

Actuator ID12



ID12 has the same thrust, speed, and low power consumption as ID10 actuators. Furthermore, ID12 features its square outer tube, facilitating the installation of the external and adjustable reed sensors, which create an arrival signal for the controller when detects the magnet on the screw nuts.

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Features and Options

- Main applications: Industry
- Input voltage: 12 / 24 / 48V DC
- Max. rated load: 3,500N (ACME screw) / 7,000N (Ball screw)
- Max. static load: 7,500N (ACME screw) / 13,600N (Ball screw)
- Max. speed at no load: 72.1mm/sec (Typical value)
- Stroke: 100 / 150 / 200 / 300 / 450 / 600mm
- IP level: IP66/IP69K (Static; non-action)
- Overload protection by clutch
- Aluminum outer tube
- Stainless steel extension tube
- Color: Black gearbox and motor
- Duty cycle: 25%, max. 2 min. continuous operation in 8 min.
- Operating ambient temperature: -25°C~+65°C
- Storage ambient temperature: -25°C~+65°C
- Certified: CE Marking, EMC Directive 2014/30/EU
- Options:
 - Limit switch
 - Manual drive (see page 14)
- Positioning:
 - Optional digital positioning feedback with single Hall effect sensor
 - Optional analog positioning feedback with Potentiometer (POT)
 - Optional 1x or 2x external reed sensors to provide position arrival signal (see page 16)

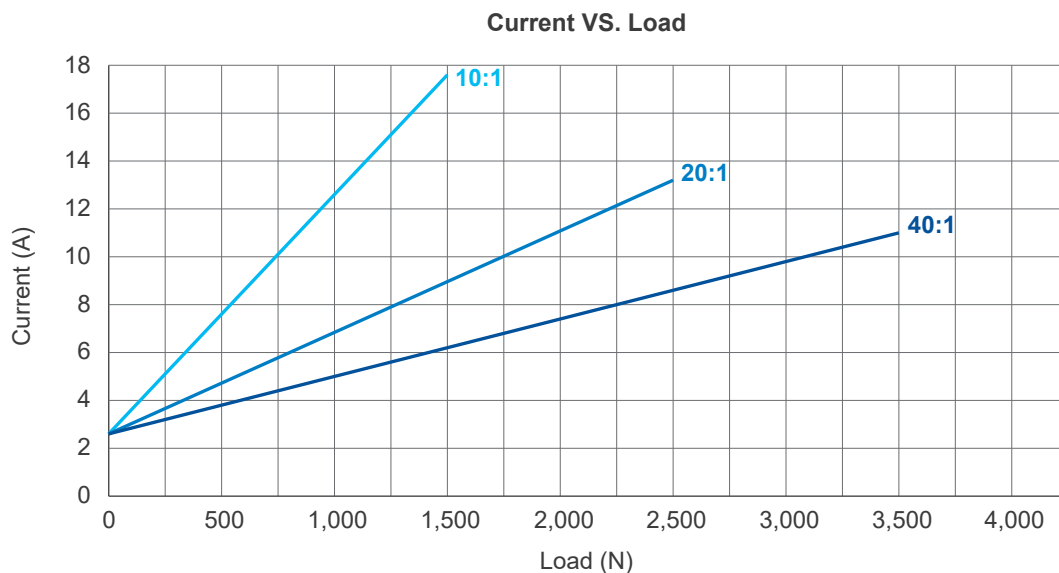
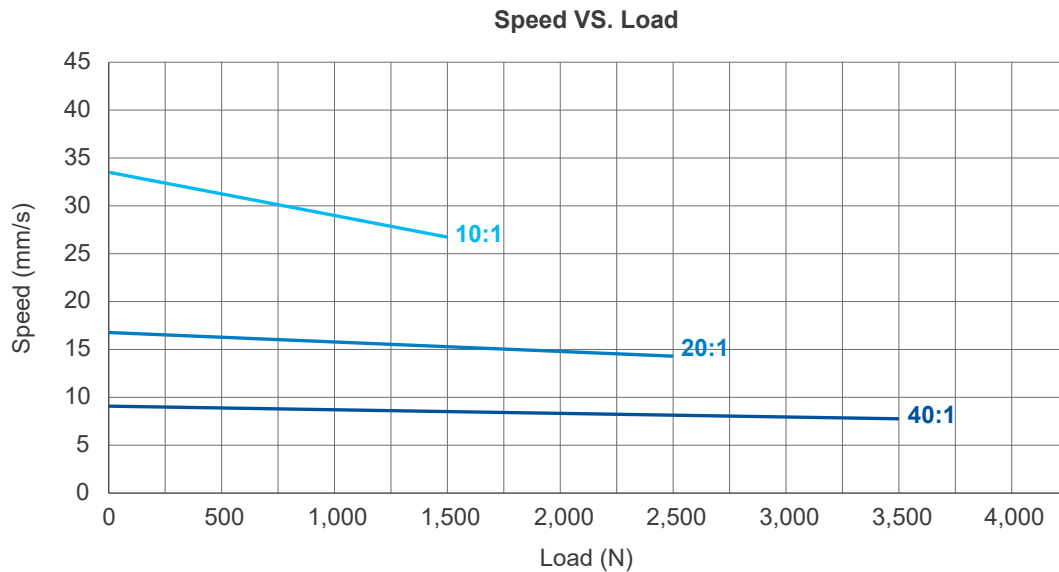


Performance Data

1. ACME screw type

1.1 12V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
ID12-12-G5A-10	10:1	1500	33.5	26.7	2.6	17.6
ID12-12-G5A-20	20:1	2500	16.8	14.3	2.6	13.2
ID12-12-G5A-40	40:1	3500	8.4	7.3	2.6	11.0



Note:

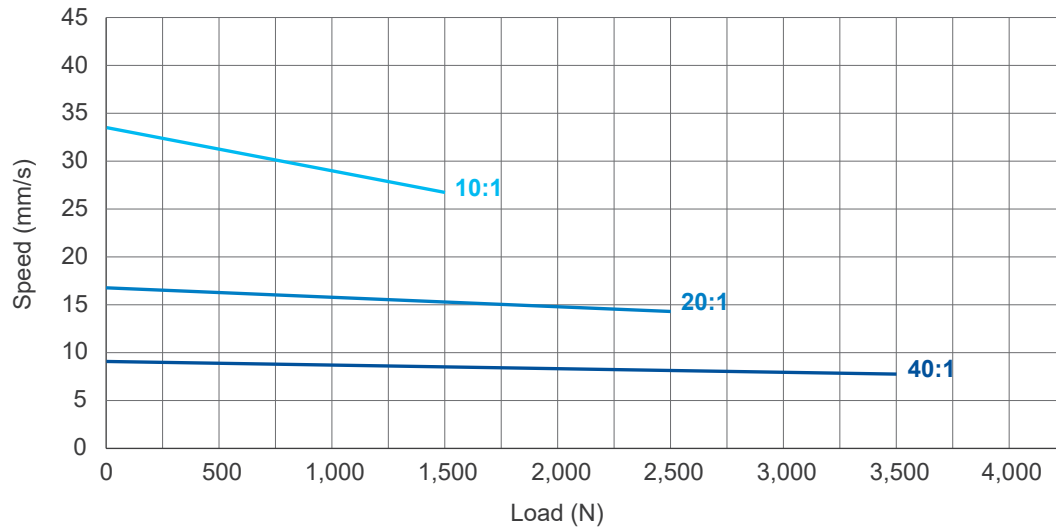
* The typical speed or typical current means the average value neither upper limit nor lower limit. The performance curves are made with typical values.



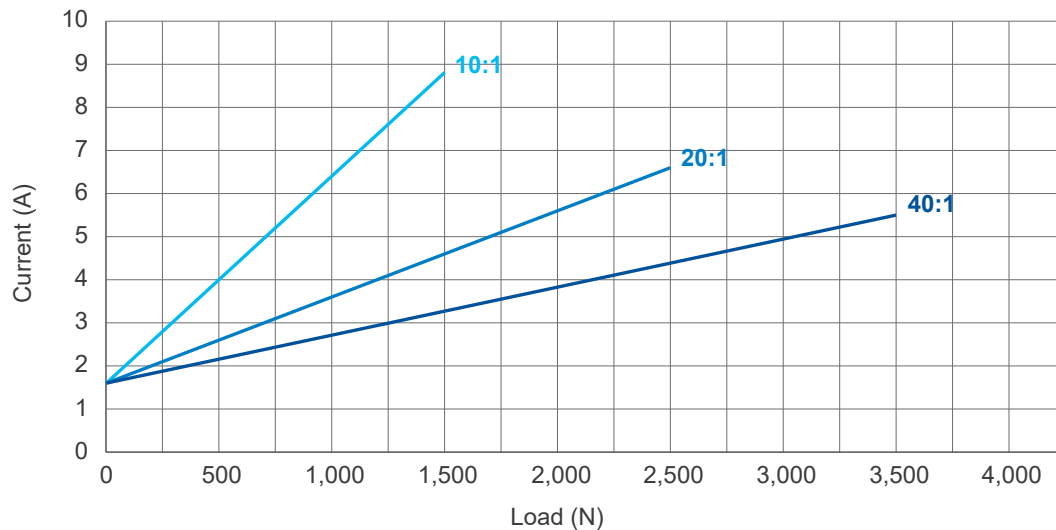
1.2 24V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
ID12-24-G5A-10	10:1	1500	33.5	26.7	1.6	8.8
ID12-24-G5A-20	20:1	2500	16.8	14.3	1.6	6.6
ID12-24-G5A-40	40:1	3500	8.4	7.3	1.6	5.5

