

# RM-5 SERIES ROTARY STAGE

## FEATURES

- Resolution: up to 0.36 arc-sec
- Speed: up to 250°/sec
- Compact Size
- Size 23 motor



## RM-5 Design

The design takes advantage of a single preloaded crossed roller bearing for the table movement. This design approach eliminates the use of a dual bearing configuration thus improving on axial runout and wobble. This rotary table utilizes a worm gear drive with available gear ratios of 72:1 and 36:1. The worm gear is preload to minimize the backlash in the gear train.

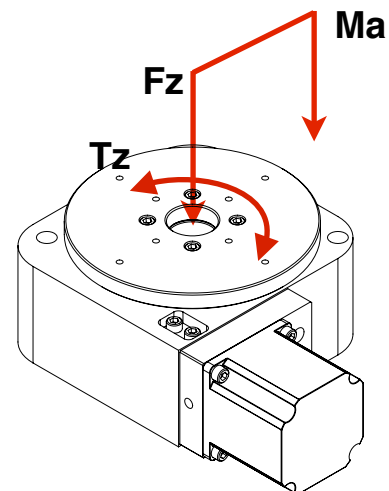
Motor options include stepper motor, MDrive with integrated controller, and brushless servo motor.

## Specifications

Resolution	Stepper Motor: 0.36 arc-sec (72:1 gear ratio), 0.72 arc-sec (36:1 gear ratio) Servo Motor: 4.5 arc-sec (72:1 gear ratio), 9 arc-sec (36:1 gear ratio)
Accuracy	70 arc-sec
Max. Speed	Stepper Motor: 25°/sec (72:1 gear ratio), 50°/sec (36:1 gear ratio) Servo Motor: 125°/sec (72:1 gear ratio), 250°/sec (36:1 gear ratio)
Unidirectional Repeatability	5 arc-sec
Max Payload Weight	90.7kg (200lbs)
Travel Range	360° Continuous
Encoder	Optical rotary encoder mounted to rear of motor, 1000 lines (4000 CPR) with Index (Optional)
Origin	Optical Home Switch (optional) Optical index mark on encoder (with encoder option)
Gear Ratio	72:1 or 36:1
Stage Weight	3.6 kg (8 lbs)
Material	Aluminum Alloy Construction
Finish	Black Anodize

