

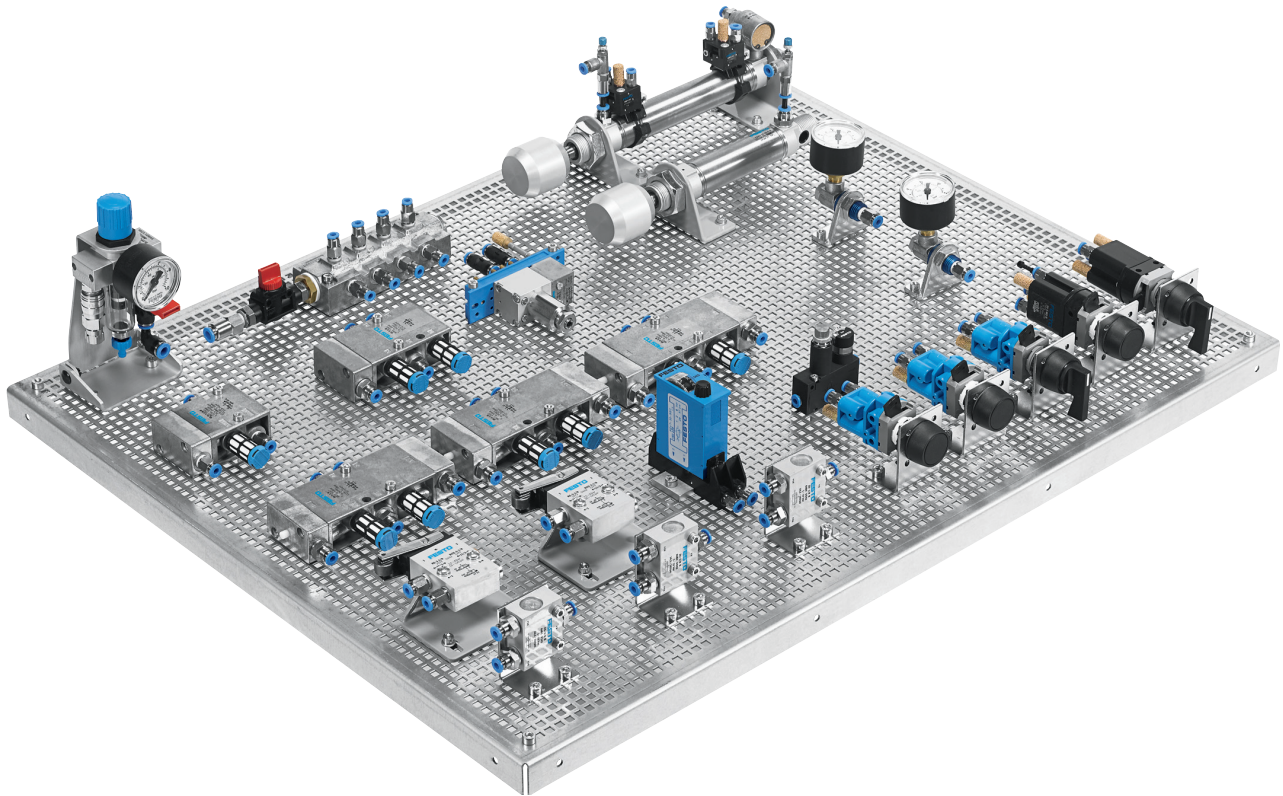
Basic Training in Pneumatics/Electropneumatics

Budget Solution



Basic Training in Pneumatics

LC 101 equipment set



Pneumatics, Basic level

The Classic as a Budget Solution

Conveying today what will be standard in the company tomorrow. The workbook contains a series of graduated project exercises based on actual industrial applications, an enhanced section on fundamentals and a multimedia CD-ROM.

The number of components and the design are specially tailored to the projects contained in the workbook. This means maximum training return for minimum investment. The industrial-quality components are not assembled and are intended for assembly on a perforated panel with an 8 mm grid.

Storage and organisational tools should be ordered separately.

