

# Proportional valve VEMP

FESTO



## Small, light, inexpensive

### Highlights

- Unrivalled price/performance ratio
- Very low energy consumption thanks to piezo technology
- Compact design, minimal weight
- Silent
- Highly dynamic
- No heat build-up
- Long service life
- Proportional behaviour

The trend in diagnostic and therapeutic medicine is towards ever-smaller and lighter devices. In mobile applications, for example oxygen therapy, the emphasis is on minimal power consumption, low weight and high reliability. The proportional valve VEMP with piezo technology is perfect for these requirements.

### No heat build-up

The extremely compact proportional valve VEMP requires very little energy, i.e. just 1 mW: It retains its actual status without any current, and the flow rate can be changed with minimal current. This means that there is no heat generation. At 20 g it is light weight, making it for installation in mobile devices like portable oxygen therapy apparatus.

### Proportional behaviour

The VEMP enables extremely precise proportional control of gas flows from 0 ... 30 l/min as well as pressures. With a switching speed of 15 ms, it can react

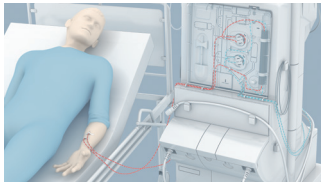
very quickly to setpoint changes. It is ideal for oxygen/ventilation therapy, medical mattresses, ophthalmology and dialysis. The flow setpoint can be set using a DC voltage, which means that no pulse-width modulated signal is required for control.

### Silent

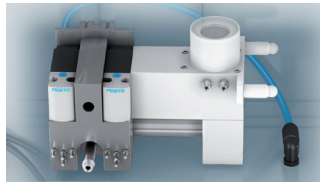
The piezo technology uses a completely different mechanical system to solenoid valves, and is quiet in operation.

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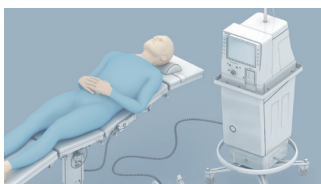
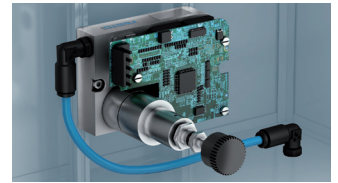
## Sample applications



Dialysis: regulating pressures for controlling flows



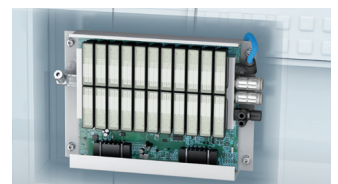
Oxygen and ventilation therapy/anaesthesia/gas mixer: regulating gas flows and pressures



Ophthalmology: controlling pneumatically operated surgical tools



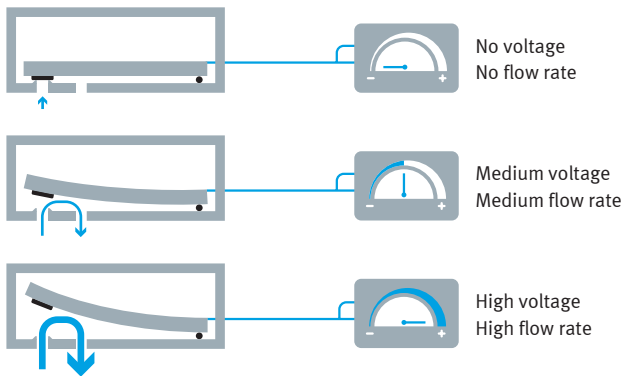
Medical mattresses/compression therapy: regulating gas flows and pressures



## Operational principle of piezo technology

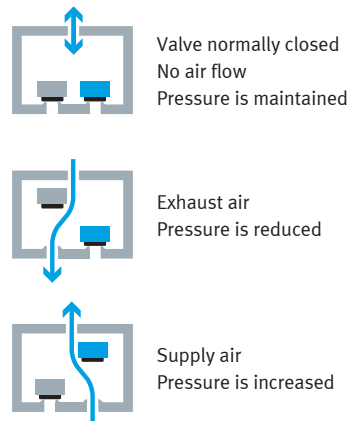
Festo uses the piezoelectric characteristics of certain ceramics, which mechanically deform when a voltage is applied. This makes

piezo valves infinitely adjustable and simplifies the dosing of concentrations.



## 3/3-way valve

Bending transducer:  
three functions in one valve



Technical data	Proportional valves VEMP			
	VEMP-BS-3-13-D7	VEMP-BS-3-16-D7	VEMP-BS-3-13-D19	VEMP-BS-3-16-D5
Valve function	3/3-way valve (normally closed), can also be used as a 2/2-way valve			
Nominal size [mm]	1.3	1.6	1.3	1.6
Maximum input pressure (port 1) [bar]	1.1	1.1	1.7	0.7
Exhaust (port 3) [bar]	0 (ambient)	0 (ambient)	0 (ambient)	0 (ambient)
Flow rate 1 → 2 (typ)	21 slpm at 1 bar 12.5 slpm at 0.5 bar	28 slpm at 1 bar 16 slpm at 0.5 bar	27 slpm at 1.5 bar	18 slpm at 0.5 bar 13 slpm at 0.3 bar 7 slpm at 0.1 bar
Flow rate 2 → 3 (typ)	22 slpm at 1 bar 15 slpm at 0.5 bar	29 slpm at 1 bar 19 slpm at 0.5 bar	29 slpm at 1.5 bar	19 slpm at 0.5 bar 14 slpm at 0.3 bar
Operating medium	Air, oxygen, nitrogen, inert gases			

The flow rate is calibrated according to DIN 1343 (1013 mbar, 0°C).