

Actuator

MD7

MD7 is a quiet and powerful actuator up to 6000N thrust, designed for medical and homecare application. MD7 is widely compatible with control boxes. Among them, MD7C and CB2P can be attached to MD7 as a perfect combination.



Features and Options

Main applications: Furniture, Medical Care

Standard features:

- Input voltage: 12V DC / 24V DC
- Max. load: 6000N (push) / 4000N (pull)
- Max. speed at no load: 16.6 mm/sec (typical value)
- Speed at full load: 2.9 mm/sec (typical value @6000N loaded)
- Stroke: 50 ~ 300mm
- Noise level: ≤ 50 dB
- IP level: IP54
- Color: Light gray RAL 7035
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: $-20^{\circ}\text{C} \sim +65^{\circ}\text{C}$
- Certified: CE marking, EN 60601-1-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-8

Options:

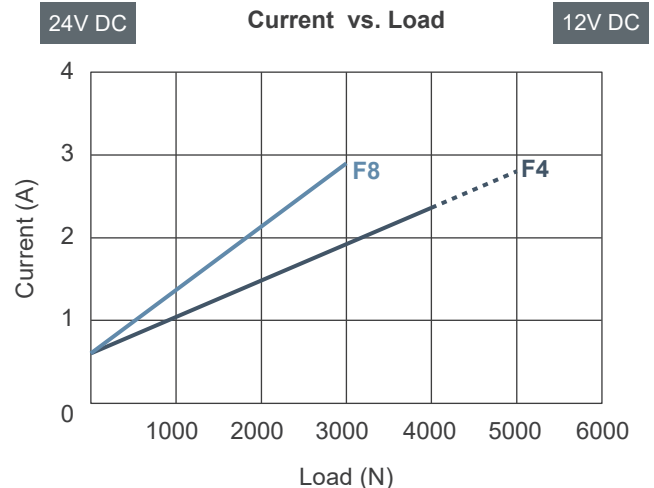
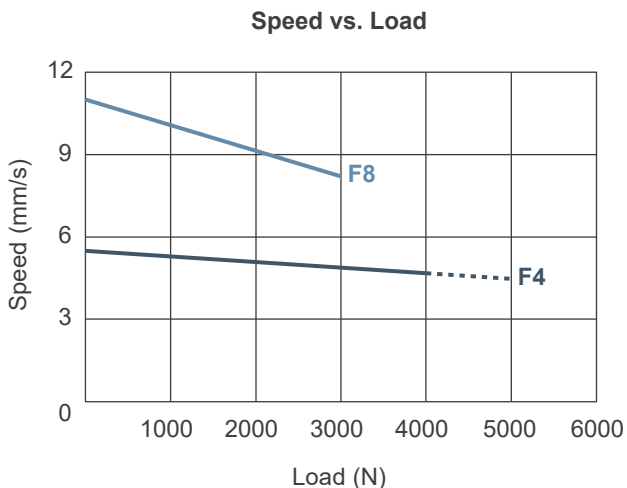
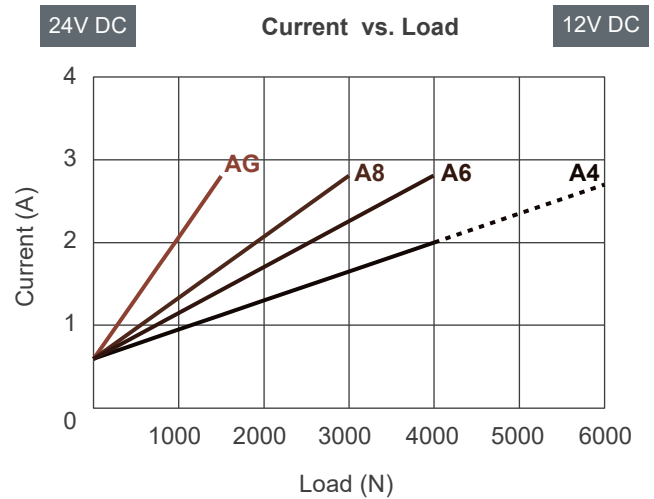
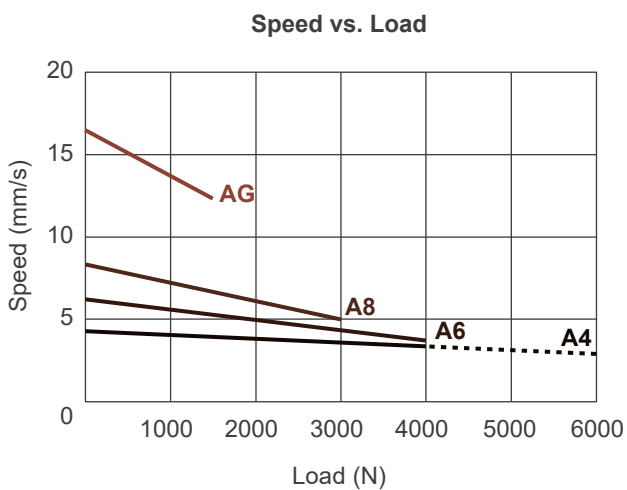
- Positioning signal feedback with Hall effect sensor x 1
- Positioning signal feedback with Hall effect sensor x 2
- Mechanical push only extension tube
- Safety nut (in push direction)
- Pivot orientation 90° turned for rear connector
- Mechanical brake

