

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.

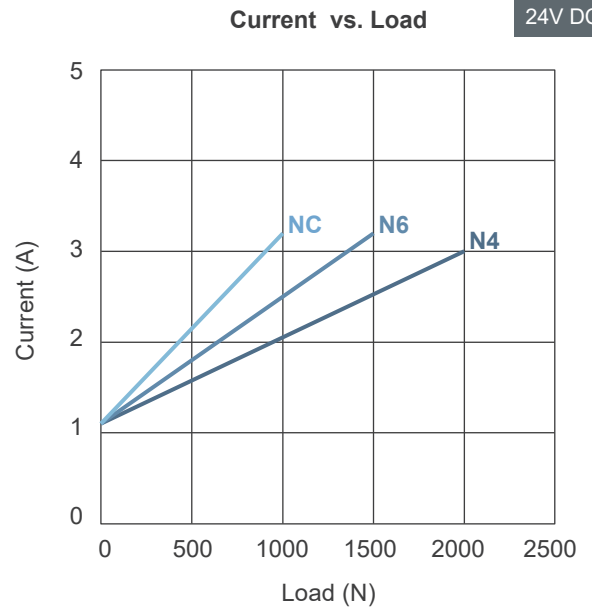
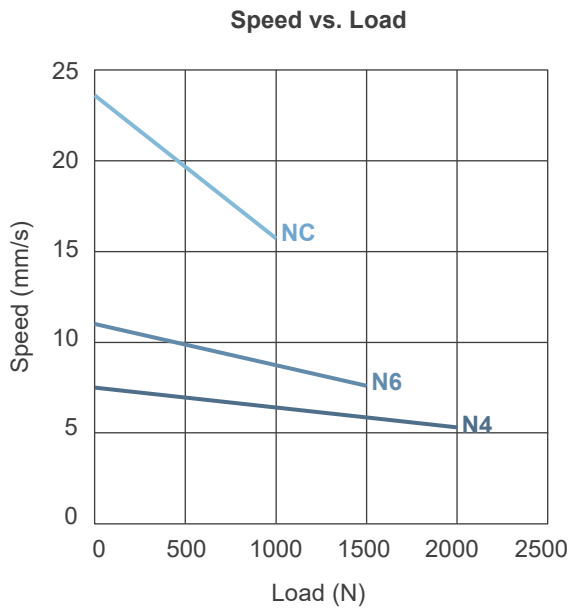


Features and Option

- Main applications: Office, Leisure & Recreation, Medical Care, Industrial
- 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
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -20°C ~ +65°C
- Certified: CE Marking, Directive 2014/30/EU.
EN 60601-1-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-8
- Option: 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:

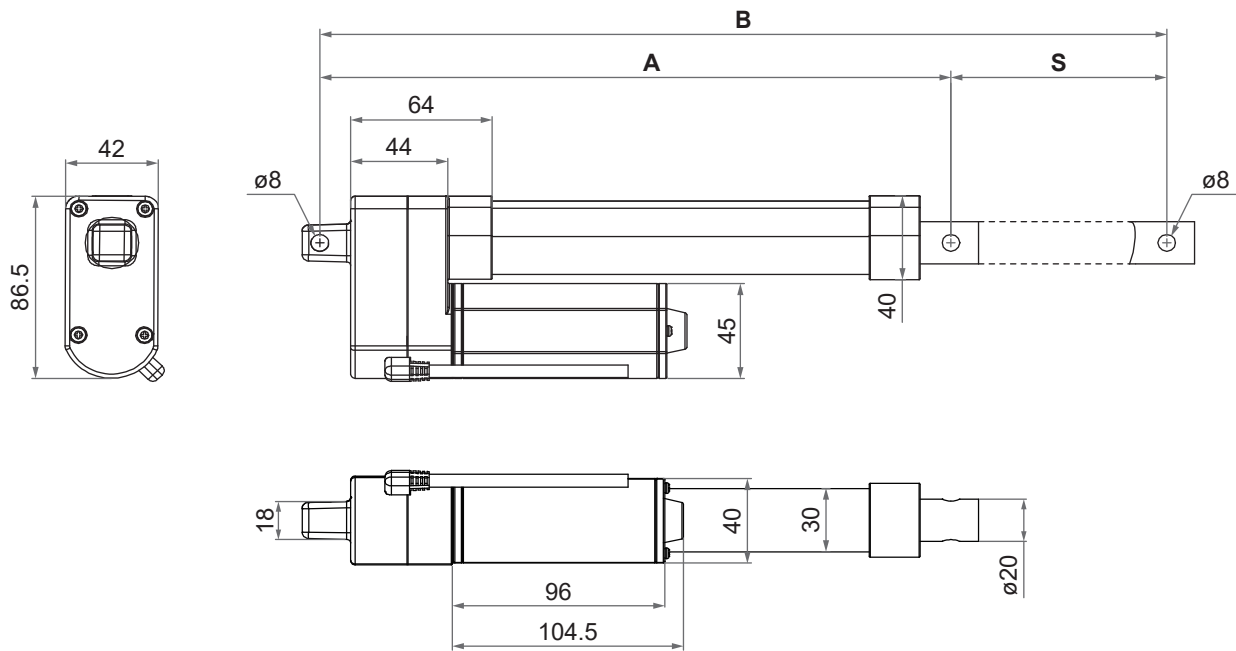
- * The typical speed or typical current means the average value neither upper limit nor lower limit. The performance curves are made with typical values.

