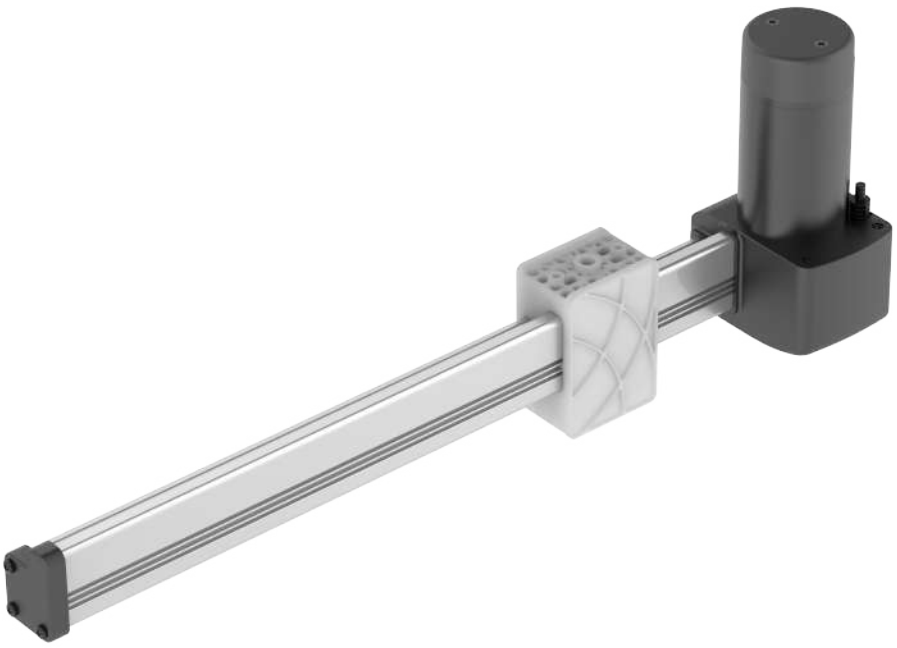
Actuator
BD61



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.

Content

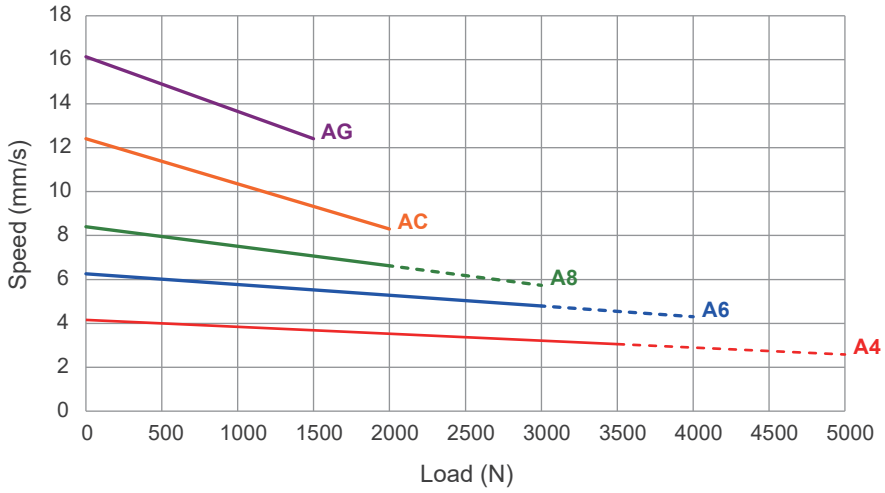
Features and Options

- Main applications: Furniture, Home care, Fitness equipment
- Input voltage: 24V DC
- Max. load: 5000N (Push) / 3500N (Pull)
- Max. speed at no load: 16.1mm/sec (Typical value)
- Max. speed at no load: 2.6mm/sec (Typical value @5000N loaded)
- Stroke: 100～1000mm
- Noise level: ≦53dB
- Preset limit switches
- Positioning:
  - Optional digital positioning feedback with dual Hall effect sensors
  - Optional digital positioning feedback with single Hall effect sensor
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -20°C～+65°C
- Storage ambient temperature: -25°C～+65°C
- Optional Mechanical brake
- Optional Mounting bracket