Speed VS. Load



Current VS. Load

**Note:**

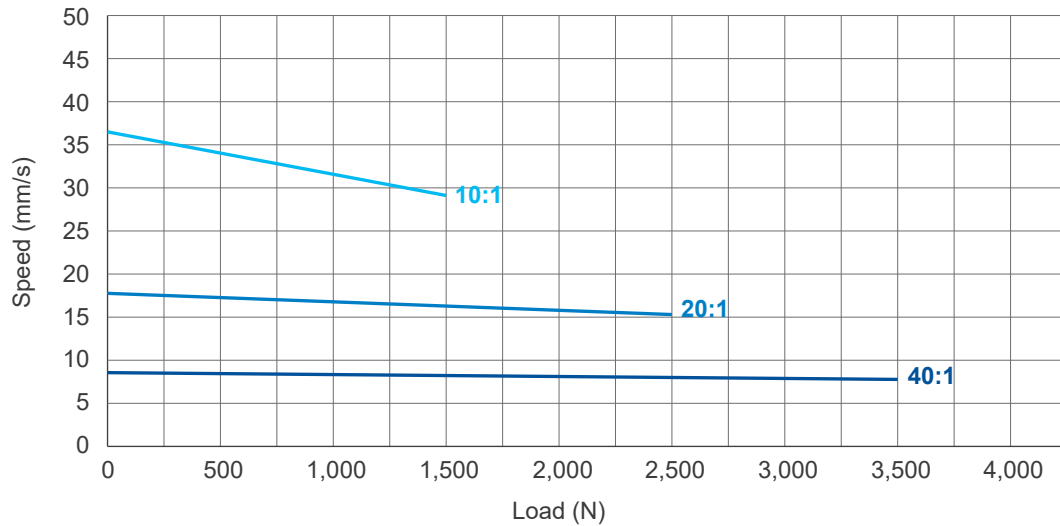
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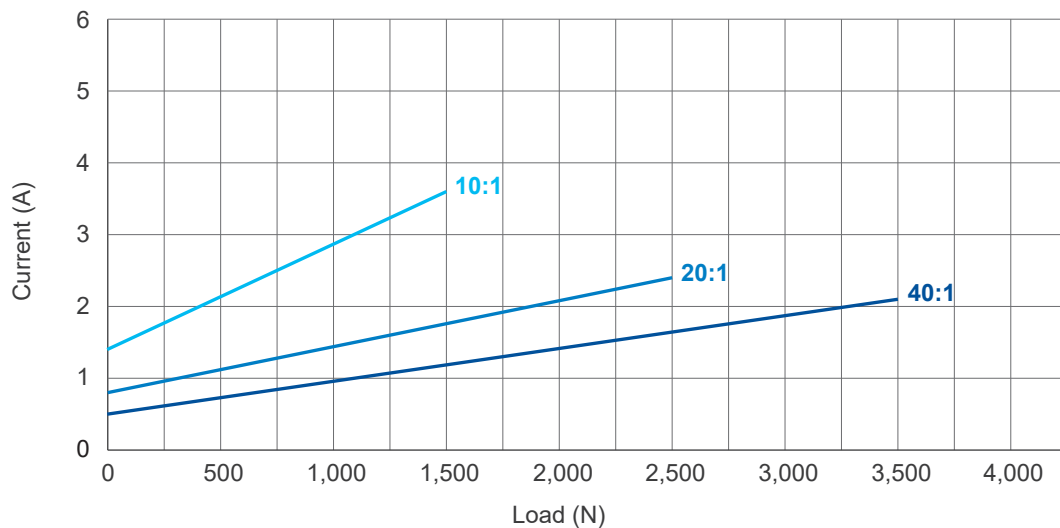
1.3 48V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
ID12-48-G5A-10	10:1	1500	36.5	29.1	1.4	3.6
ID12-48-G5A-20	20:1	2500	17.8	15.3	0.8	2.4
ID12-48-G5A-40	40:1	3500	8.6	7.8	0.5	2.1

Speed VS. Load



Current VS. Load

**Note:**

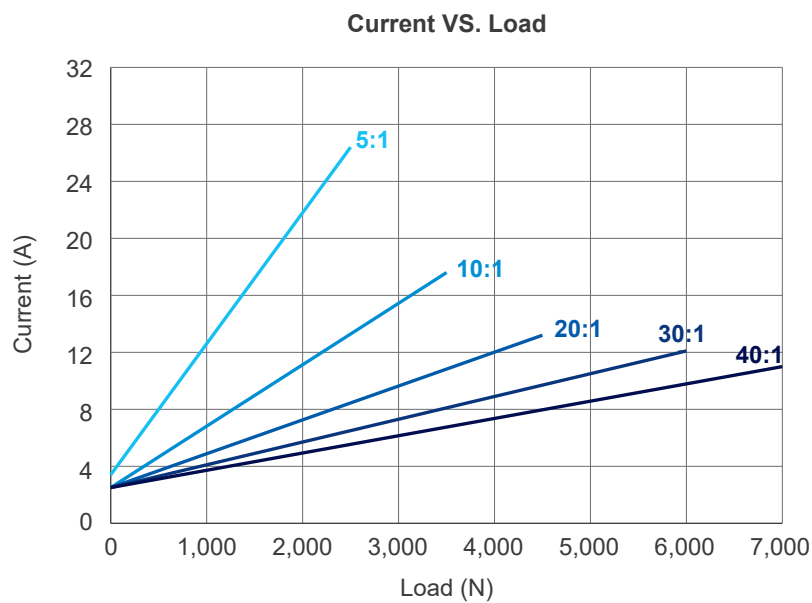
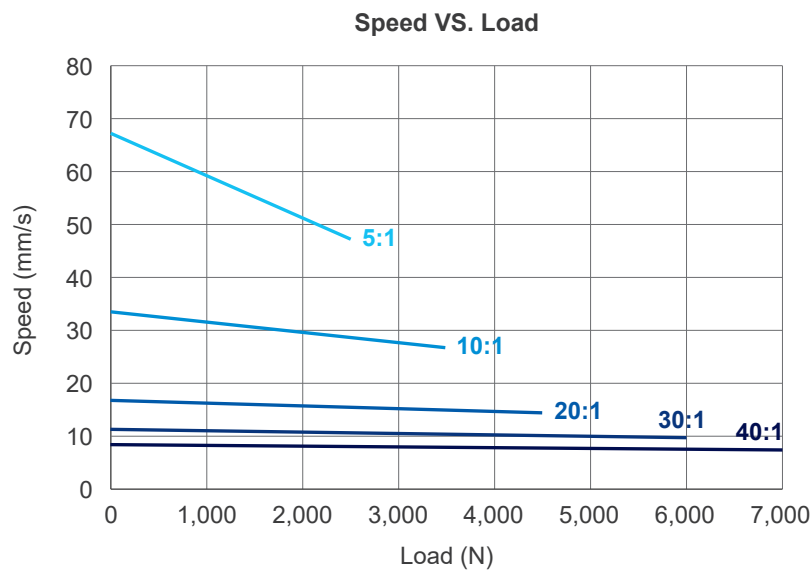
* The typical speed or typical current means the average value neither upper limit nor lower limit. The performance curves are made with typical values.



