Mini-slide SLTE, electric
Motor controller SFC-DC

FESTO

Precise, simple and powerful

Info 152

Absolute precision guaranteed:
Mini-slide SLTE, electric

Precise | Reliable | Compact

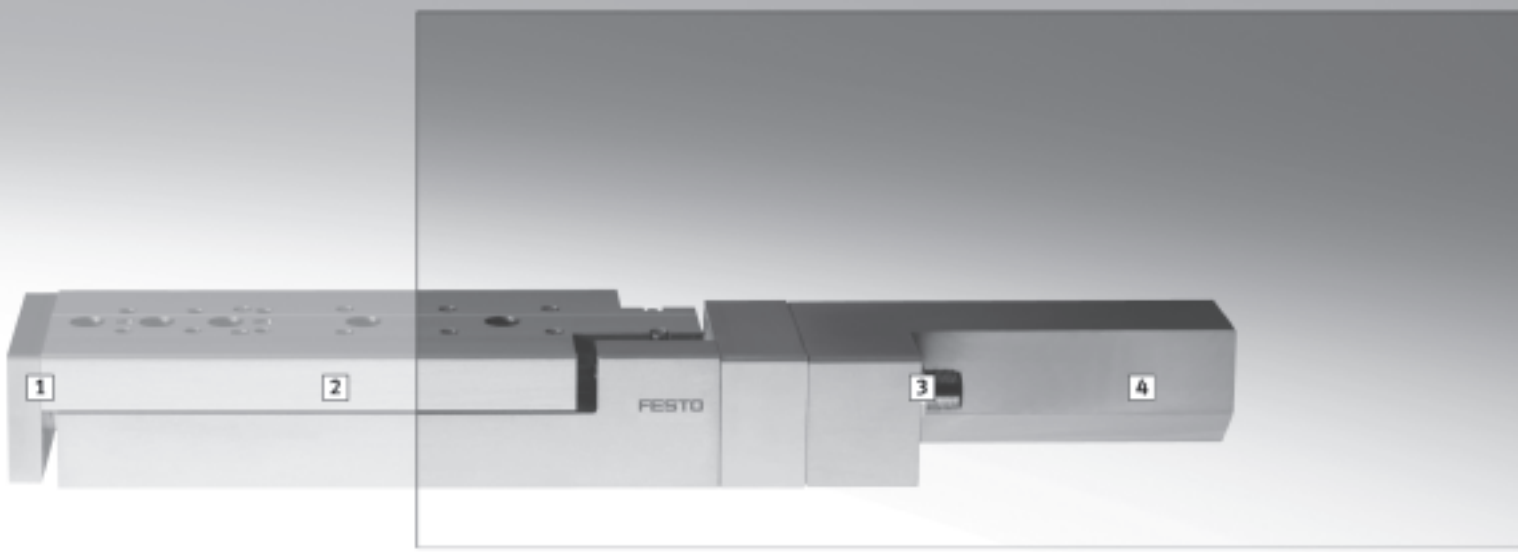
Positioning – precise, reliable and extremely compact, with integrated controller.

The electrical mini-slide SLTE allows slow or fast, gentle or dynamic motion. It is freely positionable and has a precision, resilient guide. Its design platform: the tried-and-tested SLT supplemented with low-noise lead screw spindle. Motors with an integrated encoder are available as the drive. For working loads up to max. 4 kg and fast positioning times (50 mm in approx. 400 ms).

Simply impressive
Thanks to IP54, the external controller SFC-DC can be flexibly mounted either in the field or in a control cabinet.

Simple system planning
Based on the design platform of the SLT, the SLTE is equipped with identical interfaces and is fully compatible with the modular handling and assembly system and SLT adapter kits.

Simple selection and commissioning
The SLTE concept includes installation options for supply lines as well as:
- Easy input of positioning records at the controller via the man-machine interface or via the computer-aided Festo configuration tool.



Mini-slide SLTE and motor controller SFC-DC: precise, simple and powerful.

1 The mechanical interfaces are identical to the pneumatic mini-slide SLT and compatible with Festo's modular handling system. This allows pick & place units or 2D/3D gantries to be implemented quickly and reliably.

2 Precise and resilient: the tried-and-tested ball bearing guide of the SLTE. It ensures good rigidity and high positioning accuracy even with high loads and dynamic motion.

3 Just one cable is used to electrically connect the SLTE to the motor controller SFC-DC with integrated power electronics. Thanks to IP54, the SFC-DC can be mounted in the field at a user-friendly location next to the drive.

4 The integrated DC motor and the low-noise lead screw spindle with integrated gear unit ensure fast positioning times at working loads up to 4 kg.

Mini slides SLTE, electric

Key features

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Range of applications

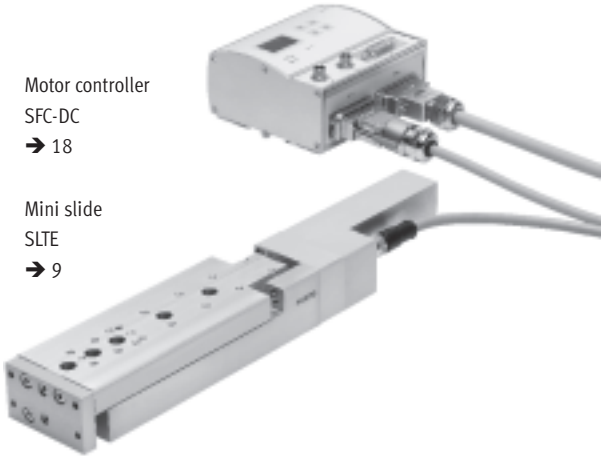
The electric mini slide SLTE is ideal for use in automation applications where controlled end-position cushioning (gentle stopping), constant travel speed and positioning capability are important factors.

The SLTE has the same interfaces on the yoke, slide and underneath the housing as the pneumatic SLT. It is also fully compatible with the modular handling and assembly system and SLT adapter kits.

Special features

- Precise and rigid guide
- Freely positionable
- Fast positioning times
- Through-holes from above and below
- Sensors can be integrated
- Gentle starting and stopping
- Working loads up to 4 kg
- Constant travel speeds of 2 ... 200 mm/s

Everything from a single source



Motor controller
SFC-DC
➔ 18

Mini slide
SLTE
➔ 9

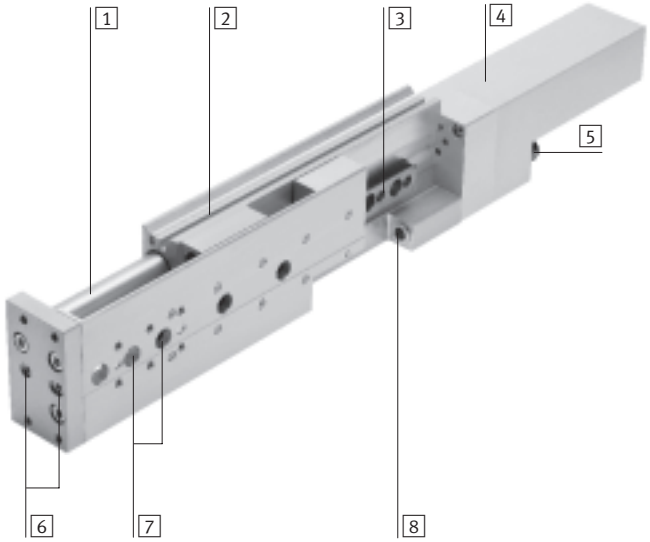
The mini slide SLTE and motor controller SFC form one unit.

- Thanks to the protection class IP54, the SFC can be mounted close to the SLTE, either:
  - with centre supports
  - on an H-rail
- Only one cable required between SLTE and SFC
- Motor controller SFC available with or without control panel
- Easy control with
  - I/O interface
  - Profibus
  - CANopen
  - DeviceNet

Parameterisation possible via

- Control panel:
  - Suitable for simple position sequences
- Configuration package FCT (Festo configuration tool):
  - Parameterisation via RS 232 interface
  - Windows-based PC user interface (Festo configuration tool)

The technology in detail

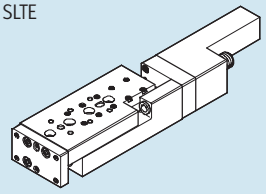
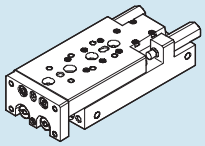
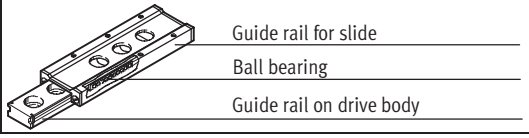
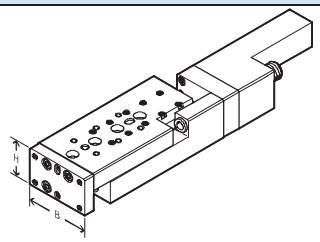
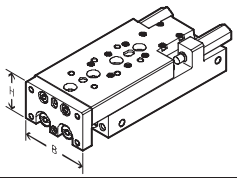
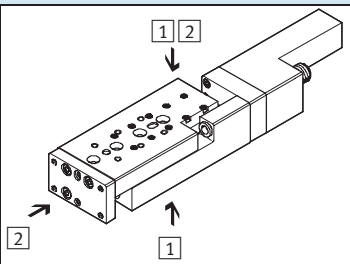
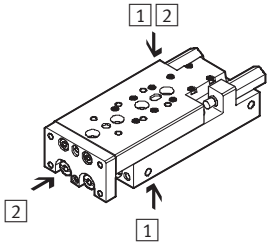


