

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: ≤ 50 dB
- IP level: IP42
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: $-20^{\circ}\text{C} \sim +65^{\circ}\text{C}$
- 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

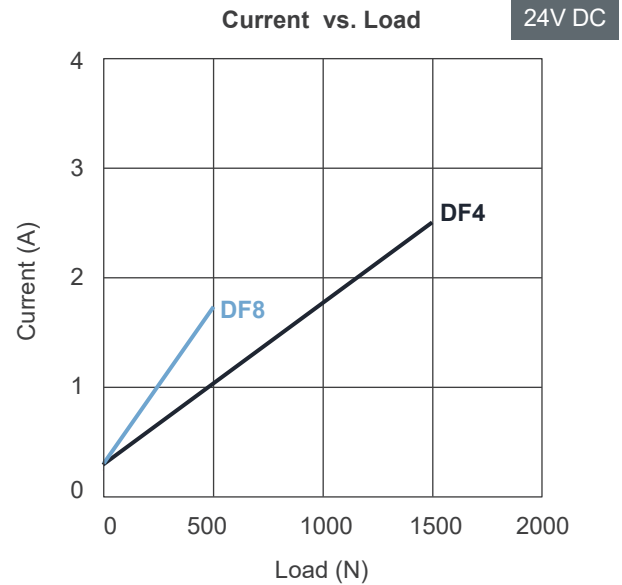
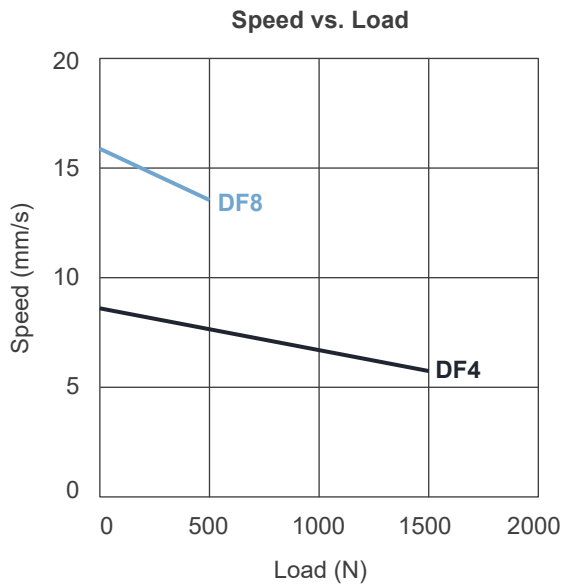


Fig.2

Performance Data

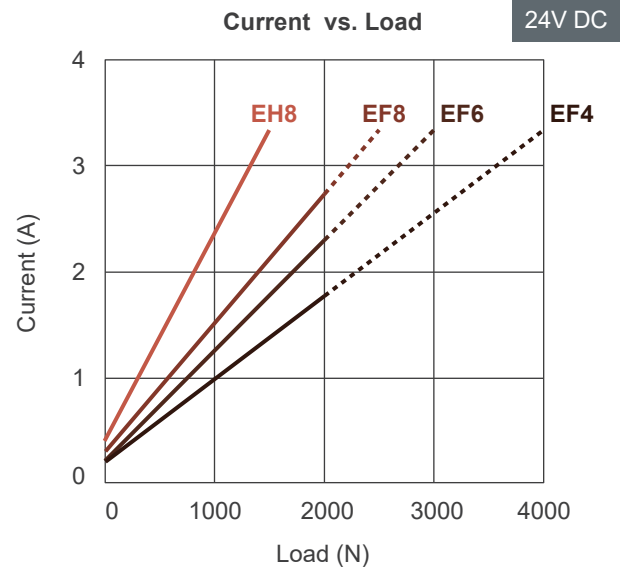
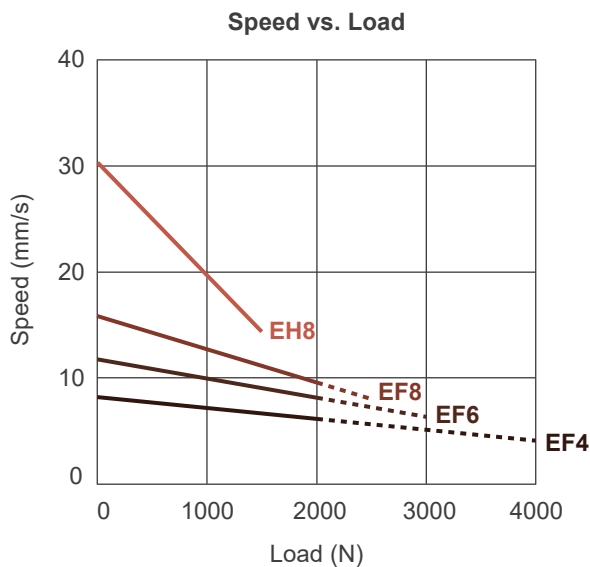
• With default motor

