Actuator
FD40

FD40 is a compact actuator providing up to 4000N thrust, which is suitable for limited installation space. The motor can be placed on the left or right side according to requirements, and various performance options are also available.

Features and Options

Main applications: Furniture, medical care

Standard features:

- Input voltage: 24V DC
- Max. load: 4000N (Push) / 2000N (Pull)
- Typical speed at no load: 30.3mm/sec
- Typical speed at full load: 4.0mm/sec (4000N load)
- Stroke: 50 ~ 400mm
- Noise level: ≦50dB
- 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: CE Marking, EMC Directive 2014/30/EU
- Mechanical brake

Options:

- Enhanced motor
- Positioning signal feedback with Hall effect sensor x 2
- Mechanical push only extension tube
- PTC thermistor for thermal protection
- Motor position on right side (standard, Fig. 1) or motor position on left side (Fig.2)

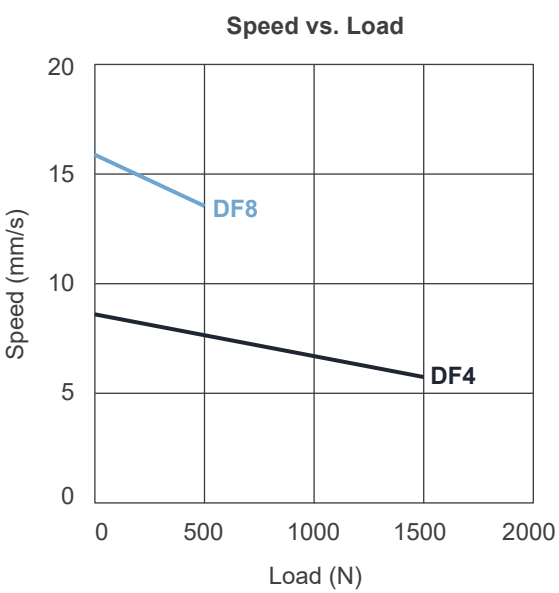
Fig.1

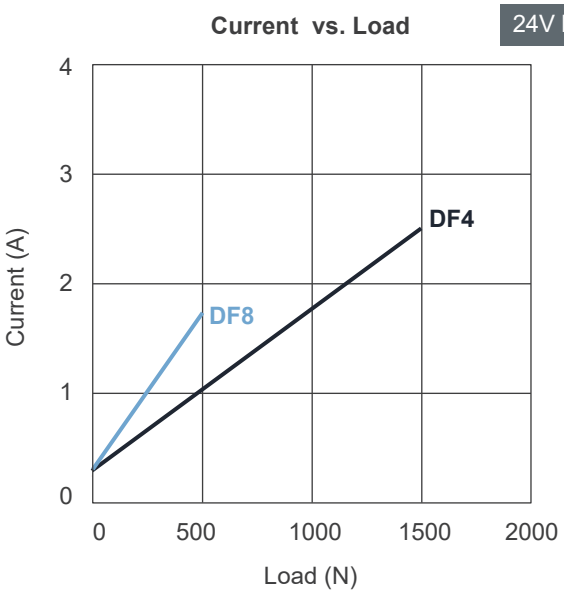
Fig.2

Performance Data

● **With default motor**

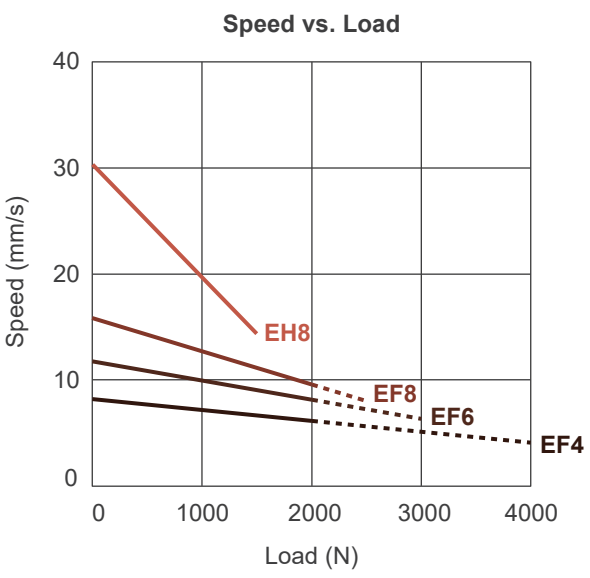
Model No.	Push Max. (N)	Pull Max. (N)	*Typical speed (mm/s)		*Typical current (A)	
			No load	Full load	No load	Full load
FD40-XX**DF4**-XXX.XXX-XXXXXXX	1500	1500	7.7	5.8	0.3	2.5
FD40-XX**DF8**-XXX.XXX-XXXXXXX	500	500	16	13.5	0.3	1.8

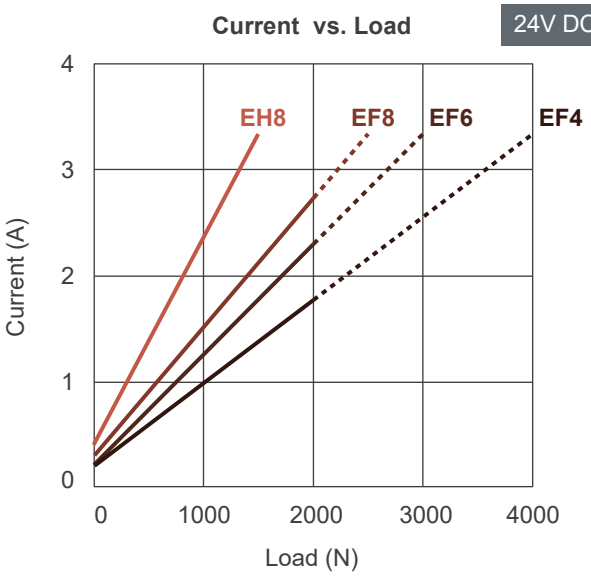




● **With enhanced motor**

Model No.	Push Max. (N)	Pull Max. (N)	*Typical speed (mm/s)		*Typical current (A)	
			No load	Full load	No load	Full load
FD40-XX**EF4**-XXX.XXX-XXXXXXX	4000	2000	8.4	4.0	0.2	3.3
FD40-XX**EF6**-XXX.XXX-XXXXXXX	3000	2000	11.9	6.3	0.2	3.3
FD40-XX**EF8**-XXX.XXX-XXXXXXX	2500	2000	15.9	8.1	0.3	3.3
FD40-XX**EH8**-XXX.XXX-XXXXXXX	1500	1500	30.3	14.3	0.4	3.3





