

# Actuator

## FD61

FD61 is a quiet and powerful actuator up to 6000N thrust, designed for use in furniture application. Compared to FD60, the motor size of FD61 is more compact. There are several models with different speed and load for customer to choose.



### Features and Options

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**Main applications:** Furniture

**Standard features:**

- Input voltage: 12V DC / 24V DC
- Max. load: 6000N (Push) / 4000N (Pull)
- Max. speed at no load: 33.3mm/sec (Typical value)
- Speed at full load: 2.9mm/sec (Typical value @6000N loaded)
- Stroke: 50 ~ 300mm
- Noise level:  $\leq 50$ dB
- IP level: IP42 (Static; non-action)
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -20°C ~ +65°C
- Certified: UL 962 Standard for Household and Commercial Furnishings
- Compliant with CE Marking, EMC Directive 2014/30/EU

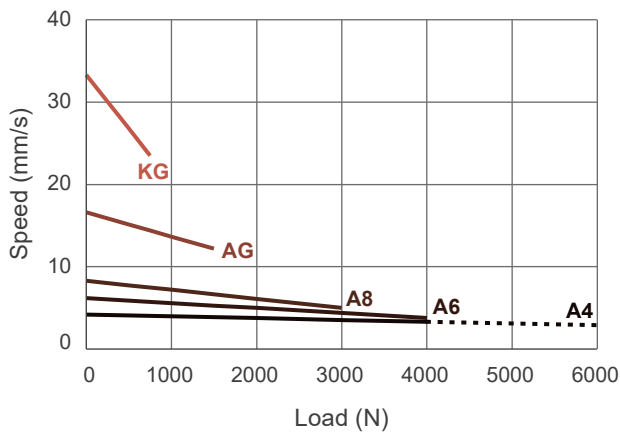
**Options:**

- Positioning signal feedback with Hall effect sensor x 1
- Positioning signal feedback with Hall effect sensor x 2
- Mechanical push only extension tube
- 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
FD61-XX-A4	6000	4000	5000	4.2	2.9	1.2	0.6	5.4	2.7
FD61-XX-A6	4000	4000	2500	6.2	3.8	1.2	0.6	5.6	2.8
FD61-XX-A8	3000	3000	2000	8.3	5.0	1.2	0.6	5.6	2.8
FD61-XX-AG	1500	1500	700	16.6	12.2	1.2	0.6	5.6	2.8
FD61-XX-KG	750	750	0	33.3	23.5	1.2	0.6	5.4	2.7

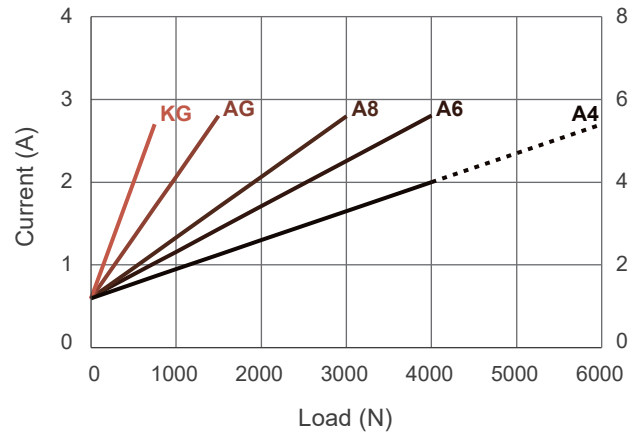
Speed VS. Load



24V DC

Current VS. Load

12V DC



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.