Model No.	Push Max. (N)	Pull Max. (N)	*Typical speed (mm/s)		*Typical current (A)	
			No load	Full load	No load	Full load
FD40-XXDF4-XXX.XXX-XXXXXXXX	1500	1500	7.7	5.8	0.3	2.5
FD40-XXDF8-XXX.XXX-XXXXXXXX	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-XXEF4-XXX.XXX-XXXXXXXX	4000	2000	8.4	4.0	0.2	3.3
FD40-XXEF6-XXX.XXX-XXXXXXXX	3000	2000	11.9	6.3	0.2	3.3
FD40-XXEF8-XXX.XXX-XXXXXXXX	2500	2000	15.9	8.1	0.3	3.3
FD40-XXEH8-XXX.XXX-XXXXXXXX	1500	1500	30.3	14.3	0.4	3.3



Push / Pull Load — Push Load - - -

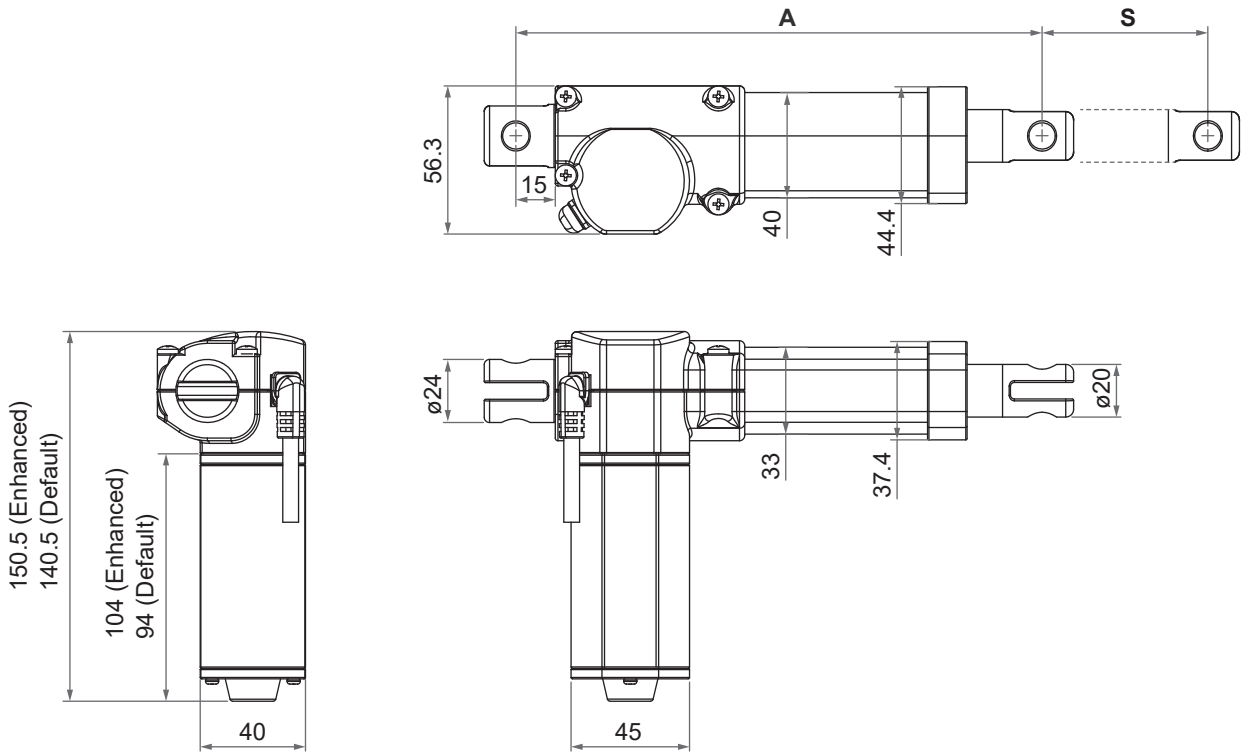
Remarks:

