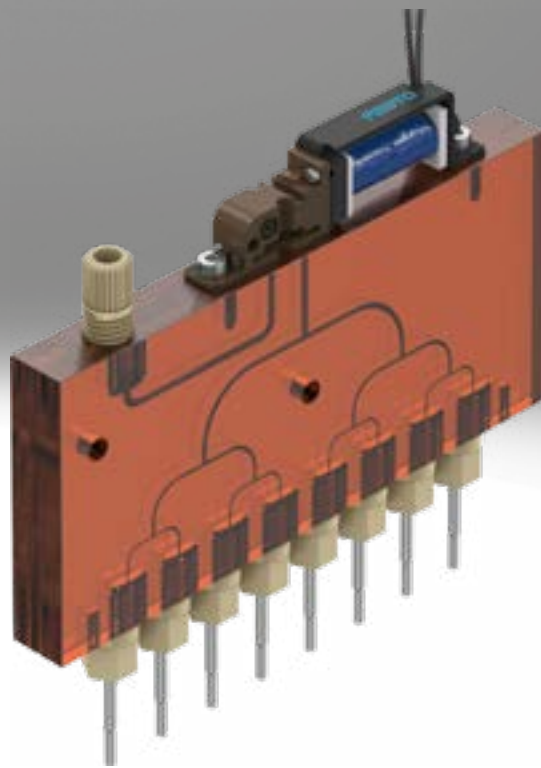


## Dispense head VTO1

**FESTO**



## Key features

### Description

Thanks to a grid dimension of 9 mm and a valve with 8 outputs, the VTOI can be easily connected in series, precisely matched to the microwell plate. A 96-channel dispense head can now be realised with only 12 valves.

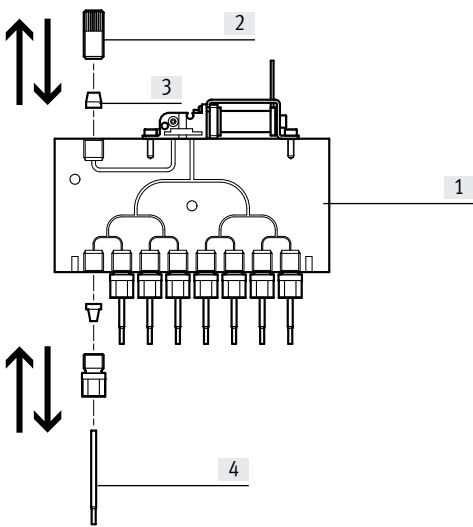
With just a few other components, you can have a complete dispensing system with a pressure-over-liquid setup.

As only high-performance materials such as PEI (ULTEM), PPS, FKM, ETFE and high-alloy stainless steel come into contact with the media, it is also possible to dispense and aspirate aggressive media.

### Benefits:

- Extremely precise
- 9 mm grid dimension ideal for microwell plates
- Simple design with side-by-side mounting for increased throughput
- Complete system using just a few components
- 1 valve for 8 channels

### Design of VTOI

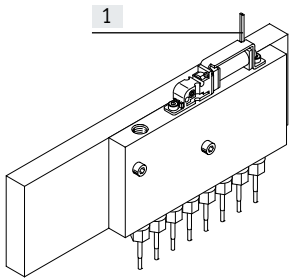


- [1] Dispense head VTOI
- [2] Plastic tubing
- [3] Clamping component
- [4] Dosing needle VAVN

### Typical areas of application:

- Filling microwell plates
- Dispensing gaseous and liquid media
- Dispensing and aspirating gaseous and liquid media

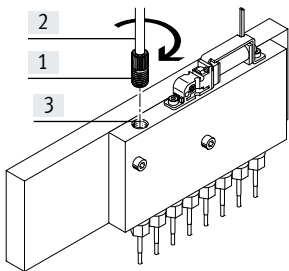
### Electrical installation



- [1] Electrical connection

Connect wire ends [1]. Polarity as desired.

