

Actuator MK32



MK32 is a small actuator with push/pull force up to 3500N. It features compact outline and low noise level that is mainly suitable for medical and furniture applications such as recliners, beds, etc., as well as various industrial applications with limited installation space.

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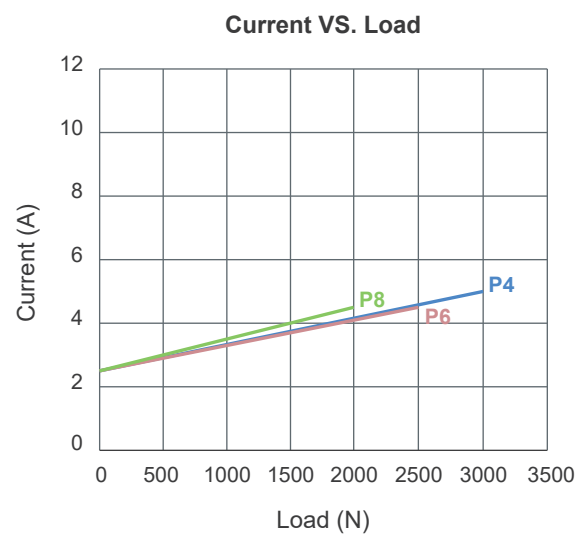
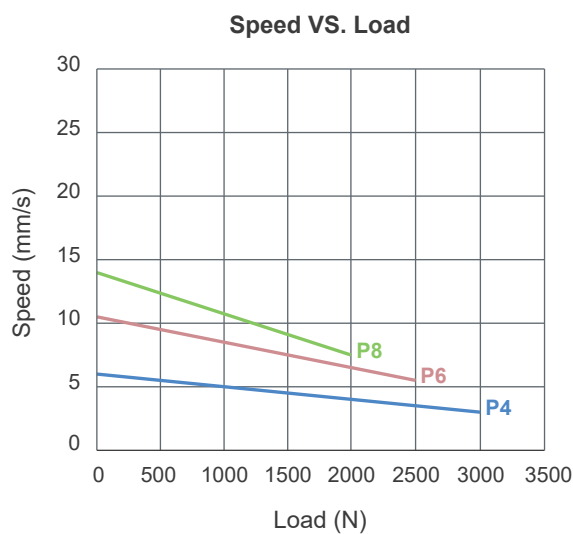
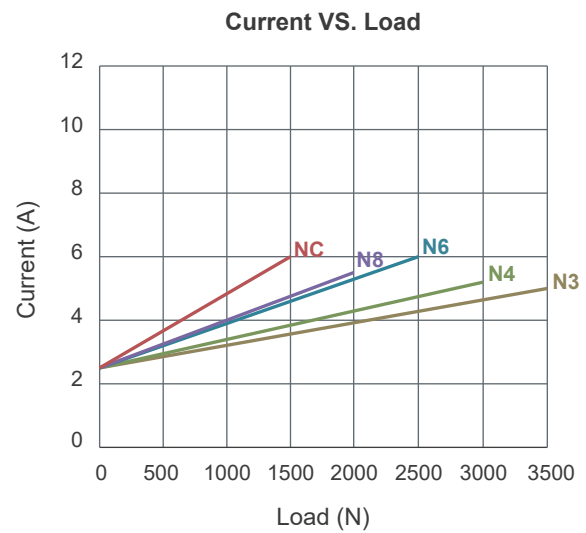
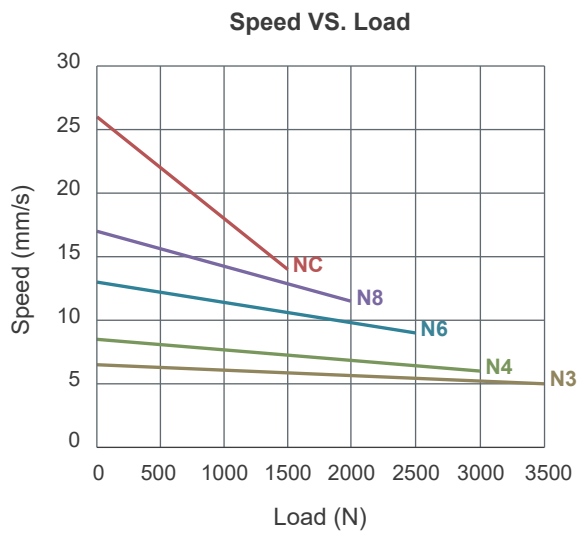
Features and Options

