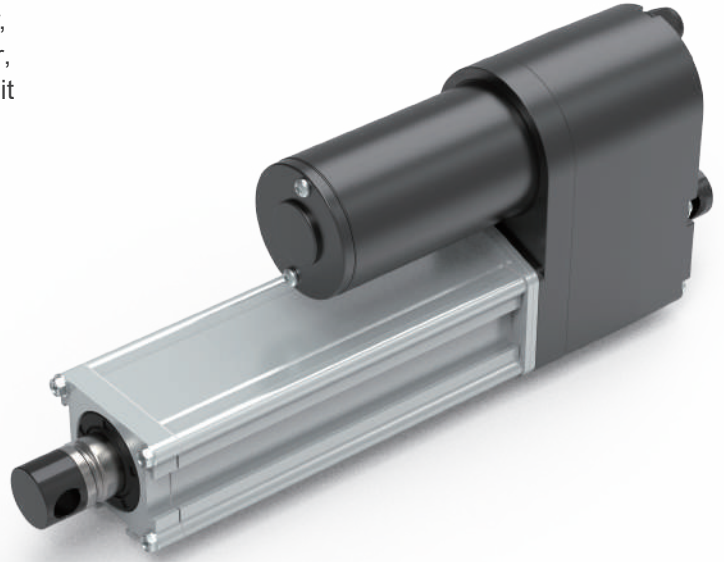


## Product Data Sheet

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# Actuator 01US12

01US12 has the same performance of load capability, speed, and power consumption as 01US10. However, 01US12 features its square outer tube, which makes it easy to install and apply the external reed sensor on demand.



## Features and Options

---

**Main application:** Industry

**Standard features:**

- 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
- Certified: CE Marking, EMC Directive 2014/30/EU

**Options:**

- Positioning signal feedback with Hall effect sensor x 1
- Analog and absolute positioning feedback with Potentiometer (POT)
- Preset limit switches (LT)
- External adjustable reed sensor. 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.
- Manual drive socket (Please refer to Page 11)

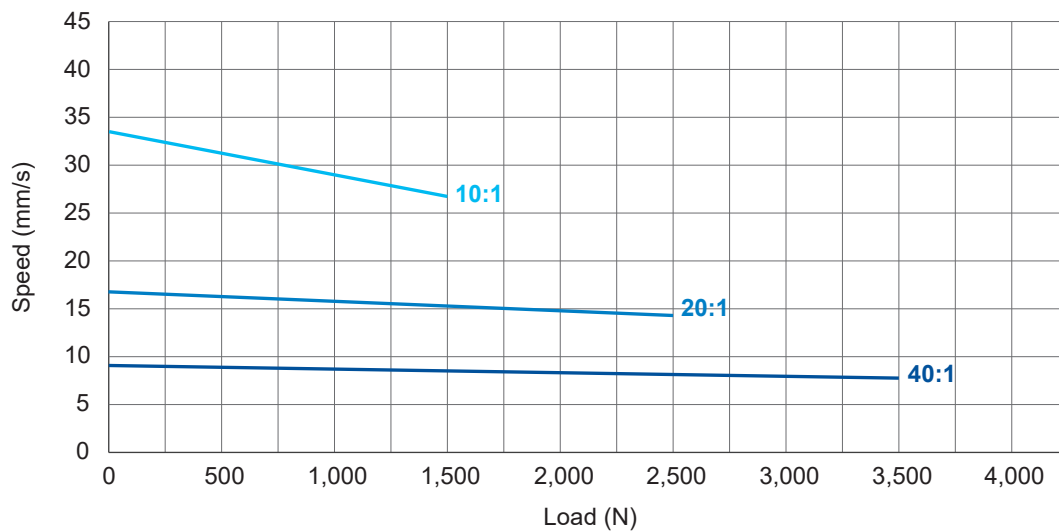
## Performance Data

### ACME screw type

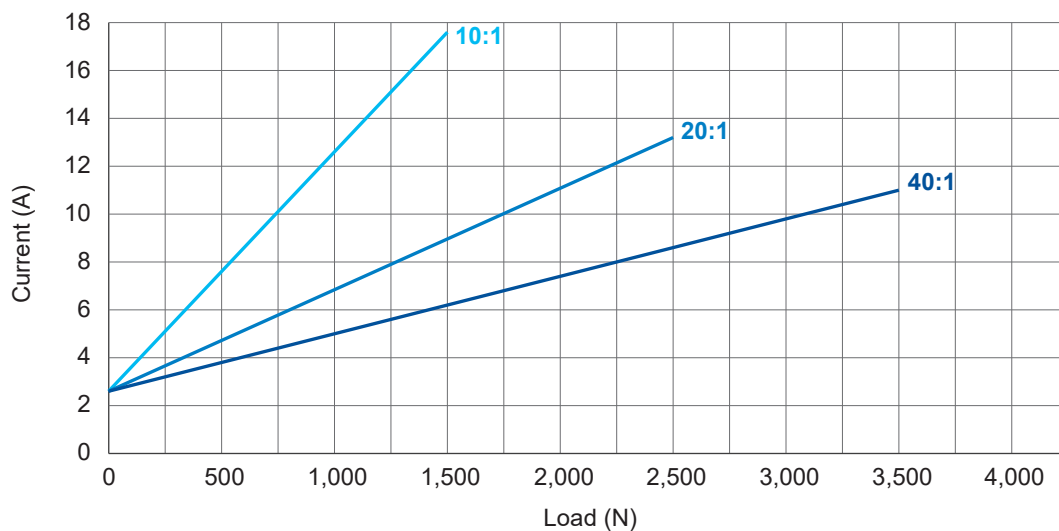
- 12V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
01US12-12-G5A-10	10:1	1500	33.5	26.7	2.6	17.6
01US12-12-G5A-20	20:1	2500	16.8	14.3	2.6	13.2
01US12-12-G5A-40	40:1	3500	8.4	7.3	2.6	11.0

