### Membrane air dryers LDM1, D series

## **FESTO**





Туре	ype Siz		Pneun	natic co	nnectio	on							Press	ure ition ra	nge	Grade	of filtr	ation	
													[bar]			[µm]			
			M5	M7	G½8	G <sup>1</sup> ⁄4	G3/8	G½	G3⁄4	<b>G</b> 1	QS4	QS6	0.5  7	0.5  12	2.5  12	0.01	1	5	40
Service units																			
FRC/FRCS		Micro				-	-	-	-	-				-	-	-	-		-
		Mini	-	-				-	-	-	-	-			-	-	-		
		Midi	-	-	-					-	-	-			-	-	-		
	( ja	Maxi	-	-	-	-	-				-	-			_	-	-		
Cii4																			
Service unit com	INITIALIONS	Micro	Ι –																
I AC-IX		Mini	_	_			l –	_	l –	l –	_	_	_			_	_	_	
		Midi	_	_	<del>-</del>	-	•	•	_	_	_	_		-					
		Maxi	_	-	_	-	_	-		_	_	-	-			_	-	-	
LFR-K	~	Micro	_	_		_	_	_	-	_	_	_	_	_	_	_	_	_	
LFRS-K		Mini	-	Ι_			Ι_	Ι_	Ι_	Ι_	I _	T -	T _			T _	Ι_	T _	
LI K3-K		Midi	-	_	-		•	-	_	_	+-	-	-			-	_	-	
		Maxi	<del>-</del>	_	-	-	-		-	_	<del>-</del>	-	<del>-</del>	-		<del>-</del>	_	<del>-</del>	
		Maxi	_	_	_	_	_	_	-	_	_	_	_	_	_	_	_	_	
Individual devic	es																		
Filter		Micro				I -	I –	I –	I –	l –				l –	I -	T -	l -		l –
regulators		Mini	_	-				-	_	_	_	-			_	_	_		
LFR/LFRS		Midi	_	_	_		•		•	_	_	_			_	_	_		
,	I	Maxi	_	_	-	_	_	•	•	•	_	-			-	_	_		
	1	1	1								I		I			1		1	
Filters	$\Box$	Micro				-	-	-	-	-			-	-	-	-	-		-
LF		Mini	-	-				-	-	-	-	-	-	-	-	-	-		
		Midi	-	-	-					-	-	-	-	-	-	-	-		
	U	Maxi	-	-	-	-	-				-	-	-	-	-	-	-		
Fine and micro	,C,	Micro	-	•		•	•	•	•	•	•		•			•	•	•	
filters		Mini	-	-				-	-	-	-	-	-	-	-			-	-
LFMA/LFMB		Midi	-	-	-					-	-	-	-	-	-			-	-
		Maxi	-	-	-	-	-	•	•	•	-	-	-	-	-		•	-	-
Active carbon		Micro	-	•		•	•	•	•	•	•		•			•	•	•	
filters		Mini	-	-				-	-	-	-	-	-	-	-	-	-	-	-
LFX		Midi	-	-	-	•	•	•	•	-	-	-	-	-	-	-	-	-	-
		Maxi	-	-	-	-	-	•	•	•	-	-	-	-	-	-	-	-	-
Filter		Micro	-	•		•	•	•	•	•	•		•			•	•	•	•
combinations		Mini	-	-				-	-	-	-	-	-	-	-			-	-
LFMBA		Midi	-	-	-	•	•	•	•	-	-	-	-	-	-			-	-
	U U	Maxi	-	-	-	-	-	•	•	-	-	-	-	-	-		-	-	-
Pressure		Micro	•	•	•	-	-	-	-	-		•		-	-	-	-	-	-
regulators		Mini	-	-				-	-	-	-	-			-	-	-	-	-
LR/LRS		Midi	-	-	-					-	-	-			-	-	-	-	-
1		Maxi	-	-	-	-	-				-	-			-	-	-	-	-



