

Actuator MK50



MK50 is a in-line shape linear actuator that provides push and pull forces up to 4,500N, has a high degree of IP protection, and is also available in a full body SUS304 stainless steel option. MK50 has DC 12V and 24V input voltage specifications, as well as a variety of performance options, suitable for industrial applications and general applications.

Content

Features and Options	3
Performance Data	4
1. 12V motor	4
2. 24V motor	5
Dimensions	6
1. Installation dimension	6
2. Drawing	6
3. Front connector	7
4. Rear connector	7
Compatibility	8
Cable Plug	8
Cable with Flying Leads	9
1. Basic, without position feedback.	9
2. Dual Hall effect sensors positioning feedback-NPN type	9
3. Dual Hall effect sensors positioning feedback-PNP type	10
Ordering Key	11
Certifications	12

Features and Options

- Main application: Industry
- Input voltage: 12V DC / 24V DC
- Max. load: 4,500N (Push/Pull)
- Max. static load: 4,700N (Push/Pull)
- Max. speed at no load: 34mm/sec (Performance option B)
- Stroke: 50~750mm
- Spindle type: ACME screw
- Inner tube material: Stainless steel
- Motor & Outer tube material: All stainless steel "SUS304" / Black coating steel case (RAL 9005)
- IP level: IP66, IP67, IPX9K (Static; non-action)
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -20°C~+70°C
- Storage ambient temperature: -40°C~+70°C
- Positioning:
 - Optional digital positioning feedback with dual Hall effect sensors (NPN)
 - Optional digital positioning feedback with dual Hall effect sensors (PNP)
- Certified: CE Marking. EMC Directive 2014/30/EU.

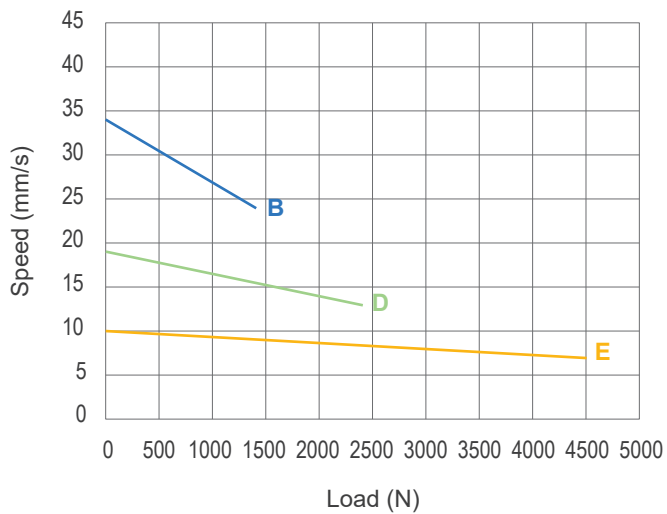


Performance Data

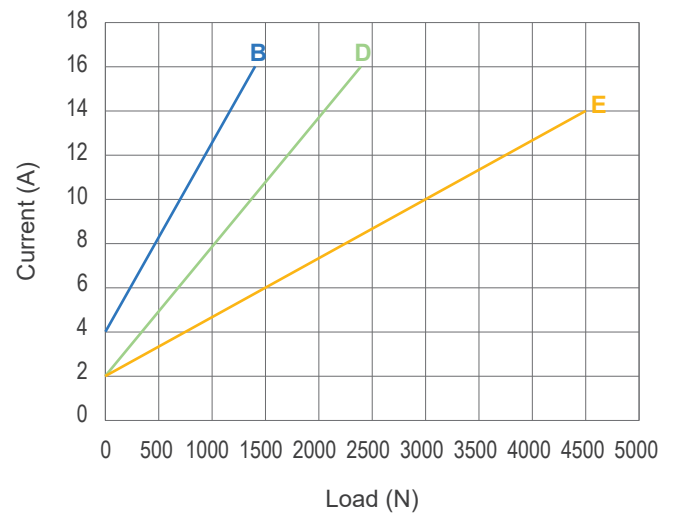
1. 12V motor

Model No.	Push/Pull load Max. (N)	* Typical speed (mm/s)		* Typical current (A)	
		No load	Full load	No load	Full load
MK50-12-B-XXX.XXX-BXXX00X	1,400	34	24	4	16
MK50-12-D-XXX.XXX-BXXX00X	2,400	19	13	2	16
MK50-12-E-XXX.XXX-BXXX00X	4,500	10	7	2	14

