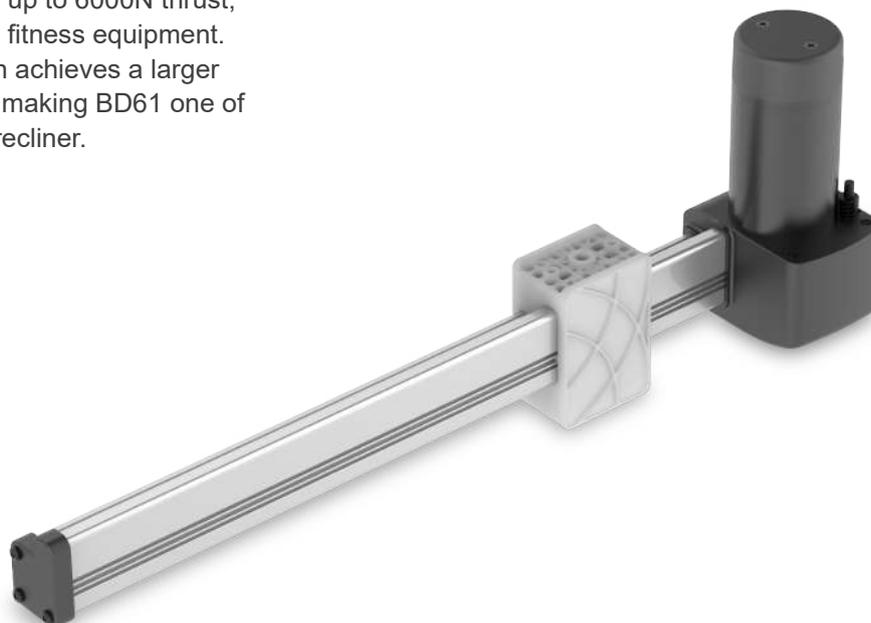


# Actuator

## BD61

BD61 is a quiet and powerful actuator up to 6000N thrust, designed for furniture, home care and fitness equipment. The design of slider-type linear motion achieves a larger stroke with a smaller installation size, making BD61 one of the ideal driving solutions for electric recliner.



### Features and Options

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**Main applications:** Furniture, Home care, Fitness equipment

