

Actuator

FD60

FD60 is a quiet and powerful actuator up to 6000N thrust, designed for use in furniture application. Our T control box, which can be perfectly attached and integrated to FD60, is available for customers to choose.



Features

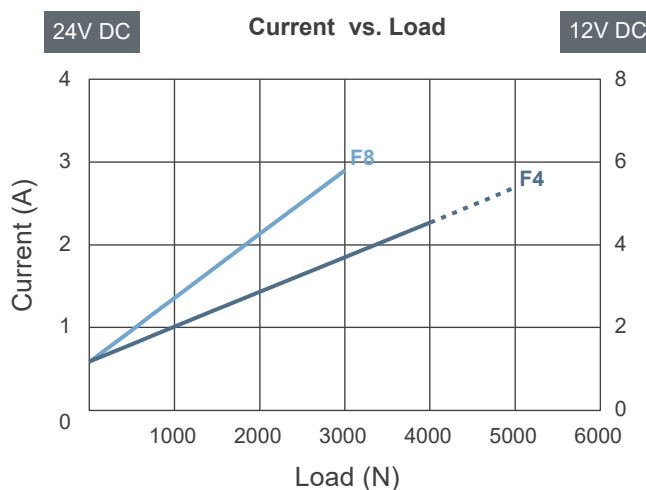
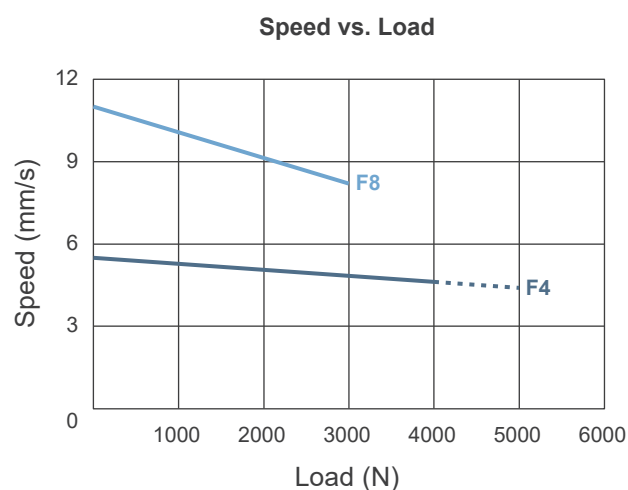
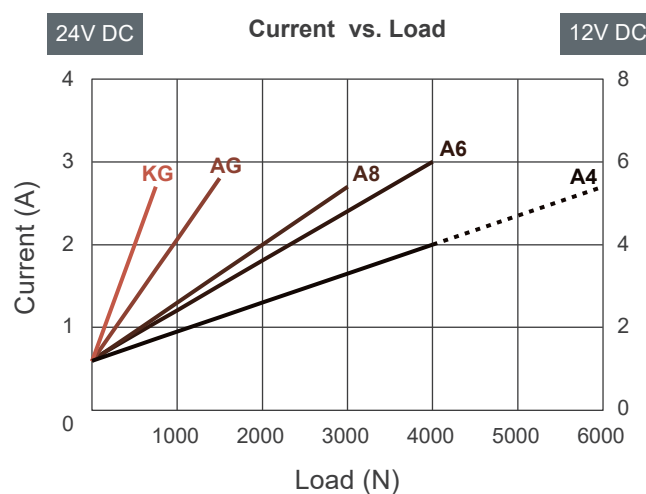
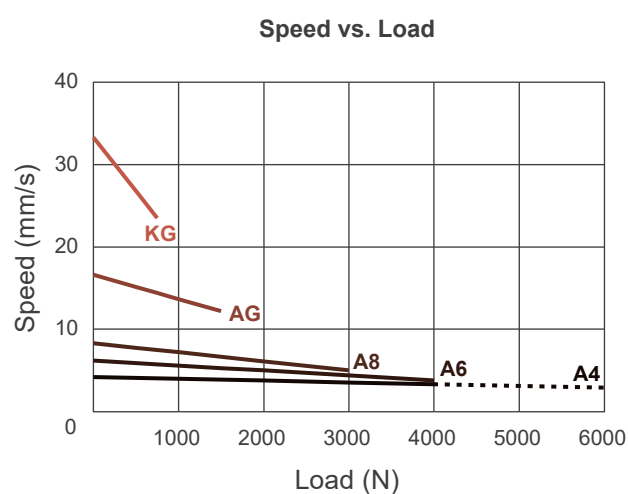
- Main applications: Furniture
- Input voltage: 24V DC / 12V DC
- Max. load: 6000N (push) / 4000N (pull)
- Typical speed at no load: 33.3 mm/sec
- Typical speed at full load: 2.9 mm/sec (6000N load)
- Stroke: 50 ~ 300 mm
- Noise level: ≤ 50 dB
- IP Protection level: IP42
- Color: Black
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Ambient operation temperature: -20°C ~ +65°C
- Certified: CE Marking, EMC Directive 2014/30/EU,
UL 962 Standard for Household and Commercial Furnishings.