### Fluid installation



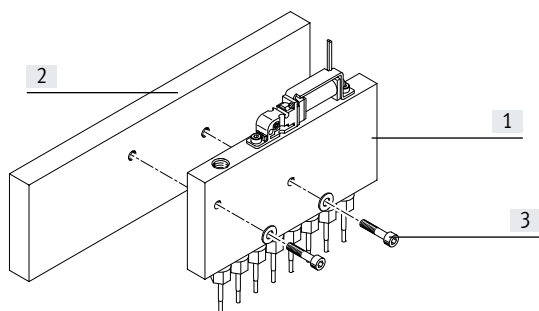
- [1] Clamping component
- [2] Tubing
- [3] Port

Mount the clamping component [1] on the tubing [2]. Then tighten the clamping component [1] in the port [3].

## Key features

## Description

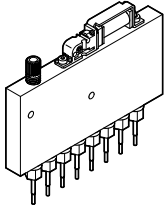
## Mounting



- [1] Dispense head VT01
- [2] Mounting surface
- [3] Screws

Position dispense head [1] on the mounting surface [2] and fasten using screws [3].

Product range overview

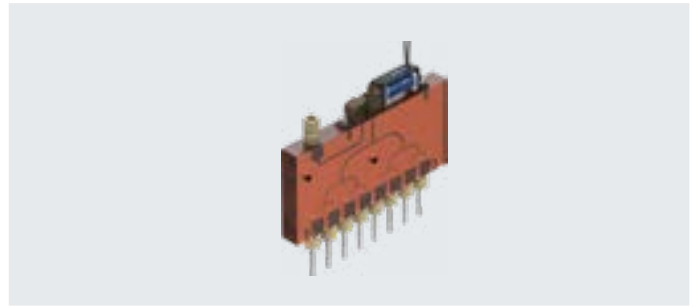
Function	Description	Nominal width of dosing needle	Operating voltage	
Dispense head		<b>2/2-way valve, normally closed, single solenoid</b>		
		Cable with plug, plug pattern L9, 2-pin	0.3 mm	24 V DC
		2x individual wire, open end, 2-wire	0.3 mm	24 V DC

## Type codes

001	Series		006	Input connection	
VTOI	Distributor		U14	Thread 1/4-28 UNF	
002	Dosing function		007	Nominal width	
	Dispensing		08	0.8 mm	
A	Dispensing and aspirating		008	Diaphragm and sealing material	
003	Valve positions		V	FPM	
	1 valve position		009	Valve control	
004	Distributor		L9	Connection pattern L9	
V8	8 outputs per valve position		S015	Individual connection, electric, with flying leads 0.15 m	
005	Output connection		010	Nominal operating voltage	
30D3	With metering nozzle, length 30 mm, tapered, nominal width 0.3 mm		1	24 V DC	

Data sheet

⚡ Voltage  
24 V DC



General technical data		VTOI-A-V8	VTOI-V8
Type			
Valve function		2/2-way valve, closed, single solenoid	
Reset method		Mechanical spring	
Nominal width	[mm]	0.8	
Nominal width of dosing needle	[mm]	0.3	
Internal volume	[µl]	167	
Min. dosing volume	[µl]	1	
Typical dosing precision		<= 5% tip-to-tip CV, <= 3% intra-run CV	
Operating pressure	[bar]	-0.2 ... 0.65	0 ... 1
Grid dimension	[mm]	9	
Fluid connection		Female thread 1/4-28 UNF-2B	
Note on fluid connection		Fitting for tubing with 3 mm outside diameter enclosed	
Actuation type		Electrical	
Type of control		Direct	
Sealing principle		Soft	
Type of mounting		Via through-hole for M3 screw	
Mounting position		Vertical	
Product weight	[g]	55	
Suitability for vacuum		Yes	No
Electrical connection		Cable with plug, plug pattern L9, 2-pin	2x individual wire, open end, 2-wire
Cable length	[m]	0.15	
Wire ends		-	Unsheathed
Nominal conductor cross section		AWG28	-