Performance Data

Model No.	Push Max. (N)	Pull Max. (N)	*Self-locking ability (N)	**Typical Speed (mm/s)		**Typical Current (A)			
				No load	Full load	No load		Full load	
						12V	24V	12V	24V
MD7-XX-A4...	6000	4000	5000	4.2	2.9	1.2	0.6	5.4	2.7
MD7-XX-A6...	4000	4000	2500	6.2	3.8	1.2	0.6	5.6	2.8
MD7-XX-A8...	3000	3000	2000	8.3	5.0	1.2	0.6	5.6	2.8
MD7-XX-AG...	1500	1500	700	16.6	12.2	1.2	0.6	5.6	2.8
MD7-XX-F4...	5000	4000	5000	5.5	4.4	1.2	0.6	5.6	2.8
MD7-XX-F8...	3000	3000	2000	11.0	8.2	1.2	0.6	5.8	2.9

Remarks:

- * The self-locking ability is performed by short circuit the motor terminals when the actuator is powered off. All compatible control boxes are designed with this feature. Mechanical brake in push direction is available upon request, to further enhance the self-locking ability to maximum load.
- ** The typical speed or typical current means the average value neither upper limit nor lower limit. The performance curves are made with typical values.



Push / Pull Load — Push Load - - -

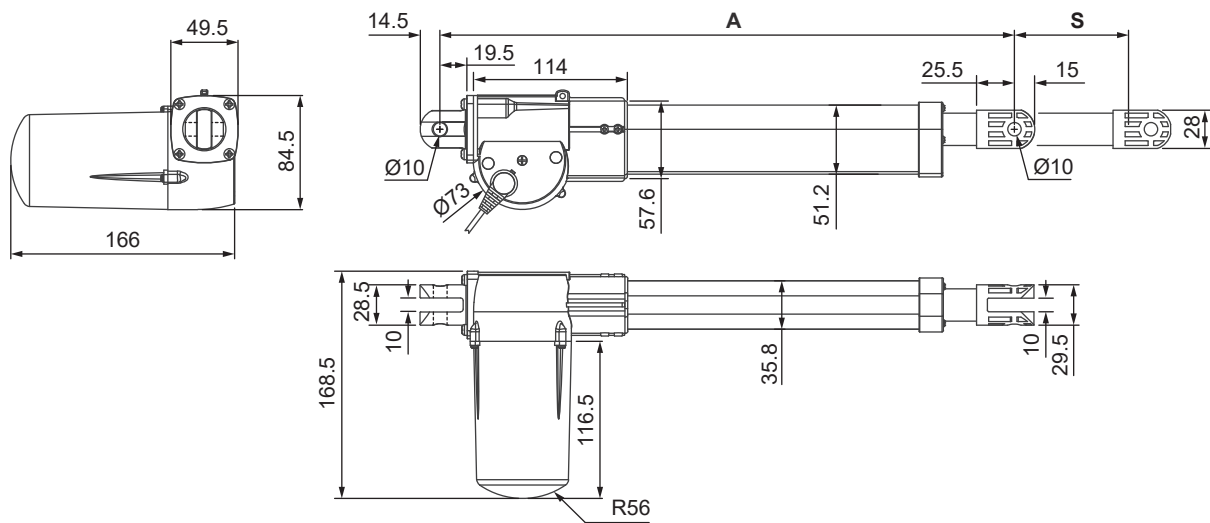
Dimensions

- Available stroke (S) range = 50 ~ 300mm (±3mm)
- Extended length (B) = Retracted length (A) + Stroke (S)
- Retracted length (A)