Push / Pull Load —— Push Load - - - -

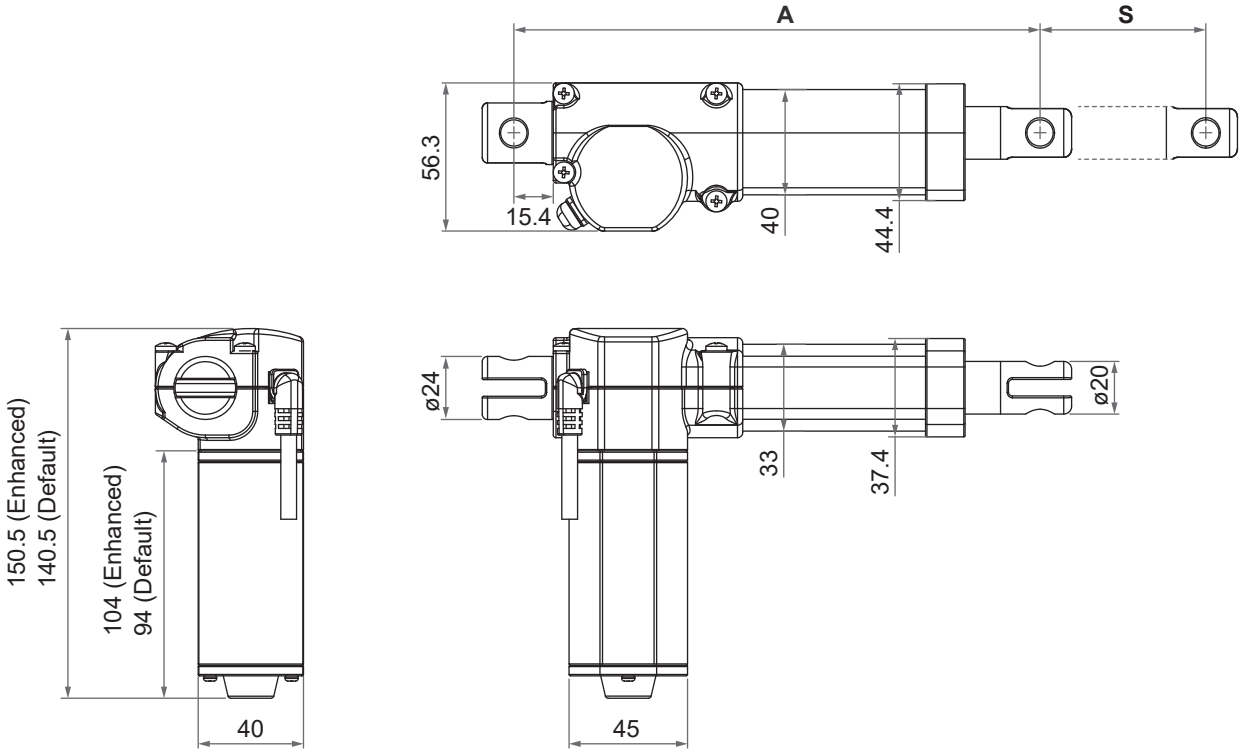
Remarks:

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

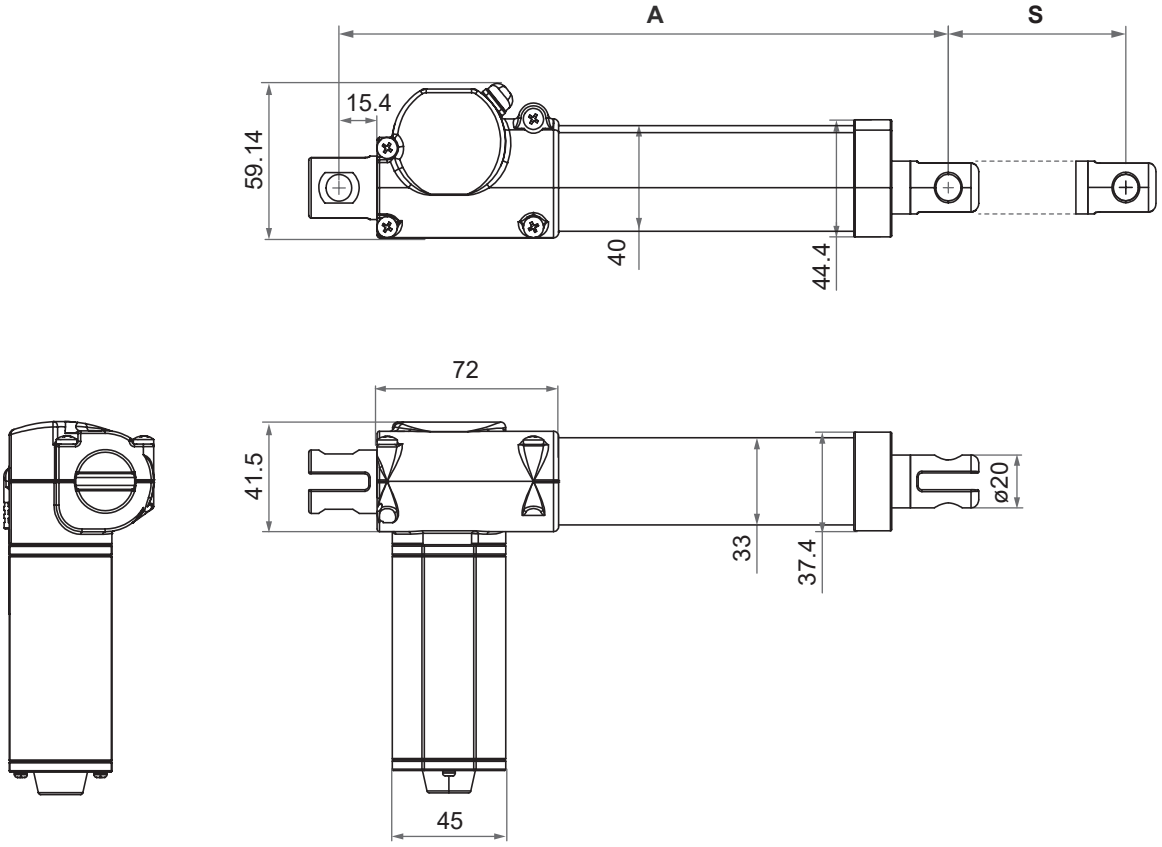
Dimensions

Unit: mm

- **Motor position on right side**



- **Motor position on left side**



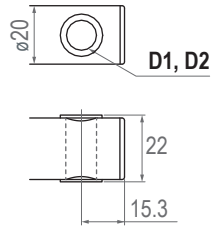
● Installation Dimension

Front connector code	Stroke (S)			
	≦200mm	201~250mm	251~300mm	301~400mm
2	A≧S+110mm (±3mm)	A≧S+120mm (±3mm)	A≧S+130mm (±3mm)	A≧S+140mm (±3mm)
3, 6	A≧S+123mm (±3mm)	A≧S+133mm (±3mm)	A≧S+143mm (±3mm)	A≧S+153mm (±3mm)

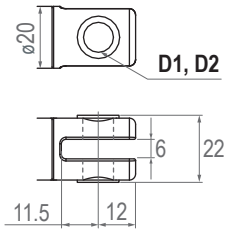
Available stroke (S) range = 50 ~ 400mm
Extended length (B) = S + A, Retracted length (A)

● Front connector

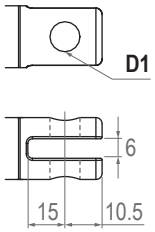
2: Drilled hole
(only for models with max. load ≦2000N)



3: Metal slot



6: Plastic slot
(only for models with max. load ≦2000N)

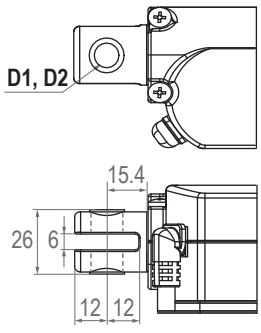


Front connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
2	Ø8, Ø10	Ø8
3	Ø8, Ø10	Ø8
6	Ø8, Ø10	N/A

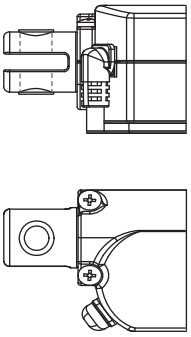
● Rear connector

2: Metal

0: 0° (standard)

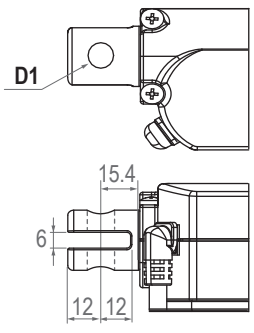


9: 90°

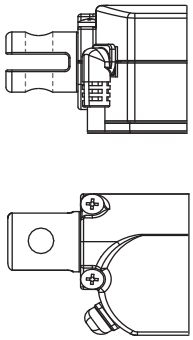


4: Plastic
(only for models with max. load ≦2000N)

