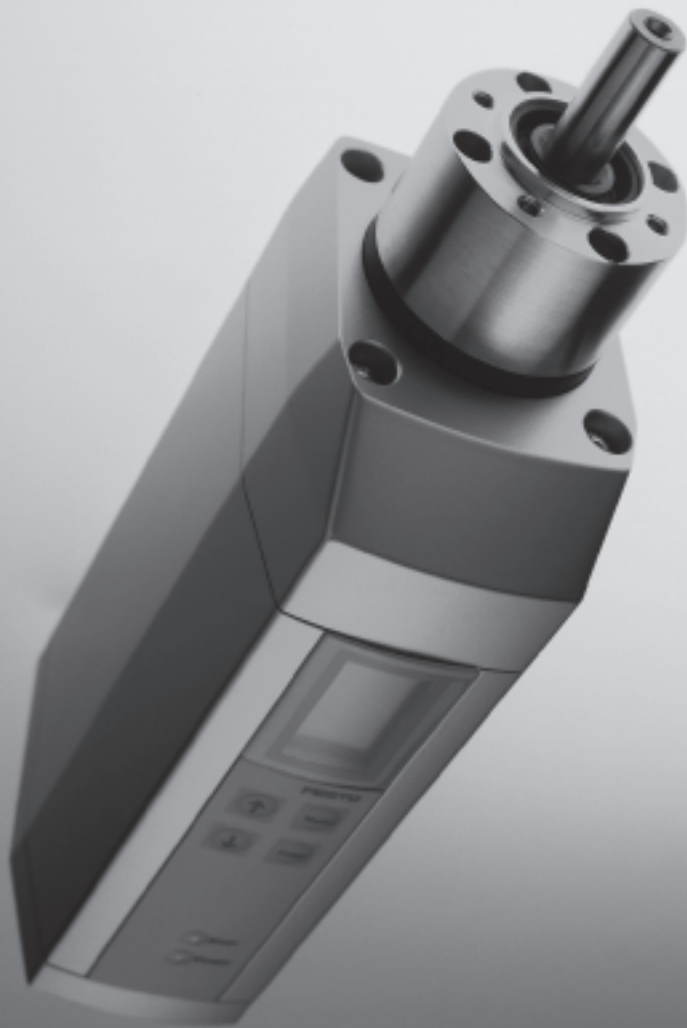


Intelligent motor units MTR-DCI

FESTO



- Servo-motor with integrated gearing and positioning controller
- Compact design
- Actuation via I/O connection
- Protection class IP54



Motor units MTR-DCI, intelligent control motors

Key features

FESTO

General data

The motor unit MTR-DCI is an innovative motor with integrated power electronics for positioning tasks.

Four components in one housing

Integrated in the MTR-DCI are the motor, gearing, controller and power electronics. This means that there is no need for a control cabinet or extensive cabling.

Reliable

The integrated power electronics and controller obviates the need for motor cables and improves the electromagnetic compatibility. Additional monitoring functions are integrated.

Uncomplicated

The complete commissioning process can be performed directly on the MTR-DCI via the optional LCD display or on a PC using the user-friendly menus of the FCT (Festo Configuration Tool). No matter which approach is used, all parameters are continuously controlled.

At a glance

- Compact design
- Profile insensitive to the ingress of dirt thanks to smooth surfaces
- Direct current motor with planetary gearing and encoder
- Gear reduction ratio:
7:1; 14:1, 22:1
- Protection class IP54

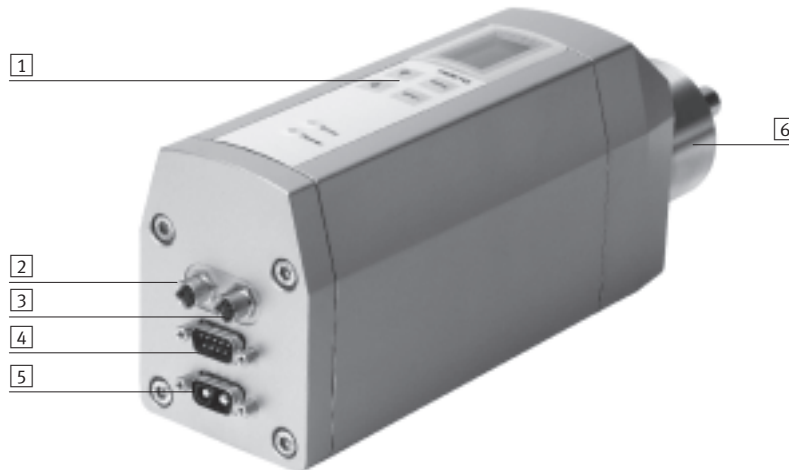
Positioning functionality

- 16 traversing records (including homing)
- Constant acceleration and braking
- Positioning control

