

Actuator LD12



The LD12 actuator has a tubular in-line shape with no obtrusive parts and is especially useful for applications with tight installation spaces. In addition to the high IP rating, the whole SUS304 stainless steel appearance is optional for marine, outdoor and related automation application. And a low-noise, low-speed solution is also available.

Content

Features and Options	3
Performance Data	4
Dimensions	6
1. Installation dimension	6
2. Drawing	6
3. Front connector type	6
4. Rear connector type	6
Compatibility	7
Cable Plug	7
Cable with Flying Leads	8
1. Basic, without position feedback.	8
2. With 60V dual Hall effect sensors positioning feedback	8
Ordering Key	9
Attentions	10
Certifications	10

Features and Options

- Main application: Industry
- Input voltage: 12V DC / 24V DC
- Max. load: 2000N (Push / Pull)
- Max. static load: 2500N (Push / Pull)
- Max. speed at no load: 33.5mm/sec (Typical value)
- Speed at full load: 3.5mm/sec (Typical value @2000N loaded)
- Stroke: 50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 mm
- IP level: IP66, IPX9K (Optional)
- Material: All stainless steel "SUS304" / Black coating steel case
- Salt spray tested for coating case: 250 hours
- Positioning: Optional digital positioning feedback with 60V dual Hall effect sensors
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -20°C~+70°C
- Storage ambient temperature: -20°C~+80°C
- Certified: CE Marking, Electromagnetic Compatibility Directive 2014/30/EU.

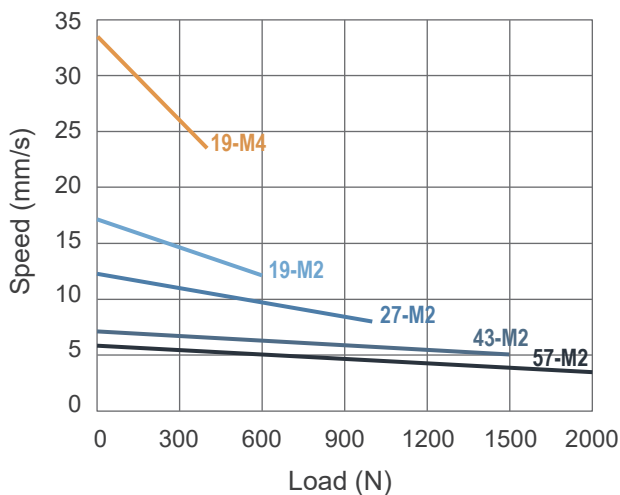


Performance Data

Model No.	Gear ratio	Push/Pull load Max. (N)	Typical speed (mm/s) ⁽³⁾		Typical current (A) ⁽³⁾			
			No load	Full load	No load		Full load	
					12V	24V	12V	24V
LD12-XX19-M4-XXX.XXX-XXXXXXX ⁽¹⁾	19:1	400	33.5	23.5	N/A	0.7	N/A	1.8
LD12-XX19-M2-XXX.XXX-XXXXXXX	19:1	600	17.2	12.1	0.7	0.4	3.6	1.8
LD12-XX27-M2-XXX.XXX-XXXXXXX	27:1	1000	12.3	8.0	0.7	0.4	3.6	1.8
LD12-XX43-M2-XXX.XXX-XXXXXXX	43:1	1500	7.1	5.0	0.7	0.4	3.6	1.8
LD12-2457-M2-XXX.XXX-XXXXXXX ⁽¹⁾	57:1	2000	5.8	3.5	N/A	0.4	N/A	1.8
LD12-2457-K2-XXX.XXX-XXXXXXX ⁽¹⁾⁽²⁾	57:1	1500	3.3	2.2	N/A	0.25	N/A	0.9