1 Drive rod
2 Slot for reference switch
3 Roller bearing guide
4 Drive assembly consisting of DC motor with displacement encoder
5 Electrical connection
6 Threaded holes and through-holes with centring hole for attaching the working load
7 Threaded holes and through-holes with centring hole for attaching the SLTE
8 Fixed stop with integrated rubber buffer

Mini slides SLTE, electric

Key features

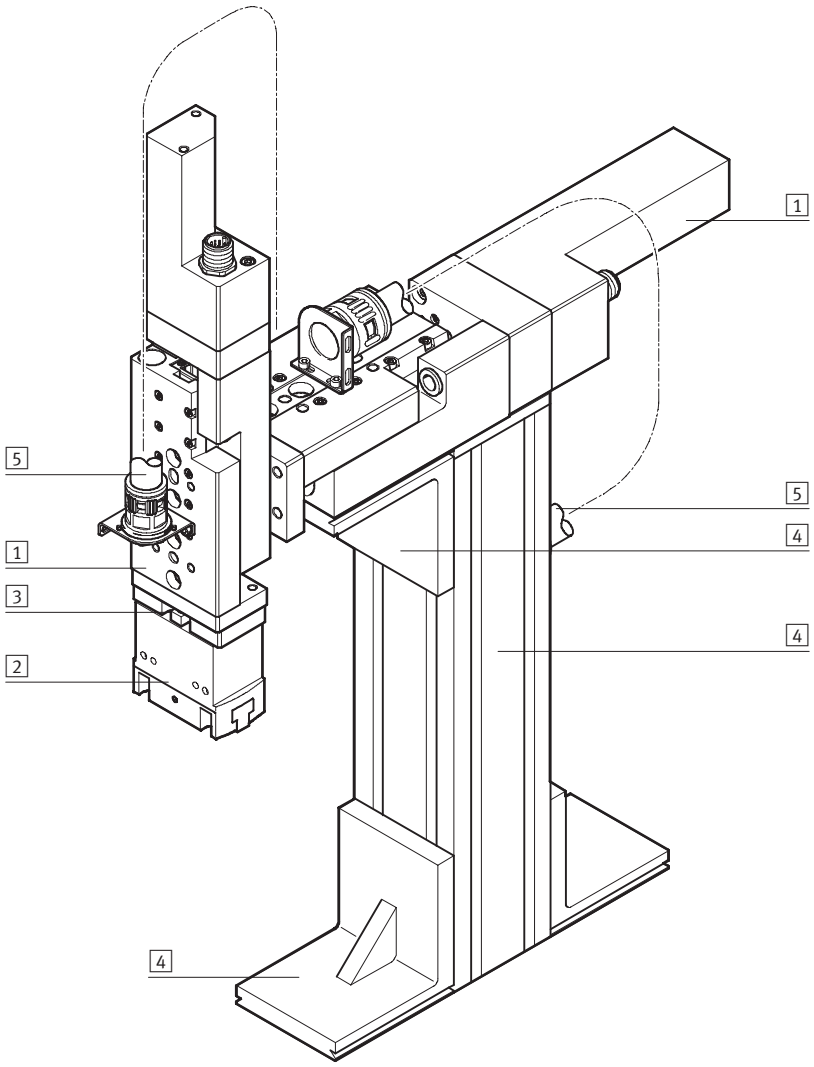
Comparison between electric mini slide SLTE and pneumatic mini slide SLT

	Electrical: SLTE	Pneumatic: SLT
		
Advantages		
	• Gentle starting and stopping • Constant and precise speed (2 … 200 mm/s) • Flexible positioning without mechanical devices • Programmable drive profile	• High feed force • High speed • Fast positioning time • Compact length
Guide		
• Preloaded, backlash-free, precise and rigid ball bearing cage guide • High torque and load absorption		
Dimensions		
• Identical width and height dimensions Type Width (W) x Height (H) SLT(E)-10 50 x 30 mm SLT(E)-16 66 x 40 mm		
Interfaces		
• Identical mounting and attachment options 1 Attachment surfaces: Direct mounting using threaded holes and through-holes 2 Mounting surfaces: Direct mounting of loads and devices (e.g. SLT: semi-rotary drives and grippers) via threaded holes in the slide and the yoke plate		
Technical data		
Piston ∅ [mm]	10, 16	6 … 25
Stroke [mm]	50 … 150	10 … 200
Max. speed [m/s]	0.2	0.8
Repetition accuracy at end positions [mm]	±0.1	±0.02
Intermediate positions	Any	None

Mini slides SLTE, electric

Key features

System product for handling and assembly technology

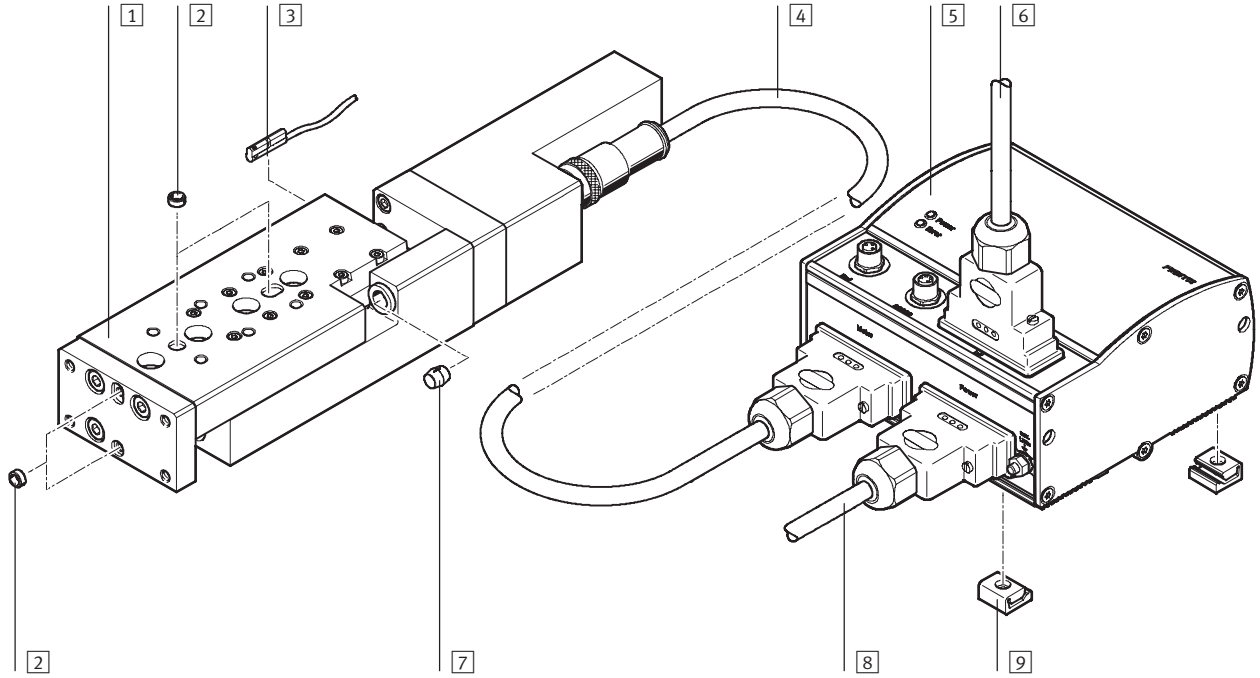


System elements and accessories			
		Brief description	**➔ Page/Internet**
1	Axes	Wide range of combinations possible within handling and assembly technology	axes
2	Grippers	Wide range of variations possible within handling and assembly technology	gripper
3	Adapters	For drive/drive and drive/gripper combinations	adapter kit
4	Basic mounting components	Profiles and profile connectors as well as profile/drive connectors	basic component
5	Installation components	For manageable and secure guidance of electrical cables and tubing	installation component
–	Drive units	Wide range of combinations possible within handling and assembly technology	drive

Mini slides SLTE, electric

Peripherals overview

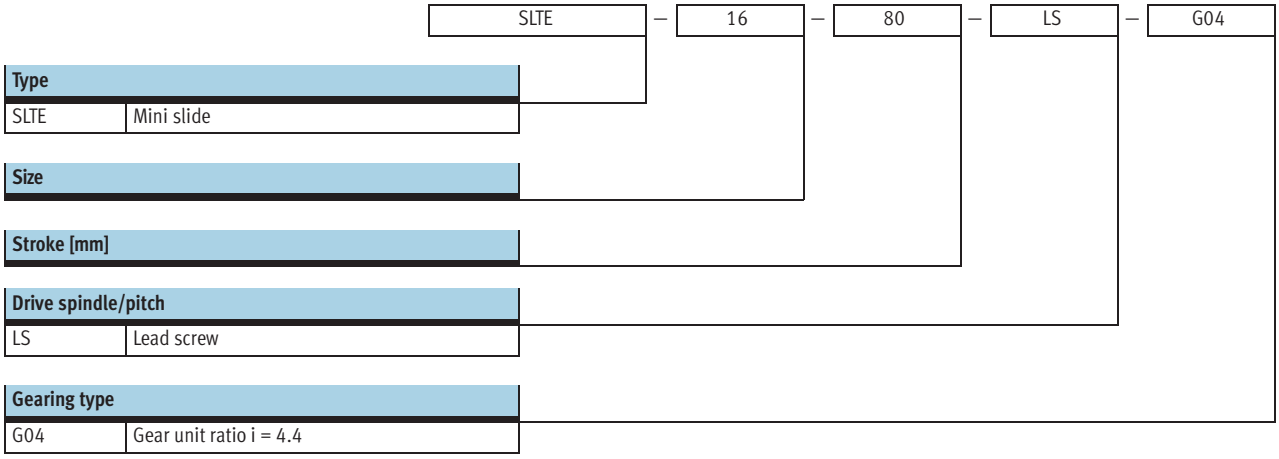
Size 10/16



Accessories			
		Brief description	**→ Page**
1	Mini slide SLTE	Electromechanical linear axis with lead screw spindle	9
2	Centring pin/sleeve ZBS/ZBH	– For centring loads and attachment components – Centring sleeves included in scope of delivery	17
3	Proximity sensor SME/SMT-10	For referencing mini slide or for sensing slide position	17
4	Motor cable KMTR	Connecting cable between motor and motor controller	18
5	Motor controller SFC	For parameterising and positioning mini slide	18
6	Control cable KES	For I/O connection to any controller	18
6	Plug FBS, FBA	For fieldbus interface	18
7	Buffer	Buffer included in scope of delivery	–
8	Supply cable KPWR	Power supply cable; load and logic power supplies are isolated	18
9	Centre supports MUP	– For mounting motor controller – Motor controller can also be mounted on H-rail	18