2. Ball screw type

2.1 12V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
ID12-12-G5B-05	5:1	2500	67.1	47.2	3.4	26.4
ID12-12-G5B-10	10:1	3500	33.5	26.7	2.6	17.6
ID12-12-G5B-20	20:1	4500	16.8	14.3	2.6	13.2
ID12-12-G5B-30	30:1	6000	11.2	9.8	2.6	12.1
ID12-12-G5B-40	40:1	7000	8.4	7.4	2.6	11.0



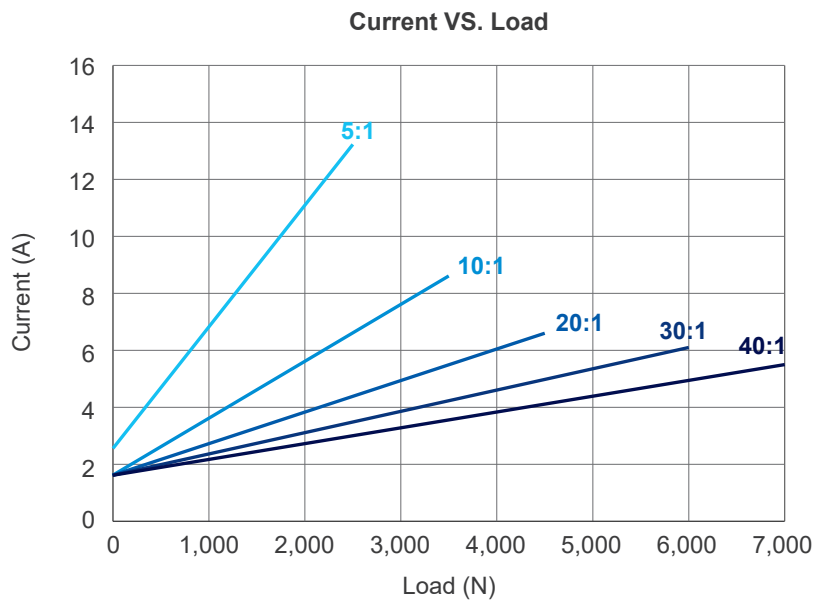
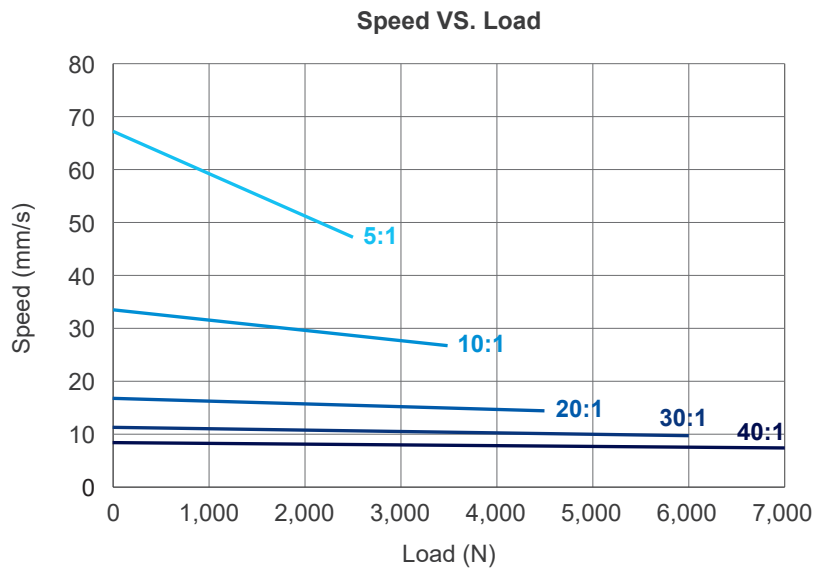
Note:

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



2.2 24V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
ID12-24-G5B-05	5:1	2500	67.1	47.2	2.6	13.2
ID12-24-G5B-10	10:1	3500	33.5	26.7	1.6	8.6
ID12-24-G5B-20	20:1	4500	16.8	14.3	1.6	6.6
ID12-24-G5B-30	30:1	6000	11.2	9.8	1.6	6.1
ID12-24-G5B-40	40:1	7000	8.4	7.4	1.6	5.5

**Note:**

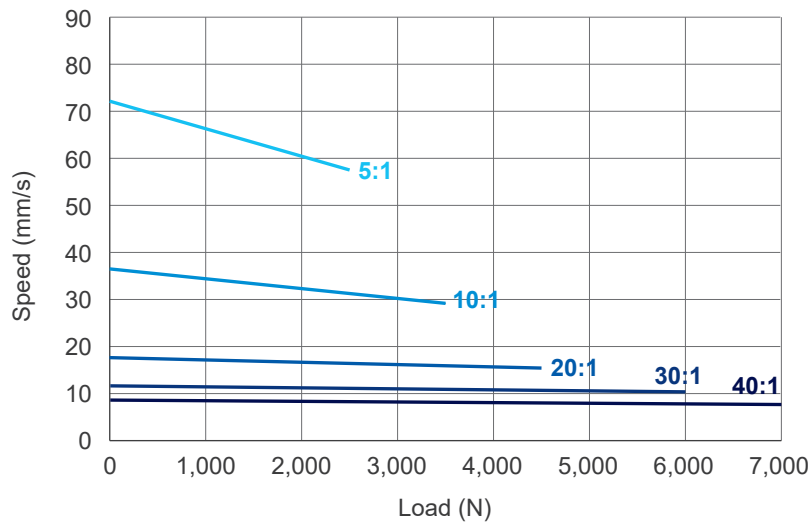
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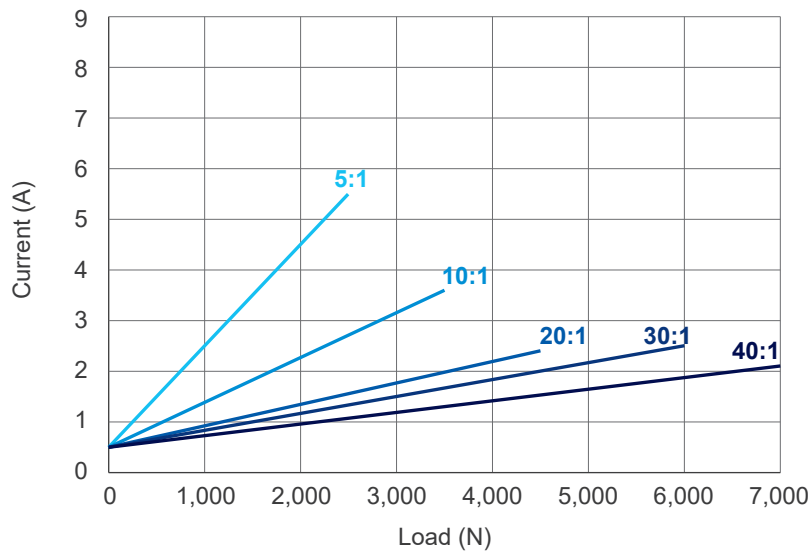
2.3 48V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
ID12-48-G5B-05	5:1	2500	72.1	57.5	0.5	5.5
ID12-48-G5B-10	10:1	3500	36.5	29.1	0.5	3.6
ID12-48-G5B-20	20:1	4500	17.8	15.3	0.5	2.4
ID12-48-G5B-30	30:1	6000	11.7	10.3	0.5	2.5
ID12-48-G5B-40	40:1	7000	8.6	7.8	0.5	2.1