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"> • $301 \leq S \leq 400\text{mm}$, retracted length (A) + 30mm • $S \geq 401\text{mm}$, Please consult MOTECK sales representative for feasibility and the available retracted length. | | |

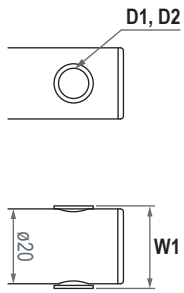
• Drawing



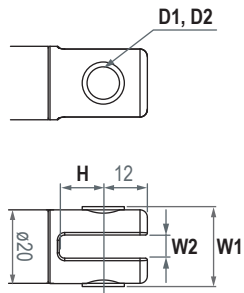
Unit: mm

● Front connector

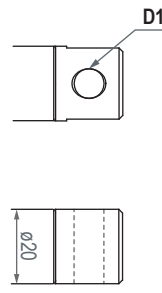
2: Drilled hole



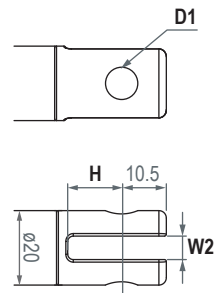
3: Metal slot



4: Plastic solid



6: Plastic slot

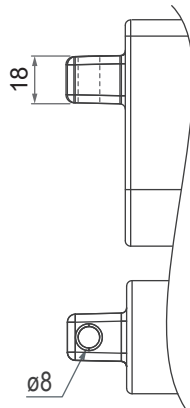
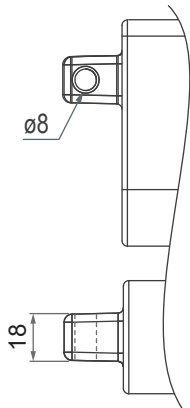


| Front connector code | Diameter of pivot without bushing (D1) | Diameter of pivot with bushing (D2) | Width with bushing (W1) | Slot width (W2) | Slot depth (H) |
|----------------------|--|-------------------------------------|-------------------------|-----------------|----------------|
| 2 | ø8, ø10 | ø8 | 22 | N/A | N/A |
| 3 | ø8, ø10 | ø8 | 22 | 6 | 11.5 |
| 4 | ø8, ø10 | N/A | N/A | N/A | N/A |
| 6 | ø8, ø10 | N/A | N/A | 6 | 15 |

● Pivot orientation of rear connector

0: Metal 0°

9: Metal 90°



Unit: mm

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, MD7C | <ul style="list-style-type: none">• Without positioning feedback• With Moteck H-type or 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 (Fig. 1) | <ul style="list-style-type: none">• Standard, mounting hole $\varnothing 8\text{mm}$ or $\varnothing 10\text{mm}$ |
| | C15 clamp (Fig. 2) | <ul style="list-style-type: none">• Comply with the section shape and size of the outer tube. |



Fig. 1

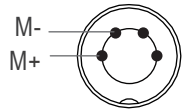


Fig. 2

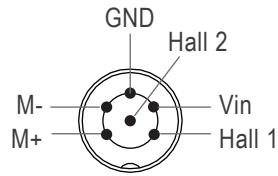
Cable Plug

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

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



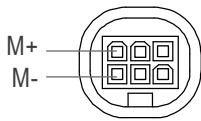
4-pin DIN plug



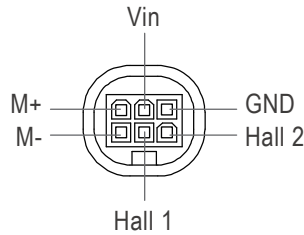
6-pin DIN plug

With Motek 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.



F-type plug



H-type plug



V-type plug



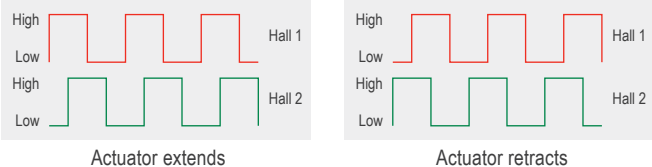
LR-type plug

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 | 10.50 |
| MD21-24N6-XXX.XXX-XXH00XX | 7.00 |
| MD21-24NC-XXX.XXX-XXH00XX | 3.50 |

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 <i>(Refer to Page 3)</i> | XXX |
| Extended length <i>(Refer to Page 3)</i> | XXX |
| Front connector <i>(Refer to Page 3)</i> | 2: Drilled hole 3: Metal slot 4: Plastic solid 6: Plastic slot |
| Pivot orientation of rear connector <i>(Refer to Page 4)</i> | 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 |

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