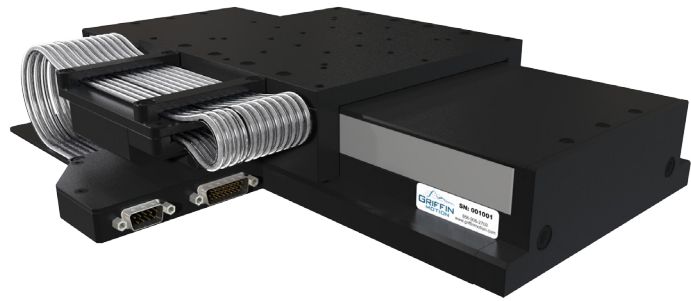


## Precision Linear Motion Platform

### FEATURES

- High speed
- 150mm Travel
- Linear Motor
- Optical limit switches with home
- High resolution linear encoder
- Recirculating ball linear ways
- Side seals
- Extended life trackless cable



The LM3 Series stages are designed for a variety of applications. This compact low profile linear motor stage is built for high duty cycles and long life and attains high velocities for factory automation and semiconductor processing equipment. This stage has exceptional levels of accuracy, repeatability, flatness and straightness. Recirculating ball linear ways and the linear motor offer extremely smooth operation and velocity control. The trackless cable minimizes vibrations and increases service life. Side seals and a hard cover make it an excellent choice for dirty environments. The LM3 Series stages can be stacked to create XY motion.

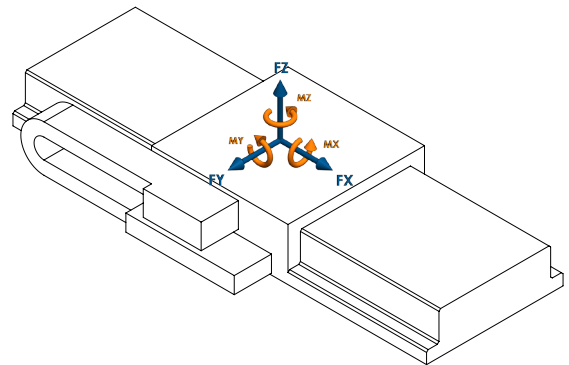


LM3-150-LM-G-M-S-F-00

## Motion Specifications

## Product Specifications

Encoder Output	A quad B, index
Peak Force X (N)	170
Continuous Force X (N)	50
Force Y (N)	200
Force Z (N)	440
Flatness ( $\mu\text{m}$ )	4
Height (mm)	62
Length (mm)	380
Limit Switches	Yes
Linear Accuracy ( $\mu\text{m}$ )	8
Linear Encoder Resolution ( $\mu\text{m}$ )	.1
Linear Repeatability ( $\mu\text{m}$ )	1
Linear Velocity (mm/s)	900
Moment X (N-m)	50
Moment Y (N-m)	50
Moment Z (N-m)	25
Moving Mass X (kg)	2.02
Pitch +/- (arc-sec)	5
Stage Mass (kg)	6.78
Straightness ( $\mu\text{m}$ )	4
Width (mm)	258
Yaw +/- (arc-sec)	5