Speed VS. Load



Current VS. Load

**Note:**

* The typical speed or typical current means the average value neither upper limit nor lower limit. 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 ID12 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. ACME screw type

1.1 Installation dimension

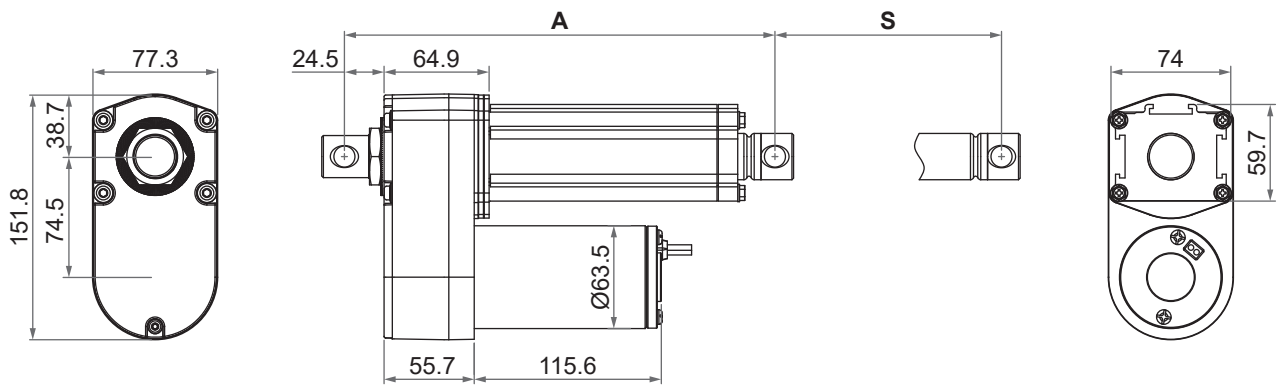
- Extended length = Retracted length (A) + Stroke (S)
- Retracted length (A)

(Tolerance: ±5mm)

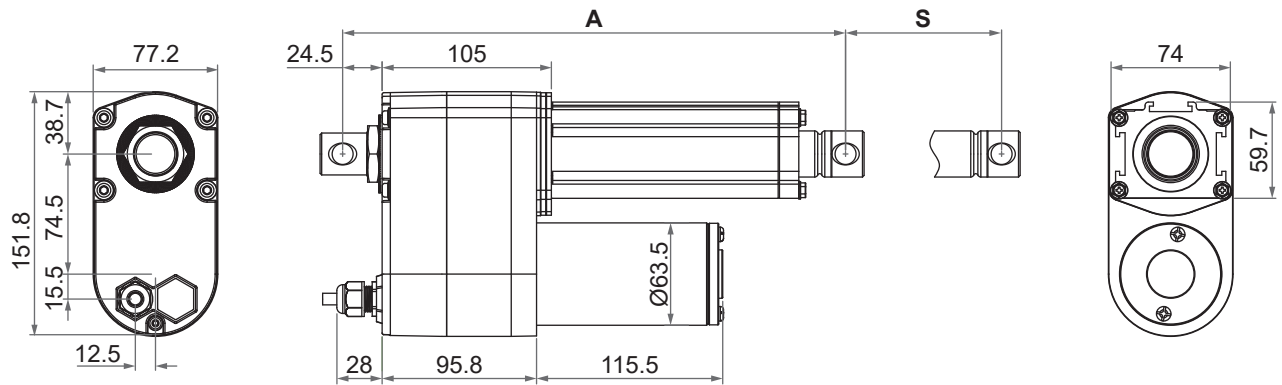
	Option	Stroke (S)					
		100 (4")	150 (6")	200 (8")	300 (12")	450 (18")	600 (24")
Retracted length (A)	Basic	266	316	366	466	666	816
	With positioning feedback	306	356	406	506	706	856
	With limit switch	362	412	462	612	762	912