Learning goals

- Structure, function and application of single-acting and double-acting cylinders
- Calculating basic parameters
- Direct and indirect actuation
- Application and function of 3/2 and 5/2-way valves
- Methods of actuation of directional control valves
- Analysing circuits
- Options for pressure measurement
- Pressure-dependent control systems
- Distinguishing flow control methods and using them as intended
- Explaining and building latching circuits
- Logic operations: explaining and implementing AND/OR/NOT operations
- Combining logic operations
- Function and application of limit switches
- Time delay valves
- Realising oscillating movement
- Economic considerations of using pneumatic components

Close up

In industrial applications, switches and valves should be mounted as close to the actuator as possible to ensure optimum performance. You can now apply the same principle when designing your circuits thanks to the new components.

Time delay valve

The pneumatic time delay valve permits precise adjustment and can be read easily from the front – pneumatics at their finest!

The best teachware for LC 101

The workbook

Provides detailed descriptions of industry-related projects with problem descriptions, parameters and project orders. Worksheets support the students through the required stages of planning, execution and function testing and provide sample solutions. New topics: economic considerations and notes on safety. Includes a multimedia CD-ROM containing photos and videos of industrial applications and circuit diagrams. Theoretical information is conveyed using animated cutaway models for greater comprehension and worksheets and exercise sheets can be reprinted as necessary.

| | |
|--------|--------|
| DE | 540671 |
| EN (1) | 541088 |
| ES | 542503 |
| FR | 542507 |

Optional supplements

- Design and simulation using FluidSIM® (2)
- Digital learning program, Pneumatics

| | |
|--|--------|
| Pneumatics LC 101 equipment set (without mounting plate) | 548682 |
|--|--------|

The most important components at a glance:

| | | |
|-----|--|--------|
| 2x | Plastic tubing PUN 4 x 0.75, packaging unit 10 m | 151496 |
| 1x | Plastic tubing PUN 6 x 1, packaging unit 5 m | 152963 |
| 10x | Push-in T-connector for tubing PUN 4 x 0.75 | 153128 |
| 1x | On-off valve with filter regulating valve | 540691 |
| 1x | Adjustable pressure regulating valve with pressure gauge | 153495 |
| 2x | 3/2-way valve, actuated by the ring magnet of the cylinder | 541189 |
| 3x | 5/2-way valve, actuated at both ends by pressurizing | 541194 |
| 1x | 5/2-way valve, actuated at one end by pressurizing | 541195 |
| 1x | Quick exhaust valve for direct assembly on the cylinder | 541196 |
| 1x | Timer, 2 – 30 s, pressure supply port normally blocked | 541197 |
| 1x | Distributor block with hand slide valve | 541198 |
| 1x | Shuttle valve with threaded joint and mounting kit | 541199 |
| 2x | Dual-pressure valve with threaded joint and mounting kit | 541200 |
| 2x | One-way flow control valve, adjustable | 539773 |
| 1x | 3/2-way valve, actuated by lever with detent | 541202 |
| 2x | 3/2-way valve, actuated by pushbutton | 541203 |
| 1x | Double-acting cylinder with adjustable end-position cushioning | 544323 |
| 2x | 3/2-way valve, actuated by roller with spring return | 544324 |
| 1x | 3/2-way valve, actuated by pushbutton with spring return | 548663 |
| 1x | 5/2-way valve, actuated by lever with detent | 548664 |
| 2x | Pressure gauge | 548665 |
| 1x | 3/2-way valve, actuated at one end by pressurizing | 548666 |
| 1x | Pressure sequence valve, pressure supply port normally closed | 548667 |
| 1x | Single-acting cylinder | 548668 |

