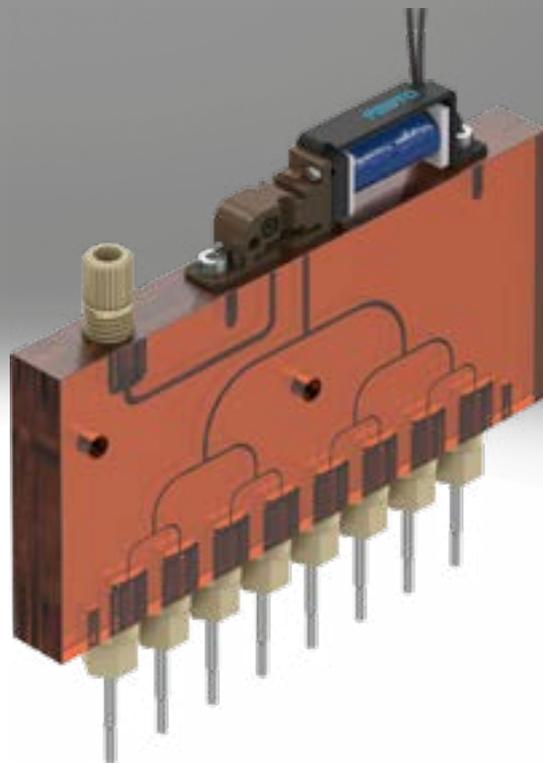


Dispense head VTOI

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.

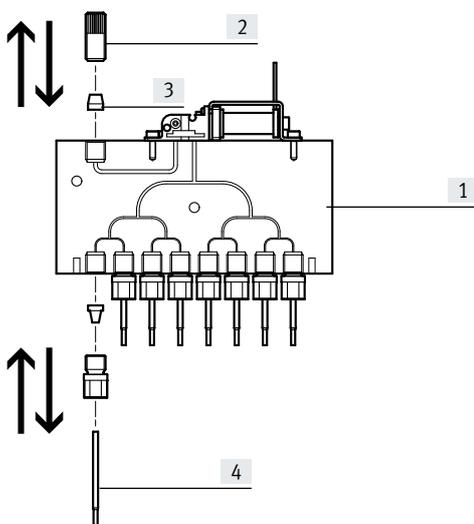
With just a few other components, you can have a complete dispensing system with a pressure-over-liquid setup.

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

Advantages:

- 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

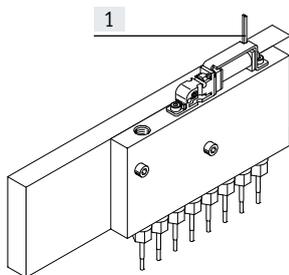


- [1] Dispense head VTOI
- [2] Fitting
- [3] Clamping component
- [4] Dosing needle VAVN

Typical areas of application:

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

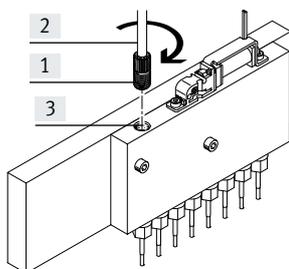
Electrical installation



- [1] Electrical connection

Connect wire ends [1]. Polarity as desired.

Fluid installation



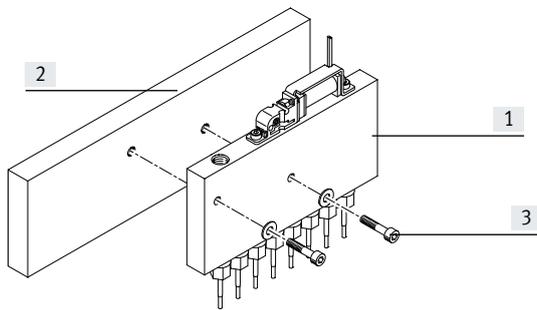
- [1] Fitting with clamping component
- [2] Tubing
- [3] Port

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

Key features

Description

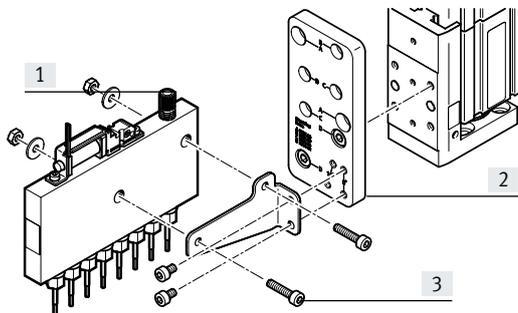
Mounting



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

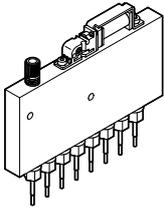
Position dispense head [1] on the mounting surface [2] and fasten using screws [3].

