Actuator
MD7

MD7 is a quiet and powerful actuator up to 6000N thrust, designed for medical and homecare application. MD7 is widely compatible with Moteck 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:

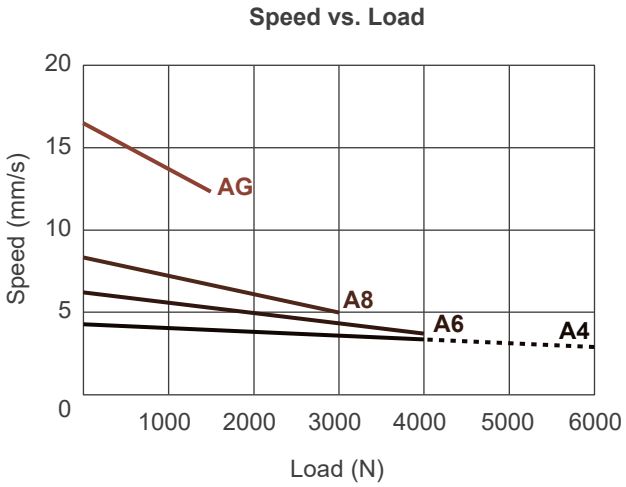
- Input voltage: 12V DC / 24V DC
- Max. load: 6000N (push) / 4000N (pull)
- Max. speed at no load: 16.6 mm/sec (typical value)
- Speed at full load: 2.9 mm/sec (typical value @6000N loaded)
- Stroke: 50 ~ 300mm
- Noise level: ≦50dB
- IP level: IP54 (static, non-action)
- Color: Light gray RAL 7035
-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

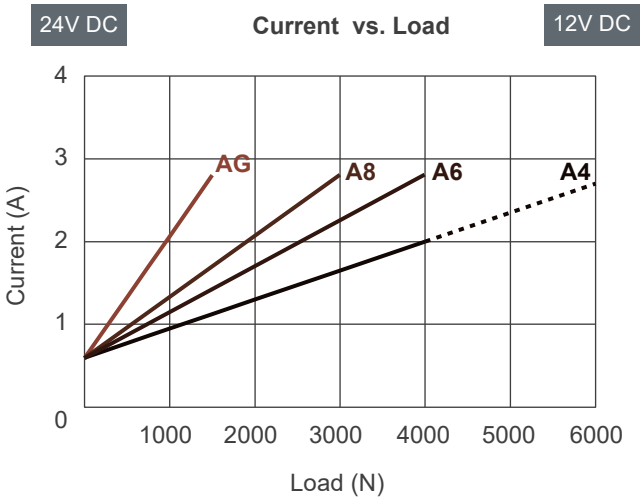
Options:

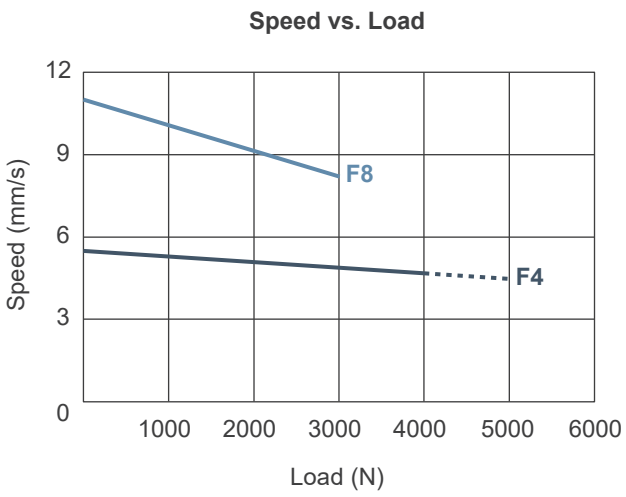
- Positioning signal feedback with Hall effect sensor x 1
- Positioning signal feedback with Hall effect sensor x 2
- Mechanical push only extension tube
- Safety nut (in push direction)
- Pivot orientation 90° turned for rear connector
- Mechanical brake

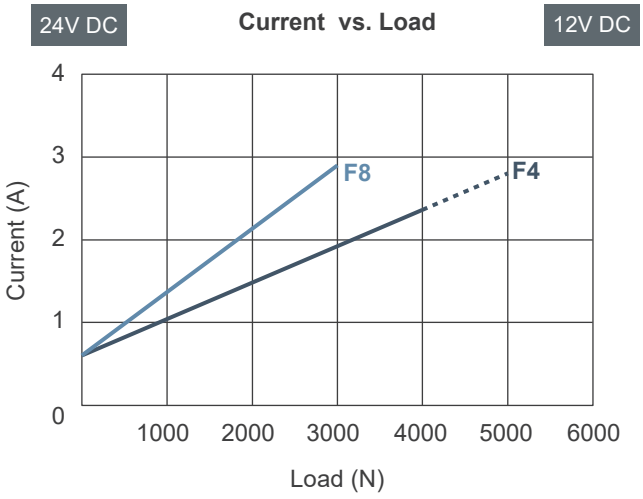
Performance Data

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









Push / Pull Load —— Push Load - - -

Remarks:

* The self-locking ability is performed by short circuit the motor terminals when the actuator is powered off. All MOTECK 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.