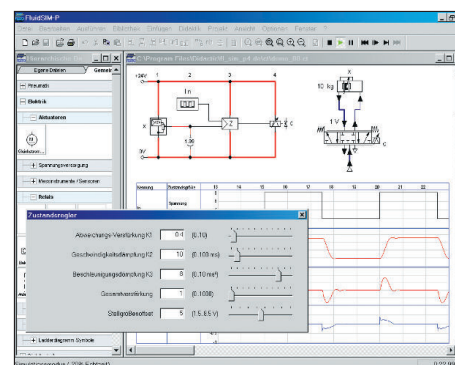
Recommended accessories

| | |
|---|--------|
| Mounting plate 550 x 700 mm, zinc-coated perforated panel 8 mm grid | 541206 |
| Distance bolt, packaging unit 4 items | 110693 |
| Tubing cutter | 255851 |
| Compressor, 40 dB (A), maximum 800 kPa (8 bar) and 50 l/min (3) | 91030 |
| Case for the mounting plate and the components (4) | 30336 |

1 Workbook Pneumatics Basic Level



2 FluidSIM® Pneumatics



3 Compressor

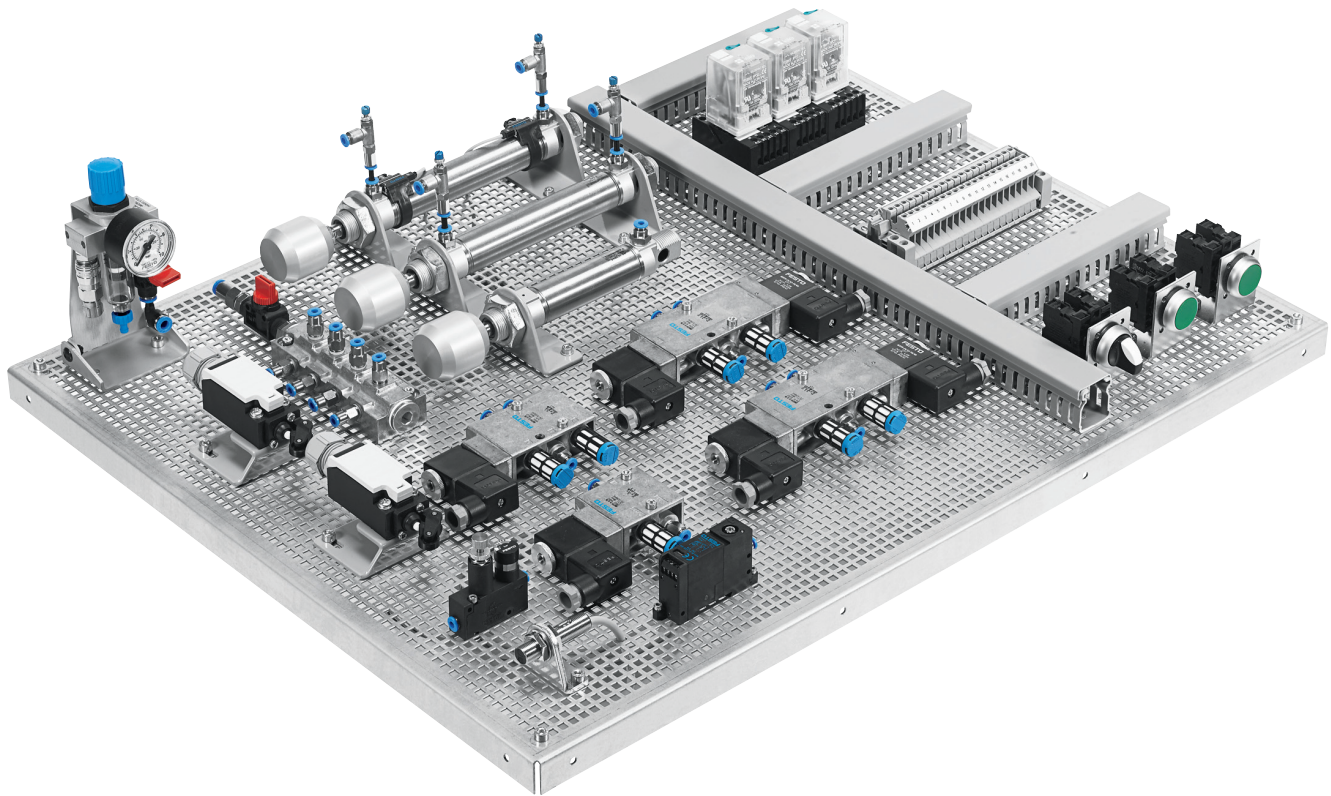


4 Case for mounting plate and components



Basic Training in Electropneumatics

LC 201 equipment set



Electropneumatics, Basic level

The most important basic principles in one compact and practical book!