Front connector	3, 7	1, 5, 8
Safety option		
None (Standard)	$A \geq S + 160\text{mm}$	$A \geq S + 188\text{mm}$
Safety nut (SN)	$A \geq S + 168\text{mm}$	$A \geq S + 196\text{mm}$

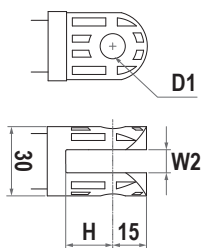
Tolerance: ±3mm

• Drawing

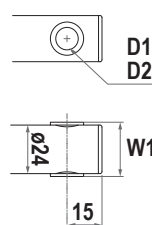


• Front Connector

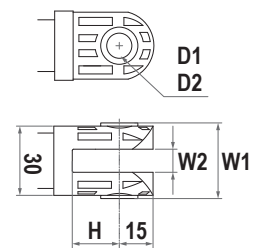
1: Plastic



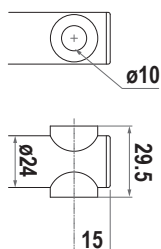
3: Drilled hole



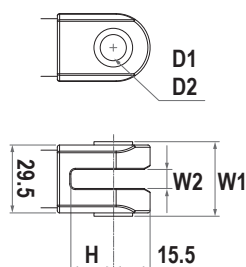
5: Zinc alloy clevis



7: Drilled hole with nylon bushing



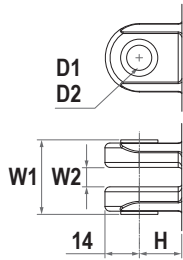
8: Aluminum alloy clevis



Front connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)	Width with bushing (W1)	Slot width (W2)	Slot depth (H)
1	Ø8, Ø10, Ø12	N/A	N/A	10	18
3	Ø8, Ø10, Ø12, Ø14	Ø8, Ø10	26	N/A	N/A
5	Ø8, Ø10, Ø12	Ø8, Ø10	32	10	18
7	N/A	N/A	N/A	N/A	N/A
8	Ø10, Ø12	Ø8, Ø10	31.5	8	18.8

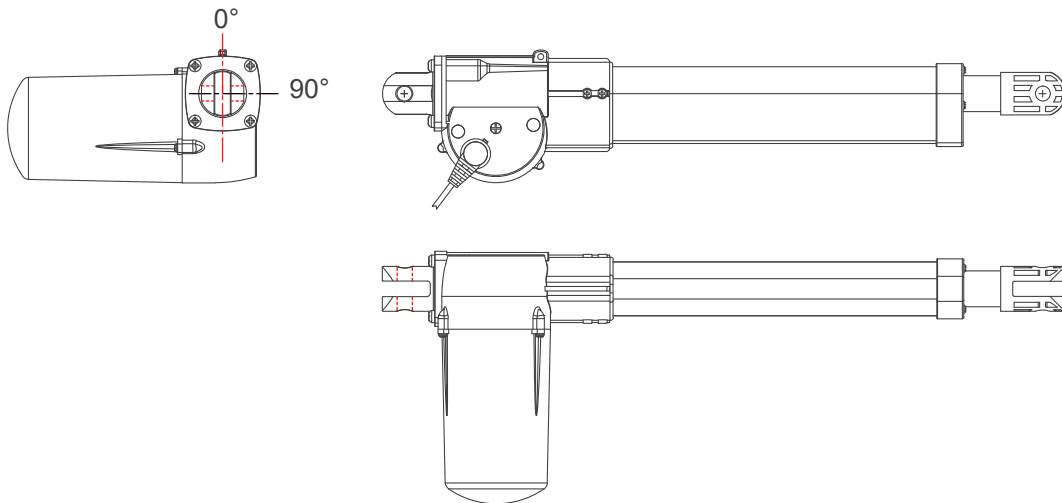
● **Rear Connector**

2: Aluminum alloy clevis



Rear connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)	Width with bushing (W1)	Slot width (W2)	Slot depth (H)
2	Ø10, Ø12	Ø8, Ø10	30	8	18

● **Pivot orientation of rear connectors**



Remarks:

* As an example in 0° orientation.

