

CS SERIES BELT DRIVE



The CS Series belt driven linear stage is offered in travel lengths of 500mm, 1000mm, and 1500mm. Custom travel lengths are available, please consult factory. With speeds up to 1.5 m/sec, the CS Series is perfect for applications requiring high speed positioning of light payloads.

The CS Series comes standard with a high torque size 23 stepper motor or optionally, a MDrive intelligent stepper motor with integrated controller. Both motor options are also available with rotary encoders. End of travel limit switches come standard on the CS Series.

The drive system utilizes a 9.5 mm wide timing belt to move the carriage. The carriage rides on four preloaded ball bearing wheels. The wheels are profiled to match the contour of the aluminum extrusion base to provide a larger contact area.

All CS series linear slides are machined from 6061 aluminum alloy and black anodized. The base is an aluminum extrusion with a clear anodized finish.

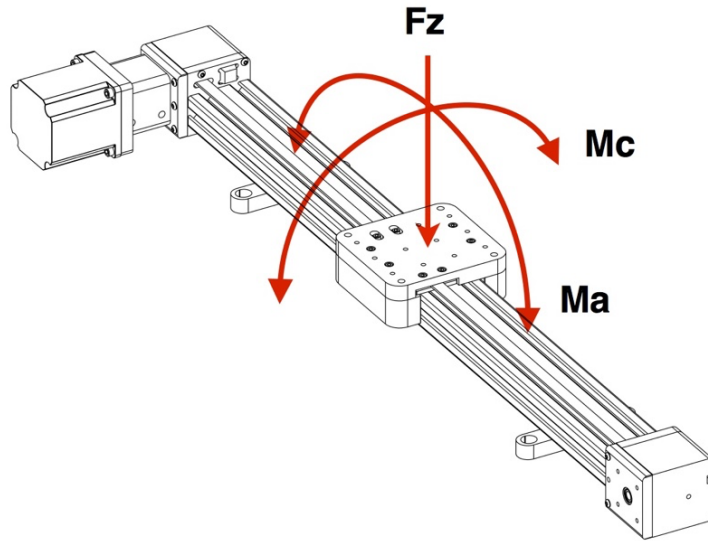
Individual stages can be mounted together to form [XY gantry systems](#). Typical applications for a gantry system includes pick & place, inspection, dispensing, testing, and painting.

Specifications

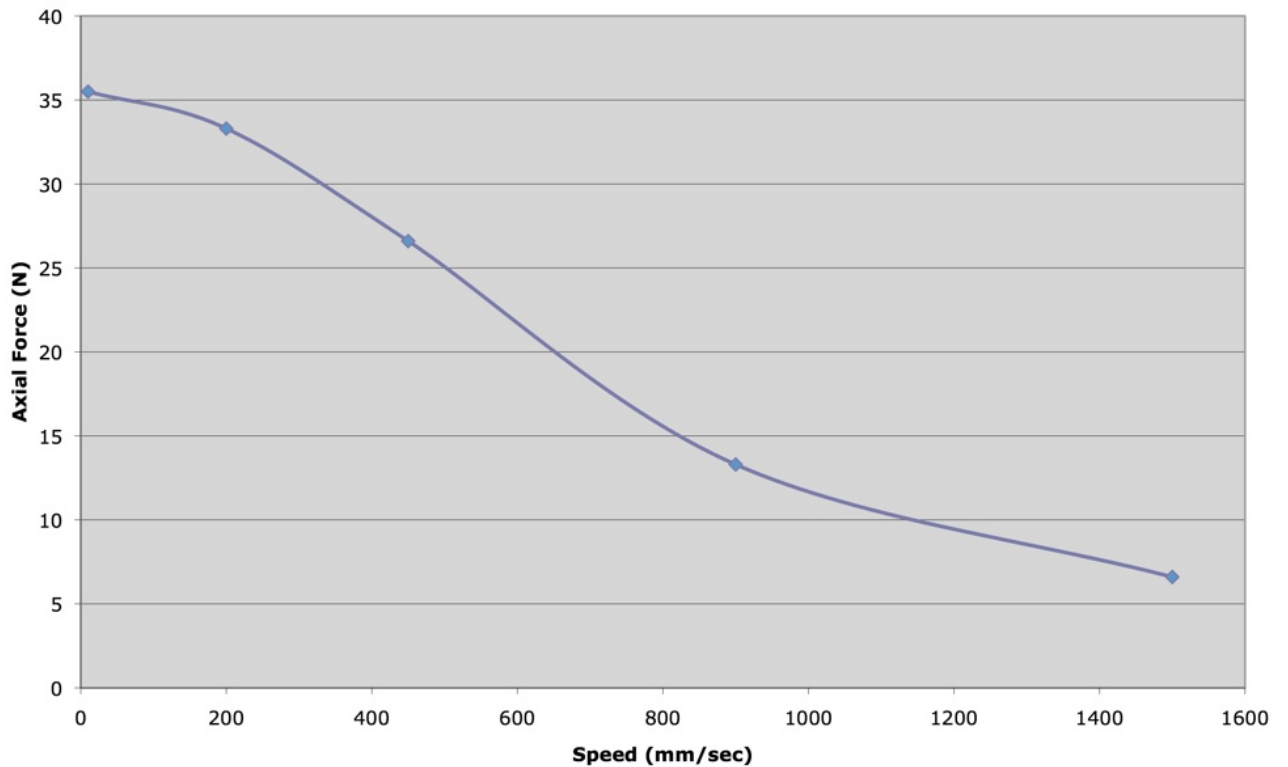
Travel Range	500 mm, 1000 mm, 1500 mm (custom travel lengths available)
Motor Resolution	3.6 μm @ (125 Microsteps)
Encoder Resolution	23 μm 44 μm with MDrive Motor
Linear Travel per Motor Revolution	90.0104 mm/rev
Accuracy	$\pm 130 \mu\text{m}$
Unidirectional Repeatability	$\pm 20 \mu\text{m}$
Bidirectional Repeatability	$\pm 80 \mu\text{m}$
Max. Speed	1.5 m/sec (Stepper Motor), 1.5 m/sec (MDrive Motor)
Maximum Load	4.5 kg (10 lbs)
Limit Switches	Mechanical at each end
Stage Weight	CS-500: 3 kg (6.5 lbs) / CS-1000 3.9 kg (8.5 lbs) / CS-1500: 4.5 kg (10 lbs)
Material	Aluminum Alloy Construction
Finish	Black Anodize
Operating Temperature	0°C to 50°C

