PRO280 Series

Mechanical Bearing, Ball-Screw Stage

- Six models with travels from 300 mm to 1000 mm
- Speeds up to 220 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 PRO280-300 is one of six models in the PRO280 series.

When a PRO-style stage is desired, but more load capability is necessary, the PRO280 series is ideal. Similar in design to the PRO225 series, PRO280 series stages provide additional load carrying capability with larger bearings, a wider cross-section, and a larger servomotor.

Rugged Construction

The hard-cover design provides protection from debris. The robust aluminum cover is hard-coated providing a scratch resistant surface.

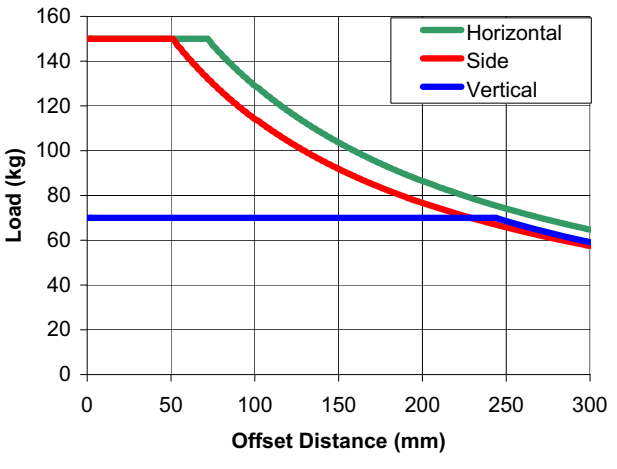
The side seals keep dirt and particulates out of the stage and protect the bearing surfaces from contamination. The vertical orientation of the seals easily deflects debris away from the stage. The tabletop can be outfitted with an optional brush assembly to remove any particles that collect on the hard 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 ground 5 mm/rev ball screw, 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 with the stage in a vertical orientation. A fold-back kit is also available to effectively reduce the overall stage length for space-constrained applications.



Cantilevered load capability of the PRO280.

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PRO280 Series SPECIFICATIONS

Basic Model		PRO280-300	PRO280-400	PRO280-500	PRO280-600
Total Travel		300 mm	400 mm	500 mm	600 mm
Drive System		Precision Ball Screw/Brushless Servomotor			
Bus Voltage		Up to 320 VDC			
Continuous Current	A_{pk}	Up to 4.9 A			
	A_{rms}	Up to 3.5 A			
Feedback		Noncontact Rotary Encoder			
Resolution	5 mm/rev lead	0.5 µm with 2500-line Quadrature Encoder/0.1 µm with 1000-line AS Encoder			
Maximum Travel Speed[1]	5 mm/rev lead	220 mm/s			
Maximum Acceleration		Function of Motor Selection and Sizing			
Maximum Load[2]	Horizontal	150 kg			
	Vertical	70 kg			
	Side	150 kg			
Accuracy	5 mm/rev lead	±17.5 µm	±19 µm	±21 µm	±23 µm
Bidirectional Repeatability	5 mm/rev lead	±1 µm			
Straightness and Flatness		7 µm	9 µm	10 µm	12 µm
Nominal Stage Weight	Less Motor	39.0 kg (85.8 lb)	42.8 kg (94.2 lb)	46.7 kg (102.7 lb)	50.5 kg (111.1 lb)
	With Motor	44.0 kg (96.8 lb)	47.8 kg (105.2 lb)	51.7 kg (113.7 lb)	55.5 kg (122.1 lb)
Construction		Black Anodized Aluminum Body with Hardcoated Tabletop			

Notes:
1. Excessive duty cycle may impact stage accuracy.
2. Payload specifications are for single-axis system and based on ball screw and bearing life of 2500 km (100 million inches) of travel.
3. 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		PRO280-800	PRO280-1000
Total Travel		800 mm	1000 mm
Drive System		Precision Ball Screw/Brushless Servomotor	
Bus Voltage		Up to 320 VDC	
Continuous Current	A_{pk}	Up to 4.9 A	
	A_{rms}	Up to 3.5 A	
Feedback		Noncontact Rotary Encoder	
Resolution	5 mm/rev lead	0.5 µm with 2500-line Quadrature Encoder/0.1 µm with 1000-line AS Encoder	
Maximum Travel Speed[1]	5 mm/rev lead	220 mm/s	140 mm/s
Maximum Acceleration		Function of Motor Selection and Sizing	
Maximum Load[2]	Horizontal	150 kg	
	Vertical	70 kg	
	Side	150 kg	
Accuracy	5 mm/rev lead	±26 µm	±27.5 µm
Bidirectional Repeatability	5 mm/rev lead	±1 µm	
Straightness and Flatness		14 µm	17 µm
Nominal Stage Weight	Less Motor	58.3 kg (128.3 lb)	65.8 kg (144.8 lb)
	With Motor	63.3 kg (139.3 lb)	70.8 kg (155.8 lb)
Construction		Black Anodized Aluminum Body with Hardcoated Tabletop	

