

# PRO280-HS (High Speed) Series

## Mechanical Bearing, Ball-Screw Stage

Eight models with travels from 300 mm to 1500 mm

Speeds up to 1400 mm/s

Side-seal design with hard-cover protects from debris better than top-seal design

Cost effective, rugged design

Long-life linear motion guide bearing system

Enhanced load capability versus the PRO115/165/225



The PRO280-HS-300 is one of eight models in the PRO280-HS series.

When a PRO-style stage is desired, but more load and speed capability is necessary, the PRO280-HS is ideal. The PRO280-HS comes with a 25 mm/rev ball screw for high-speed applications requiring up to 1400 mm/s, and the stage features a maximum load of 150 kg. It is similar in design to the PRO225 series, providing additional load carrying capability with larger bearings and a wider cross-section.

### Rugged Construction

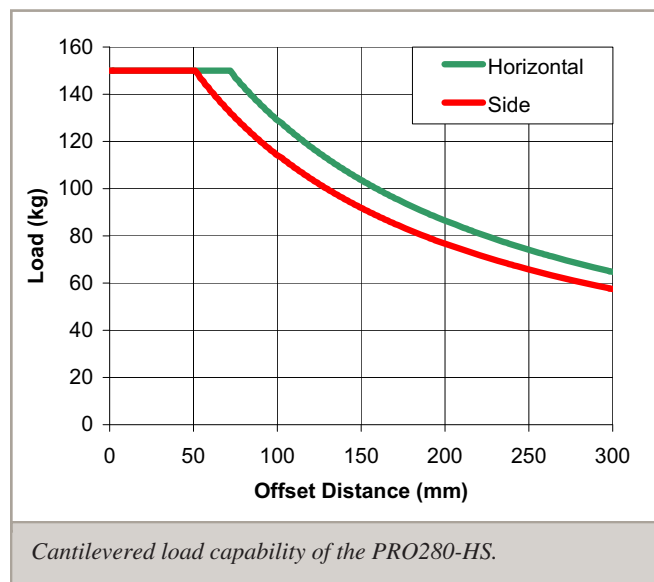
The hard-cover design provides protection from debris. The robust aluminum cover is hard-coated providing a scratch resistant surface. The side seals keep dirt and particulates out of the stage and protect the bearing surfaces from contamination. The vertical orientation of the seals easily deflects debris away from the stage. The tabletop can be outfitted with an optional brush assembly to remove any particles that collect on the hard cover. Competitive top-seal designs can ingest debris in the seal, resulting in the eventual failure and replacement of the sealing mechanism.

### NEMA 34 Motor Support

The PRO280 has a NEMA 34 motor flange mounting interface and can be ordered with an Aerotech standard brushless rotary motor installed. Alternatively, the stage can be ordered without a motor for the attachment of third-party DC brush, brushless, or stepper motors.

### Highly Configurable

The stage is equipped with a 25 mm/rev ball screw for all your high-speed applications, and can be outfitted with English or metric bolt-hole pattern tabletops. A motor-mounted brake option is available to prevent back-driving the screw when power is removed from the servomotor. A fold-back kit is also available to effectively reduce the overall stage length for space-constrained applications.