CS Series Load Characteristics

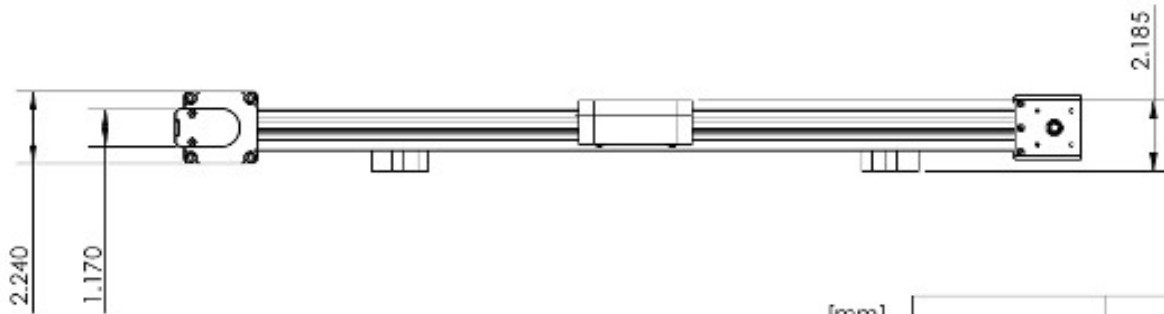
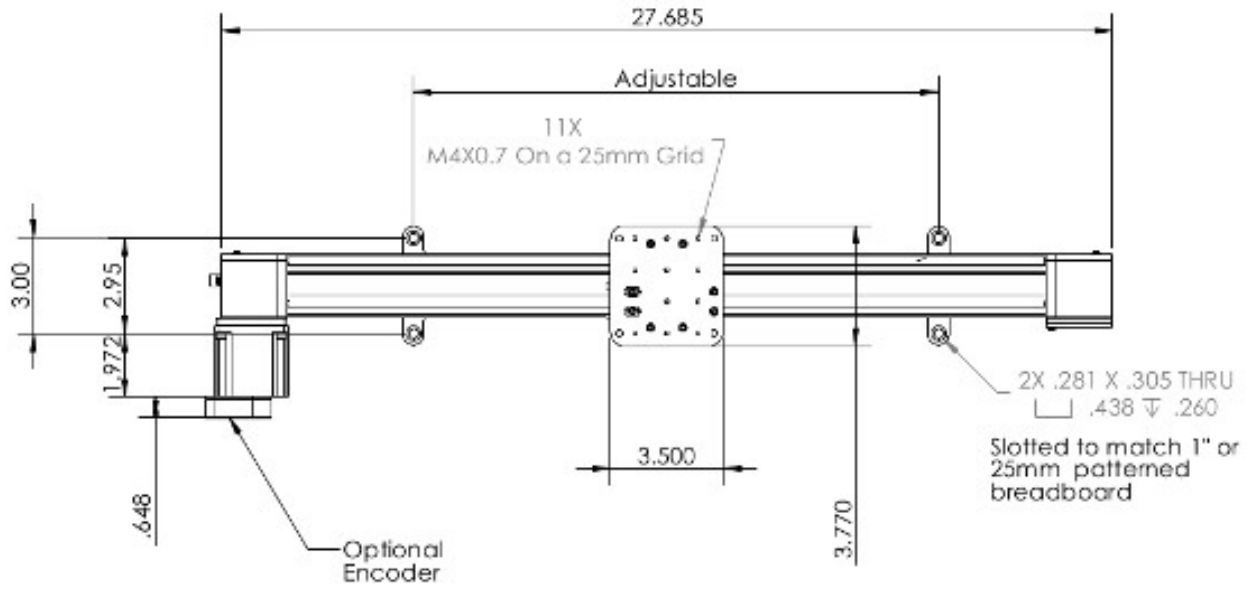
Normal Load F_z	4.5 kg (10 lbs)
Moment Load M_a	8.5 Nm (75 lb-in)
Moment Load M_c	8.5 Nm (75 lb-in)