Notes:
1. Excessive duty cycle may impact stage accuracy.
2. Payload specifications are for single-axis system and based on ball screw and bearing life of 2500 km (100 million inches) of travel.
3. 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.

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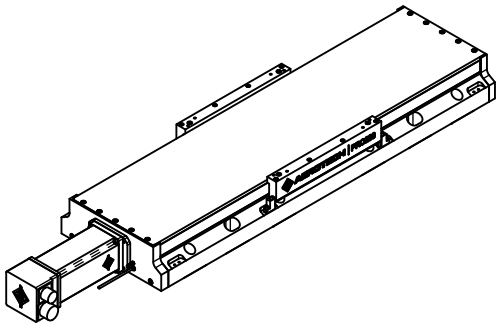
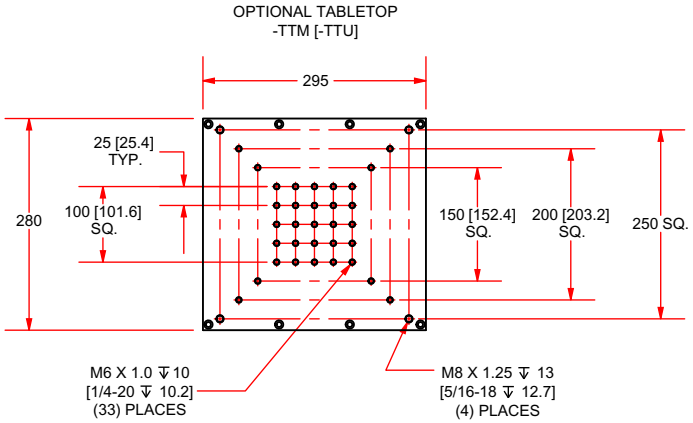
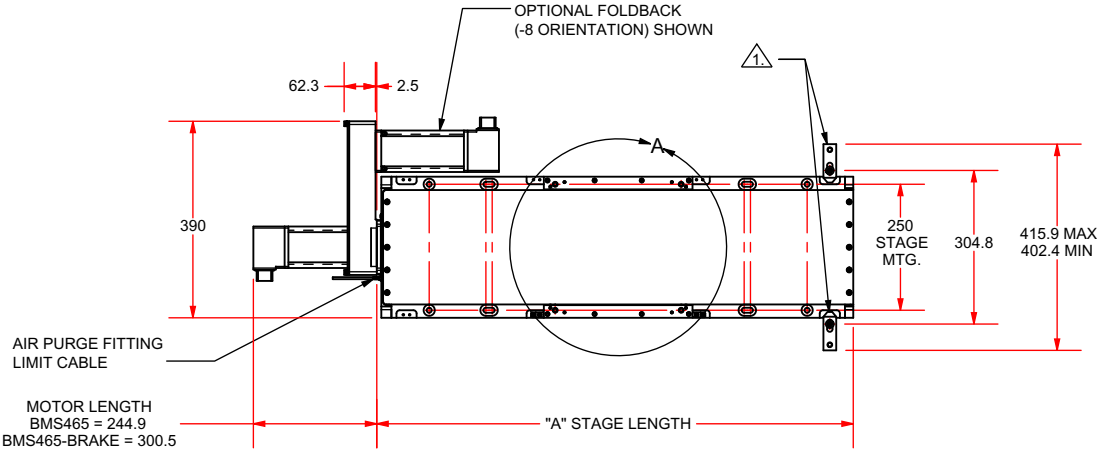
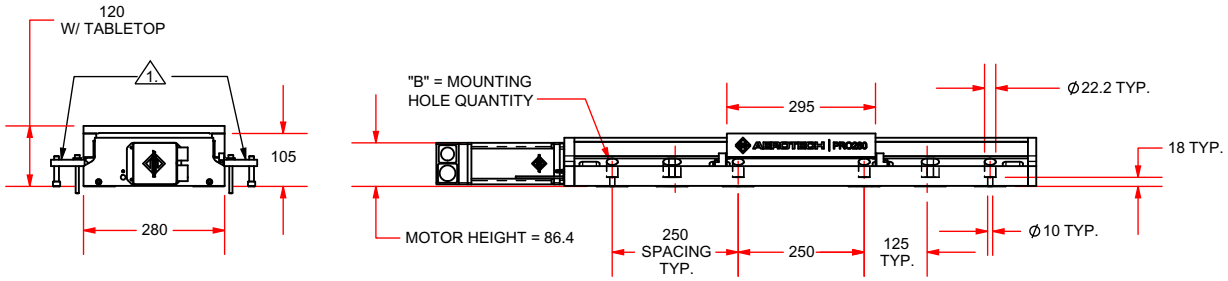
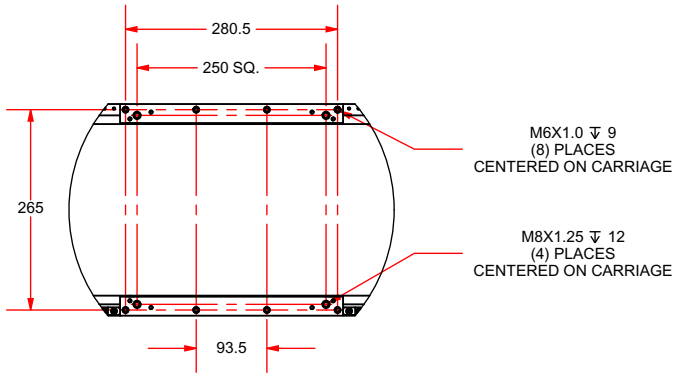
PRO280 Series DIMENSIONS