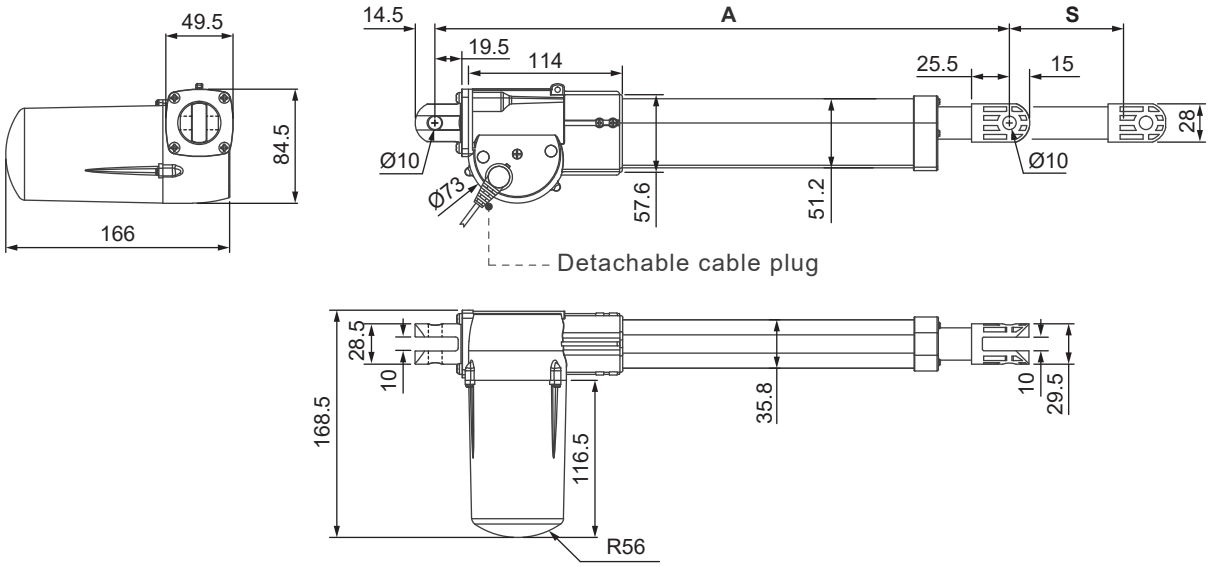
Dimensions

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

Front connector / Safety option	3, 7	1, 5, 8
None (Standard)	A≧S+160mm	A≧S+188mm
Safety nut (SN)	A≧S+168mm	A≧S+196mm

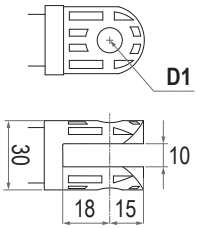
Tolerance: ±3mm

- **Drawing**

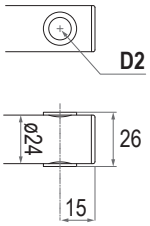


- **Front Connector**

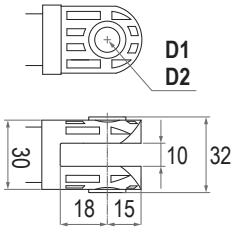
1: Plastic



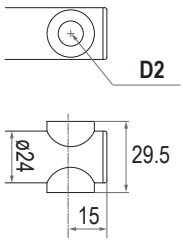
3: Drilled hole



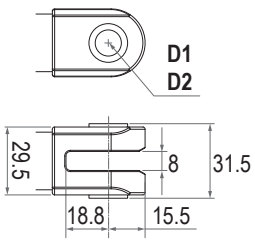
5: Zinc alloy clevis



7: Plastic bushing



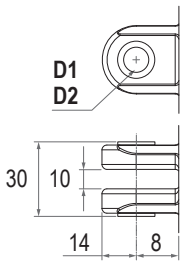
8: Aluminum alloy clevis



Front connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
1	Ø8, Ø10, Ø12	N/A
3	N/A	Ø8, Ø10
5	Ø8, Ø10, Ø12	Ø8, Ø10
7	N/A	Ø10
8	Ø10, Ø12	Ø8, Ø10