0: 0° (standard)



9: 90°



Rear connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
2	Ø8, Ø10	Ø8
4	Ø8, Ø10	N/A

Compatibility

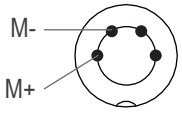
Product	Model	FD40 spec
Control box	T-control, CS1, CS2, CB3T, CB4M, CBT2	- Without positioning sensor feedback - With MOTECK F-type 4-pin DIN plug
	CF11H, CF12H	- Without positioning sensor feedback - With MOTECK L3-type minifit 6-pin plug
	CF01-S	- Without positioning sensor feedback - With MOTECK S-type DIN 41529 male plug
	CF01-R, TX2A	- Without positioning sensor feedback - With MOTECK Direct-Cut cable DL1
	CB3T-SY, CB4M-S, CB4M-B	- With dual Hall effect sensors - With MOTECK F-type 6-pin DIN plug
	CF11S, CF12S	- With dual Hall effect sensors - With MOTECK L3-type minifit 6-pin plug
Hand control	Depend on control box	- Powered by control box
	HB, TPSL, HS02, HZ02, HZ03, HZ04, HZ05, HZ06	- With MOTECK Direct-Cut cable DL1
Accessory	Switching mode power supply: TSW1, TSW4, DPA-87-2930-C8, DPA-87-2930-C6	- With MOTECK Direct-Cut cable DL1

Cable Plug

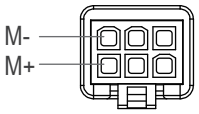
A. Connecting control devices that provide power

1. With Moteck F-type or L3-type plug

- Without positioning feedback

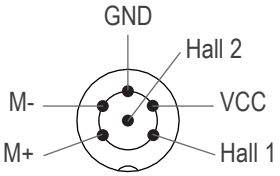


F-type 4-pin DIN plug

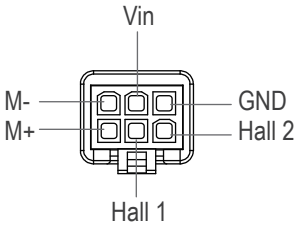


L3-type Minifit 6-pin plug

- Positioning feedback with dual Hall effect sensors

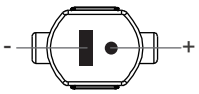


F-type 6-pin DIN plug



L3-type Minifit 6-pin plug

2. With Moteck S-type DIN 41529 2-pin male plug

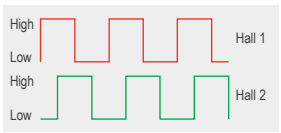
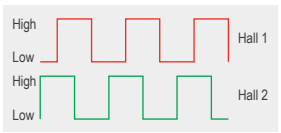


F-type plug

L3-type plug

S-type plug

***Note: Pin definition**

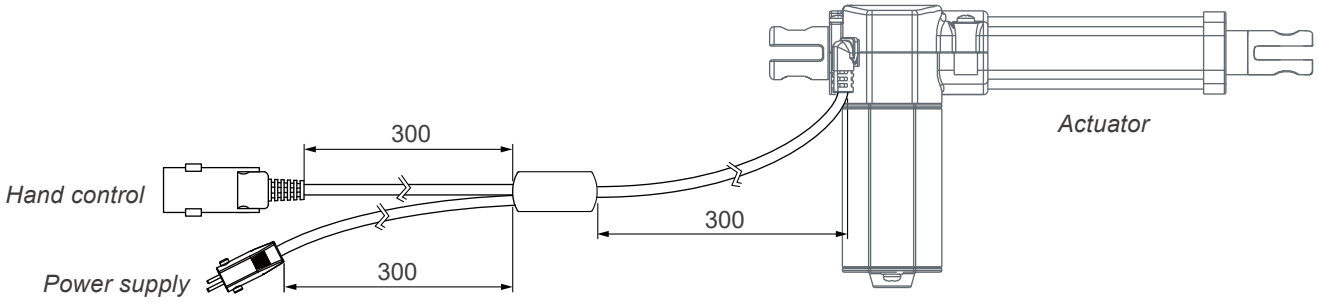
	Definition	Descriptions
Power	M+	Connect M+ to “Vdc +” & M- to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	M-	
Signal	Vin	Voltage input range: 5 ~ 20V
	Hall 1 output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data:  Actuator extends  Actuator retracts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

