

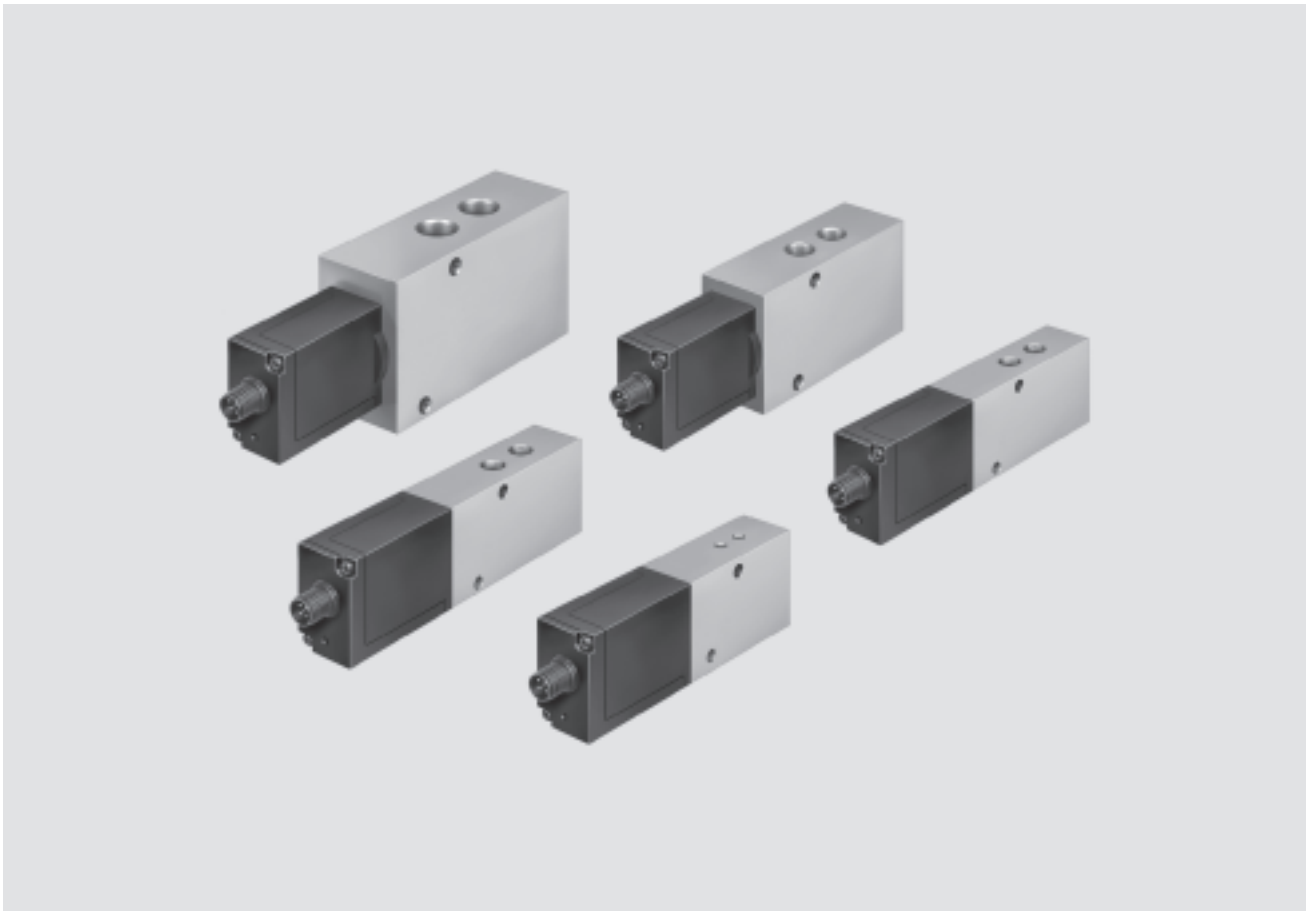


- High dynamics
- Final control element for closed control loops
- 5/3 –way function