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
- Turn 90° Pivot orientation of rear connector

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
FD60-XX-A4	6000	4000	5000	4.2	2.9	0.8	0.6	5.4	2.7
FD60-XX-A6	4000	4000	2500	6.2	3.8	0.4	0.6	6.0	3.0
FD60-XX-A8	3000	3000	2000	8.3	5.0	0.6	0.6	5.4	2.7
FD60-XX-AG	1500	1500	700	16.6	12.2	0.4	0.6	5.6	2.8
FD60-XX-KG	750	750	0	33.3	23.5	0.4	0.6	5.2	2.7
FD60-XX-F4	5000	4000	5000	5.5	4.4	0.8	0.6	5.6	2.8
FD60-XX-F8	3000	3000	2000	11.0	8.2	1.0	0.6	5.8	2.9



Push / Pull Load — Push Load - - -

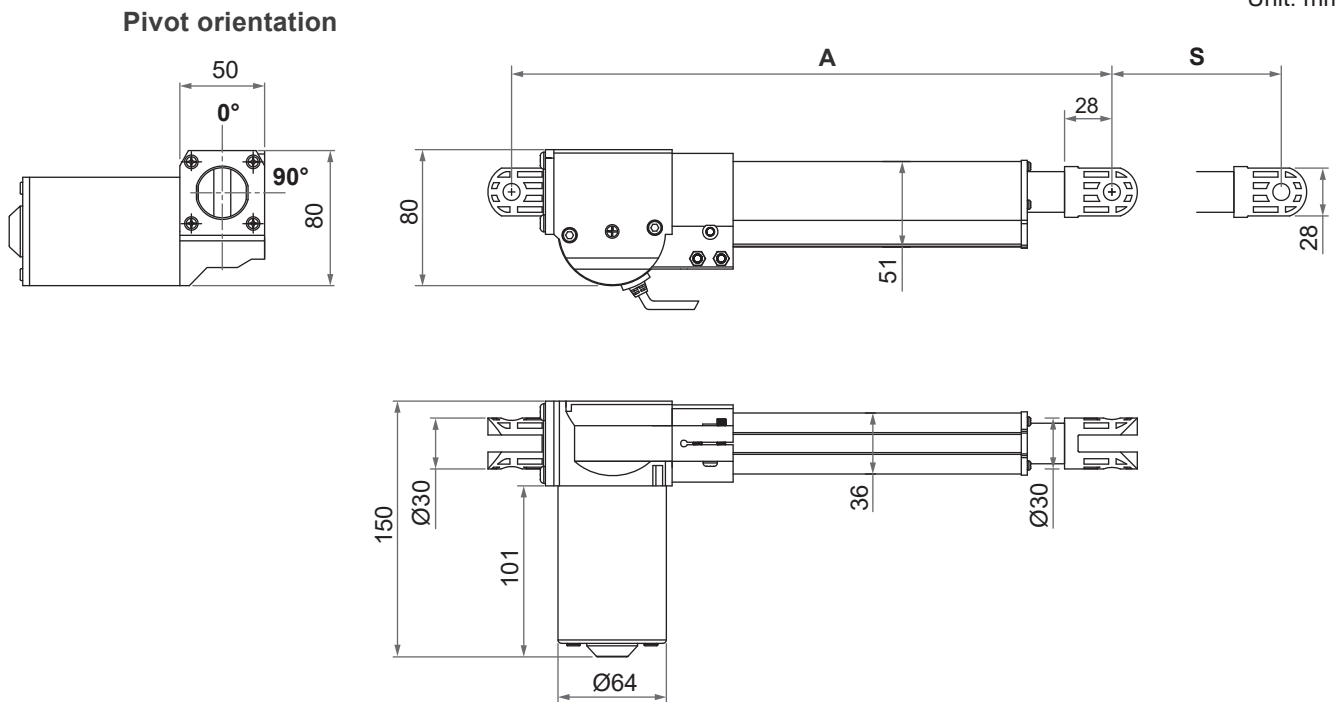
Remarks:

* 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. The performance curves are made with typical values.

