

Actuator

MD10

MD10 is a compact and quiet actuator which is suitable for various applications with limited installation space, such as recliners, beds, and other applications.



Features and Options

Main applications: Home care, medical

Standard features:

- Input voltage: 24V DC
- Max. load: 1000N (Push/Pull)
- Speed at no load: 36 mm/sec (typical value)
- Speed at full load: 2.8 mm/sec (typical value @1000N loaded)
- Stroke: 50 ~ 300 mm
- Noise level: Refer to Performance Data
- IP Protection level: IPX5
- Color: Aluminum grey
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Ambient operation temperature: -20°C ~ +65°C
- Certified: CE Marking, EN 60601-1-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-8

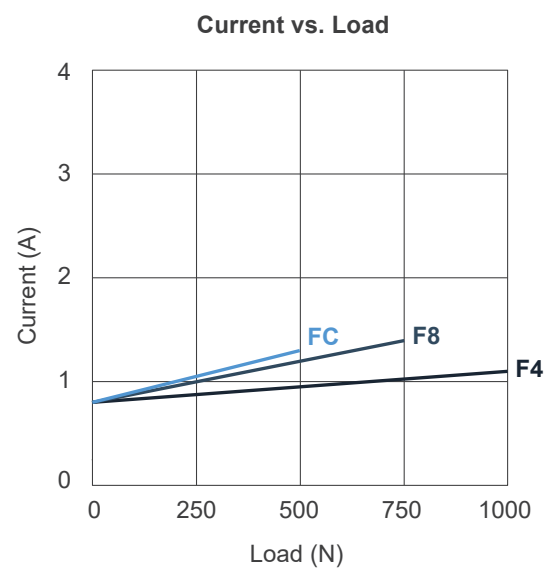
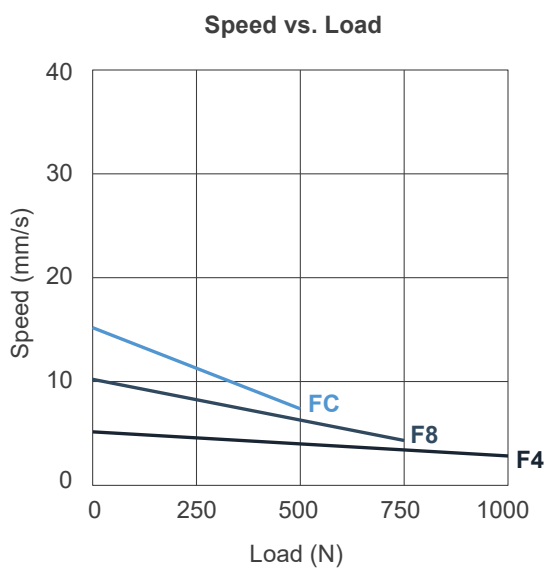
Options:

- Positioning signal feedback with Hall effect sensor x 2
- Mechanical push only extension tube

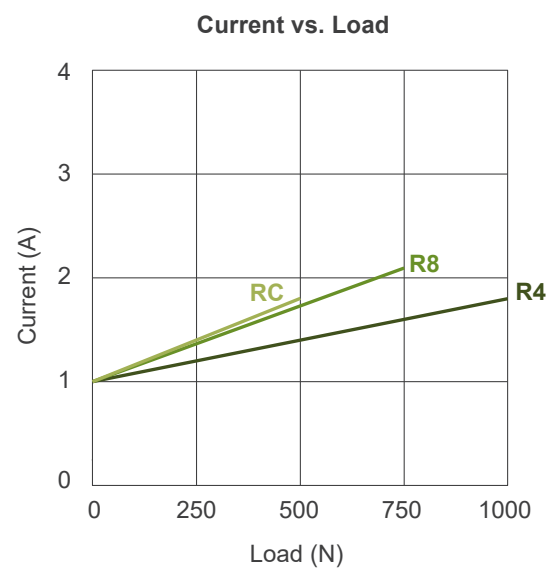
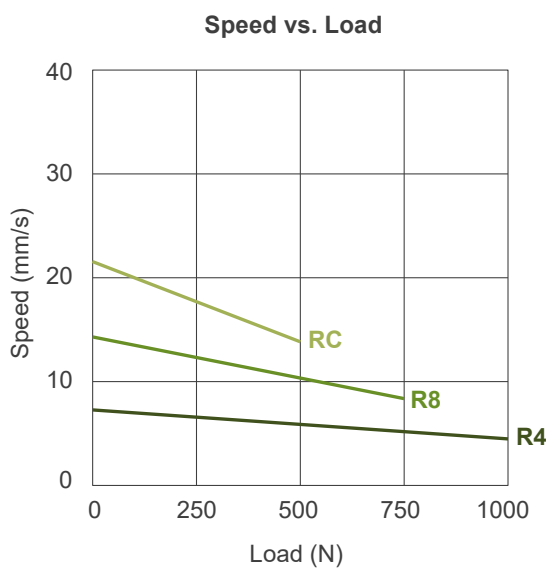
Performance Data

