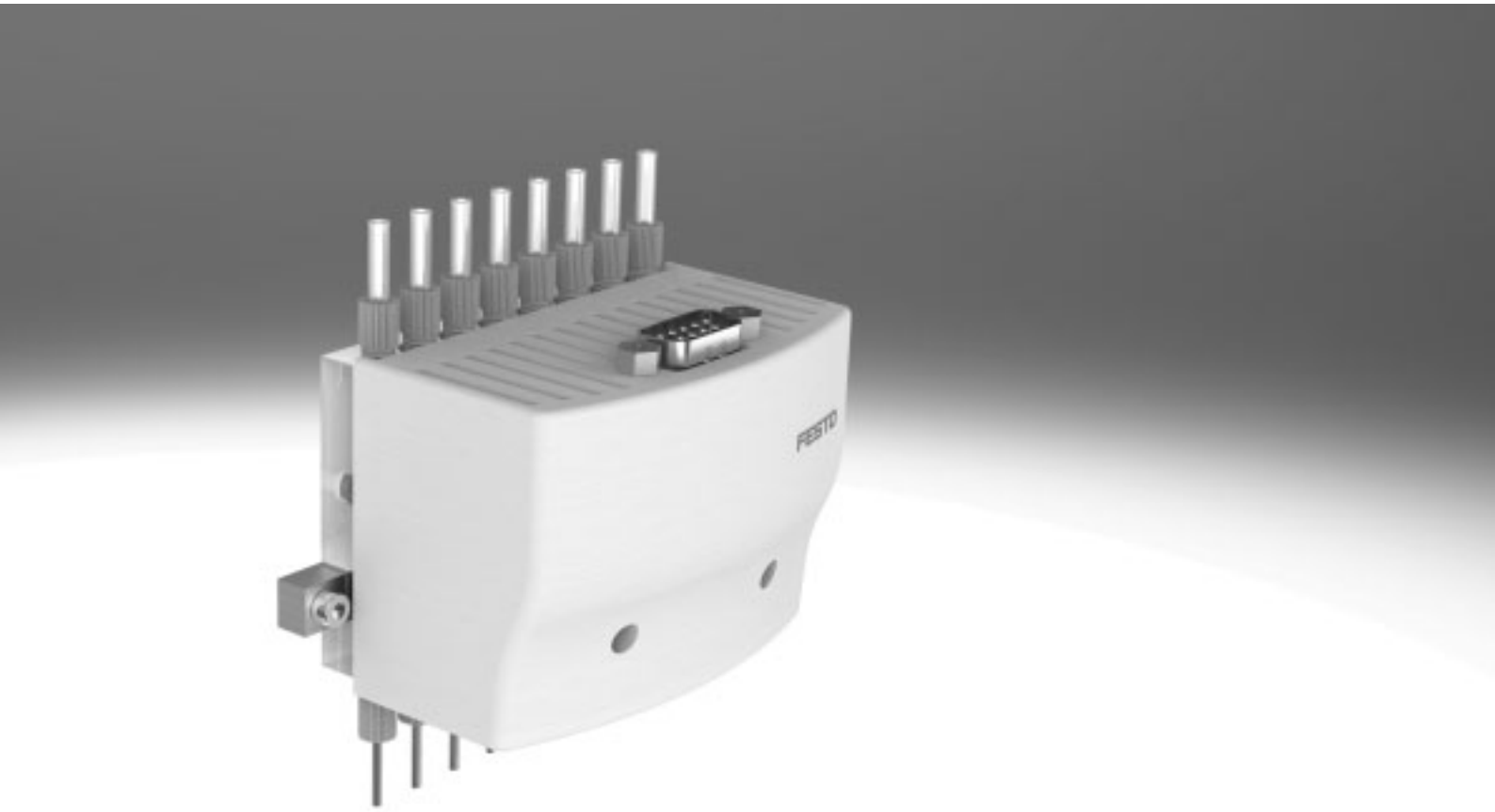
Dispense head VTOE



New

Dispense head VTOE

Key features

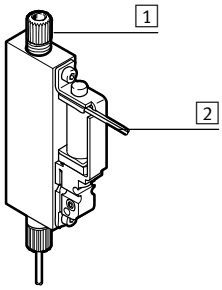
Description

The dispense head VTOE is available in two different variants:
- With transparent channel plate made from polycarbonate (PC)
- With a media-resistant channel plate made from polyether ether ketone (PEEK)

Both variants offer three different dosing syringes with three different internal diameters as standard.