# Proportional directional control valves MPYE

Key features

FESTO



Servopneumatic positioning systems  
Proportional directional control valves

## 1.5

### General information

- The directly actuated proportional directional control valve has a position-controlled spool. This transforms an analogue input signal into a corresponding opening cross-section at the valve outputs.
- In combination with an external position controller and displacement encoder, a precise pneumatic positioning system can be created.
- Flow control function for varying cylinder speed
- 5/3-way function for varying the direction of movement

### Wide choice of variants

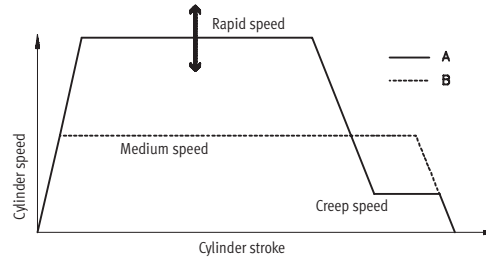
- Setpoint value input
  - Analogue voltage signal
  - Analogue current signal
- Flow rates from 100 ... 2 000 l/min

# Proportional directional control valves MPYE

Key features and type codes

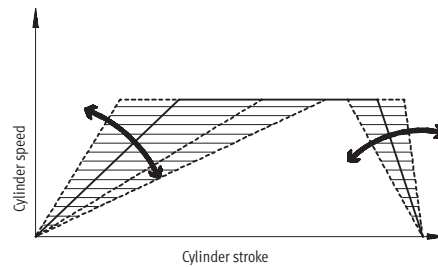
## Short machine cycle times – fast switching of programmed flow rates

- Reduce machine cycle times by optimising cylinder speeds
    - Assembly technology
    - Handling technology
    - Furniture industry
- A: Proportional valves allow different speed levels and speed ramps to be set.
- B: Speed regulation with directional control valves is more difficult and is performed by means of exhaust air flow control.



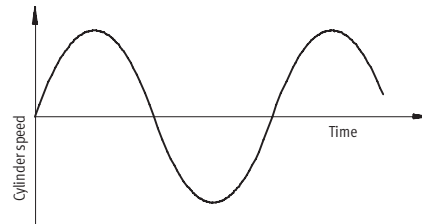
## Flexible cylinder speeds – Achieving variable flow rates

- Flexibly adapting cylinder speeds to the process. Traversing individual acceleration ramps (gentle approach with delicate goods)
  - Automobile suppliers
  - Production technology
  - Conveyor technology
  - Test engineering



## Proportional directional control valve as final control element – Dynamic and fast changing of flow rates

- Fatigue tests
- Pneumatic positioning with SPC200
- SoftStop with end-position controller SPC11