- Main applications: Medical / Furniture / Industry
- Input voltage: 24V DC
- Max. load: 3500N (Push/Pull)
- Speed at no load: 26.0mm/sec (Typical value)
- Speed at full load: 5.0mm/sec (Typical value @3500N loaded)
- Stroke: 50~600mm (The max. stroke is depending on load, refer to Dimensions)
- Noise level: ≤ 52 dB
- IP level: IPX4, IP66 (Static; non-action)
- Aluminum alloy outer tube and gear box
- Preset limit switches
- Positioning:
 - Optional digital positioning feedback with dual Hall effect sensors
 - Optional analog positioning feedback with Potentiometer (POT)
- Optional safety nut (in push direction)
- Optional mechanical push only extension tube
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: $-20^{\circ}\text{C}\sim+65^{\circ}\text{C}$ (Full performance $+5^{\circ}\text{C}\sim+40^{\circ}\text{C}$)
- Storage ambient temperature: $-25^{\circ}\text{C}\sim+65^{\circ}\text{C}$
- Certified: CE Marking, Electromagnetic Compatibility Directive 2014/30/EU (N-type motor only)



Performance Data

Model No.	Push / Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current @ 24V DC	
		No Load	Full Load	No Load	Full Load
MK32-24N3-XXX.XXX-XXXXXXXX	3500	6.5	5.0	2.5	5.0
MK32-24N4-XXX.XXX-XXXXXXXX	3000	8.5	6.0	2.5	5.2
MK32-24N6-XXX.XXX-XXXXXXXX	2500	13.0	9.0	2.5	6.0
MK32-24N8-XXX.XXX-XXXXXXXX	2000	17.0	11.5	2.5	5.5
MK32-24NC-XXX.XXX-XXXXXXXX	1500	26.0	14.0	2.5	6.0
MK32-24P4-XXX.XXX-XXXXXXXX	3000	6.0	3.0	2.5	5.0
MK32-24P6-XXX.XXX-XXXXXXXX	2500	10.5	5.5	2.5	4.5
MK32-24P8-XXX.XXX-XXXXXXXX	2000	14.0	7.5	2.5	4.5



Note:

* 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 MK32 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

- Available stroke (S) range = 50~600mm (±3mm)
- Retracted length (A) $\geq S + 112\text{mm} + E + F + R + P + D$ (±3mm)

Stroke	E
50 ≤ S ≤ 150mm	0mm
151 ≤ S ≤ 300mm	10mm
301 ≤ S ≤ 400mm	20mm
401 ≤ S ≤ 500mm	30mm
501 ≤ S ≤ 600mm	40mm
Front connector code	F
1, 2	0mm
3	13mm
4	7mm
8	1mm
Rear connector code	R
0, 1	0mm
8	3mm
Positioning	P
0, H	0mm
P	38mm
Safety option	D
0, P	0mm
S, A	10mm

- Max load VS. Stroke rang

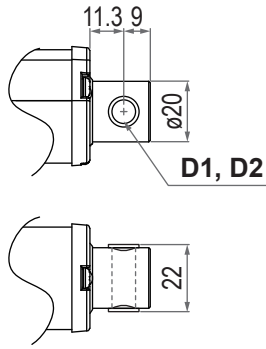
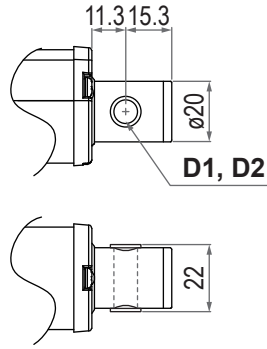
Max. load	Stroke range
≤ 1,000N	50~600mm
1,001N ≤ 1,500N	50~500mm
1,501N ≤ 2,500N	50~400mm
2,501N ≤ 3,500N	50~300mm

