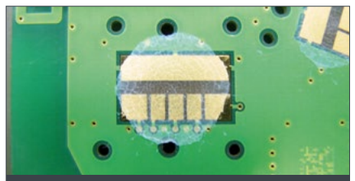
Typical applications



Grease application to vehicle components



Primer application before bonding



Coating of electrical contacts

Accessories for adjusting spray patterns and control temperature

Air caps and nozzles determine the spray pattern and application width.

For media with temperature-dependent rheology, valves and medium supply lines can also be temperature-controlled using heating plates[1] and heated hoses[2].



1



2



PULSE & JET APPLICATION

Jetting precise quantities without contact

In pulse/jet application, the medium is ejected from the nozzle at high speed and deposited at the intended application point without contact. This process is particularly suitable for short cycle times and hard-to-reach application points, as movement of the valve towards the component can be reduced or eliminated.

Nozzle distance, relative speed and switching frequency influence the arrangement of the applied dots and the distribution of the medium.

Solutions for pulsed application



MPP-01

For varied pulsing tasks

Non-contact dot and jet application over longer distances; also suitable for hard-to-reach application points.



MPP-03

For rapid dosing sequences

Pulse valve for high traverse speeds and short dot spacing, with pulse frequencies up to 200 Hz.



MPP-Speed

For very small quantities at high frequency

Dispensed volumes of 0.2–3 µl at pulse frequencies up to 400 Hz. Compact design and purely electro-magnetic operation.



WPV

Pulsing with integrated control

Electric pulse valve with integrated control, pressure monitoring, temperature control and diagnostic functions.

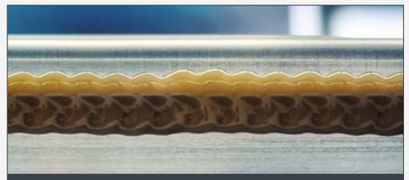
Valve	MPP-01	MPP-03	MPP-Speed	WPV
Actuation	Electropneumatic	Electropneumatic	Electromagnetic	Electromagnetic
Dosing principle (see p. 14)	Pressure/time	Pressure/time	Pressure/time	Pressure/time
Nozzle diameter	0.3–1.0 mm	0.3–1.0 mm	0.10–0.60 mm	0.07–1.0 mm
Max. pulse frequency	40 Hz	200 Hz	400 Hz	30 Hz
Medium inlet pressure	100 bar	100 bar	50 bar *	50 bar
Approx. dimensions	151 × 15 × 82 mm	126 × 15 × 58 mm	65.2 × 20 × 39 mm	138 × 25 × 45 mm
Approx. weight	375 g	440 g	120 g	430 g
Heating / temperature range	Optional, up to 80 °C	Optional, up to 80 °C	Integrated, up to 80 °C	Integrated, up to 80 °C
Monitoring technology	Optional: pressure sensor / needle stroke sensor / light barrier	Optional: pressure sensor / needle stroke sensor / light barrier	Optional: light barrier	Integrated needle stroke and process pressure monitoring
Special features	Wide adjustment range; non-contact application at distances of up to approx. 150 mm	High pulse frequency up to 200 Hz	Very small quantities, typically 0.2–3 µl per pulse; up to 400 Hz and up to 500 million switching cycles	Smart valve with integrated control, parameterisation and process functions; all-electric, low-noise operation

* MPP-Speed: max. 50 bar with 0.10–0.45 mm nozzles / max. 25 bar with 0.60 mm nozzle.

Typical applications



Flux application for subsequent soldering processes



Wax application to protect BEV battery housings

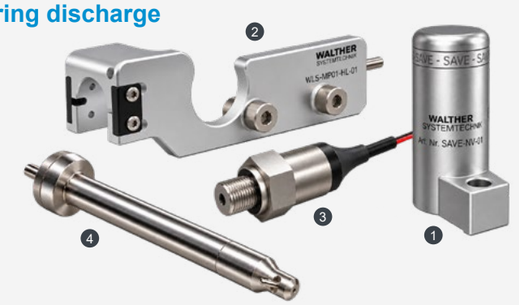


Grease application for lubricating sliding rails

Accessories for securing settings and monitoring discharge

SAVE locking devices[1] secure the set valve stroke position against unintentional adjustment.

Light barriers[2] detect individual medium discharges at the nozzle outlet; pressure sensors[3] and needle stroke sensors can be integrated to monitor valve function. Nozzles and nozzle extensions[4] allow optimal adaptation to the respective application point.





DOT & BEAD APPLICATION

Precise and contour-accurate dot and bead dispensing

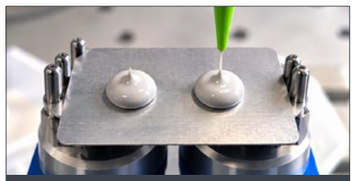
In dot and bead application, the medium is applied directly from the nozzle onto the component. A dot is formed by dispensing at a fixed position; for bead application, the nozzle is moved relative to the component along a specified contour.

The dosing quantity or volumetric flow rate, nozzle diameter and relative speed determine the dot size as well as the width and cross-section of the bead.

Ventil	VMS-01	VMS-02	WMAV	WDV	RotoStream Dose!
Actuation	Pneumatic / ext. 3/2-way valve	Electropneumatic / 24 V DC	Pneumatic / ext. 5/2-way valve	Pneumatic / ext. 5/2-way valve	Electric / 24 V DC
Dosing principle (see p. 14)	Pressure/time	Pressure/time	Pressure/time	Discrete volumetric, 0.001–6 cm³ per dosing operation **	Continuous volumetric, from 0.25 µl; 0.003–60 cm³/min **
Medium inlet pressure	100 bar	100 bar	150 bar	200 bar	6 bar
Approx. dimensions	126 × 15 × 46 mm *	162 × 15 × 82 mm	Depending on size	Depending on size	223 × 30 × 57.5 mm ***
Approx. weight	265 g	375 g	700–2,350 g **	180–891 g **	500 g
Heating / temperature range	Optional, up to 80 °C	Optional, up to 80 °C	Optional, up to 80 °C	Optional, up to 80 °C	Integrated, up to 80 °C
Monitoring technology	Optional: pressure sensor / needle stroke sensor	Optional: pressure sensor / needle stroke sensor	Optional: pressure sensor / needle stroke sensor	Optional: pressure sensor / piston position sensor	Motor current monitoring
Special features	Compact design; short or long nozzle	Flexibly configurable solid-stream valve	Diaphragm separates medium and pneumatic sections; snuff-back effect	High process stability and dose consistency; snuff-back effect	Smart valve with dynamic volumetric flow control; up to 20 bar outlet pressure

* VMS-01 short version; long version: 142 × 15 × 46 mm. | ** Depending on size. | *** Dimensions of RotoStream size 2: 237 × 30 × 57.5 mm.