**Standard features:**

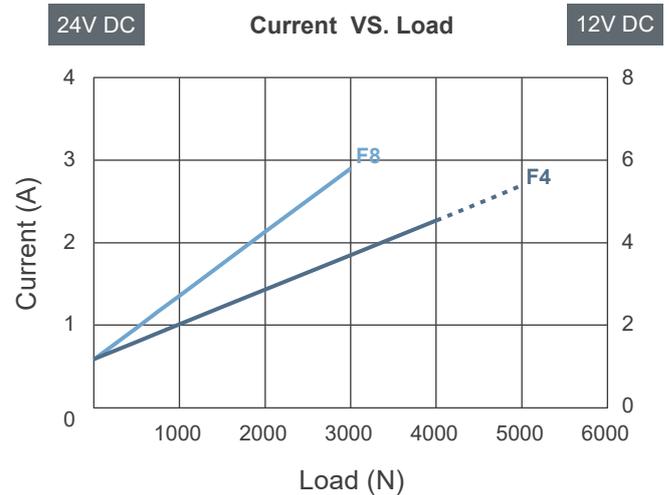
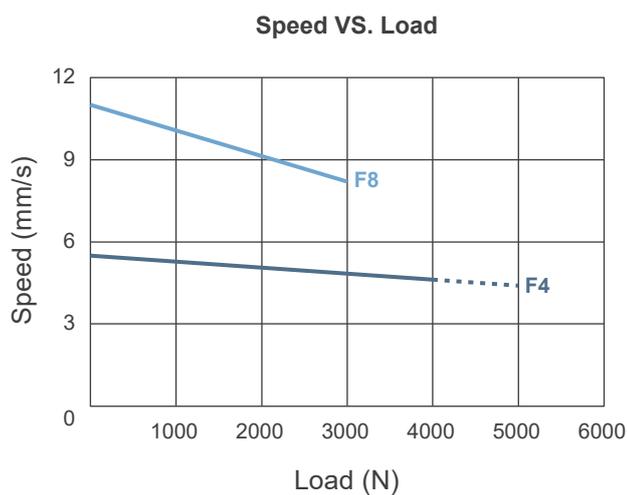
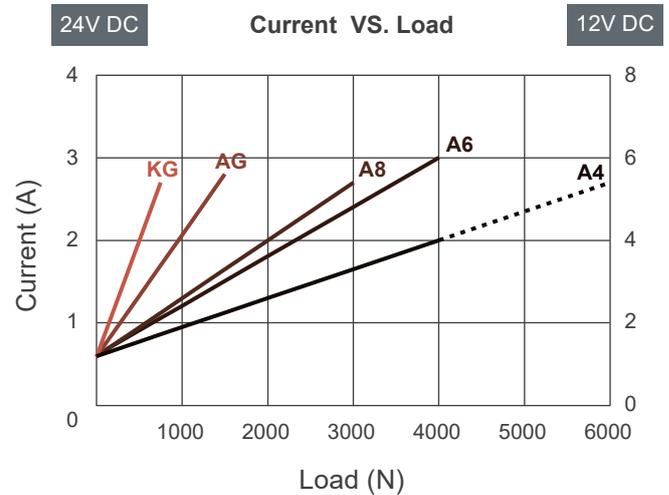
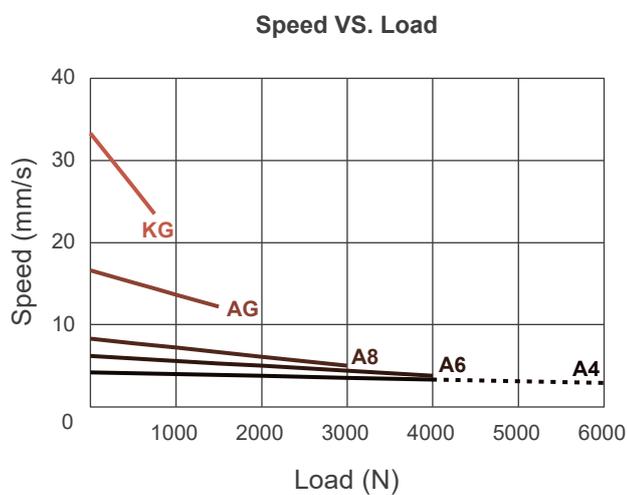
- Input voltage: 24V DC / 12V DC
- Max. load: 6000N (Push) / 4000N (Pull)
- Max. speed at no load: 33.3mm/sec (Typical value)
- Speed at full load: 2.9mm/sec (Typical value @6000N loaded)
- Stroke: 100 ~ 1000mm
- Noise level:  $\leq 53$ dB
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -20°C ~ +65°C
- Compliant with CE Marking, EMC Directive 2014/30/EU (for 24V DC motor)

**Options:**

- Positioning signal feedback with Hall effect sensor x 1
- Positioning signal feedback with Hall effect sensor x 2
- Mechanical brake
- Mounting bracket

## 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
BD61-XX-A4	6000	4000	5000	4.2	2.9	0.8	0.6	5.4	2.7
BD61-XX-A6	4000	4000	2500	6.2	3.8	0.4	0.6	6.0	3.0
BD61-XX-A8	3000	3000	2000	8.3	5.0	0.6	0.6	5.4	2.7
BD61-XX-AG	1500	1500	700	16.6	12.2	0.4	0.6	5.6	2.8
BD61-XX-KG	750	750	0	33.3	23.5	0.4	0.6	5.2	2.7
BD61-XX-F4	5000	4000	5000	5.5	4.4	0.8	0.6	5.6	2.8
BD61-XX-F8	3000	3000	2000	11.0	8.2	1.0	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, which measured under room temperature and stable power. The performance curves are made with typical values.