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

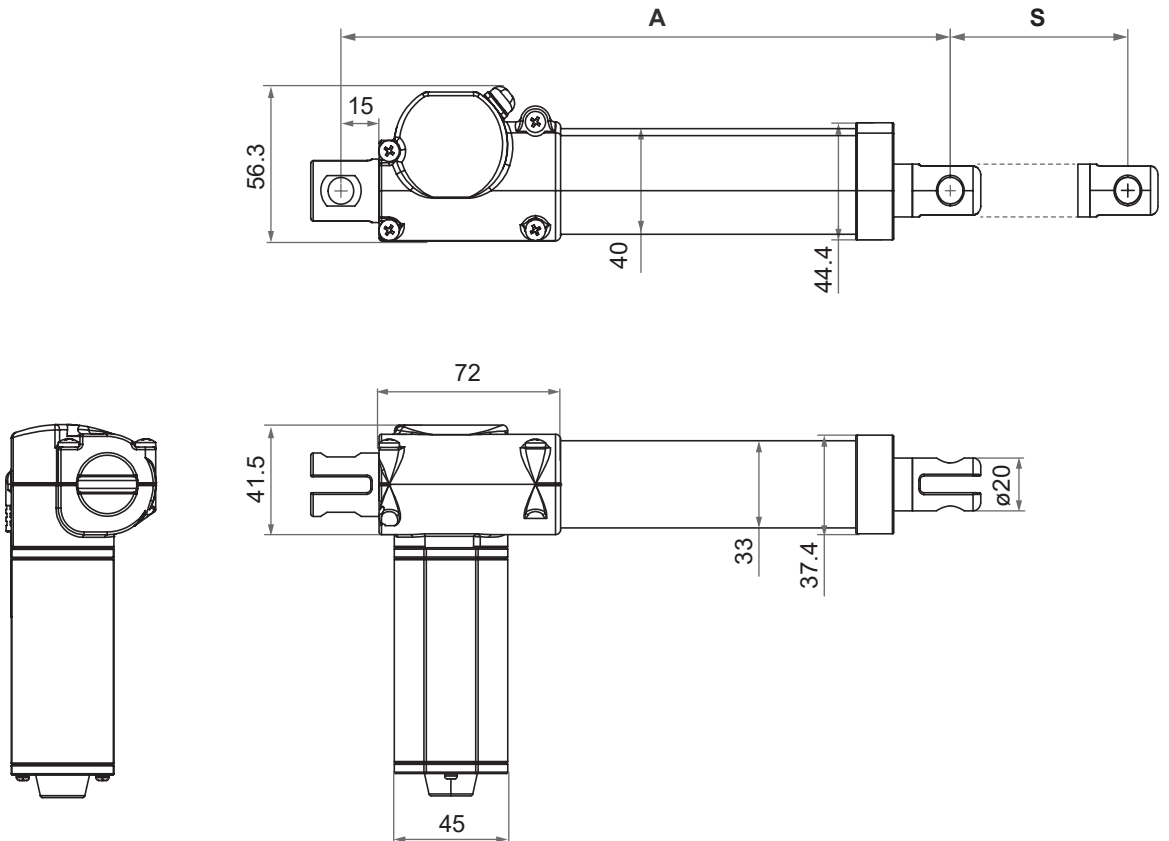
Dimensions

• Motor position on right side

Unit: mm



• Motor position on left side



● Installation Dimension

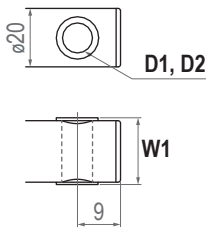
Front connector code	Stroke (S)			
	≤ 200mm	201~250mm	251~300mm	301~400mm
2	$A \geq S+110\text{mm} (\pm 3\text{mm})$	$A \geq S+120\text{mm} (\pm 3\text{mm})$	$A \geq S+130\text{mm} (\pm 3\text{mm})$	$A \geq S+140\text{mm} (\pm 3\text{mm})$
3, 6	$A \geq S+123\text{mm} (\pm 3\text{mm})$	$A \geq S+133\text{mm} (\pm 3\text{mm})$	$A \geq S+143\text{mm} (\pm 3\text{mm})$	$A \geq S+153\text{mm} (\pm 3\text{mm})$

