

## Product Data Sheet

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# Actuator 01NS53

01NS53 is designed to be used for fitness equipment, such as treadmills. There are preset limit switches included and POT that serves as an option to support customer control. In addition, this model is available with either 36VDC or 24VDC input voltage.



## Features and Options

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**Main applications:** Fitness equipment, industry

**Standard features:**

- Input voltage: 36V DC / 24V DC
- Max. load: 3500N (Push) / 2000N (Pull)
- Max. speed at no load: 10.5mm/sec (Typical value)
- Speed at full load: 8.5mm/sec (Typical value @ 3500N Loaded)
- Stroke: 100 ~ 300mm
- Noise level:  $\leq 60$ dB
- Color: Black
- Thermostat protection: 70°C
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -20°C ~ +65°C
- Storage ambient temperature: -25°C ~ +65°C
- Power cord length: 750mm, straight

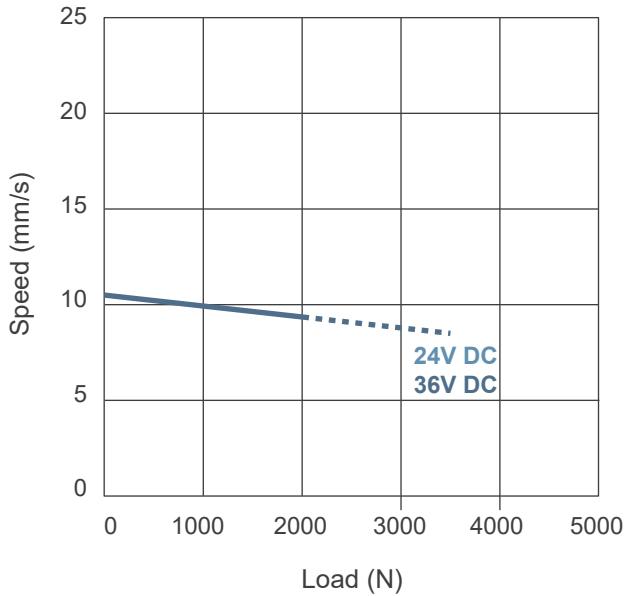
**Options:**

- Analog positioning feedback with Potentiometer (POT)

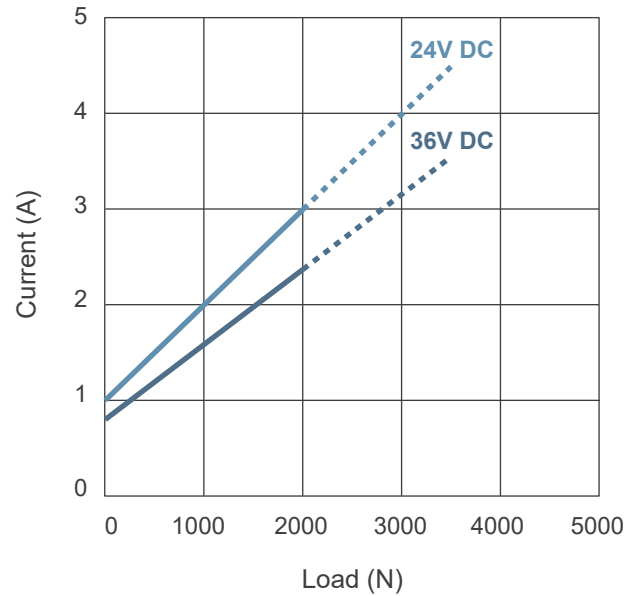
## Performance Data

Model No.	Max. load (N)		Typical speed (mm/s) *		Typical current (A) *			
	Push	Pull	No load	Full load	No load		Full load	
					24V	36V	24V	36V
01NS53-XX-XXX.XXX-CXX	3500	2000	10.5	8.5	1.0	0.8	4.5	3.5

Speed VS. Load



Current VS. Load



Push / Pull Load — Push Load - - -

### Remarks:

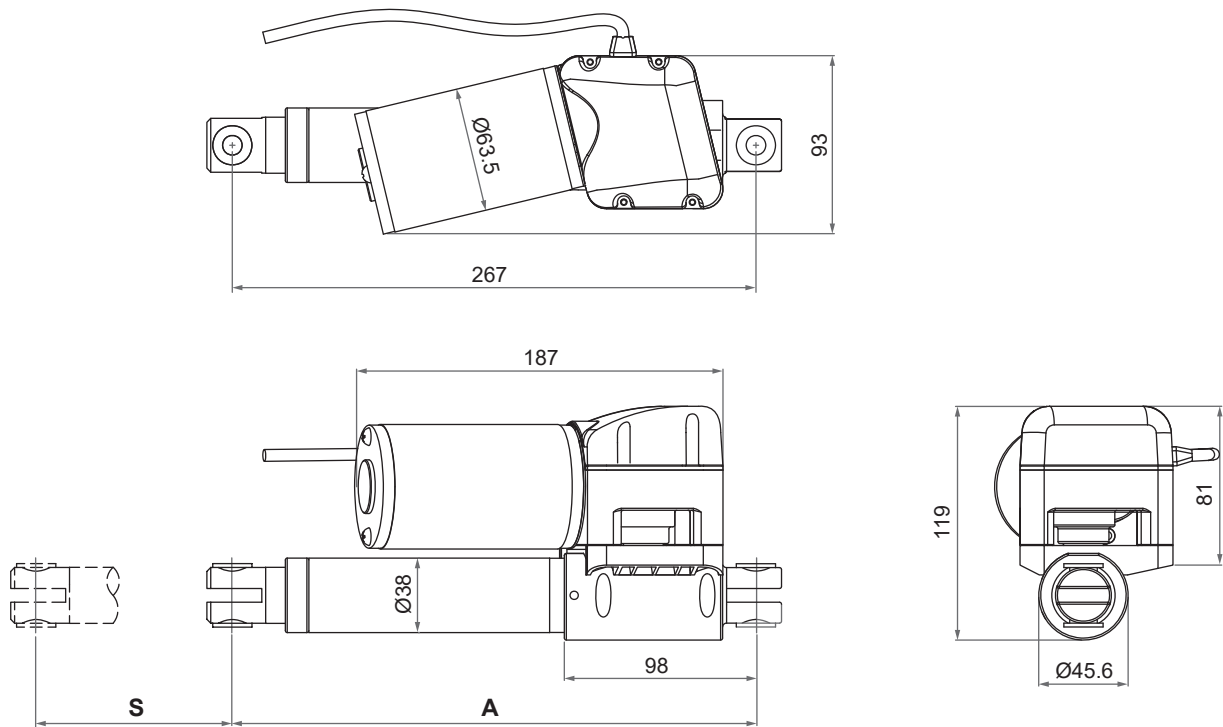
\* The typical speed or typical current means the average value neither upper limit nor lower limit, which measured under room temperature and stable power. The performance curves are made with typical values.