Mini slides SLTE, electric

Type codes



Mini slides SLTE, electric

Technical data

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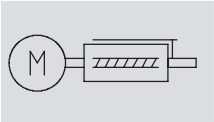
Function



- Ø - Size
  10 and 16

- | - Stroke length
  50 ... 150 mm

General technical data				
Size			10	16
Constructional design			Electromechanical linear axis with lead screw	
Guide			With ball bearings	
Type of mounting			Via through-holes	
			Via female thread	
			Via female thread and centring sleeve	
Stroke		[mm]	50, 80	50, 80, 100, 150
Stroke reserve per end position	with rubber buffer at both ends	[mm]	0.5	0.6
	with rubber buffer at one end	[mm]	1.2	1.25
Assembly position			Any	
Lead screw pitch		[mm]	5	7.5
Min. travel speed		[mm/s]	2	
Max. acceleration		[m/s^2]	2.5	
Repetition accuracy		[mm]	±0.1	
Reversing backlash		[mm]	< 0.1	

Electrical data for motor			
Size		10	16
System resolution of encoder		512 (pulses per rotation)	1,000 (pulses per rotation)
Nominal operating voltage	[V DC]	24	
Output	[W]	4.5	18

Operating and environmental conditions			
Size		10	16
Ambient temperature	[°C]	0 ... +40	
Protection class		IP40	
Fast transients		To EN61000-4-4	
Max. noise level[1)]	[dB A]	< 50	< 55
CE symbol (declaration of conformity)		In accordance with EU EMC directive	

1) At maximum permissible speed

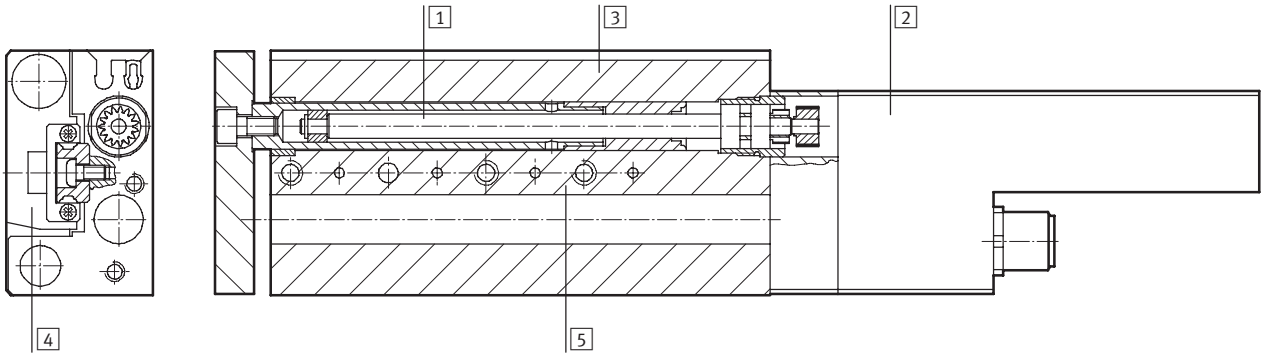
Weight [g]						
Size	10		16			
Stroke	50	80	50	80	100	150
Product weight	574	737	1,185	1,465	1,714	2,196
Moving load	163	235	296	415	519	729

Mini slides SLTE, electric

Technical data

Materials

Sectional view

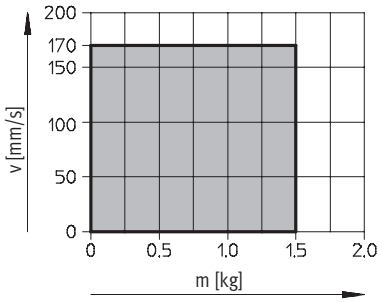


Mini slide		
1	Lead screw	High-alloy steel
2	Motor housing	Wrought aluminium alloy, anodised
3	Housing	Wrought aluminium alloy, anodised
4	Slide	Wrought aluminium alloy, anodised
5	Guide	Tempered steel
–	Seals	Thermoplastic rubber, nitrile rubber

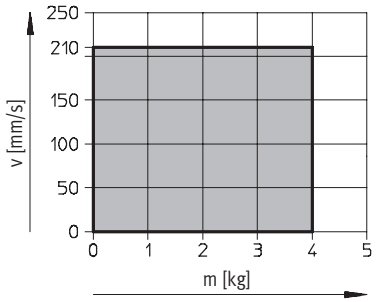
Travel speed v as a function of applied load m

Horizontal mounting position

SLTE-10

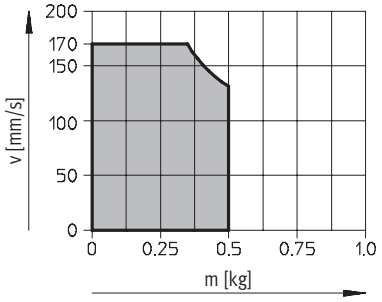


SLTE-16

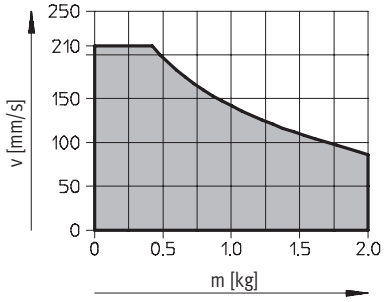


Vertical mounting position

SLTE-10



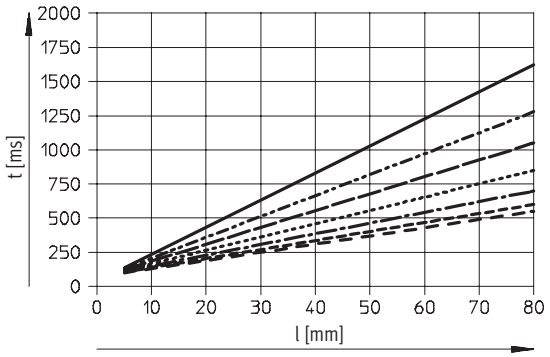
SLTE-16



Permissible operating range

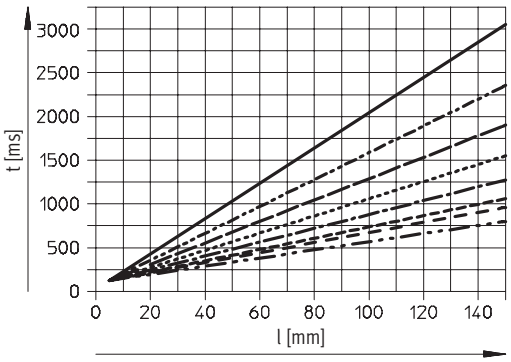
Positioning time t as a function of stroke l

SLTE-10



- v = 50 mm/s
- v = 65 mm/s
- v = 80 mm/s
- v = 100 mm/s
- v = 125 mm/s
- v = 150 mm/s
- v = 170 mm/s

SLTE-16

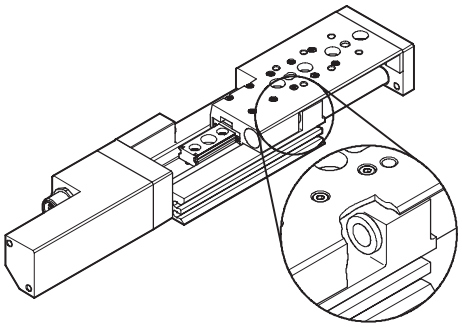


- v = 50 mm/s
- v = 65 mm/s
- v = 80 mm/s
- v = 100 mm/s
- v = 125 mm/s
- v = 150 mm/s
- v = 170 mm/s
- v = 210 mm/s

Reference travel

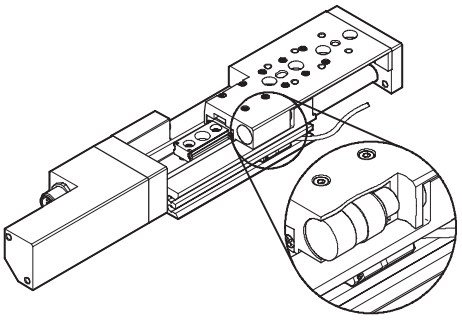
to fixed stop

- Positive fixed stop
  - To front stop bush (extended)
- Negative fixed stop
  - To rear stop bush (retracted)



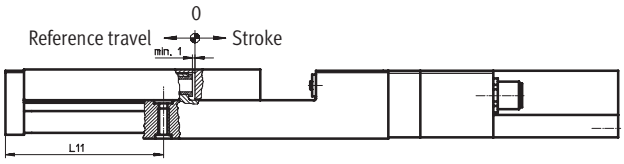
to proximity sensor

- Position freely selectable

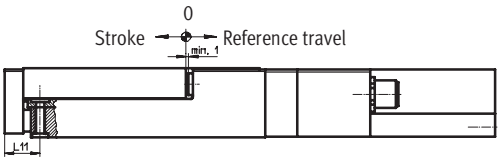


The following applies for reference travel to a fixed stop:

Positive fixed stop



Negative fixed stop



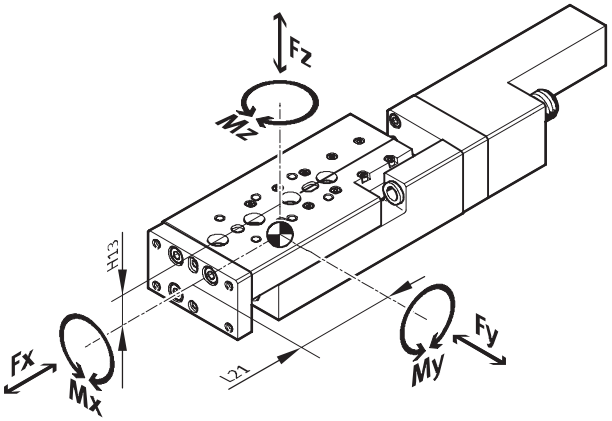
Size	Stroke	L11	
		Positive fixed stop	Negative fixed stop
10	50	$67.4^{+1.1}$	$15.6_{-1.1}$
	80	$97.0^{+1.1}$	$15.2_{-1.1}$
16	50	$74.9^{+1.1}$	$23.1_{-1.1}$
	80	$104.1^{+1.1}$	$22.3_{-1.1}$
	100	$124.6^{+1.1}$	$22.8_{-1.1}$
	150	$173.3^{+1.1}$	$21.5_{-1.1}$

Mini slides SLTE, electric

Technical data

Dynamic characteristic load values

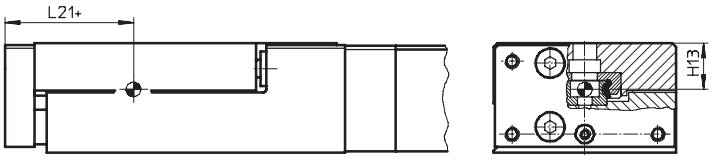
Torques are indicated with reference to the centre of the guide.
They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



If the drive is subjected to more than two of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

$$\frac{|Fy|}{Fy_{max.}} + \frac{|Fz|}{Fz_{max.}} + \frac{|Mx|}{Mx_{max.}} + \frac{|My|}{My_{max.}} + \frac{|Mz|}{Mz_{max.}} \leq 1$$

Position of the guide centre



\+ plus stroke length

Permissible forces and torques						Geometric characteristics	
Size	Stroke	Fy_{max} [N]	Fz_{max} [N]	Mx_{max}, My_{max} [Nm]	Mz_{max} [Nm]	H13 [mm]	L21 [mm]
10							
	50	390	390	3.1	1.4	13	33.5
	80	410	410	4.3	1.5		41
16							
	50	510	510	4.6	2.8	16	35
	80	520	520	6.0	2.8		41.5
	100	600	600	9.1	3.2		51.5
	150	660	960	12.6	3.5		66.5

Engineering Tool
PositioningDrives
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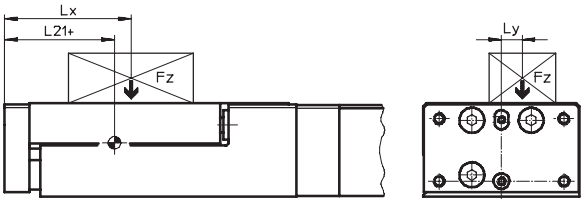
Calculation example

Given:



Mini slide	= SLTE-10
Stroke length	= 80 mm
Lever arm L_x	= 50 mm
Lever arm L_y	= 30 mm
Weight F_z	= 0.8 kg
Acceleration a	= 0 m/s^2

To be found:

F_y, F_z, Mx, My, Mz
and verification of function with combined load

Solution:

L21 = 41 mm from table

F_y = 0 N

F_z = m x g
= 0.8 kg x 9.81 m/s^2 = 7.848 N

M_x = m x g x L_y
= 0.8 kg x 9.81 m/s^2 x 30 mm = 0.236 Nm

M_y = m x g x [(L21+stroke)-L_x]
= 0.8 kg x 9.81 m/s^2 [(41 mm + 80 mm) – 50 mm] = 0.557 Nm

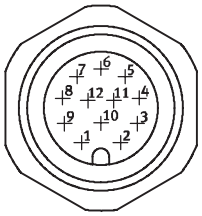
M_z = 0 Nm

Combined load:

$$\frac{|Fy|}{Fy_{max.}} + \frac{|Fz|}{Fz_{max.}} + \frac{|Mx|}{Mx_{max.}} + \frac{|My|}{My_{max.}} + \frac{|Mz|}{Mz_{max.}}$$

$$= 0 + \frac{7.848N}{410N} + \frac{0.2366Nm}{4.3Nm} + \frac{0.557Nm}{1.5Nm} + 0 = 0.445 \leq 1$$

Pin allocation of connection plug



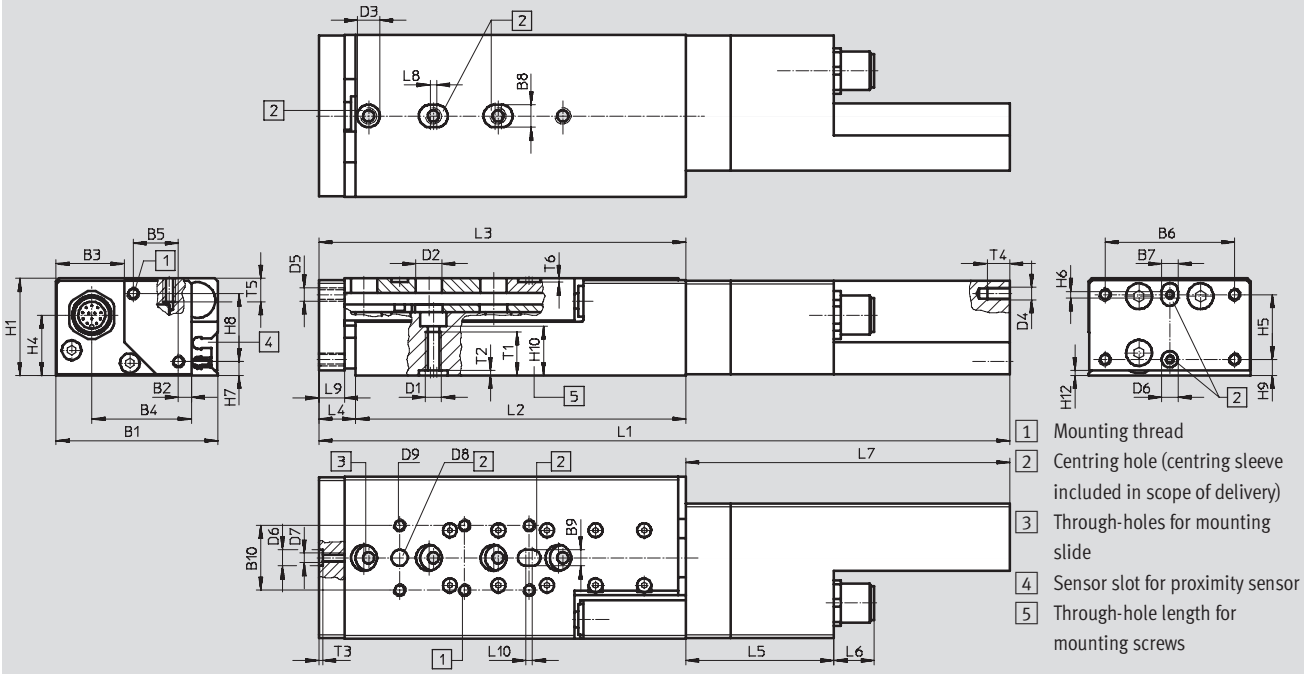
Plug M12

Pin	Connection	Function
1	Motor +	Motor conductor
2	Motor –	Motor conductor
3	A	Encoder signal RS 485
4	A/	Encoder signal RS 485
5	B	Encoder signal RS 485
6	B/	Encoder signal RS 485
7	I	Encoder signal RS 485
8	I/	Encoder signal RS 485
9	+5 V DC	Signal supply
10	0 V	Signal ground
11	–	–
12	–	–

Mini slides SLTE, electric

Technical data

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



1 Mounting thread
2 Centring hole (centring sleeve included in scope of delivery)
3 Through-holes for mounting slide
4 Sensor slot for proximity sensor
5 Through-hole length for mounting screws

Size	B1	B2 ±0.3	B3 ±0.3	B4	B5	B6	B7 H7	B8 H7	B9 H7	B10	D1	D2 ∅	D3 ∅ H7	D4
10	50	30.8	20.8	4	14	40	5	5	5	20	M5	8	7	M4
16	66	45.7	24.3	4.2	25	55	7	9	5	20	M6	10	9	M4

Size	D5	D6 ∅ H7	D7	D8 ∅ H7	D9	H1	H4	H5	H6	H7	H8	H9	H10	H12
10	M4	5	M3	5	M4	30	18.4	20	2	4	21	5	15	1.5
16	M5	7	M4	5	M5	40	25.8	20	2	4.5	30	13	20	1.5