Speed VS. Load



Current VS. Load



Remarks:

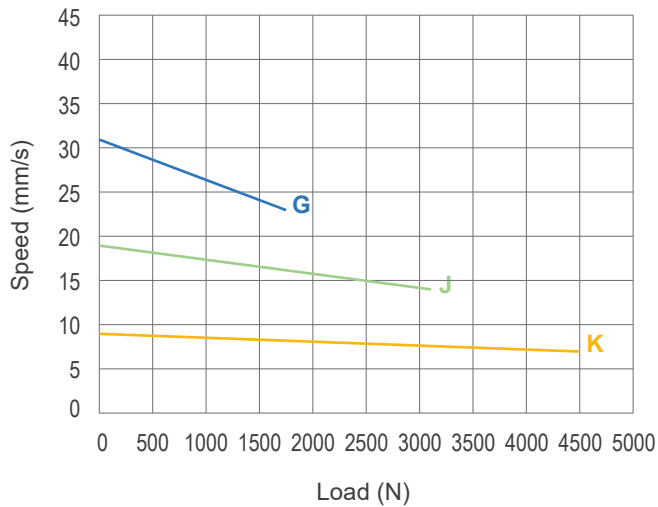
- * The typical speed or typical current means the average value neither upper limit nor lower limit, which measured under room temperature and stable power. The performance curves are made with typical values.



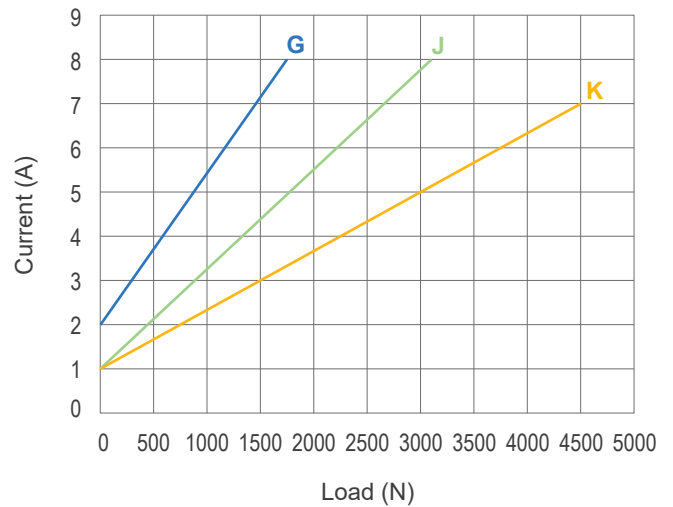
2. 24V motor

Model No.	Push/Pull load Max. (N)	* Typical speed (mm/s)		* Typical current (A)	
		No load	Full load	No load	Full load
MK50-24-G-XXX.XXX-BXXX00X	1,750	31	23	2	8
MK50-24-J-XXX.XXX-BXXX00X	3,100	19	14	1	8
MK50-24-K-XXX.XXX-BXXX00X	4,500	9	7	1	7

Speed VS. Load



Current VS. Load



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.

3. Inrush current

- When the actuator starts to operate, an inrush current of about 0.2 seconds will be generated. The starting inrush current of MK50 can reach about 3 times of the typical current under the actuator maximum 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