Electrical data		VTOI-A-V8	VTOI-V8
Nominal operating voltage	[V DC]	24	
Permissible voltage fluctuations	[%]	+/- 10	
Max. electrical power consumption	[W]	2	1.8
Duty cycle ED	[%]	100	
Degree of protection		IP30	

Operating and environmental conditions	
Operating medium	Gaseous media Liquid media
Note on the operating/pilot medium	Observe resistance of materials in contact with the medium
Corrosion resistance class CRC <sup>1)</sup>	0

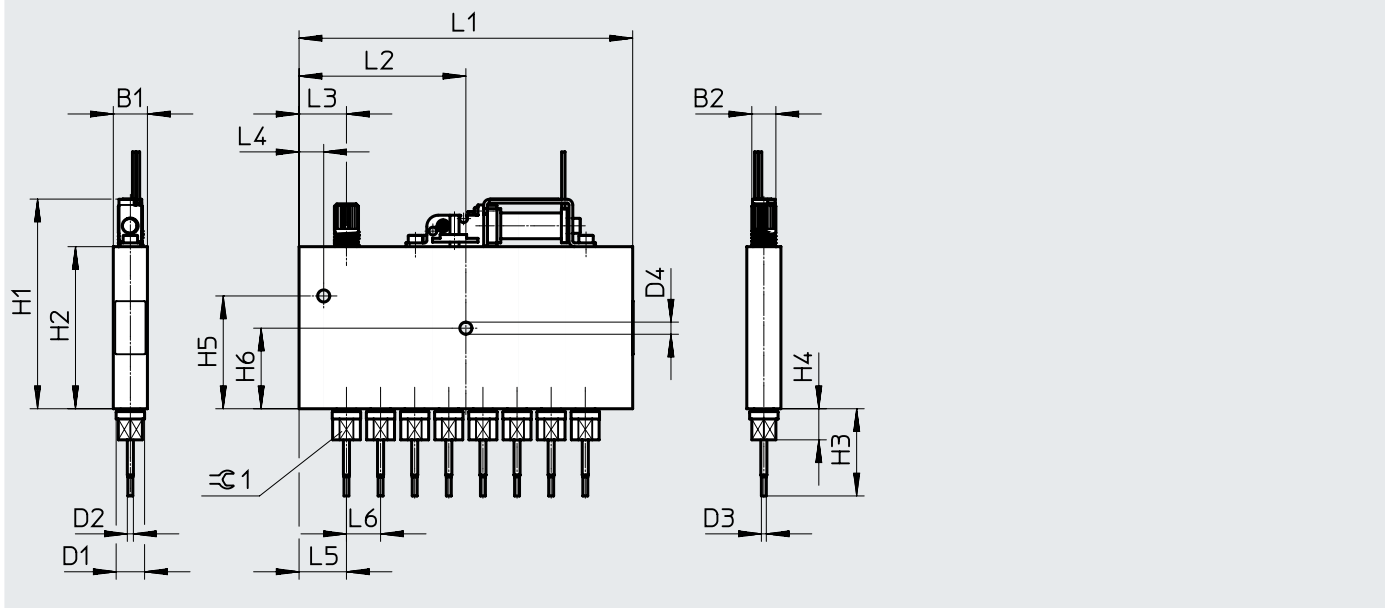
1) Corrosion resistance class CRC 0 to Festo standard FN 940070  
No corrosion stress. Applies to small, visually unimportant standard parts such as threaded pins, circlips and clamping sleeves which are usually only available on the market in a phosphated or burnished version (and possibly oiled) as well as to ball bearings (for components < CRC 3) and plain bearings.