Model No.	Push / Pull Max. (N)	*Typical Speed (mm/s)		*Typical Current (A) @ 24V		Noise level (dB)
		No load	Full load	No load	Full load	
MD10-24 F4 -XX...	1000	5.1	2.8	0.8	1.1	≤48
MD10-24 F8 -XX...	750	10.1	4.3	0.8	1.4	≤48
MD10-24 FC -XX...	500	15.1	7.4	0.8	1.3	≤48
MD10-24 R4 -XX...	1000	7.2	4.5	1.0	1.8	≤50
MD10-24 R8 -XX...	750	14.2	8.4	1.0	2.1	≤50
MD10-24 RC -XX...	500	21.6	13.9	1.0	1.8	≤50

• 3000 rpm motor



• 4500 rpm motor

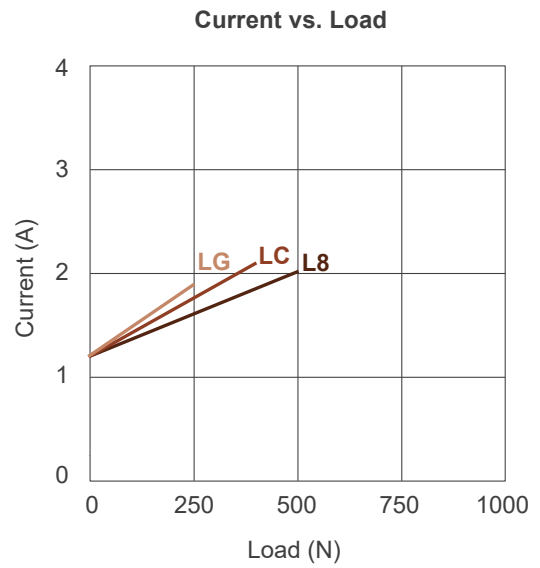
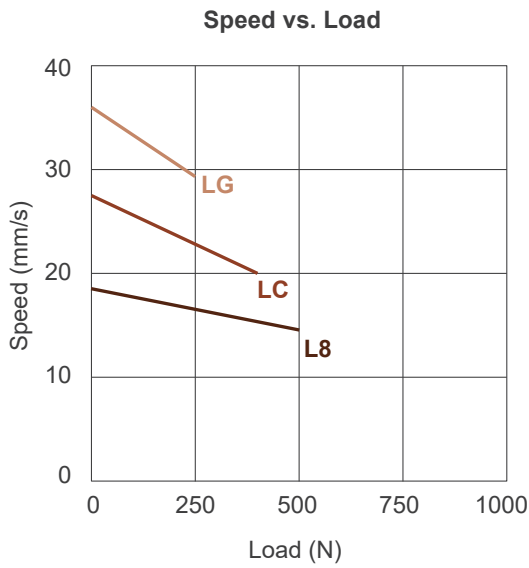


Remarks:

- * The typical speed or typical current means the average value neither upper limit nor lower limit. The performance curves are made with typical values.

Model No.	Push / Pull Max. (N)	*Typical Speed (mm/s)		*Typical Current (A) @ 24V		Noise level (dB)
		No load	Full load	No load	Full load	
MD10-24 L8 -XX...	500	18.6	14.8	1.2	2.0	≤52
MD10-24 LC -XX...	400	27.5	20	1.2	2.1	≤52
MD10-24 LG -XX...	250	36	29.3	1.2	1.9	≤52

- 6000 rpm motor



Remarks:

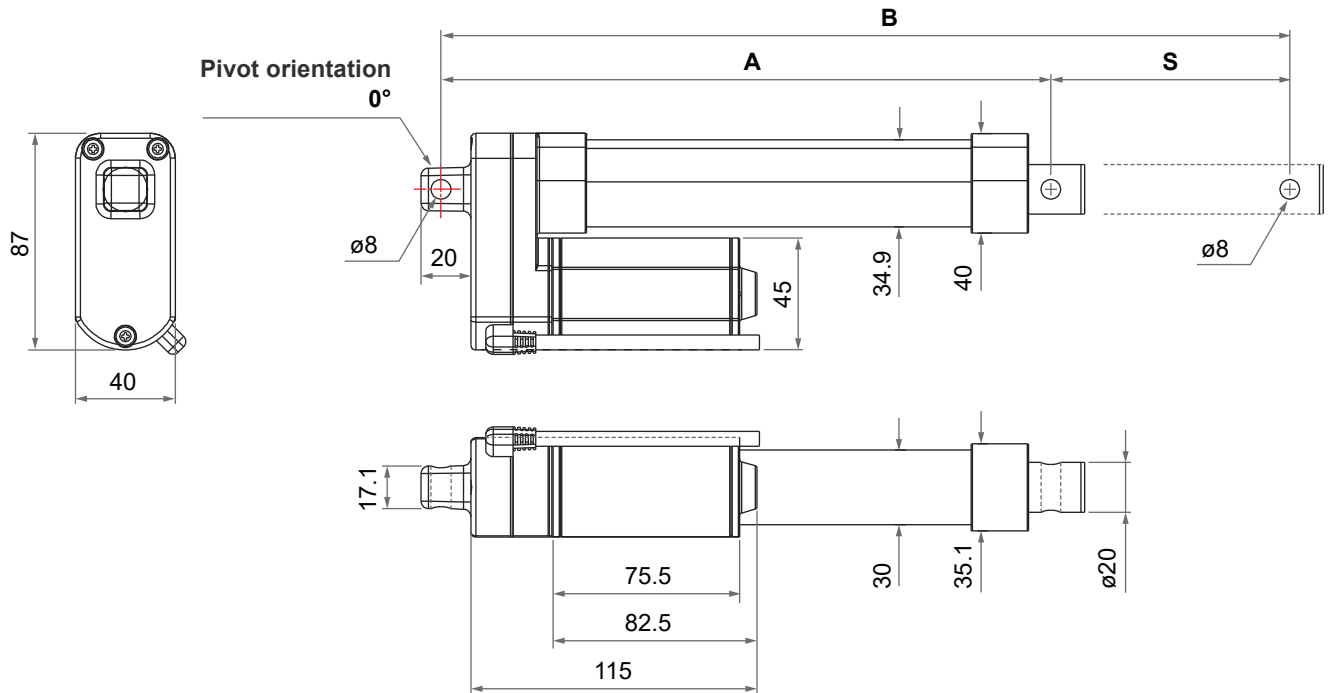
- * The typical speed or typical current means the average value neither upper limit nor lower limit. The performance curves are made with typical values.

Dimensions

• Retracted length (A)

Front connector code	Stroke (S)		
	$\leq 200\text{mm}$	201~250mm	251~300mm
2, 4	$A \geq S+115\text{mm} (\pm 3\text{mm})$	$A \geq S+125\text{mm} (\pm 3\text{mm})$	$A \geq S+135\text{mm} (\pm 3\text{mm})$
3, 6	$A \geq S+130\text{mm} (\pm 3\text{mm})$	$A \geq S+140\text{mm} (\pm 3\text{mm})$	$A \geq S+150\text{mm} (\pm 3\text{mm})$

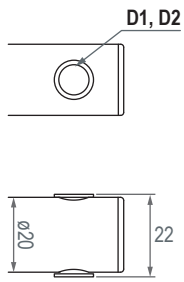
- Available stroke (S) range = 50 ~ 300mm
- Extended length (B) = S + A



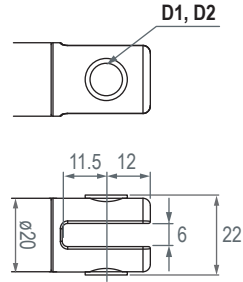
Note: As an example in 0° orientation for rear connector.