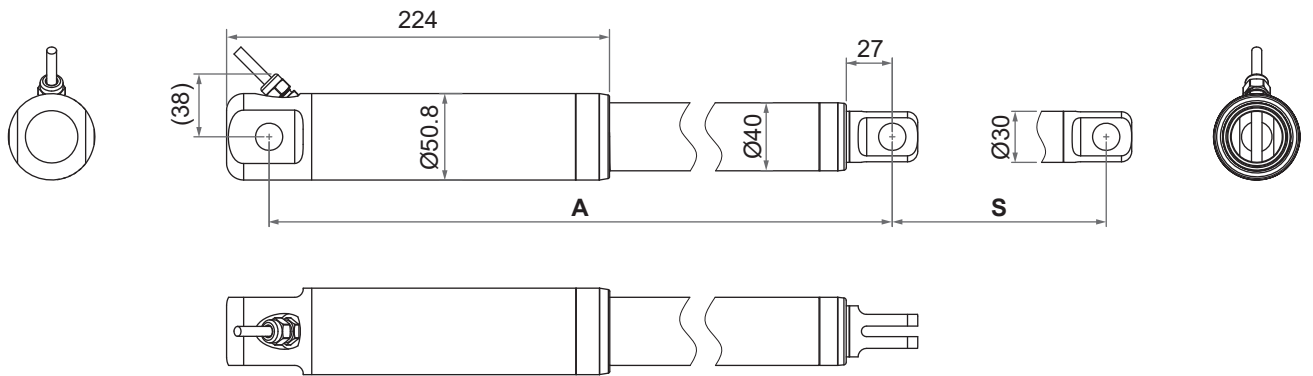
- Available stroke range (S) = 50~750mm (One step in every 50mm)
- Retracted length (A)

Option	Basic, without positioning feedback	With dual Hall effect sensors positioning feedback
Retracted length (A)	$A \geq S + 255 \text{ mm } (\pm 3 \text{ mm})$	$A \geq S + 270 \text{ mm } (\pm 3 \text{ mm})$

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

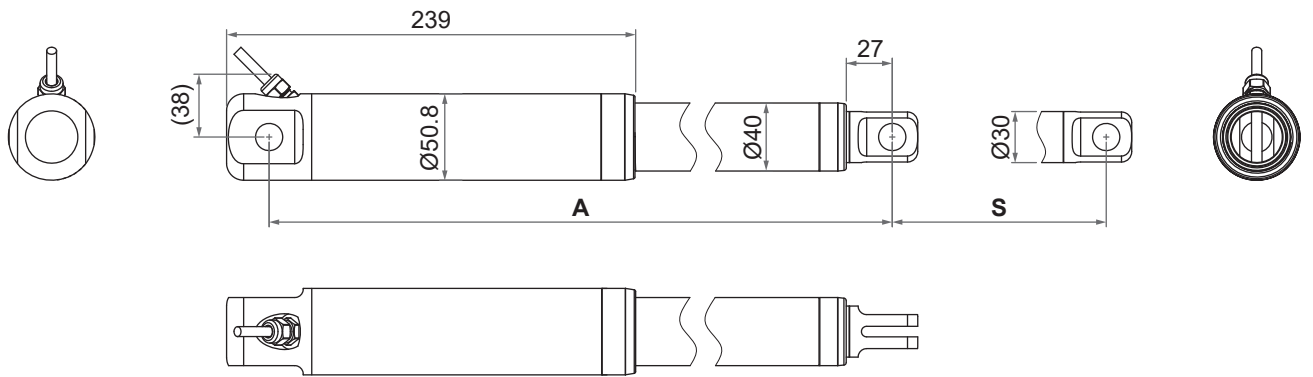
2. Drawing

- Basic, without position feedback.



Unit: mm

- With dual Hall effect sensors positioning feedback



Unit: mm



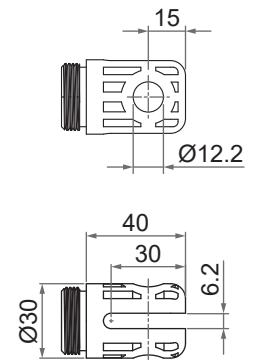
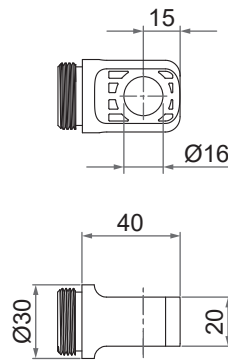
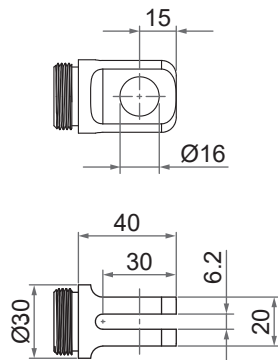
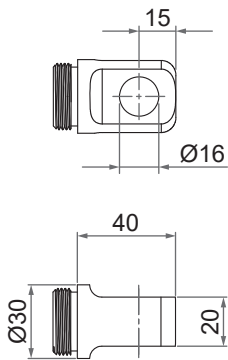
3. Front connector