1. Motor type M2, M4

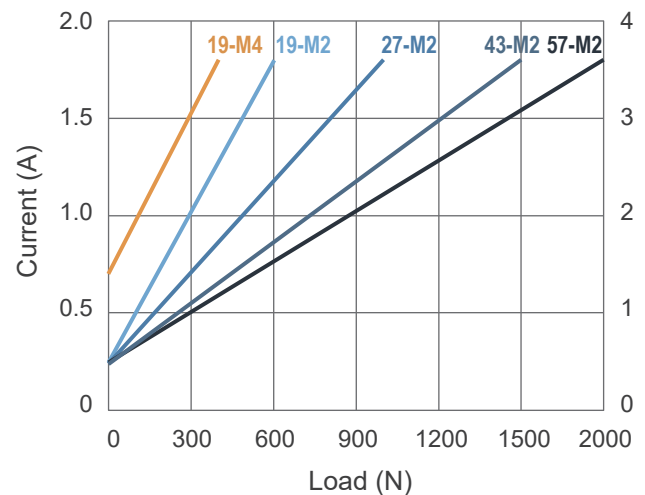
Speed VS. Load



24V DC

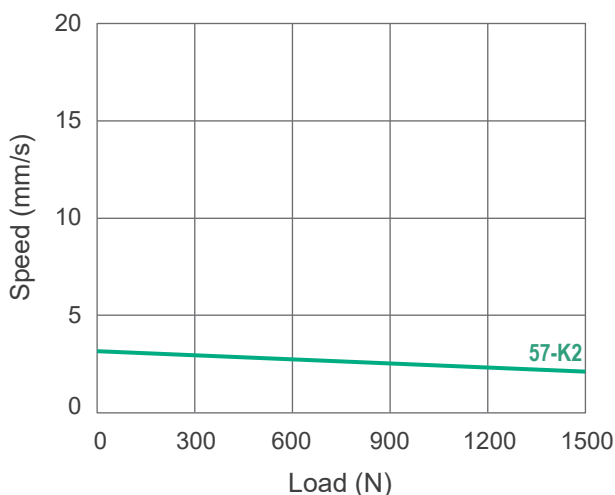
Current VS. Load

12V DC



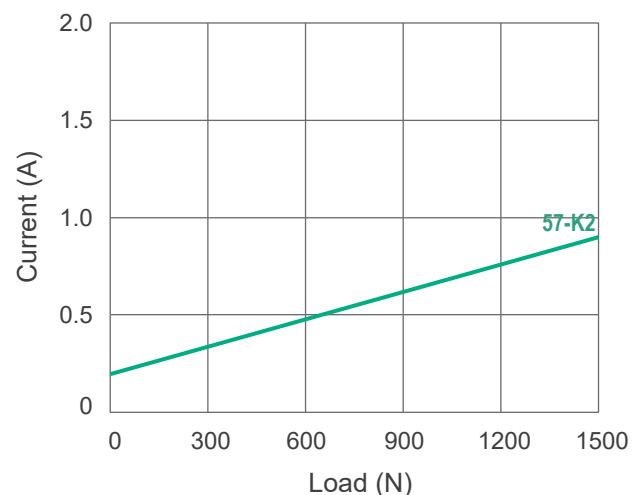
2. Motor type K2

Speed VS. Load



24V DC

Current VS. Load



Notes:

⁽¹⁾ 24VDC available only.

⁽²⁾ 57-K2 is designed for applications requiring lower noise but less speed concern.

⁽³⁾ 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 LD12 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

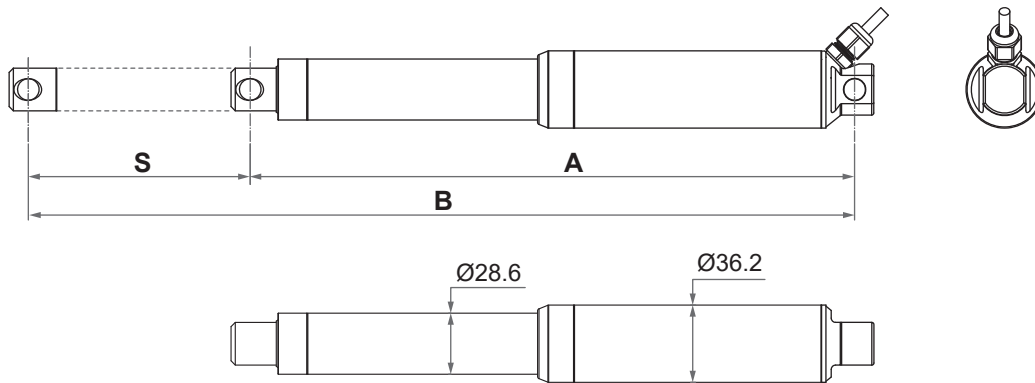
1. Installation dimension

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

(tolerance: $\pm 3\text{mm}$)

	Front connector code	Rear connector code	Stroke (S)							
			50	100	150	200	250	300	350	400
Retracted length (A)	1	1	233	283	333	383	433	483	533	583
	1	2	248	298	348	398	448	498	548	598
	2	1	237	287	337	387	437	487	537	587
	2	2	252	302	352	402	452	502	552	602
	3	3	233	283	333	383	433	483	533	583

2. Drawing

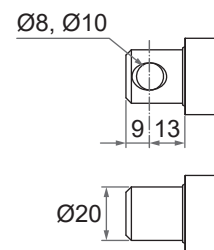
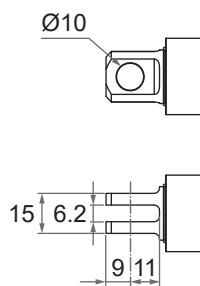
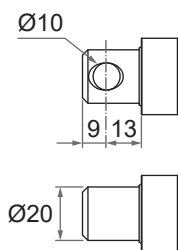


Unit: mm

3. Front connector type

1=Stainless steel solid

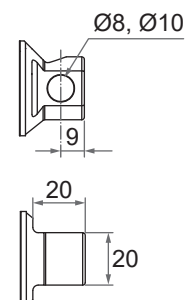
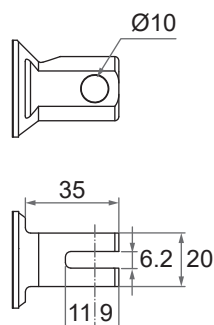
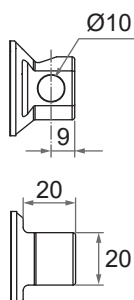
2=Stainless steel slot