## Type codes

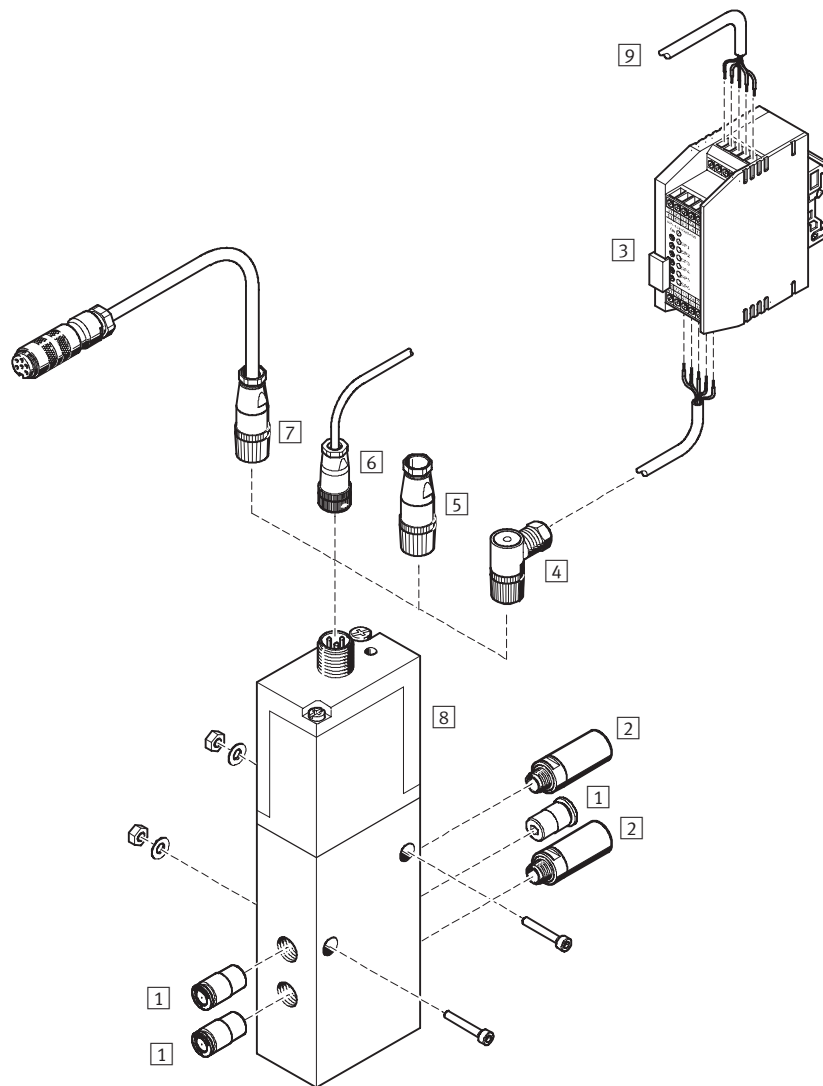
MPYE – 5 – 1/8 LF – 010 – B

Type	
MPYE	Proportional directional control valve
Valve function	
5	5/3-way valve
Pneumatic connection	
M5	M5
1/8 LF	G1/8 Low Flow
1/8 HF	G1/8 High Flow
1/4	G1/4
3/8	G3/8
Setpoint value input	
010	Analogue voltage signal
420	Analogue current signal
Generation	
B	B series

# Proportional directional control valves MPYE

Peripherals overview

FESTO

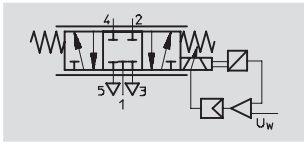


Accessories		
	Brief description	→ Page/Internet
1	Push-in fitting QS	quick star
2	Silencer	u
3	Setpoint module MPZ	–
4	Sensor socket SIE-WD-TR	8
5	Sensor socket SIE-GD	8
6	Connecting cable KMPYE	8
7	Connecting cable KVIA-MPYE	8
8	Proportional directional control valve MPYE	5
9	Digital input/output	–

# Proportional directional control valves MPYE

Technical data

## Function



## Variants

- Setpoint value input as analogue voltage signal 0 ... 10 V
- Setpoint value input as analogue current signal 4 ... 20 mA



- - Voltage  
17 ... 30 V DC
- - Flow rate  
100 ... 2 000 l/min
- - Pressure  
0 ... 10 bar

