



Proportional valve terminal VTEP



Highlights

- Very compact: 10 channels on an overall width of less than 120 mm
- Extremely dynamic and precise control of pressure and vacuum
- Very flexible thanks to customisable control parameters
- Digital communication interface EtherCAT®
- Piezo technology for low energy consumption
- No wear and tear and no abrasion
- Quiet

High precision and dynamic response for compact multi-channel pressure control and with low flow rates are now also part of the Controlled Pneumatics portfolio – thanks to the valve terminal VTEP. It is perfect for many industries such as electronics and semiconductors, life science, textiles, battery production and many others.

Greater productivity, better quality

The high-precision, fast response time and dynamic control with VTEP helps to speed up production and at the same time ensures better quality of the manufactured products. This is how we make machines faster and more precise to give you a competitive edge.

Very compact

At less than 120 mm wide, VTEP is the most compact proportional valve terminal on the market for pressure control with 10 working

channels. There are three versions, 2-, 3- and 5-way, which can all be optimally integrated for multi-channel applications.

Pressure or vacuum? Both!

You can implement and even combine pressure or vacuum in a maximum control range of 6 bar.

Copper-, zinc- and nickel-free

Ideal for battery production and other industrial segments where these materials have a disruptive impact.

Complete with piezo

The directly controlled VTEP utilises piezo technology in the form of a valve bridge. This makes for a compact shape as well as a high control precision. The valve offers additional advantages such as:

- Quiet operation
- No wear
- No particle abrasion, and
- No heat build-up.



Additional information:

Product page

> <http://www.festo.com/vtep>

Online Shop

> www.festo.com/shop/vtep



Simple and efficient control with Controlled Pneumatics

With Controlled Pneumatics, Festo combines proportional valves, such as those used in VTEP, with sensor technology and control algorithms to form a control loop. This technology opens up completely new application areas for pneumatics and also makes conventional production more efficient in many places.

High control quality thanks to sophisticated algorithm

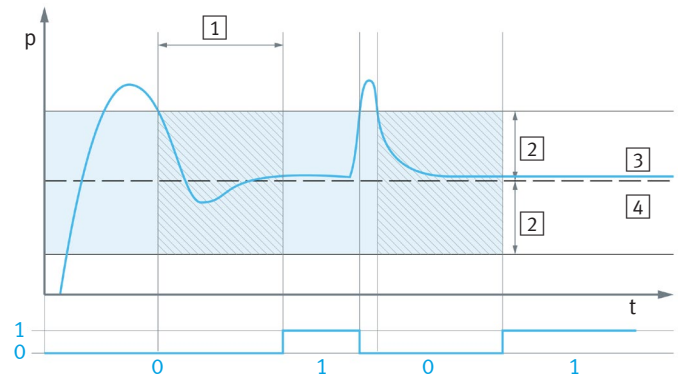
What used to involve complicated configurations and tricky programming is now quite simple. The closed-loop controller with sophisticated algorithms from Festo needs just a few parameters to be input. The result is high control accuracy with an optimum characteristic curve in relation to the setpoint value at the highest speed.

At the same time, the algorithm avoids unwanted vibrations, disturbance variables and control deviations, or corrects them almost in real time. The VTEP integrates the latest communication technology into a state-of-the-art, real-time infrastructure.

"Target reached" and changing presets during operation

The digitalisation of pneumatics makes further interesting functions possible. The "Motion complete" function, familiar from electric drive technology, is now also available for pneumatic pressure control as "Target reached". It reports whether the setpoint has been reached, holds it or initiates the next process step.

During operation, VTEP allows you to switch back and forth between different customer-specific parameters or presets in real time in order to generate different functionalities with the same valve.

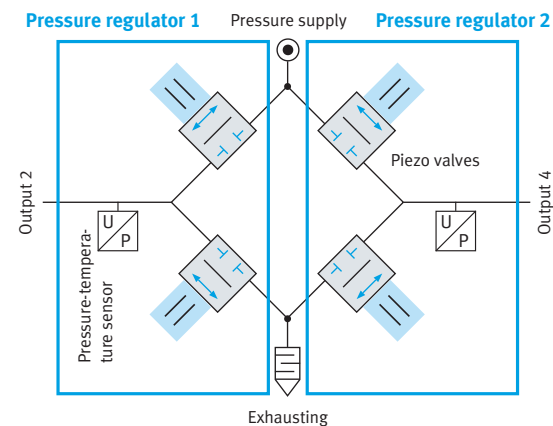
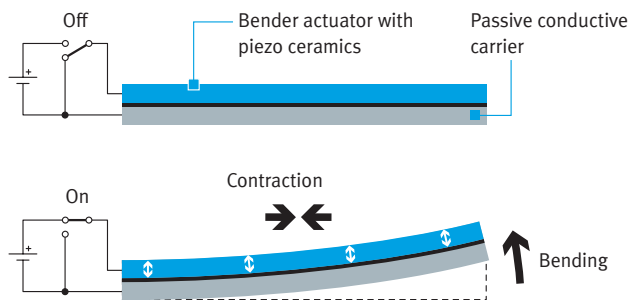


Piezo as a key technology

Another innovation that paved the way for Controlled Pneumatics is piezo technology, with which pressure and flow rate can be controlled very precisely. Piezo technology makes valves small, low-energy, efficient and fast. It is extremely accurate and reaches the specified setpoint values for pressure and vacuum in a valve very quickly.

Unique bridge circuit

The arrangement of the piezo valves in the form of a valve bridge allows two independent working channels to be controlled in one valve in products such as the VTEP or the Motion Terminal VTEM.



