

Actuator

MD21

MD21 is a compact and quiet actuator which is suitable for various applications with limited installation space, such as recliners, beds, and other applications.

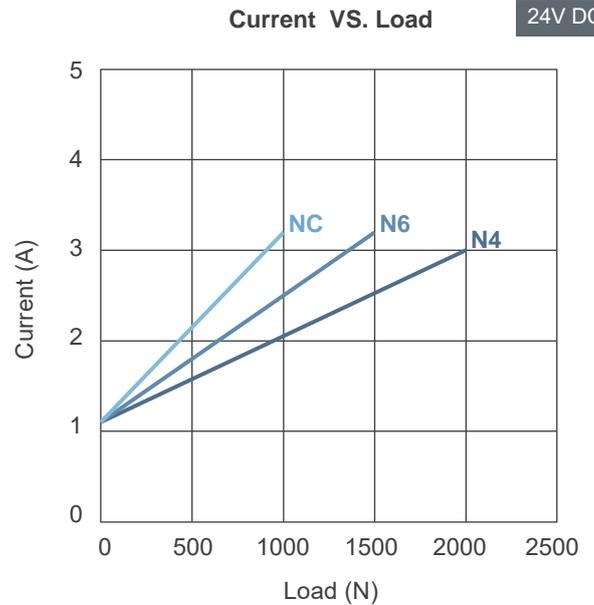
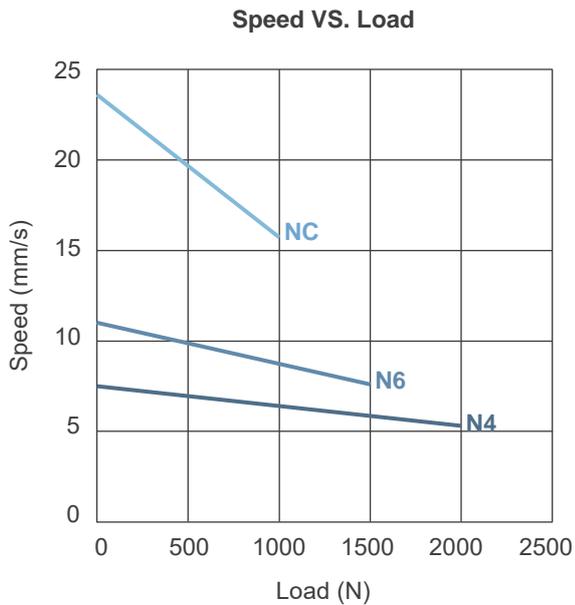


Features and Options

- Main applications: Office, Leisure & Recreation, Medical Care, Industry
- Input voltage: 24V DC
- Max. load: 2000N (Push/Pull)
- Speed at no load: 23.6mm/sec (Typical value)
- Speed at full load: 5.3mm/sec (Typical value @2000N Loaded)
- Stroke: 50~400mm
- Noise level: ≤ 50 dB
- IP level: IPX5 (Static; non-action)
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: $-20^{\circ}\text{C} \sim +65^{\circ}\text{C}$
- Storage ambient temperature: $-25^{\circ}\text{C} \sim +65^{\circ}\text{C}$
- Certified: CE Marking, Directive 2014/30/EU.
EN 60601-1-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-8
- Options: Positioning signal feedback with dual Hall effect sensors

Performance Data

Model No.	Push/Pull Max. (N)	* Typical speed (mm/s)		* Typical current (A)	
		No load	Full load	No load	Full load
MD21-24 N4 -XXX.XXX-XXX005X	2000	7.5	5.3	1.1	3.0
MD21-24 N6 -XXX.XXX-XXX005X	1500	11.0	7.6	1.1	3.2
MD21-24 NC -XXX.XXX-XXX005X	1000	23.6	15.7	1.1	3.2



Remarks:

- * The typical speed or typical current means the average value neither upper limit nor lower limit, which measured under room temperature and stable power. The performance curves are made with typical values.