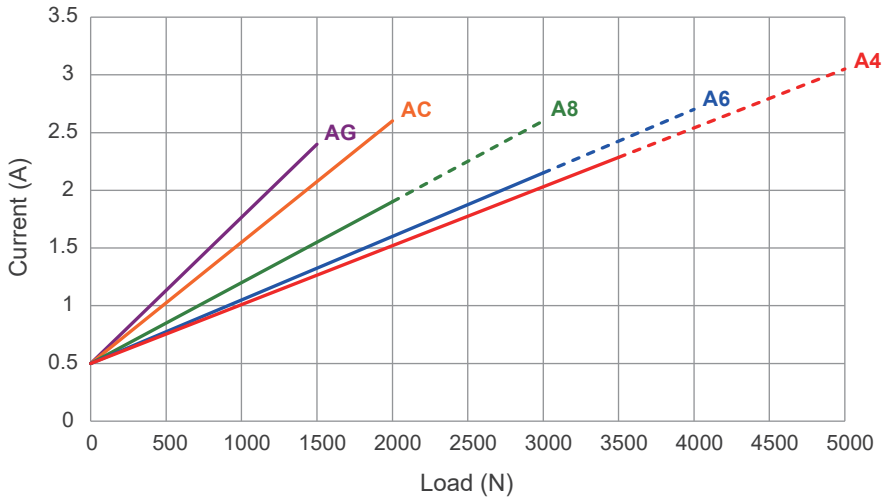
Performance Data

Model No.	Push Max. (N)	Pull Max. (N)	* Type speed (mm/s)		* Type current (A)	
			No load	Full load	No load	Full load
BD61-XX-**A4**-XXX.XXX-CXX-X	5000	3500	4.2	2.6	0.5	3.1
BD61-XX-**A6**-XXX.XXX-CXX-X	4000	3000	6.3	4.3	0.5	2.7
BD61-XX-**A8**-XXX.XXX-CXX-X	3000	2000	8.4	5.7	0.5	2.6
BD61-XX-**AC**-XXX.XXX-CXX-X	2000	2000	12.4	8.3	0.5	2.6
BD61-XX-**AG**-XXX.XXX-CXX-X	1500	1500	16.1	12.4	0.5	2.4

Speed vs. Load



Current vs. Load



Push / Pull Load (N) ——— Push Load (N) - - - - -

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 BD61 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.