Mounting on drive with adapter plate



- [1] Dispense head VTOI
- [2] Adapter plate
- [3] Screws

Product range overview

Function	Description	Nominal size Dosing needle	Operating voltage
Dispense head	 <p>2/2-way valve, normally closed, single solenoid</p>	0.3 mm	24 V DC

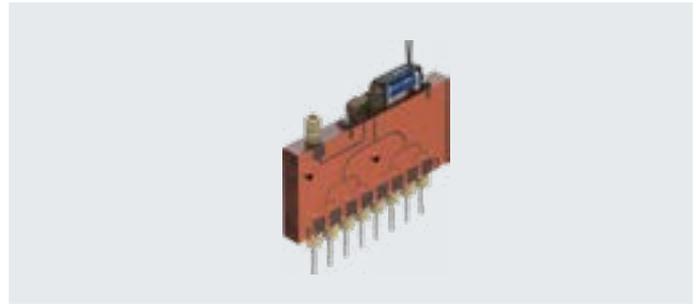
Type codes

001	Series	
VTOI	Distributor	
002	Dosing function	
	Dispensing	
A	Dispensing and aspirating	
003	Valve positions	
	1 valve position	
004	Distributor	
V8	8 outputs per valve position	
005	Output connection	
30D3	With metering nozzle, length 30 mm, tapered, nominal width 0.3 mm	

006	Input connection	
U14	Thread 1/4-28 UNF	
007	Nominal width	
08	0.8 mm	
008	Diaphragm and sealing material	
V	FPM	
009	Valve control	
S015	Individual connection, electric, with flying leads 0.15 m	
010	Nominal operating voltage	
1	24 V DC	

Datasheet

⚡ Voltage
24 V DC



General technical data			VTOI-A-V8	VTOI-V8
Type			VTOI-A-V8	VTOI-V8
Valve function			2/2-way valve, closed, single solenoid	
Reset method			Mechanical spring	
Nominal size	[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	
Switching times	On	[ms]	–	7
	Off	[ms]	–	2
Operating pressure		[MPa]	–0.02 ... 0.065	0 ... 0.1
		[bar]	–0.2 ... 0.65	0 ... 1
		[psi]	–2.9 ... 9.425	0 ... 14.5
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			With through-hole for M3 screw	
Mounting position			Vertical	
Product weight	[g]		55	52
Suitable for vacuum			Yes	No
Electrical connection			2x individual wire, open end, 2-wire	
Cable length	[m]		0.15	
Wire ends			Stripped	

Safety data			VTOI-A-V8	VTOI-V8
Shock resistance			Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27	
Vibration resistance			Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6	

Electrical data			VTOI-A-V8	VTOI-V8
Max. switching frequency	[Hz]		–	4
Nominal operating voltage	[V DC]		24	
Permissible voltage fluctuations	[%]		+/- 10	
Max. electrical power consumption	[W]		2	1.8
Duty cycle	[%]		100	
Degree of protection			IP30 (when mounted)	

Datasheet

Operating and environmental conditions	
Operating medium	Gaseous media Liquid media
LABS (PWIS) conformity	VDMA24364-B2-L
Note on the operating/pilot medium	Note resistance of materials in contact with the media Maximum particle size 20 µm
Storage temperature [°C]	5 ... 40
Ambient temperature [°C]	5 ... 40
Temperature of medium [°C]	5 ... 50
Corrosion resistance class CRC ¹⁾	0