Typical applications



Adhesive application for component fixation



FIPG application for housing sealing



Stop-off coating before case hardening

Solutions for volumetric dosing



VMS-01 / 02

Compact and versatile

Slim valve design for dot and bead application where installation space is limited. Depending on the version, pressure and needle stroke monitoring are available as options.



WMAV

For high medium pressures and flow rates

Robust outlet valve with snuff-back effect. A low-wear diaphragm separates the medium and pneumatic sections, preventing air ingress. The opening cross-section is adjustable.



WDV

Defined individual doses, wide dosing range

Dosing volumes from 0.001 to 6 cm³ per dosing operation, depending on size. Designed for medium pressures up to 200 bar, making it suitable for high-pressure applications.



RotoStream Dose!

For variable, dynamic dosing tasks

The volumetric flow rate can be adjusted during the dosing process and matched to the traverse speed. The suck-back function supports a clean cut-off at the end of dispensing.

Accessories: From stationary to hand-held application

Selected valves can be fitted with handles[1] for manually guided application processes.

Different dispensing tips[2] allow dots to be positioned with millimetre precision and very fine adhesive beads to be applied continuously, while felt and sponge applicators[3] enable contact-based application over an area.



NOZZLE EXTENSIONS

Reaching target areas and adapting application patterns



Nozzle extensions guide the medium from the dispensing valve to hard-to-reach or geometrically defined application points. Depending on the task, straight, angled or curved extensions as well as ring-jet, segment and profile heads are used.

Length, shape and outlet geometry are matched to the component geometry, accessibility, medium and required flow rate. This allows recessed, laterally offset, circumferential or contour-specific areas to be selectively wetted.



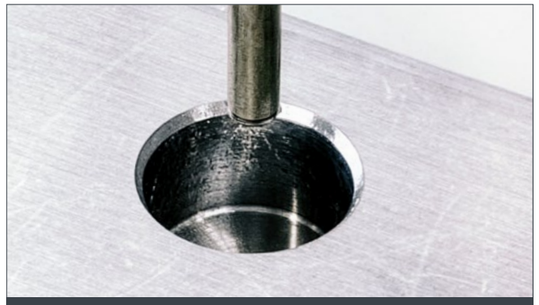
Automated lubricant application using precisely positioned nozzle extensions

TARGETED APPLICATION
Precisely at the required position

INDIVIDUALLY ADAPTABLE
To any component geometry

VARIED PATTERNS
Dot, line, area, ring jet and more

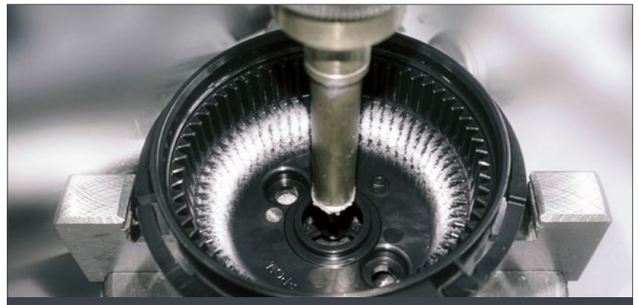
CUSTOMISED SOLUTIONS
tailored to your requirements



Spray application using a straight swirl nozzle



Pulse application using a curved nozzle



Spray application using a 360° ring-jet nozzle



Spray application using a 90° angled nozzle

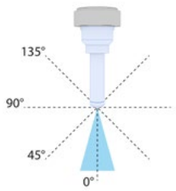


Straight Nozzle Extension

Reaching deep-seated application points: Straight extensions guide the medium axially to application points in bores, cavities or recessed component areas.

Straight design

Pattern: Round jet / round jet with swirl; flat jet



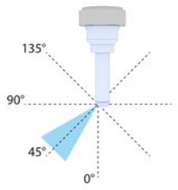


Angled nozzle extension

Reaching laterally offset areas: Angled extensions direct the medium at a defined angle relative to the valve axis to target points that are not axially accessible.

Possible angles: 45° / 90° / 135°

Pattern: Round jet / round jet with swirl



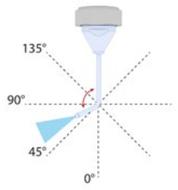


Curved nozzle extension

Routing around component contours: Curved extensions guide the medium along a customised path to application points that cannot be reached directly.

Custom bend

Pattern: Round jet / round jet with swirl

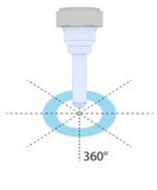




Ring-Jet Nozzle Extension

Wetting internal walls around their full circumference: Extended ring-jet nozzles are inserted into bores or cavities and dispense the medium radially through a 360° annular gap.

Straight design with 360° radial discharge

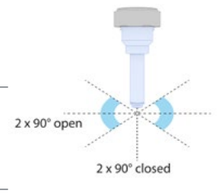


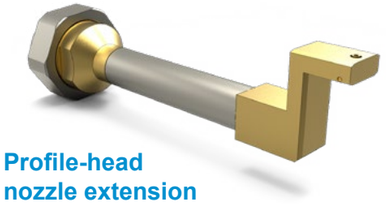


Segment Nozzle Extension

Partially wetting internal walls: Special segment nozzles are inserted into cavities and apply the medium to a defined angular section of the internal wall.

Straight design with customised segmentation



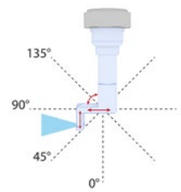


Profile-head nozzle extension

Adapting application to component contours: Profile heads guide and distribute the medium precisely along the defined component contour to the target area.

