

**Expertise from a single source – Media valves
in factory automation**

FESTO



Benefit from our expertise in fluid engineering too!

Your core business may be factory automation, but many automated manufacturing processes also have a need for

fluid control. At Festo, factory automation and fluid control go hand in hand, whether for cooling, cleaning or dispensing

and mixing. So just make the most of the expertise and competency at Festo! In our product portfolio, you will find automa-

tion solutions and media valves for your machines and systems.

Controlling small flow rates

VZWM

For example, in the cooling system of industrial cooling installations and production machines.

Media: gases, coolants and cooling lubricants



Cooling, heating and sterilising

VZXA

For example, for media control at high and low temperatures with high pressures and limited installation space.

Media: gases, liquids and vapour



Controlling and regulating large flow rates

KVZA (DFPD, CMSX)

For example, feeding media through large pipes and automated forwarding in the piping system in the plants.

Media: liquids, bulk solids and gases



Washing and cleaning

KVZB (DFPD, SRBC, VSNC)

For example, for cleaning machines in the manufacturing production process for semiconductors.

Media: cleaning fluids, gases and liquids

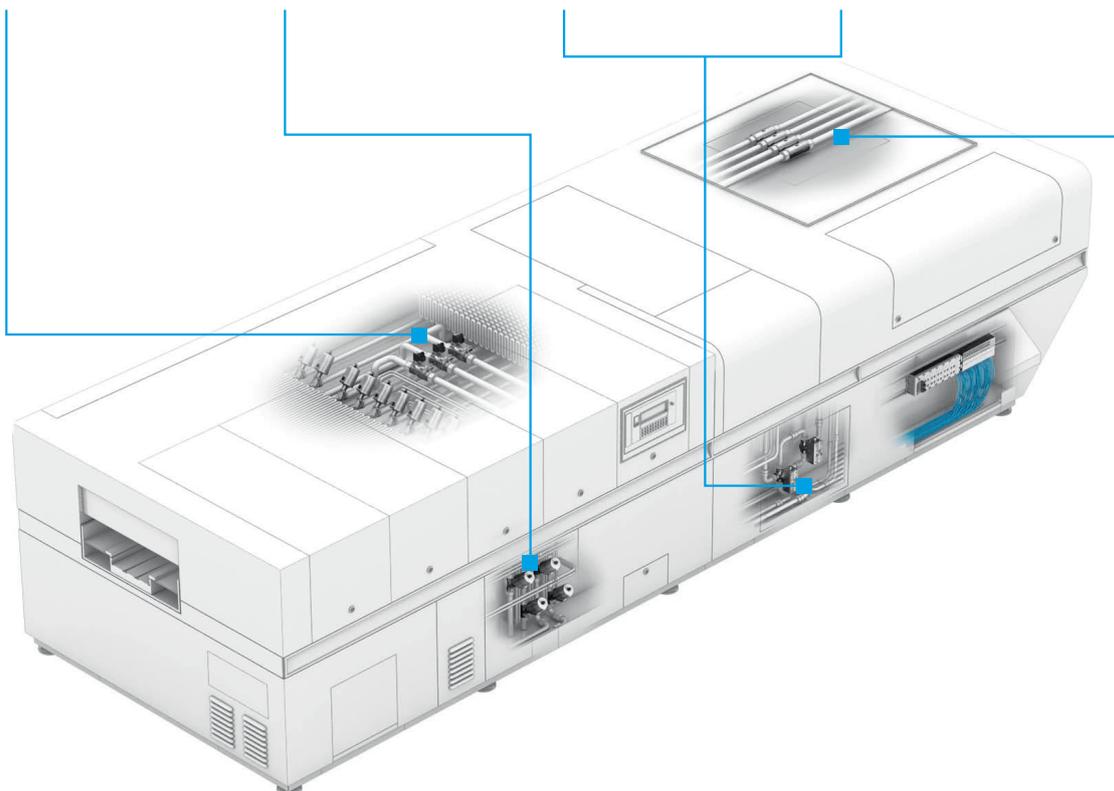


Dispensing, mixing and controlling gases

VZQA

For example, for filling machines for powders and granulates to the evacuation of inert gases in 3D printing.