The workbook contains a series of graduated project exercises based on actual industrial applications, an enhanced section on fundamentals and a multimedia CD-ROM. The foundation for competent training. Place your order now!

The number of components in the equipment set LC 201 is specially tailored to the projects contained in the workbook. This means maximum training return for minimum investment. The industrial-quality components are not assembled and are intended for assembly on a perforated panel with an 8 mm grid.

Storage and organisational tools should be ordered separately.

Learning goals

- Structure, function and application of single-acting and double-acting cylinders
- Calculating basic parameters
- Direct and indirect actuation
- Application and function of 3/2 and 5/2-way solenoid valves
- Analysing circuits
- Options for pressure measurement
- Pressure-dependent control systems
- Latching circuits
- Logic operations: AND/OR/NOT
- Combining logic operations
- Function and application of limit switches
- End-position monitoring using electronic proximity sensors
- Time delay valves
- Realising oscillating movement
- Economic considerations of using pneumatic components
- Troubleshooting simple electropneumatic circuits

Magnetic proximity sensors – compatible and reliable

The proximity sensors are based on the same slot mounting system as the pneumatic proximity sensors in LC 101.

Industrial wiring

Wire your signal inputs and outputs and the signal processing in line with industry standards using wire end sleeves and cable channels on a terminal strip. Use the FluidSIM® P to generate a terminal allocation list and document your circuit professionally.

The convincing teachware for LC 201

The workbook

| | |
|--------|--------|
| DE | 540673 |
| EN (1) | 541090 |
| ES | 542505 |
| FR | 542509 |

Optional supplements

- Design and simulation using FluidSIM® (2)
- Digital learning program, Electropneumatics

| | |
|--|--------|
| Equipment set, Electropneumatics LC 201 (without mounting plate) | 548683 |
|--|--------|

The most important components at a glance:

| | | |
|-----|--|--------|
| 2x | Electrical limit switch, actuated by roller with spring return | 110669 |
| 1x | Connecting cable, blue and red with 4 mm connectors | 110678 |
| 1x | Plastic tubing PUN 4 x 0.75, packaging unit 10 m | 151496 |
| 1x | Plastic tubing PUN 6 x 1, packaging unit 5 m | 152963 |
| 20x | Push-in T-connector for tubing PUN 4 x 0.75 | 153128 |
| 1x | On-off valve with filter regulating valve | 540691 |
| 3x | Relay w. 3 changeover switches or 3 norm. closed and 3 norm. open contacts | 541152 |
| 2x | Electrical pushbutton (normally open and normally closed contacts) | 541155 |
| 1x | Electrical control switch | 541156 |
| 1x | Terminal strip complete with 35 terminals | 541158 |
| 1x | H-rail for relay base and terminal strip | 541159 |
| 1x | Distributor block with hand slide valve | 541198 |
| 1x | One-way flow control valve, adjustable | 539773 |
| 1x | 5/2-way valve, electrically actuated at one end with spring return | 541208 |
| 2x | Proximity sensor, magnetic (reed) | 544243 |
| 2x | 5/2-way valve, electrically actuated at both ends | 544244 |
| 1x | Cable duct set with mounting accessories | 544252 |
| 1x | Cable/tube binder set, packaging unit 100 items | 544258 |
| 1x | Core end sleeve 0.75 mm ² , packaging unit 100 items | 544259 |
| 1x | Plastic conductor blue 0.75 mm ² , packaging unit 100 m | 544260 |
| 1x | Electromechanical pressure switch 1.5 – 8 bar (changeover switch) | 544291 |
| 2x | Double-acting cylinder with adjustable end-position cushioning | 544323 |
| 1x | Single-acting cylinder | 548668 |
| 1x | 3/2-way valve, pressure supply port normally closed | 548669 |
| 1x | Proximity sensor, optical (changeover switch) | 548670 |