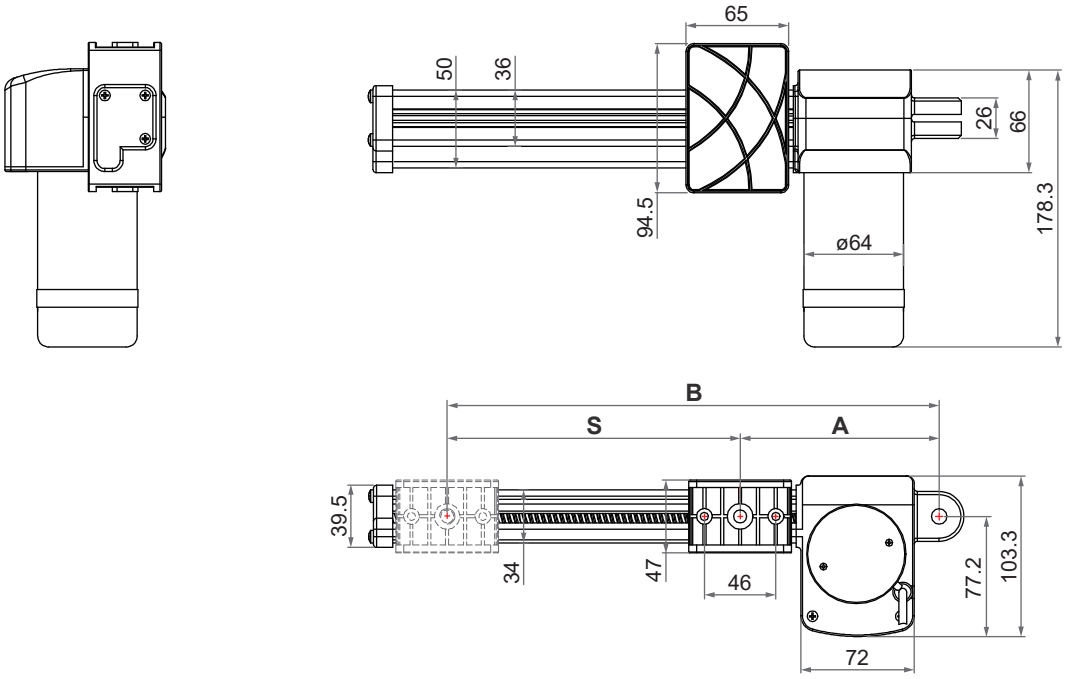
Dimensions

1. Installation dimension

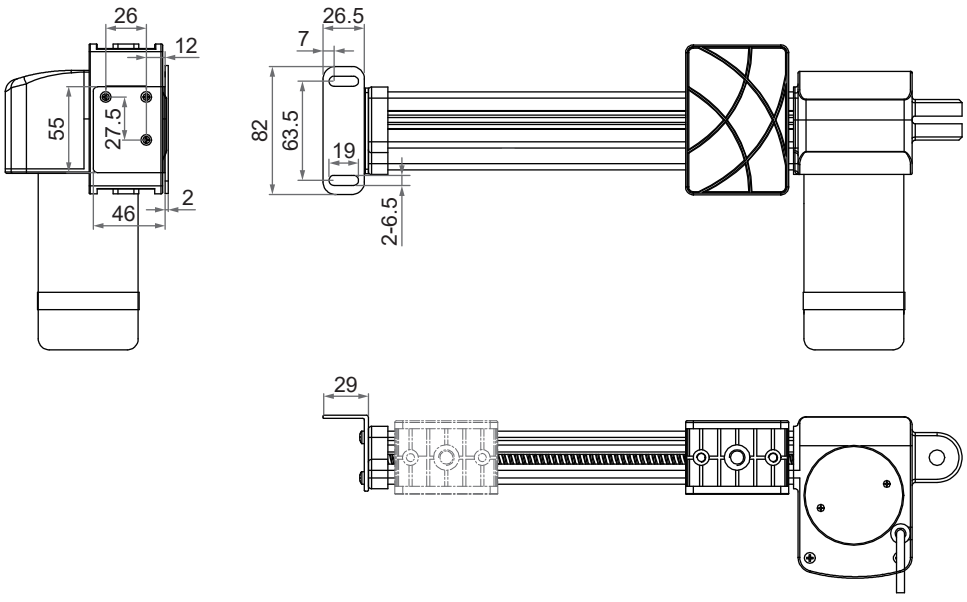
- Retracted length (A) = 127mm Min. (±3mm)
- Available stroke (S) range = 100～1000mm
- Extended length (B) = Retracted length (A) + Stroke (S)

2. Drawing

- Standard

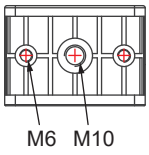


- With mounting bracket (Option)