Media: granulates, powders, gases and liquids



Process automation products optimise 3D printing

DMG MORI Additive boosts SLM processes with automation technology

Additive manufacturing with a high degree of maturity of CNC machines – that is the goal of DMG MORI Additive GmbH. With LASERTEC 30 DUAL SLM (SLM = selective laser melting), the company is very close to achieving this goal, with productivity having already increased by 80%. With a ready-to-install automation solution from Festo, the shielding gas atmosphere can be managed precisely. The process gas atmosphere plays a decisive role here. It is important that the pressure and oxygen content remain within

narrow limits in order to ensure high component quality. An automation solution from Festo represented a breakthrough. The unit for filling the working chamber with shielding gas ensures a safe shielding gas atmosphere. With innovative products for flow rate and pressure control, the processes in additive manufacturing remain stable. The ready-to-install complete solution from Festo consists of a mounting plate equipped with the valve terminal VTUG including an EtherCAT bus connection, the pinch valve VZQA, the service unit MS4 and the proportional-pressure regulator VEAB. The valve terminal VTUG is the right

valve terminal in terms of pneumatics and control technology. The pinch valve VZQA precisely controls the inert gas argon and the evacuation of the gas mixture during the purging process. Further plus points in favour of the pinch valve VZQA are the full opening, the easy-to-replace diaphragm, the small size and the fact that the VZQA has no interfering contours at the outlet.

Cycle time halved

The proportional-pressure regulator VEAB has precise and dynamic control characteristics in a compact size. These valves offer high-precision flow rate control at up to 20 l/min., with

low hysteresis, high repeat accuracy and low energy consumption. The proportional characteristics of a piezo bender with direct actuation ensure stable and reliable regulation, and an infinitely variable pressure rise. All automation products used are suitable for inert gases. The solution keeps the pressure and oxygen content within narrow limits. It also halves the cycle time by reducing the time that is needed to fill the work area.



As one of the world's leading machine tool manufacturers, DMG MORI is in the process of further expanding its technological leadership.



"We want to join forces with innovative partners such as Festo to ensure our future success."

Dr Vino Suntharakumar,
Managing Director DMG MORI
Additive GmbH

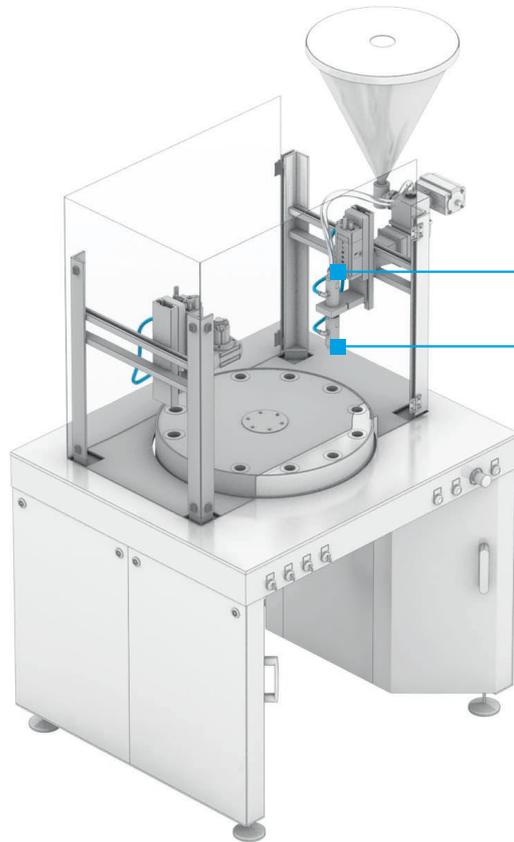
Application examples of the process and media valves

Dispensing, mixing and controlling gases

For controlling material flows such as granulates, liquids containing solids, and high-viscosity and abrasive media, the range of our media valves extends above 4000 mm³/s. Ideal, for example, for filling in the relevant machines.

For instance, the normally closed NC variant of the pinch valve VZQA is suitable for filling machines for powders and granulates.

Media:
Granulates, powders, neutral gases and liquids



Preferred media valve:
Pinch valve VZQA – no flow resistance, no blockages.

Other process valves:
Angle seat valve VZXA
Ball valve actuator unit KVZB



Cooling, heating and sterilising

Cooling and heating:
The medium has to be set to a specific temperature for many production steps. This is why cooling or heating circuits are often used, since they temper the medium via a heat exchanger. Process valves with different seals that can withstand the temperatures are used in the cooling or heating circuit to control the medium.