Speed VS. Load



Current VS. Load



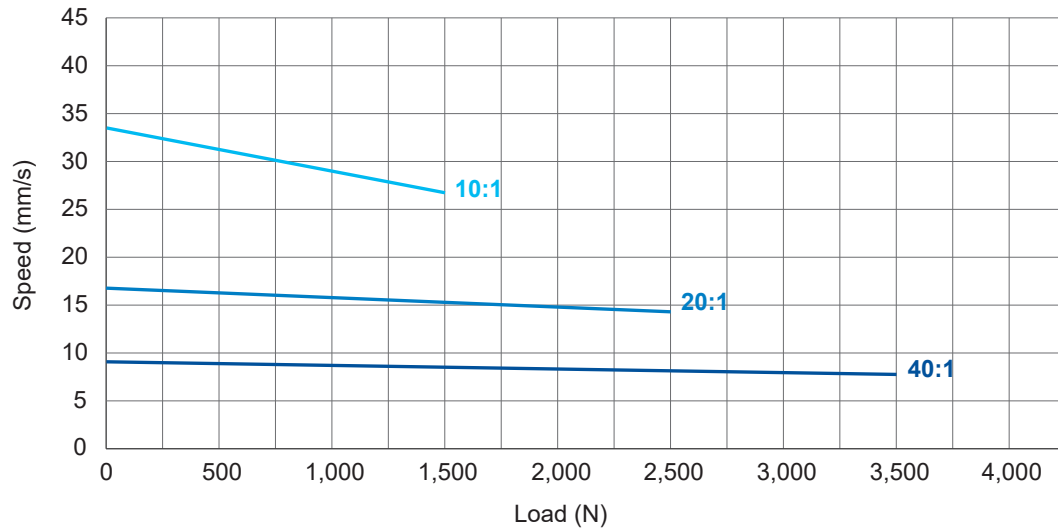
#### Remarks:

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

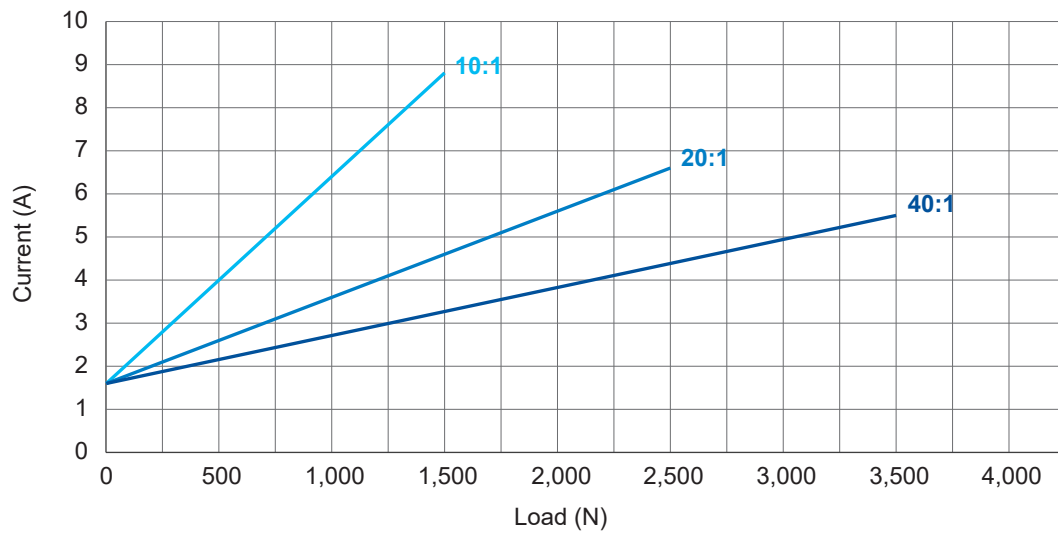
● 24V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
01US12-24-G5A-10	10:1	1500	33.5	26.7	1.6	8.8
01US12-24-G5A-20	20:1	2500	16.8	14.3	1.6	6.6
01US12-24-G5A-40	40:1	3500	8.4	7.3	1.6	5.5