Recommended accessories

| | |
|---|--------|
| Mounting plate 550 x 700 mm, zinc-coated perforated panel 8 mm grid | 541206 |
| Distance bolt, packaging unit 4 items | 110693 |
| Tubing cutter | 255851 |
| Compressor, 40 dB (A), maximum 800 kPa (8 bar) and 50 l/min | 91030 |
| Power pack 24 V DC/4.5 A for 115/230 V AC (47 – 63 Hz), without cable (3) | 162416 |
| Case for the mounting plate and the components (4) | 30336 |

Supplement to a Pneumatics LC 101 equipment set, making it a complete Electropneumatics LC 201 equipment set

| | |
|---|--------|
| Supplementary equipment set LC 101 – LC 201 | 548684 |
|---|--------|

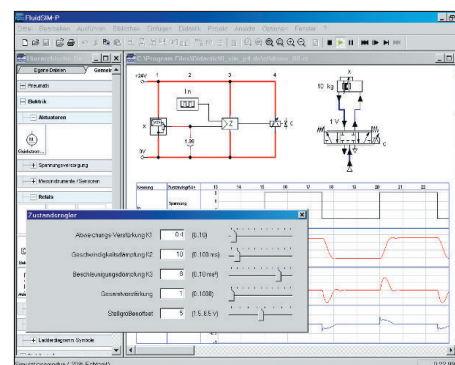
The most important components at a glance:

| | | |
|----|--|--------|
| 2x | Electrical limit switch, actuated by roller with spring return | 110669 |
| 1x | Connecting cable, blue and red with 4 mm connectors | 110678 |
| 3x | Relay w. 3 changeover switches or 3 norm. closed and 3 norm. open contacts | 541152 |
| 2x | Electrical pushbutton (normally open and normally closed contacts) | 541155 |
| 1x | Electrical control switch | 541156 |
| 1x | Terminal strip complete with 35 terminals | 541158 |
| 1x | H-rail for relay base and terminal strip | 541159 |
| 1x | 5/2-way valve, electrically actuated at one end with spring return | 541208 |
| 2x | Proximity sensor, magnetic (reed) | 544243 |
| 2x | 5/2-way valve, electrically actuated at both ends | 544244 |
| 1x | Cable duct set with mounting accessories | 544252 |
| 1x | Cable/tube binder set, packaging unit 100 items | 544258 |
| 1x | Core end sleeve 0.75 mm ² , packaging unit 100 items | 544259 |
| 1x | Plastic conductor blue 0.75 mm ² , packaging unit 100 m | 544260 |
| 1x | Electromechanical pressure switch 1.5 – 8 bar (changeover switch) | 544291 |
| 1x | 3/2-way valve, pressure supply port normally closed | 548669 |
| 1x | Proximity sensor, optical (changeover switch) | 548670 |
| 1x | Double-acting cylinder with adjustable end-position cushioning | 544323 |
| 2x | One-way flow control valve, adjustable | 539773 |

1 Workbook Electropneumatics Basic Level



2 FluidSIM® Pneumatics



3 Power pack



4 Case for mounting plate and components



Festo worldwide

Argentina

Festo S.A.
Edison 2392
(B1640 HRV) Martinez
Prov. de Buenos Aires
Tel. ++54 (0)11/47 17 82 00, Fax 47 17 82 82
E-mail: info_ar@festo.com

Australia

Festo Pty. Ltd.
Head Office (Melbourne)
179-187 Browns Road, P.O. Box 261
Noble Park Vic. 3174
Call Toll Free 1300 88 96 96
Fax Toll Free 1300 88 95 95
Tel. ++ 61(0)3/97 95 95 55, Fax 97 95 97 87
E-mail: info_au@festo.com.au

Austria

Festo Gesellschaft m.b.H.
Linzer Straße 227
1140 Wien
Tel. ++43 (0)1/91 07 50, Fax 91 07 52 50
E-mail: info_at@festo.com