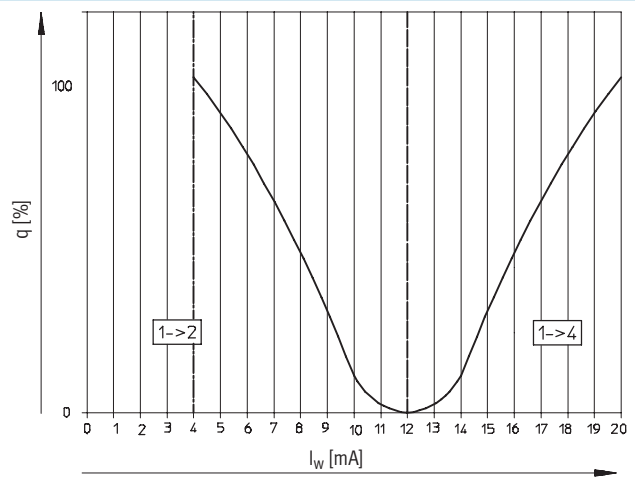
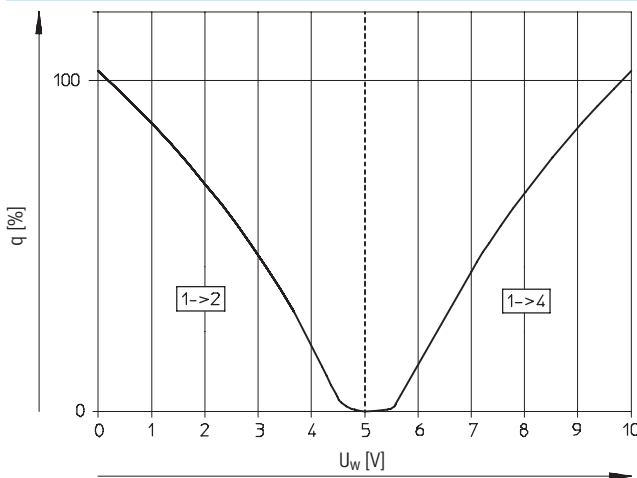
General technical data						
Pneumatic connection	M5	G1/8		G1/4	G3/8	
		Low flow	High flow			
Valve function	5/3-way, normally closed					
Constructional design	Piston spool, directly actuated, controlled piston spool position					
Sealing principle	Hard					
Actuation type	Electrical					
Type of reset	Mechanical spring					
Type of pilot control	Direct					
Direction of flow	Non-reversible					
Type of mounting	Via through-holes					
Mounting position <sup>1)</sup>	Any					
Operating medium	Compressed air, filtered (to 5 µm), unlubricated					
Nominal size	[mm]	2	4	6	8	10
Standard nominal flow rate	[l/min]	100	350	700	1 400	2 000
Product weight	[g]	290	330	330	530	740

1) If the proportional directional control valve is in motion during operation, it must be mounted at right angles to the direction of movement.

## Flow rate $q$ at 6 → 5 bar as a function of the setpoint voltage $U$

Voltage type MPYE-5...-010-B

Current type MPYE-5...-420-B



# Proportional directional control valves MPYE

Technical data

FESTO

Electrical data		M5	G $\frac{1}{8}$ Low flow	High flow	G $\frac{1}{4}$	G $\frac{3}{8}$	
Pneumatic connection							
Power supply	[V DC]	17 ... 30					
Max. current consumption	in mid-position	[mA]	100				
	at full stroke	[mA]	1 100				
Setpoint value	Voltage type	[V DC]	0 ... 10				
	Current type	[mA]	4 ... 20				
Max. hysteresis <sup>1)</sup>		[%]	0.4				
Valve mid-position	Voltage type	[V DC]	5 ( $\pm 0.1$ )				
	Current type	[mA]	12 ( $\pm 0.16$ )				
Duty cycle <sup>2)</sup>		[%]	100				
Critical frequency <sup>3)</sup>		[Hz]	125	100	100	90	65
Safety setting		Active mid-position in the event of setpoint value cable break					
Protection against polarity reversal	Voltage type	For all electrical connections					
	Current type	For setpoint value					
Protection class		IP65					
Electrical connection		4-pin plug socket, round design, M12x1					