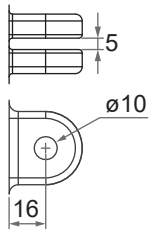
3. Front connector

1=Plastic slider block



4. Rear connector

1=Plastic



Unit: mm

Compatibility

Product	Model	Application condition (1)	BD61 spec
Control box	T-control, CS1, CS2, CB3T, CB4M, CBT2	Max. 3A current per channel	• Without positioning sensor • With Moteck F-type DIN male plug
	CF11H, CF12H	Max. 3.6A current per channel	• Without positioning sensor • With Moteck L3-type minifit male plug
	CB3T-SY	Max. ≦5A current 2 channels	• With dual Hall effect sensors for positioning • With Moteck F-type DIN male plug
	CB4M-S, CB4M-B	Max. 3A current per channel	
	CF11S	Max. ≦6A current 2 channels	• With dual Hall effect sensors for positioning • With Moteck L3-type minifit male plug
	CF12S	Max. 3A current per channel	
Hand control	Depend on control box		• Powered by control box
	HS15, H2B, H2G		• With Moteck S-type DIN 41529 male plug (2)
	HB, TPSL, HS02, HZ02, HZ03, HZ04, HZ05, HZ06		• With Moteck direct-cut power cable DL1 (3)
Accessory	Power adapter: DPA-58-2920-C8, DPA-87-2930-C6, WPA-29-2910-NA, DPA-87-2930-C8		• With Moteck direct-cut power cable DL1

Remarks:

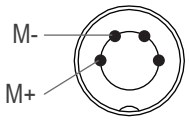
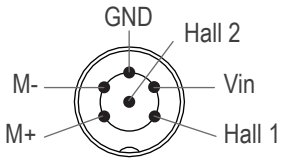
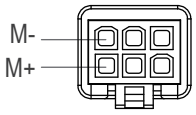
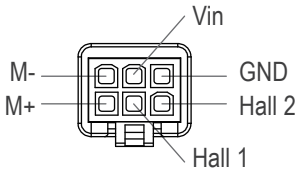
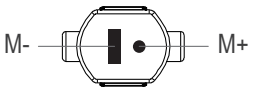
(1) If the current limit of the selected control box is lower than the typical current of the actuator model under full load, the actuator could not be operated in full performance.

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

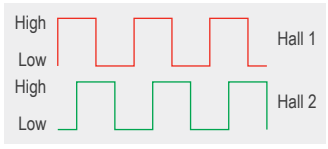
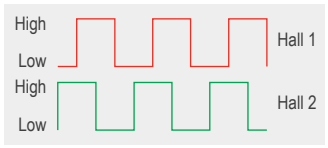
(3) The actuator is connected to the hand control through the DL1 cable directly, no control box.

Cable Plug

1. 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

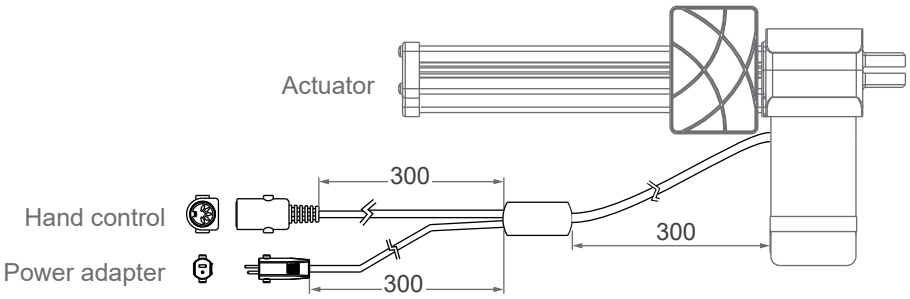
	Definition	Descriptions
Power	M+	Connect M+ to “Vdc +” & M- to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	M-	
Signal	Vin	Voltage input range: 5~20V
	Hall 1 output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data: Actuator extends  Actuator retracts  Hall effect sensor resolution:
	Hall 2 output	
	GND	

Model No.	Resolution (Pulses/mm)
BD61-XX-A4-XXX.XXX-CXX-HSX	10.0
BD61-XX-A6-XXX.XXX-CXX-HSX	6.667
BD61-XX-A8-XXX.XXX-CXX-HSX	5.0
BD61-XX-AC-XXX.XXX-CXX-HSX	3.333
BD61-XX-AG-XXX.XXX-CXX-HSX	2.5