3=Aluminum solid
(Black coating steel case only)

4. Rear connector type

1=Stainless steel solid


2=Stainless steel slot

3=Aluminum solid
(Black coating steel case only)

Unit: mm

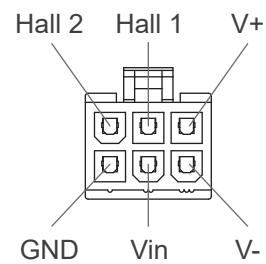


Compatibility

Product	Model	LD12 spec
Controller	CI72	<ul style="list-style-type: none"> • With dual Hall effect sensors for positioning • Use overload current to set the learning stroke; recommended values are: 2A @24V; 4A @12V. • Cable with flying leads
	CI74	<ul style="list-style-type: none"> • With dual Hall effect sensors for positioning • Use overload current to set the learning stroke; recommended values are: 3A @24V; 4A @12V. • With a minifit 6-pin plug in the same wiring definition as the Moteck L3 type.
Accessory	MB22 mounting bracket 	Standard, mounting hole \varnothing 8mm or \varnothing 10mm

Cable Plug

• Positioning feedback with dual Hall effect sensors



With minifit 6-pin plug




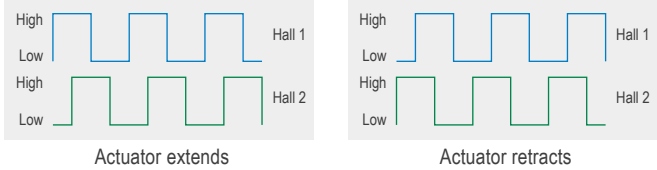
Minifit plug

Cable with Flying Leads

1. Basic, without positioning feedback.

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

2. With 60V dual Hall effect sensors positioning feedback

	Wire color	Definition	Descriptions												
Power wires	Red	DC power	Connect red wire to "Vdc +" & black wire to "Vdc -" of 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" data-bbox="730 1249 1390 1509"> <thead> <tr> <th>Gear type</th> <th>Resolution (pulses/mm)</th> </tr> </thead> <tbody> <tr> <td>19-M4</td> <td>4.81</td> </tr> <tr> <td>19-M2</td> <td>9.62</td> </tr> <tr> <td>27-M2</td> <td>12.89</td> </tr> <tr> <td>43-M2</td> <td>22.91</td> </tr> <tr> <td>57-M2/57-K2</td> <td>28.43</td> </tr> </tbody> </table>	Gear type	Resolution (pulses/mm)	19-M4	4.81	19-M2	9.62	27-M2	12.89	43-M2	22.91	57-M2/57-K2	28.43
	Gear type	Resolution (pulses/mm)													
19-M4	4.81														
19-M2	9.62														
27-M2	12.89														
43-M2	22.91														
57-M2/57-K2	28.43														
White	GND														



Ordering Key

	LD12- 24 43-M2 - 183 - 283 - S 1 1 9 H 0 1
Input voltage	12: 12V DC 24: 24V DC
Load code (gear ratio - motor-screw lead combination) M: 1000rpm K: 6000rpm	19-M4: 400N ⁽¹⁾ 19 -M2: 600N 27-M2: 1000N 43-M2: 1500N 57-M2: 2000N ⁽¹⁾ 57-K2: 1500N ⁽¹⁾
Retracted length (Refer to Page 6)	XXX
Extended length (Refer to Page 6)	XXX
Exterior	S: All stainless steel "SUS304" B: Black coating steel case and aluminum inner tube
Front connector (Refer to Page 6)	1: Stainless steel solid 2: Stainless steel slot 3: Aluminum solid (for black coating steel case only)
Rear connector (Refer to Page 6)	1: Stainless steel solid 2: Stainless steel slot 3: Aluminum solid (for black coating steel case only)
IP level	6: IP66 9: IP66, IPX9K (for All stainless steel "SUS304")
Positioning feedback	0: None H: 60V dual Hall effect sensors
Reserved	0
Cable length	1: 1000mm straight 2: 1500mm straight

Note:

⁽¹⁾ 24VDC available only.



Attentions

LD12 is without built-in mechanical limit switches, and is suggested to be used with Hall sensor feedback included. Also it is strongly suggested that the customer provides a over-current protection device in the power circuit with a value setting around 1.5 times the typical full load current. It's important that LD12 work with a control system that prevents the actuators from constantly hitting its internal end positions, which will reduce the actuator lifespan.

Certifications

LD12 actuator is compliant with the following regulations, in terms of the essential conformity requirements of EMC Directive of 2014/30/EU.

Emission	Immunity
EN 61000-6-3:2007+A1:2011+AC:2012	EN 61000-6-1:2007 IEC 61000-4-2:2008 IEC 61000-4-3:2006+A1:2007+A2:2010 IEC 61000-4-8:2009

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