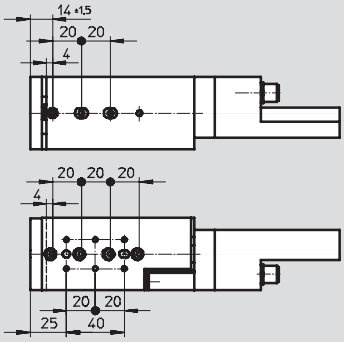
Size	Stroke	L1 ±1.5		L2	L3 ±1		L4 ±1	
	[mm]	1)	2)		1)	2)	1)	2)
10	50	212	213	102	112	113	10	11.1
	80	262	263	152	162	163	9.6	10.7
16	50	262.5	263.5	100	112.5	113.5	12.5	13.5
	80	307.5	308.5	146	158	159	11.7	12.7
	100	349	350	187	199.5	200.5	12.2	13.2
	150	430.5	431.5	270	281	282	11	12

Size	L5 ±0.5	L6	L7	L8	L9	L10	T1	T2	T3	T4	T5	T6
10	45.8	12.5	100	2	8	2	12	1.5	1.2	7	8	1.2
16	56.3	12.5	149.7	2	10	1	16	2.1	1.5	7	7	1.2

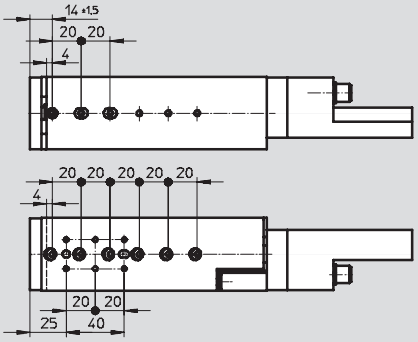
1) End position at fixed stop
2) End position at rubber buffer

Hole pattern for mounting thread and centring holes

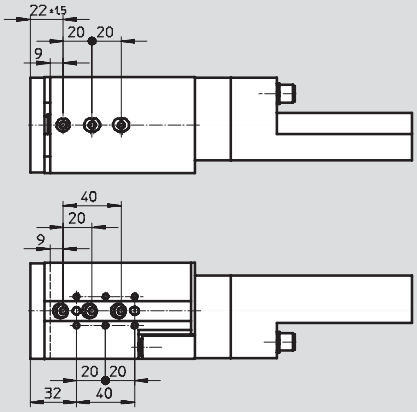
SLTE-10-50



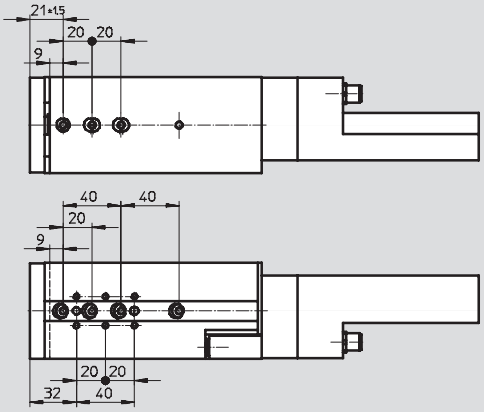
SLTE-10-80



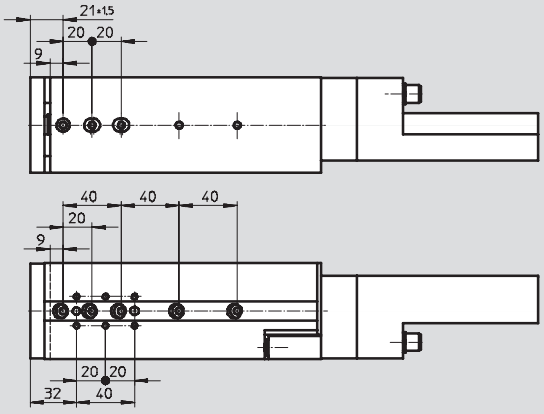
SLTE-16-50



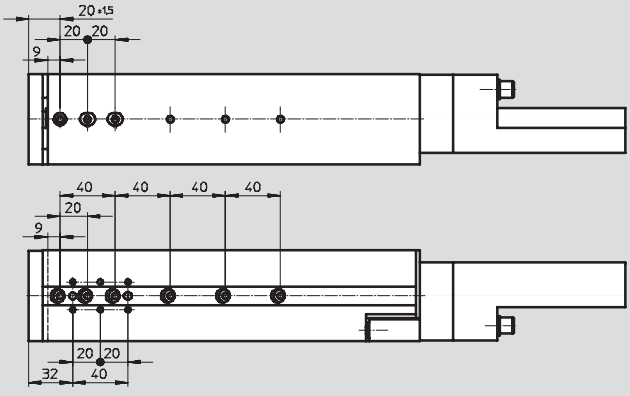
SLTE-16-80



SLTE-16-100

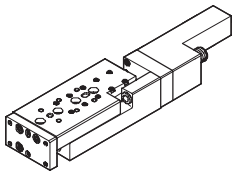
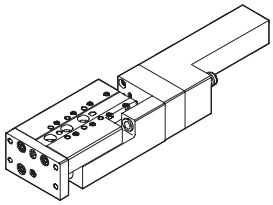


SLTE-16-150



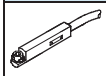
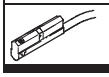
Mini slides SLTE, electric

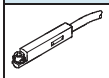
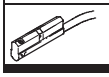
Technical data

Ordering data			
Size	Brief description	Part No.	Type
10			
	Mini slide	**537 447**	**SLTE-10-50-LS-G04**
		537 449	**SLTE-10-80-LS-G04**
16			
	Mini slide	**537 459**	**SLTE-16-50-LS-G04**
		537 461	**SLTE-16-80-LS-G04**
		537 463	**SLTE-16-100-LS-G04**
		537 465	**SLTE-16-150-LS-G04**

Ordering data – Centring sleeves[1]						Technical data ➔ Internet: zbh
Size		10		16		
		Part No.	Type	Part No.	Type	
	Housing	**186 717**	**ZBH-7**	**150 927**	**ZBH-9**	
	Slide	**189 652**	**ZBH-5**	**189 652**	**ZBH-5**	
	Yoke	**189 652**	**ZBH-5**	**186 717**	**ZBH-7**	

1) Scope of delivery: 10 per pack

Ordering data – Proximity sensors for C-slot, magneto-resistive							Technical data ➔ Internet: sm
	Type of mounting	Switch output	Electrical connection, connection direction	Cable length [m]	Part No.	Type	
N/O contact							
	Insertable in the slot from above, flush with cylinder profile	PNP	Cable, 3-wire, in-line	2.5	**525 915**	**SMT-10F-PS-24V-K2,5L-OE**	
			Plug M8x1, 3-pin, in-line	0.3	**525 916**	**SMT-10F-PS-24V-K0,3L-M8D**	
			Plug M8x1, 3-pin, lateral	0.3	**526 675**	**SMT-10F-PS-24V-K0,3Q-M8D**	
	Insertable in the slot lengthwise	PNP	Plug M8x1, 3-pin, in-line	0.3	**173 220**	**SMT-10-PS-SL-LED-24**	
			Cable, 3-wire, in-line	2.5	**173 218**	**SMT-10-PS-KL-LED-24**	

Ordering data – Proximity sensors for C-slot, magnetic reed							Technical data ➔ Internet: sm
	Type of mounting	Switch output	Electrical connection, connection direction	Cable length [m]	Part No.	Type	
N/O contact							
	Insertable in the slot from above, flush with cylinder profile	Contacting	Plug M8x1, 3-pin, in-line	0.3	**525 914**	**SME-10F-DS-24V-K0,3L-M8D**	
			Cable, 3-wire, in-line	2.5	**525 913**	**SME-10F-DS-24V-K2,5L-OE**	
			Cable, 2-wire, in-line	2.5	**526 672**	**SME-10F-ZS-24V-K2,5L-OE**	
	Insertable in the slot lengthwise	Contacting	Plug M8x1, 3-pin, in-line	0.3	**173 212**	**SME-10-SL-LED-24**	
			Cable, 3-wire, in-line	2.5	**173 210**	**SME-10-KL-LED-24**	

Ordering data – Connecting cables					Technical data ➔ Internet: nebu
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541 333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541 334**	**NEBU-M8G3-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541 338**	**NEBU-M8W3-K-2.5-LE3**
			5	**541 341**	**NEBU-M8W3-K-5-LE3**

Motor controllers SFC-DC

Key features

Hardware

- The motor controller SFC-DC serves as a positioning controller and closed loop position controller
- Available with or without control panel
- Thanks to IP54 protection, the motor controller can be mounted close to the drive

Parameter assignment via:
- Control panel:
  - suitable for simple position sequences
- FCT (Festo Configuration Tool) configuration package:
  - with RS 232 interface
  - Windows-based PC user interface, Festo Configuration Tool

- Easy actuation via:
  - I/O interface
  - Profibus
  - CANopen
  - DeviceNet

For controlling

Mini slide SLTE

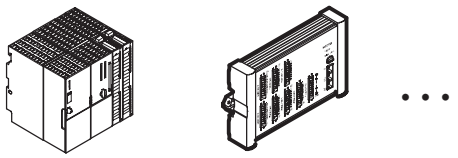
FHPP – Festo Handling and Positioning Profile

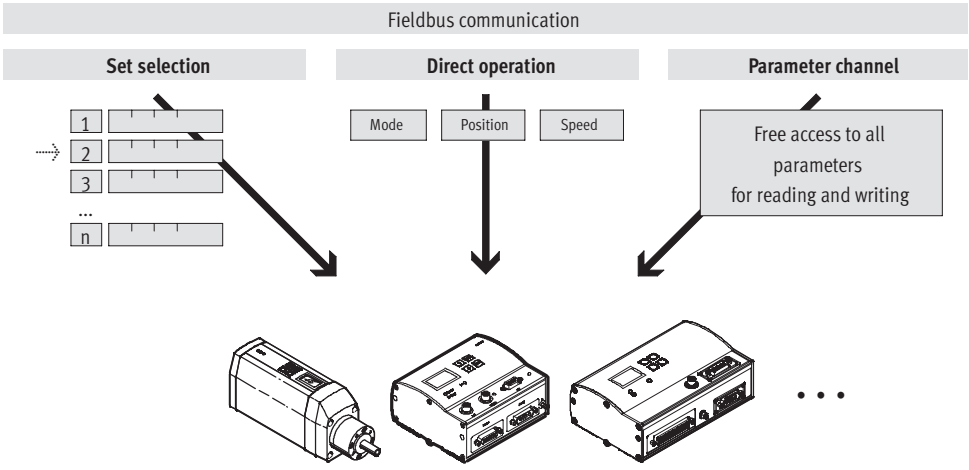
Optimised data profile

Festo has developed an optimised data profile, the “Festo Handling and Positioning Profile (FHPP)”, that is tailored to the target applications for handling and positioning tasks.