Available stroke (S) range = 50 ~ 400mm

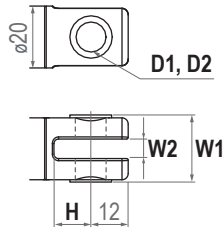
Extended length (B) = S + A, Retracted length (A)

● Front connector

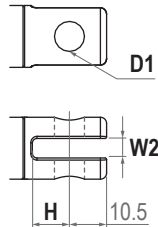
2: Drilled hole
(only for models with max. load ≤ 2000N)



3: Metal slot

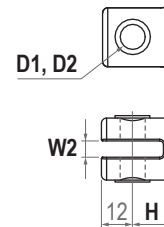


6: Plastic slot
(only for models with max. load ≤ 2000N)

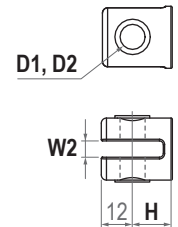


● Rear connector

2: Metal

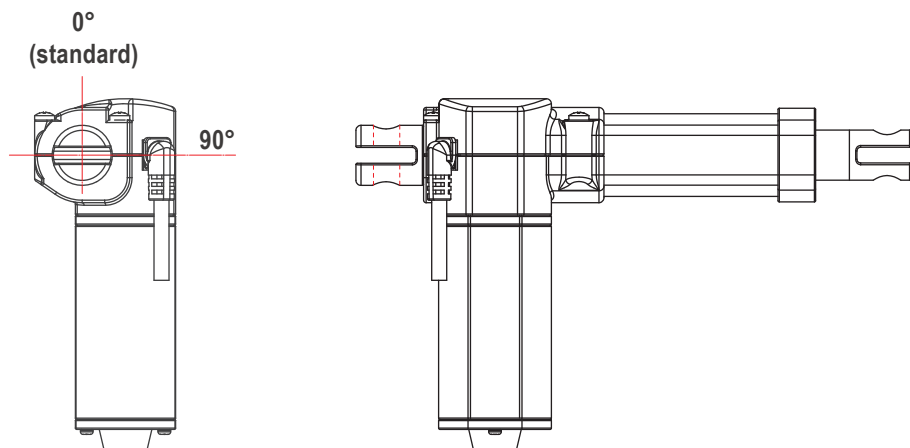


4: Plastic
(only for models with max. load ≤ 2000N)