Advantages:
- Ready-to-install dosing solution saves time and costs
- Compact 9 mm grid dimension
- Maximum dosing precision down to the microlitre range
- Ideally suited to contactless dispensing and jetting of liquid media
- Dosing valve isolated from the media, for sensitive and aggressive liquid media
- Small internal volume makes it easy to rinse

Design VTOE-...-S

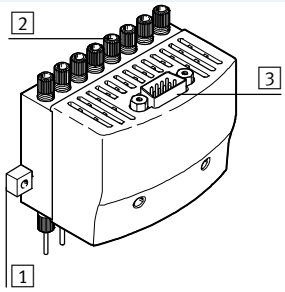


1 Fluid connector
2 Individual electrical connection

Single-channel dispense head:
enables dosing with the utmost precision.

Typical areas of application:
- Producing dilutions
- Adding nutrient solutions
- Dosing reagents

Design VTOE-8-...-M



1 Mounting rail
2 Fluid connectors
3 Electrical multi-pin plug connection

8-channel dispense head:
The system is optimally designed for microplates and enables a very high throughput as well as dosing of various fill quantities and liquid media. Individual control of the valves permits the channels to be coordinated for maximum precision.

Typical areas of application:
- Preparing samples
- Adding liquid media to microplates

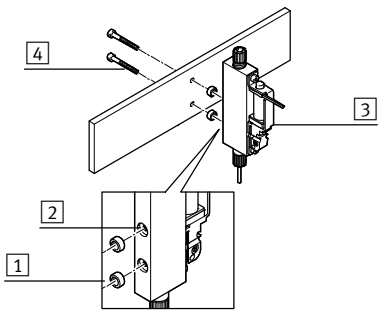
Range of applications

The dispense head VTOE is intended for use in dispensing liquid media into various vessels, especially microplates. The dispense head is designed for precisely dispensing the smallest amount of liquids, especially in applications in laboratory automation, analysis technology and in-vitro diagnostics. The media typically include reagents, cell culture media, buffer solutions and (prepared) samples.

Dosing is generally carried out contactlessly, i.e. a drop or jet is released from the dosing syringe without making contact with the destination vessel.

The intended target volume, precision and accuracy are primarily configured by the correct regulation of the working pressure and opening times of the dosing valves.

Assembly

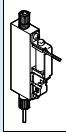
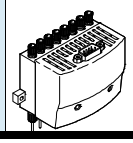


1 Centring rings
2 Holes
3 Dispense head
4 Screws

Position the centring rings in the holes and mount the dispense head on the rail using the screws.
Up to eight dispense heads can be mounted on one rail, with a grid dimension of 9 mm.

Dispense head VTOE

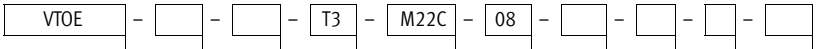
Product range overview

Function	Description		Nominal width dosing needle [mm]	Operating pressure [bar]	Operating voltage
Single-channel dispense head		2/2-way valve, normally closed, single solenoid			
		Electrical connection, cable, open end	0.32	0 ... 0.5	24 V DC
			0.6	0 ... 0.5	24 V DC
			1.0	0 ... 0.5	24 V DC
8-channel dispense head		8x 2/2-way valves, normally closed, single solenoid			
		Electrical connection, Sub-D, 9-pin	0.32	0 ... 0.5	24 V DC
			0.6	0 ... 0.5	24 V DC
			1.0	0 ... 0.5	24 V DC

New

Dispense head VTOE

Type codes



Type	
VTOE	Dispense head

Valve position	
–	1 valve position
8	8 valve positions

Output connection	
D7	Nozzle, length 30 mm, nominal width 0.32 mm
D8	Nozzle, length 30 mm, nominal width 0.6 mm
D9	Nozzle, length 30 mm, nominal width 1 mm