Belarus

IP Festo
Minsk, 220035
Mascherov Prospekt, 78, Belarus
Tel. ++375 (0)17/204 85 58, Fax 204 85 59
E-mail: info_by@festo.com

Belgium

Festo Belgium sa/nv
Rue Colonel Bourg 101
1030 Bruxelles/Brussel
Tel. ++32 (0)2/702 32 11, Fax 726 90 11
E-mail: info_be@festo.com

Brazil

Festo Automação Ltda.
Rua Guiseppa Crespi, 76
KM 12,5 - Via Anchieta
04183-080 Sao Paulo SP-Brazil
Tel. ++55 (0)11/50 13 16 00, Fax 50 13 18 68
E-mail: info_br@festo.com

Bulgaria

Festo Bulgaria EOOD
1592 Sofia
9, Christophor Kolumb Blvd.
Tel. ++359 (0)2/960 07 12, Fax 960 07 13
E-mail: info_bg@festo.com

Canada

Festo Inc.
5300 Explorer Drive
Mississauga, Ontario L4W 5G4
Tel. ++1 (0)905/624 90 00, Fax 624 90 01
E-mail: info_ca@festo.com

Chile

Festo S.A.
Mapocho 1901
6500151 Santiago de Chile
Tel. ++56 (0)2/690 28 00, Fax 695 75 90
E-mail: cl0fcl@festo.com

China

Festo (China) Ltd.
1156 Yunqiao Road
Jinqiao Export Processing Zone, Pudong,
201206 Shanghai, PRC
Tel. ++86 (0)21/58 54 90 01, Fax 58 54 03 00
E-mail: info_cn@festo.com

Colombia

Festo Ltda.
Avenida El Dorado No. 98-43
Bogotá
Tel. ++57 (0)1/404 80 88, Fax 404 81 01
E-mail: festo@festo.com.co

Croatia

Festo d.o.o.
Nova Cesta 181
10000 Zagreb
Tel. ++385 (0)1/619 19 69, Fax 619 18 18
E-mail: info_hr@festo.com

Czech Republic

Festo, s.r.o.
Modranska 543/76
147 00 Praha 4
Tel. ++420 261 09 96 11,
Fax ++420 241 77 33 84
E-mail: info_cz@festo.com

Denmark

Festo A/S
Islevdalvej 180
2610 Redovre
Tel. ++45 70 21 10 90, Fax ++45 44 88 81 10
E-mail: info_dk@festo.com

Estonia

Festo OY AB Eesti Filiaal
Laki 11B
12915 Tallinn
Tel. ++372 666 15 60, Fax ++372 666 15 61
E-mail: info_ee@festo.com

Finland

Festo OY
Mäkituvantie 9, P.O. Box 86
01511 Vantaa
Tel. ++358 (09)/87 06 51, Fax 87 06 52 00
E-mail: info_fi@festo.com

France

Festo E.U.R.L.
Head Office
Numéro Indigo Tel. 0820/204640, Fax 204641
BP 25
8,rue du clos Sainte-Catherine
94363 Bry-Sur-Marne Cedex
Tel. ++33 (0)1/48 82 64 00, Fax 48 82 64 01
E-mail: info_fr@festo.com

Germany

Festo Didactic GmbH & Co. KG
Postfach 10 07 10
73707 Esslingen
Rechbergstraße 3
73770 Denkendorf
www.festo-didactic.de
Tel. 08 00/5 60 09 67, Fax 08 00/5 60 08 43
E-mail: did@de.festo.com

Greece

Festo Ltd.
40 Hamosternas Ave.
11853 Athens
Tel. ++30 210/341 29 00, Fax 341 29 05
E-mail: info_gr@festo.com

Hong Kong

Festo Ltd.
Unit C&D, 7/F, Leroy Plaza
15 Cheung Shun Street
Cheung Sha Wan, Kowloon
Hong Kong
Tel. ++ 852/27 43 83 79, Fax 27 86 21 73
E-mail: info_hk@festo.com