- S ≥ 601mm, please consult MOTECK sales representative for feasibility and the available.
- Extended length (B) = Retracted length (A) + Stroke (S)

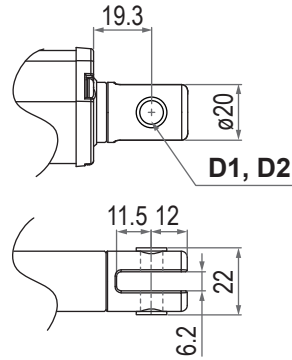
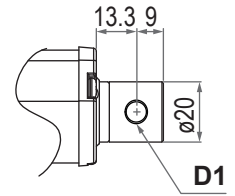


3. Front connector type

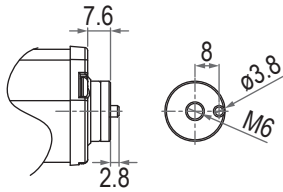
1: Metal solid

2: Drilled hole ⁽¹⁾

3: Metal slot

4: Plastic solid, black ⁽²⁾

8: M6 screw



Front connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
1	ø8, ø10	ø8
2 ⁽¹⁾	ø8, ø10	ø8
3	ø8, ø10	ø8
4 ⁽²⁾	ø8, ø10	N/A
8	N/A	N/A

Notes:

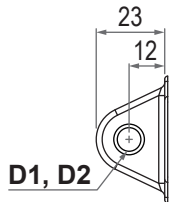
⁽¹⁾ Only for models with max. load $\leq 2000\text{N}$ and IP66 cannot be selected

⁽²⁾ Only for models with max. load $\leq 2000\text{N}$

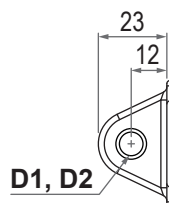
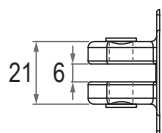
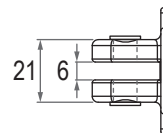
4. Rear connector type

0: Metal slot ⁽¹⁾

0°

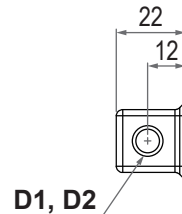


90°

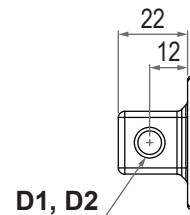
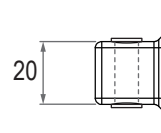
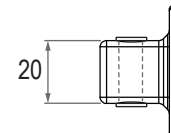


1: Metal solid

0°

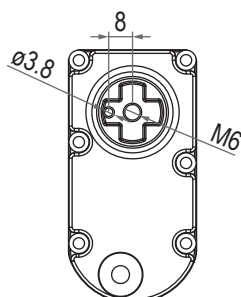
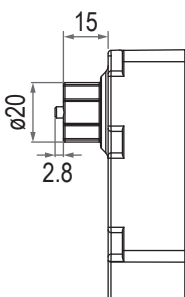


90°



8: M6 screw

0°



Rear connector code	Diameter of pivot without bushing (D1)	Diameter of pivot with bushing (D2)
0 ⁽¹⁾	ø8, ø10	ø8
1	ø8, ø10	ø8
8	N/A	N/A


Note :

⁽¹⁾ For Potentiometer positioning feedback option, only metal slot rear connector can be selected.

Unit: mm



Compatibility

Product	Model	Application condition	MK32 spec
Control box	CM45, MD6C	Max. 5A current per channel	<ul style="list-style-type: none"> Without positioning feedback With Moteck H-type DIN plug
	CB5P-M, CM41-M	Max. 5A current per channel	<ul style="list-style-type: none"> With dual Hall effect sensors for positioning With Moteck LR-type minifit plug
	CM41	Max. 5A current per channel	<ul style="list-style-type: none"> Without positioning feedback With Moteck LR-type minifit plug
	CM23	Max. $\leq 6A$ current 2 channels	<ul style="list-style-type: none"> With dual Hall effect sensors for positioning With Moteck H-type DIN plug
Controller	CI72		<ul style="list-style-type: none"> Standard Cable with flying leads
Accessory	MB22 mounting bracket 	Connect the front or rear connectors of the actuator	<ul style="list-style-type: none"> Mounting hole $\varnothing 8mm$ or $\varnothing 10mm$ Rear connector option 0 must not select bushing

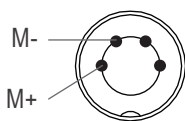
Note:

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.