Speed VS. Load



Current VS. Load



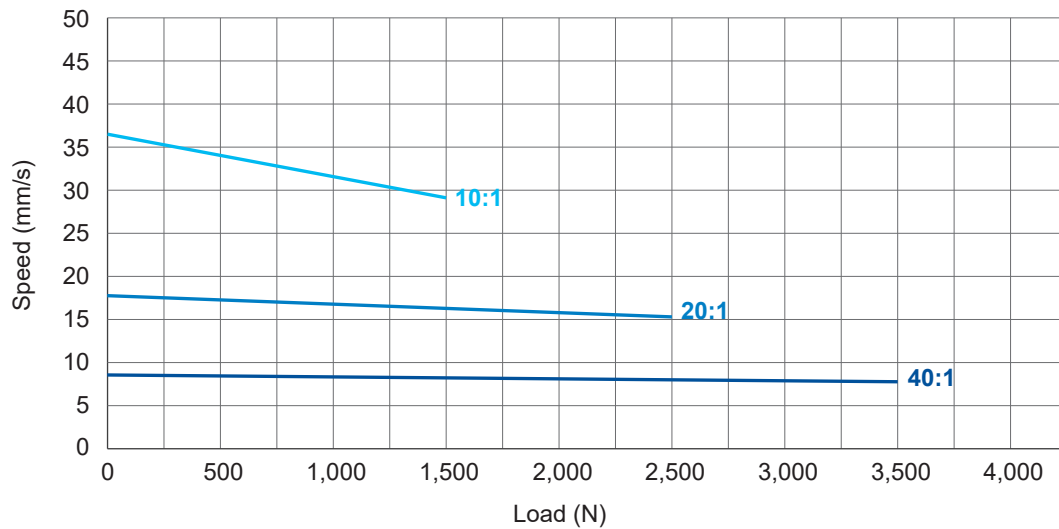
Remarks:

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

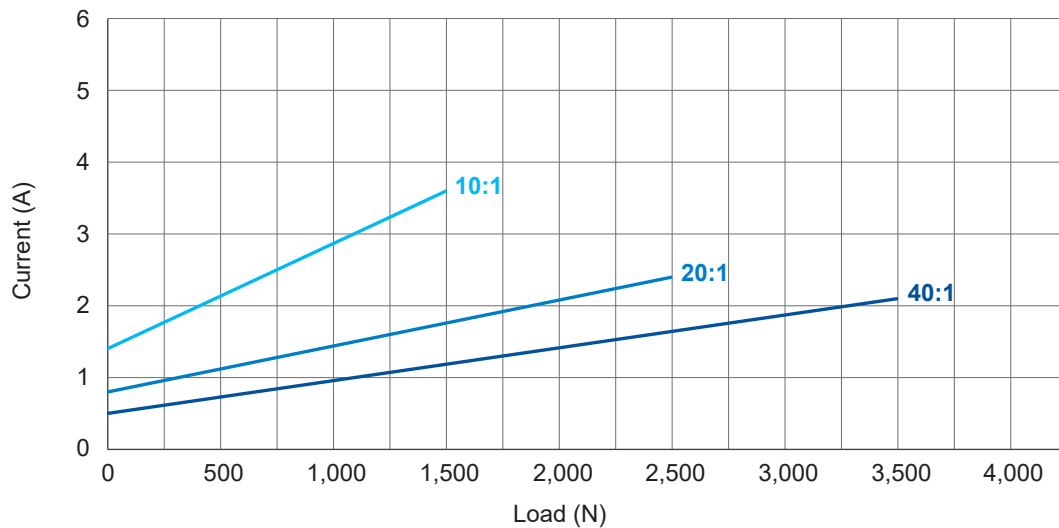
## ● 48V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
01US12-48-G5A-10	10:1	1500	36.5	29.1	1.4	3.6
01US12-48-G5A-20	20:1	2500	17.8	15.3	0.8	2.4
01US12-48-G5A-40	40:1	3500	8.6	7.8	0.5	2.1