# PRO280-HS Series SPECIFICATIONS

Basic Model		PRO280-HS-300	PRO280-HS-400	PRO280-HS-500	PRO280-HS-600
Total Travel		300 mm	400 mm	500 mm	600 mm
Drive System		Precision Ball Screw/Brushless Servomotor (BM500-MS-E2500H)			
Bus Voltage		Up to 320 VDC			
Continuous Current	A <sub>pk</sub>	Up to 17.5 A			
	A <sub>rms</sub>	Up to 12.4 A			
Feedback		Noncontact Rotary Encoder (2500 line)			
Resolution	25 mm/rev lead	2.5 µm with 2500 line Quadrature Encoder			
Maximum Travel Speed <sup>(1)</sup>	25 mm/rev lead	1050 mm/s	1250 mm/s	1400 mm/s	1100 mm/s
Maximum Load <sup>(2)</sup>	Horizontal	150 kg			
	Vertical <sup>(3)</sup>	N/A			
	Side	150 kg			
Accuracy	25 mm/rev lead	±17.5 µm	±19 µm	±21 µm	±23 µm
Bidirectional Repeatability	25 mm/rev lead	±2.5 µm			
Straightness and Flatness		7 µm	9 µm	10 µm	12 µm
Nominal Stage Weight	With Motor	47.4 kg (104.3 lb)	51.3 kg (112.9 lb)	55.2 kg (121.4 lb)	59.1 kg (130 lb)
	Less Motor	43.8 kg (96.4 lb)	47.7 kg (104.9 lb)	51.6 kg (113.5 lb)	55.5 kg (122.1 lb)
Construction		Black Anodized Aluminum Body with Hardcoated Tabletop			

Notes:

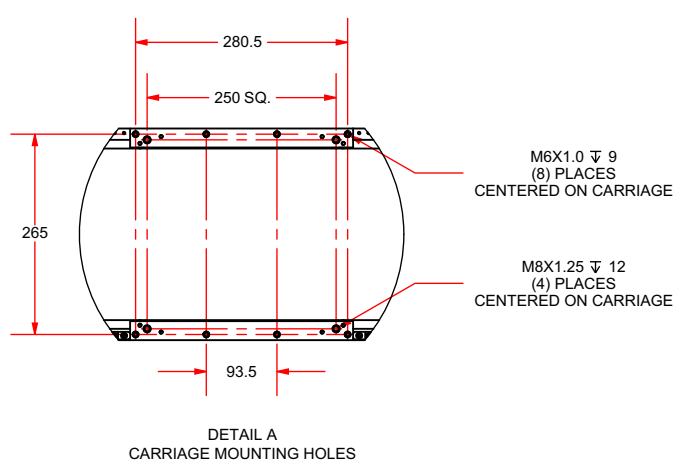
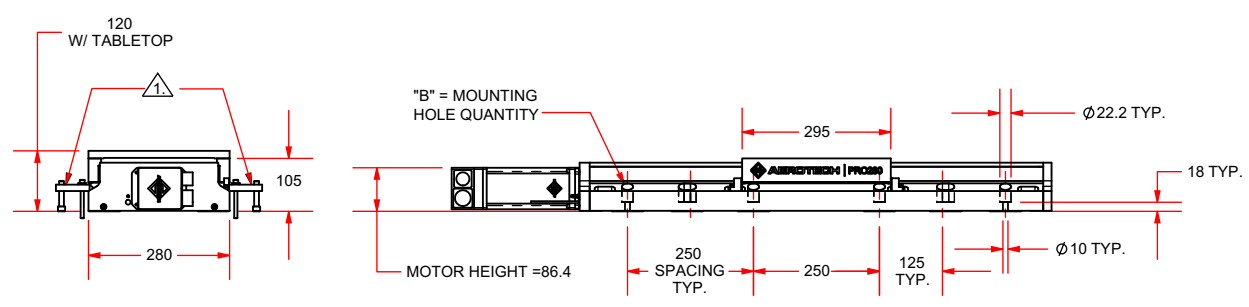
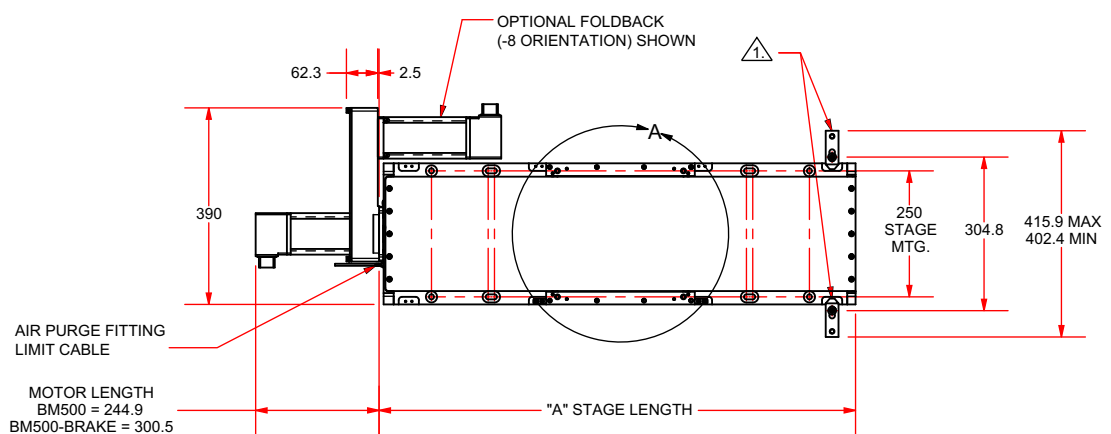
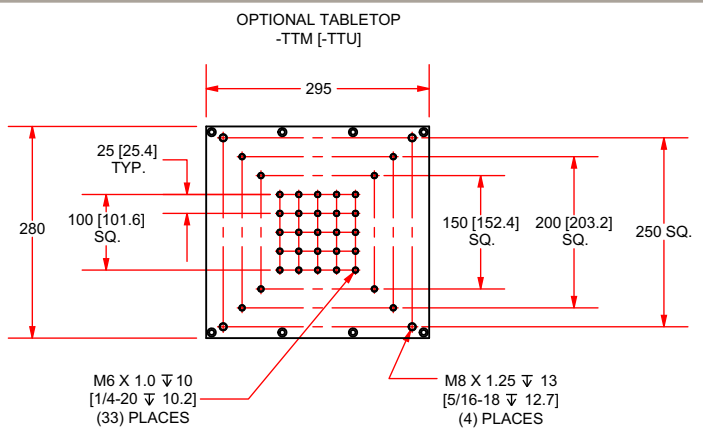
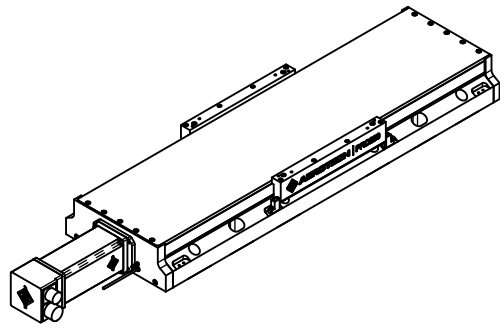
- Excessive duty cycle may impact stage accuracy.
- Payload specifications are for single-axis system and based on ball screw and bearing life of 2500 km (100 million inches) of travel.
- Vertical load applies only to the 5 mm lead option. The 25 mm lead option cannot be run in the vertical orientation.
- Specifications are for single-axis systems, measured 25 mm above the tabletop. Performance of multi-axis systems is payload and workpoint dependent. Consult factory for multi-axis or non-standard applications.