Hungary

Festo Kft.
Csillaghegyi út 32-34.
1037 Budapest
Tel. ++36 (06)1/250 00 55, Fax 250 15 93
E-mail: info_hu@festo.com

India

Festo Controls Private Ltd.
237B,
Bommasandra Industrial Area,
Bangalore Hosur Highway,
Bangalore 560 099
Tel. ++91 (0)80/22 89 41 00, Fax 783 20 58
E-mail: info_in@festo.com

Indonesia

PT. Festo
JL. Sultan Iskandar Muda No.68
Arteri Pondok Indah
Jakarta 12240
Tel. ++62 (0)21/27 50 79 00, Fax 27 50 79 98
E-mail: info_id@festo.com

Iran

Festo Pneumatic S.K.
#1,Behbahan St. Ramsar ave
Tehran 1581975411
Tel. ++98 (0)21/88 82 92 25, Fax 882 21 62
E-mail: info_ir@festo.com

Ireland

Festo Limited
Unit 5 Sandyford Park
Sandyford Industrial Estate
Dublin 18
Tel. ++ 353(0)1/295 49 55, Fax 295 56 80
E-mail: info_ie@festo.com

Israel

Festo Pneumatic Israel Ltd.
P.O. Box 1076, Ha'atzma'ut Road 48
Yehud 56100
Tel. ++972 (0)3/632 22 66, Fax 632 22 77
E-mail: info_il@festo.com

Italy

Festo S.p.A
Via Enrico Fermi 36/38
20090 Assago (MI)
Tel. ++39 02/45 78 81, Fax 488 06 20
E-mail: info_it@festo.com

Japan

Festo K.K.
1-26-10 Hayabuchi, Tsuzuki-ku
Yokohama 224-0025
Tel. ++81 (0)45/593 56 10, Fax 593 56 78
E-mail: info_jp@festo.com

Korea South

Festo Korea Co., Ltd.
470-1 Gasan-dong, Geumcheon-gu
Seoul #153-803
Tel. ++82 (0)2/850 71 14, Fax 864 70 40
E-mail: info_kr@festo.com

Latvia

Festo SIA
Deglava iela 60
1035 Riga
Tel. ++371 (0)7/57 78 64, Fax 57 79 46
E-mail: info_lv@festo.com

Lithuania

Festo UAB
Karaliaus Mindaugo pr. 22
3000 Kaunas
Tel. ++370 (8)7/32 13 14, Fax 32 13 15
E-mail: info_lt@festo.com

Malaysia

Festo Sdn.Berhad
10 Persiaran Industri
Bandar Sri Damansara, Wilayah Persekutuan
52200 Kuala Lumpur
Tel. ++60 (0)3/62 86 80 00, Fax 62 75 64 11
E-mail: info_my@festo.com

Mexico

Festo Pneumatic, S.A.
Av. Ceylán 3, Col. Tequesquinhuauc
54020 Tlalnepantla, Edo. de México
Tel. ++52 (01)55/53 21 66 00, Fax 53 21 66 65
E-mail: info_mx@festo.com

Netherlands

Festo B.V.
Schieweg 62
2627 AN Delft
Tel. ++31 (0)15/251 88 99, Fax 261 10 20
E-mail: info_nl@festo.com

New Zealand

Festo Limited
MT. Wellington
Auckland NZ
Tel. ++64 (0)9/574 10 94, Fax 574 10 99
E-mail: info_nz@festo.com

Norway

Festo AB
Ostensjoveien 27
0661 Oslo
Tel. ++47 22 72 89 50, Fax ++47 22 72 89 51
E-mail: info_no@festo.com

Peru

Festo S.R.L.
Calle Amador Merino Reyna #480, San Isidro
Lima, Perú
Tel. ++51 (0)1/222 15 84, Fax 222 15 95

Philippines

Festo Inc.
KM 18, West Service Road, South Superhighway
1700 Paranaque City, Metro Manila
Tel. ++63 (0)2/776 68 88, Fax 823 42 19
E-mail: info_ph@festo.com

