Actuator
MD56

MD56 is a powerful but compact actuator up to 5000N max. thrust that is suitable for wide range of applications including medical, home care, furniture and industrial…etc. The motor orientation can be chosen in every 30 degrees of whole round, which makes it an ideal solution for applications where installation space is limited.

Features and Options

Main applications: Furniture, Home care, Medical, Industrial

Standard feaures:

- Input voltage: 24V DC
- Max. load: 5000N (Push) / 3500N (Pull)
- Speed at no load: 40mm/sec (Typical value)
- Speed at full load: 4mm/sec (Typical value @5000N loaded)
- Stroke: 50 ~ 400mm
- Motor orientation: 360° in steps of every 30°
- Noise level: ≦65dB
- IP level: IP21
- Preset cam type limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -25°C ~ +65°C
- Certified: CE Marking, EN 60601-1-2, IEC 60601-1

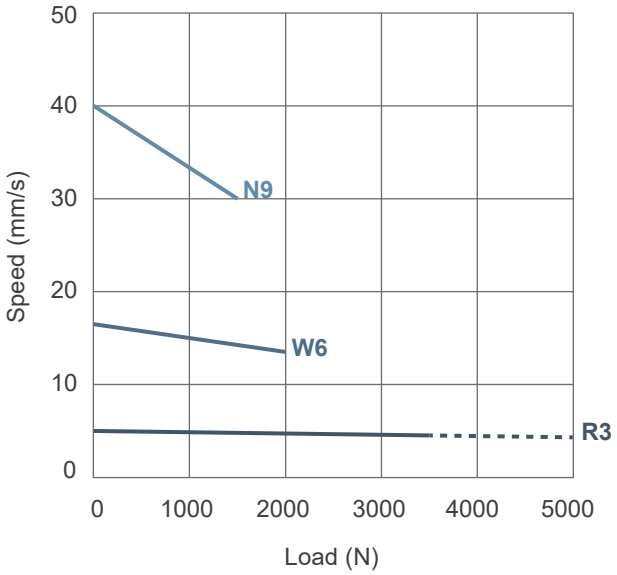
Options:

- Positioning signal feedback with Hall effect sensor x 2
- Positioning feedback with Potentiometer (POT)
- Positioning feedback with Reed sensor
- IPX6 Waterproof case

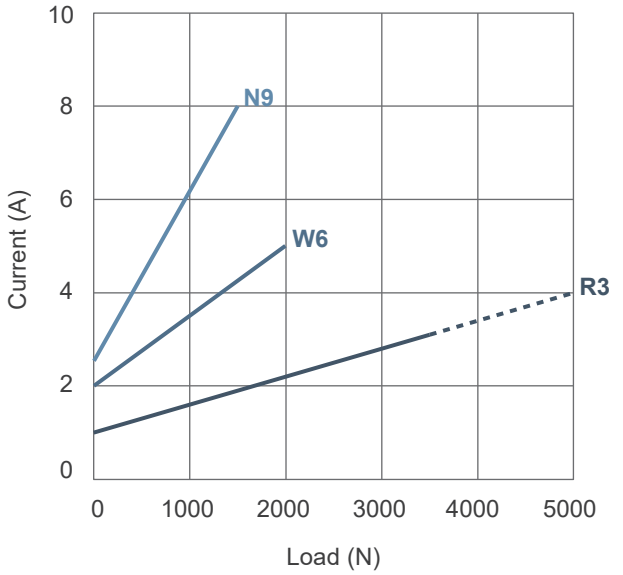
Performance Data

Model No.	Push Max. (N)	Pull Max. (N)	* Typical speed (mm/s)		* Typical current (A)	
			No load	Full load	No load	Full load
MD56-X-24**R3**-XXX.XXX-XXXX0XX	5000	3500	5.0	4.0	1.0	4.0
MD56-X-24**W6**-XXX.XXX-XXXX0XX	2000	2000	16.5	13.5	2.0	5.0
MD56-X-24**N9**-XXX.XXX-XXXX0XX	1500	1500	40.0	30.0	2.8	8.0

Speed vs. Load



Current vs. Load 24V DC



Push / Pull Load —— Push Load - - -

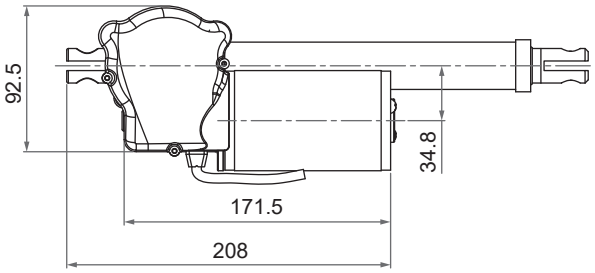
Remarks:

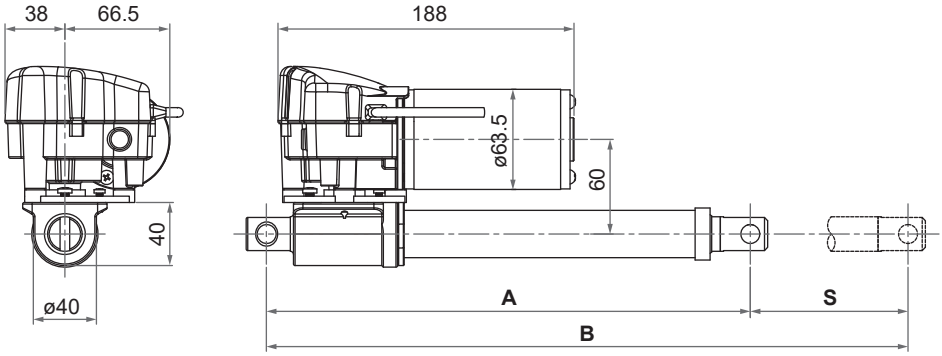
* The typical speed or typical current means the average value neither upper limit nor lower limit. The performance curves are made with typical values.

Dimensions

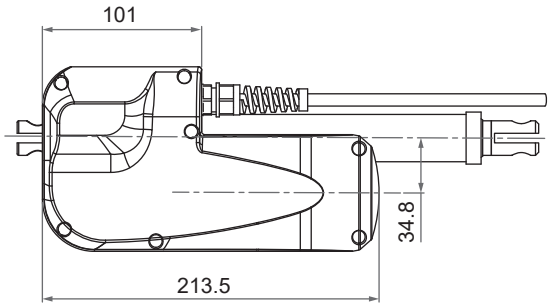
- **Available stroke (S) range:** 50 ~ 400mm
- **Retracted length (A)** ≧ S+156mm (±5mm)
- **Extended length (B):** Retracted length (A) + Stroke (S)
- **Housings of different options:**

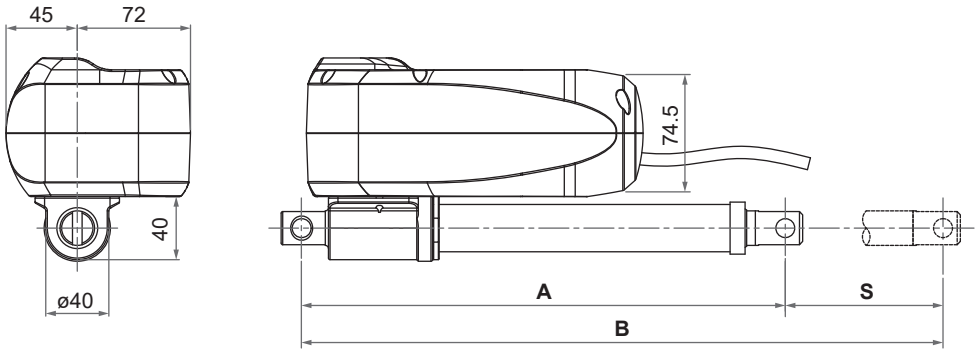
- Standard type





- With IPX6 waterproof case

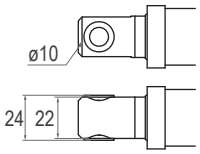




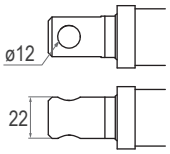
Unit: mm

● **Front connector**

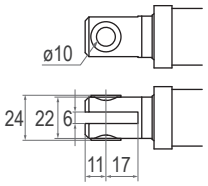
1: Aluminum solid with bushing



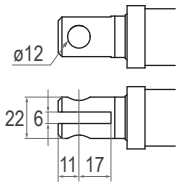
2: Aluminum solid w/o bushing



3: Zinc slot with bushing
(only for models with max. load ≦2000N)

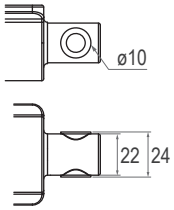


4: Zinc slot w/o bushing
(only for models with max. load ≦2000N)