Compatibility

Product	Model	MD7 spec
Control box	CB2P*, CB4P, CB4P-HP, MD6C, MD7C*	- Without positioning sensor feedback - 4-pin H-type or V-type DIN plug
	CB4P-SY	- With dual Hall effect sensors for positioning - 6-pin H-type or V-type DIN plug
	CM41-M	- Without positioning sensor feedback - 6-pin LR-type minifit plug
	CM45	- Without positioning sensor feedback - 4-pin H-type DIN plug
Hand control	HS13	- Moteck Direct-Cut power cable DL3 or TL3** - 5-pin H-type female connector

Remarks:

* MD7C & CB2P control box can be attached to MD7 actuator.

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



MD7+MD7C

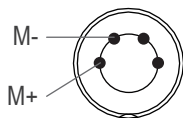


MD7+CB2P

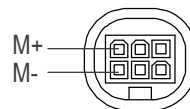
Cable Plug

• With V-type, H-type or LR-type plug (Required to be connected to the control box):

- Without Hall effect sensor



V-type, H-type 4-pin DIN plug

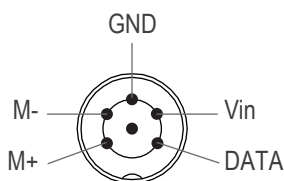


LR-type 6-pin minifit plug



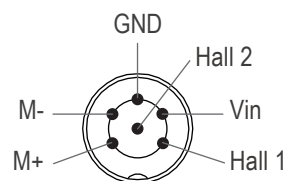
V-type

- With single Hall effect sensor



V-type, H-type 6-pin DIN plug

- With dual Hall effect sensors



V-type, H-type 6-pin DIN plug



H-type



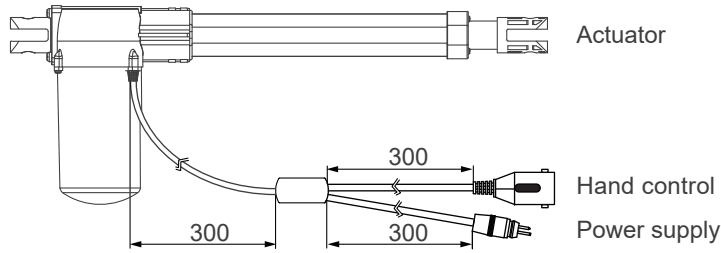
LR-type

Remarks:

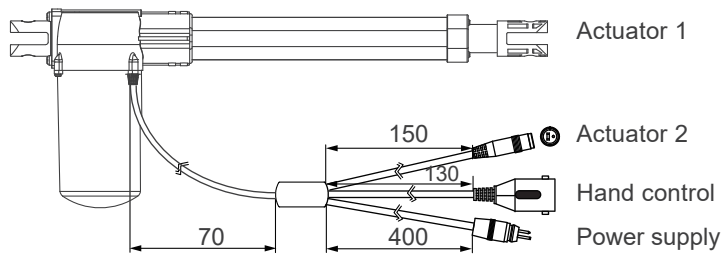
* Connect Pin (M+) to "Vdc+" & Pin (M-) to "Vdc-" of DC power, the actuator will extend. Switch the polarity of DC input to retract it.

● With Direct-Cut power cable DL3 or TL3 (NOT required to be connected to any control box):

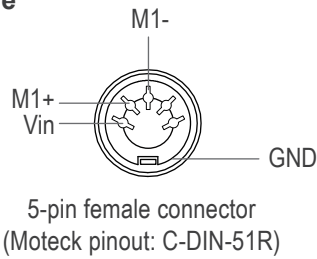
- DL3



- TL3

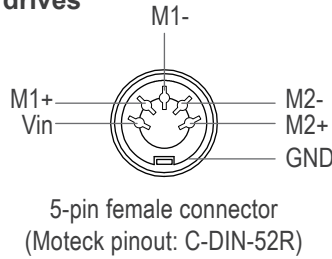


● Hand control connector: with
- 1 drive



H-type female connector

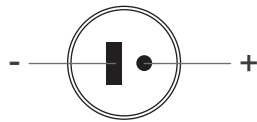
- 2 drives



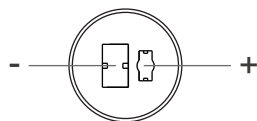
Remarks:

* Connect pin (M1+) to "Vdc+" & pin (M1-) to "Vdc-" of DC power, the M1 actuator will extend. Definition of M2 actuator is the same.