The FHPP data profile permits the actuation of Festo motor controllers, using a fieldbus interface, via standardised control and status bytes.

The following are defined, among others:
- Operating modes
- I/O data structure
- Parameter objects
- Sequence control



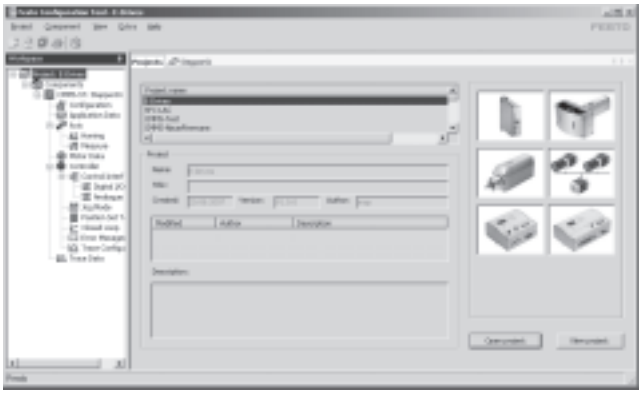


Motor controllers SFC-DC

Key features

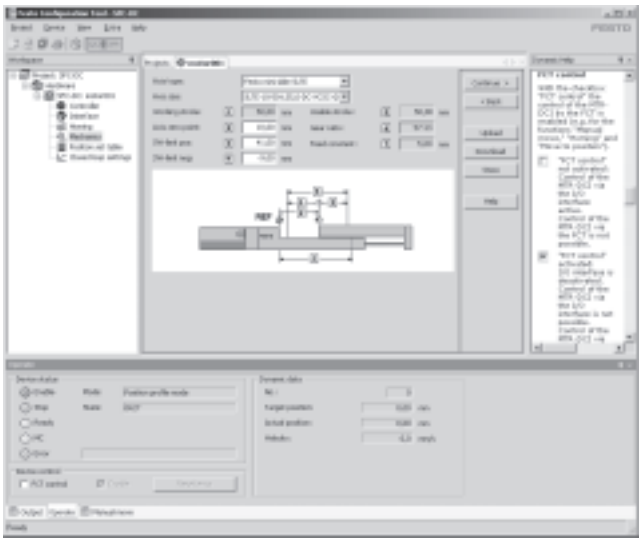
FCT software – Festo Configuration Tool

Software platform for electrical drives from Festo



- All the drives in a system can be managed and archived in a common project
- Project and data management for all supported device types
- Simple to use thanks to graphically supported parameter entry
- Universal mode of operation for all drives
- Working offline at your desk or online at the machine

Mechanical reference positions and limit positions



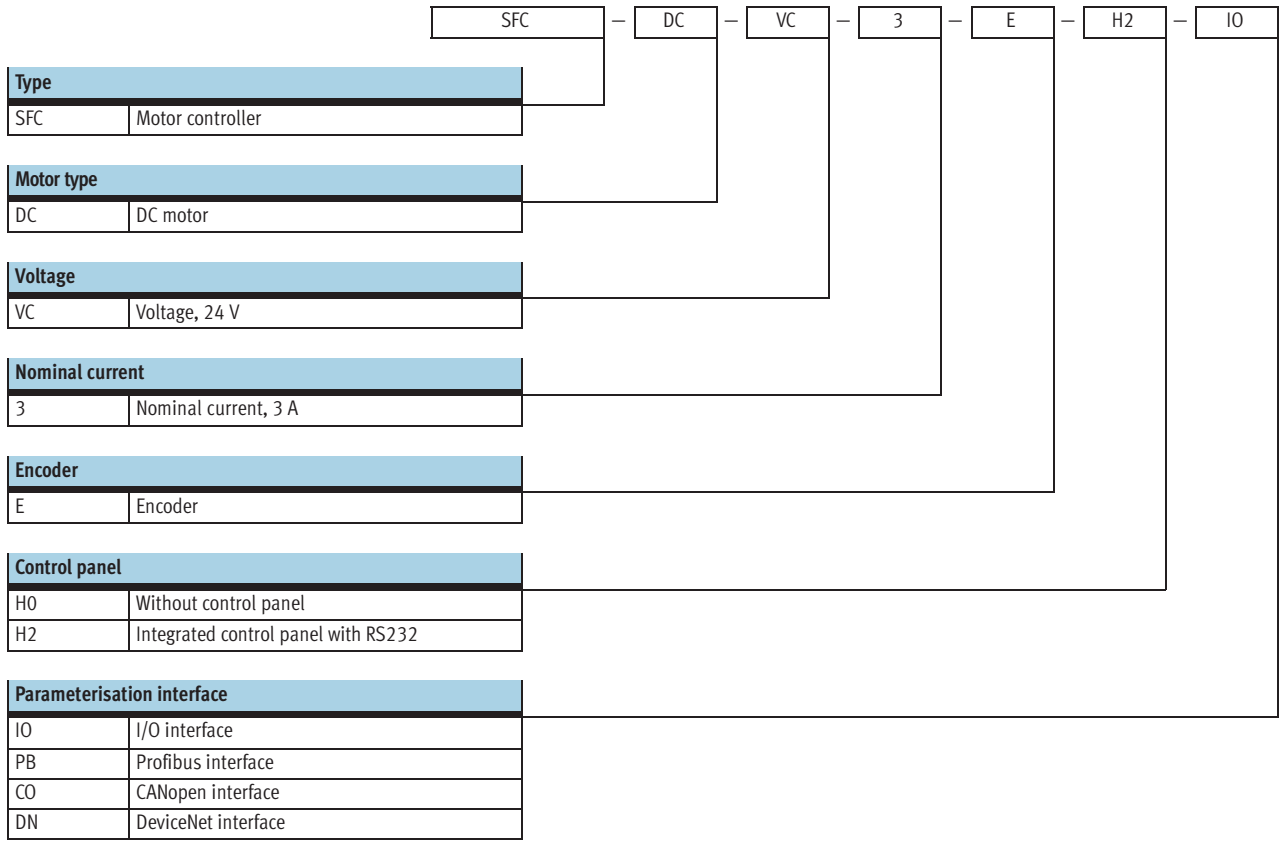
- Reference positions can be either edited or taught in
- Flexible adaptation to installation conditions
- Settings are displayed clearly

Position set table

- 31 position sets ensure flexibility in positioning
- Absolute or relative positioning values can be used
- The following parameters can be set flexibly for each application:
  - Position
  - Speed
  - Acceleration
  - Braking ramps
- Complete function test

Motor controllers SFC-DC

Type codes



Type	
SFC	Motor controller

Motor type	
DC	DC motor

Voltage	
VC	Voltage, 24 V

Nominal current	
3	Nominal current, 3 A

Encoder	
E	Encoder

Control panel	
H0	Without control panel
H2	Integrated control panel with RS232

Parameterisation interface	
IO	I/O interface
PB	Profibus interface
CO	CANopen interface
DN	DeviceNet interface

Motor controllers SFC-DC

Technical data

FESTO

Fieldbus interfaces

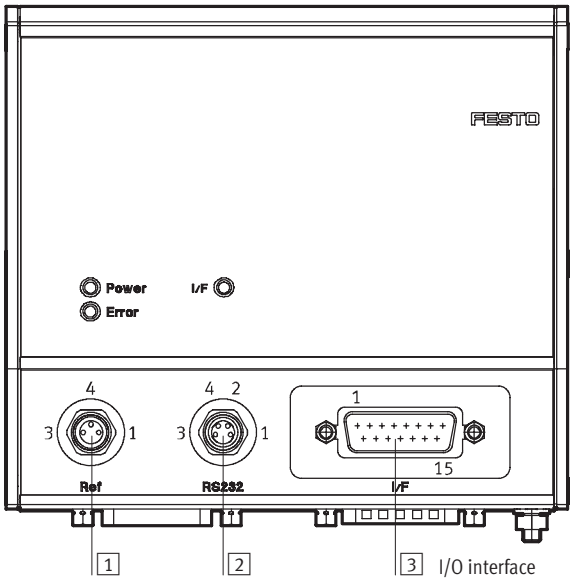
General technical data					
Type		SFC-...-IO	SFC-...-PB	SFC-...-CO	SFC-...-DN
Operating mode		Cascade closed-loop controller with – P current regulator		– PI closed-loop speed controller – P position regulator	
Position sensor		Encoder			
Encoder input		RS485/RS422, A/B signal with index pulse			
Display (optional)		Four-key interface with full-text display via graphic LCD display (128 x 64 pixels)			
Control elements (optional)		4 keys			
Interface		I/O interface for 31 position sets and homing	Profibus DP	CANopen	DeviceNet
Number of digital logic inputs		8	–	–	–
Number of digital logic outputs		4	–	–	–
Bus terminating resistor[1)]		–	Not integrated in the device		
Communication profile		–	DP-V0/V1 / FHPP	DS301; / FHPP	FHPP
		–	Step7 functional modules	DS301; DSP402	Device Type $0C_h$
Max. fieldbus baud rate	[Mbit/s]	–	12	1	0.5
Type of mounting		H-rail, wall or surface bracket			
Product weight	[g]	600			