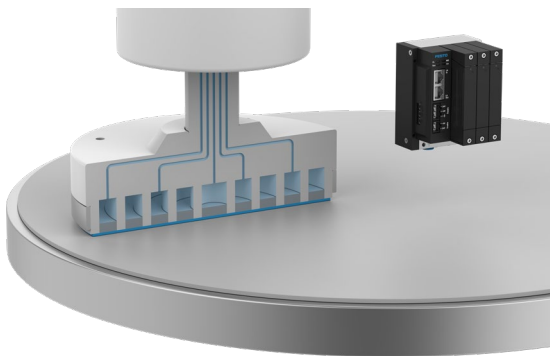


Perfect for many applications

Controlled Pneumatics opens up a wide range of applications in pressure and flow control, where both standard pneumatics and electric automation fall short.

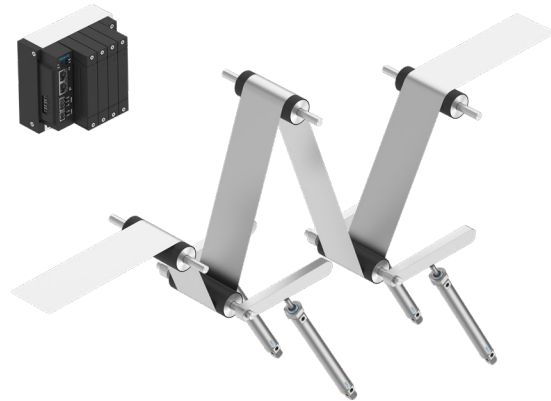
Highly precise, force-controlled polishing

The variable contact pressure of the individual polishing chambers on the polisher is controlled extremely precisely using Controlled Pneumatics and ensures excellent polishing results, even when polishing wafers.



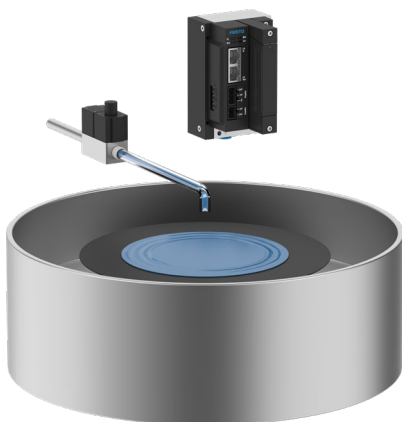
Best control for dancer rollers

Perfect timing in the event of unexpected forces improves process reliability in small and very large web control processes. The VTEP is suitable for the web control of battery foils, for example.



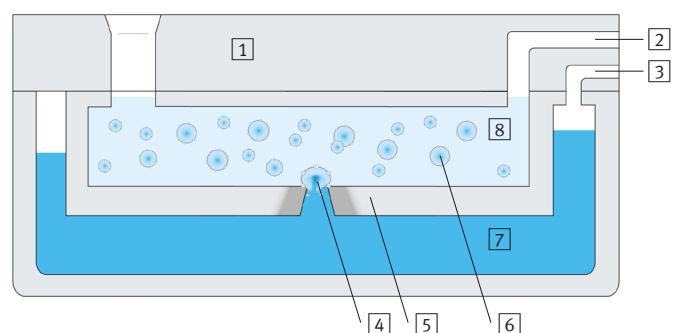
Pilot valve for process automation

Valves such as the VTEP are also used as pilot valves for media valves. In photolithography, for example, wafers have to be sealed very precisely with a light-resistant coating. A suck-back function ensures that no excess paint escapes.



Dispensing or dosing via pressure or vacuum

With the VTEP, it is possible to implement applications such as patch clamping human cells using pressure and vacuum. Paint, adhesives or liquids for testing and analysis can also be dispensed extremely precisely and according to an individual recipe with Controlled Pneumatics.



- | | |
|---------------------------------------|------------------------------|
| 1 Well plate for patch clamping | 5 Silicon chip |
| 2 Extracellular pressure | 6 Human cell |
| 3 Intracellular pressure | 7 Intracellular flow channel |
| 4 Cell positioned on patch clamp site | 8 Extracellular flow channel |

You can find numerous other applications online:

→ www.festo.com/controlledpneumatics

**The three variants of VTEP**

The proportional valve terminal VTEP is available in three versions with 2, 3 or 5 valve positions for up to 10 working channels. The pressure ranges from 0 .. 6 bar and -1 .. +1 bar make for a strong grip in the high pressure range, or allow very sensitive tasks to be carried out with absolute precision in the low pressure range.



VTEP with 2 valves / 4 channels



VTEP with 3 valves / 6 channels



VTEP with 5 valves / 10 channels

Flow rate booster

By switching working channels in parallel, you can multiply the flow rate via software parameters without affecting the pressure control.

Technical data

Feature		Value
Pressure regulation range	Standard pressure	0 ... 6 bar
	Low pressure	-1 ... 1 bar
Reproducibility	Standard pressure	< 0.4 % FS (full scale)
	Low pressure	< 0.3 % FS (full scale)
Parameter sets		Small, medium, large, customised
Normal flow rate per channel (Q _n)		35 l/min
Protocol		EtherCAT®, 2x RJ45
Pneumatic connection		QS-8 (media supply, exhausting) QS-4 (working port)
Valve technology		Piezo
Function		Normally closed (NC)
Operating voltage		24 V DC
Ambient temperature		5°C to 50°C
Degree of protection		IP20
Lubricating grease		Turmoxygen LCO25
Materials		Copper-, zinc- and nickel-free