● **Front connector**

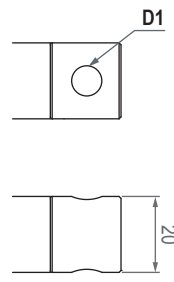
2: Drilled hole



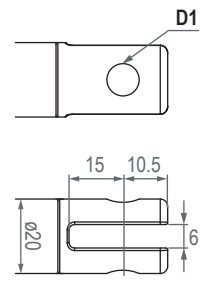
3: Metal slot



4: Plastic solid



6: Plastic slot



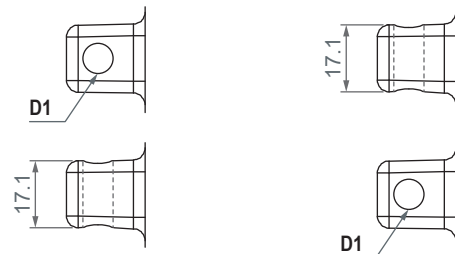
Front connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
2	ø8, ø10	ø8
3	ø8, ø10	ø8
4	ø8, ø10	N/A
6	ø8, ø10	N/A

● **Pivot orientation of rear connector**

2: Metal

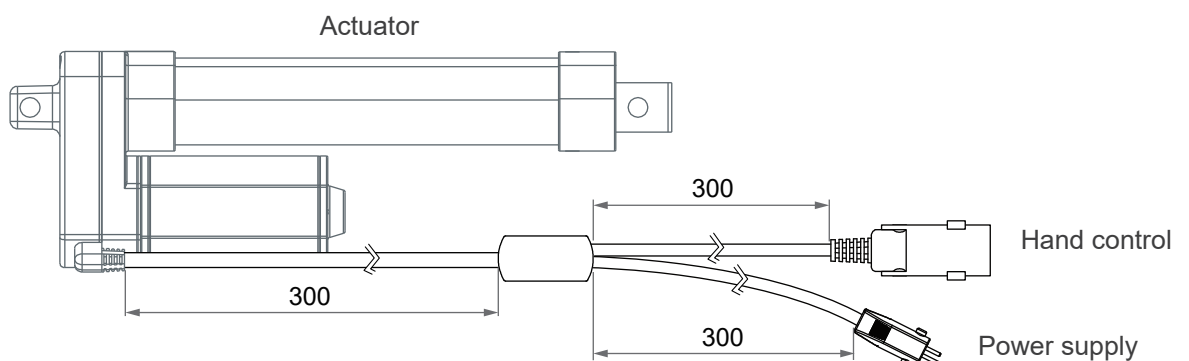
0 : 0° (standard)

9 : 90°



Rear connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
2	ø8	N/A

● **Cable length With Direct-cut power cable DL1**



Compatibility

Product	Model	MD10 spec
Control box	T-control, CS1, CS2, CB3T, CB4M	- Without positioning sensor feedback - 4-pin MOTECK F-type DIN plug
	CB3T-SY, CB4M-S, CB4M-B	- With dual Hall effect sensors - 6-pin MOTECK F-type DIN plug
	CM45	- Without positioning sensor feedback - 4-pin MOTECK H-type DIN plug
	CB2P, CB4P, MD6C, MD7C	- Without positioning sensor feedback - 4-pin MOTECK V-type or H-type DIN plug
	CB4P-SY	- With dual Hall effect sensors - 6-pin MOTECK V-type or H-type DIN plug
Hand control	Depend on control box	- Powered by control box
	HB, H2G, HS02, HZ02, HZ03, HZ04, HZ05, HZ06	- With MOTECK Direct-cut power cable DL1*
Accessory	Switching mode power supply: TSW1, TSW4	- With MOTECK Direct-cut power cable DL1*

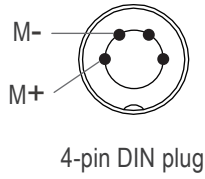
***Remarks:**

Connect Direct-cut power cable DL1 to DC power supply and hand control directly, no control box.

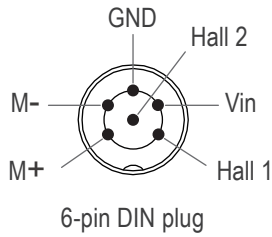
Cable Plug

With Moteck F-type, V-type or H-type DIN plug (Required to be connected to the control box):

- Without positioning feedback



- Positioning feedback with Hall effect sensors



F-type



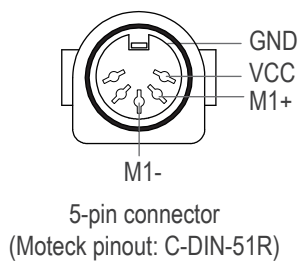
V-type



H-type

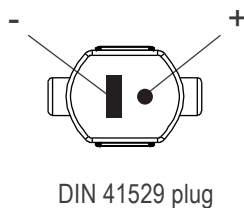
With Direct-cut power cable DL1 (NOT required to be connected to any control box):

- Hand control connector: with Moteck U-type female connector



U-type

- Power plug: with Moteck S-type DIN 41529 male plug



S-type


Note: Connect pin M+ to 'Vdc+' and pin M- to 'Vdc-' of DC power to extend the actuator. Switch the polarity of DC input to retract it.