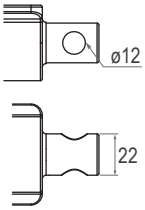


● **Rear connector**

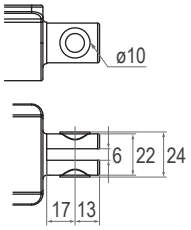
1: Aluminum solid with bushing



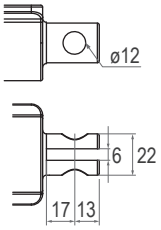
2: Aluminum solid w/o bushing



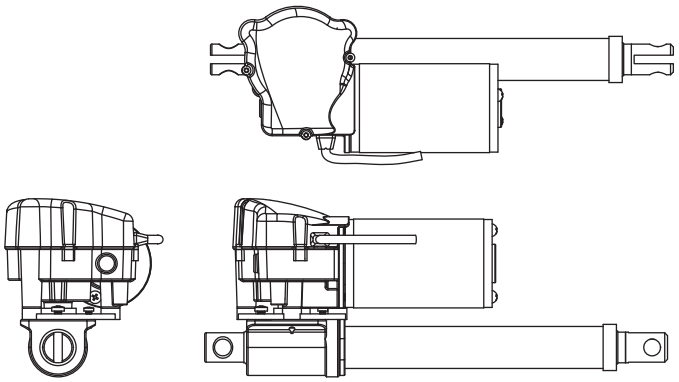
3: Aluminum slot with bushing
(only for models with max. load ≦2000N)



4: Aluminum slot w/o bushing
(only for models with max. load ≦2000N)

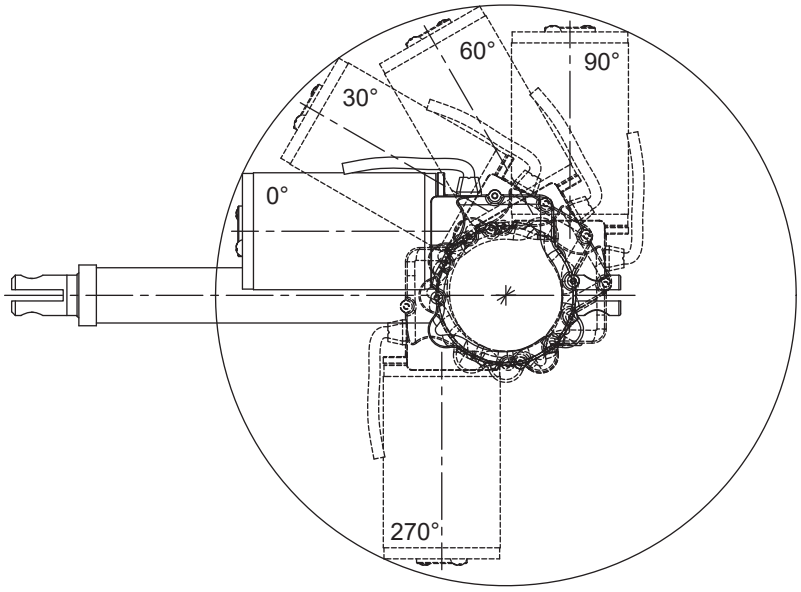


● **Pivot orientation of rear connector**



Note: Presented with slot type connector as an example.

● **Motor orientation (360° in steps of every 30°)**



Note: This drawing shows orientation definition with example of standard type.

Compatibility

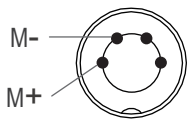
Product	Model	Application condition	MD56 spec
Control box	MD6C	Max. ≦5A current per channels	• Without positioning feedback • With Moteck H-type DIN plug
	CB4P-HP	M1: Max. ≦9A current	• Without positioning feedback • With Moteck J2-type phone jack plug
	CB4P-SY (Synchronization)	Max. ≦4.5A current 2 channels	• With dual Hall effect sensors for positioning • With Moteck H-type DIN plug

Note: If the current limit of the selected control box is lower than the typical current of the actuator model under full load, the actuator could not be operated in full performance.

Cable Plug

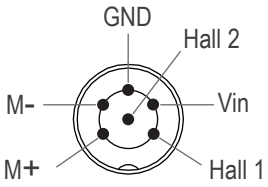
With Moteck H-type DIN plug

● Without positioning feedback



4-pin DIN plug

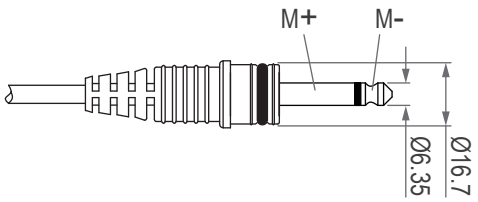
● Positioning feedback with dual Hall effect sensors



6-pin DIN plug

H-type plug

With Moteck J2-type Phone jack plug



J2-type plug

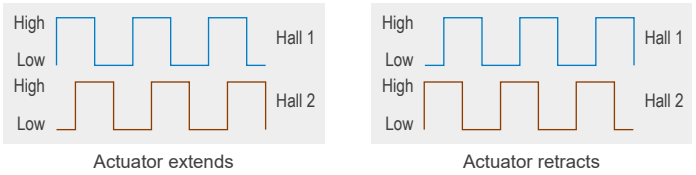
Note: Connect M+ to “Vdc +” & M- to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.