Materials	
Dosing needle material	High-alloy stainless steel
Material number for dosing needle	1.4404
Note on materials	RoHS-compliant Contains paint-wetting impairment substances
Materials in contact with the media	ETFE, FPM, PEI, PPS, high-alloy stainless steel

Data sheet

Dimensions

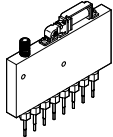
Download CAD data → [www.festo.com](http://www.festo.com)




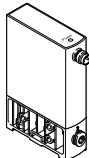
Type	B1	B2	D1 ∅	D2 ∅	D3 ∅	D4 ∅	H1	H2	H3	H4	H5	H6
VTOI	9	6.4	7.5	1.6	1.3	3.2	55.3	42.8	23	8.2	29.8	21.2

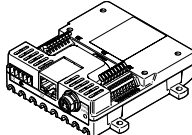
Type	L1	L2	L3	L4	L5	L6
VTOI	88	44	12.5	6.5	12.5	9

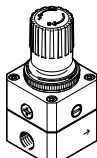
Accessories

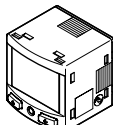
Ordering data		Description	Part no.	Type
Dispense head				
	2/2-way valve, normally closed	Cable with plug, plug pattern L9, 2-pin	8114038	VT01-A-V8-30D3-U14-08-V-L9-1
		2x individual wire, open end, 2-wire	8114037	VT01-V8-30D3-U14-08-V-S015-1


Ordering data		Nominal width	Length	Dosing needle version	Part no.	Type
Dosing needle set (precision needle sets with even smaller manufacturing tolerances than the dosing needles fitted as standard)						
	0.3 mm	30 mm	With chamfer, with taper	8104295	VAVN-N-A1.6-03-30-F-V-V1-P10	
			With taper	8104294	VAVN-N-A1.6-03-30-V-V1-P10	
		60 mm	With chamfer, with taper	8104298	VAVN-N-A1.6-03-60-F-V-V1-P10	
			With taper	8104297	VAVN-N-A1.6-03-60-V-V1-P10	
	0.6 mm	30 mm	-	8104290	VAVN-N-A1.6-06-30-V1-P10	
			With taper	8104296	VAVN-N-A1.6-06-30-V-V1-P10	
		60 mm	-	8104292	VAVN-N-A1.6-06-60-V1-P10	
			With taper	8104299	VAVN-N-A1.6-06-60-V-V1-P10	
	1.2 mm	30 mm	-	8104291	VAVN-N-A1.6-12-30-V1-P10	
			-	8104293	VAVN-N-A1.6-12-60-V1-P10	

Proportional pressure regulator				
	Current type, 4 ... 20 mA	Pressure regulation range 0.005 ... 1	8046304	VEAB-L-26-D7-Q4-A4-1R1
		Pressure regulation range 0.001 ... 0.2	8046302	VEAB-L-26-D12-Q4-A4-1R1
	Voltage type, 0 ... 10 V	Pressure regulation range 0.005 ... 1	8046303	VEAB-L-26-D7-Q4-V1-1R1
		Pressure regulation range 0.001 ... 0.2	8046301	VEAB-L-26-D12-Q4-V1-1R1

Valve control module			
	For up to 8 solenoid valves	8088772	VAEM-V-S8EPRS2
		8088772	VAEM-V-S8EPRS2

Precision pressure regulator				
	For regulating the operating pressure	Pressure regulation range 0.05 ... 0.7	159500	LRP-1/4-0.7

Pressure sensor				
	For monitoring compressed air and non-corrosive gases		8035542	SPAN-B2R-Q4-PNLK-PNVBA-L1

Plastic tubing				
	<ul style="list-style-type: none"> <li>• Colour: blue</li> <li>• Material: TPE-U (PU)</li> <li>• Ambient temperature: -35 ... 60°C</li> </ul>	197382	PUN-H-3X0.5-BL	
		<ul style="list-style-type: none"> <li>• Colour: neutral</li> <li>• Material: TPE-U (PU)</li> <li>• Ambient temperature: -35 ... 60°C</li> </ul>	197375	PUN-H-3X0.5-NT
			<ul style="list-style-type: none"> <li>• Colour: neutral</li> <li>• Material: PFA</li> <li>• Ambient temperature: -20 ... 150°C</li> </ul>	8061167