Basic Model		PRO280-HS-800	PRO280-HS-1000	PRO280-HS-1200	PRO280-HS-1500
Total Travel		800 mm	1000 mm	1200 mm	1500 mm
Drive System		Precision Ball Screw/Brushless Servomotor (BM500-MS-E2500H)			
Bus Voltage		Up to 320 VDC			
Continuous Current	A <sub>pk</sub>	Up to 17.5 A			
	A <sub>rms</sub>	Up to 12.4 A			
Feedback		Noncontact Rotary Encoder (2500 line)			
Resolution	25 mm/rev lead	2.5 µm with 2500 line Quadrature Encoder			
Maximum Travel Speed <sup>(1)</sup>	25 mm/rev lead	700 mm/s	600 mm/s	450 mm/s	300 mm/s
Maximum Load <sup>(2)</sup>	Horizontal	150 kg			
	Vertical <sup>(3)</sup>	N/A			
	Side	150 kg			
Accuracy	25 mm/rev lead	±26 µm	±27.5 µm	±31 µm	±35.5 µm
Bidirectional Repeatability	25 mm/rev lead	±2.5 µm			
Straightness and Flatness		14 µm	17 µm	20 µm	23 µm
Nominal Stage Weight	With Motor	66.9 kg (147.2 lb)	74.6 kg (164.1 lb)	78.5 kg (172.7 lb)	87.5 kg (192.5 lb)
	Less Motor	63.3 kg (139.3 lb)	71 kg (156.2 lb)	74.9 kg (164.8 lb)	83.9 kg (184.6 lb)
Construction		Black Anodized Aluminum Body with Hardcoated Tabletop			