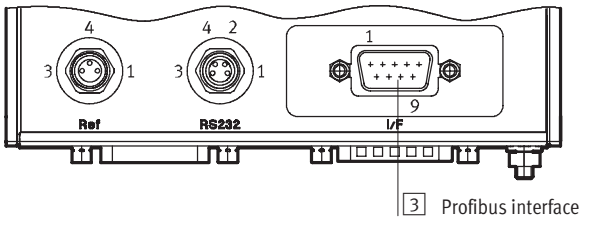
1) Details of bus terminating resistor ➔ 25

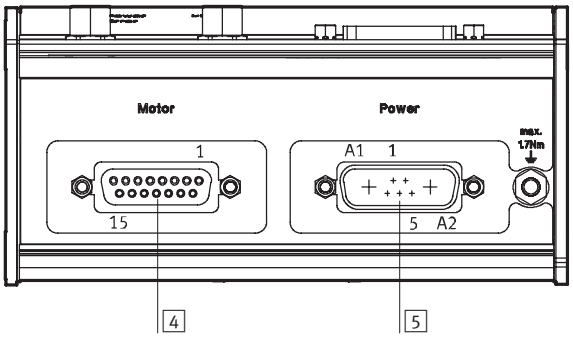
Electrical data		
General		
Rated output	[W]	75
Parameterisation interface		RS232; 9600 baud
Load supply		
Nominal voltage	[V DC]	24 ±10%
Nominal current	[A]	3
Peak current	[A]	5
Logic supply		
Nominal voltage	[V DC]	24 ±10%
Nominal current	[A]	0.1
Peak current	[A]	0.8
Max. current per output (digital logic outputs)	[A]	0.5

Operating and environmental conditions					
Type		SFC-...-IO	SFC-...-PB	SFC-...-CO	SFC-...-DN
Digital logic outputs		Electrically isolated	–	–	–
Logic inputs		Electrically isolated	–	–	–
Specification, logic input		IEC 61131	–	–	–
Protection class		IP54			
Vibration resistance		To DIN EN 60068-2-6			
Shock resistance		To DIN EN 60068-2-27			
Protective function		I^2t monitoring			
		Current monitoring			
		Voltage failure detection			
		Lag error monitoring			
		Software end position detection			
CE mark (see declaration of conformity)		In accordance with EU EMC directive			
Ambient temperature	[°C]	0 ... +40			
Storage temperature	[°C]	–25 ... +60			
Relative air humidity	[%]	0 ... 95 (non-condensing)			

Pin allocation







1 Reference switch, 3-pin M8 socket	
Pin	Function
1	24 V
4	Reference input
3	0 V
–	

2 RS 232 interface, 4-pin M8 socket	
Pin	Function
1	0 V
2	Transmitted Data (TxD)
3	Received Data (RxD)
4	–

3 I/O interface, 15-pin Sub-D plug	
Pin	Function
1	24 V (supply for output)
2	Position set coding, bit 1
3	Position set coding, bit 2
4	Position set coding, bit 3
5	Position set coding, bit 4
6	Position set coding, bit 5
7	Stop bit
8	0 V
9	Enable bit
10	Start bit
11	MC
12	Ready
13	Acknowledge
14	Error
15	0 V

3 Profibus interface, 9-pin Sub-D socket	
Pin	Function
1	–
2	–
3	RxD/TxD-P
4	CNTR-P
5	DGND
6	VP
7	–
8	RxD/TxD-N
9	–

3 CANopen interface, 9-pin Sub-D plug	
Pin	Function
1	–
2	CAN_L
3	CAN_GND
4	–
5	CAN_SHLD
6	CAN_V–
7	CAN_H
8	–
9	CAN_V+

3 DeviceNet interface, 9-pin Sub-D plug	
Pin	Function
1	–
2	CAN_L
3	CAN_GND
4	–
5	CAN_SHLD
6	CAN_V–
7	CAN_H
8	–
9	CAN_V+

4 Motor interface, 15-pin Sub-D socket	
Pin	Function
1	VCC logic
2	Encoder channel A
3	Encoder channel A/
4	Encoder channel B
5	Encoder channel B/
6	Encoder channel C
7	Encoder channel C/
8	Logic 0 V
9	0 V
10	0 V
11	0 V
12	Motor +
13	Motor–
14	0 V
15	0 V

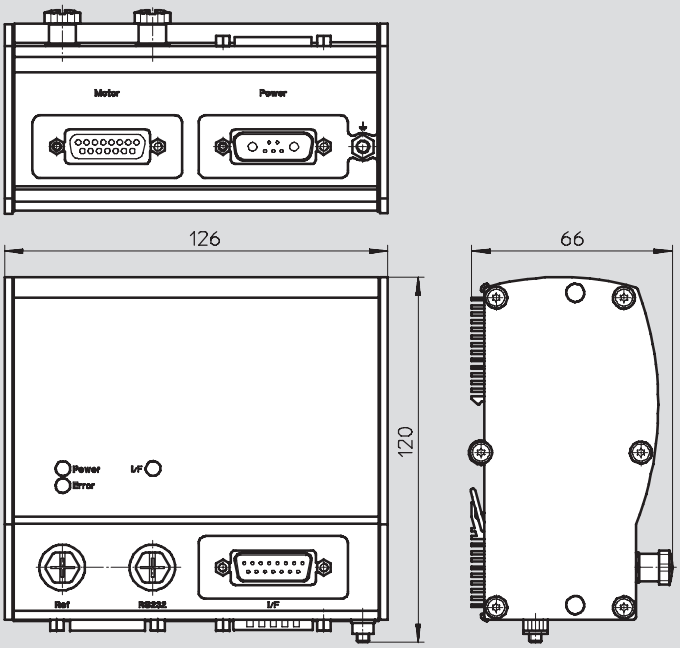
5 Power supply, 7-pin plug	
Pin	Function
A1	24 V (load)
A2	0 V (load)
1	24 V (logic)
2	0 V (logic)
3	–
4	PE
5	–

Motor controllers SFC-DC

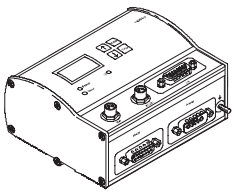
Technical data

FESTO

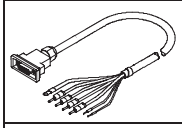
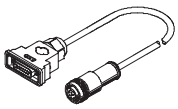
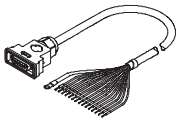
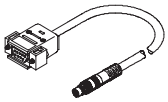
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



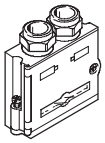
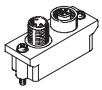
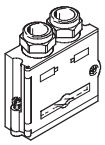
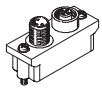
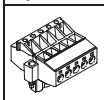
Ordering data

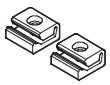
	Brief description	Part No.	Type
	Motor controller with I/O interface		
	Without control panel	**538 912**	**SFC-DC-VC-3-E-H0-IO**
	With control panel	**538 913**	**SFC-DC-VC-3-E-H2-IO**
	Motor controller with Profibus interface		
	Without control panel	**540 366**	**SFC-DC-VC-3-E-H0-PB**
	With control panel	**540 367**	**SFC-DC-VC-3-E-H2-PB**
	Motor controller with CANopen interface		
	Without control panel	**540 364**	**SFC-DC-VC-3-E-H0-CO**
	With control panel	**540 365**	**SFC-DC-VC-3-E-H2-CO**
	Motor controller with DeviceNet interface		
	Without control panel	**540 368**	**SFC-DC-VC-5-E-H0-DN**
	With control panel	**540 369**	**SFC-DC-VC-5-E-H2-DN**

Ordering data – Cables

	Brief description	Cable length [m]	Part No.	Type
	Supply cable, for connecting load and logic supply	2.5	**538 914**	**KPWR-MC-1-SUB-15HC-2,5**
		5	**538 915**	**KPWR-MC-1-SUB-15HC-5**
		10	**538 916**	**KPWR-MC-1-SUB-15HC-10**
	Motor cable, for connecting motor and controller	2.5	**538 917**	**KMTR-DC-SUB-15-M12-2,5**
		5	**538 918**	**KMTR-DC-SUB-15-M12-5**
		10	**539 316**	**KMTR-DC-SUB-15-M12-10**
	Control cable, for I/O interface to any controller	2.5	**538 919**	**KES-MC-1-SUB-15-2,5**
		5	**538 920**	**KES-MC-1-SUB-15-5**
		10	**538 921**	**KES-MC-1-SUB-15-10**
	Programming cable, for parameterisation and commissioning via RS232 interface using FCT software	2.5	**537 926**	**KDI-MC-M8-SUB-9-2,5**