Туре	Size	Bowl g	uard	Conde	nsate di	rain	Pressu		Actuat	or lock	Supply voltage		e	Options			→ Page/ Internet
		Metal bowl guard	Plastic bowl	Manual rotary	Semi-automatic	Fully automatic	With pressure gauge	Without pressure gauge	Rotary knob with detent	Rotary knob with integrated lock	24 V DC	110 V AC	230 V AC	Directly actuated pressure regulator with integrated return flow function	Pilot actuated pressure regulator with integrated return flow function	Differential pressure indicator	
Service units																	
FRC/FRCS	Micro	-				-		•		-	-	-	-	-	-	-	frc
	Mini		-		-	-		•			-	-	-	-	-	-	
	Midi		-		-	-		•			-	-	-	-	-	-	
	Maxi		-		-	•					-	-	-			-	
Service unit com																	Le
FRC-K	Micro	-	ı	1 -	ı	T =	1 -	ı		ı		1	ı		, ,		frc
	Mini	•	-		-	•	•	-	•	-	-	-	-	-	-	-	
	Midi	•	-	•	-	•	-	-	•	-	-	-	-		-	-	
LED II	Maxi	•	-		-			-		-	-	-	-	•	•	-	16
LFR-K	Micro	-					1 _										lfr
LFRS-K	Mini	•	-	-	-	•	-	-	•	•	•	-	-	-	-	-	
	Midi	•	-	-	-	•	-	-	•	-	-	-	-		-	-	
	Maxi		-		-			-				-	-	•	•	-	
Individual devic	0.5																
Filter	Micro	T -				l –				T -	Ι-	Ι -	Ι_	T -	l – l	_	lfr
regulators	Mini		-		-		H	-			_	<u> </u>	_	_	_	_	'''
LFR/LFRS	Midi		_		_		H	-			_	_	_	_	_	_	
LINGLING	Maxi		_		_		+-	-			_	_	_	•	•	_	
	Μαλί													_	_		
Filters	Micro	_				_	_	_	_	_	_	_	_	_	l – l	_	lf
LF	Mini		_		_		<del> </del> -	_	_	_	_	_	_	<del>-</del>	_	_	"
<del>-</del> -	Midi	•	_		_	-	-	_	_	_	_	_	_	_	_	_	
	Maxi		_		_	-	-	_	_	_	_	_	_	_	_	_	
Fine and micro	Micro	_	I		I		1	I	1	I	1	1	I	<u> </u>	1	1	lfma, lfmb
filters	Mini		_		_		_	_	T -	_	_	<b>—</b>	_	_	_		1
LFMA/LFMB	Midi		_		_		-	_	-	_	-	-	_	-	-		1
·	Maxi		-		-	-	-	_	-	_	-	_	_	-	-		1
Active carbon	Micro	-		1			1			1		1		I	1		lfx
filters	Mini		_	-	_	_	-	_	_	-	-	-	_	_	_	_	1
LFX	Midi	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	=
	Maxi		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Filter	Micro	-		I.			1			I.	1	1				1	lfmba
combinations	Mini	•	-		-		-	-	-	-		-		-	-		1
LFMBA	Midi	•	-	•	-	-	-	-	-	-	-	-	-	-	-		1
	Maxi		-		-	•	-	-	-	-	-	-	-	-	-		1
Pressure	Micro	-	-	-	-	-				-	-	-	-	-	-	-	lr
regulators	Mini	-	-	-	-	-		•			-	-	-	•	-	-	1
LR/LRS	Midi	-	-	-	-	-		•			-	-	-	•	-	-	1
	Maxi	-	-	-	-	-					-	-	-		•	-	1