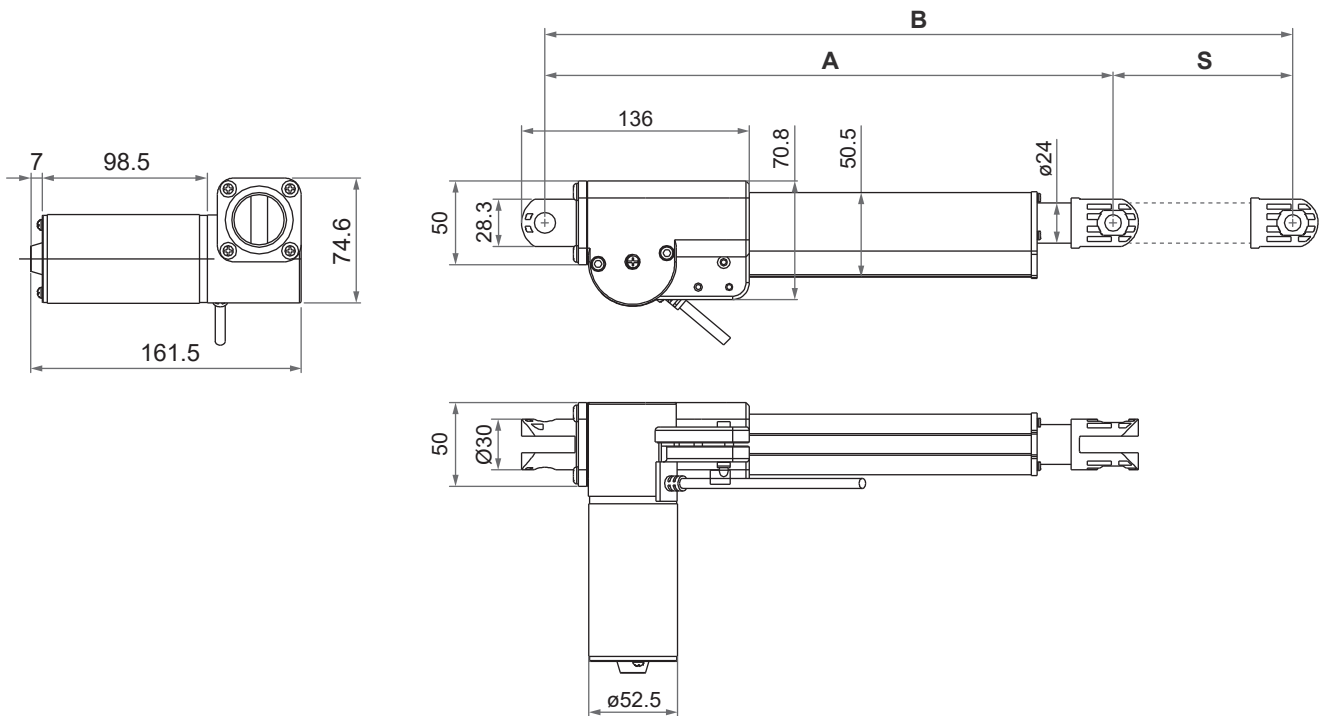
\*\* The typical speed or typical current means the average value neither upper limit nor lower limit, which measured under room temperature and stable power. The performance curves are made with typical values.

## Dimensions

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

Front connector code Rear connector code	3, 7	1, 5, 8
2	$A \geq S + 150\text{mm} (\pm 3\text{mm})$	$A \geq S + 178\text{mm} (\pm 3\text{mm})$

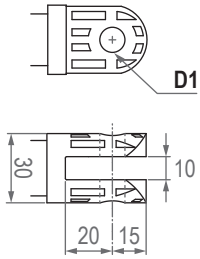
### • Drawing



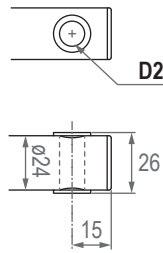
Unit: mm

● **Front connector**

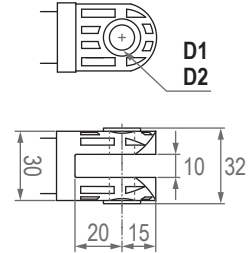
1: Plastic



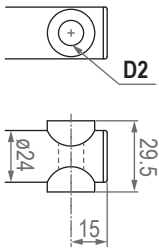
3: Drilled hole



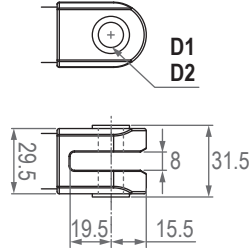
5: Metal



7: Plastic bushing



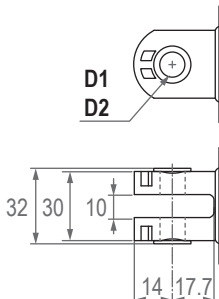
8: Enhanced metal



Front connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
1	$\varnothing 8, \varnothing 10, \varnothing 12$	N/A
3	N/A	$\varnothing 8, \varnothing 10$
5	$\varnothing 8, \varnothing 10, \varnothing 12$	$\varnothing 8, \varnothing 10$
7	N/A	$\varnothing 10$
8	$\varnothing 10, \varnothing 12$	$\varnothing 8, \varnothing 10$