2. Connecting control devices that DO NOT provide power

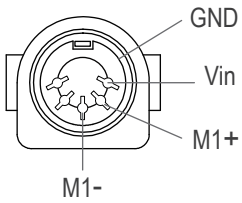
(1) Cable solution

● With direct-cut power cable DL1



(2) Hand control connector: Moteck U-type DIN 5-pin female connector

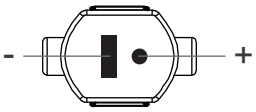
● 1 drive



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

1. Basic, without positioning feedback.

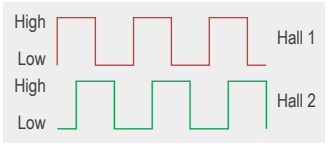
	Wire color	Definition	Descriptions
Power wires	White	DC Power	Connect white wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		

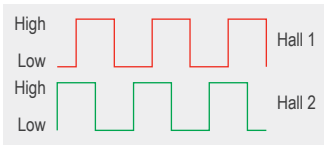
2. With single Hall effect sensor for positioning

	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 (±0.6V) Low= GND Hall signal data:  Hall effect sensor resolution:
	Black	GND	

Model No.	Resolution (Pulses/mm)
BD61-XX-A4-XXX.XXX-CXX-HSX	10.0
BD61-XX-A6-XXX.XXX-CXX-HSX	6.667
BD61-XX-A8-XXX.XXX-CXX-HSX	5.0
BD61-XX-AC-XXX.XXX-CXX-HSX	3.333
BD61-XX-AG-XXX.XXX-CXX-HSX	2.5

3. With dual Hall effect sensors for positioning

<table>
<tr><th></th><th>Wire color</th><th>Definitions</th><th>Descriptions</th></tr>
<tr><td rowspan="2">Power wires</td><td>Blue
Brown</td><td>DC Power</td><td>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.</td></tr>
<tr><td rowspan="4">Signal wires</td><td>Yellow</td><td>Vin</td><td>Voltage input range: 5~20V</td></tr>
<tr><td>Red</td><td>Hall 1 output</td><td rowspan="2">High= Input - 1.2V (±0.6V)
Low= GND
Hall signal data:
Actuator extends
 

Actuator retracts
 

Hall effect sensor resolution:
<table>
<tr><th>Model No.</th><th>Resolution (Pulses/mm)</th></tr>
<tr><td>BD61-XX-A4-XXX.XXX-CXX-HSX</td><td>10.0</td></tr>
<tr><td>BD61-XX-A6-XXX.XXX-CXX-HSX</td><td>6.667</td></tr>
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<tr><td>BD61-XX-AC-XXX.XXX-CXX-HSX</td><td>3.333</td></tr>
<tr><td>BD61-XX-AG-XXX.XXX-CXX-HSX</td><td>2.5</td></tr>
</table></td></tr>
<tr><td>Green</td><td>Hall 2 output</td></tr>
<tr><td>Black</td><td>GND</td><td></td></tr>
</table>

Ordering Key

BD61- 24 - AG - 135 . 1135 -C 1 1 - HS2 - BK - 1

Input voltage	**24**: 24V DC
Motor and Spindle type	**A4:** 2500rpm / 4mm pitch **A6:** 2500rpm / 6mm pitch **A8:** 2500rpm / 8mm pitch **AC:** 2500rpm / 12mm pitch **AG:** 2500rpm / 16mm pitch
Retracted length (Refer to Page 6)	**XXX**
Extended length (Refer to Page 6)	**XXXX**
Front connector (Refer to Page 6)	**1**: Plastic slider block
Rear connector (Refer to Page 6)	**1**: Plastic
Positioning feedback	**Blank**: None **HS1**: Hall effect sensor x 1 **HS2**: Hall effect sensor x 2
Option (Multiple choice is allowed)	**Blank**: None **BK**: Mechanical brake **L**: Mounting bracket
Cable	**0**: 300mm straight **1**: 1000mm straight **2**: 450mm with 300mm coiled **A**: Direct-cut power cable DL1 (Refer to Page 9)