Notes:

- Excessive duty cycle may impact stage accuracy.
- Payload specifications are for single-axis system and based on ball screw and bearing life of 2500 km (100 million inches) of travel.
- Vertical load applies only to the 5 mm lead option. The 25 mm lead option cannot be run in the vertical orientation.
- Specifications are for single-axis systems, measured 25 mm above the tabletop. Performance of multi-axis systems is payload and workpoint dependent. Consult factory for multi-axis or non-standard applications.

# PRO280-HS Series DIMENSIONS



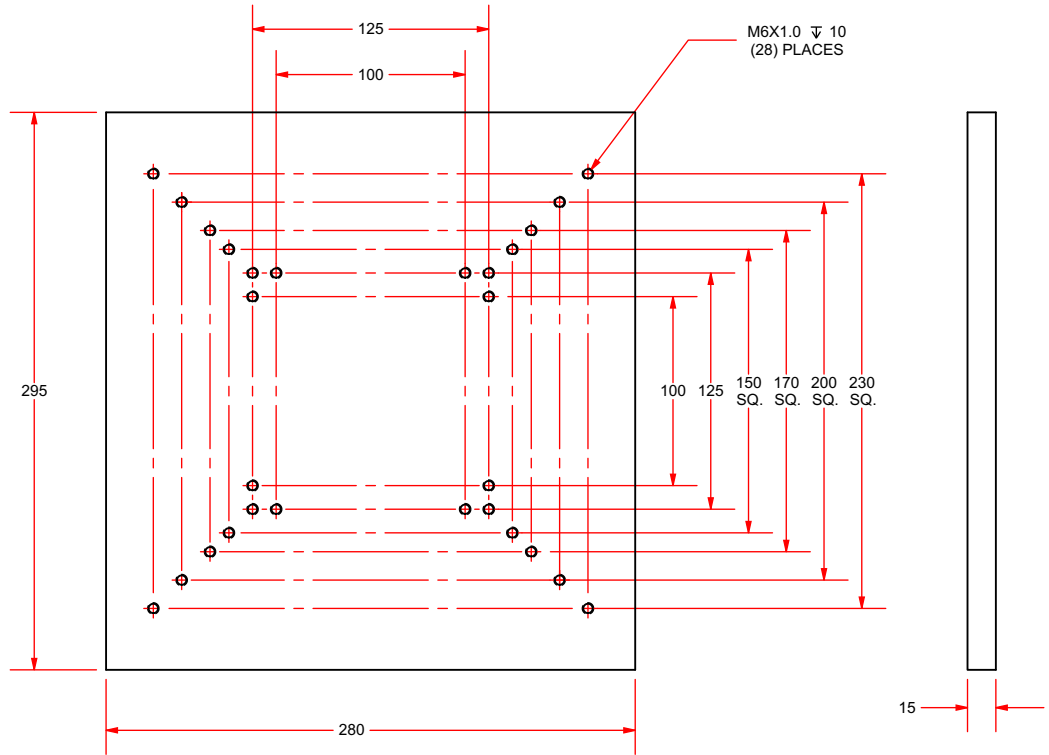
BASIC MODEL	"A" STAGE LENGTH	"B"
PRO280-HS-25MM-0300	945.5	12
PRO280-HS-25MM-0400	1045.5	12
PRO280-HS-25MM-0500	1145.5	12
PRO280-HS-25MM-0600	1245.5	12
PRO280-HS-25MM-0800	1445.5	16
PRO280-HS-25MM-1000	1645.5	16
PRO280-HS-25MM-1200	1845.5	20
PRO280-HS-25MM-1500	2145.5	20

NOTES:  
 TOE CLAMPS TO BE USED FOR ENGLISH STAGE MOUNTING ONLY.