Input connection	
T3	For tubing with outside diameter 3 mm

Valve function	
M22C	2/2-way valve, normally closed

Nominal width	
08	0.8 mm

Diaphragm and sealing materials	
F	Perfluoroelastomer
V	Fluoroelastomer

Material housing	
P	Polyether ether ketone
S	Polyphenylene sulphide

Manifold block material	
P	Polyether ether ketone
PC	Polycarbonate

Valve control	
M	Electrical multi-pin plug connection
S	Individual electrical connection

Dispense head VTOE

Technical data

FESTO

Voltage
24 V DC

Operating pressure
0 ... 0.5 bar

General technical data				
Type			VTOE-...-S	VTOE-8-...-M
Valve function			2/2-way valve, closed, single solenoid	
Type of reset			Mechanical spring	
Nominal width of dosing needle	VTOE-...-D7	[mm]	0.32	0.32
	VTOE-...-D8	[mm]	0.6	0.6
	VTOE-...-D9	[mm]	1	1
Grid dimension		[mm]	9	
Fluid connector			UNF1/4-28	8x UNF1/4-28
Note on fluid connector			Fitting for tubing with 3 mm outside diameter enclosed	
Electrical connection				
Connection technology			Cable, open end, 2-wire	Sub-D plug connector, 9-pin
Cable length			0.15	–
Wire ends			Sheath removed	–
Nominal conductor cross section			AWG28	–
Type of actuation			Electrical	
Type of control			Direct	
Sealing principle			Soft	
Type of mounting			Via female thread M2 and centring sleeve	Via female thread and centring sleeve
			–	Via through-hole for M3 screw
Mounting position			Any	
Product weight		[g]	18	220

Electrical data		
Nominal operating voltage	[V DC]	24
Permissible voltage fluctuations	[%]	±10
Max. electrical power consumption	[mW]	1.8 (per valve)
Duty cycle	[%]	100
Degree of protection		IP30 (completely mounted)

Dispense head VTOE

Technical data

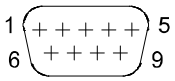
FESTO

Operating and environmental conditions		
Operating pressure	[bar]	0 ... 0.5
Operating medium		Gaseous media
		Liquid media
Note on the operating/pilot medium		Observe durability of materials that come into contact with the media
Ambient temperature	[°C]	5 ... 40
Temperature of medium	[°C]	5 ... 50
Storage temperature	[°C]	5 ... 40
Corrosion resistance class CRC		0[1)]

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, clamping sleeves etc. that are generally only available on the market in a phosphated or burnished version (oiled if applicable), as well as to ball bearings (for components <Φ0> XPX3) ανδ πλαιν βεαρινγσ.

Materials		
Dosing needle		High-alloy stainless steel
Note on materials		RoHS-compliant
		Contains paint-wetting impairment substances
Materials in contact with the medium	VTOE-...-V-S-PC	ETFE, PEEK, PC, PPS, FPM, high-alloy stainless steel
	VTOE-...-F-P-P	ETFE, PEEK, FFPM, high-alloy stainless steel
Material number for dosing needle		1.4301