1.2 Drawing

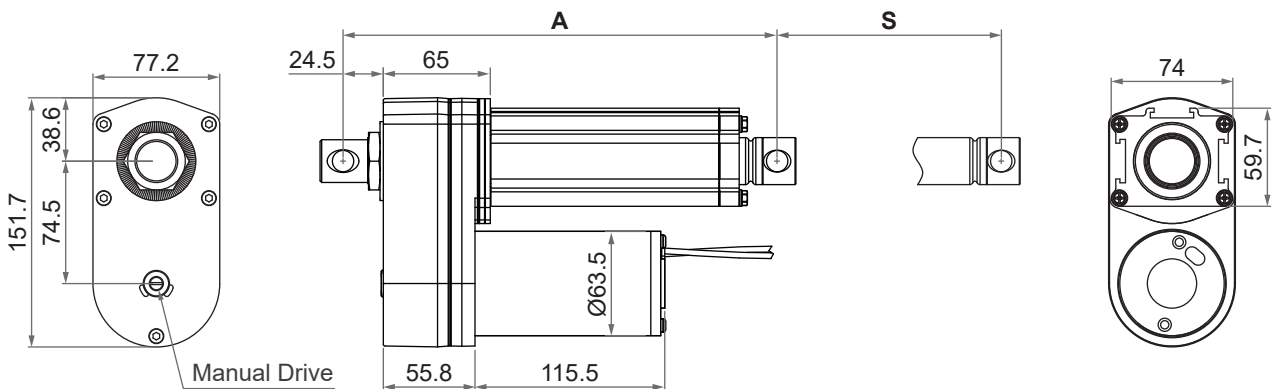
- Basic (Without limit switch nor positioning feedback)



- With limit switch or positioning feedback



- With manual drive (Without limit switch nor positioning feedback)



Unit: mm



2. Ball screw type

2.1 Installation dimension

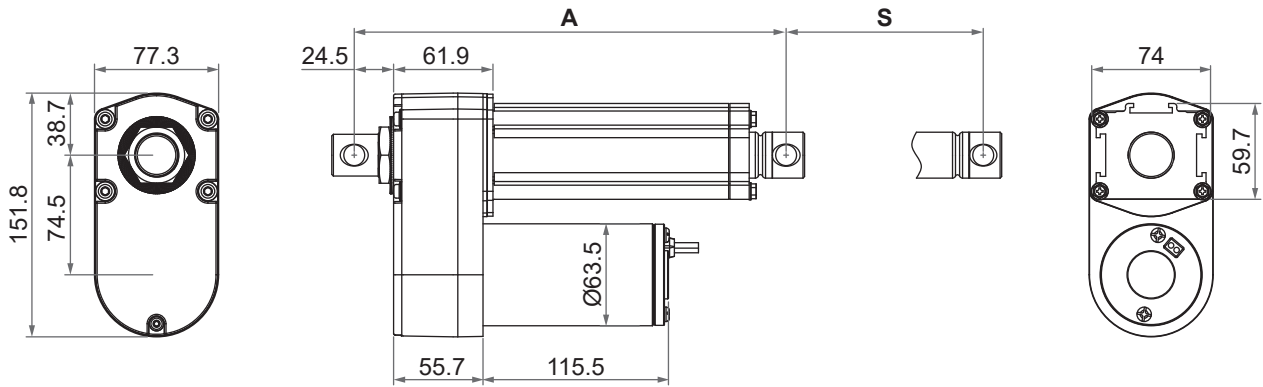
- Extended length = Retracted length (A) + Stroke (S)
- Retracted length (A)

(Tolerance: ±5mm)

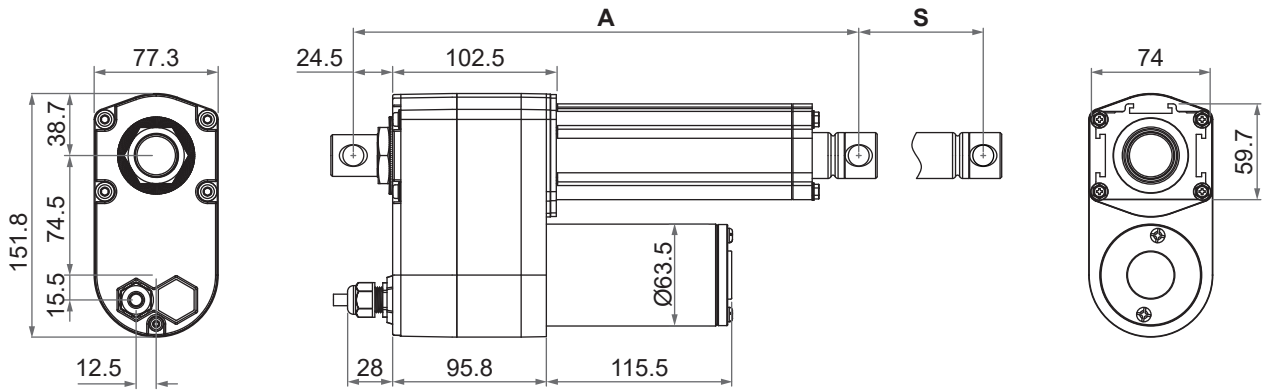
	Option	Stroke (S)					
		100 (4")	150 (6")	200 (8")	300 (12")	450 (18")	600 (24")
Retracted length (A)	Basic	319	369	419	519	719	869
	With positioning feedback	359	409	459	559	759	909
	With limit switch	415	465	515	665	815	965