Part-specific design

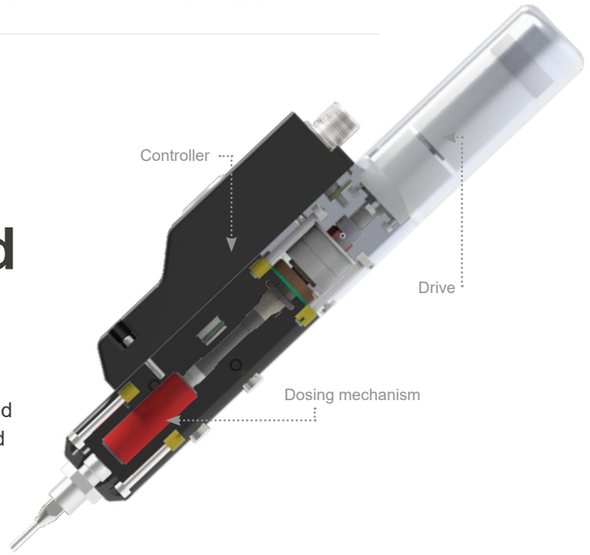
Pattern: Round jet / round jet with swirl; flat jet

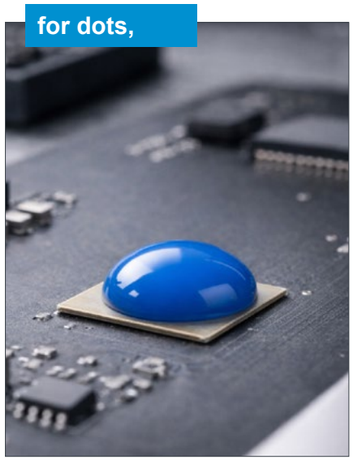


ROTOSTREAM – VOLUMETRIC DOSING TECHNOLOGY

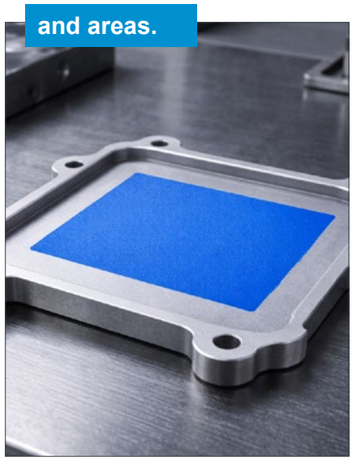
Volumetric dispensing with motion-synchronised flow rate control

RotoStream is a compact valve platform for continuous volumetric dosing and application of low- to high-viscosity media. The dosing mechanism, drive and controller are integrated directly into the valve, enabling defined individual doses as well as continuous dosing processes.

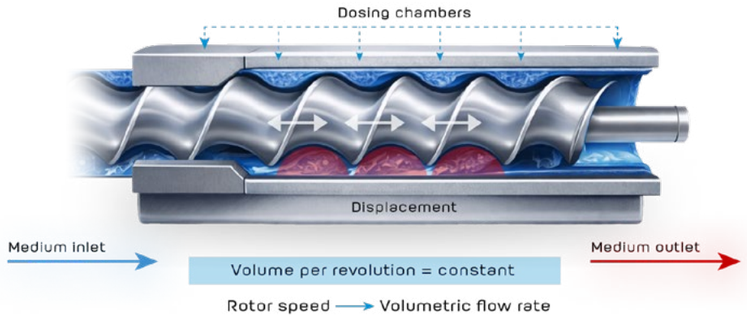








Volumetric dosing based on the progressive cavity principle

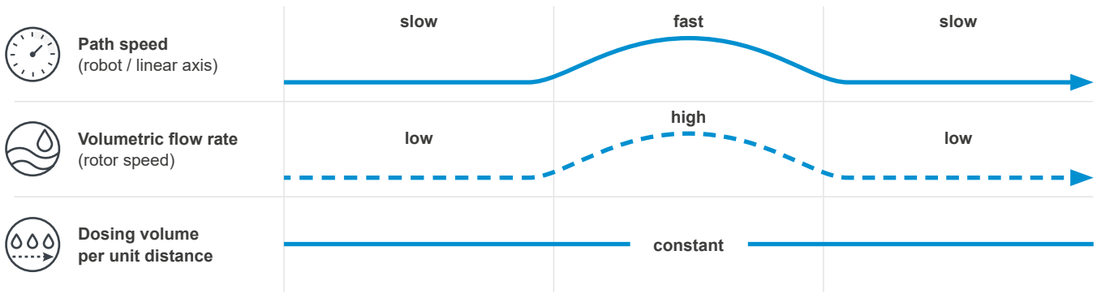


Inside the RotoStream, a rotor rotates eccentrically within an elastic stator. This creates closed dosing chambers that convey the medium in defined volume increments from inlet to outlet. The displacement volume per revolution is fixed by design; the volumetric flow rate is adjusted via rotor speed. Different rotor/stator combinations enable different dosing volumes and volumetric flow rates.



Controlling volumetric flow rate in sync with motion

In automated application processes, the RotoStream rotor speed can be synchronised with the traverse speed of robots or linear axes. When the path speed changes, the volumetric flow rate is adjusted accordingly. This keeps the quantity of medium applied per unit distance constant, even during acceleration and deceleration.



Two variants – two different application methods



RotoStream Dose!

RotoStream Dose! is designed for dot dosing, bead application and continuous dosing processes. The medium is dosed volumetrically and applied directly to the component. An integrated suck-back function reduces outlet pressure after dosing ends and supports a clean cut-off.



RotoStream Spray!

RotoStream Spray! combines volumetric dosing with atomisation of the medium. The volumetric flow rate is defined by the volumetric dosing principle, while atomising air breaks the medium into fine droplets and distributes them over the component. This enables both localised and area-wide spray applications at a defined volumetric flow rate.

Integrated functions for parameterisation & the dosing process



BROWSER-BASED PARAMETERISATION

Valve parameters are set via web browser. The integrated assistant (Wizard) guides users through calibration step by step. No additional software is required.



INTEGRATED SUCK-BACK FUNCTION

After dosing ends, the rotor's direction of rotation is reversed to retract the medium in a controlled manner. This supports a clean cut-off.



FLEXIBLE DOSE SPECIFICATION

The required dose can be specified as a volume or a target mass. For gravimetric input, the controller takes the stored medium density into account.