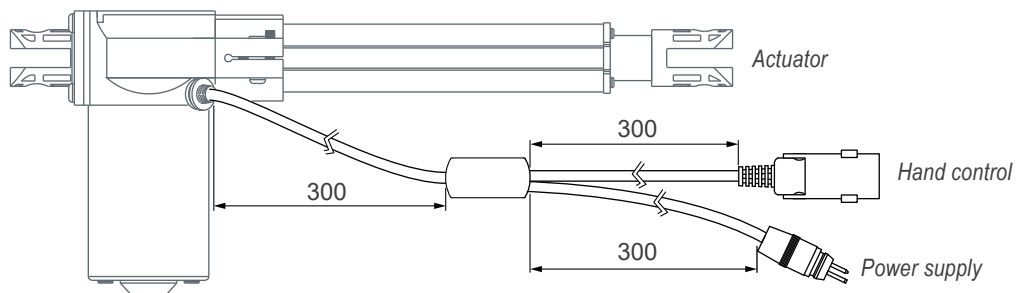
Dimensions

Unit: mm

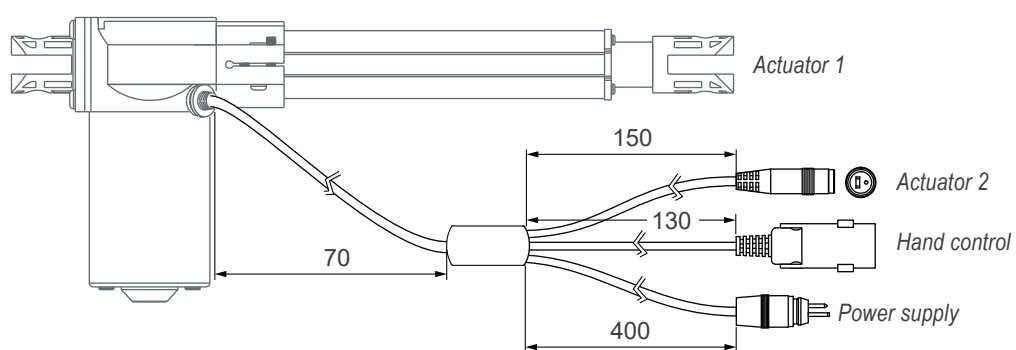


Note: As an example in 0° orientation for rear connector.

Direct-Cut cable DL2



Direct-Cut cable TL2



Installation Dimension

• Retracted length (A)

Front connector code	Rear connector code	Retracted length (A)
1, 5, 8	1, 2	$A \geq S+188\text{mm} (\pm 3\text{mm})$
2, 3, 7		$A \geq S+160\text{mm} (\pm 3\text{mm})$
1, 5, 8	5 (with crank function)	$A \geq S+198\text{mm} (\pm 3\text{mm})$
2, 3, 7		$A \geq S+170\text{mm} (\pm 3\text{mm})$