Sterilising:
Steam sterilisation is used in many different industries that all have their special requirements. This means that the media valves used must meet stringent demands. They must withstand high temperatures, high pressures and function reliably.

For example in sterilisers

Media: steam



Preferred media valve:
Angle seat valve VZXA

Other process valves:
Pinch valve VZQA
Butterfly valve unit KVZB



Application examples of the process and media valves

Controlling and regulating large flow rates

Large quantities of a medium, e.g. a liquid, are often required during the supply and discharge of a production step. This requires process valves that have a large nominal width and can be reliably opened and closed with equally large actuators.



Preferred process valve:
Butterfly valve unit KVZA open/
closed, controlled KVZA

Washing and cleaning

The finished product often cannot be processed further without being cleaned. Contamination such as oil, workpiece residues, dust, dirt, etc. must be removed.

Different media must therefore be added to the cleaning process, such as cleaning agents and water.



Preferred media valve:
Ball valve actuator unit KVZB

Other process valves:
Angle seat valve VZXA,
pinch valve VZQA.



Application examples of the process and media valves

Controlling and regulating small flow rates

Manufacturing processes often only require small amounts of a certain medium or small amounts need to be dosed or filled.



Preferred media valve:
Solenoid valve VZWM

Other process valves:
Pinch valve VZQA, solenoid valves VZWF and VZWD



Overview of media and process valves from Festo

Electric

Technical data



	VZWM	VZWF	VZWD
Function	2/2-way valve, normally closed (NC)	2/2-way valve, normally closed (NC)	2/2-way valve, normally closed (NC)
Design	Poppet valve, indirectly actuated with diaphragm control	Poppet valve with spring return	Poppet valve with spring return
Mounting position	Coil on top (preferred)	Coil on top (preferred)	Coil on top (preferred)
Connection	G thread and NPT thread	G thread and NPT thread	G thread and NPT thread
Material of the valve housing	Brass or stainless steel	Brass or stainless steel	Brass or stainless steel
Seal material	NBR	NBR, FKM, EPDM	FKM
Port Sizes	1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"	1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"	1/8" or 1/4"
Nominal width DN	13.5/27.5/40 mm	13.5/27.5/40/50 mm	1.0/1.5/2.0/2.5/3.0/4.0/5.0/6.0 mm
Media pressure	0.5 ... 10 bar	0 ... 10 bar	0 ... 90 bar
Required differential pressure	0.5 bar	0 bar	0 bar
Nominal operating voltage	24 V DC, 110 V AC, 230 V AC	24 V DC, 110 V AC, 230 V AC	24 V DC, 110 V AC, 230 V AC
Temperature of medium	-10 ... +60 °C	-10 ... +80 °C	-10 ... +80 °C
Flow rate*	1.6 ... 39 m ³ /h	1.8 ... 28 m ³ /h	0.06 ... 0.4 m ³ /h

* Note: The value is calculated with water as the medium with a differential pressure of 1 bar