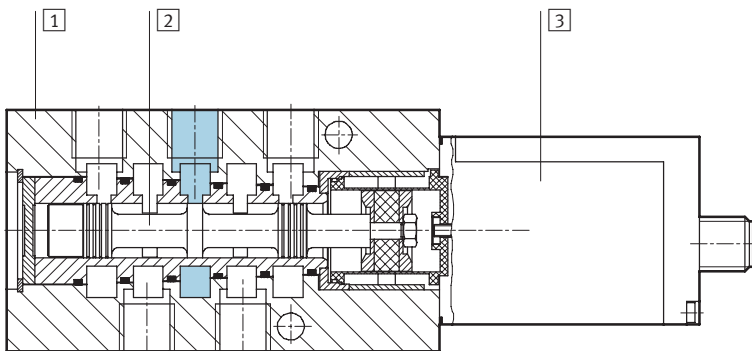
- 1) Referred to the maximum stroke of the piston spool.
- 2) The proportional direction control valve automatically switches off if it overheats (goes to mid-position) and switches back on once it cools down.
- 3) Corresponds to the 3dB frequency at the maximum movement stroke of the piston spool.

Operating and environmental conditions	
Operating pressure	[bar] 0 ... 10
Ambient temperature	[°C] 0 ... 50
Vibration resistance <sup>1)</sup>	To DIN/IEC 68 Parts 2 -6, severity level 2
Continuous shock resistance <sup>1)</sup>	To DIN/IEC 68 Parts 2 -27, severity level 2
CE symbol	To 89/336/EEC (EMC regulation)
Temperature of medium	[°C] 5 ... 40, condensation not permitted

- 1) If the proportional directional control valve is in motion during operation, it must be mounted at right angles to the direction of movement.

## Materials

Sectional view



1	Housing	Anodised aluminium
2	Valve spool	Tempered aluminium
3	Housing for electronics	Galvanised acrylic butadiene styrene
-	Seals	Nitrile rubber

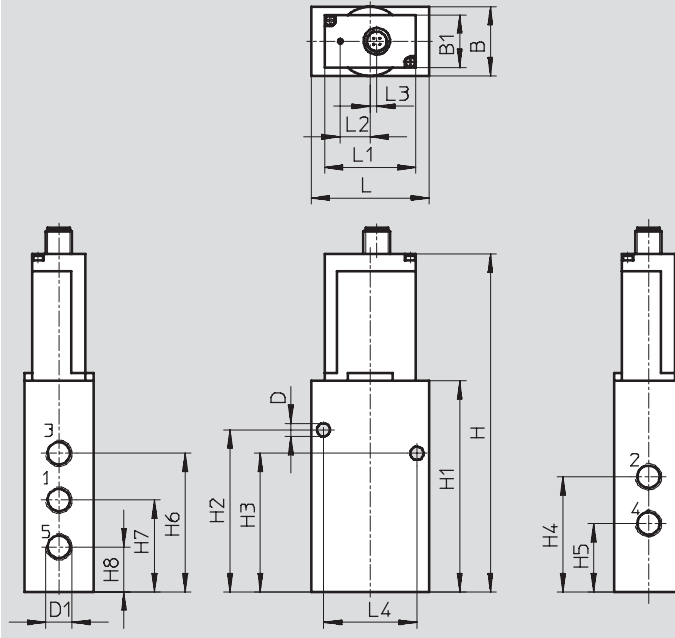
# Proportional directional control valves MPYE

Technical data

FESTO

## Dimensions

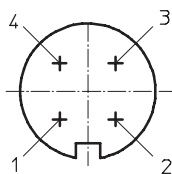
Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



Pneumatic connection D1	B	B1	D ∅	H	H1	H2	H3	H4
M5	26	–	5.5	129.9	69	56.1	38.1	32.1
G $\frac{3}{8}$	26	–	5.5	149.3	88.4	71.3	55.1	45.8
G $\frac{1}{4}$	35	26	6.5	164.6	103.7	79.6	68.1	56.6
G $\frac{3}{8}$	40	26	6.5	176.6	115.7	98.4	79.4	65.4

