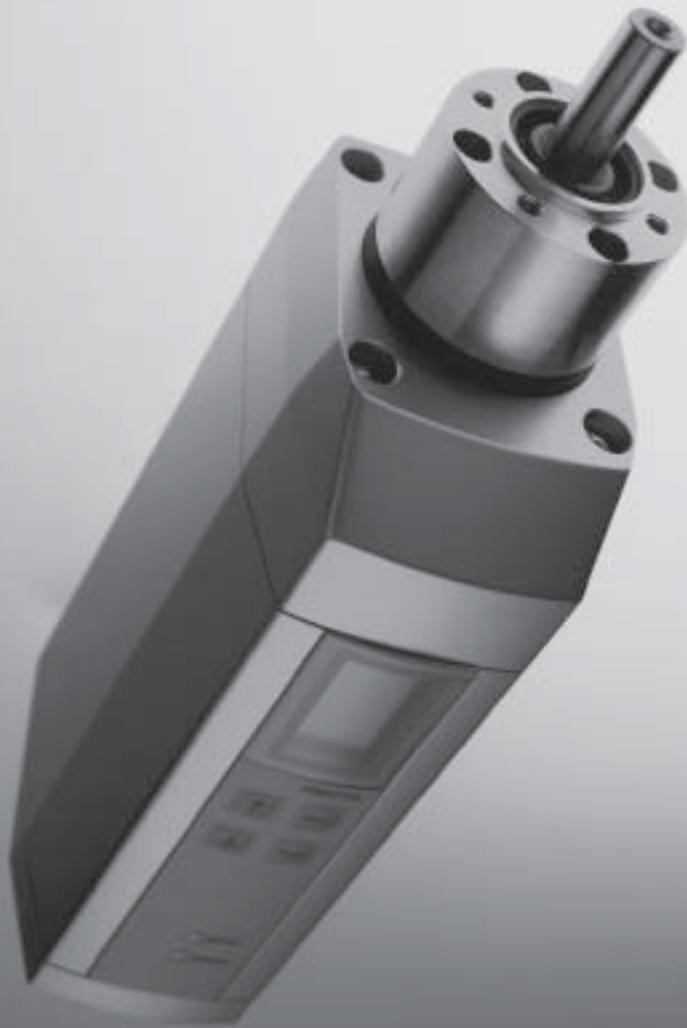


Motor units MTR-DCI



- 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



General information

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 avoids motor cables and improves 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
- 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

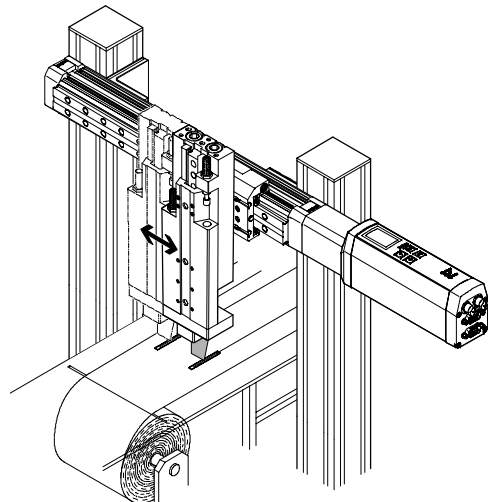
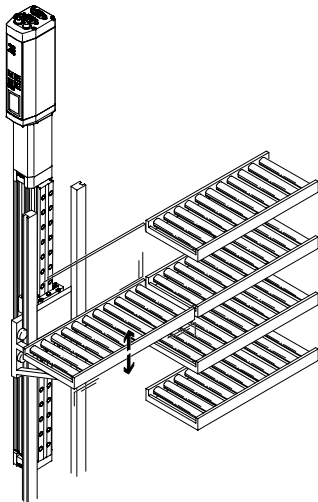
- 1 Control panel with integrated display (optional)
- 2 Input for reference end switches
- 3 RS232 interface
- 4 Operator interface: I/O interface
- 5 Power supply
- 6 Gearing