## Dimensions

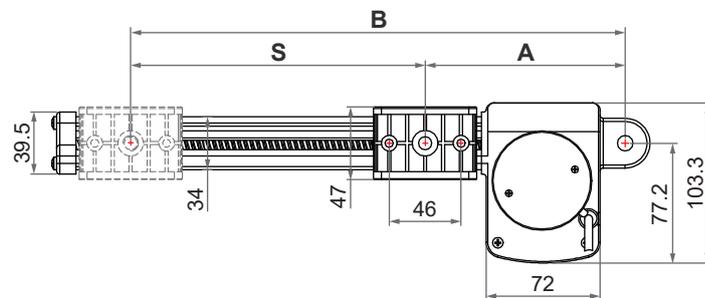
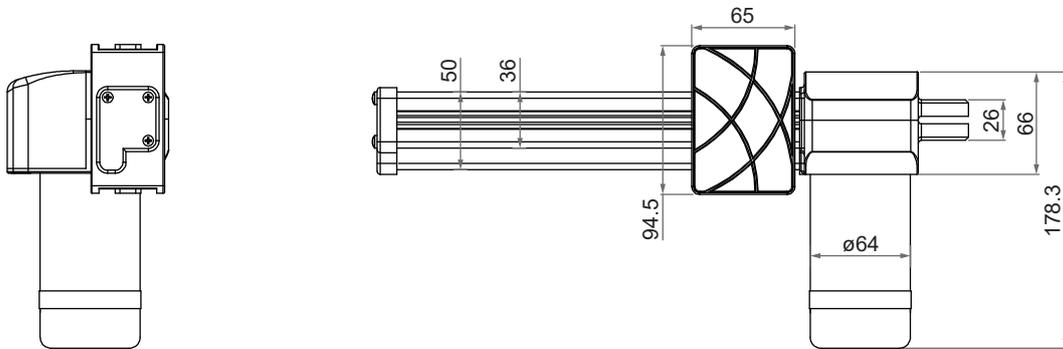
Retracted length (A) = 127mm Min. ( $\pm 3$ mm)

Available stroke (S) range = 100 ~ 1000mm

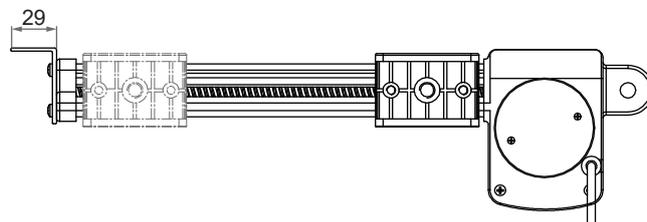
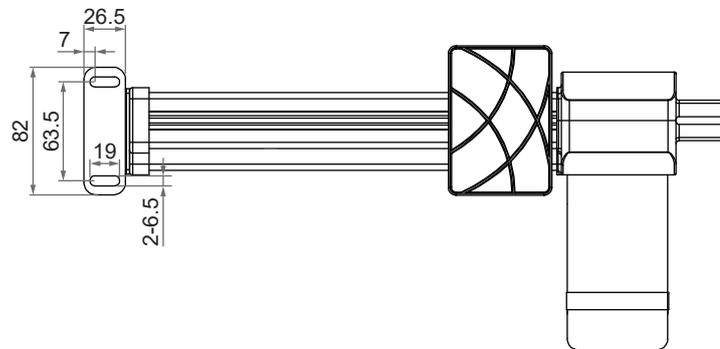
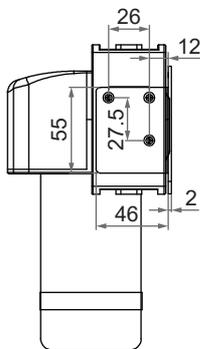
Extended length (B) = Retracted length (A) + Stroke (S)

### Drawing

- Standard

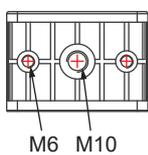


- With mounting bracket (Option)



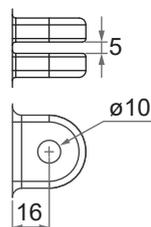
- Front connector

1: Plastic slider block



- Rear connector

1: Plastic



Unit: mm

## Compatibility

Product	Model	BD61 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>
	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>
	HB, TPSL, HS02, HZ02, HZ03, HZ04, HZ05, HZ06	<ul style="list-style-type: none"> <li>• With Moteck direct-cut power cable DL1 <sup>(2)</sup></li> </ul>
<b>Accessory</b>	Power adapter: DPA-58-2920-C8 (formerly TSW1), DPA-87-2930-C6 (formerly TSW3), WPA-29-2910-SR (formerly TSW4), DPA-87-2930-C8	<ul style="list-style-type: none"> <li>• With Moteck direct-cut power cable DL1</li> </ul>

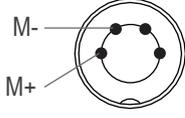
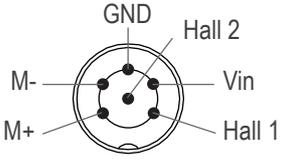
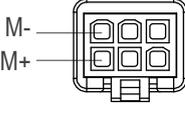
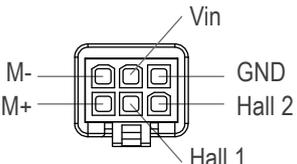
### Remarks:

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

(2) The actuator is connected to the hand control through the DL1 cable directly, no control box.