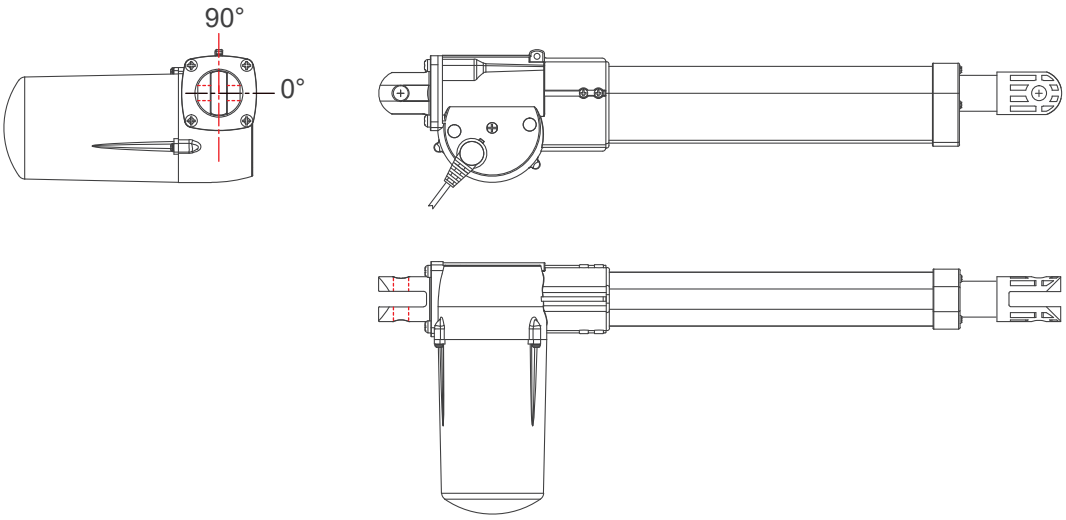
• Rear Connector

2: Aluminum alloy clevis



Rear connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
2	Ø10, Ø12	Ø8, Ø10

• Pivot orientation of rear connectors



Note: 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 Moteck H-type or V-type DIN plug
	CB4P-SY	- With dual Hall effect sensors for positioning - 6-pin Moteck H-type or V-type DIN plug
	CM41-M	- Without positioning sensor feedback - 6-pin Moteck LR-type minifit plug
	CM45	- Without positioning sensor feedback - 4-pin Moteck H-type DIN plug

Remarks:

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

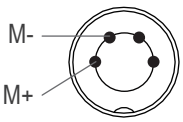
MD7+MD7C

MD7+CB2P

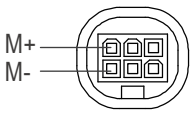
Cable Plug (Detachable)

● With Moteck V-type, H-type or LR-type plug

- Without Hall effect sensors

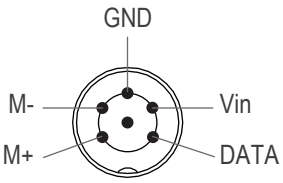


V-type, H-type 4-pin DIN plug



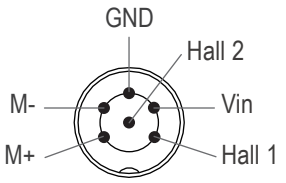
LR-type 6-pin minifit plug

- 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

Note: 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.

V-type

H-type

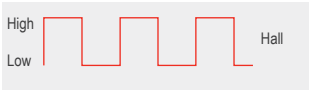
LR-type

Cable with Flying Leads

● Without Hall effect sensors

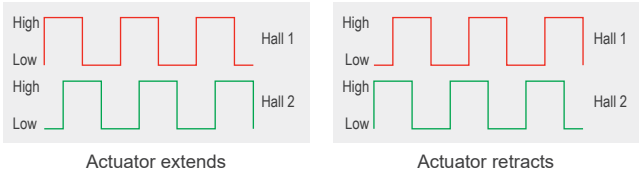
	Wire color	Definition	Comments
Power wires	White	DC power	Switch the polarity of DC input to retract it. Connect white wire to "Vdc +" & black wire to "Vdc -" of DC power to extend the actuator.
	Black		

● 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	Yellow	Vin	Voltage input range: 5 ~ 20V
	Red	Hall output	High=Input-1.2V (±0.6V) Low=GND Hall signal data:  Hall effect sensor resolution:
	Black	GND	

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

● 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.
	Brown		
Signal wires	Yellow	Vin	Voltage input range: 5 ~ 20V
	Red	Hall 1 output	High=Input-1.2V (±0.6V) Low=GND Hall signal data:  Hall effect sensor resolution:
	Green	Hall 2 output	
	Black	GND	

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

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**: Plastic 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