Cable with Flying Leads

- **Basic, without positioning feedback.**

	Wire color	Definition	Descriptions
Power wires	Red	DC power	Connect red wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		

- **With dual Hall effect sensors for positioning**

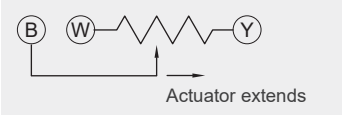
	Wire color	Definitions	Descriptions
Power wires	Red	DC power	Connect red wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		
Signal wires	Orange	Vin	Voltage input range: 5 ~ 20V
	Blue	Hall 1 output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data:  Hall effect sensor resolution: Model No. / Resolution (Pulses/mm) MD56-X-24**R3**-XXX.XXX-XXX**H**0XX / 9.83 MD56-X-24**W6**-XXX.XXX-XXX**H**0XX / 4.92 MD56-X-24**N9**-XXX.XXX-XXX**H**0XX / 2.07
	Brown	Hall 2 output	
	White	GND	

- **With reed sensor**

	Wire color	Definitions	Descriptions
Power wires	Red	DC power	Connect red wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		
Signal wires	White	COM	
	Yellow	NC	Reed sensor resolution: Model No. / Resolution (Pulses/mm) MD56-X-24**R3**-XXX.XXX-XXX**R**0XX / 2.67 MD56-X-24**W6**-XXX.XXX-XXX**R**0XX / 1.33 MD56-X-24**N9**-XXX.XXX-XXX**R**0XX / 0.89 Input power rating: 10VA max. max. input voltage 100V DC (0.1A) and max. input current 1A (10V DC)

● **With potentiometer (POT) absolute positioning feedback**

<table>
<tr><th></th><th>Wire color</th><th>Definitions</th><th>Descriptions</th></tr>
<tr><td rowspan="2">Power wires</td><td>Red
Black</td><td>DC power</td><td>Connect red wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.</td></tr>
<tr><td rowspan="3">Signal wires</td><td>Yellow</td><td>Vin</td><td>Input voltage 70V max.</td></tr>
<tr><td>Blue</td><td>POT output</td><td>1. Potentiometer specification:
- 10K ohm, 10 turns.
- Tolerance ±5%

2. Output voltage: The voltage (resistance) between Blue and White increases linearly from about 0 when the actuator extends, and decreases when it retracts.
 

3. Following table shows the resistance allocation for stroke 400mm. The max. resistance value at its full stroke will be proportional to the stroke specification if the model is less than 400mm, i.e. the increment of resistance per unit stroke length remanins unchanged.
<table>
<tr><th>Motor and spindle code</th><th>Resistance value</th></tr>
<tr><td>R3</td><td>0.30 ~ 7.50 KΩ</td></tr>
<tr><td>W6, N9</td><td>0.30 ~ 7.35 KΩ</td></tr>
</table>
Tolerance: ±0.10 KΩ</td></tr>
<tr><td>White</td><td>GND</td><td></td></tr>
</table>

Ordering Key

MD56 - S - 24 R3 - 206 . 256 - 1 1 0 H 0 0 1

Waterproof case	**0**: None (IP21) **S**: Waterproof case (IPX6)
Input voltage	**24**: 24V DC
Motor and Spindle type	**R3**: 2800rpm, 3mm pitch * **W6**: 5500rpm, 6mm pitch **N9**: 5500rpm, 9mm pitch
Retracted length (Refer to Page 3)	**XXX**
Extended length (Refer to Page 3)	**XXX**
Front connector (Refer to Page 4)	**1**: Aluminum solid with bushing, ø10mm **2**: Aluminum solid w/o bushing, ø12mm **3**: Zinc slot with bushing, ø10mm (only for models with max. load ≦2000N) **4**: Zinc slot w/o bushing, ø12mm (only for models with max. load ≦2000N)
Rear connector (Refer to Page 4)	**1**: Aluminum solid with bushing, ø10mm **2**: Aluminum solid w/o bushing, ø12mm **3**: Aluminum slot with bushing, ø10mm (only for models with max. load ≦2000N) **4**: Aluminum slot w/o bushing, ø12mm (only for models with max. load ≦2000N)
Pivot orientation of rear connector (Refer to Page 4)	**0**: 0° **9**: 90°
Positioning feedback	**0**: None **H**: Duall Hall effect sensors (must go with IPX6 waterproof case) **P**: Potentiometer **R**: Reed sensor
Reserved	**0**
Motor orientation (Refer to Page 4)	**0**: 0° **3**: 30° **6**: 60° **9**: 90° **R**: 270°
Cable length	**1**: 750mm straight **2**: 1500mm straight

* **Remarks:** The front and rear connectors of the R3 motor must be solid type.