Pin allocation



Pin	Function
1	Valve 1
2	Valve 2
...	
8	Valve 8
9	GND

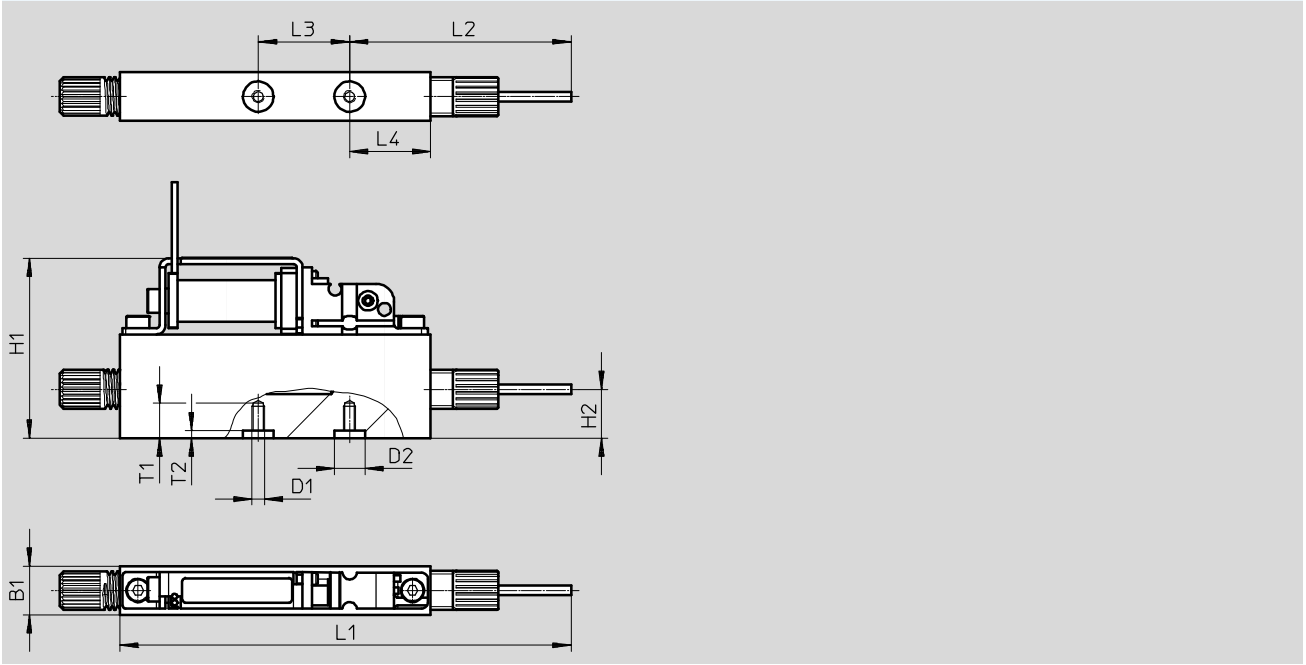
Dispense head VTOE

Technical data

FESTO

Dimensions Download CAD data ➔ **www.festo.com**

VTOE-...-S



Type	B1	D1	D2 ∅	H1	H2	L1	L2	L3	L4	T1	T2
VTOE-...-S	8.1	M2	5	30	8	74	36.3	15	13.3	5.2	1.2

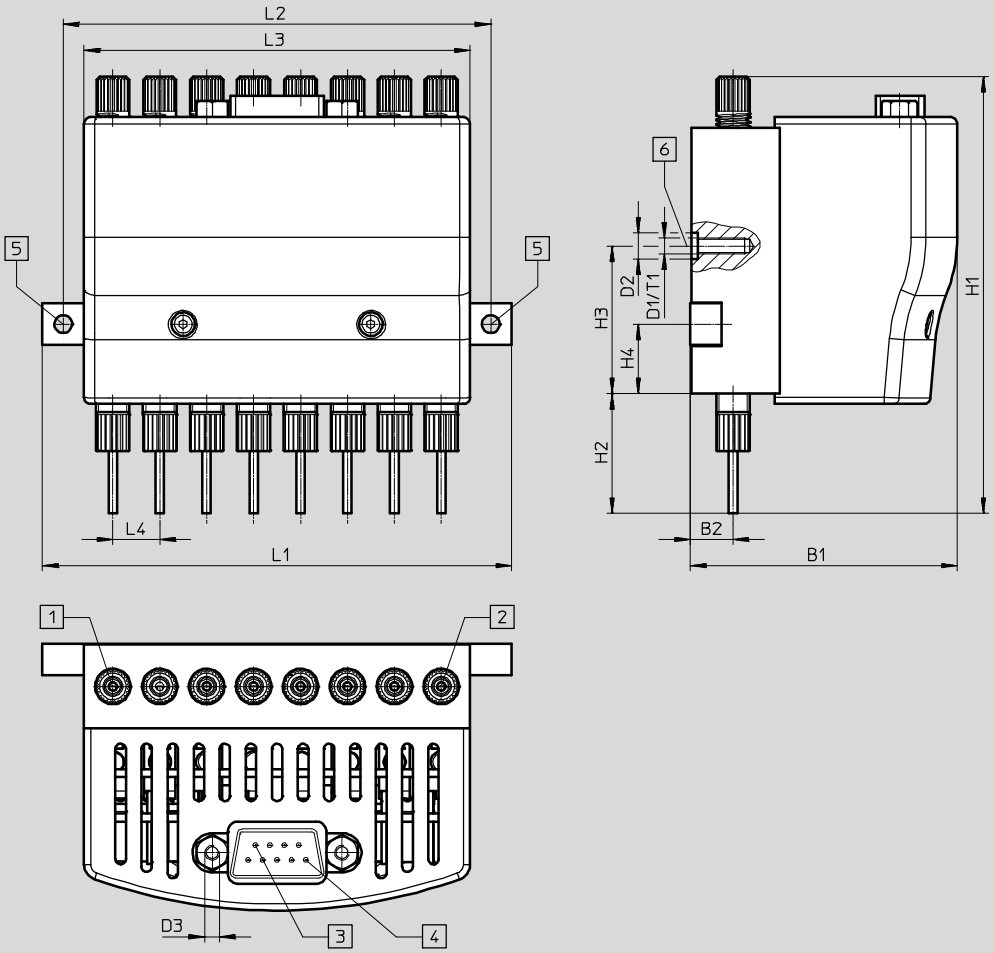
Dispense head VTOE

Technical data

FESTO

Dimensions Download CAD data ➔ **www.festo.com**

VTOE-8-...-M



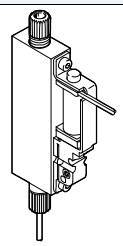
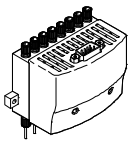
1 Channel 1
2 Channel 8
3 Pin 1
4 Pin 8
5 Hole for M3 screw
6 Optional: mounting without mounting rail – thread M3x min. 9

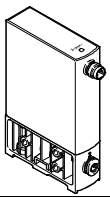
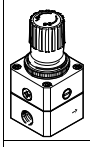
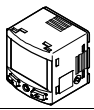
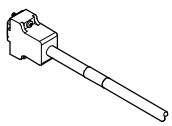
Type	B1	B2	D1 ∅	D2 ∅	D3 ∅	H1 ±2	H2	H3	H4	L1	L2	L3	L4	T1
VTOE-8-...-M	51.2	8.2	M3	5	UNC 4-40	84	23	28.3	13.3	90	82	74	9	10.2

Dispense head VTOE

Accessories

FESTO

Ordering data				
	Description	Nominal width dosing needle [mm]	Part No.	Type
Dispense head, individual connection				
	2/2-way valve, normally closed	0.32	**8063372**	**VTOE-D7-T3-M22C-08-F-P-P-S**