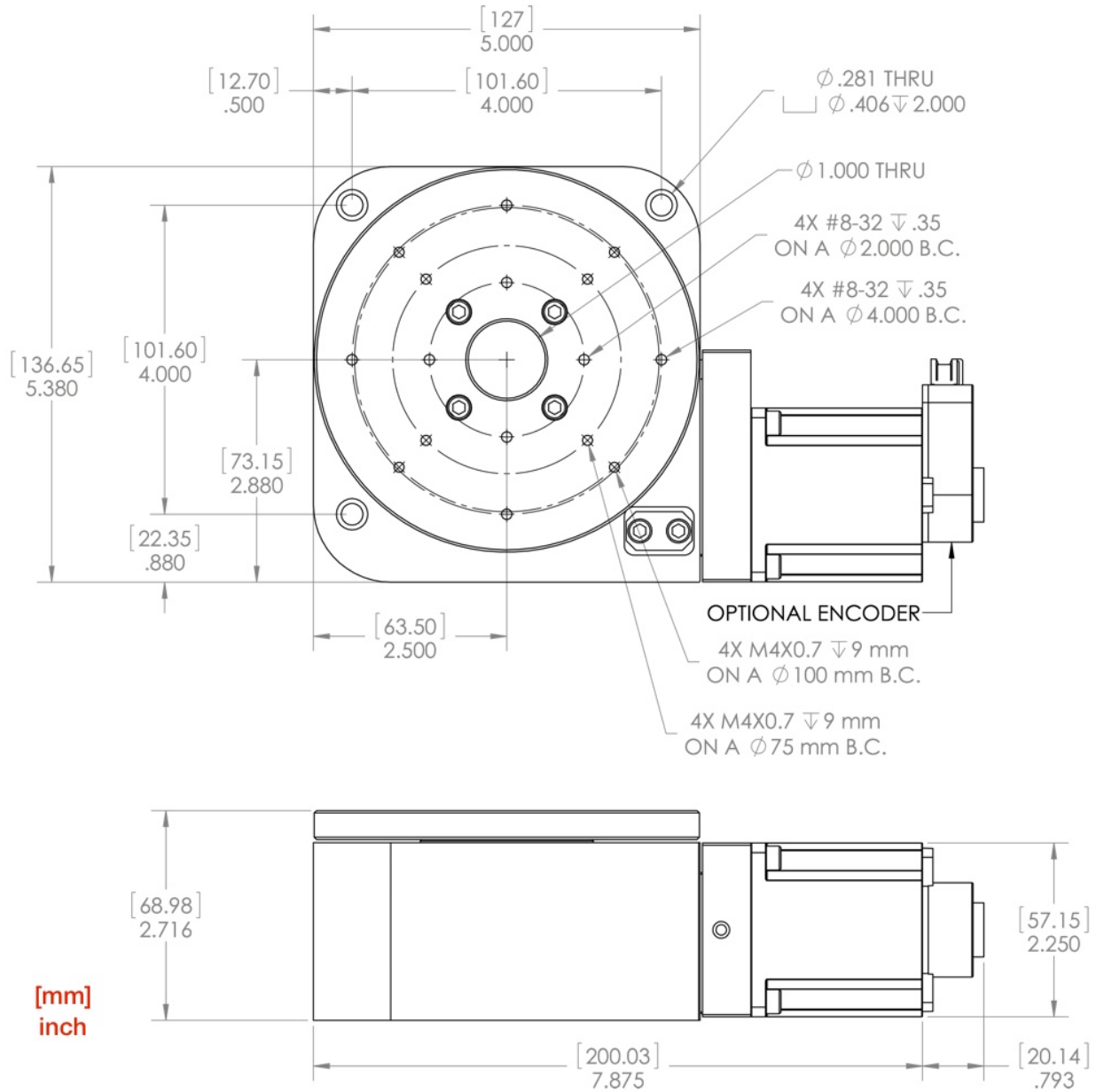
## Load Characteristics

Normal Load (Fz)	90.7 kg (200 lbs)
Moment Load (Ma)	54.2 Nm (40 lb-ft)
Max. Torque (Tz)	12.5 Nm (9.2 lb-ft)