• Inrush current



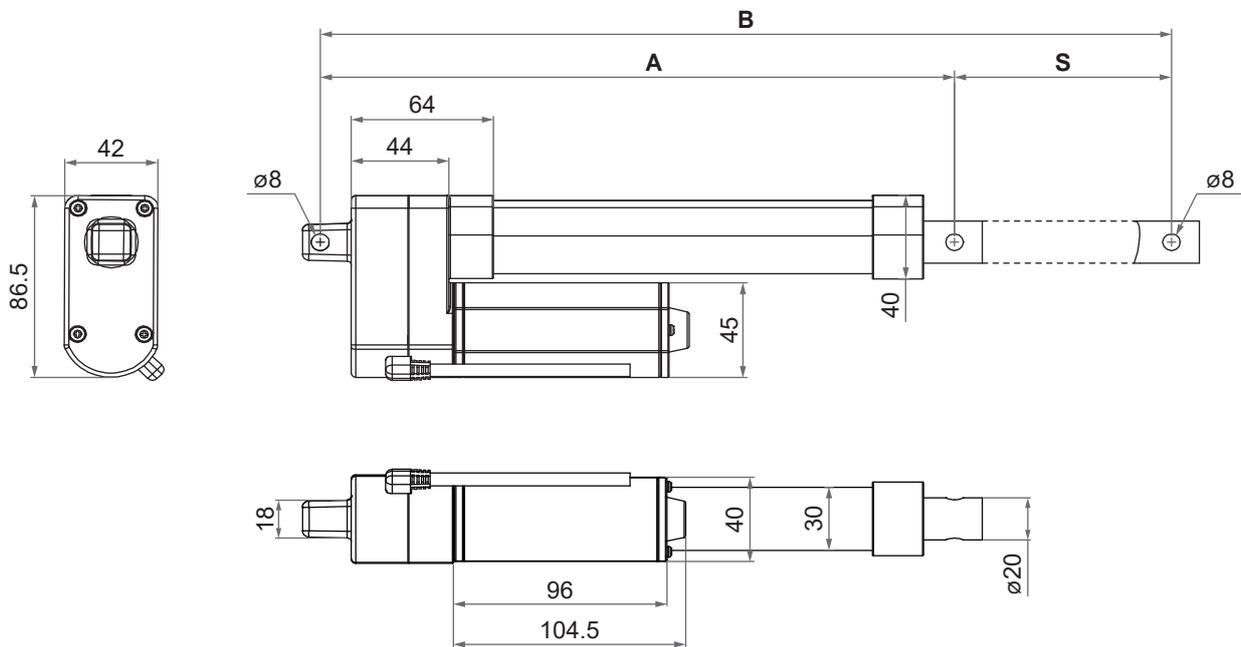
- When the actuator starts to operate, an inrush current of about 0.2 seconds will be generated. The starting inrush current of MD21 can reach about 3 times of the typical current under the actuator load.
- If a circuit board power supply is used, the specifications must be sufficient to handle the inrush current. If batteries are used as the power source, inrush current will not be a problem.
- MOTECK controllers are designed to take into account the inrush current when the actuator starts. If the user provides his or her own controller, this feature must be considered in the specifications and protection mechanisms. Besides, the connectors, switches and relays selected by users must also be able to withstand the starting currents.

Dimensions

- Available stroke (S) range = 50~400mm (±3mm)
- Extended length (B) = Retracted length (A) + Stroke (S)
- Retracted length (A)

Stroke (S)	50 ≤ S ≤ 300mm	
Front connector	2, 4	3, 6
Retracted length (A)	$A \geq S + 135\text{mm}$ (±3mm)	$A \geq S + 145\text{mm}$ (±3mm)
<ul style="list-style-type: none"> • 301 ≤ S ≤ 400mm, retracted length (A) + 30mm • S ≥ 401mm, Please consult MOTECK sales representative for feasibility and the available retracted length. 		

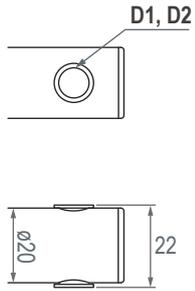
• Drawing



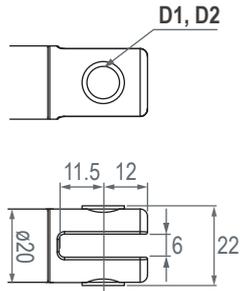
Unit: mm

● **Front connector**

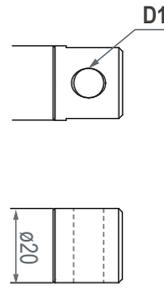
2: Drilled hole



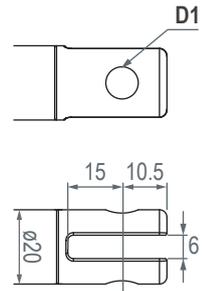
3: Metal slot



4: Plastic solid



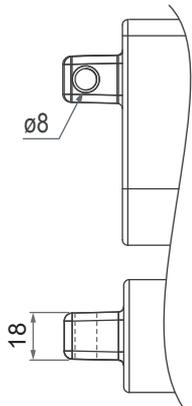
6: Plastic slot



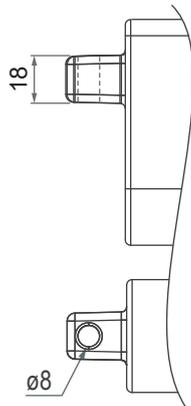
Front connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
2	ø8, ø10	ø8
3	ø8, ø10	ø8
4	ø8, ø10	N/A
6	ø8, ø10	N/A