Wiring

Without positioning feedback

	Wire color	Definition	Comments
Power wires	Blue	DC power	Connect blue wire to "Vdc +" & brown wire to "Vdc -" of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Brown		

With dual Hall effect sensors for positioning

	Wire color	Definition	Comments																				
Power wires	Blue	DC power	Connect blue wire to "Vdc +" & brown wire to "Vdc -" of DC power to extend the actuator. Switch the polarity of DC input to retract it.																				
	Brown																						
Signal wires	Yellow	Vin	Voltage input range: 5 ~ 20V																				
	Red	Hall 1 output	<p>High= Input - 1.2V ($\pm 0.6V$) Low= GND Hall signal data:</p>  <p>Hall effect sensor resolution:</p> <table border="1" data-bbox="646 1093 1481 1500"> <thead> <tr> <th>Model No.</th> <th>Resolution (pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>MD10-24-F4-XXX.XXX-XXXHX0X</td> <td>10</td> </tr> <tr> <td>MD10-24-F8-XXX.XXX-XXXHX0X</td> <td>5</td> </tr> <tr> <td>MD10-24-FC-XXX.XXX-XXXHX0X</td> <td>3.3</td> </tr> <tr> <td>MD10-24-R4-XXX.XXX-XXXHX0X</td> <td>10</td> </tr> <tr> <td>MD10-24-R8-XXX.XXX-XXXHX0X</td> <td>5</td> </tr> <tr> <td>MD10-24-RC-XXX.XXX-XXXHX0X</td> <td>3.3</td> </tr> <tr> <td>MD10-24-L8-XXX.XXX-XXXHX0X</td> <td>5</td> </tr> <tr> <td>MD10-24-LC-XXX.XXX-XXXHX0X</td> <td>3.3</td> </tr> <tr> <td>MD10-24-LG-XXX.XXX-XXXHX0X</td> <td>2.5</td> </tr> </tbody> </table>	Model No.	Resolution (pulses/mm)	MD10-24-F4-XXX.XXX-XXXHX0X	10	MD10-24-F8-XXX.XXX-XXXHX0X	5	MD10-24-FC-XXX.XXX-XXXHX0X	3.3	MD10-24-R4-XXX.XXX-XXXHX0X	10	MD10-24-R8-XXX.XXX-XXXHX0X	5	MD10-24-RC-XXX.XXX-XXXHX0X	3.3	MD10-24-L8-XXX.XXX-XXXHX0X	5	MD10-24-LC-XXX.XXX-XXXHX0X	3.3	MD10-24-LG-XXX.XXX-XXXHX0X	2.5
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MD10-24-LG-XXX.XXX-XXXHX0X	2.5																						
Green	Hall 2 output																						
Black	GND																						

Ordering Key

MD10 - 24 F4 - 240 - 360 - 4 2 0 H 0 0 A

Motor and spindle type	F4: 3000rpm / 4mm pitch F8: 3000rpm / 8mm pitch FC: 3000rpm / 12mm pitch R4: 4500rpm / 4mm pitch R8: 4500rpm / 8mm pitch RC: 4500rpm / 12mm pitch L8: 6000rpm / 8mm pitch LC: 6000rpm / 12mm pitch LG: 6000rpm / 16mm pitch (Refer to Performance Data)
Retracted length	XXX (Refer to Dimensions)
Extended length	XXX (Refer to Dimensions)
Front connector	2: Drilled hole 3: Metal slot 4: Plastic solid 6: Plastic slot (Refer to Dimensions)
Rear connector	2: Metal (Refer to Dimensions)
Pivot orientation of rear connector	0: 0° (standard) 9: 90° (Refer to Dimensions)
Positioning feedback	0: Without positioning feedback H: Hall effect sensor x 2
Option	0: None P: Mechanical push only extension tube
Reserved	0
Cable	0: 300 mm straight 1: 1000 mm straight 2: 450 mm with 300 mm coiled A: Direct-cut power cable DL1