1: Stainless steel solid
3: Aluminum alloy solid

2: Stainless steel slot
4: Aluminum alloy slot

5: Plastic solid
(only for models with max. load $\leq 3100\text{N}$)

6: Plastic slot
(only for models with max. load $\leq 3100\text{N}$)



Unit: mm

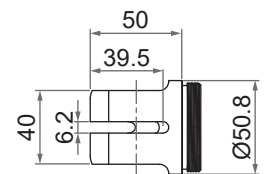
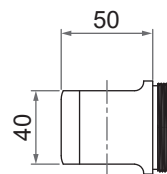
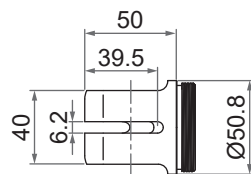
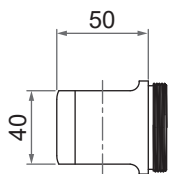
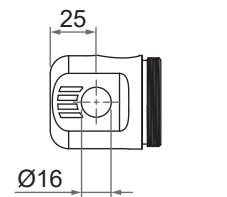
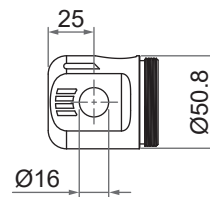
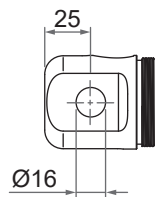
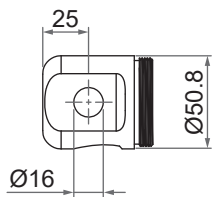
4. Rear connector

1: Stainless steel solid
3: Aluminum alloy solid

2: Stainless steel slot
4: Aluminum alloy slot

5: Plastic solid
(only for models with max. load $\leq 3100\text{N}$)

6: Plastic slot
(only for models with max. load $\leq 3100\text{N}$)



Unit: mm

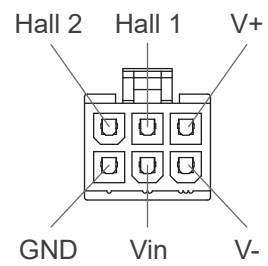


Compatibility

Product	Model	MK50 spec
Controller	CI72, CI73	<ul style="list-style-type: none"> • With dual Hall effect sensors for positioning • Cable with flying leads
	CI74	<ul style="list-style-type: none"> • With dual Hall effect sensors for positioning • With minifit 6-pin plug

Cable Plug

- Positioning feedback with dual Hall effect sensors



With minifit 6-pin plug




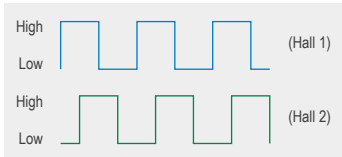
Minifit plug

Cable with Flying Leads

1. Basic, without position feedback.


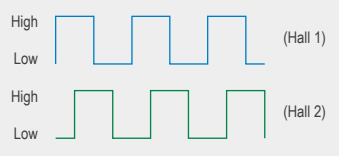
	Wire color	Definition	Descriptions
Power wires	Red	DC power	Connect red wire to "Vdc +" & black wire to "Vdc -" of 12 or 24V DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		