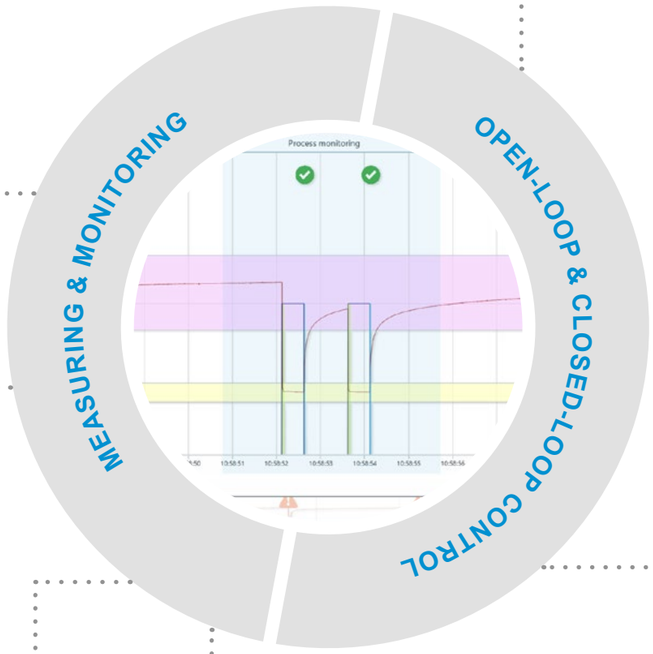
OPERATION DIRECTLY AT THE VALVE

An integrated pushbutton allows venting, dispensing and service movements to be initiated directly at the valve. An LED indicates the current device status.

MEASUREMENT & CONTROL

Measuring, monitoring and deliberately adjusting process variables

Defined process conditions are essential for reproducible dosing results. Sensors measure relevant process variables and detect operating states. Control systems define process sequences and switching states. Closed-loop controllers compare actual values with setpoints and adjust control outputs accordingly.



Monitoring pressure

PS4 – Pressure Sensor

The PS4 displays medium pressure locally and outputs switching signals at defined threshold values.



Monitoring discharge

WLS – Light Barrier

The WLS detects individual medium discharges at the nozzle outlet of pulse valves and confirms that medium has been discharged.



Monitoring valve operation

Needle Stroke / Dispensing Piston Monitoring

Sensors detect the position or movement of the valve needle and dispensing piston, allowing the switching or dosing movements of the dosing valves to be monitored.



Controlling valves

WVC – Valve Controller

The WVC enables parameterisation and actuation of electric and electropneumatic spray, pulse and dosing valves and coordinates connected sensors and actuators (see p. 28).



Regulating temperature

WTRB – Temperature Bundle

The WTRB controls heating plates and heated hoses to maintain the medium temperature at the specified level.



Measuring volumetric flow rate

WGFM – Volumetric Flow Meter

The WGFM measures the volumetric flow rate of the medium within the transfer line and provides the measurements for process monitoring.



TRANSPARENT PROCESS DATA

DETECT DEVIATIONS EARLY

REPRODUCIBLE DOSING CONDITIONS

BASIS FOR PROCESS OPTIMISATION

WVC – WALTHER VALVE CONTROLLER

Controlling, monitoring and regulating dispensing processes

The WVC is a control unit for electric, electromagnetic and electropneumatic spray, pulse and dosing valves. Dispensing sequences and process parameters can be set and monitored via the web-based dashboard. Depending on the configuration, the WVC also processes signals from additional connected sensors, extending valve control to process monitoring and closed-loop control of the dispensed quantity.

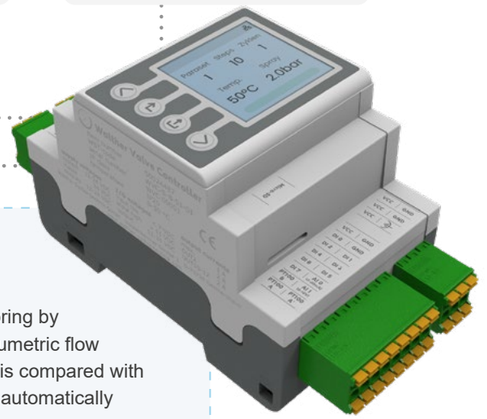
The WVC is available in three progressively equipped versions: Basic, Advanced and Professional.

Central integration of valves, sensors and actuators

VALVES
- Spray valve
- Pulse valve
- Dosing valve

SENSORS
- Pressure sensor
- Temperature sensor
- Needle/piston stroke sensor
- Volumetric flow sensor
- Light barrier

ACTUATORS
- Heater
- Atomising air control valve
- Proportional pressure regulator



BASIC

CONTROLLING VALVES

The WVC BASIC enables precisely timed actuation and parameterisation of spray, pulse and dosing valves. Depending on the valve type, it can also control heating equipment, atomising air and further process variables.

ADVANCED

MONITORING PROCESSES

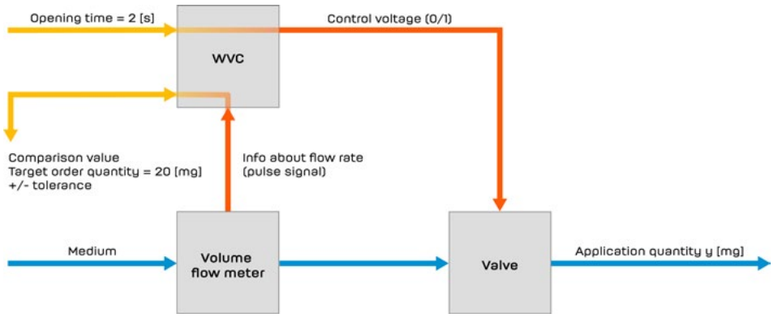
The WVC ADVANCED extends valve control with additional process monitoring functions. Depending on the valve type, medium pressure, needle stroke or piston end positions can be detected and monitored within defined limits. When used with a pulse valve, medium discharge can also be detected using a light barrier.