Pneumatic connection D1	H5	H6	H7	H8	L	L1	L2	L3	L4
M5	20.1	38.1	26.1	14.1	45	–	14.8	3.2	32
G $\frac{3}{8}$	26.8	55.3	36.3	17.3	45	–	14.8	3.2	35
G $\frac{1}{4}$	33.6	68.1	45.1	22.1	58	45	14.8	3.2	46
G $\frac{3}{8}$	37.4	82.4	51.4	20.4	67	45	14.8	3.2	54

## Terminal allocation



- 1 24 V DC, supply voltage
- 2 GND
- 3  $U_w/I_w$  setpoint input
- 4 GND


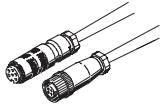




## Ordering data

Pneumatic connection	Voltage type 0 ... 10 mV		Current type 4 ... 20 mA	
	Part No.	Type	Part No.	Type
M5	154 200	MPYE-5-M5-010-B	162 959	MPYE-5-M5-420-B
G $\frac{3}{8}$	151 692	MPYE-5- $\frac{3}{8}$ LF-010-B	161 978	MPYE-5- $\frac{3}{8}$ LF-420-B
	151 693	MPYE-5- $\frac{3}{8}$ HF-010-B	161 979	MPYE-5- $\frac{3}{8}$ HF-420-B
G $\frac{1}{4}$	151 694	MPYE-5- $\frac{1}{4}$ -010-B	161 980	MPYE-5- $\frac{1}{4}$ -420-B
G $\frac{3}{8}$	151 695	MPYE-5- $\frac{3}{8}$ -010-B	161 981	MPYE-5- $\frac{3}{8}$ -420-B

# Proportional directional control valves MPYE

Accessories

**FESTO**

Ordering data			
	Description	Cable length [m]	Part No. Type
Connecting cable			Technical data → Internet: kmpye, kvia
	Screened	5	<b>151 909</b> KMPYE-5
		X length <sup>1)</sup>	<b>151 910</b> KMPYE-...
	Connecting cable to the analogue module of valve terminal type 03	5	<b>161 984</b> KVIA-MPYE-5
		10	<b>161 985</b> KVIA-MPYE-10
	Connecting cable to the axis interface of the axis controller SPC200	0.3	<b>170 239</b> KMPYE-AIF-1-GS-GD-0,3
		2	<b>170 238</b> KMPYE-AIF-1-GS-GD-2
Sensor socket			Technical data → Internet: sie-gd
	Straight, 4-pin, M12x1	–	<b>18 494</b> SIE-GD
Sensor socket			Technical data → Internet: sie-wd
	Angled, 4-pin, M12x1	–	<b>12 956</b> SIE-WD-TR
Setpoint module			Technical data → Internet: mpz
	Generation of 6+1 analogue setpoint values	–	<b>546 224</b> MPZ-1-24DC-SGH-6-SW5

1) Max. 10 m



# Product Range and Company Overview

## A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



**Custom Automation Components**  
Complete custom engineered solutions



**Custom Control Cabinets**  
Comprehensive engineering support and on-site services



**Complete Systems**  
Shipment, stocking and storage services

## The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



**Electromechanical**  
Electromechanical actuators, motors, controllers & drives



**Pneumatics**  
Pneumatic linear and rotary actuators, valves, and air supply



**PLCs and I/O Devices**  
PLC's, operator interfaces, sensors and I/O devices

## Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

## Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.



© Copyright 2008, Festo Corporation. While every effort is made to ensure that all dimensions and specifications are correct, Festo cannot guarantee that publications are completely free of any error, in particular typing or printing errors. Accordingly, Festo cannot be held responsible for the same. For Liability and Warranty conditions, refer to our "Terms and Conditions of Sale", available from your local Festo office. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Festo. All technical data subject to change according to technical update.



Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmentally friendly printing plant.