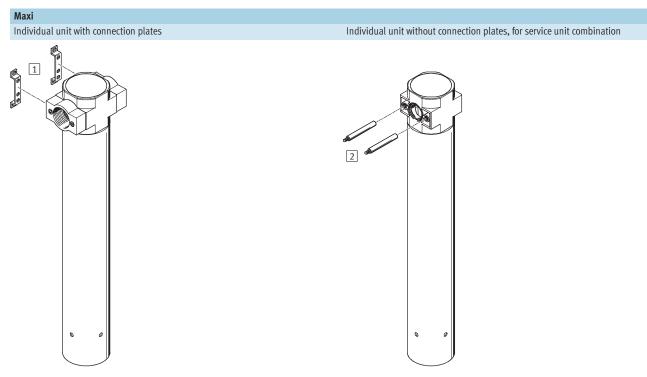
Туре		Size	Pneumat connection										Pressure regulatio [bar]	
													0.5	0.5
			M5	M7	G½8	G1/4	G3/8	G <sup>1</sup> / <sub>2</sub>	G3/4	G1	QS4	QS6	7	12
Individual device Pressure	ces	Micro	l –											
regulators		Mini	_	_	_		T -	_		_		_		
LRB/LRBS		Midi	_	_	_	_		_	_	_	_	_	-	_
ENDIENDS	1010	Maxi	_										_	_
Pressure		Micro	_											
regulator		Mini	_	_	_			_	_	_	_	-		
combinations		Midi	_	_	_	_	•	-	_	_	_	_		
LRB-K	1010	Maxi	-			I	<u> </u>		<u> </u>		<u> </u>	I		
		1			1 _	ı	1	1	1	1	1 _			1
Lubricators		Micro	•		•	_	_	-	-	-	•		_	-
LOE		Mini	_	-	•	-		_		-	_	-	_	_
		Midi	-	-	_	•	•	-	-	-	-	-	-	-
		Maxi	-	-	-	-	_		•	•	-	-	_	-
On-off valves	8	Micro	_											
HE		Mini	_	_				_	_	_	_	_	_	-
		Midi	_	_	_		•	-	-	_	-	_	_	-
		Maxi	-	-	-	-	-	-	-		-	-	-	-
On-off valves,	(9)	Micro	-	ı		ı	1		1		1	ı	1	
electrical		Mini	-	-				_	-	-	-	-	-	-
HEE		Midi	-	-	-		•	•	-	-	-	-	-	-
		Maxi	-	-	-	-	-	-	-		-	-	-	-
On-off valves,		Micro	_				•		•		•		•	
pneumatic		Mini	-	-				-	_	_	-	-	-	-
HEP		Midi	-	-	-		•	•	•	-	-	-	-	-
		Maxi	-	-	-	-	-	-	-		-	-	-	-
Soft-start		Micro	-											
valves		Mini	-	-	-	-	-	-	-	-	-	-	-	-
HEL		Midi	-	-	-	-	-	-	-	ı	-	-	-	-
		Maxi	-	-	-	-	-				-	-	-	-
Membrane air		Micro	_											
dryers		Mini	_											
LDM1		Midi	_											
		Maxi	-	-	_	_	-		•		-	_	_	_
					·			<u>'</u>						<u>'</u>
Branching	(e)	Micro	-											
modules		Mini	-	-			•	-	-	-	-	-	_	_
FRM		Midi	-	-	-		•		-	-	-	-	-	-
		Maxi	-	-	-	-	-	-	•	•	-	-	-	-
Distributor		Micro	-	-	-	-	-	-	-	-	-	-	-	-
block	00	Mini	-	-	-	-	-	-	-	-	-	-	-	-
FRZ		Midi	-	-	-	-	-	-	-	-	-	-	-	-
		Maxi	-	-	-	-	-	-	-	_	-	-	-	-