Speed VS. Load



Current VS. Load

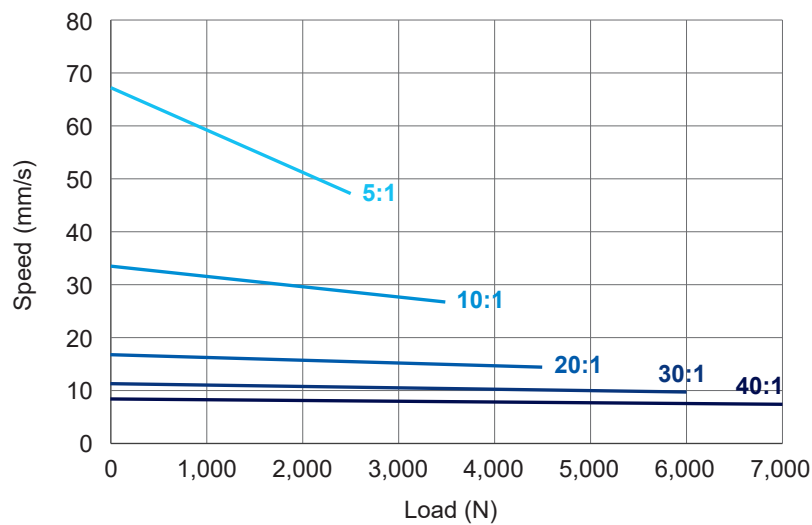
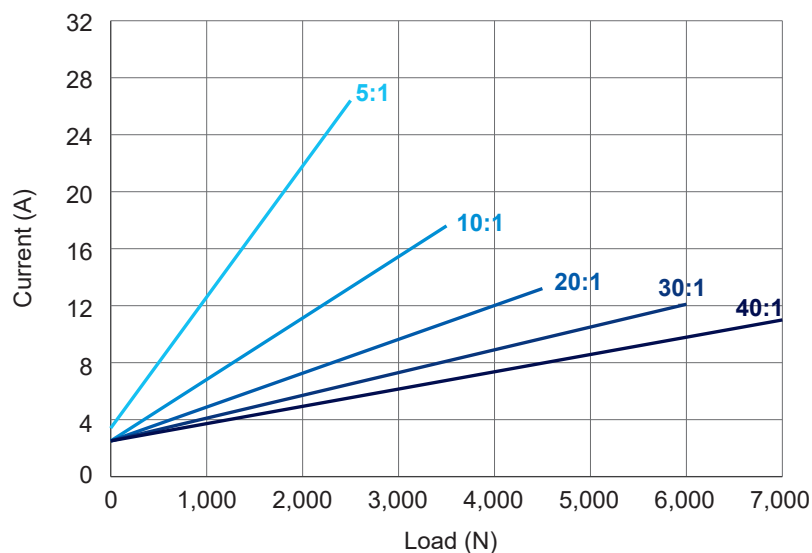
**Remarks:**

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

**Ball screw type**

## • 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
01US12-12-G5B-05	5:1	2500	67.1	47.2	3.4	26.4
01US12-12-G5B-10	10:1	3500	33.5	26.7	2.6	17.6
01US12-12-G5B-20	20:1	4500	16.8	14.3	2.6	13.2
01US12-12-G5B-30	30:1	6000	11.2	9.8	2.6	12.1
01US12-12-G5B-40	40:1	7000	8.4	7.4	2.6	11.0

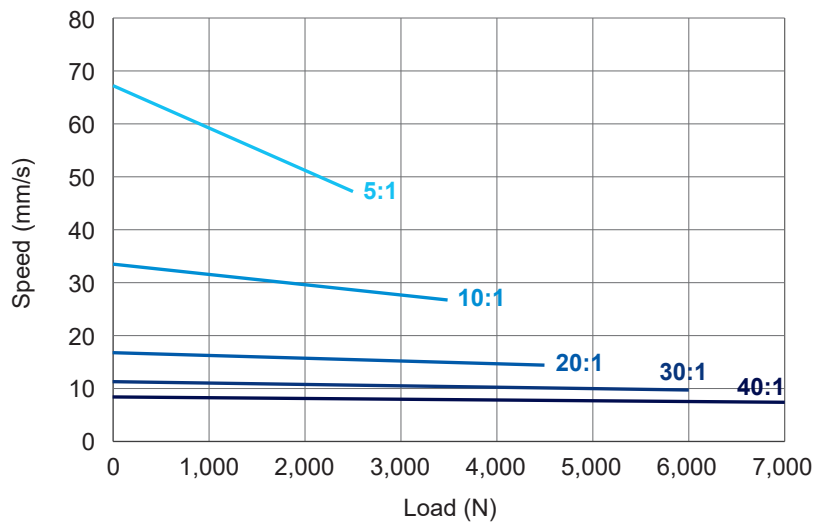
**Speed VS. Load****Current VS. Load****Remarks:**