PROFESSIONAL

REGULATING DOSING QUANTITIES

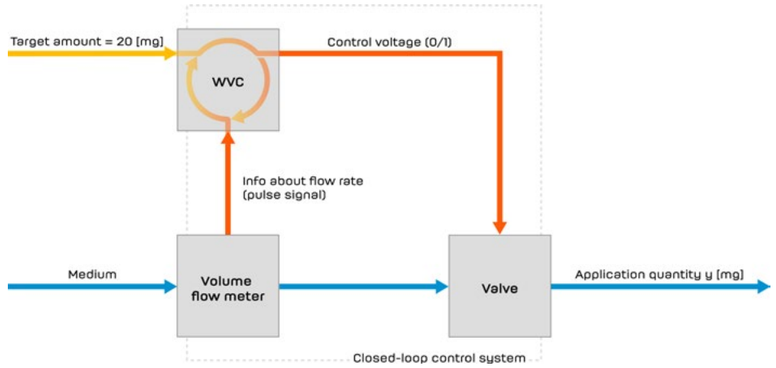
The WVC PROFESSIONAL extends process monitoring by measuring the actual dispensed quantity using a volumetric flow sensor. In closed-loop operation, the actual quantity is compared with the specified setpoint, and the valve opening time is automatically adjusted in the event of deviations.

Open-loop and closed-loop control with the WALTHER Valve Controller



Open-loop control

The valve opening time is fixed. A volumetric flow sensor measures the actual dispensed quantity, allowing comparison with the setpoint and tolerance range. If, for example, medium pressure or flow behaviour changes, the dispensed quantity may vary despite an unchanged opening time.



Closed-loop control

The required dosing quantity is specified as the setpoint. The volumetric flow sensor measures the actual dispensed quantity and feeds the value back to the WVC. In the event of deviations, the controller automatically adjusts the valve opening time to bring the dosing quantity back to the specified setpoint.

Process monitoring

Detecting and evaluating process states

The WVC Advanced and Professional versions enable relevant process variables and valve states to be monitored via connected sensors.

The Teach function allows measured process values to be used as a starting point for defining monitoring limits. Deviations can then be detected and dosing operations evaluated as OK or NOK.

The dashboard visualises process data and displays the status of the last 64 dosing operations.

p **PRESSURE**
Monitoring medium pressure and defined tolerance ranges

$S(t)=1$ **DISCHARGE**
Detecting medium discharge via a light barrierbarrier

h **VALVE MOVEMENT**
Detecting needle stroke and piston end positions

V **VOLUME**
Measuring dosing quantity using a volumetric flow sensor

WEB-DASHBOARD
Parameterisation and visualisation

TEACH FUNCTION
Teach-in of monitoring values

MULTIPLE PARAMETER SETS
Up to eight parameter sets *

MODBUS TCP
Integration into higher-level control systems *

* optional

SYSTEMAUSLEGUNG

From requirements to the right fluid application system

A functional fluid application system requires more than selecting suitable individual components. Fluid supply, conditioning, pressure management, dosing and application must be matched to the medium, process requirements and production conditions.

WALTHER Systemtechnik provides technical system design, from requirements analysis through to verification of the system configuration.

01

Defining requirements

The medium, container, workpiece, dispensed quantity, application pattern, cycle time and installation constraints define the technical requirements for system design.

02

Assessing the application

If required, the actual medium and component are tested at our technical centre. Trials assess conveying, dosing and application behaviour under defined conditions.

03

Matching and sizing components

Fluid supply, conditioning, pressure control, fluid lines, dosing principle and application tools are selected to meet the identified requirements. Components are sized accordingly.

04

Verifying the system configuration

The designed configuration is tested under conditions representative of the application. Dispensed quantity, application pattern and relevant process parameters are evaluated and adjusted where necessary.



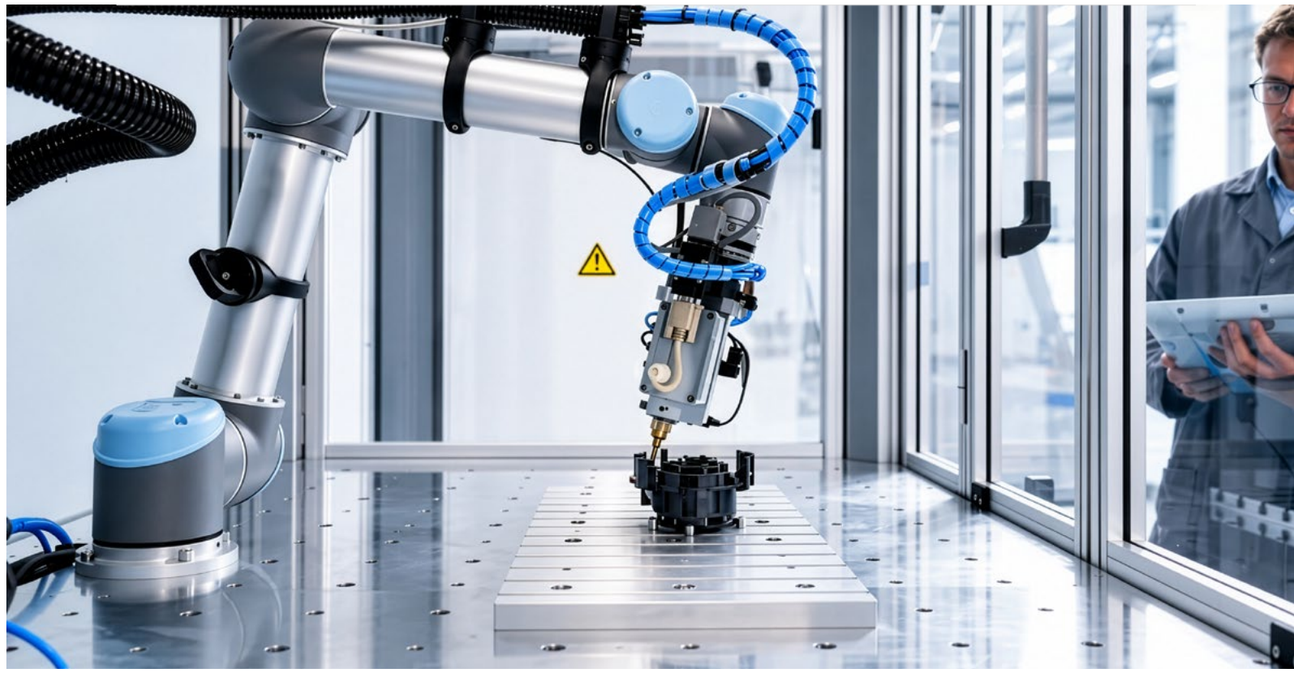
Defining requirements



Assessing feasibility



Determining system components



A sound basis for technical system design

Data sheet values alone often do not fully reflect how technical media behave during processing.