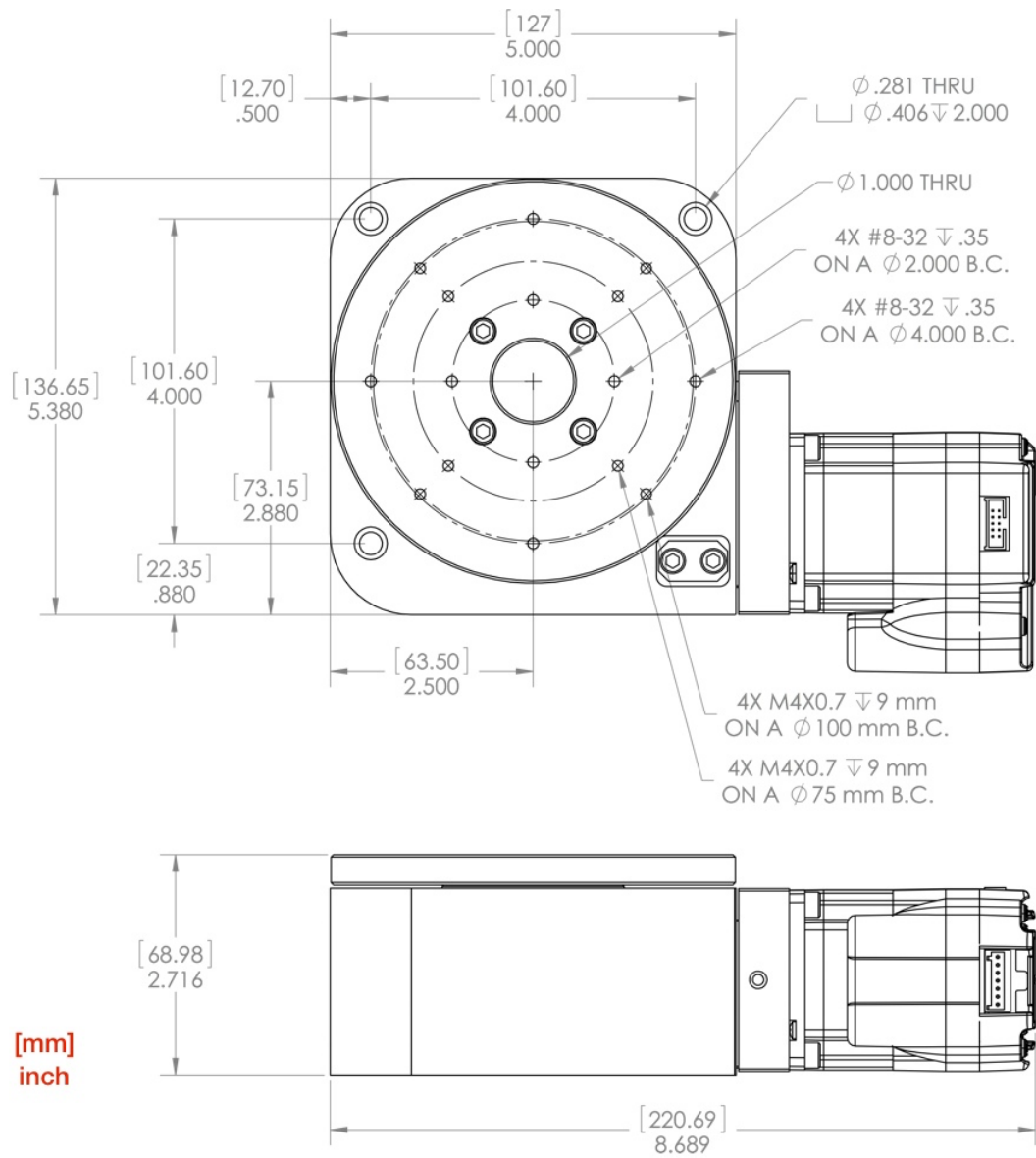
# Dimensions

## Stepper Motor



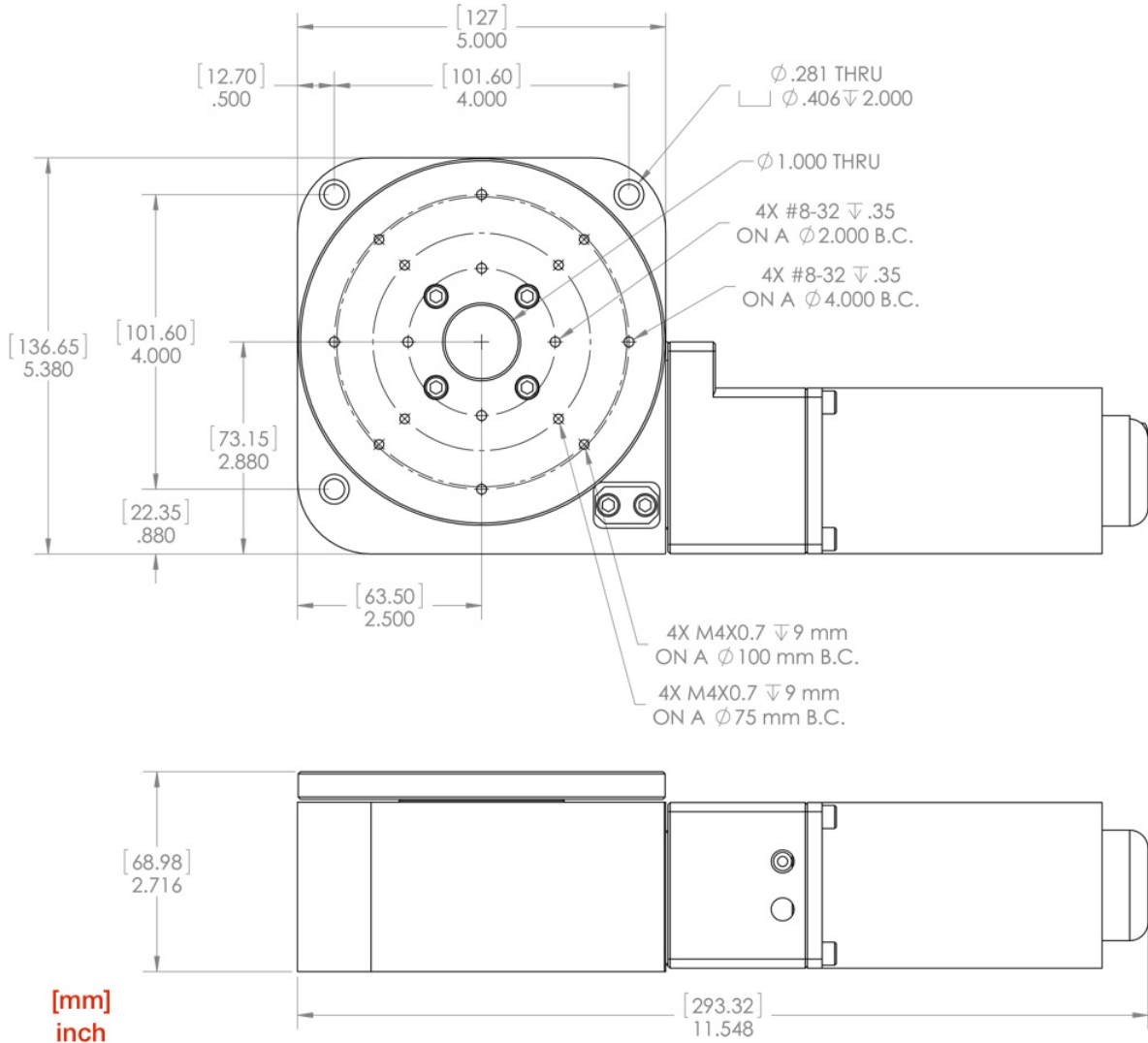
# Dimensions

## MDrive Motor



# Dimensions

## Servo Motor



# Pin Assignment

## Standard Stepper Motor Version

### Motor

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

### Motor Specifications

Step Angle	1.8°
Amps/Phase	2.8
Holding Torque	173 oz-in
Resistance	0.9 Ohm/Phase
Inductance	2.5 mH/Phase
Inertia	1.5 oz-in <sup>2</sup>

### Signals

DB-9 Female	Description
1	N.C.
2	N.C.
3	Ground
4	Home
5	+5 VDC

### Signals (Encoder Option)

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

# Pin Assignment

## Brushless Servo Motor Version

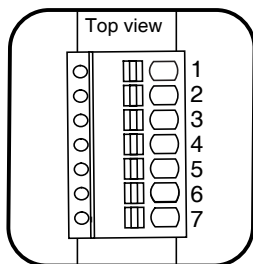
### Motor

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

### Signals

HD-15 Female	Description
1	Ch. A-
2	Ch. A+
3	Ch. B+