Overview of media and process valves from Festo

Pneumatic

Technical data					
	VZQA-NO	VZQA-NC	VZXA	KVZA	KVZB
Function	2/2-way valve, normally open (NO)	2/2-way valve, normally closed (NC)	2/2-way valve, normally closed (NC), open (NO) or double-acting (DA)	2-way butterfly valve unit	2-way or 3-way ball valve actuator unit
Sizes	DN6, DN15, DN25, DN50	DN6, DN15, DN25	1/2" ... 2 1/2" DN13 ... DN65	1/4" ... 2 1/2"	DN8 ... DN200 3-way: 1/4" to 2"
Design	Pinch valve, pneumatically actuated	Pinch valve, pneumatically actuated with spring return	Angle seat valve, pneumatically activated with or without spring return	Butterfly actuator unit	Ball valve actuator unit
Connection	G thread to DIN ISO 228, NPT thread to ANSI/ASME B.1.20.1, Tri clamp to ASME-BPE, Tri clamp to DIN 32676	G thread to DIN ISO 228, NPT thread to ANSI/ASME B.1.20.1, Tri clamp to ASME-BPE, Tri clamp to DIN 32676	G thread to DIN ISO 228, NPT thread to ANSI/ASME B.1.20.1, tri clamp to ASME BPE, tri clamp to DIN 32676, welding end to ASME BPE, DIN 11850 and DIN 1127/4200	DIN EN 1092-1, ASME B 16.5	Welding end, clamp, flange, thread
Material	Housing: stainless steel, aluminium Cover: stainless steel, aluminium, POM Pinch valve sleeve: NBR, EPDM (FDA), silicone (FDA)	Housing: stainless steel, aluminium Cover: stainless steel, aluminium Pinch valve sleeve: EPDM (FDA), silicone (FDA)	Housing: stainless steel or brass (Ecobross) Actuator: stainless steel or polymer Seat seal: PTFE, modified PTFE, PEEK	Housing: ductile cast iron EN-GJS-400-15 Actuator: aluminium Seat seal: EPDM, NBR, PTFE/silicone, FKM, silicone	Housing: stainless steel, brass Actuator: aluminium Seat seal: PTFE
Nominal pressure of process valve PN	PN10	PN10	Stainless steel housing: PN40 Brass (Ecobross) housing: PN40	PN6 ... PN16, Class 150	PN16... PN63
Operating pressure	DN6/15/25: 1 ... 6.5 bar DN50: 0 ... 4.5 bar	3.5 ... 6 bar	5 ... 10 bar	1 ... 8 bar	2 ... 8 bar
Temperature of medium	NBR: -10 ... +60 °C EPDM: -5 ... +100 °C Silicone: -5 ... +150 °C (Cleaning: max. 135 °C for 30 min)	EPDM: -5 ... +100 °C Silicone: -5 ... +100 °C (Cleaning: max. 135 °C for 30 min)	PTFE: -10 ... +200 °C Mod. PTFE: -30 ... +200 °C (special version) PEEK: +100 ... +230 °C	Variable depending on the sealing material. Dependent on the pressure-temperature diagram.	Dependent on the pressure-temperature diagram
Media pressure	0 ... 4 bar Vacuum under certain conditions	0 ... 6 bar	-0.9 ... 30 bar	2.5 ... 16 bar	10 ... 63 bar
Flow rate*	DN6: 0.7 m ³ /h DN15: 5 m ³ /h DN25: 18 m ³ /h DN50: 72 m ³ /h	DN6: 0.7 m ³ /h DN15: 5 m ³ /h DN25: 18 m ³ /h	Stainless steel housing: 2.8 ... 77.9 m ³ /h Brass (Ecobross) housing: 2.8 ... 38.8 m ³ /h	Depending on the size and opening angle of the flap	Depending on the selected ball valve
Standards/conformity	FDA-compliant components, Ex conformity	FDA-compliant components	ATEX II 2GD, SIL, CRN (stainless steel)	ATEX II 2GD, vacuum possible, FDA-compliant components	ATEX II 2GD, FDA-compliant components

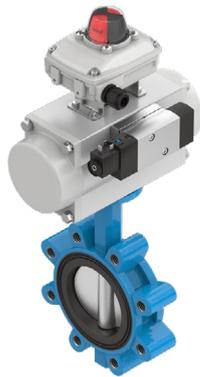
* Note: The value is calculated with water as the medium with a differential pressure of 1 bar

Fast and reliable configuration of automated process valves

The configurators from Festo save time and effort

The configurators for process valve units from Festo make selecting the optimum solution – whether manually operated or automated process valves – child's play. Simply select a few parameters and the

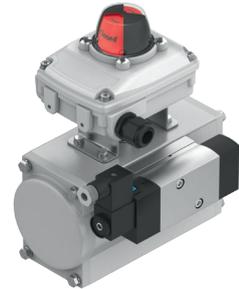
configurators will suggest appropriate combinations, making engineering in the process industry fast, reliable and easy.



Butterfly valve unit KVZA



Ball valve actuator unit KVZB



Configurable quarter turn actuator unit KDFF-DFFD



Everything from a single source!

Pneumatic automation technology

**Business Unit
Pneumatic Controls**
Controls, valves,
valve terminals



Actuate

**Business Unit
Pneumatic Motion**
Pneumatic drives



Pneumatic motion

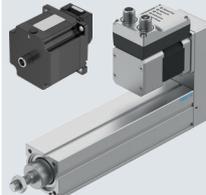
**Business Unit
Pneumatic Supply**
Compressed air
quality, hoses,
connection tech-
nology



Supply

Electric automation technology

**Business Unit
Electric Automation**
Electric drives



Electric motion

Process automation

**Business Unit
Process Automation**
Automation of
process valves



Control media

Life Tech

**Business Unit
Life Tech**
Laboratory automa-
tion



Control very small
quantities