Ordering data – Plugs

	Brief description	Part No.	Type
Plug for Profibus			
	– 9-pin Sub-D connection – Bus terminating resistor integrated – Position of DIL switch can be read externally – IP65	**532 216**	**FBS-SUB-9-GS-DP-B**
Bus connection adapter for Profibus			
	– 9-pin Sub-D plug to 5-pin round plug/socket M12 – Bus terminating resistor must be connected externally	**533 118**	**FBA-2-M12-5POL-RK**
Plug for CANopen and DeviceNet			
	– 9-pin Sub-D connection – Bus terminating resistor integrated – Position of DIL switch can be read externally – IP65	**532 219**	**FBS-SUB-9-BU-2x5POL-B**
Bus connection adapter for CANopen and DeviceNet			
	– 9-pin Sub-D plug to 5-pin round plug/socket M12 – Bus terminating resistor must be connected externally	**525 632**	**FBA-2-M12-5POL**
	– 9-pin Sub-D plug on 5-pin strip – Bus terminating resistor must be connected externally	**525 634**	**FBA-1-SL-5POL**
	– 5-pin terminal strip for connecting the fieldbus cable to the bus connection adapter FBA-1-SL-5POL	**525 635**	**FBSD-KL-2x5PIN**

Ordering data – Central supports			
	Brief description	Part No.	Type
	Centre supports for mounting controller	**160 909**	**MUP-8/12**

Ordering data – Software			
	Brief description	Part No.	Type
	Operating package contains: – CD-ROM – with user documentation for SFC-DC, in the languages de, en, es, fr, it, sv – with configuration software FCT (Festo Configuration Tool) – Brief description This operating package is included in the scope of delivery.	**550 140**	**P.BP-SFC-DC**

Ordering data – Documentation[1]					
	Language	Part No.	Type	Part No.	Type
		For I/O interface		For Profibus interface	
	DE	**540 417**	**P.BE-SFC-DC-IO-DE**	**540 411**	**P.BE-SFC-DC-PB-DE**
	EN	**540 418**	**P.BE-SFC-DC-IO-EN**	**540 412**	**P.BE-SFC-DC-PB-EN**
	ES	**540 419**	**P.BE-SFC-DC-IO-ES**	**540 413**	**P.BE-SFC-DC-PB-ES**
	FR	**540 420**	**P.BE-SFC-DC-IO-FR**	**540 414**	**P.BE-SFC-DC-PB-FR**
	IT	**540 421**	**P.BE-SFC-DC-IO-IT**	**540 415**	**P.BE-SFC-DC-PB-IT**
	SV	**540 422**	**P.BE-SFC-DC-IO-SV**	**540 416**	**P.BE-SFC-DC-PB-SV**
		For CANopen interface		For DeviceNet interface	
	DE	**540 423**	**P.BE-SFC-DC-CO-DE**	**555 879**	**P.BE-SFC-DC-DN-DE**
	EN	**540 424**	**P.BE-SFC-DC-CO-EN**	**555 880**	**P.BE-SFC-DC-DN-EN**
	ES	**540 425**	**P.BE-SFC-DC-CO-ES**	**555 881**	**P.BE-SFC-DC-DN-ES**
	FR	**540 426**	**P.BE-SFC-DC-CO-FR**	**555 882**	**P.BE-SFC-DC-DN-FR**
	IT	**540 427**	**P.BE-SFC-DC-CO-IT**	**555 883**	**P.BE-SFC-DC-DN-IT**
	SV	**540 428**	**P.BE-SFC-DC-CO-SV**	**555 884**	**P.BE-SFC-DC-DN-SV**

1) User documentation in paper form is not included in the scope of delivery

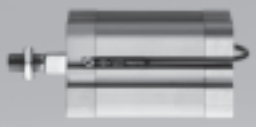
What must be observed when using Festo components?

Specified limit values for technical data and any specific instructions must be adhered to by the user in order to ensure recommended operating conditions.
When pneumatic components are used, the user shall ensure that they are operated using correctly prepared compressed air without aggressive media.
When Festo components are used in safety-oriented applications, the user shall ensure that all applicable national and local safety laws and regulations, for example the machine directive, together with the relevant references to standards are observed.
Unauthorised conversions or modifications to products and systems from Festo involve a safety risk and are thus not permissible.
Festo does not accept any liability for resulting damages.
You should contact Festo's advisors if one of the following apply to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for use in the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.

Products and services – everything from a single source

Products incorporating new ideas are created when enthusiasm for technology and efficiency come together. Tailor-made service goes without saying when the customer is the focus of attention.



Pneumatic and electrical drives

- Pneumatic cylinders
- Semi-rotary drives
- Handling modules
- Servopneumatic positioning systems
- Electromechanical drives
- Positioning controllers and controllers

Valves and valve terminals

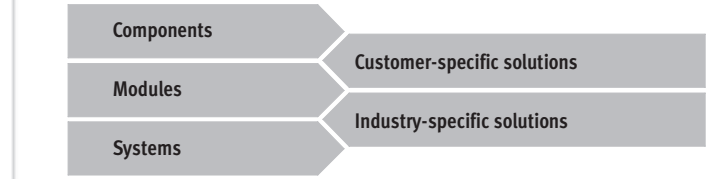
- Standard valves
- Universal and application-optimised valves
- Manually and mechanically actuated valves
- Shut-off, pressure control and flow control valves
- Proportional valves
- Safety valves

Fieldbus systems/ electrical peripherals

- Fieldbus Direct
- Installation system CP/CPI
- Modular electrical terminal CPX

Compressed air preparation

- Service unit combinations
- Filter regulators
- Filters
- Pressure regulators
- Lubricators
- On-off and soft-start valves
- Dryers
- Pressure amplifiers
- Accessories for compressed air preparation



Services from Festo to increase your productivity – across the entire value creation sequence

Engineering – for greater speed in the development process

- CAD models
- 14 engineering tools
- Digital catalogue
- FluidDRAW®
- More than 1,000 technical consultants and project engineers worldwide
- Technical hotlines

Supply chain – for greater speed in the procurement process

- E-commerce and online shop
- Online order tracking
- Euro special manufacturing service
- Logistics optimisation

Gripping and vacuum technology

- Vacuum generators
- Vacuum grippers
- Vacuum security valves
- Vacuum accessories
- Standard grippers
- Micro grippers
- Precision grippers
- Heavy-duty grippers

Sensors and monitoring units

- Proximity sensors
- Pressure and flow sensors
- Display and operating units
- Inductive and optical proximity sensors
- Displacement encoders for positioning cylinders
- Optical orientation detection and quality inspection

Controllers/bus systems

- Pneumatic and electropneumatic controllers
- Programmable logic controllers
- Fieldbus systems and accessories
- Timers/counters
- Software for visualisation and data acquisition
- Display and operating units

Accessories

- Pipes
- Tubing
- Pipe connectors and fittings
- Electrical connection technology
- Silencers
- Reservoirs
- Air guns

All in all, 100% product and service quality

A customer-oriented range with unlimited flexibility:
Components combine to produce ready-to-install modules and systems. Included in this are special designs – since at Festo, most industry-specific products and customer-specific solutions are based on the 23,000 plus catalogue products. Combined with the services for the entire value creation sequence, the end result is unbeatable economy.

Assembly – for greater speed in the assembly/commissioning process

- Prepack
- Preassembly
- Turnkey pneumatics
- Handling solutions

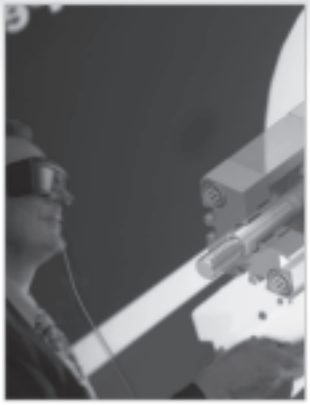
Operation – for greater speed in the operational process

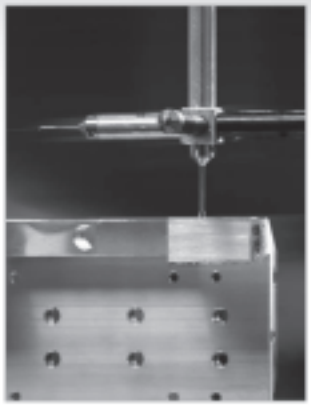
- Spare parts service
- Energy saving service
- Compressed air consumption analysis
- Compressed air quality analysis
- Customer service

Aspects of quality

Quality can be viewed from a number of aspects. A short virtual tour of the Research and Development department, the Production department or the Customer Service Centre speaks more than a thousand words.

3D engineering and simulation





Innovation quality

Let's look at some of the figures:

- 6.5% of turnover
- 2,800 patents with 100 new applications every year
- 3D engineering and simulation
- 10,600 employees worldwide
- Each and every one of them a lateral thinker

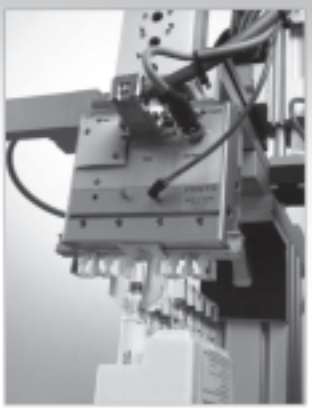
Production quality

Your interest is quality and economy – therefore we place considerable value on:

- Minimum production tolerances
- Ultra-modern, proprietary production methods
- Core competencies in production
- Defined quality standards across the entire production chain
- Strict quality assurance systems: on that you can depend.

Price quality

More service for less money. Many of the new and further developments in the Festo product range have one thing in common: they are technically superior and more attractively priced than their predecessor product. Examples are to be found in all product segments: among the drives, valves, valve terminals; among the service units, and among the range of accessories.



Range quality

For individual solutions. Festo offers components as industry-specific catalogue products as well as standards-based and highly individual special designs. Ready-to-install combinations of these components play an integral part in the Festo product portfolio as modules or systems. Incidentally, an increasing number of components can be individually configured as modular products.

Didactic quality

To complement the products and services for automation, Festo Didactic offers exceptionally efficient training hardware, learning software and seminars of the highest quality. Optimally tailored to your value creation sequence.
In short – training in practical applications for practical application.