# Festo North America

## Festo Regional Contact Center

5300 Explorer Drive  
Mississauga, Ontario L4W 5G4  
Canada

### USA Customers:

For ordering assistance,

**Call:** 1.800.99.FESTO (1.800.993.3786)

**Fax:** 1.800.96.FESTO (1.800.963.3786)

**Email:** [customer.service@us.festo.com](mailto:customer.service@us.festo.com)

For technical support,

**Call:** 1.866.GO.FESTO (1.866.463.3786)

**Fax:** 1.800.96.FESTO (1.800.963.3786)

**Email:** [product.support@us.festo.com](mailto:product.support@us.festo.com)

### Canadian Customers:

**Call:** 1.877.GO.FESTO (1.877.463.3786)

**Fax:** 1.877.FX.FESTO (1.877.393.3786)

**Email:** [festo.canada@ca.festo.com](mailto:festo.canada@ca.festo.com)

---

## USA Headquarters

Festo Corporation  
395 Moreland Road  
P.O. Box 18023  
Hauppauge, NY 11788, USA  
[www.festo.com/us](http://www.festo.com/us)

---

## USA Sales Offices

### Appleton

North 922 Tower View Drive, Suite N  
Greenville, WI 54942, USA

### Boston

120 Presidential Way, Suite 330  
Woburn, MA 01801, USA

### Chicago

1441 East Business Center Drive  
Mt. Prospect, IL 60056, USA

### Dallas

1825 Lakeway Drive, Suite 600  
Lewisville, TX 75057, USA

### Detroit – Automotive Engineering Center

2601 Cambridge Court, Suite 320  
Auburn Hills, MI 48326, USA

### New York

395 Moreland Road  
Hauppauge, NY 11788, USA

### Silicon Valley

4935 Southfront Road, Suite F  
Livermore, CA 94550, USA

## United States



**USA Headquarters, East:** Festo Corp., 395 Moreland Road, Hauppauge, NY 11788

Phone: 1.631.435.0800; Fax: 1.631.435.8026;

Email: [info@festo-usa.com](mailto:info@festo-usa.com)

[www.festo.com/us](http://www.festo.com/us)

## Canada



**Headquarters:** Festo Inc., 5300 Explorer Drive, Mississauga, Ontario L4W 5G4

Phone: 1.905.624.9000; Fax: 1.905.624.9001;

Email: [festo.canada@ca.festo.com](mailto:festo.canada@ca.festo.com)

[www.festo.ca](http://www.festo.ca)

## Mexico



**Headquarters:** Festo Pneumatic, S.A., Av. Ceylán 3, Col. Tequesquahuac,  
54020 Tlalneantla, Edo. de México

Phone: 011 52 [55] 53 21 66 00; Fax: 011 52 [55] 53 21 66 65;

Email: [festo.mexico@mx.festo.com](mailto:festo.mexico@mx.festo.com)

[www.festo.com/mx](http://www.festo.com/mx)

---

## Central USA

Festo Corporation  
1441 East Business  
Center Drive  
Mt. Prospect, IL 60056, USA  
Phone: 1.847.759.2600  
Fax: 1.847.768.9480



## Western USA

Festo Corporation  
4935 Southfront Road,  
Suite F  
Livermore, CA 94550, USA  
Phone: 1.925.371.1099  
Fax: 1.925.245.1286



---

## Festo Worldwide

Argentina Australia Austria Belarus Belgium Brazil Bulgaria Canada Chile China Colombia Croatia Czech Republic Denmark  
Estonia Finland France Germany Great Britain Greece Hong Kong Hungary India Indonesia Iran Ireland Israel Italy Japan Latvia  
Lithuania Malaysia Mexico Netherlands New Zealand Norway Peru Philippines Poland Romania Russia Serbia Singapore  
Slovakia Slovenia South Africa South Korea Spain Sweden Switzerland Taiwan Thailand Turkey Ukraine United States Venezuela

[www.festo.com](http://www.festo.com)