DIMENSIONS: MILLIMETERS

# PRO280-HS Series – Tabletop DIMENSIONS

-TTADR  
MOUNTS THE FOLLOWING:  
ADRT-150   ADRS-150  
ADRT-200   ADRS-200  
ADRT-260

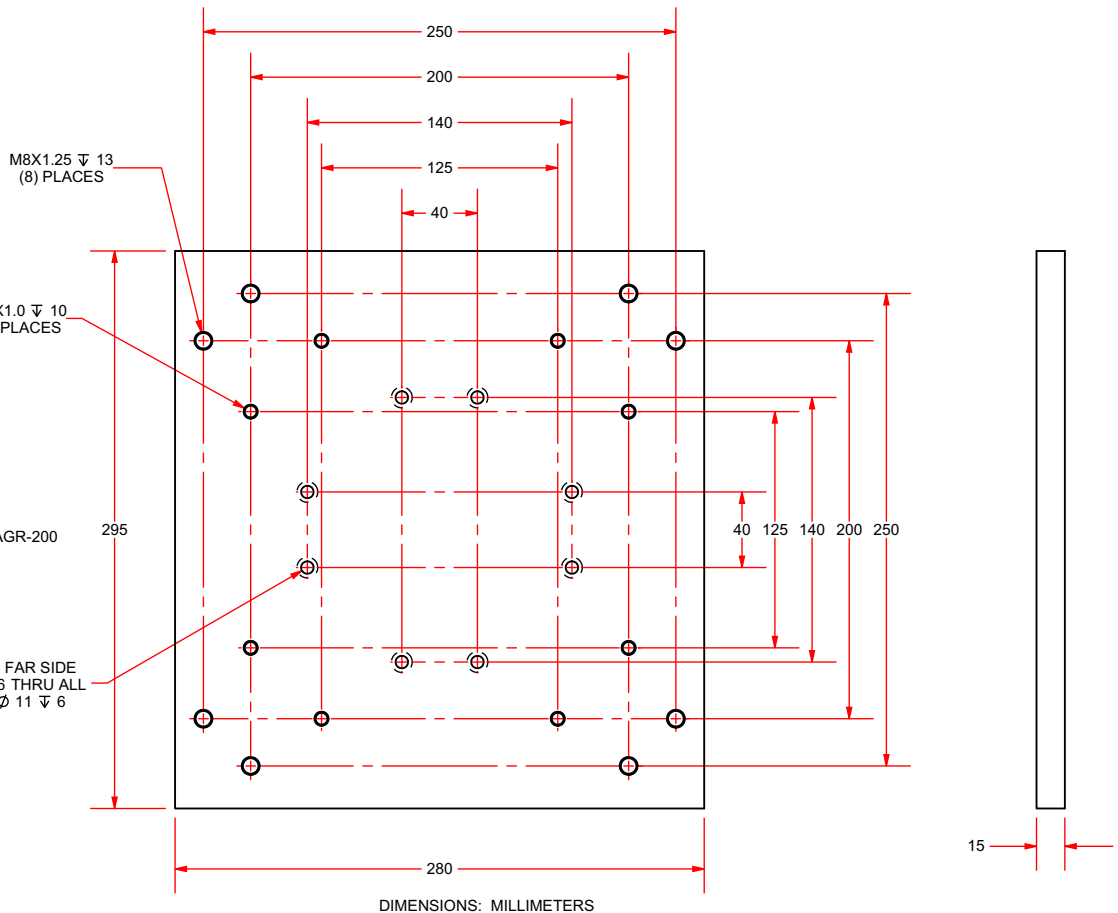


M8X1.25  $\nabla$  13  
(8) PLACES

M6X1.0  $\nabla$  10  
(8) PLACES

-TTAGR  
MOUNTS AGR-150 & AGR-200

FROM FAR SIDE  
8X  $\varnothing$  6.6 THRU ALL  
□  $\varnothing$  11  $\nabla$  6