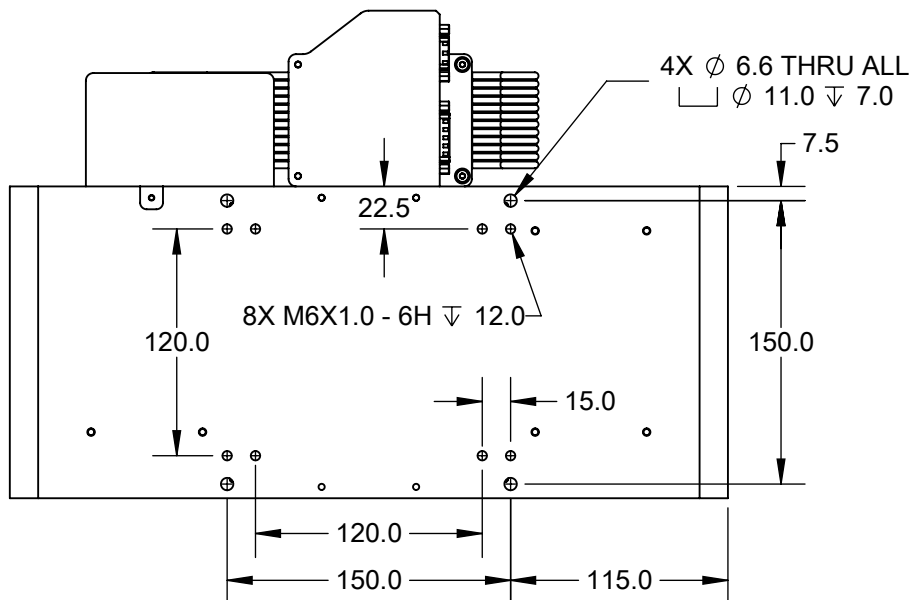
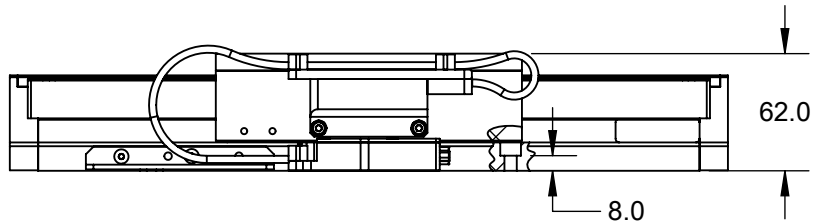
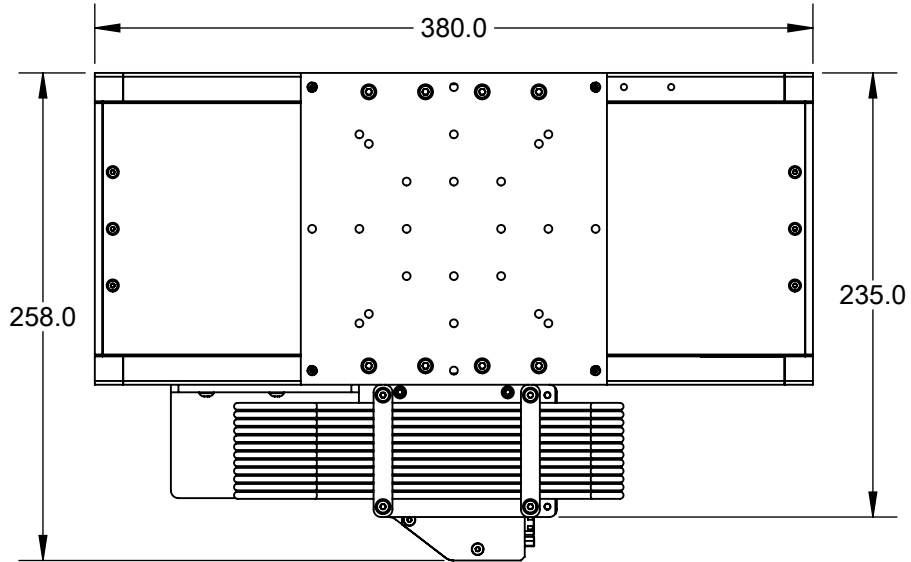
**LOAD DIRECTIONS**