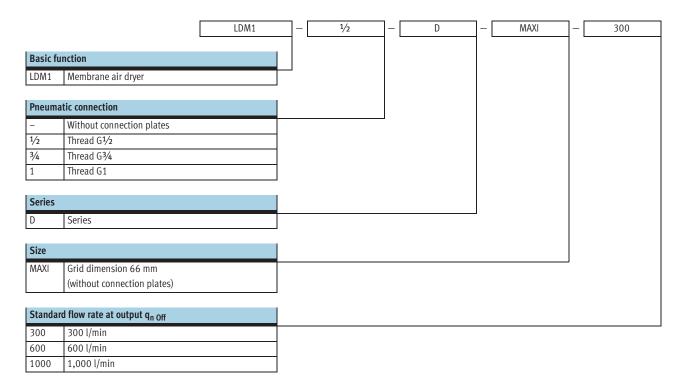
Туре	Size	Bowl guard	d	Pressure i	ndication	Actuator l	ock	Supply vo	ltage		Options		→ Page/ Internet
		Metal bowl guard	Plastic bowl	With pressure gauge	Without pressure gauge	Rotary knob with detent	Rotary knob with integrated lock	24 V DC	110 V AC	230 V AC	Non-return function	Pressure switch	
Individual devi													
Pressure	Micro	-											lrb
regulators	Mini	-	-		•		•	-	-	_	-	-	
LRB/LRBS	Midi	-	-	-				-	-	_	-	-	
	Maxi	-	-										
Pressure	Micro	-											lrb
regulator	Mini	-	-	-	-		-	-	-	-	-	-	
combinations	Midi	-	-		•		-	-	-	_	-	-	
LRB-K	Maxi	-	-										
Lubricators	Micro	_		I -		_	l –	T -	_	_	_	_	loe
LOE	Mini	-		<u> </u>	-	_	_	_	_	_		1	loe
LUE		-	-	-	-	_		_	ļ	_	-	-	-
	Midi Maxi		-	-		_	-	_	-	_	-	-	-
	Maxi		_	_		_	_	_	_	_	-	-	
On-off valves	Micro	_											he
HE	Mini	_	_	_			T -	I -	_	_	l –	_	- 1110
"-	Midi	_	_	_	_	-	_	_	_	_	_	_	1
	Maxi	_	_	_	_	-	_	_	_	_	_	_	-
On-off valves,	Micro	-			_	_	1						hee
electrical	Mini	_	_	_		_	I -				_	_	11100
HEE	Midi	_	_	_	-	_	_	-	-	_	_	_	-
	Maxi	_	_	_	_	_	_	-	-	_	_	_	-
On-off valves,	Micro	_			_		1	_	_	_			hep
pneumatic	Mini	_	_	_		_	T -	I -	_	_	I -	_	Пер
HEP	Midi	_	_	_	-	_	_	_	_	_	_	_	-
	Maxi	_	_	_	-	_	_	_	_	_	_	_	-
Soft-start	Micro	_			_								hel
valves	Mini	_	_	_		_	T -	I -	_	_	T -	_	- 11101
HEL	Midi	-	-	_	_	_	_	-	_	_	_	_	1
	Maxi	_	-	_	-	_	_	-	_	_	_	_	1
	maxi				_								1
Membrane air	Micro	_											6
dryers	Mini	_											1
LDM1	Midi	_											1
	Maxi	-	-	_		-	_	_	-	-	_	-	1
	1			I	1	1	1	1	1	1	1	1	1
Branching	Micro	_											frm
modules	Mini	-	-	_		-	-	-	-	-			1
FRM	Midi	-	-	-		-	-	-	-	-	•		1
	Maxi	-	-	-	•	-	-	-	-	_			1
Distributor	Micro	-	-	-	•	-	-	-	-	_	-	_	frz
		<b>—</b>		t	<del>-</del>	_	<b>H</b>	_	_	t	†	_	1
block	Mini	-	-	_		_	-	_	_	_	_	_	
block FRZ	Mini Midi	-	-	-	-	-	_	_	_	_	_	_	

## **Membrane air dryers LDM1, D series, metal design** Peripherals overview and Type codes





Mounting attachments and accessories											
		Individual unit		Combination	→ Page/						
		with connection	without connection	with connection	without connection	Internet					
		plates	plates	plates	plates						
1	Mounting bracket	_		_		hfoe-d					
	HFOE	-	_	•	_						
2	Threaded pin (included in scope of delivery)	_	_	•	_	frb-d					
	FRB	_	_	_	_						



### Membrane air dryers LDM1, D series, metal design



Technical data

#### Function



Flow rate 300 ... 1,000 l/min

Temperature range +2 ... +50 °C

Input pressure 3 ... 12.5 bar

Pressure dew point reduction: LDM1-...-300/600: 20 K LDM1-...-1000: 17 K

- Optimum final dryer with excellent operational reliability
- Suitable for use as an individual device or for integration in existing service unit combinations
- Flow rate-dependent dew point reduction
- Wear-free function requiring no external energy
- The composition of the compressed air remains almost unchanged due to the drying process
- 15% purge air flow rate with the LDM1-...-300/600 and 20% with the LDM1-...-1000



Typical areas of application:

- Drying, cleaning of precision parts
- Measuring technology
- Rinsing of precision glass scales
- Painting systems
- Paper and packaging machines



Note

Prefiltration of the compressed air using a micro filter LFMA-D-MAXI, grade of filtration 0.01 µm (residual particles < 0.1 µm, residual oil content < 0.1 mg/m<sup>3</sup>) is vital for

flawless functioning of the unit.