At our technical lab, the actual media and workpieces can therefore be tested under defined conditions. The results provide a solid basis for the selection of dosing and application methods, component specification and the definition of suitable process parameters.

Medium behaviour

The medium‘s pumping, shear and discharge behaviour under defined pressure and temperature conditions are assessed.

Feasibility

The dosing and application methods in terms of dispensed quantity, application pattern, cycle time and process limits are assessed.

Application sampling

The medium is applied to actual workpieces. The results are assessed for dispensed quantity, application position and pattern.

Process parameter ranges

Suitable ranges are determined for process variables such as medium pressure, dosing time, volumetric flow rate, temperature and traverse speed.

Collaborative system design

Technical and economic constraints are assessed jointly from the outset. This enables components, operating parameters and system scope to be tailored to the process requirements.



SYSTEM CONFIGURATION

From components to a system

Key components of WALTHER fluid application systems are highly configurable.

Component size, wetted materials, seals, pressure ranges, connections and other features can be specified to suit different media and applications.

This broad range of components allows systems to be configured for a wide variety of conveying, dispensing and application tasks.

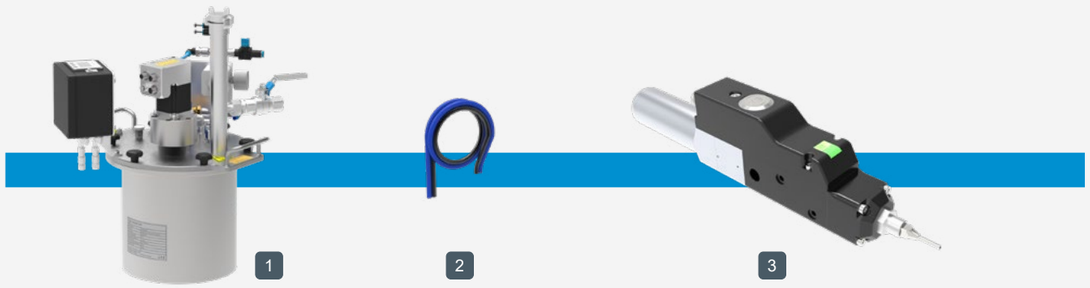
Medium and task determine the system configuration

The examples show how fluid application systems can be configured in different ways.
For the adhesive application shown, a compact fluid path from the fluid supply to the dispensing valve is sufficient. Lubricant application may require additional functions such as the removal of medium containing entrained air, distribution, pressure regulation and volumetric flow measurement. Component selection and arrangement depend on the medium, application task and number of dispensing points.

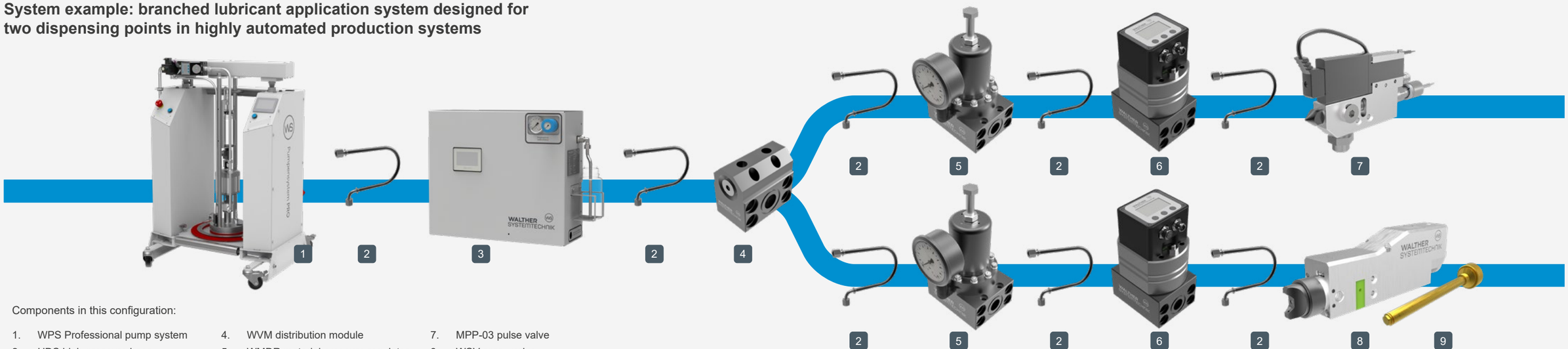
System example: simple application system for anaerobic adhesive

Components in this configuration:

1. WDBS pressure vessel system
2. NDS low-pressure hose
3. RotoStream Dose! progressive cavity dispensing valve



System example: branched lubricant application system designed for two dispensing points in highly automated production systems



Components in this configuration:

1. WPS Professional pump system
2. HDS high-pressure hose
3. WADS Advanced Degassing Station
4. WVM distribution module
5. WMDR material pressure regulator
6. WGFM volumetric flow meter
7. MPP-03 pulse valve
8. WSV spray valve
9. Nozzle extension

SPECIAL-PURPOSE MACHINERY & AUTOMATION

From fluid application systems to automated production solutions

Integrating dispensing and application technology into production processes: WALTHER Systemtechnik develops custom machinery and automation solutions for industrial dispensing and application processes. Dispensing technology, workpiece handling and automation are combined to create a machine solution tailored to the workpiece, cycle time and production workflow.

Dispensing technology

Supplying, dispensing and applying the medium

Fluid supply, conditioning, dispensing principle and application method are integrated into the machine to suit the medium and application task.

Automation

Handling workpieces and automating process sequences

Handling equipment, robots and motion systems perform the required workpiece and applicator movements, while the control system coordinates the automated process.