Poland

Festo Sp. z o.o.
Janki k/Warszawy, ul. Mszczonowska 7
05090 Raszyn
Tel. ++48 (0)22/711 41 00, Fax 711 41 02
E-mail: info_pl@festo.com

Romania

Festo S.R.L.
St. Constantin 17
010217 Bucuresti
Tel. ++40 (0)21/310 29 83, Fax 310 24 09
E-mail: info_ro@festo.com

Russia

Festo-RF OOO
Michurinskiy prosp., 49
119607 Moscow
Tel. ++7 495/737 34 00, Fax 737 34 01
E-mail: info_ru@festo.com

Singapore

Festo Pte. Ltd.
6 Kian Teck Way
Singapore 628754
Tel. ++65 62 64 01 52, Fax ++65 62 61 10 26
E-mail: info_sg@festo.com

Slovakia

Festo spol. s r.o.
Gavlovicová ul. 1
83103 Bratislava 3
Tel. ++421 (0)2/49 10 49 10, Fax 49 10 49 11
E-mail: info_sk@festo.com

Slovenia

Festo d.o.o. Ljubljana
IC Trzin, Blatnica 8
1236 Trzin
Tel. ++386 (0)1/530 21 00, Fax 530 21 25
E-mail: info_si@festo.com

South Africa

Festo (Pty) Ltd.
22-26 Electron Avenue, Isando, P.O. Box 255
Isando 1600
Tel. ++27 (0)11/971 55 00, Fax 974 21 57
E-mail: info_za@festo.com

Spain

Festo Pneumatic, S.A.U.
Tel.: 901243660 Fax: 902243660
Avenida Granvia, 159
Distrito económico Granvia L'H
ES-08908 Hospitalet de Llobregat, Barcelona
Tel. ++ 3493/261 64 00, Fax 261 64 20
E-mail: info_es@festo.com

Sweden

Festo AB
Stilmansgatan 1, P.O. Box 21038
20021 Malmö
Tel. ++46 (0)40/38 38 40, Fax 38 38 10
E-mail: info_se@festo.com

Switzerland

Festo AG
Moosmattstrasse 24
8953 Dietikon ZH
Tel. ++41 (0)44/744 55 44, Fax 744 55 00
E-mail: info_ch@festo.com

Taiwan

Festo Co., Ltd.
9 Kung 8th Road
Linkou 2nd Industrial Zone, Linkou #244
Taipei Hsien Taiwan
Tel. ++886 (0)2/26 01 92 81, Fax 26 01 92 87
E-mail: info_tw@festo.com

Thailand

Festo Ltd.
67/1 Moo 6 Phaholyothin Road
Klong 1, Klong Luang,
Pathumthani 12120
Tel. ++66 29 01 88 00, Fax ++66 29 01 88 33
E-mail: info_th@festo.com

Turkey

Festo San. ve Tic. A.S.
Tuzla Mermerciler Organize
Sanayi Bölgesi 6/18
34956 Tuzla - Istanbul/TR
Tel. ++90 (0)216/585 00 85, Fax 585 00 50
E-mail: info_tr@festo.com

Ukraine

Festo Ukraina
Borisoglebskaja 11
Kiev 04070
Tel. ++380 (0)44/239 24 33, Fax 463 70 96
E-mail: info_ua@festo.com

United Kingdom

Festo Limited
Applied Automation Centre, Caswell Road
Brackmills Trading Estate
Northampton NN4 7PY
Tel. ++44 (0)1604/66 70 00, Fax 66 70 01
E-mail: info_gb@festo.com

United States

Festo Corporation
395 Moreland Road
Hauppauge, NY 11788
Tel. ++1 (0) 631-404-3182
Fax ++1 (0) 631-435-3847

Venezuela

Festo C.A.
Av. 23, Esquina calle 71, No. 22-62
Maracaibo, Edo. Zulia
Tel. ++58 (0)261/759 09 44, Fax 759 04 55
E-mail: festo@festo.com.ve