Available stroke (S) range = 50 ~ 300 mm

Extended length = S + A

• Front connector

1: Plastic

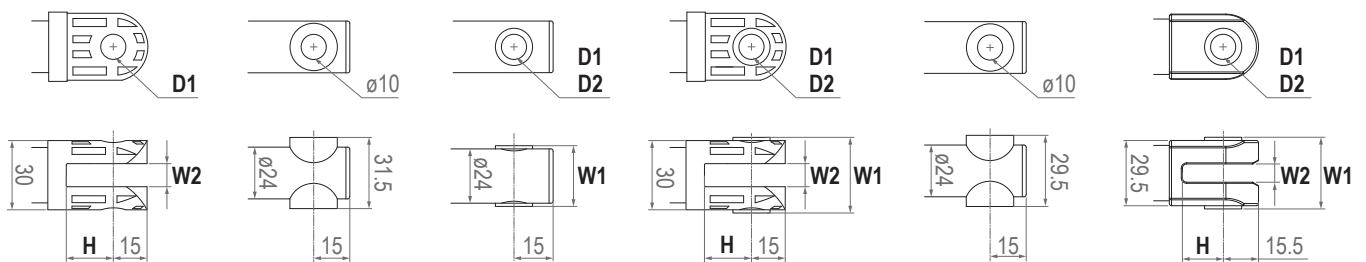
2: Drilled hole with brass bushing

3: Drilled hole

5: Metal

7: Drilled hole with nylon bushing

8: Enhanced metal



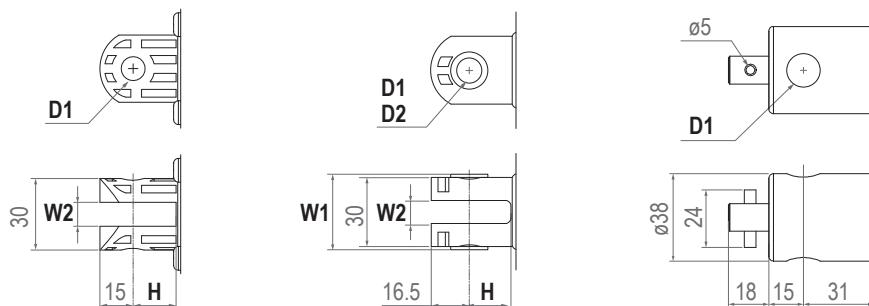
Front connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)	Width with bushing (W1)	Slot width (W2)	Slot depth (H)
1	Ø8, Ø10, Ø12	N/A	N/A	10	20
2	N/A	N/A	N/A	N/A	N/A
3	Ø8, Ø10, Ø12, Ø14	Ø8, Ø10	26	N/A	N/A
5	Ø8, Ø10, Ø12	Ø8, Ø10	32	10	20
7	N/A	N/A	N/A	N/A	N/A
8	Ø10, Ø12	Ø8, Ø10	31.5	8	19.5

• Rear connector

1: Plastic

2: Metal

5: Metal (with crank function)



Rear connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)	Width with bushing (W1)	Slot width (W2)	Slot depth (H)
1	Ø8, Ø10, Ø12	N/A	N/A	6, 10	17
2	Ø8, Ø10, Ø12	Ø8, Ø10	32	6, 10	17
5	Ø14.5	N/A	N/A	N/A	N/A

Compatibility

Product	Model	FD60 spec
Control box	T-control, CS1, CS2, CB3T, CB4M, CBT2, CBTR	- Without Hall effect sensor - With Moteck F-type 4-pin DIN plug
	CF11H, CF12H	- Without positioning sensor - With Moteck L3-type minifit 6-pin plug
	CB3T-SY, CB4M-S, CB4M-B	- With dual Hall effect sensors - With Moteck F-type 6-pin DIN plug
	CB3T-SYD	- 12V DC motor - With dual Hall effect sensors - With Moteck F-type 6-pin DIN plug
	CF12S, CF15	- With dual Hall effect sensors - With Moteck L3-type minifit 6-pin plug
Hand control	Depend on control box	- Powered by control box
	H3B, HS01, HZ01	- With Moteck Direct-Cut cable TL2*
	HB, H2G, HZ02, HZ03, HZ04, HZ05, HZ06	- With Moteck Direct-Cut cable DL2*
Accessory	TSW1 Switching mode power supply	- With Moteck Direct-Cut cable DL2 or TL2

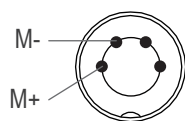
Remarks:

* Connect Direct-Cut cable to DC power supply and hand control directly, no control box.

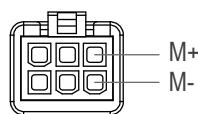
Cable Plug

With Moetck F-type or L3-type plug (Required to be connected to the control box):

- Without Hall effect sensor

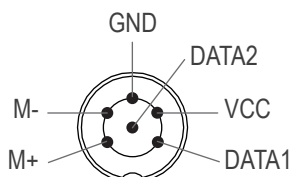


F-type 4-pin DIN plug

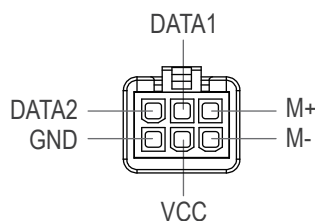


L3-type Minifit 6-pin plug

- With dual Hall effect sensors



F-type 6-pin DIN plug



L3-type Minifit 6-pin plug

F-type



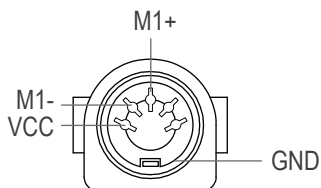
L3-type

Note: Connect Pin (M+) to "+" & Pin (M-) to "-" of DC power, the actuator will extend.