# Cable Plug

## A. Connecting control devices that provide power

	Without positioning feedback	Positioning feedback with dual Hall effect sensors
 Moteck F-type DIN male plug	 4p2c	 6p6c
 Moteck L3-type Minifit male plug	 6p2c	 6p6c
 Moteck S-type DIN 41529 male plug	 2p2c	N/A

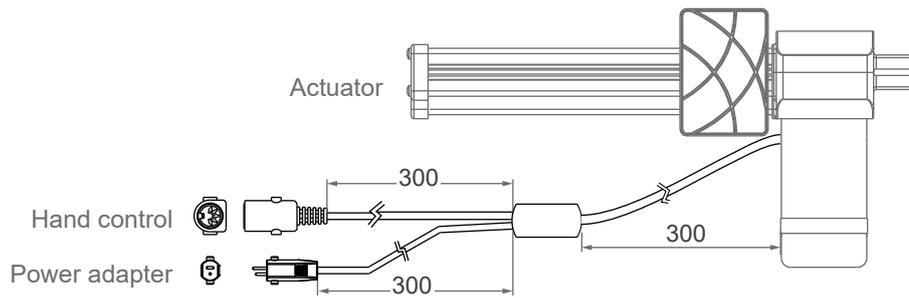
**Note:** Pin definition

	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: 																
	Hall 2 output	Hall effect sensor resolution: <table border="1" data-bbox="443 1693 1193 2047"> <thead> <tr> <th>Model No.</th> <th>Resolution (pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>BD61-XX-A4-XXX.XXX-CXX-HSX</td> <td>10.0</td> </tr> <tr> <td>BD61-XX-F4-XXX.XXX-CXX-HSX</td> <td>10.0</td> </tr> <tr> <td>BD61-XX-A4-XXX.XXX-CXX-HSX</td> <td>6.67</td> </tr> <tr> <td>BD61-XX-A8-XXX.XXX-CXX-HSX</td> <td>5.0</td> </tr> <tr> <td>BD61-XX-F8-XXX.XXX-CXX-HSX</td> <td>5.0</td> </tr> <tr> <td>BD61-XX-AG-XXX.XXX-CXX-HSX</td> <td>2.5</td> </tr> <tr> <td>BD61-XX-KG-XXX.XXX-CXX-HSX</td> <td>1.25</td> </tr> </tbody> </table>	Model No.	Resolution (pulses/mm)	BD61-XX-A4-XXX.XXX-CXX-HSX	10.0	BD61-XX-F4-XXX.XXX-CXX-HSX	10.0	BD61-XX-A4-XXX.XXX-CXX-HSX	6.67	BD61-XX-A8-XXX.XXX-CXX-HSX	5.0	BD61-XX-F8-XXX.XXX-CXX-HSX	5.0	BD61-XX-AG-XXX.XXX-CXX-HSX	2.5	BD61-XX-KG-XXX.XXX-CXX-HSX	1.25
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BD61-XX-AG-XXX.XXX-CXX-HSX	2.5																	
BD61-XX-KG-XXX.XXX-CXX-HSX	1.25																	
GND																		

## B. Connecting control devices that DO NOT provide power

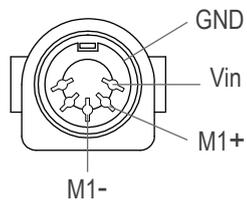
### 1. Cable solution

- With direct-cut power cable DL1



### 2. Hand control connector: Moteck U-type DIN 5-pin female connector

- 1 drive

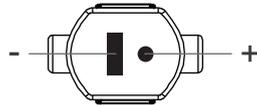


**Note:** Connect M1+ to "Vdc +" & M1- to "Vdc -" of DC power to extend the M1 actuator. Switch the polarity of DC input to retract it.



U-type female connector

### 3. Power connector: Moteck S-type DIN 41529 2-pin male plug



S-type male plug

## Cable with Flying Leads

- Basic, without positioning feedback.