Typical applications

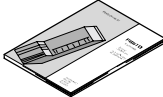


Adjusting sorting conveyors

Programming formats for paper or foil cutting machines

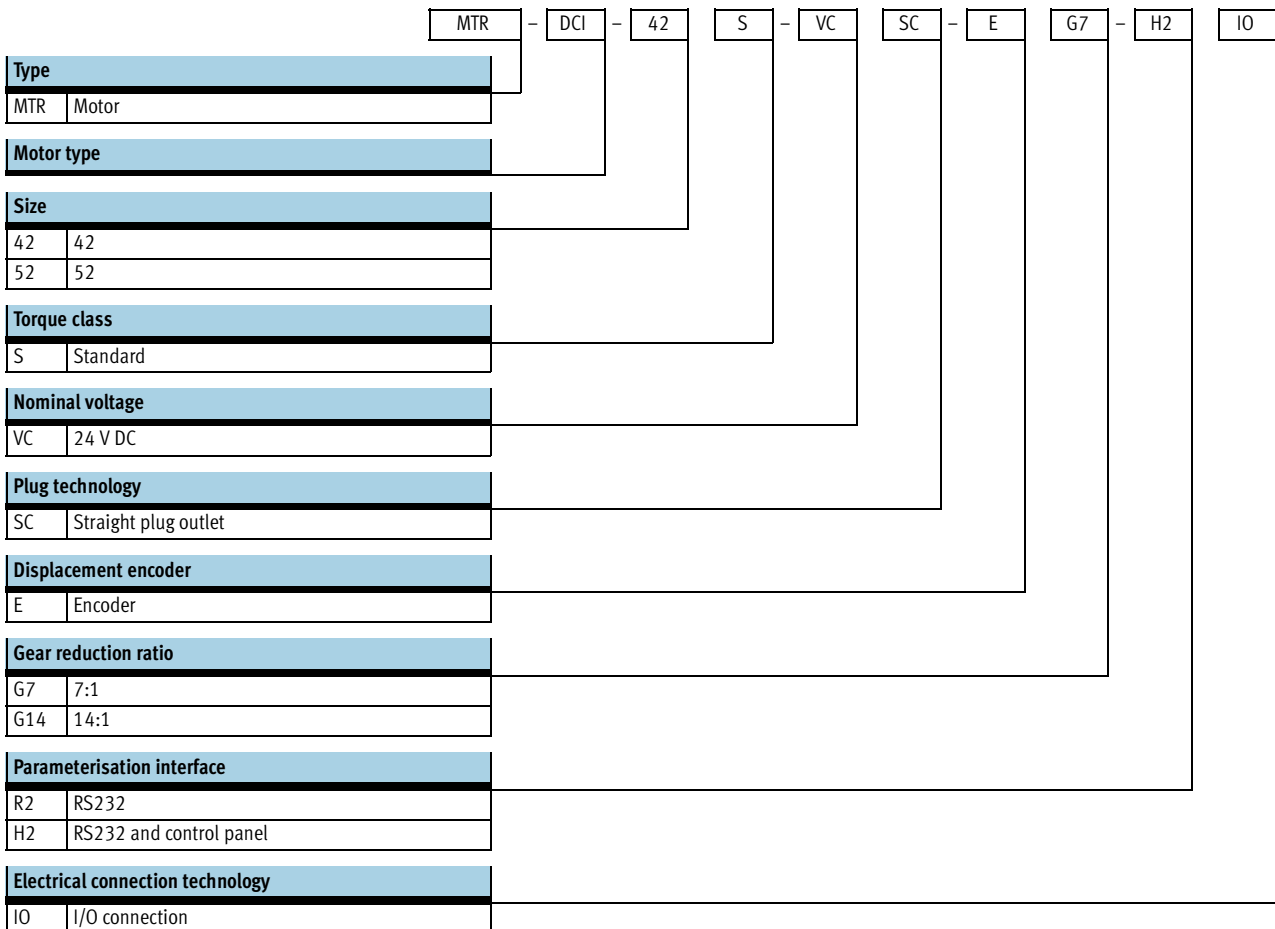


Motor units MTR-DCI, intelligent control motors

Key features and type codes

Accessories		→ 5 / 2.2-9	
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	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