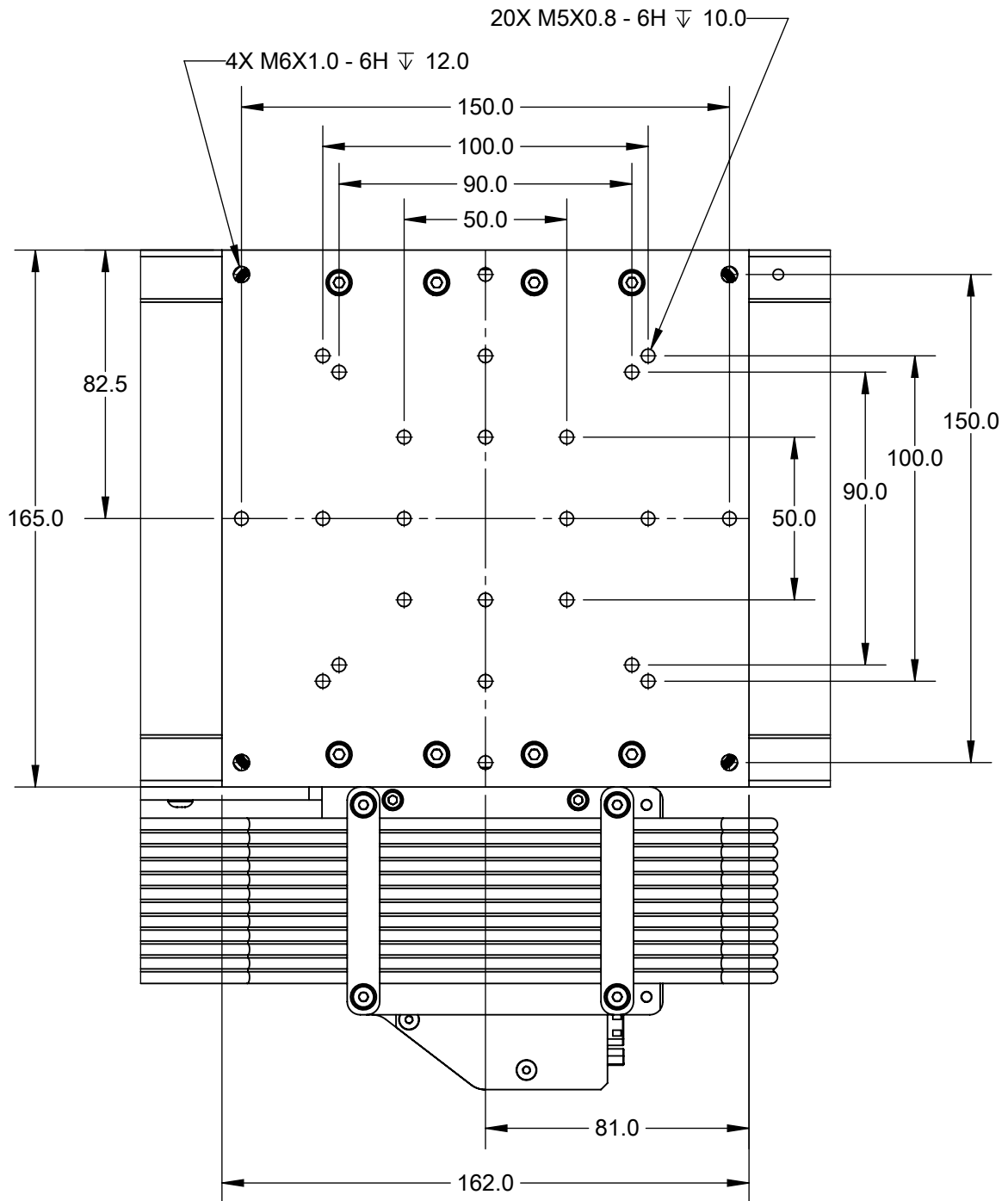
## Part Number Description

LM3	LM3 Series
150	150mm Travel
LM	Linear Motor
G	Ironless Linear Servo Motor
M	0.1 $\mu\text{m}$ Linear SS
S	Standard Precision
F	Side Seals
00	Standard Product (Call for custom)

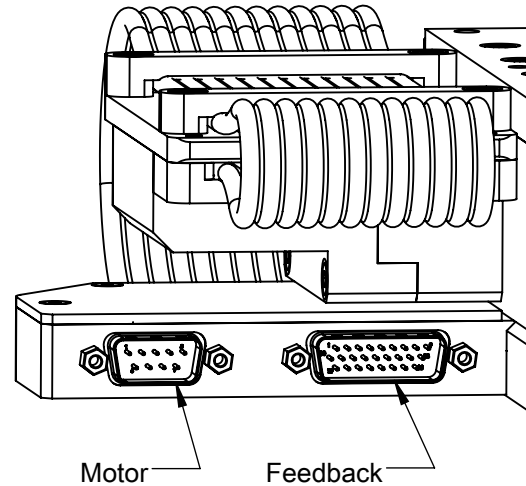
LM3-150-LM-G-M-S-F-00

**Mechanical Specifications**





Feedback Connector (DSUB26HD MALE)	
PIN	NAME
1	+5V
2	A+
3	B+
4	RI+
5	LIM+
6	*
7	*
8	*
9	*
10	TEMP
11	A-
12	B-
13	RI-
14	LIM-
15	*
16	*
17	*
18	*
19	GND
20	HALL A
21	HALL B
22	HALL C
23	*
24	*
25	*
26	*
* Reserved	



Motor Connector (DSUB9 MALE)	
PIN	NAME
1	*
2	*
3	*
4	*
5	*
6	PHASE A
7	PHASE B
8	PHASE C
9	*
* Reserved	



LM3-150-LM-G-M-S-F-00

## Electrical Specifications

Motor Specifications	
Motor Type	3 $\Phi$ Brushless DC
BEMF Constant (V/m/s)	30
Electrical Time Constant (ms)	0.35
Max Bus Voltage (VDC)	300
Max Continuous Current (A)	1.6
Motor Force Constant (N/A)	36.3
Peak Current (A)	5.5
Pin to Pin Inductance (mH)	6
Pin to Pin Resistance (ohm)	18.6
Magnetic Pole Pitch (mm)	30

Feedback Specifications	
Supply Voltage (V)	5.0 $\pm$ 10%
Supply Current (mA)	200
Encoder Feedback	Yes
Encoder Type	Incremental
Encoder Output	Square Wave Quadrature, RS-422 compatible, A,B,Z, Differential Pairs
Encoder Resolution	10000 cts/mm
Hall Switch Output	Open-collector, no internal pullup resistor
Hall Switch max current (mA)	-20
Limit Switches	Yes
Limit Switch Output Type	Open-collector, no internal pullup resistor
Limit Switch Output current (mA)	-20.0
Limit Switch Output Low (V)	0.8
Over Temp switch	Yes
Over Temp switch type	CMOS
Over Temp switch polarity	Logic high is over-temp; low is normal

The encoder will output one index pulse near center travel. This pulse is highly repeatable and can be used upon power-up to find an absolute position to use for further measurements.

Two limit switches are provided at the ends of travel. The limit switches will be pulled low throughout the travel range of the stage. The output will swing to high-impedance at the end of travel and remain high-impedance until the mechanical limit of the stage is reached.