DETAIL A
CARRIAGE MOUNTING HOLES

DIMENSIONS: MILLIMETERS

BASIC MODEL	"A" STAGE LENGTH	"B"
PRO280-05MM-0300	745.5	8
PRO280-05MM-0400	845.5	12
PRO280-05MM-0500	945.5	12
PRO280-05MM-0600	1045.5	12
PRO280-05MM-0800	1245.5	12
PRO280-05MM-1000	1445.5	16

NOTES:

1. TOE CLAMPS TO BE USED FOR ENGLISH STAGE MOUNTING ONLY.

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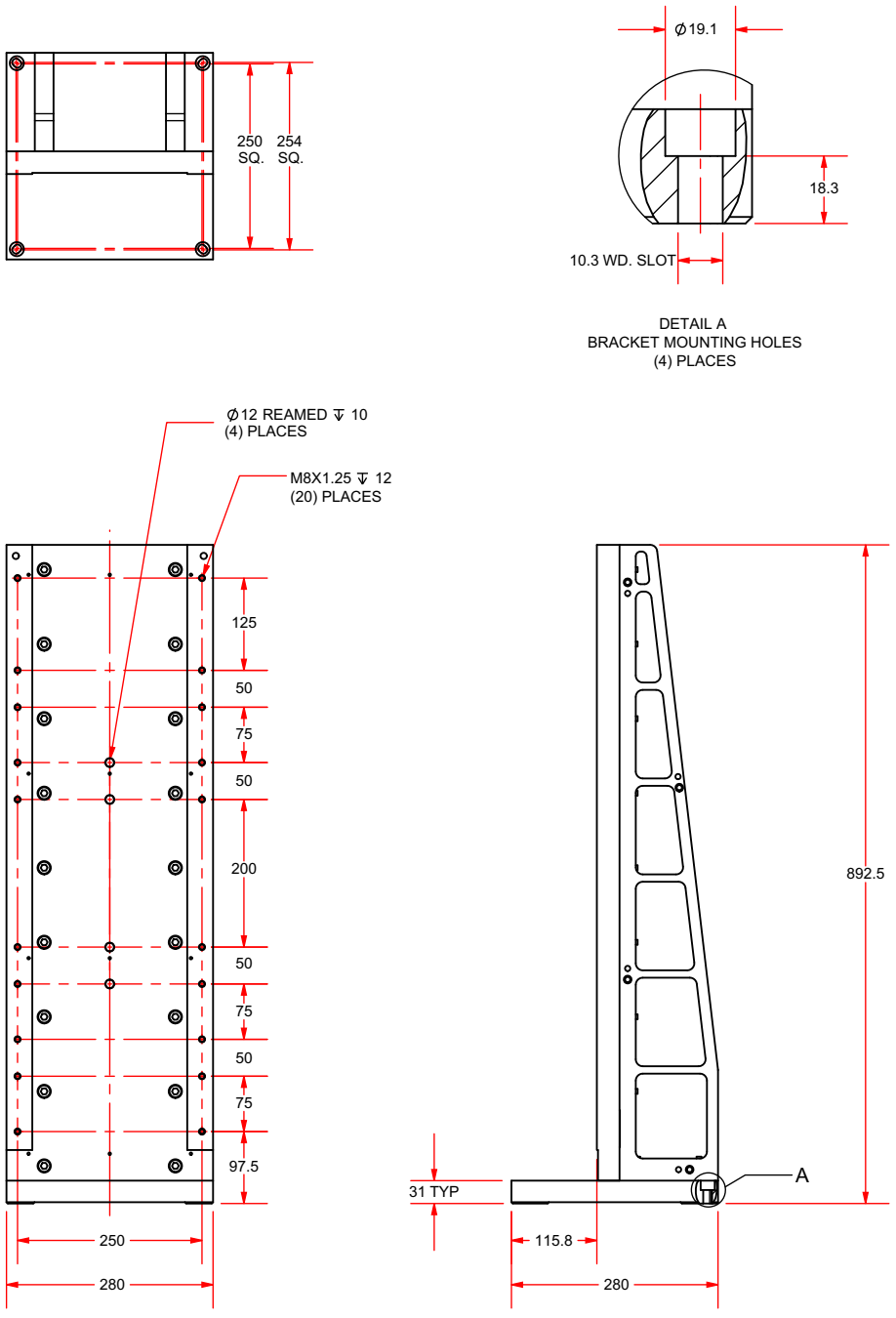
PRO280 Series – HDZ280 Bracket DIMENSIONS