Protective functions

- Temperature monitoring
- Current monitoring
- Voltage failure detection
- Drag fault monitoring
- Software end-position detection

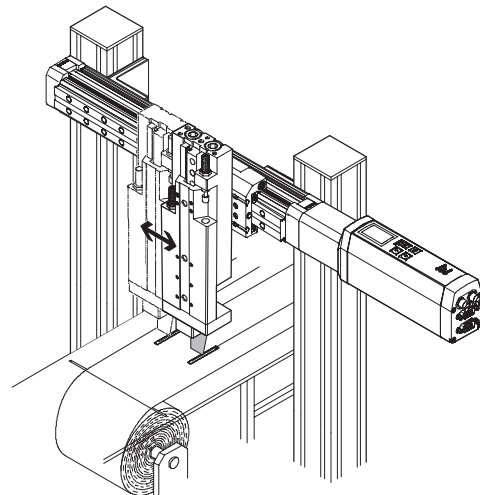
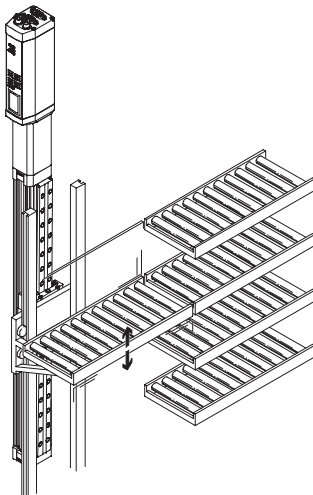
- 1 Control panel with integrated display (optional)
- 2 Input for reference end switches
- 3 RS232 interface
- 4 Operator interface:
I/O interface
- 5 Power supply
- 6 Gear unit



Typical applications

Adjusting sorting conveyors

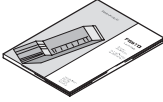
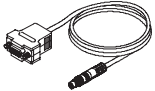
Programming formats for paper or foil cutting machines



Motor units MTR-DCI, intelligent control motors

Key features

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Accessories		→ 5 / 2.2-10	
Cable		Description and configuration software	
Supply cable	Cable lengths: 2.5 ... 10 m Allocation → 5 / 2.2-6	Description 	User documentation in paper form, in the languages DE, GB, ES, FR, IT, SE, is not included in the scope of delivery.
Control cable 	For I/O connection to any PLC controller Cable lengths: 2.5 ... 10 m Allocation → 5 / 2.2-6	Documentation package 	User documentation on CD-ROM, in the languages DE, GB, ES, FR, IT, SE, is included in the scope of delivery for the motor unit MTR-DCI.
Programming cable 	For parameterisation and commissioning via the RS232 interface using FCT software Cable length: 2.5 m Allocation → 5 / 2.2-6	Configuration package FCT 	The configuration on CD-ROM is included in the scope of delivery for the motor unit MTR-DCI.

Type codes

		MTR	-	DCI	-	42	S	-	VC	SC	-	E	G7	-	H2	IO
Type		MTR		Motor												
Motor type																
Size																
Torque class																
S	Standard															
Nominal voltage																
VC	24 V DC															
VD	48 V DC															
Plug design																
SC	Straight plug outlet															
Measuring system																
E	Encoder															
Gear reduction ratio																
G7	7:1															
G14	14:1															
G22	22:1															
Parameterisation interface																
R2	RS232															
H2	RS232 and control panel															
Electrical connection technology																
IO	I/O connection															

Motor units MTR-DCI, intelligent control motors

Technical data

FESTO

- Ø - Size
32 ... 62
- L - Voltage
24, 48 V DC



General technical data				
Size	32	42	52	62
Rotary position generator	Optical encoder			
No. of increments/revolution	300	500		
Controller operating mode	PWM MOSFET power amplifier			
Protective functions	I ² T monitoring			
	Following error monitoring			
	Software end position detection			
	Voltage failure detection			
	Current monitoring			
	Temperature monitoring: Silicon absolute temperature sensor, switches off at temperatures > 70 °C			
Display resolution	128 x 64 pixels			
Type of mounting	Can be screwed on or clamped to gearing flange			
Gearing type	Planetary gear unit			
Gear reduction ratio	G7	6.75 (7:1); 1-stage		
	G14	13.73 (14:1); 2-stage		
	G22	–		
				22.21 (22:1); 2-stage