			8063369	**VTOE-D7-T3-M22C-08-V-S-PC-S**
		0.6	**8063373**	**VTOE-D8-T3-M22C-08-F-P-P-S**
			8063370	**VTOE-D8-T3-M22C-08-V-S-PC-S**
		1	**8063374**	**VTOE-D9-T3-M22C-08-F-P-P-S**
			8063371	**VTOE-D9-T3-M22C-08-V-S-PC-S**
Dispense head, 8-channel				
	8x 2/2-way valve, normally closed	0.32	**8063637**	**VTOE-8-D7-T3-M22C-08-F-P-P-M**
			8063634	**VTOE-8-D7-T3-M22C-08-V-S-PC-M**
		0.6	**8063638**	**VTOE-8-D8-T3-M22C-08-F-P-P-M**
			8063635	**VTOE-8-D8-T3-M22C-08-V-S-PC-M**
		1	**8063639**	**VTOE-8-D9-T3-M22C-08-F-P-P-M**
			8063636	**VTOE-8-D9-T3-M22C-08-V-S-PC-M**

Ordering data				
		Pressure regulation range [bar]	Part No.	Type
In-line valve				
	Current type, 4 … 20 mA	0.005 … 1	**8046304**	**VEAB-L-26-D7-Q4-A4-1R1**
		0.001 … 0.2	**8046302**	**VEAB-L-26-D12-Q4-A4-1R1**
	Voltage type, 0 … 10 V	0.005 … 1	**8046303**	**VEAB-L-26-D7-Q4-V1-1R1**
		0.001 … 0.2	**8046301**	**VEAB-L-26-D12-Q4-V1-1R1**
Precision pressure regulator				
	For closed-loop control of 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				
	–		**159660**	**PUN-3X0,5-BL**
Connecting cable				
	Sub-D socket, 9-pin	2.5 m	**531184**	**KMP6-09P-8-2,5**
		5 m	**531185**	**KMP6-09P-8-5**
		10 m	**531186**	**KMP6-09P-8-10**