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

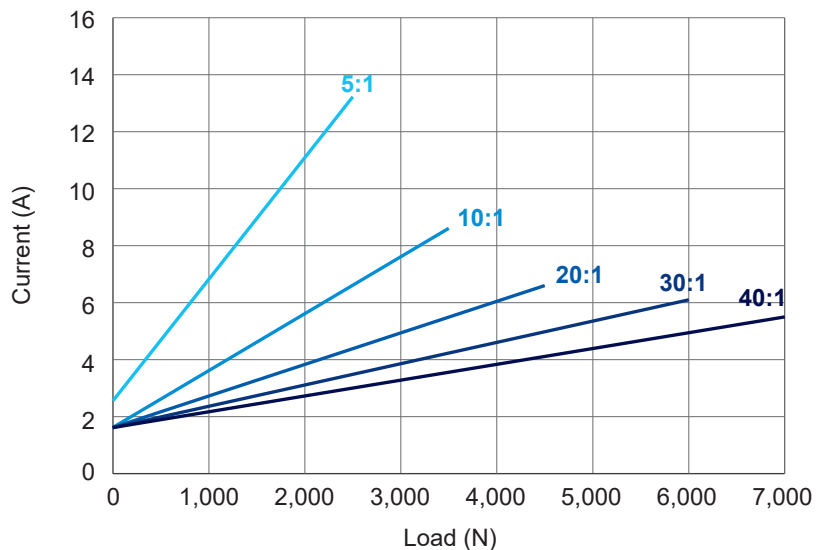
## ● 24V DC motor

Model No.	Gear ratio	Push/Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
01US12-24-G5B-05	5:1	2500	67.1	47.2	2.6	13.2
01US12-24-G5B-10	10:1	3500	33.5	26.7	1.6	8.6
01US12-24-G5B-20	20:1	4500	16.8	14.3	1.6	6.6
01US12-24-G5B-30	30:1	6000	11.2	9.8	1.6	6.1
01US12-24-G5B-40	40:1	7000	8.4	7.4	1.6	5.5

Speed VS. Load



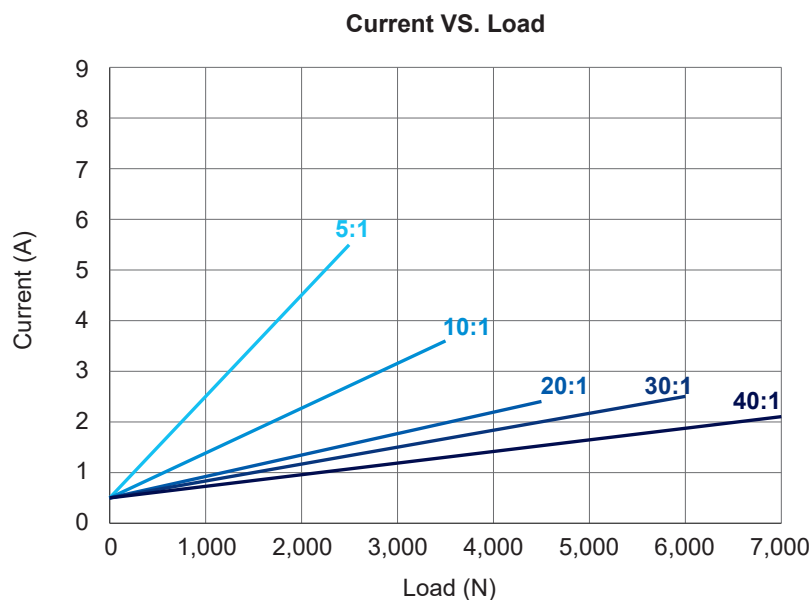
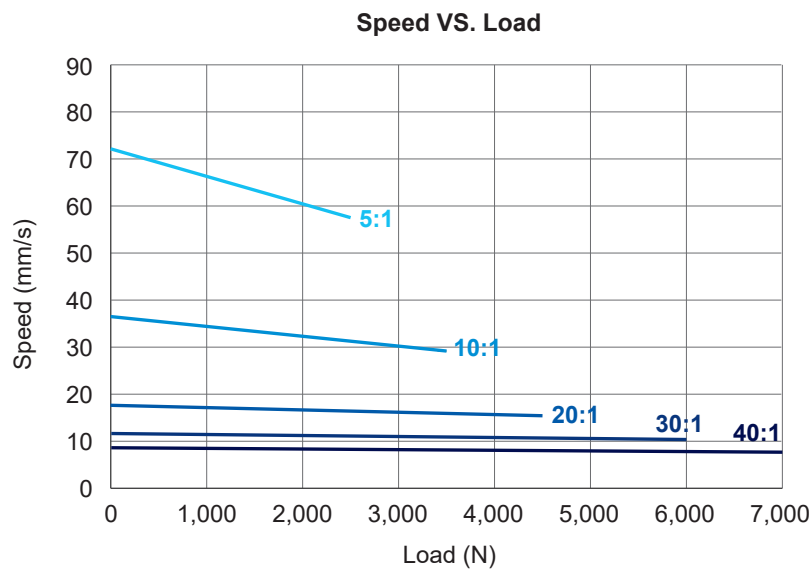
Current VS. Load

**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.

## ● 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
01US12-48-G5B-05	5:1	2500	72.1	57.5	0.5	5.5
01US12-48-G5B-10	10:1	3500	36.5	29.1	0.5	3.6
01US12-48-G5B-20	20:1	4500	17.8	15.3	0.5	2.4
01US12-48-G5B-30	30:1	6000	11.7	10.3	0.5	2.5
01US12-48-G5B-40	40:1	7000	8.6	7.8	0.5	2.1