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)
2	Ø8, Ø10	Ø8	22	N/A	N/A
3	Ø8, Ø10	Ø8	22	6	11.5
6	Ø8, Ø10	N/A	N/A	6	15
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)
2	Ø8, Ø10	Ø8	22	6	12
4	Ø8, Ø10	N/A	N/A	6	12

● Pivot orientation of rear connectors



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

Compatibility

Product	Model	FD40 spec
Control box	CS1, CS2, CB3T, CB4M	- Without positioning sensor feedback - 4-pin MOTECK F-type DIN plug
	CF11H, CF12H	- Without positioning sensor - With Moteck L3-type minifit 6-pin 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
	H3B, HZ01	- With MOTECK Direct-Cut cable TL1*
	HB, H2G, HS02, HZ02, HZ03, HZ04, HZ05, HZ06	- With MOTECK Direct-Cut cable DL1*
Accessory	Switching mode power supply: TSW1, TSW4	- With MOTECK Direct-Cut cable DL1 or TL1

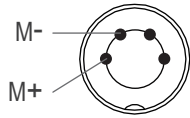
Remarks:

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

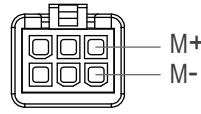
Cable Plug

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

- Without Hall effect sensor



F-type 4-pin DIN plug

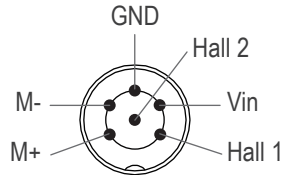


L3-type Minifit 6-pin plug

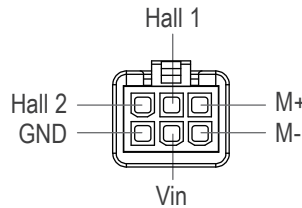


F-type

- With dual Hall effect sensors



F-type 6-pin DIN plug



L3-type Minifit 6-pin plug



L3-type

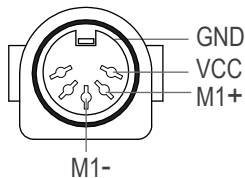
Remarks:

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

• **With Direct-Cut cable DL1 or TL1 (NOT required to be connected to any control box):**

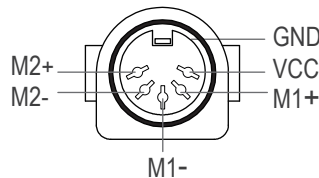
- Hand control connector: with Moteck U-type female connector

1 drive



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

2 drives



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

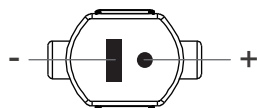


U-type

Remarks:

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 S-type DIN 41529 male plug

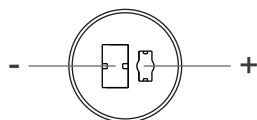


DIN 41529 plug



S-type

- Connector for 2nd actuator: with Moteck R-type DIN 41529 female (for TL1 only)