General technical data				
Size	Maxi			
Pneumatic connection 1 <sup>1)</sup>	G <sup>1</sup> / <sub>2</sub>	G <sup>3</sup> / <sub>4</sub>	G1	
Pneumatic connection 2 <sup>1)</sup>	G <sup>1</sup> / <sub>2</sub>	G3/4	G1	
Operating medium	Compressed air, air qu	ality class 1.7.2 to DIN ISO 8573-1		
Design	Membrane dryer with i	nternal air consumption		
Type of mounting	Via accessories			
	In-line installation			
Assembly position	Vertical ±5°			

- 1) with connection plates
- $\|\cdot\|$  Note: This product conforms to ISO 1179-1 and to ISO 228-1

Standard flow rate qn [l/min]											
Туре	LDM1300 <sup>1)</sup>	LDM1600 <sup>1)</sup>	LDM11000 <sup>2)</sup>								
Input q <sub>n In</sub>	353	706	1,250								
Output q <sub>n Out</sub>	300	600	1,000								
Purge air q <sub>n Purge</sub>	52.9	105.9	250								

- 1) Measured at  $p_1 = 6.9$  bar,  $\theta_{pd \, ln} = 25$  °C,  $\theta_{pd \, Out} = 5$  °C  $\pm 1.5$  °C ( $\theta_{pA \, Out} = -21.5$  °C  $\pm 1.2$  °C),  $\theta_{amb} = 25$  °C 2) Measured at  $p_1 = 6.9$  bar,  $\theta_{pd \, ln} = 25$  °C,  $\theta_{pd \, Out} = 8$  °C  $\pm 1.5$  °C ( $\theta_{pA \, Out} = -19.1$  °C  $\pm 1.2$  °C),  $\theta_{amb} = 25$  °C = 0.0 Measured at  $\theta_{amb} = 0.0$  °C  $\theta_{am$

Operating and environmental conditions												
Туре		LDM1300	LDM1600	LDM11000								
Input pressure	[bar]	3 12,5										
Pressure dew point reduction	[K]	20	20	17								
Ambient temperature	[°C]	+2 +50										
Temperature of medium	[°C]	+2 +50										
Storage temperature	[°C]	-20 +60										
Corrosion resistance class	CRC <sup>1)</sup>	2										

1) Corrosion resistance class 2 according to Festo standard 940 070 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

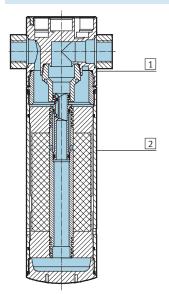
# Membrane air dryers LDM1, D series, metal design Technical data



Weights [g]				
Port	Without connection plates	With connection plates		
		G½	G3/4	G1
LDM1300	1,650	1,800	1,900	2,000
LDM1600	2,100	2,250	2,350	2,450
LDM11000	2,100	2,250	2,350	2,450

#### Materials

Sectional view



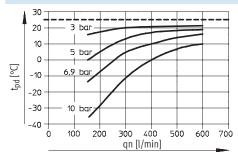
Mem	Membrane air dryer									
1	Housing	Die-cast zinc								
2	Bowl	Wrought aluminium alloy								
-	Seals	Nitrile rubber								

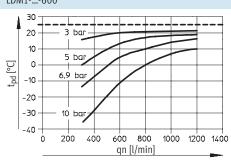
### Membrane air dryers LDM1, D series, metal design

**FESTO** 

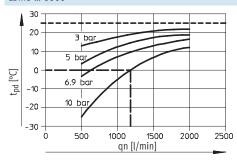
### Pressure dew point $t_{pd}$ (output) as a function of the standard flow rate at output $q_n^{\,1)}$