**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

### 1. ACME screw type

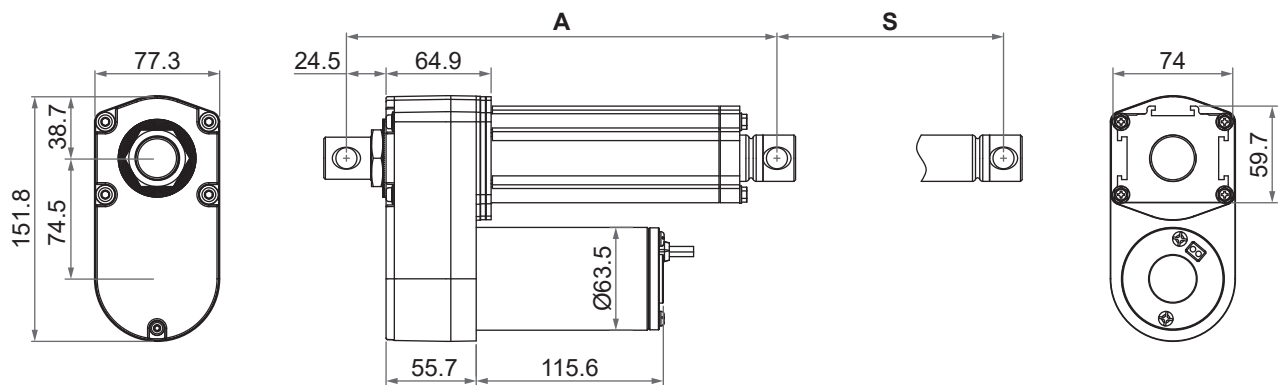
#### 1.1 Retracted length (A)

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

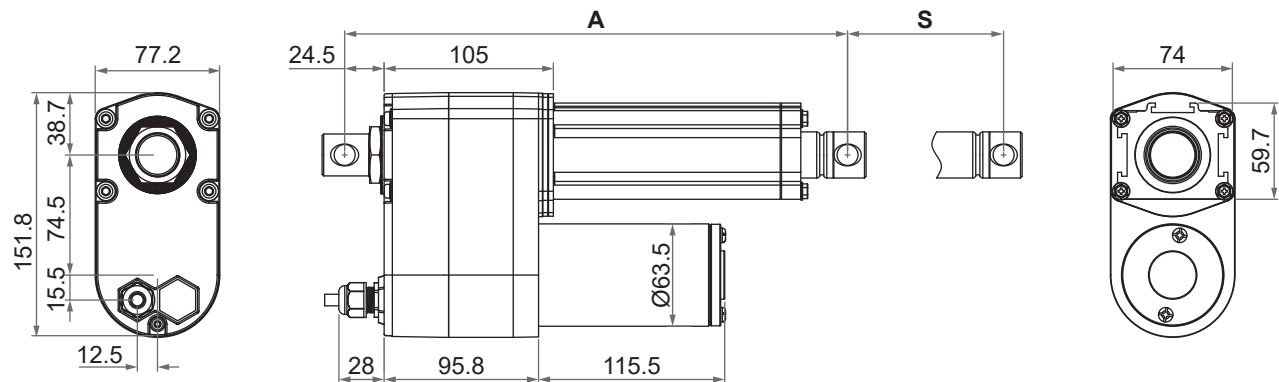
(Tolerance:  $\pm 5\text{mm}$ )

#### 1.2 Drawing

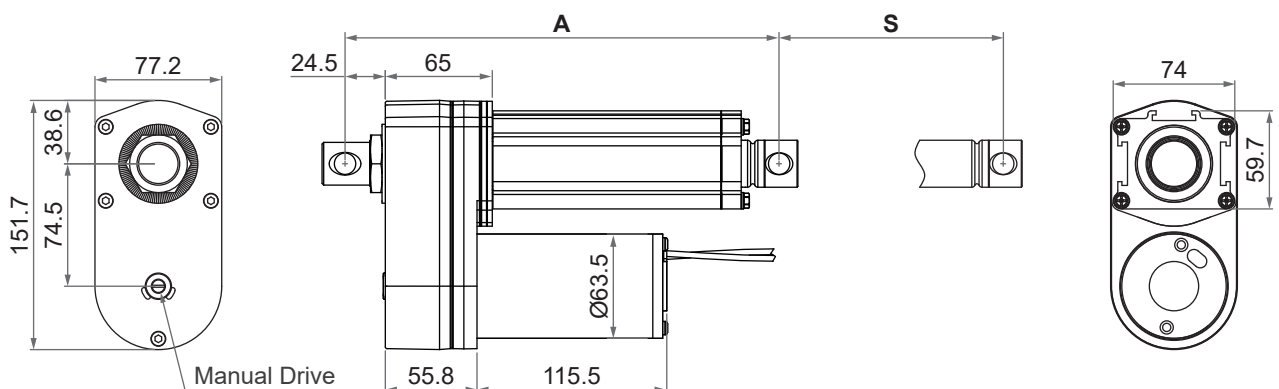
- Basic (Without limit switch nor positioning feedback)