● Power plug: with R-type DIN 41529 male plug



● Connector for 2nd actuator: with
(for TL3 only) R-type DIN 41529 female connector




Cable with Flying Leads

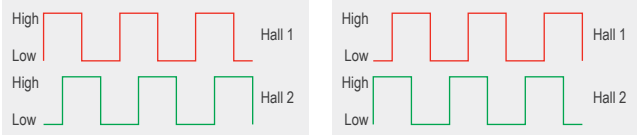
• Without Hall effect sensors

	Wire color	Definition	Comments
Power wires	White	DC power	Switch the polarity of DC input to retract it. Connect white wire to "Vdc +" & black wire to "Vdc -" of DC power to extend the actuator.
	Black		

• With single Hall effect sensor

	Wire color	Definition	Comments															
Power wires	Blue	DC power	Switch the polarity of DC input to retract it. Connect blue wire to "Vdc +" & Brown wire to "Vdc -" of DC power to extend the actuator.															
	Brown																	
Signal wires	Black	GND																
	Yellow	Vin	Voltage input range: 5 ~ 20V															
	Red	Hall output	Hall effect sensor resolution:															
			<table border="1"> <thead> <tr> <th>Model No.</th> <th>Resolution (pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>MD7-XX-A4-XXX.XXX-CXX</td> <td>10.0</td> </tr> <tr> <td>MD7-XX-F4-XXX.XXX-CXX</td> <td>10.0</td> </tr> <tr> <td>MD7-XX-A6-XXX.XXX-CXX</td> <td>6.67</td> </tr> <tr> <td>MD7-XX-A8-XXX.XXX-CXX</td> <td>5.0</td> </tr> <tr> <td>MD7-XX-F8-XXX.XXX-CXX</td> <td>5.0</td> </tr> <tr> <td>MD7-XX-AG-XXX.XXX-CXX</td> <td>2.50</td> </tr> </tbody> </table>		Model No.	Resolution (pulses/mm)	MD7-XX-A4-XXX.XXX-CXX	10.0	MD7-XX-F4-XXX.XXX-CXX	10.0	MD7-XX-A6-XXX.XXX-CXX	6.67	MD7-XX-A8-XXX.XXX-CXX	5.0	MD7-XX-F8-XXX.XXX-CXX	5.0	MD7-XX-AG-XXX.XXX-CXX	2.50
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High=Input-1.2V ($\pm 0.6V$)																		
Low=GND																		
Hall signal data: 																		

• With dual Hall effect sensors

	Wire color	Definition	Comments															
Power wires	Blue	DC power	Switch the polarity of DC input to retract it. Connect blue wire to "Vdc +" & Brown wire to "Vdc -" of DC power to extend the actuator.															
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Low=GND																		
Hall signal data: 																		

Ordering Key

MD7 - 24 - A4 - 338 - 488 - C 5 2 - HS2 - PO-BK - 0 - 0

Input voltage	12: 12V DC 24: 24V DC
Motor and Spindle type	A4: 2500rpm / 4mm pitch A6: 2500rpm / 6mm pitch A8: 2500rpm / 8mm pitch AG: 2500rpm / 16mm pitch F4: 3300rpm / 4mm pitch F8: 3300rpm / 8mm pitch
Retracted length (Refer to Page 3)	XXX
Extended length (Refer to Page 3)	XXX
Front connector (Refer to Page 3)	1: Plastic 3: Drilled hole 5: Zinc alloy clevis 7: Drilled hole with nylon bushing 8: Aluminum alloy clevis
Rear connector (Refer to Page 4)	2: Zinc alloy clevis
Positioning feedback	Blank: None HS1: Hall effect sensor x 1 HS2: Hall effect sensor x 2
Option (multiple choice is allowed)	Blank: None PO: Push only SN: Safety nut (add 8mm to retracted length) BK: Mechanical brake
Pivot orientation of rear connector	0: 0° (standard) 9: 90°
Cable length	0: 300mm straight 1: 1000mm straight 2: 450mm with 300mm coiled A: Direct-Cut power cable DL3 (Refer to Page 6) B: Direct-Cut power cable TL3 (Refer to Page 6)

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