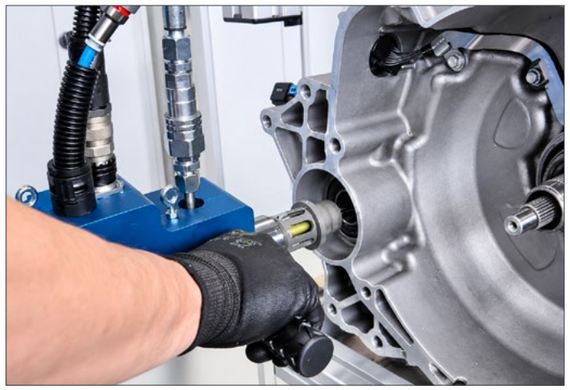
Machine building

Integrating dispensing processes into production environments

Mechanical structure, dispensing technology and automation are combined into a machine or station designed around workpiece handling, installation space, cycle time and interfaces to the production environment.

Solutions tailored to the process and level of automation

Depending on production volume, cycle time, workpiece geometry and process requirements, solutions range from hand-held application systems through dispensing and assembly fixtures to compact dispensing stations and semi- or fully automated systems.



Hand-held dispensing systems

Hand-held application systems allow the medium to be applied in a controlled manner while the applicator is guided manually.

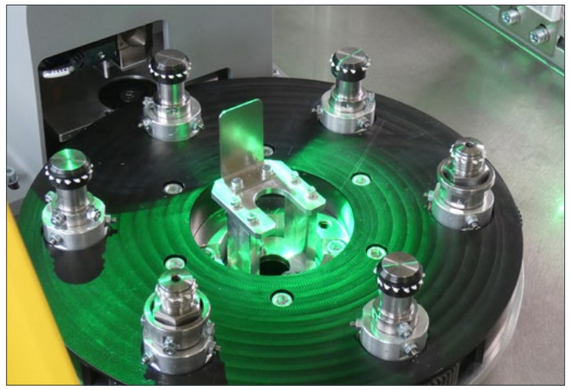
- Electric or pneumatic triggering
- Customisable applicaton head
- Flexible use at manual workstations



Dispensing fixtures

Workpieces are fed and positioned manually or automatically. The medium is applied using an applicator head adapted to the workpiece and application point.

- Manual or automatic workpiece feeding
- Customisable application head
- Vertical or horizontal orientation



Compact dispensing systems

Compact dispensing stations combine manual loading with an automatically controlled dispensing and application process.

- Manual loading
- Electrical control
- Automated dispensing sequence



Stand-alone & integrated dispensing systems

Stand-alone systems perform the dispensing process within a self-contained production cell. Integrated systems connect workpiece feeding, handling and dispensing to the higher-level production system.

- Manual or automated workpiece feeding
- Robotics and handling equipment
- Motion and path planning
- Sensors and measurement systems
- Control systems and interfaces to higher-level production systems

Process monitoring and quality assurance

Capturing and monitoring process parameters

Relevant process and machine parameters can be recorded and monitored by the machine control system. This enables early detection of deviations in dispensing and application processes.

Integrating functional tests

Tests of specified product or process characteristics can be integrated directly into the machine sequence and linked to the production process.



Expandable to meet growing requirements

Depending on the machine concept, workpiece handling, motion systems and automation can be expanded to accommodate changing production volumes or process requirements.

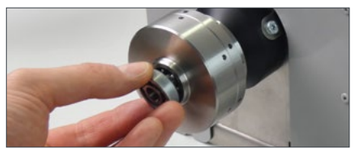
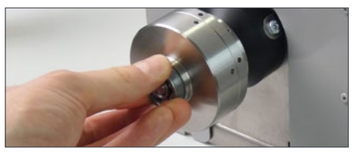
READYLUBE – COMPONENT-SPECIFIC LUBRICATION

Component lubrication – operator-independent and defined



ReadyLube is a compact dispensing unit for component-specific greasing and oiling. Component-specific holders and application elements, together with a defined dispensing sequence, ensure that a specified quantity of lubricant is applied at the intended point, regardless of how the operator handles the component.

- Independent of operator experience and handling
- Defined quantity and position
- Reliable and repeatable


Targeted access to different lubrication points



EXTERNAL LUBRICATION
Lubrication of visible external functional and contact surfaces, such as bearing surfaces, seals or joining areas.



INTERNAL LUBRICATION
Lubrication of hard-to-reach component areas, such as bores, bearing bushes, joining areas or lubrication channels.



SELECTIVE LUBRICATION
Spot lubrication of specific contact points and moving interfaces, such as damping elements, ball bearings and rotary adjusters.



COMBINED LUBRICATION
Synchronised internal and external lubrication of different functional surfaces, for example plug-in and joining elements.

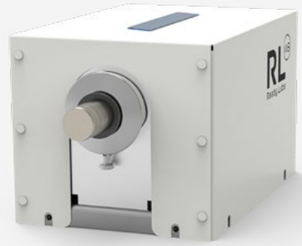


GREASES & OILS
For low- to high-viscosity lubricants

COMPONENT-SPECIFIC
Interchangeable application heads, component holders and nozzle extensions

ReadyLube Dose!

Contact-based lubricant application



The component is placed on a component-specific application head or mandrel. Pressing the component against the head or mandrel automatically triggers dispensing. The lubricant is guided through defined channels to the intended lubrication point.

- Targeted application through an outlet opening or a defined flow gap between the application head and the component.
- Suitable for internal, external and combined lubrication.
- Interchangeable application heads for different components.

ReadyLube Spray!

Non-contact lubricant application



The component is positioned in a component-specific holder and moved towards the spray nozzle on a slide. At the defined position, a contact switch automatically triggers spraying. Adjustable spray duration and precise linear movement allow accurate control of lubricant application.

- Stationary component: spot application.
- Movement during spraying: linear application along a path.
- Different nozzle extensions enable e.g. radial wetting of internal surfaces and segmented or wide-area spray patterns.

Different versions to suit the process

ReadyLube Dose!		ReadyLube Spray!		
BASIC	ADVANCED	BASIC	ADVANCED	PROFESSIONAL
Basic version with automatically triggered dispensing and adjustable lubricant quantity.	Additional process monitoring with OK/NOK indication and communication interfaces. Dispensing can also be triggered externally.	Integrated process monitoring with OK/NOK indication and interfaces. Spraying triggered by component positioning or an external control signal.	Additional valve heating with integrated temperature control.	Additional pressure sensor package for monitoring and evaluating the process pressure profile.