4	Ch. B-
5	Index +
6	Index -
7	Hall A
8	Hall B
9	Hall C
10	Ground
11	+5V
12	Home
13	N.C.
14	N.C.

## 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

### Connected to 7-Pin Terminal

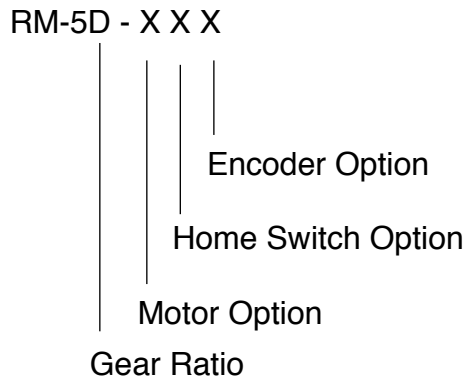
DC Jack, 2.1 mm	Description
Center	+24 VDC
Outside	Power Ground

### 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

## Ordering Information

### Part Numbers Configuration



### Gear Ratio Options

Blank 72:1 Gear Ratio  
D 36:1 Gear Ratio

### Motor Options

1 Stepper Motor  
3 MDrive  
4 Servo Motor

### Home Switch Options

0 No home Switch  
1 Home Switch

### Encoder Options

0 No Encoder  
1 1000 Line Encoder  
2 512 Line Encoder, MDrive

## Motion Controllers

The following Newmark Systems, Inc. controllers are compatible with the RM-5 Stage.

[NCS-A1 Series](#) | [NSC-3311 Series](#) | [NSC-G Series](#)