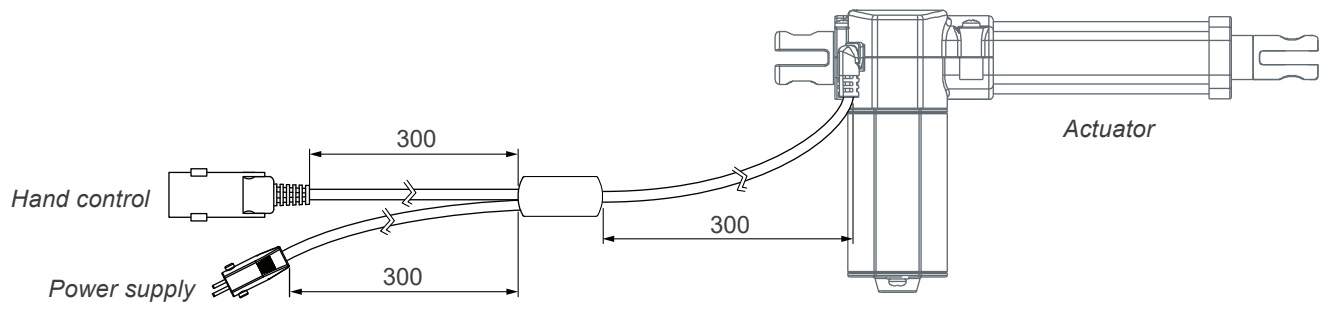


DIN 41529 connector

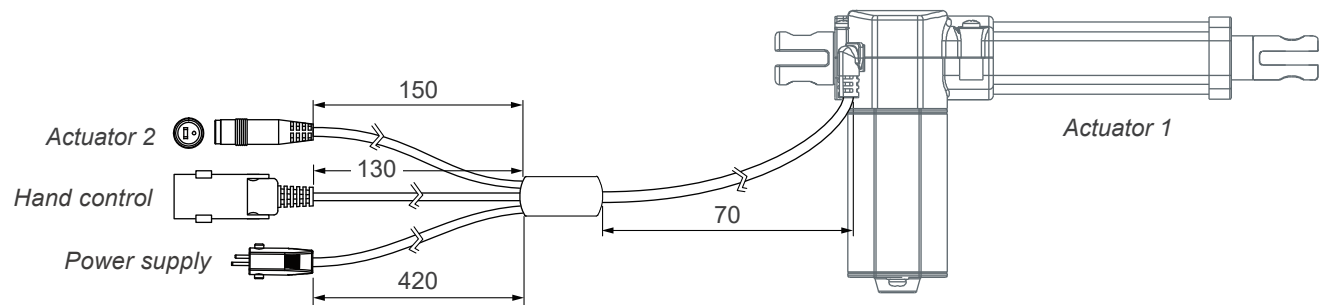


R-type

- Direct-Cut cable DL1



- Direct-Cut cable TL1

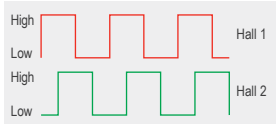
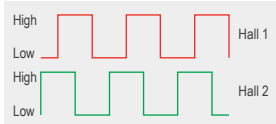


Cable with Flying Leads

• 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	Yellow	Vin	Voltage input range: 3.5 ~ 20V														
	Red	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-end;"> <div style="text-align: center;">  <p>Actuator extends</p> </div> <div style="text-align: center;">  <p>Actuator retracts</p> </div> </div>														
	Green	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>FD40-XXDF4-XXX.XXX-XXXHXXX</td> <td>7.00</td> </tr> <tr> <td>FD40-XXDF8-XXX.XXX-XXXHXXX</td> <td>3.50</td> </tr> <tr> <td>FD40-XXEF4-XXX.XXX-XXXHXXX</td> <td>7.00</td> </tr> <tr> <td>FD40-XXEF6-XXX.XXX-XXXHXXX</td> <td>4.66</td> </tr> <tr> <td>FD40-XXEF8-XXX.XXX-XXXHXXX</td> <td>3.50</td> </tr> <tr> <td>FD40-XXEH8-XXX.XXX-XXXHXXX</td> <td>1.75</td> </tr> </tbody> </table>	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
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FD40-XXEF8-XXX.XXX-XXXHXXX	3.50																
FD40-XXEH8-XXX.XXX-XXXHXXX	1.75																
Black	GND																

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 5)	
Extended length	XXX (refer to page 5)	
Front connector	2: Drilled hole (only for models with max. load $\leq 2000N$) 3: Metal slot 6: Plastic slot (only for models with max. load $\leq 2000N$)	
Rear connector	2: Metal 4: Plastic (only for models with max. load $\leq 2000N$)	
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) B: Direct-Cut cable TL1, without control box (refer to page 7)	

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