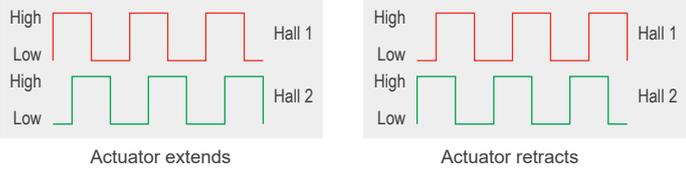
	Wire color	Definition	Descriptions
Power wires	White	DC Power	Connect white wire to "Vdc +" & black wire to "Vdc -" of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		

- 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	High= Input - 1.2V ( $\pm 0.6V$ ) Low= GND Hall signal data:
			
			Hall effect sensor resolution:
Black	GND		

Model No.	Resolution (pulses/mm)
BD61-XX-A4-XXX.XXX-CXX-HS1	10.0
BD61-XX-F4-XXX.XXX-CXX-HS1	10.0
BD61-XX-A4-XXX.XXX-CXX-HS1	6.67
BD61-XX-A8-XXX.XXX-CXX-HS1	5.0
BD61-XX-F8-XXX.XXX-CXX-HS1	5.0
BD61-XX-AG-XXX.XXX-CXX-HS1	2.5
BD61-XX-KG-XXX.XXX-CXX-HS1	1.25

• 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.																
	Brown																		
Signal wires	Yellow	Vin	Voltage input range: 5 ~ 20V																
	Red	Hall 1 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" data-bbox="678 728 1428 1086"> <thead> <tr> <th>Model No.</th> <th>Resolution (pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>BD61-XX-A4-XXX.XXX-CXX-HS2</td> <td>10.0</td> </tr> <tr> <td>BD61-XX-F4-XXX.XXX-CXX-HS2</td> <td>10.0</td> </tr> <tr> <td>BD61-XX-A4-XXX.XXX-CXX-HS2</td> <td>6.67</td> </tr> <tr> <td>BD61-XX-A8-XXX.XXX-CXX-HS2</td> <td>5.0</td> </tr> <tr> <td>BD61-XX-F8-XXX.XXX-CXX-HS2</td> <td>5.0</td> </tr> <tr> <td>BD61-XX-AG-XXX.XXX-CXX-HS2</td> <td>2.5</td> </tr> <tr> <td>BD61-XX-KG-XXX.XXX-CXX-HS2</td> <td>1.25</td> </tr> </tbody> </table>	Model No.	Resolution (pulses/mm)	BD61-XX-A4-XXX.XXX-CXX-HS2	10.0	BD61-XX-F4-XXX.XXX-CXX-HS2	10.0	BD61-XX-A4-XXX.XXX-CXX-HS2	6.67	BD61-XX-A8-XXX.XXX-CXX-HS2	5.0	BD61-XX-F8-XXX.XXX-CXX-HS2	5.0	BD61-XX-AG-XXX.XXX-CXX-HS2	2.5	BD61-XX-KG-XXX.XXX-CXX-HS2	1.25
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BD61-XX-KG-XXX.XXX-CXX-HS2	1.25																		
Green	Hall 2 output																		
Black	GND																		

## Ordering Key

<b>BD61- 24 - AG - 135 . 1135 -C 1 1 - HS2 - BK - 1</b>	
<b>Input voltage</b>	<b>12:</b> 12V DC <b>24:</b> 24V DC
<b>Motor and Spindle type</b>	<b>A4:</b> 2500rpm / 4mm pitch <b>A6:</b> 2500rpm / 6mm pitch <b>A8:</b> 2500rpm / 8mm pitch <b>AG:</b> 2500rpm / 16mm pitch <b>KG:</b> 2500rpm / 16mm pitch <b>F4:</b> 3300rpm / 4mm pitch <b>F8:</b> 3300rpm / 8mm pitch
<b>Retracted length</b> (Refer to Page 3)	<b>XXX</b>
<b>Extended length</b> (Refer to Page 3)	<b>XXX</b>
<b>Front connector</b> (Refer to Page 3)	<b>1:</b> Plastic slider block
<b>Rear connector</b> (Refer to Page 3)	<b>1:</b> Plastic
<b>Positioning feedback</b>	<b>Blank:</b> None <b>HS1:</b> Hall effect sensor x 1 <b>HS2:</b> Hall effect sensor x 2
<b>Option</b> (Multiple choice is allowed)	<b>Blank:</b> None <b>BK:</b> Mechanical brake <b>L:</b> Mounting bracket
<b>Cable</b>	<b>0:</b> 300mm straight <b>1:</b> 1000mm straight <b>2:</b> 450mm with 300mm coiled <b>A:</b> Direct-cut power cable DL1 (Refer to Page 6)