With Direct-Cut cable DL2 or TL2 (NOT required to be connected to any control box):

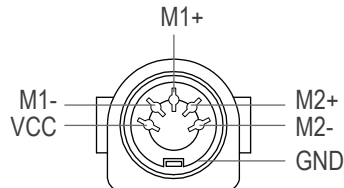
- Hand control connector: with Moteck U-type female connector

1 drive



5-pin connector
(Moteck pinout: C-DIN-51H)

2 drives



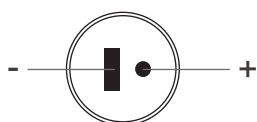
5-pin connector
(Moteck pinout: C-DIN-52H)



U-type

Note: Connect pin (M1+) to "+" & pin (M1-) to "-" of DC power, the M1 actuator will extend. Definition of M2 actuator is the same.

- Power plug: with Moteck R-type male plug

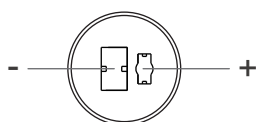


DIN 41529 plug



R-type

- Connector for 2nd actuator: with Moteck R-type female connector (for TL2 only)



DIN 41529 connector



R-type

Wiring

Wire definitions:

• Without positioning sensor feedback

Power	
White	Black
M+	M-

Note:

1. Connect White(M+) to '+' & Black(M-) to '-' of DC power, the actuator will extend.

• With Hall effect sensor

Single Hall effect sensor

Power		Signal		
Blue	Brown	Black	Yellow	Red
M+	M-	GND	VCC	DATA

Dual Hall effect sensors

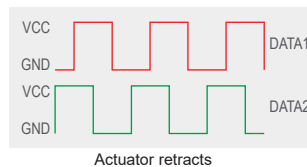
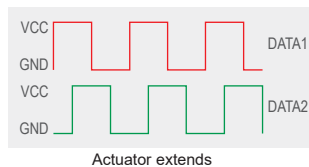
Power		Signal			
Blue	Brown	Black	Yellow	Red	Green
M+	M-	GND	VCC	DATA1	DATA2

Note:

1. Connect Blue(M+) to '+' & Brown(M-) to '-' of DC power, the actuator will extend.
2. Hall effect sensor resolution

Model No.	Resolution (pulses/mm)
FD60-XX-A4-XXX.XXX-CXX-HSX	10.0
FD60-XX-F4-XXX.XXX-CXX-HSX	10.0
FD60-XX-A6-XXX.XXX-CXX-HSX	6.67
FD60-XX-A8-XXX.XXX-CXX-HSX	5.0
FD60-XX-F8-XXX.XXX-CXX-HSX	5.0
FD60-XX-AG-XXX.XXX-CXX-HSX	2.50
FD60-XX-KG-XXX.XXX-CXX-HSX	1.25

3. Voltage input range (VCC): 3.5~20V
4. Output voltage of signal (Data) = Input voltage of VCC
5. Hall signal data



Certifications

The FD60 actuator is compliant with the following regulations, in terms of the essential conformity requirements of EMC Directive of 2014/30/EU.

Emission	Immunity
EN 55014-1:2006+A1:2009+A2:2011	EN 55014-2:1997+A1:2001+A2+:2008 Catagory I

Ordering Key

		FD60-	24	A4	350	470	C	1	2	HS3	PO-BK	A
Input voltage	12: 12V DC 24: 24V DC											
Motor and Spindle type	A4: 2500rpm / 4mm pitch A6: 2500rpm / 6mm pitch A8: 2500rpm / 8mm pitch AG: 2500rpm / 16mm pitch KG: 2500rpm / 16mm pitch F4: 3300rpm / 4mm pitch F8: 3300rpm / 8mm pitch <i>(Refer to page 2)</i>											
Retracted length	XXX <i>(Refer to page 3 & 4)</i>											
Extended length	XXX <i>(Refer to page 3 & 4)</i>											
Front connector	1: Plastic 2: Drilled hole with brass bushing 3: Drilled hole 5: Metal 7: Drilled hole with nylon bushing 8: Enhanced metal <i>(Refer to page 4)</i>											
Rear connector	1: Plastic 2: Metal 5: Metal (with crank function) <i>(Refer to page 4)</i>											
Positioning feedback	Blank: None HS3: Hall effect sensor x 1 HS4: Hall effect sensor x 2											
Option	Blank: None PO: Mechanical push only extension tube BK: Mechanical brake <i>(Note: Multiple choice is allowed)</i>											
Cable	0: 300 mm straight 1: 1000 mm straight 2: 450 mm with 300 mm coiled A: Direct-Cut cable DL2, without control box <i>(Refer to page 3)</i> B: Direct-Cut cable TL2, without control box <i>(Refer to page 3)</i>											

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