2. With dual Hall effect sensors positioning feedback-NPN type

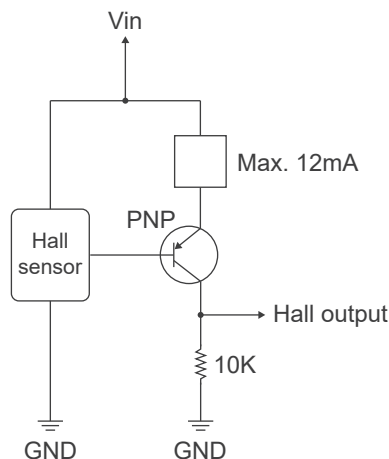
	Wire color	Definition	Descriptions														
Power wires	Red	DC power	Connect red wire to "Vdc +" & black wire to "Vdc -" of 12 or 24V DC power to extend the actuator. Switch the polarity of DC input to retract it.														
	Black																
Signal wires	Yellow	Vin	Voltage input range: 5~60V  If this voltage input must share the motor's power supply, be sure to use a separate power cord to draw power from the source, not tapping it from the control board's power input. Otherwise, the motor's inrush current will cause the Hall IC circuit to malfunction.														
	Blue	Hall 1 output	High= Input - 1.2V ($\pm 0.6V$) Low= GND Hall signal data: 														
	Green	Hall 2 output	Hall effect sensor resolution: <table border="1"> <thead> <tr> <th>Voltage & Performance</th> <th>Resolution (Pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>12-B</td> <td>4.67</td> </tr> <tr> <td>12-D</td> <td>8.00</td> </tr> <tr> <td>12-E</td> <td>16.33</td> </tr> <tr> <td>24-G</td> <td>4.67</td> </tr> <tr> <td>24-J</td> <td>8.00</td> </tr> <tr> <td>24-K</td> <td>16.33</td> </tr> </tbody> </table>	Voltage & Performance	Resolution (Pulses/mm)	12-B	4.67	12-D	8.00	12-E	16.33	24-G	4.67	24-J	8.00	24-K	16.33
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White	GND																



3. With dual Hall effect sensors positioning feedback-PNP type

	Wire color	Definition	Descriptions														
Power wires	Red	DC power	Connect red wire to "Vdc +" & black wire to "Vdc -" of 12 or 24V DC power to extend the actuator. Switch the polarity of DC input to retract it.														
	Black																
Signal wires	Yellow	Vin	PNP voltage input range: 5~60V, max. current: 12mA  If this voltage input must share the motor's power supply, be sure to use a separate power cord to draw power from the source, not tapping it from the control board's power input. Otherwise, the motor's inrush current will cause the Hall IC circuit to malfunction.														
	Blue	Hall 1 output	High= $V_{in} - 1.2V (\pm 0.6V)$ Low= 10K Ω pull down Hall signal data: 														
	Green	Hall 2 output	Hall effect sensor resolution: <table border="1" data-bbox="727 1167 1385 1469"> <thead> <tr> <th>Voltage & Performance</th> <th>Resolution (Pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>12-B</td> <td>4.67</td> </tr> <tr> <td>12-D</td> <td>8.00</td> </tr> <tr> <td>12-E</td> <td>16.33</td> </tr> <tr> <td>24-G</td> <td>4.67</td> </tr> <tr> <td>24-J</td> <td>8.00</td> </tr> <tr> <td>24-K</td> <td>16.33</td> </tr> </tbody> </table>	Voltage & Performance	Resolution (Pulses/mm)	12-B	4.67	12-D	8.00	12-E	16.33	24-G	4.67	24-J	8.00	24-K	16.33
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White	GND																

Remarks: There is a 10K Ω pull-down resistor (see the circuit diagram)



Ordering Key

		MK50-24-G-255.370-B 3 3 H 0 0 3
Input voltage	12: 12V DC 24: 24V DC	
Performance	B, D, E (Refer to p.4) G, J, K (Refer to p.5)	
Retracted length (Refer to p.6)	XXX	
Extended length (Refer to p.6)	XXX	
Exterior	B: Black coating steel case and aluminum inner tube S: All stainless steel "SUS304"	
Front connector (Refer to p.7)	1: Stainless steel solid 2: Stainless steel slot 3: Aluminum alloy solid 4: Aluminum alloy slot 5: Plastic solid 6: Plastic slot	
Rear connector (Refer to p.7)	1: Stainless steel solid 2: Stainless steel slot 3: Aluminum alloy solid 4: Aluminum alloy slot 5: Plastic solid 6: Plastic slot	
Positioning feedback	0: None H: Dual Hall effect sensors (NPN) +: Dual Hall effect sensors (PNP)	
Reserved	0	
Reserved	0	
Cable length	3: 1000mm straight 6: 2000mm straight	



Certifications

MK50 actuator is compliant with the following regulations, in terms of the essential conformity requirements of EMC Directive of 2014/30/EU.

Emission	Immunity
EN IEC 61000-6-3:2021 BS EN IEC 61000-6-3:2021	EN IEC 61000-6-1:2019 BS EN IEC 61000-6-1:2019

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