HDZ280 Bracket



DIMENSIONS: MILLIMETERS

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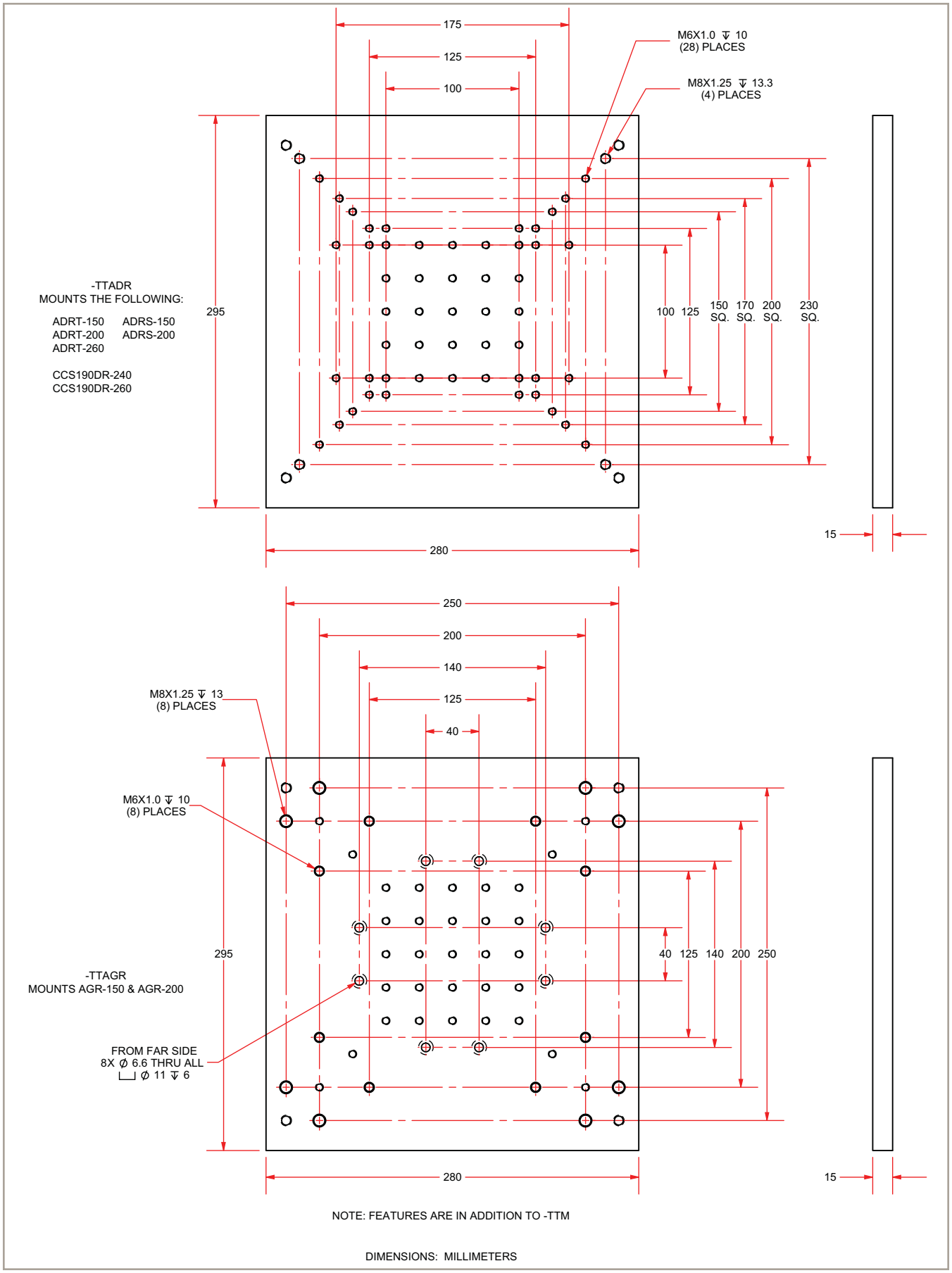
PRO280 Series – Tabletop DIMENSIONS