- With limit switches or positioning feedback



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



Unit: mm



## 2. Ball screw type

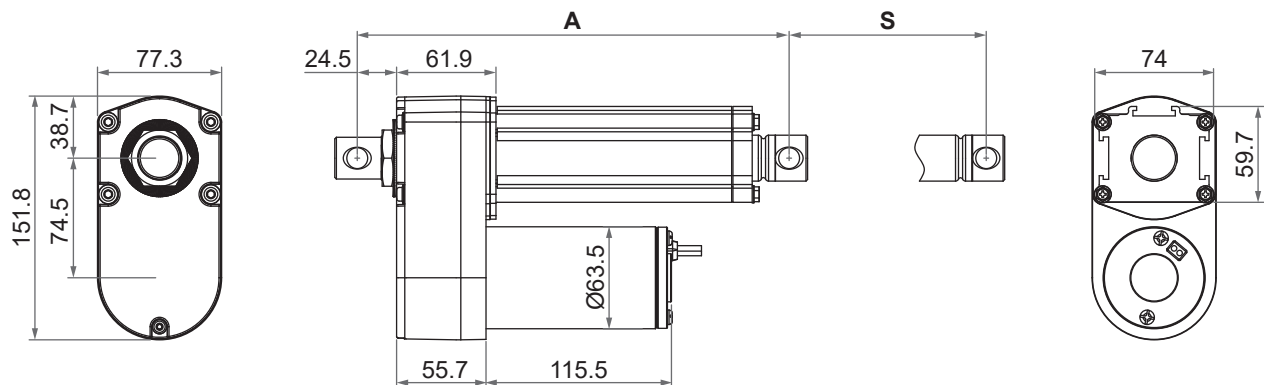
### 2.1 Retracted length (A)

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

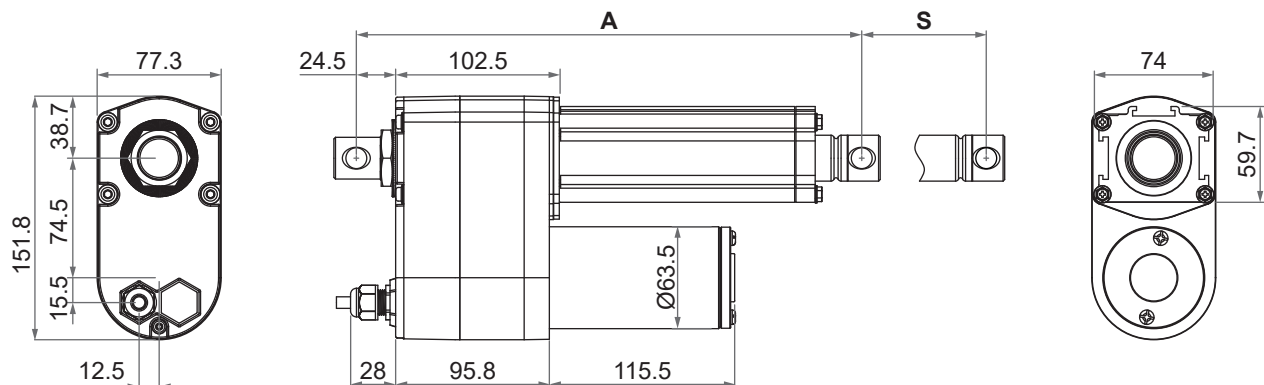
(Tolerance:  $\pm 5\text{mm}$ )

### 2.2 Drawing

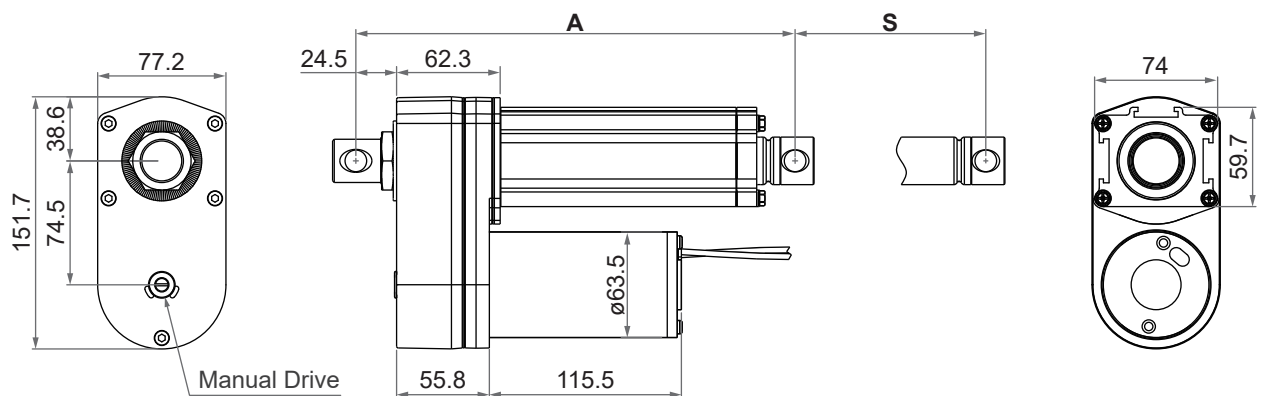
- Basic (Without limit switch nor positioning feedback)



- With limit switches or positioning feedback



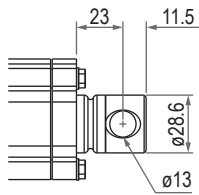
- With manual drive socket (Without limit switch nor positioning feedback)



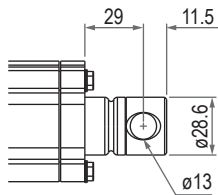
Unit: mm

### 3. Front connector

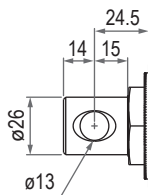
- Basic, positioning feedback or with manual drive socket.