Motor units MTR-DCI, intelligent control motors

Technical data



General technical data		
Size	MTR-DCI-...	
Rotary position generator	Optical encoder	
No. of increments/revolution	500	
Controller operating mode	PWM MOSFET power amplifier	
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 the gearing flange	
Gearing type	Planetary gearing	
Gear reduction ratio	G7	6.752 (7:1); single-stage
	G14	13.73 (14:1); dual-stage

Electrical data for MTR-DCI-42-...		
Gear reduction ratio	G7	G14
Nominal voltage [V DC]	24 ±10%	
Nominal current (motor) [A]	2	
Peak current [A]	3.8	
Motor constant [Ncm/A]	6.1	
Nominal power (motor) [W]	48	
Max. current (digital logic outputs) [mA]	200	
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; optionally with control panel	

Mechanical data for MTR-DCI-42-...		
Gear reduction ratio	G7	G14
Gearing output speed [rpm]	451	222
Gearing torsional backlash [°]	≤ 0.8	≤ 0.85
Gearing output torque [Nm]	0.594	1.133
Gearing efficiency -	0.8	0.75
Mass moment of inertia (rotor) [kg cm ²]	0.323	
Mass moment of inertia (gearing) [kg cm ²]	0.00235	0.00441
Radial shaft load [N]	160	230
Axial shaft load [N]	50	80
Product weight [kg]	1.715	1.824

Motor units MTR-DCI, intelligent control motors

Technical data

Electrical data for MTR-DCI-52-...		
Gear reduction ratio		G7 (7:1) G14 (14:1)
Nominal voltage	[V DC]	24 ±10%
Nominal current (motor)	[A]	5.1
Peak current	[A]	7.7
Motor constant	[Ncm/A]	6.4
Nominal power (motor)	[W]	122.4
Max. current (digital logic outputs)	[mA]	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; optionally with control panel

Mechanical data for MTR-DCI-52-...		
Gear reduction ratio		G7 (7:1) G14 (14:1)
Gearing output speed	[rpm]	444 218
Gearing torsional backlash	[°]	≤ 0.7 ≤ 0.75
Gearing output torque	[Nm]	1.62 3.089
Gearing efficiency	-	0.8 0.75
Mass moment of inertia (rotor)	[kg cm ²]	1.209
Mass moment of inertia (gearing)	[kg cm ²]	0.01132 0.01711
Radial shaft load	[N]	200 320
Axial shaft load	[N]	60 100
Product weight	[kg]	3.104 3.285

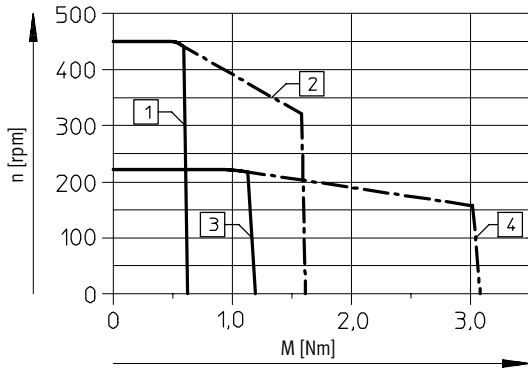
Operating and environmental conditions		
Size		MTR-DCI-42-... MTR-DCI-52-...
Digital logic outputs		Not electrically isolated Electrically isolated
Insulation protection class to VDE 60034		F
Protection class		IP54
Interference immunity		To EN 61000-6-2
Interference emission		To EN 61000-6-4 (industry)
CE symbol		89/336/EEC (EMC)
Ambient temperature	[°C]	0 ... +50
Storage temperature	[°C]	-25 ... +60
Relative air humidity (non-condensing)	[%]	0 ... 95

Motor units MTR-DCI, intelligent control motors

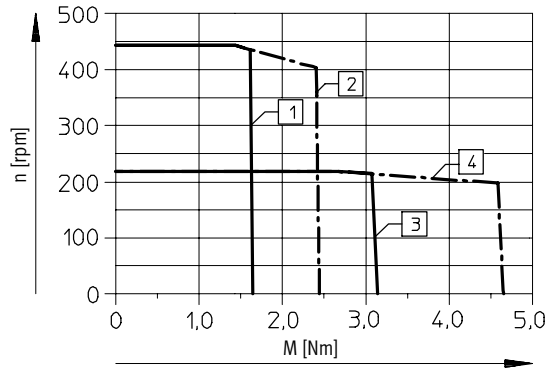
Technical data

Torque M as a function of n (rpm)

MTR-DCI-42-...