Electrical data					
Size		32	42	52	62
Nominal voltage	[V DC]	24 ±10%			48 –10%/+5%
Nominal current (motor)	[A]	0.73	2	5	6.19
Peak current	[A]	2.1	3.8	7.7	20
Motor constant	[Ncm/A]	4.5	6.1	6.4	12.1
Nominal power (motor)	[W]	17.5	48	122.4	316.8
Max. current (digital logic outputs)	[mA]	200		60	
No. of digital logic inputs (with I/O connection)		6			
No. of digital logic outputs (with I/O connection)		2			
Parameterisation interface		RS232, 9,600 baud			

Motor units MTR-DCI, intelligent control motors

Technical data

FESTO

Mechanical data									
Size	32		42		52		62		
Gear reduction ratio	G7	G14	G7	G14	G7	G14	G7	G14	G22
Gearing output speed [rpm]	481	237	444	218	444	218	504	248	153
Gearing torsional backlash [°]	≤ 1.9	≤ 1.55	≤ 1.3	≤ 0.95	≤ 1.1	≤ 0.75	≤ 1	≤ 1.5	≤ 1.5
Gearing output torque [Nm]	0.15	0.29	0.59	1.13	1.62	3.08	3.78	7.2	11.66
Gearing efficiency	0.75	0.7	0.8	0.75	0.8	0.75	0.8	0.75	0.75
Mass moment of inertia (rotor) [kg cm ²]	0.024		0.323		1.209		3.3		
Mass moment of inertia (gearing) [kg cm ²]	0.00089	0.00149	0.00235	0.00441	0.01132	0.01711	0.017	0.035	0.022
Radial shaft load [N]	40	70	160	230	200	320	240	360	360
Axial shaft load [N]	10	20	50	80	60	100	50	70	70
Product weight [kg]	0.711	0.735	1.715	1.824	3.104	3.285	7.605	7.963	7.951

Operating and environmental conditions				
Size	32		42	
Size	52		62	
Digital logic outputs	Not electrically isolated			Electrically isolated
Insulation protection class to VDE 60034	F			
Protection class	IP54			
CE symbol (declaration of conformance)	In accordance with EU EMC Directive			
Ambient temperature [°C]	0 ... +50			
Storage temperature [°C]	-25 ... +60			
Relative air humidity [%]	0 ... 95 (non-condensing)			

Materials	
Motor unit housing	Anodised aluminium
Motor unit, cover	Aluminium, precision casting, coated (size 62 milled)

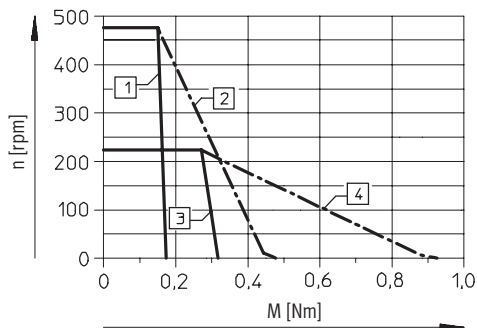
Motor units MTR-DCI, intelligent control motors

Technical data

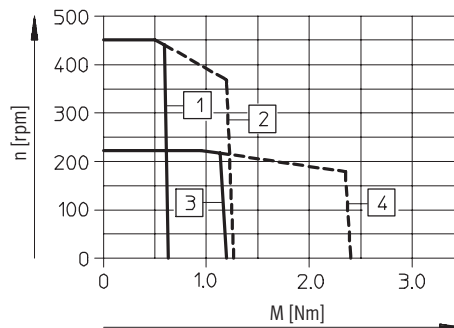
FESTO

Torque M as a function of n (rpm)

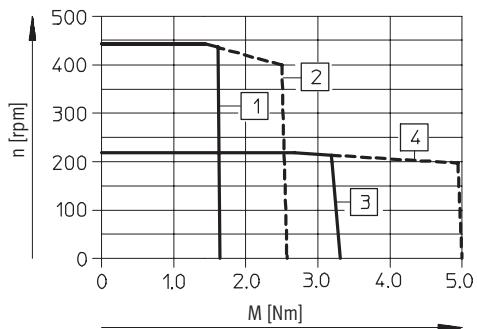
Size 32



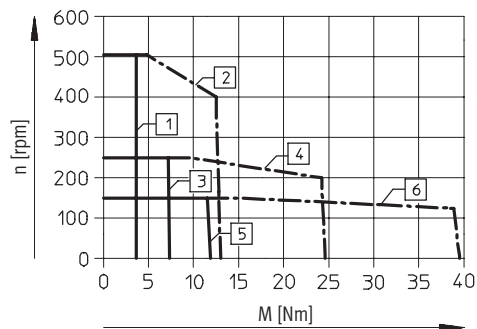
Size 42



Size 52



Size 62



Gear reduction ratio 7:1

- 1 Torque, nom.
- 2 Torque, max.