● **Pivot orientation of rear connector**

0: Metal 0°



9: Metal 90°



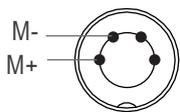
Compatibility

Product	Model	MD21 spec
Control box	T-control, CS1, CS2, CBT2, CB3T, CB4M	<ul style="list-style-type: none"> Without positioning feedback With Moteck F-type 4-pin DIN plug
	CB3T-SY, CB3T-SYD, CB4M-S, CB4M-B	<ul style="list-style-type: none"> With dual Hall effect sensors for positioning With Moteck F-type 6-pin DIN plug
	CM45	<ul style="list-style-type: none"> Without positioning feedback With Moteck H-type 4-pin DIN plug
	CB2P, CB4P, MD6C	<ul style="list-style-type: none"> Without positioning feedback With Moteck H-type 4-pin DIN plug
	MD7C	<ul style="list-style-type: none"> Without positioning feedback With Moteck V-type 4-pin DIN plug
	CB4P-SY, CM23	<ul style="list-style-type: none"> With dual Hall effect sensors for positioning With Moteck H-type 6-pin DIN plug
	CM41-M, CB5P-M	<ul style="list-style-type: none"> With Moteck LR-type 6-pin minifit plug
Accessory	MB22 mounting bracket 	<ul style="list-style-type: none"> Standard, mounting hole $\varnothing 8\text{mm}$ or $\varnothing 10\text{mm}$

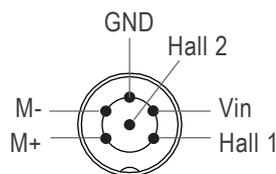
Cable Plug

With Moteck F-type, H-type or V-type DIN plug

- Without positioning feedback
- With dual Hall effect sensors for positioning



4-pin DIN plug



6-pin DIN plug



F-type plug



H-type plug



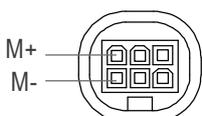
V-type plug



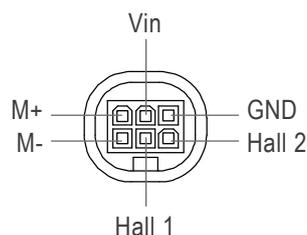
LR-type plug

With Moteck LR-type minifit plug

- Without positioning feedback
- With dual Hall effect sensors for positioning



6-pin minifit plug



6-pin minifit plug

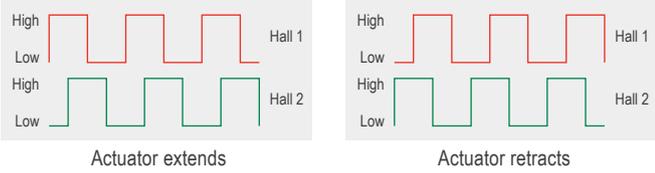
Note: Connect M+ to "Vdc +" & M- to "Vdc -" of DC power to extend the actuator.
Switch the polarity of DC input to retract it.

Cable with Flying Leads

- Basic, without positioning feedback.

	Wire color	Definition	Descriptions
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 positioning feedback

	Wire color	Definition	Descriptions
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	High= Input - 1.2V ($\pm 0.6V$) Low= GND Hall signal data:  <p>The diagram shows two sets of square wave signals. The left set is labeled 'Actuator extends' and the right set is 'Actuator retracts'. Each set shows two signals: Hall 1 (red) and Hall 2 (green). In the 'extends' case, Hall 1 is high and Hall 2 is low. In the 'retracts' case, Hall 1 is low and Hall 2 is high.</p>
	Green	Hall 2 output	Hall effect sensor resolution:
	Black	GND	

Model	Resolution (pulses/mm)
MD21-24N4-XXX.XXX-XXH00XX	7.594
MD21-24N6-XXX.XXX-XXH00XX	5.063
MD21-24NC-XXX.XXX-XXH00XX	2.531

Ordering Key

	MD21- 24 N4 412 612 3 9 0 0 0 5 0
Input voltage	24: 24V DC
Motor and Spindle type	N4: 3800rpm / 4mm pitch N6: 3800rpm / 6mm pitch NC: 3800rpm / 12mm pitch
Retracted length (Refer to Page 3)	XXX
Extended length (Refer to Page 3)	XXX
Front connector (Refer to Page 3)	2: Drilled hole 3: Metal slot 4: Plastic solid 6: Plastic slot
Pivot orientation of rear connector (Refer to Page 4)	0: Metal 0° 9: Metal 90°
Positioning feedback	0: None H: Hall effect sensor x 2
Reserved	0
Reserved	0
IP level	5: IPX5
Cable length	0: 300mm straight 1: 1000mm straight A: 450mm with 300mm coiled

Terms of Use

The user is responsible for the suitability of MOTECK products, and the products listed on the MOTECK website are subject to change without notice. MOTECK reserves the right to terminate sales or delete any products displayed on the website or listed in its catalog.