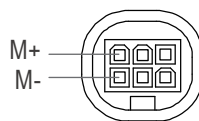
Cable Plug

Connecting control devices that provide power

1. Basic (Without positioning feedback)



With H-type 4-pin DIN plug

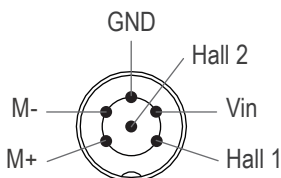


With LR-type 6-pin minifit plug

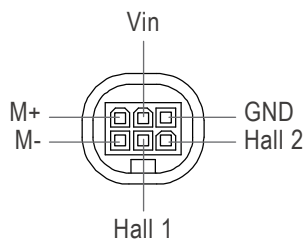


H-type plug

2. With dual Hall effect sensors for positioning



With H-type 6-pin DIN plug



With LR-type 6-pin minifit plug



LR-type plug

Note:

Connect M+ to "Vdc +" & M- to "Vdc -" of DC power to extend the actuator. Switch the polarity of DC input to retract it.

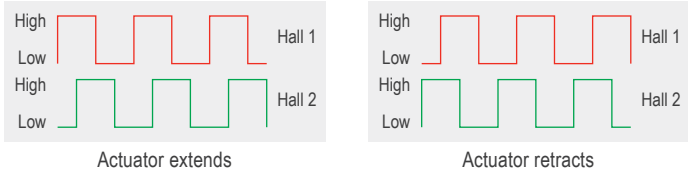


Cable with Flying Leads

1. Basic (Without positioning feedback)

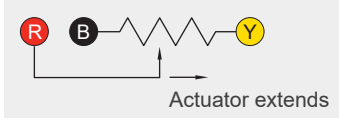
	Wire color	Definition	Descriptions
Power wires	Blue	DC power	Connect blue wire to "Vdc +" & brown wire to "Vdc -" of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Brown		

2. With dual Hall effect sensors for positioning

	Wire color	Definition	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 1 output	<p>High= Input - 1.2V ($\pm 0.6V$) Low= GND Hall signal data:</p>  <p>Actuator extends Actuator retracts</p>												
	Green	Hall 2 output	<p>Hall effect sensor resolution:</p> <table border="1"> <thead> <tr> <th>Motor and Spindle type</th> <th>Resolution (Pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>N3</td> <td>10.125</td> </tr> <tr> <td>N4, P4</td> <td>7.594</td> </tr> <tr> <td>N6, P6</td> <td>5.063</td> </tr> <tr> <td>N8, P8</td> <td>3.797</td> </tr> <tr> <td>NC</td> <td>2.531</td> </tr> </tbody> </table>	Motor and Spindle type	Resolution (Pulses/mm)	N3	10.125	N4, P4	7.594	N6, P6	5.063	N8, P8	3.797	NC	2.531
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N4, P4	7.594														
N6, P6	5.063														
N8, P8	3.797														
NC	2.531														
Black	GND														



3. With Potentiometer (POT) absolute positioning feedback

	Wire color	Definition	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: 5~32V																																					
	Red	POT output	1. Potentiometer specification: <ul style="list-style-type: none"> - 10K ohm, 10 turns. - Total resistance tolerance $\pm 5\%$ - Independent linearity $\pm 0.25\%$ 2. Output voltage: The voltage (resistance) between red and black increases linearly from about 0 when the actuator extends, and decreases when it retracts.																																					
																																								