Model No.	Resolution (pulses/mm)
FD40-XXDF4-XXX.XXX-XXXHXXX	7.00
FD40-XXDF8-XXX.XXX-XXXHXXX	3.50
FD40-XXEF4-XXX.XXX-XXXHXXX	7.00
FD40-XXEF6-XXX.XXX-XXXHXXX	4.66
FD40-XXEF8-XXX.XXX-XXXHXXX	3.50
FD40-XXEH8-XXX.XXX-XXXHXXX	1.75

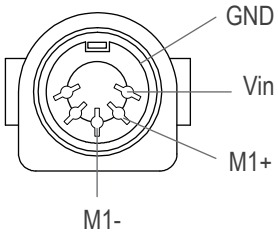
B. Connecting control devices that DO NOT provide power

1. Cable solution

- With direct-cut power cable DL1



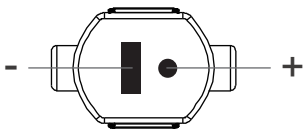
2. Hand control connector: Moteck U-type DIN 5-pin female connector



U-type

***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.

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



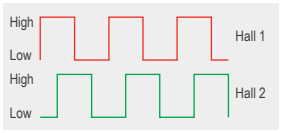
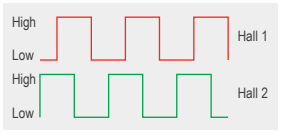
S-type

Wiring with Flying Leads

• Without hall effect sensors

	Wire color	Definition	Comments
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 dual hall effect sensors

	Wire color	Definition	Comments
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	Black	GND	
	Yellow	Vin	Voltage input range: 5 ~ 20V
	Red	Hall 1 output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data:  Actuator extends  Actuator retracts Hall effect sensor resolution:
	Green	Hall 2 output	

Model No.	Resolution (pulses/mm)
FD40-XXDF4-XXX.XXX-XXXHXXX	7.00
FD40-XXDF8-XXX.XXX-XXXHXXX	3.50
FD40-XXEF4-XXX.XXX-XXXHXXX	7.00
FD40-XXEF6-XXX.XXX-XXXHXXX	4.66
FD40-XXEF8-XXX.XXX-XXXHXXX	3.50
FD40-XXEH8-XXX.XXX-XXXHXXX	1.75

Ordering Key

FD40 - 24 E F8 - 190 . 240 - 3 2 0 H 1 R A

Motor	**D**: Default motor **E**: Enhanced motor
Motor and spindle type	**F4:** 3500rpm / 4mm pitch **F6:** 3500rpm / 6mm pitch **F8:** 3500rpm / 8mm pitch **H8:** 3500rpm / 8mm pitch
Retracted length	**XXX** *(refer to page 4)*
Extended length	**XXX** *(refer to page 4)*
Front connector	**2**: Drilled hole (only for models with max. load ≦2000N) **3**: Metal slot **6**: Plastic slot (only for models with max. load ≦2000N)
Rear connector	**2**: Metal **4**: Plastic (only for models with max. load ≦2000N)
Pivot orientation of rear connector	**0**: 0° (standard) **9**: 90°
Positioning feedback	**0**: None **H**: Hall effect sensor x 2
Option	**0**: None **1**: Push only extension tube **2**: PTC thermal protection **3**: Push only + PTC thermal protection
Motor position	**R**: Motor position on right side (standard) **L**: Motor position on left side
Cable	**0**: 300mm straight **1**: 1000mm straight **2**: 450mm with 300mm coiled **A**: Direct-Cut cable DL1, without control box *(refer to page 7)*