

# VTS300 Series

## Mechanical-Bearing Screw-Driven Lift Stage

Extreme load carrying capability, up to 450 kg, in a compact package

Small stage footprint

High resolution to 0.064  $\mu\text{m}$

Lead screw does not back-drive, allowing "set and forget" operation and excellent in-position stability

Vacuum compatible

Aerotech's VTS300 accurately positions loads up to 450 kg and the small volume allows the positioning of high loads in space-constricted applications. Typical applications range from step and settle placement to large force generation. Multiple units can be combined for lift and tip/tilt motion.

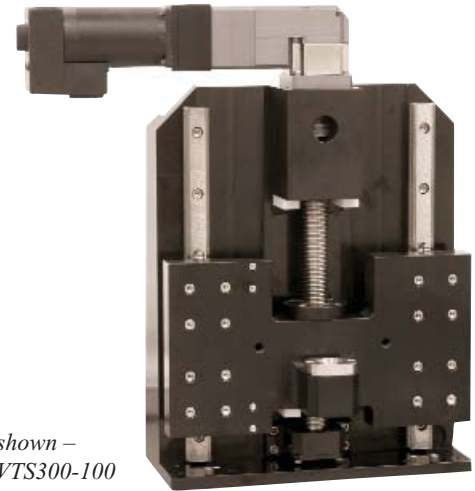
### Outstanding Design and Construction Features

The VTS300 series stages incorporate the highest quality components to provide superior positioning performance over a long lifetime. The base and table are fabricated from high hardness, high stiffness special alloy aluminum.

Pre-loaded angular contact ball-bearings support the 0.1 inch/rev precision lead-screw. The table moves on linear motion guide bearings providing excellent payload capability and long-life, even with heavy offset loads. The linear bearings also provide outstanding accuracy as well as exceptional flatness and straightness specifications over the length of travel.

Angular contact ball-bearings transmit shear forces and support excellent translation characteristics even with heavy loads. The anodized tabletop has a steel insert to support a tooling ball upon which the load would rest, providing a point lift for tip/tilt configurations.

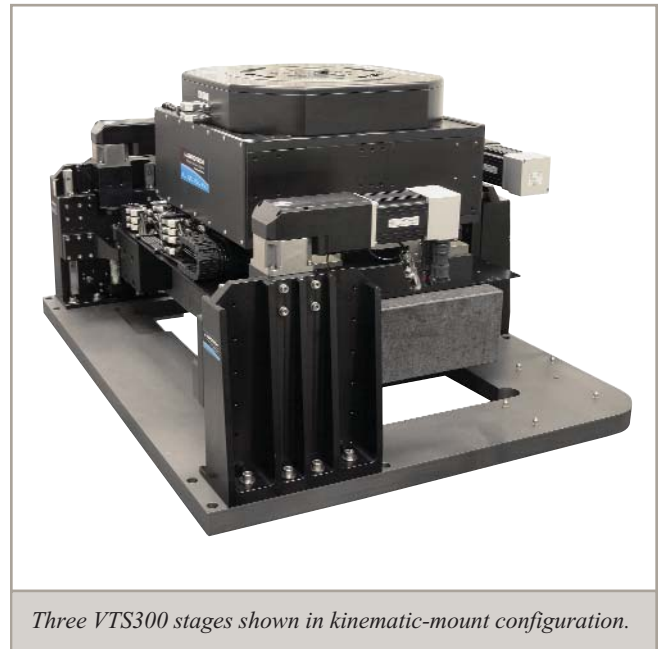
The VTS300 series stages are available with matched stepping or brushless servomotors. The motor drives a high capacity 90° gearbox.



100 mm travel shown – model number VTS300-100

### Options Include Vacuum Preparation for 10<sup>-6</sup> torr

A number of options increase the flexibility of the VTS300 series stages for a wide range of applications. Vacuum preparation for operation in vacuum chambers to 10<sup>-6</sup> torr is available. The stage also has movable limit switches so that customers can adjust the travel range.



Three VTS300 stages shown in kinematic-mount configuration.

# VTS300 Series SPECIFICATIONS

Basic Model			VTS300-050	VTS300-100	VTS300-150	VTS300-200	
Total Travel			50 mm	100 mm	150 mm	200 mm	
Maximum Travel Speed			5 mm/s				
Maximum Load	Vertical	225 kg (500 lb) with NEMA 23 motor; 450 kg (1000 lb) with NEMA 34 motor					
	Side	90 kg					
Accuracy			±25 µm	±50 µm	±75 µm	±100 µm	
Repeatability (Bidirectional)			±10 µm				
Straightness and Flatness <sup>(1)</sup>	Differential	HALSF	±10 µm/25 mm				
		Standard	±20 µm/25 mm				
Pitch and Yaw <sup>(1)</sup>			±10 arc sec	±20 arc sec	±30 arc sec	±40 arc sec	
Nominal Stage Weight	Less Motor	20 kg		30 kg		36 kg	
	With Motor	22 kg		32 kg		38 kg	
Material			Aluminum				
Finish			Black Anodize				

Notes:

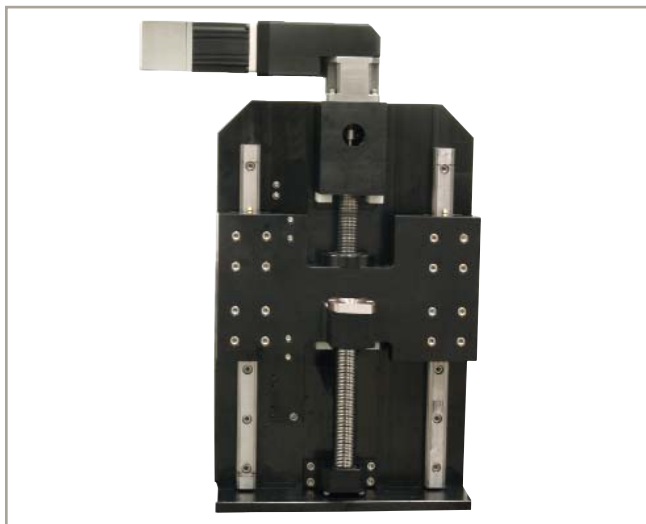
1. Straightness, flatness, pitch, and yaw performance is load dependent. Values listed are for the no-load case.