QUICK TO SET UP
Connect the fluid supply and compressed air – ready for operation

SUITABLE FOR AUTOMATION
Manual loading or automated component feeding and removal

SERVICE

Service throughout the entire lifecycle

WALTHER Systemtechnik supports dispensing and application systems throughout their lifecycle – from technical assessment of the task and trials at the technical centre, through installation and commissioning, to maintenance, repair and optimisation during operation.

We also provide advice on feasibility, system design, process parameters and technical modifications at every project stage and during operation.

Application consulting

Together, we define the technical requirements for the medium, dispensing process and desired application result.

Trials & application sampling

Practical trials using the actual medium and component support the selection and design of suitable equipment.

Installation & commissioning

Assembly, integration and commissioning, including adjustment of the relevant process parameters.

Training

Training for set-up staff, operators and maintenance teams on processes, dispensing technology and system operation.

Maintenance

Regular maintenance supports process stability and equipment availability while helping preserve equipment value.

Repair

Fault analysis and repair using genuine parts and technical documentation.

Optimisation

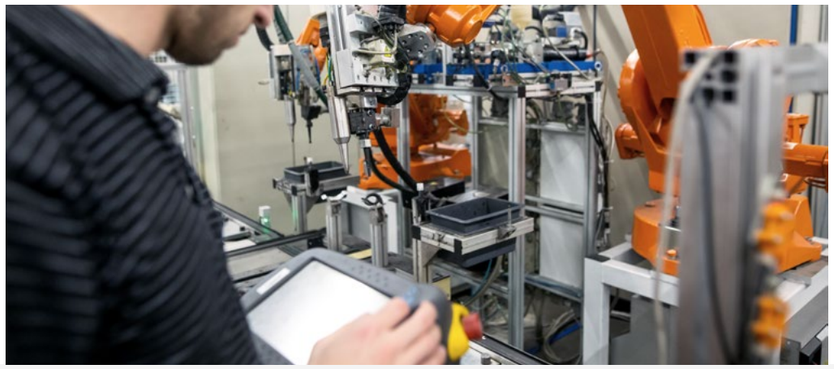
Analysis of existing processes and adjustments to components, parameters and process control.

Service & Support

Technical support for faults, modifications and operational queries.



We help keep your processes stable, efficient and operational.





More information about our solutions:

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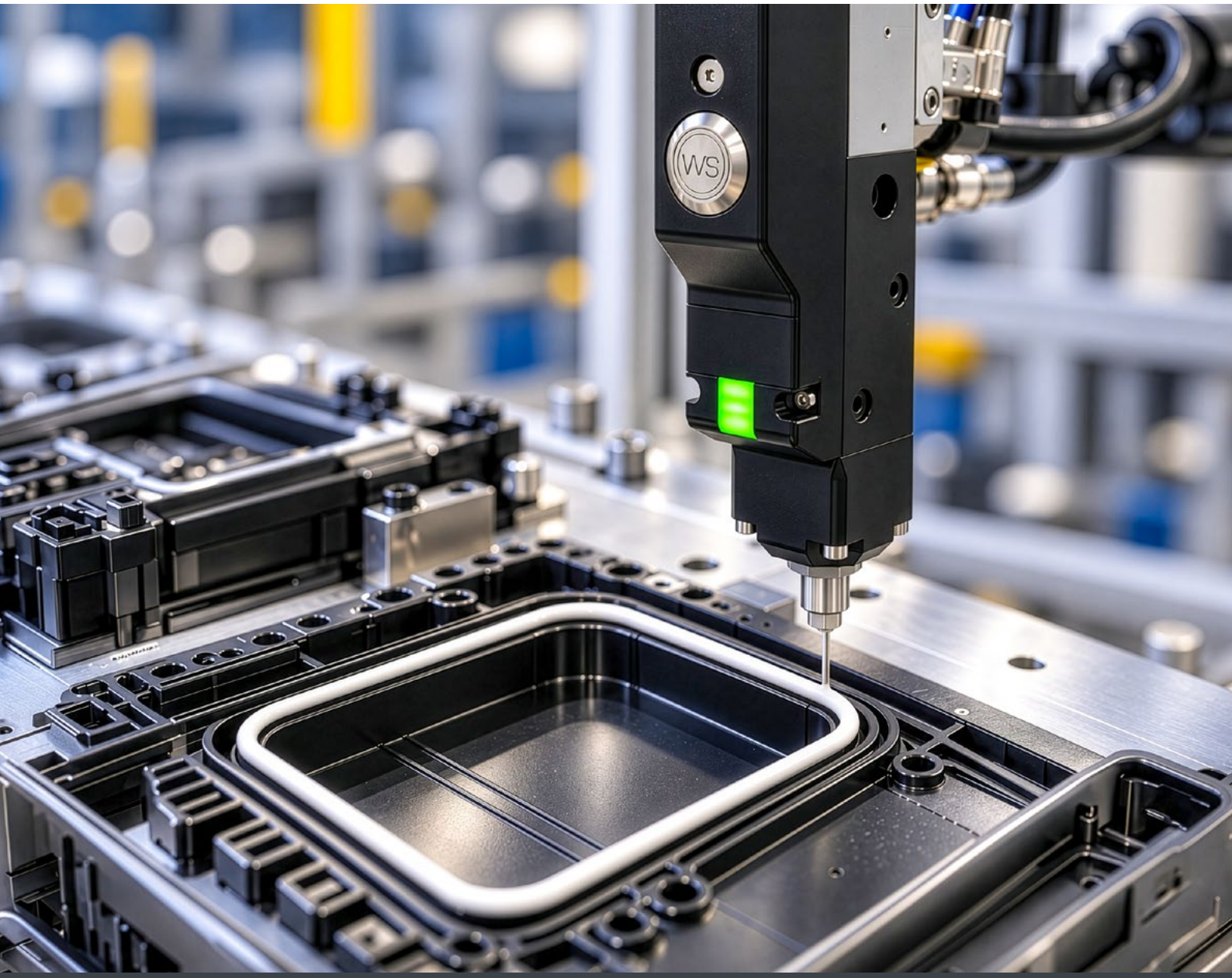
Conveying. Dosing. Applying.



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