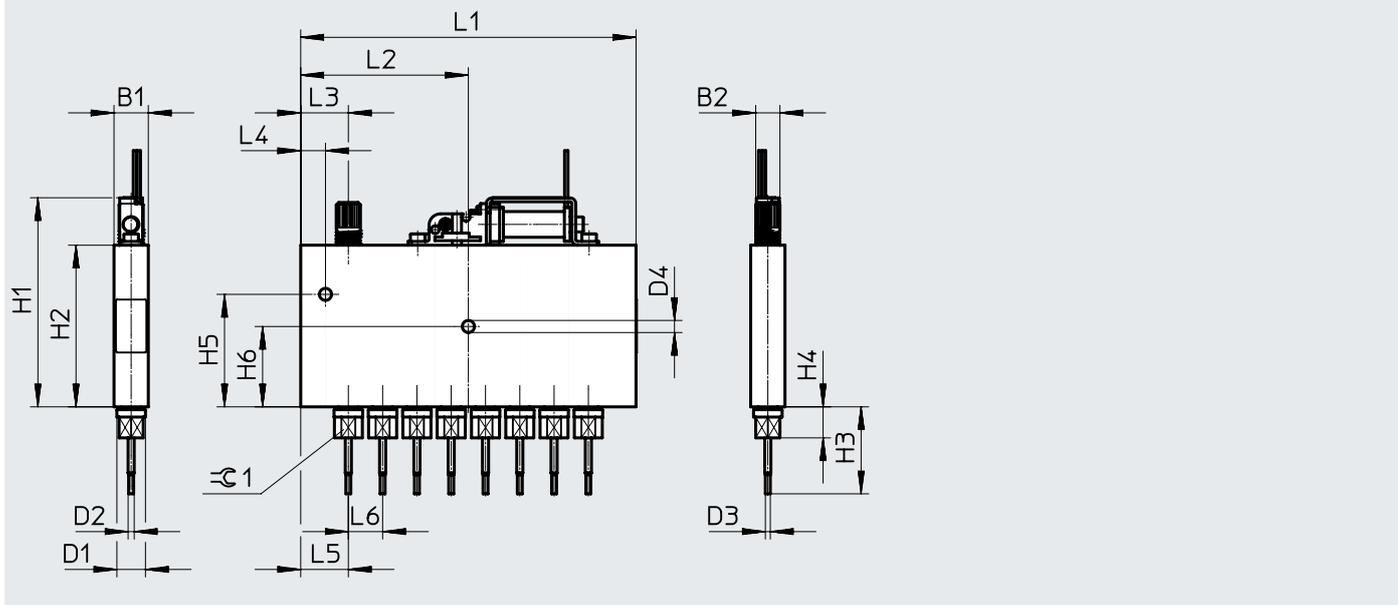
- 1) Corrosion resistance class CRC 0 to Festo standard FN 940070
No corrosion stress. Applies to small, visually unimportant standards-based parts such as threaded pins, circlips and clamping sleeves that are usually only available on the market in a phosphated or burnished version (and possibly oiled) 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
Materials in contact with the media	ETFE, FPM, PEI, PPS, high-alloy stainless steel

Datasheet

Dimensions

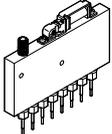
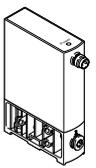
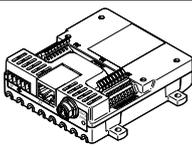
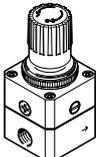
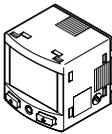
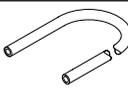
Download CAD data → www.festo.com



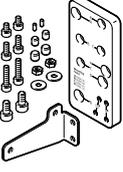
Type	B1	B2	D1 ∅	D2 ∅	D3 ∅	D4 ∅	H1	H2	H3	H4	H5	H6
VTOI	9	6.4	7.5	1.6	1.3	3.2	55.3	42.8	23	8.2	29.8	21.2

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

Accessories

Ordering data		Description	Operating pressure		Part no.	Type
			[MPa]	[bar]		
Dispense head						
	2/2-way valve, normally closed	2x individual wire, open end, 2-wire	-0.02 ... 0.065	-0.2 ... 0.65	8114038	VTOI-A-V8-30D3-U14-08-V-S015-1
			0 ... 0.1	0 ... 1	8114037	VTOI-V8-30D3-U14-08-V-S015-1
Proportional pressure regulator						
	Current type, 4 ... 20 mA		0.005 ... 0.1	0.05 ... 1	8046304	VEAB-L-26-D7-Q4-A4-1R1
			0.0001 ... 0.02	0.001 ... 0.2	8046302	VEAB-L-26-D12-Q4-A4-1R1
	Voltage type, 0 ... 10 V		0.0005 ... 0.1	0.005 ... 1	8046303	VEAB-L-26-D7-Q4-V1-1R1
			0.0001 ... 0.02	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
Precision pressure regulator						
	For regulating the operating pressure		-	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"> • Colour: blue • Material: TPE-U (PU) • Ambient temperature: -35 ... 60 °C 				197382	PUN-H-3X0.5-BL
	<ul style="list-style-type: none"> • Colour: neutral • Material: TPE-U (PU) • Ambient temperature: -35 ... 60 °C 				197375	PUN-H-3X0.5-NT
	<ul style="list-style-type: none"> • Colour: neutral • Material: PFA • Ambient temperature: -20 ... 150 °C 				8061167	PFAN-3X0.5-NT

Accessories

Ordering data	Description	Part no.	Type
<p>Adapter plate</p> 	<p>For mounting the dispense and control front module VTOE on the electric slides EGSK-20, EGSK-26, EGSC-25 and EGSC-32</p>	<p>8140775</p>	<p>EHAM-MA-E19-25-C14</p>