LDM1-...-300 LDM1-...-600





#### LDM1-...-1000

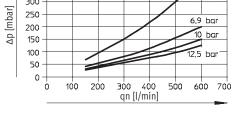


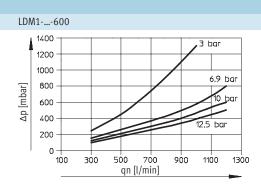
----- 1) Measured at pressure dew point  $t_{pd}$  (supply) = 25 °C. Example LDM1-...-1000 with 10 bar supply pressure: the pressure dew point reduction at a nominal flow rate of  $q_n = 1,200 \text{ l/min is } 25 \text{ K}.$ 

#### Differential pressure $\Delta p$ as a function of the standard flow rate at output qn

6,9 bar

450 400 350 300

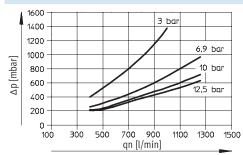




#### LDM1-...-1000

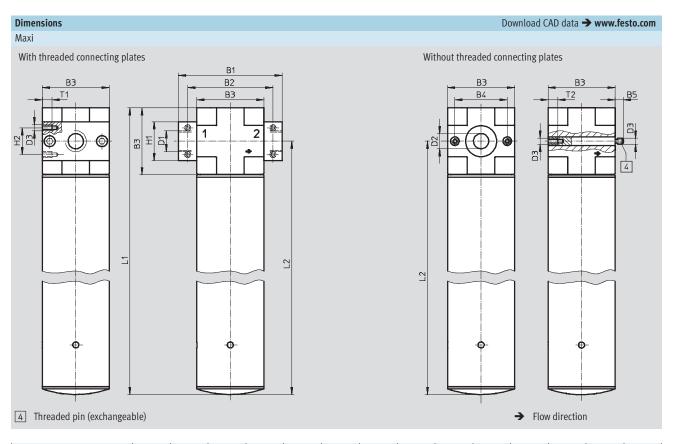
LDM1-...-300

250



## Membrane air dryers LDM1, D series, metal design Technical data





Туре	B1	B2	В3	B4	B5	D1	D2 Ø	D3	H1	H2	L1	L2	T1	T2
							Ø							
LDM1-1/2-D-MAXI-300											329	296		
LDM1-1/2-D-MAXI-600	96	80	66	46	-	G <sup>1</sup> / <sub>2</sub>	-	M5	32	22	519	486	8	-
LDM1-1/2-D-MAXI-1000											519	486		
LDM1-3/4-D-MAXI-300											329	296		
LDM1-3/4-D-MAXI-600	96	80	66	46	-	G3/4	-	M5	36	22	519	486	8	-
LDM1-3/4-D-MAXI-1000											519	486		
LDM1-1-D-MAXI-300											329	296		
LDM1-1-D-MAXI-600	116	91	66	46	-	G1	-	M5	41	22	519	486	8	-
LDM1-1-D-MAXI-1000											519	486		
LDM1-D-MAXI-300											329	296		
LDM1-D-MAXI-600	_	-	66	46	7	-	30	M5	-	-	519	486	-	11
LDM1-D-MAXI-1000											519	486		

 $<sup>\|\</sup>cdot\|$  Note: This product conforms to ISO 1179-1 and to ISO 228-1

Ordering data – Without conr	Ordering data – Without connection plates											
Size	LDM1300		LDM1600		LDM11000							
	Part No. Type		Part No. Type		Part No. Type							
Maxi	543664 LDM1-D-MAXI-300		543665 LDM1-D-MAXI-600		543666 LDM1-D-MAXI-1000							

Ordering data – With connection plates						
Size	Connection	LDM1300		LDM1600		LDM11000
		Part No. Type		Part No. Type		Part No. Type
Maxi	G <sup>1</sup> / <sub>2</sub>	543667 LDM1-½-D-MAXI-300		543668 LDM1-½-D-MAXI-600		543669 LDM1-½-D-MAXI-1000
	G3/4	543670 LDM1-3/4-D-MAXI-300		543671 LDM1-3/4-D-MAXI-600		543672 LDM1-3/4-D-MAXI-1000
	G1	543673 LDM1-1-D-MAXI-300		543674 LDM1-1-D-MAXI-600		543675 LDM1-1-D-MAXI-1000

#### **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.



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