- With limit switches or limit switches + positioning feedback

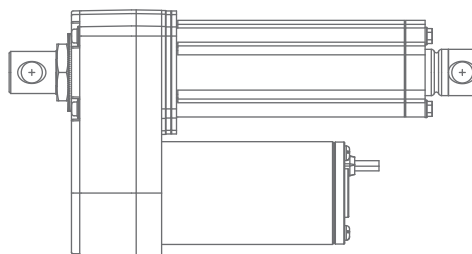
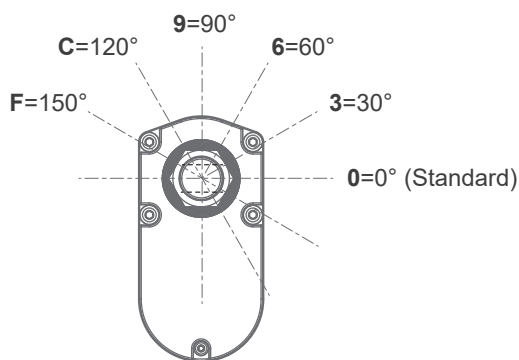


### 4. Rear connector



Unit: mm

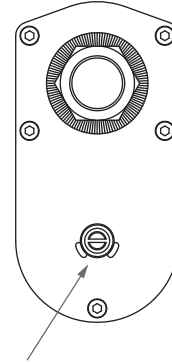
### 5. Pivot orientation of rear connector



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

## 6. Manual drive socket

- 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 8 or 9)
- Drive the hex socket on the motor shaft by wrench or electric screwdriver with 8mm hex key
- Please refer to "01US12 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	01US12 spec
<b>Controller</b>	CI72	Standard
<b>Accessory</b>	MB30 mounting bracket (Fig. 1)	Standard, mounting hole $\varnothing$ 13mm



Fig. 1

## Cable with Flying Leads

### • 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 actuators. Switch the polarity of DC input to retract it.
	Black		

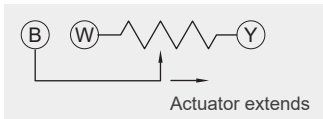
Gear ratio: 30:1, 40:1

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


### • With limit switches

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

### • With Potentiometer (POT) absolute positioning feedback

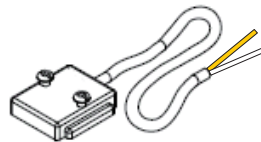
	Wire color	Definition	Descriptions														
Power wires	Red	DC power	Connect red wire to "Vdc +" & black wire to "Vdc -" of DC power to extend the actuators. Switch the polarity of DC input to retract it.														
	Black																
Signal wires	Yellow	Vin	Input voltage 70V max.														
	Blue	POT output	1. Potentiometer specification: <ul style="list-style-type: none"> <li>- 10K ohm, 10 turns.</li> <li>- Tolerance <math>\pm 5\%</math></li> </ul> 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: <math>\pm 0.3K\Omega</math>)</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	600 (24")	0.3 ~ 9.8K
			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																

- 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 ( $\pm 0.6V$ ) Low= GND Hall signal data:  Hall effect sensor resolution: 20ppi, 1.27mm/pulse (0.787pulses/mm)
	Blue	GND	

**Remarks:**

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



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

External adjustable reed sensor NC-type  
( i.e. normal close)

## Certifications

01US12 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

## Ordering Key

01US12- 24 - G5B - 20 - 300 - 0 0 0 P L 0 0 0

<b>Input voltage</b>	12: 12V DC 24: 24V DC 48: 48V DC
<b>Motor and spindle type</b>	G5A: 4500rpm / 5.08mm pitch / ACME screw G5B: 4500rpm / 5.08mm pitch / Ball screw
<b>Gear ratio</b>	10: 10:1                      05: 5:1 (Ball screw only) 20: 20:1                      30: 30:1 (Ball screw only) 40: 40:1
<b>Stroke</b>	100: 100mm (4")            300: 300mm (12") 150: 150mm (6")            450: 450mm (18") 200: 200mm (8")            600: 600mm (24")
<b>Front connector</b>	0: Standard
<b>Rear connector</b>	0: Standard
<b>Pivot orientation of rear connector</b> (Refer to Page 10)	0: 0° (Standard)            9: 90° 3: 30°                            C: 120° 6: 60°                            F: 150°
<b>Positioning feedback</b>	0: None 1: External adjustable reed sensor x 1 2: External adjustable reed sensor x 2 H: Hall effect sensor x 1 P: Potentiometer (POT)
<b>Limit switches</b>	0: None L: Limit switches
<b>Reserved</b>	0
<b>Option</b>	0: None M: Manual drive socket (Refer to Page 11 for conditions to order)
<b>Cable length</b>	0: 250mm straight            3: 1000mm straight 1: 500mm straight            5: 1500mm straight