MTR-DCI-52-...



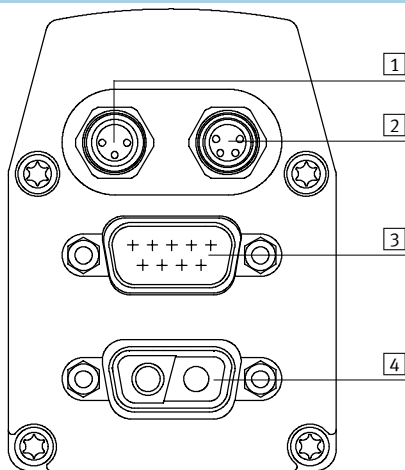
Gear reduction ratio 7:1

Gear reduction ratio 14:1

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

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

Pin allocation



Socket/plug

1	3-pin M8 socket
2	4-pin M8 socket
3	9-pin Sub-D plug
4	2-pin plug

1 Reference switch

Pin	Function
1	24 V
4	Reference input
3	0 V
-	

2 RS232 interface

Pin	Function
1	0 V
2	Transmitted Data (TxD)
3	Received Data (RxD)
4	-

3 I/O interface

Pin	Function
1	Travel time coding, bit 0
2	Travel time coding, bit 1
3	Travel time coding, bit 2
4	Travel time coding, bit 3
5	Start bit
6	Enable bit
7	Error signal output
8	MC signal output
9	0 V

4 Power supply

Pin	Function
1	24 V DC
2	0 V
-	
-	
-	
-	
-	
-	
-	

Motor units MTR-DCI, intelligent control motors

Technical data

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

MTR-DCI-42-...

MTR-DCI-42

MTR-DCI-52

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

Type	D1	D2	D3	D4	H1	L1	L2	L3	L4	L5
	∅ g10	∅ ±0.1	∅ h8	∅ h7		±1	±1	±1		
MTR-DCI-42-...-G7	42	42	25	8	11	176	33.3	25	2±0.2	25
MTR-DCI-42-...-G14	42	42	25	8	11	176	46.3	25	2±0.2	25
MTR-DCI-52-...-G7	52	52	32	12	17.3	197	39	33	3±0.3	31
MTR-DCI-52-...-G14	52	52	32	12	17.3	197	53	33	3±0.3	31

Motor units MTR-DCI, intelligent control motors

Ordering data – Modular products

M **Mandatory data**

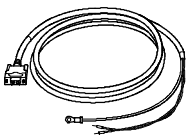

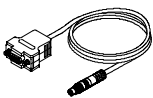
Module No.	Motor unit	Motor type	Flange/size	Torque class	Nominal voltage	Plug technology	Displacement encoder	Gearing	Parameterisation interface	Electrical connection technology
533 742	MTR	DCI	42	S	VC	SC	E	G7	R2	IO
533 748			52					G14		
Ordering example										
533 742	MTR	- DCI	- 42	S	- VC	SC	- E	G7	- R2	IO

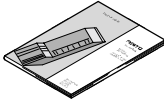


Ordering table

Size	42	52	Condi- tions	Code	Enter code
M Module No.	533 742	533 748			
Motor unit	Motor unit			MTR	MTR
Motor type	DC servo motor with integrated position controller			-DCI	-DCI
Flange/size	42	52		-...	
Torque class	Standard torque class			S	S
Nominal voltage	[V] 24 DC			-VC	-VC
Plug technology	Straight plug			SC	SC
Displacement encoder	Encoder			-E	-E
Gearing	Integrated planetary gearing i = 6.75			G7	
	Integrated planetary gearing i = 13.73			G14	
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

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		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, in the languages DE, GB, ES, FR, IT, SE, is included in the scope of delivery for the motor unit MTR-DCI.		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.		539 622	P.SW-FCT