			3. There are different resistance resolutions according to the lead and stroke length (as table below)																																					
			<table border="1"> <thead> <tr> <th>Pitch</th> <th>Stroke range (mm)</th> <th>Resistance resolution (ohm/mm)</th> </tr> </thead> <tbody> <tr> <td rowspan="4">3mm</td> <td>50~100</td> <td>93.75</td> </tr> <tr> <td>101~200</td> <td>46.30</td> </tr> <tr> <td>201~300</td> <td>29.76</td> </tr> <tr> <td>301~400</td> <td>21.16</td> </tr> <tr> <td rowspan="4">4mm</td> <td>50~100</td> <td>70.31</td> </tr> <tr> <td>101~200</td> <td>41.67</td> </tr> <tr> <td>201~300</td> <td>26.79</td> </tr> <tr> <td>301~400</td> <td>22.32</td> </tr> <tr> <td rowspan="3">6mm</td> <td>50~200</td> <td>46.88</td> </tr> <tr> <td>201~400</td> <td>23.15</td> </tr> <tr> <td>401~500</td> <td>14.88</td> </tr> <tr> <td rowspan="3">8mm</td> <td>50~200</td> <td>35.16</td> </tr> <tr> <td>201~400</td> <td>20.83</td> </tr> <tr> <td>401~600</td> <td>13.39</td> </tr> <tr> <td rowspan="2">12mm</td> <td>50~400</td> <td>23.44</td> </tr> <tr> <td>401~600</td> <td>13.89</td> </tr> </tbody> </table>	Pitch	Stroke range (mm)	Resistance resolution (ohm/mm)	3mm	50~100	93.75	101~200	46.30	201~300	29.76	301~400	21.16	4mm	50~100	70.31	101~200	41.67	201~300	26.79	301~400	22.32	6mm	50~200	46.88	201~400	23.15	401~500	14.88	8mm	50~200	35.16	201~400	20.83	401~600	13.39	12mm	50~400
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	401~600	13.39																																						
12mm	50~400	23.44																																						
	401~600	13.89																																						
Green	Not used																																							
Black	GND																																							
			4. Customers measure the Potential value through the POT output and GND wires. 5. When the actuator retracts the lower limit, the POT resistance value default is 0~0.3K ohm.																																					

Note: For Potentiometer positioning feedback option, only metal slot rear connector can be selected.



Ordering Key

	MK32 - 24 N4 - 212 - 312 - 2 0 0 H 0 4 0
Input voltage	24: 24V DC
Motor and Spindle type	N3: 4500rpm / 3mm pitch N4: 4500rpm / 4mm pitch N6: 4500rpm / 6mm pitch N8: 4500rpm / 8mm pitch NC: 4500rpm / 12mm pitch P4: 3800rpm / 4mm pitch P6: 3800rpm / 6mm pitch P8: 3800rpm / 8mm pitch
Retracted length (Refer to Page 5~6)	XXX
Extended length (Refer to Page 5~6)	XXX
Front connector (Refer to Page 7)	1: Metal solid 4: Plastic solid, black ⁽²⁾ 2: Drilled hole ⁽¹⁾ 8: M6 screw 3: Metal slot
Rear connector (Refer to Page 7)	0: Metal slot ⁽³⁾ 1: Metal solid 8: M6 screw
Pivot orientation of rear connector (Refer to Page 7)	0: 0° 9: 90°
Positioning feedback	0: None H: Dual Hall effect sensors P: Potentiometer (POT) ⁽³⁾
Option	0: None S: Safety nut P: Push only A: Safety nut + Push only
IP level	0: No designation 4: IPX4 6: IP66
Cable length	0: 300mm straight 3: 1000mm straight A: 450mm with 300mm coiled

Notes:

⁽¹⁾ Front connector type "2" drilled hole, only for models with max. load $\leq 2000\text{N}$ and IP66 cannot be selected.

⁽²⁾ Front connector type "4" plastic solid, only for models with max. load $\leq 2000\text{N}$.

⁽³⁾ For Potentiometer positioning feedback option, only metal slot rear connector can be selected.



Certifications

MK32 actuator is compliant with the following regulations, in terms of the essential conformity requirements of EMC Directive of 2014/30/EU.

Emission
EN 61000-6-3:2007+A1:2011+AC:2012 EN IEC 61000-6-1:2019

Terms of Use

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