## PRO280-HS Series ORDERING INFORMATION

### Ordering Information

PRO280-HS	-25MM	-1200	-TTM	-5V-NC	-BM	-3	-LIFTING	-C05	-PLOTS
Series	Ball Screw	Travel (mm)	Tabletop	Limits	Motor	Cable Exit	Options	Coupling	Testing
PRO280-HS	-25MM	-300 -400 -500 -600 -800 -1000 -1200 -1500	-NO TT -TTM -TTU -TTADR -TTAGR /WIPER	-5V-NC -5V-NO -24V-NC	-BM -BM-BRK -NM	-0 -3 -5 -8 -12	-FB05 -BASE WIPER -LIFTING	-NONE -C05	-PLOTS -NO PLOTS

### Ball Screw

-25MM 25 mm per revolution ball screw

### PRO280-HS Series Linear Ball-Screw Stage

-0300 300 mm (12 in) travel stage with ball screw and limits  
 -0400 400 mm (16 in) travel stage with ball screw and limits  
 -0500 500 mm (20 in) travel stage with ball screw and limits  
 -0600 600 mm (24 in) travel stage with ball screw and limits  
 -0800 800 mm (32 in) travel stage with ball screw and limits  
 -1000 1000 mm (40 in) travel stage with ball screw and limits  
 -1200 1200 mm (48 in) travel stage with ball screw and limits  
 -1500 1500 mm (60 in) travel stage with ball screw and limits

### Tabletop

-NO TT No tabletop  
 -TTM Metric pattern tabletop  
 -TTU English pattern tabletop  
 -TTADR Bolt-hole pattern to attach ADRS/ADRT-150, ADRS/ADRT-200, or ADRT-260 rotary stages  
 -TTAGR Bolt-hole pattern to attach AGR-150 or AGR-200 rotary stages  
 /WIPER Wiper option for English and metric tabletops

### Limits

-5V-NC 5 V normally-closed limits  
 -5V-NO 5 V normally-open limits  
 -24V-NC 24 V normally-closed limits

### Motor

-BM Brushless servomotor with 2500 line feedback encoder (BM500-MS-E2500H)  
 -BM-BRK Brushless servomotor with 2500 line feedback encoder and motor mounted break (BM500-MS-E2500H-BK2)  
 -NM No motor

### Motor Orientation

-0 No motor  
 -3 Left side cable exit  
 -5 Right side cable exit  
 -8 Right side foldback  
 -12 Left side foldback

### Options

-FB05 Motor foldback kit for 0.5-inch diameter motor shaft (required for BM500 motor)  
 -BASE WIPER Wiper on base of top axis of XY pair to clear hardcover of bottom axis  
 -LIFTING Threaded inserts and lifting lugs; recommended for longer travel stages and XY assemblies; available for all travels

## PRO280-HS Series ORDERING INFORMATION

### Coupling Option

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-NONE	No motor coupling supplied
-C05	0.5-inch diameter motor shaft coupling

### Testing

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-PLOTS	Accuracy and repeatability plots
-NO PLOTS	No performance plots

### Accessories (to be ordered as separate line item)

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ALIGNMENT-NPA	Non-precision XY assembly
ALIGNMENT-PA10	XY assembly; 10 arc sec orthogonal
ALIGNMENT-PA5	XY assembly; 5 arc sec orthogonal
TC-PRO280	Toe clamps for mounting PRO stage to an English dimension breadboard or hole pattern; recommended number of toe clamps for each travel length: 300-600 mm travel = 8 clamps; 800-1500 mm travel = 12 clamps