Gear reduction ratio 14:1

- 3 Torque, nom.
- 4 Torque, max.

Gear reduction ratio 22:1

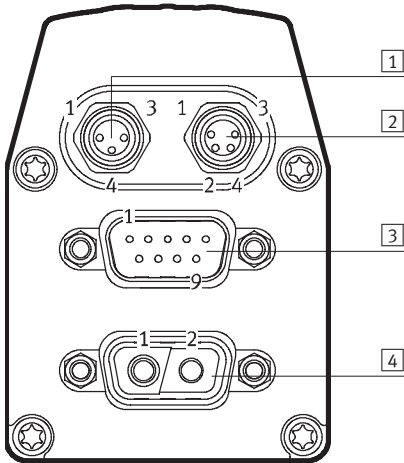
- 5 Torque, nom.
- 6 Torque, max.

Motor units MTR-DCI, intelligent control motors

Technical data

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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, 9-pin Sub-D plug	
Pin	Function
1	Traversing record coding, bit 0
2	Traversing record coding, bit 1
3	Traversing record coding, bit 2
4	Traversing record coding, bit 3
5	Start bit
6	Enable bit
7	Ready signal output
8	MC signal output
9	0 V

4 Power supply, 2-pin plug	
Pin	Function
1	24 V DC (for MTR-DCI-32/42/52), 48 V DC (for MTR-DCI-62)
2	0 V
–	
–	
–	
–	
–	
–	

Motor units MTR-DCI, intelligent control motors

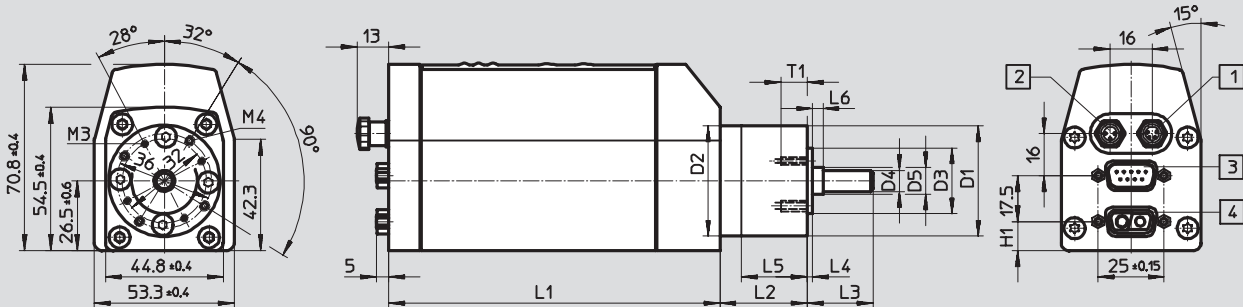
Technical data

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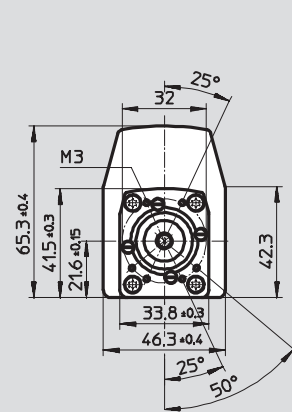
Dimensions

Download CAD data → www.festo.com/en/engineering

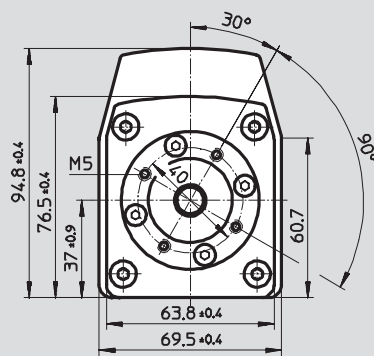
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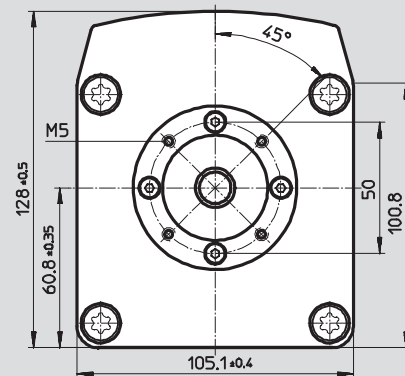
Size 32