2.2 Drawing

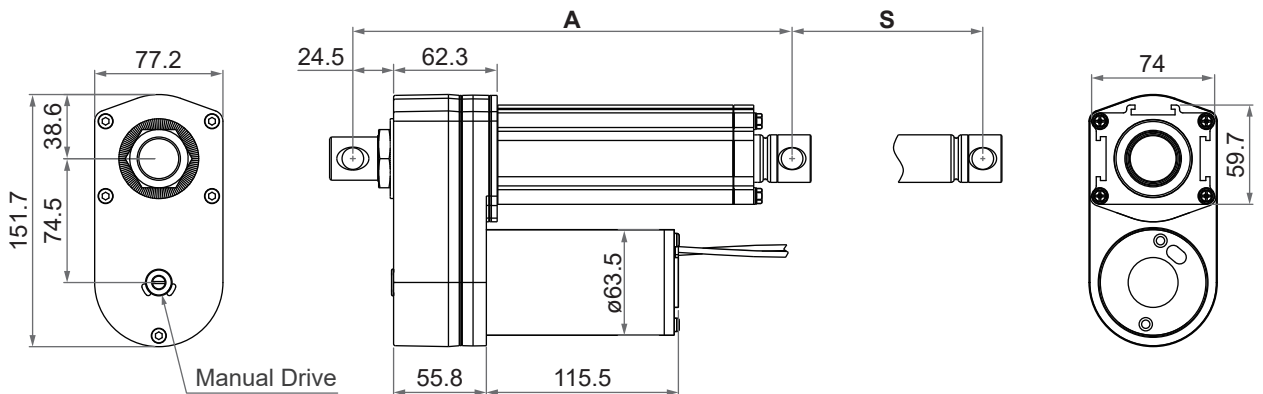
- Basic (Without limit switch nor positioning feedback)



- With limit switch or positioning feedback



- With manual drive (Without limit switch nor positioning feedback)

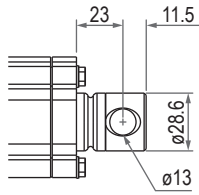


Unit: mm

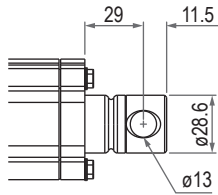


3. Front connector type

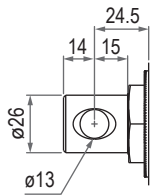
- Basic, positioning feedback or with manual drive socket.



- With limit switch or limit switches + positioning feedback

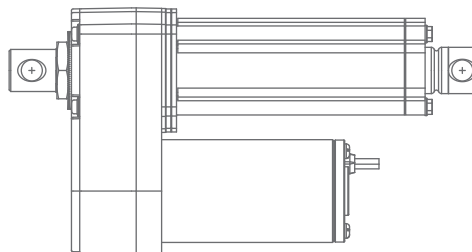
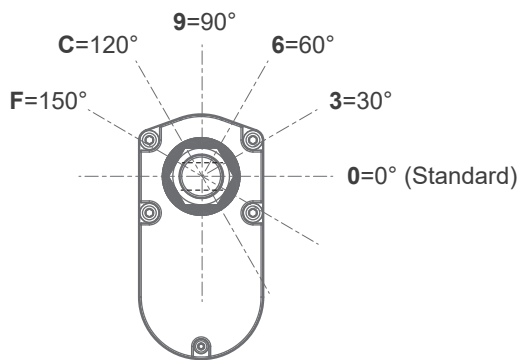


4. Rear connector type



Unit: mm

5. Pivot orientation of rear connector

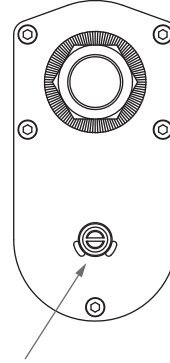


Note: As an example in 0° pivot of rear connector.




Manual Drive

- Available with basic, IP54 and gear ratio 5, 10 or 20:1 options only.
- Not applicable to IP66/IP69K, limit switch and/or positioning feedback options.
- Power wires outlet at motor cap (Refer to Page 11 or 12)
- Drive the hex socket on the motor shaft by wrench or electric screwdriver with 8mm hex key
- Please refer to “ID12 User Guide” for operation steps



Drive the hex socket on the motor shaft by wrench or electric screwdriver with 8mm hex key.

Compatibility

Product	Model	Application condition	ID12 spec
Controller	CI72	12/24V DC / Max. current <25A (per channel)	<ul style="list-style-type: none"> • With single Hall or POT for positioning • Cable with flying leads
	CI73	12V DC / Max. current <16A; 24V DC / Max. current <10A (per channel)	<ul style="list-style-type: none"> • With single Hall or POT for positioning • Cable with flying leads
	CI74	12V DC / Max. current <16A; 24V DC / Max. current <12.5A (per channel)	<ul style="list-style-type: none"> • With single Hall effect sensor for positioning • With Minifit 6-pin plug
Accessory	MB30 mounting bracket 	Connect the front or rear connectors of the actuator	<ul style="list-style-type: none"> • Standard, mounting hole \varnothing13mm.



Cable with Flying Leads

1. Basic (Without limit switch nor positioning feedback)

- Gear ratio: 5:1, 10:1, 20:1

	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		

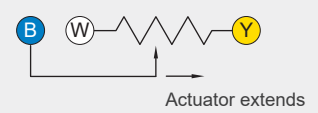
- Gear ratio: 30:1, 40:1

	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 limit switch


	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		

3. With Potentiometer (POT) absolute 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	Input voltage 70V max.												
	Blue	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 blue and white increases linearly from about 0 when the actuator extends, and decreases when it retracts. <div style="text-align: center;">  </div>												
			3. There are different resolutions according to the stroke length (as table below) <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Stroke (mm)</th> <th>Resistance (tolerance: $\pm 0.3K\Omega$)</th> </tr> </thead> <tbody> <tr> <td>100 (4")</td> <td>0.3~8.0K</td> </tr> <tr> <td>150 (6")</td> <td>0.3~8.5K</td> </tr> <tr> <td>200 (8")</td> <td>0.3~9.1K</td> </tr> <tr> <td>300 (12")</td> <td>0.3~8.6K</td> </tr> <tr> <td>450 (18")</td> <td>0.3~9.2K</td> </tr> <tr> <td>600 (24")</td> <td>0.3~9.8K</td> </tr> </tbody> </table>	Stroke (mm)	Resistance (tolerance: $\pm 0.3K\Omega$)	100 (4")	0.3~8.0K	150 (6")	0.3~8.5K	200 (8")	0.3~9.1K	300 (12")	0.3~8.6K	450 (18")	0.3~9.2K
	Stroke (mm)	Resistance (tolerance: $\pm 0.3K\Omega$)													
100 (4")	0.3~8.0K														
150 (6")	0.3~8.5K														
200 (8")	0.3~9.1K														
300 (12")	0.3~8.6K														
450 (18")	0.3~9.2K														
600 (24")	0.3~9.8K														
White	GND														