## Dimensions

- Extended length = S + A

Stroke (S)	100	150	200	250	300
Retracted Length (A) (tolerance: ±5mm)	267	317	367	417	467

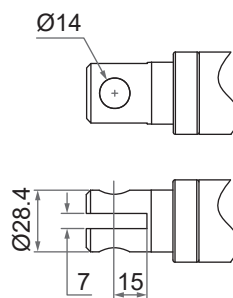
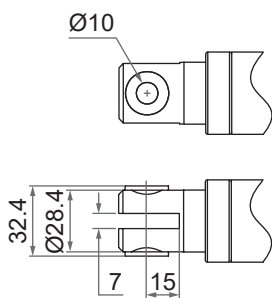
- 2D drawing



- Front connector type

1: Metal with plastic bushing

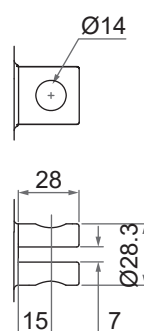
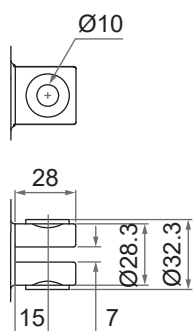
2: Metal



- Rear connector type

1: Metal with plastic bushing

2: Metal



Unit: mm

## Compatibility

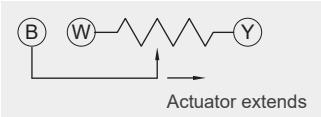
Product	Model	01NS53 spec
Controller	01XU72	Standard

## Wiring with Flying Leads

### • Basic, without positioning feedback.

	Wire color	Definition	Descriptions
Power wires	Red	DC power	<ul style="list-style-type: none"> <li>• 24V or 36V</li> <li>• Connect red wire to "Vdc +" &amp; black wire to "Vdc -" of DC power to extend the actuators. Switch the polarity of DC input to retract it.</li> </ul>
	Black		

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

	Wire color	Definition	Descriptions														
Power wires	Red	DC power	<ul style="list-style-type: none"> <li>• 24V or 36V</li> <li>• Connect red wire to "Vdc +" &amp; black wire to "Vdc -" of DC power to extend the actuators. Switch the polarity of DC input to retract it.</li> </ul>														
	Black																
Signal wires	Yellow	Vin	Input voltage 70V max.														
	Blue	POT output	<p>1. Potentiometer specification:</p> <ul style="list-style-type: none"> <li>- 10K ohm, 10 turns.</li> <li>- Tolerance <math>\pm 5\%</math></li> </ul> <p>2. Output voltage: The voltage (resistance) between blue and white increases linearly from about 0 when the actuator extends, and decreases when it retracts.</p>  <p>3. For the combination of motor type and stroke, the resistance between blue and white wires is as follows:</p> <table border="1"> <thead> <tr> <th>Stroke (mm)</th> <th>Resistance (<math>\pm 22\Omega</math>)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>100</td> <td>428</td> </tr> <tr> <td>150</td> <td>642</td> </tr> <tr> <td>200</td> <td>856</td> </tr> <tr> <td>250</td> <td>785</td> </tr> <tr> <td>300</td> <td>879</td> </tr> </tbody> </table>	Stroke (mm)	Resistance ( $\pm 22\Omega$ )	0	0	100	428	150	642	200	856	250	785	300	879
	Stroke (mm)	Resistance ( $\pm 22\Omega$ )															
0	0																
100	428																
150	642																
200	856																
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300	879																
White	GND																

## Ordering Key

01NS53 - 24 - 267 - 367 - C 1 1 - POT - 2

<b>Input voltage</b>	24: 24V DC 36: 36V DC
<b>Retracted length</b> (Refer to Page 3)	XXX
<b>Extended length</b> (Refer to Page 3)	XXX
<b>Front connector type</b>	1: Metal with plastic bushing 2: Metal
<b>Rear connector type</b>	1: Metal with plastic bushing 2: Metal
<b>Positioning feedback</b>	Blank: None POT: Potentiometer
<b>Cable length</b>	2: 750mm straight