Size 52



Size 62



- 1 M8x1, 4-pin
- 2 M8 x 1, 3-pin
- 3 Sub-D, 9-pin
- 4 Sub-D, 2-pin

Type	D1 Ø g10	D2 Ø ±0.1	D3 Ø h8	D4 Ø h7	D5 Ø	H1	L1 ±1	L2 ±1	L3	L4	L5	L6	T1
MTR-DCI-32S-...-G7	—	—	21.5	6	—	13±0.2	175.5	—	18.7±0.6	2.5±0.3	—	—	6
MTR-DCI-32S-...-G14	—	—	21.5	6	—	13±0.2	175.5	—	18.7±0.6	2.5±0.3	—	—	6
MTR-DCI-42S-...-G7	42	42	25	8	—	11	176	33.3	25±1	2±0.2	25	—	10
MTR-DCI-42S-...-G14	42	42	25	8	—	11	176	46.3	25±1	2±0.2	25	—	10
MTR-DCI-52S-...-G7	52	52	32	12	—	17.3	194	39	33±1	3±0.3	31	—	10
MTR-DCI-52S-...-G14	52	52	32	12	—	17.3	194	53	33±1	3±0.3	31	—	10
MTR-DCI-62S-...-G7	62	62	40	14	15	61.3	270	47	39±1	5±0.3	31.3	9	10
MTR-DCI-62S-...-G14	62	62	40	14	15	61.3	270	47	39±1	5±0.3	31.3	9	10
MTR-DCI-62S-...-G22	62	62	40	14	15	61.3	270	47	39±1	5±0.3	31.3	9	10

Motor units MTR-DCI, intelligent control motors

Ordering data – Modular products

M Mandatory data

Module No.	Motor unit	Motor type	Flange/size	Torque class	Nominal voltage	Plug design	Measuring system	Gearing	Parameterisation interface	Electrical connection technology
533 736 533 742 533 748 533 754	MTR	DCI	32 42 52 62	S	VC VD	SC	E	G7 G14 G22	R2 H2	IO
Order example										
533 742	MTR	- DCI	- 42	S	- VC	SC	- E	G7	- R2	IO

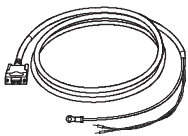
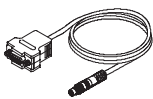
Ordering table

Size		32	42	52	62	Condi- tions	Code	Enter code
[M]	Module No.	533 736	533 742	533 748	533 754			
	Motor unit	Motor unit					MTR	MTR
	Motor type	DC servo motor with integrated position controller					-DCI	-DCI
	Flange/size	32	42	52	62		-...	
	Torque class	Standard torque class					S	S
	Nominal voltage	24 DC			–		-VC	
		–			48 DC		-VD	
	Plug design	Straight plug					SC	SC
	Measuring system	Encoder					-E	-E
	Gearing	Integrated planetary gearing i = 6.75					G7	
		Integrated planetary gearing i = 13.73					G14	
		–			Integrated planetary gearing i = 22.21		G22	
	Parameterisation interface	RS232 interface					-R2	
RS232 interface + control panel					-H2			
Electrical connection technology	I/O connection					IO	IO	

Motor units MTR-DCI, intelligent control motors

Accessories

FESTO

Ordering data – Cables				
	Brief description	Cable length	Part No.	Type
	Supply cable	2.5 m	537 931	KPWR-MC-1-SUB-9HC-2,5
		5 m	537 932	KPWR-MC-1-SUB-9HC-5
		10 m	537 933	KPWR-MC-1-SUB-9HC-10
	Control cable for I/O connection to any PLC controller	2.5 m	537 923	KES-MC-1-SUB-9-2,5
		5 m	537 924	KES-MC-1-SUB-9-5
		10 m	537 925	KES-MC-1-SUB-9-10
	Programming cable	2.5 m	537 926	KDI-MC-M8-SUB-9-2,5

Ordering data – Documentation and software				
	Brief description	Language	Part No.	Type
	User documentation in paper form is not included in the scope of delivery.	DE	539 615	P.BE-MTR-DCI-IO-DE
		EN	539 616	P.BE-MTR-DCI-IO-EN
		ES	539 617	P.BE-MTR-DCI-IO-ES
		FR	539 618	P.BE-MTR-DCI-IO-FR
		IT	539 619	P.BE-MTR-DCI-IO-IT
		SV	539 620	P.BE-MTR-DCI-IO-SV
	User documentation on CD-ROM is included in the scope of delivery for the motor unit MTR-DCI.	DE, EN, ES, FR, IT, SV	539 621	P.BE-MTR-DCI-UDOK
	The configuration package FCT (Festo Configuration Tool) on CD-ROM is included in the scope of delivery for the motor unit MTR-DCI.	DE, EN	539 622	P.SW-FCT