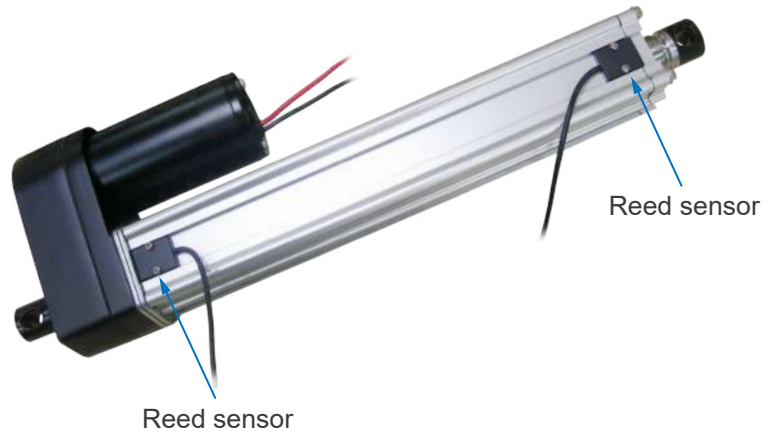


4. With single Hall effect sensor positioning feedback

	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	White	Vin	Voltage input range: 5~20V
	Yellow	Hall output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data:  Hall effect sensor resolution: 20ppi, 1.27mm/pulse (0.787pulses/mm)
	Blue	GND	

5. With external reed sensor

The external reed sensor allows users to obtain position arrival signals to make use of it.

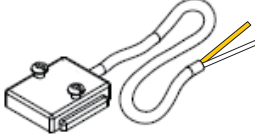


• Wiring:

With external reed sensors, select either yellow or white wire to connect to the motor wire as common point, and the other one will be signal output.

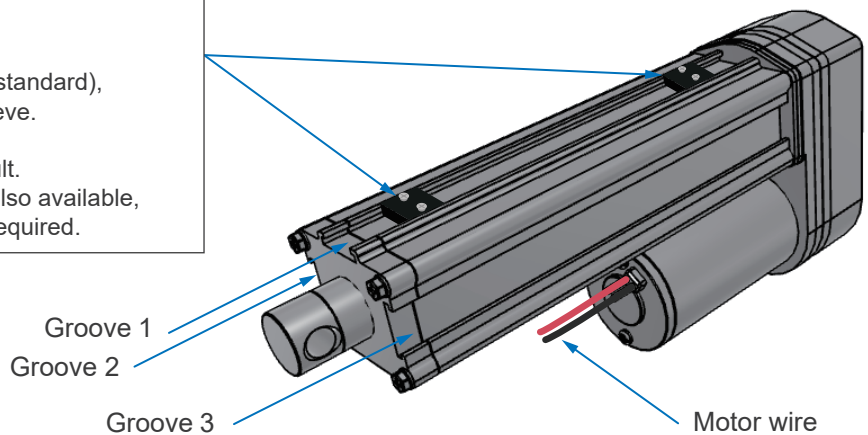
• How to change the position of reed sensor:

- Step 1. Loosen the screws.
- Step 2. Slide sensor to the correct position.
- Step 3. Tighten the screws and make sure the sensor is fixed.



Yellow (+), White (-)
or
Yellow (-), White (+)

Reed sensor
 - 26AWG 2C yellow and white wire (standard), covered by Ø3.5mm black wire sleeve.
 - Wire length: 3m (with terminal)
 - NC-type (i.e. normal close) is default. And NO-type (i.e. normal open) is also available, please indicate to sales window if required.



Ordering Key

		ID12	24	G5B	20	300	0	0	0	P	L	0	0	0
Input voltage	12: 12V DC 24: 24V DC 48: 48V DC													
Motor and spindle type	G5A: 4500rpm / 5.08mm pitch / ACME screw G5B: 4500rpm / 5.08mm pitch / Ball screw													
Gear ratio	10: 10:1 20: 20:1 40: 40:1		05: 5:1 (Ball screw only) 30: 30:1 (Ball screw only)											
Stroke	100: 100mm (4") 150: 150mm (6") 200: 200mm (8")		300: 300mm (12") 450: 450mm (18") 600: 600mm (24")											
Front connector type	0: Standard													
Rear connector type	0: Standard													
Pivot orientation of rear connector (Refer to Page 13)	0: 0° (Standard) 3: 30° 6: 60°		9: 90° C: 120° F: 150°											
Positioning feedback	0: None 1: External reed sensor x1 arrival signal (Refer to Page 16) 2: External reed sensor x2 arrival signal (Refer to Page 16) H: Hall effect sensor x 1 P: Potentiometer (POT)													
Limit switch	0: None L: Limit switch													
Reserved	0													
Option	0: None M: Manual drive (Refer to Page 14 for conditions to order)													
Cable length	0: 250mm straight 1: 500mm straight		3: 1000mm straight 5: 1500mm straight											



More information about installation and usage is provided in ID12 User Guide, which can be downloaded from Moteck website.



Certifications

ID12 actuator is compliant with the following regulations, in terms of the essential conformity requirements of EMC Directive of 2014/30/EU.

Emission	Immunity
EN55014-1:2017+A11:2020	EN 55014-2:2015

Terms of Use

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