NOTE: FEATURES ARE IN ADDITION TO -TTM

DIMENSIONS: MILLIMETERS

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PRO280 Series ORDERING INFORMATION

Ordering Information

PRO280	-05MM	-1000	-TTM	-5V-NC	-BMS	-3	-FB05	-NONE	-PLOTS
Series	Ball Screw	Travel (mm)	Tabletop	Limits	Motor	Cable Exit	Options	Coupling	Testing
PRO280	-05MM	-300 -400 -500 -600 -800 -1000	-NOTT -TTM -TTU -TTADR -TTAGR /WIPER	-5V-NC -5V-NO -24V-NC	-BMS -BMS-BRK -NM -BMS-AS BMS-AS-BRK	-0 -3 -5 -8 -12	-FB05 -BASE WIPER -LIFTING	-NONE -C05	-PLOTS -NO PLOTS

Ball Screw

-05MM	5 mm per revolution ball screw

PRO280 Series Linear Ball-Screw Stage

-0300	300 mm travel stage with ball screw and limits
-0400	400 mm travel stage with ball screw and limits
-0500	500 mm travel stage with ball screw and limits
-0600	600 mm travel stage with ball screw and limits
-0800	800 mm travel stage with ball screw and limits
-1000	1000 mm travel stage with ball screw and limits

Tabletop

-NOTT	No tabletop
-TTM	Metric hole-pattern tabletop
-TTU	English hole-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

-BMS	Brushless servomotor with 2500 line feedback encoder (BMS465-AH-MS-E2500H)
-BMS-BRK	Brushless servomotor with 2500 line feedback encoder and motor mounted brake (BMS465-AH-MS-E2500H-BK2)
-NM	No motor
-BMS-AS	Brushless slotless servomotor with 1000-line amplified sine encoder (BMS465-A-MS-E1000ASH)
-BMS-AS-BRK	Brushless slotless servomotor with 1000-line amplified sine encoder and brake (BMS465-A-MS-E1000ASH-BK2)

Motor Orientation

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

Options

-FB05	Motor foldback kit for 0.5-inch diameter motor shaft (required for BMS465 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; only available for PRO280 stages of 400 mm travel or greater

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PRO280 Series ORDERING INFORMATION

Coupling Option

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

Testing

-PLOTS	Accuracy, repeatability, straightness and flatness plots
-NO PLOTS	No performance plots

Accessories (to be ordered as separate line item)

ALIGNMENT-NPA	Non-precision XY assembly
ALIGNMENT-NPAZ	Non-precision XZ or YZ assembly
ALIGNMENT-PA10	XY assembly; 10 arc-second orthogonal
ALIGNMENT-PA10Z	XZ or YZ assembly with L-bracket; 10 arc-second orthogonal
ALIGNMENT-PA5	XY assembly; 5 arc-second orthogonal
ALIGNMENT-PA5Z	XZ or YZ assembly with L-bracket; 5 arc-second orthogonal
HDZ280	Right angle L-bracket for PRO280-300 and -400
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 mm travel = 4 clamps; 400-800 mm travel = 8 clamps; 1000 mm travel = 12 clamps

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