● **Rear connector**

2: Metal

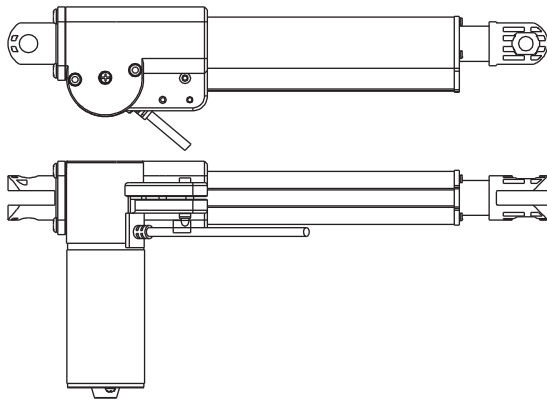


Rear connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
2	$\varnothing 10, \varnothing 12$	$\varnothing 8, \varnothing 10$

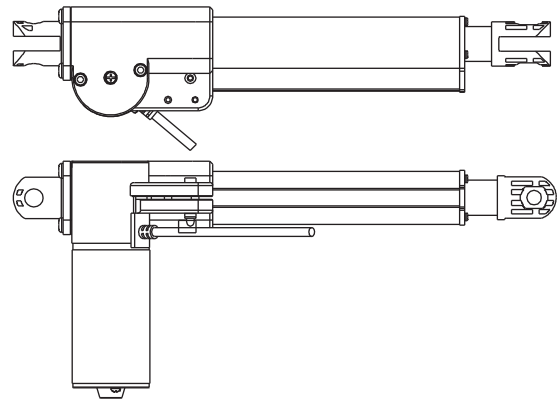
Unit: mm

● **Pivot orientation of rear connectors**

0° (standard)



90°



**Compatibility**

Product	Model	FD61 spec
<b>Control box</b>	T-control, CS1, CS2, CB3T, CB4M, CBT2	<ul style="list-style-type: none"> <li>• Without positioning sensor</li> <li>• With Moteck F-type 4-pin DIN plug</li> </ul>
	CF11H, CF12H	<ul style="list-style-type: none"> <li>• Without positioning sensor</li> <li>• With Moteck L3-type minifit 6-pin plug</li> </ul>
	CB3T-SY, CB4M-S, CB4M-B	<ul style="list-style-type: none"> <li>• With dual Hall effect sensors for positioning</li> <li>• With Moteck F-type 6-pin DIN plug</li> </ul>
	CB3T-SYD	<ul style="list-style-type: none"> <li>• 12V DC motor</li> <li>• With dual Hall effect sensors for positioning</li> <li>• With Moteck F-type 6-pin DIN plug</li> </ul>
	CF11S, CF12S	<ul style="list-style-type: none"> <li>• With dual Hall effect sensors for positioning</li> <li>• With Moteck L3-type minifit 6-pin plug</li> </ul>
<b>Hand control</b>	Depend on control box	<ul style="list-style-type: none"> <li>• Powered by control box</li> </ul>
	HS15	<ul style="list-style-type: none"> <li>• With Moteck S-type DIN 41529 male plug <sup>(1)</sup></li> </ul>

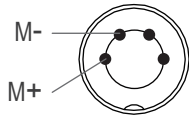
**Remarks:**

(1) The S-type DIN 41529 plug of the actuator is connected to the HS15 hand control directly, no control box.