CS Series Force vs Speed Curve
NEMA 23 Stepper Motor



Dimensions



[mm]
inch

TRAVEL	DIM "A"
500 mm	[703.2] 27.68
1000 mm	[1203.2] 47.37
1500 mm	[1703.2] 67.06

Standard Stepper Motor Version

Motor

DB-9 Male	Description
1.	Phase A
2.	Phase A'
3.	Phase B
4.	Phase B'

Motor Specifications

Step Size: 1.8°/step

Amps/Phase: 2.8

Resistance: 0.9 Ohm/Phase

Inductance: 2.5 mH/Phase

Signals (Encoder Option)

DB-9 Female	Description
1.	+ Limit Switch
2.	- Limit Switch (motor side)
3.	Limit Switch Ground

Limit switch wired normally closed.

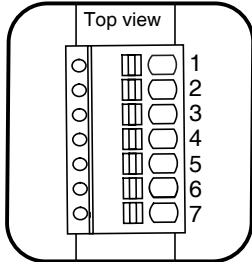
Signals (Encoder Option)

HD-15 Female	Description
1.	+ Limit Switch
2.	- Limit Switch
3.	Limit Switch Ground
4.	Encoder Ground
5.	+5V Encoder Power
6.	Ch. A
7.	Ch. A-
8.	Ch. B
9.	Ch. B-
10.	Index +
11.	Index -

Limit switch wired normally closed.

Pin Assignment

MDrive Stepper Motor Version



7-Pin Pluggable Terminal

Power and I/O

7-Pin Terminal	Description
1	I/O 1
2	I/O 2
3	I/O 3
4	I/O 4
5	Analog Input
6	Power GND
7	+24V Motor Power

The forward limit switch is connected to I/O 1.
The reverse limit switch is connected to I/O 2.
Limit switches are wired normally closed.

RS-422 Communications

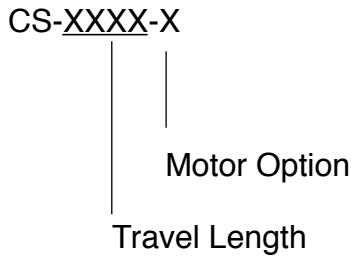
10-Pin IDC	Description
1	TX+
2	TX-
3	RX+
4	RX-
5	Aux-Logic
6	RX+
7	RX-
8	TX-
9	TX+
10	COMM GND

Connected to 7-Pin Terminal

DC Jack, 2.1 mm	Description
Center	+24 VDC
Outside	Power Ground

Ordering Information

Part Number Configuration



Travel Length

- 500 mm
- 1000 mm
- 1500 mm

Motor Options

- 1 Stepper Motor
- 2 Stepper Motor with Encoder
- 3 MDrive Motor with Encoder

Motion Controllers

The following Newmark Systems, Inc. controllers are compatible with the CS Series Stage.

[NCS-A1 Series](#) | [NSC-G Series](#)