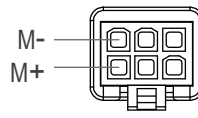
# Cable Plug

## Connecting control devices that provide power

- Without positioning feedback



With Moteck F-type 4-pin DIN plug

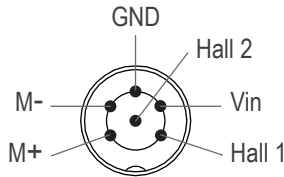


With Moteck L3-type Minifit 6-pin plug

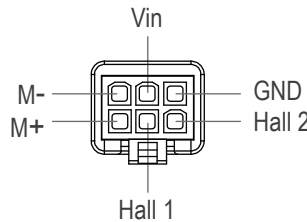


F-type plug

- Positioning feedback with dual Hall effect sensors



With Moteck F-type 6-pin DIN plug



With Moteck L3-type Minifit 6-pin plug



L3-type plug

### Note: Pin definition


	Definition	Descriptions												
Power	M+	Connect M+ to "Vdc +" & M- to "Vdc -" of DC power to extend the actuator. Switch the polarity of DC input to retract it.												
	M-													
Signal	Vin	Voltage input range: 5 ~ 20V												
	Hall 1 output	High= Input - 1.2V ( $\pm 0.6V$ ) Low= GND Hall signal data: <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Actuator extends</p> </div> <div style="text-align: center;"> <p>Actuator retracts</p> </div> </div>												
	Hall 2 output	Hall effect sensor resolution: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model No.</th> <th>Resolution (pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>FD61-XX-A4-XXX.XXX-CXX-HSX</td> <td>10.0</td> </tr> <tr> <td>FD61-XX-A6-XXX.XXX-CXX-HSX</td> <td>6.67</td> </tr> <tr> <td>FD61-XX-A8-XXX.XXX-CXX-HSX</td> <td>5.0</td> </tr> <tr> <td>FD61-XX-AG-XXX.XXX-CXX-HSX</td> <td>2.5</td> </tr> <tr> <td>FD61-XX-KG-XXX.XXX-CXX-HSX</td> <td>1.25</td> </tr> </tbody> </table>	Model No.	Resolution (pulses/mm)	FD61-XX-A4-XXX.XXX-CXX-HSX	10.0	FD61-XX-A6-XXX.XXX-CXX-HSX	6.67	FD61-XX-A8-XXX.XXX-CXX-HSX	5.0	FD61-XX-AG-XXX.XXX-CXX-HSX	2.5	FD61-XX-KG-XXX.XXX-CXX-HSX	1.25
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GND														

## Cable with Flying Leads

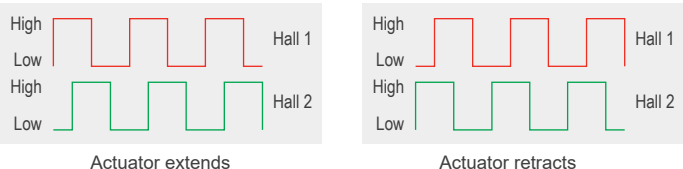
- Basic, without positioning feedback.

	Wire color	Definition	Descriptions
Power wires	White	DC Power	Connect white 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 single Hall effect sensor for positioning

	Wire color	Definitions	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 output	<p>High= Input - 1.2V (<math>\pm 0.6V</math>)            Low= GND            Hall signal data:</p>  <p>Hall effect sensor resolution:</p> <table border="1"> <thead> <tr> <th>Model No.</th> <th>Resolution (pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>FD61-XX-A4-XXX.XXX-CXX-HS3</td> <td>10.0</td> </tr> <tr> <td>FD61-XX-A6-XXX.XXX-CXX-HS3</td> <td>6.67</td> </tr> <tr> <td>FD61-XX-A8-XXX.XXX-CXX-HS3</td> <td>5.0</td> </tr> <tr> <td>FD61-XX-AG-XXX.XXX-CXX-HS3</td> <td>2.5</td> </tr> <tr> <td>FD61-XX-KG-XXX.XXX-CXX-HS3</td> <td>1.25</td> </tr> </tbody> </table>	Model No.	Resolution (pulses/mm)	FD61-XX-A4-XXX.XXX-CXX-HS3	10.0	FD61-XX-A6-XXX.XXX-CXX-HS3	6.67	FD61-XX-A8-XXX.XXX-CXX-HS3	5.0	FD61-XX-AG-XXX.XXX-CXX-HS3	2.5	FD61-XX-KG-XXX.XXX-CXX-HS3	1.25
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Black	GND														

• With dual Hall effect sensors for positioning

	Wire color	Definitions	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.												
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Black	GND														



## Ordering Key

	<b>FD61- 24 - A4 - 350 - 470 - C 1 2 - HS3 - PO-BK - 1</b>
<b>Input voltage</b>	12: 12V DC 24: 24V DC
<b>Motor and Spindle type</b>	A4: 2500rpm / 4mm pitch A6: 2500rpm / 6mm pitch A8: 2500rpm / 8mm pitch AG: 2500rpm / 16mm pitch KG: 2500rpm / 16mm pitch
<b>Retracted length</b> <i>(Refer to Page 3)</i>	XXX
<b>Extended length</b> <i>(Refer to Page 3)</i>	XXX
<b>Front connector</b> <i>(Refer to Page 4)</i>	1: Plastic 3: Drilled hole 5: Metal 7: Plastic bushing 8: Enhanced metal
<b>Rear connector</b> <i>(Refer to Page 4)</i>	2: Metal
<b>Positioning feedback</b>	Blank: None HS3: Hall effect sensor x 1 HS4: Hall effect sensor x 2
<b>Option</b> <i>(Multiple choice is allowed)</i>	Blank: None PO: Mechanical push only extension tube BK: Mechanical brake
<b>Cable length</b>	0: 300mm straight 1: 1000mm straight 2: 450mm with 300mm coiled

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