Electrical Specifications	
Drive System	Brushless Rotary Servomotor
Feedback	Rotary Encoder on Motor
Maximum Bus Voltage	up to 320 VDC
Limit Switches	5 V, Normally Closed

Recommended Controller		
Multi-Axis	A3200	Ndrive MP/Ndrive CP/Ndrive HLe/Npaq MXR
	Ensemble	Ensemble MP/Ensemble CP/Ensemble HLe/Epaq
Single Axis	Soloist	Soloist MP/Soloist CP/Soloist HLe

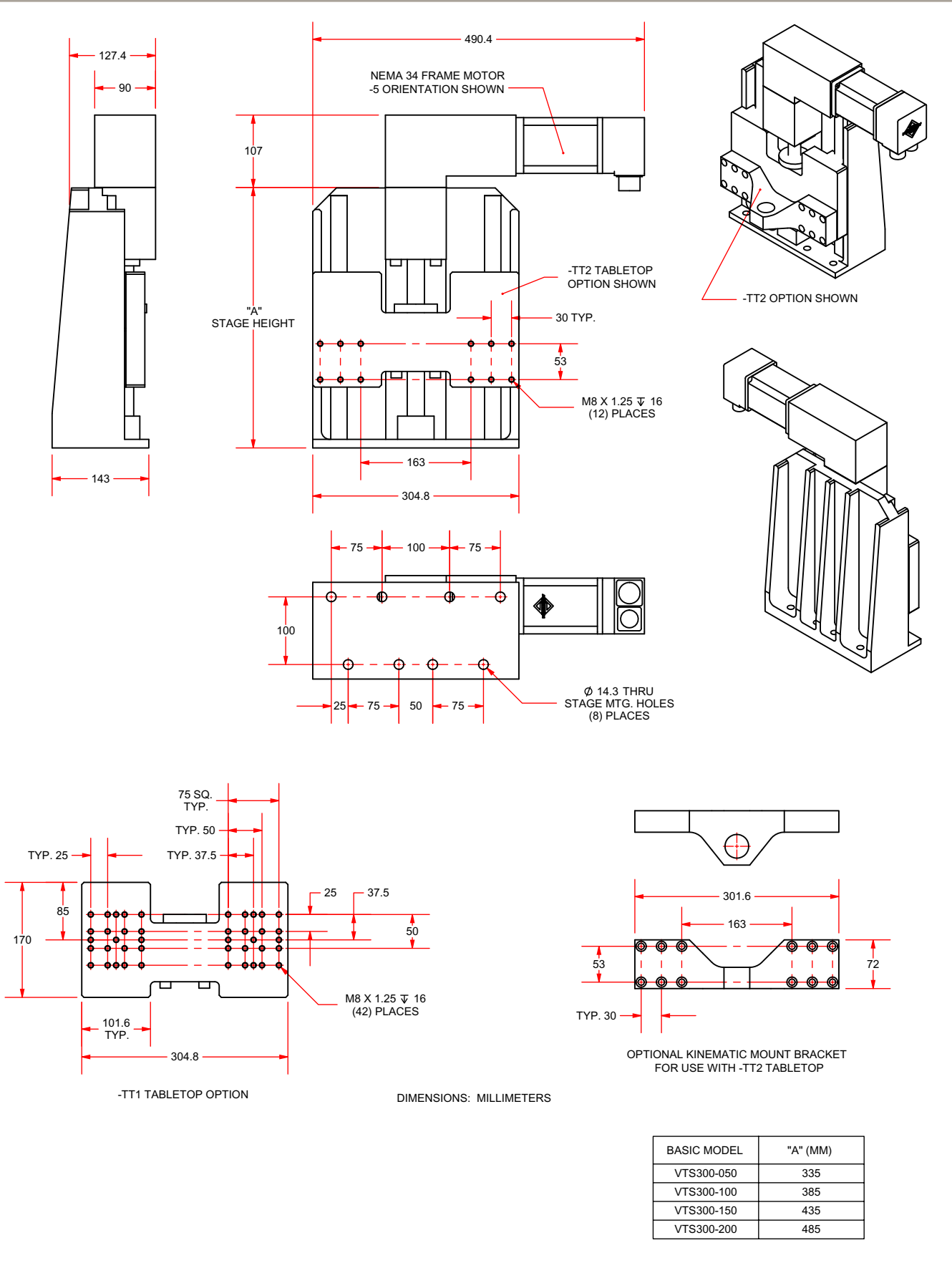
Notes:

1. Linear amplifiers are required to achieve the listed specifications. Other options are available.



VTS300-200 is shown with a NEMA 23 motor and ball joint foot.

# VTS300 Series DIMENSIONS



## VTS300 Series ORDERING INFORMATION

### Travel (Required)

-050	50 mm travel
-100	100 mm travel
-150	150 mm travel
-200	200 mm travel

### Tabletop (Required)

-TT1	Tabletop with metric dimension mounting
-TT2	Tabletop with features for kinematic mounting bracket

### Motor (Optional)

-M1	BM130 servo motor with 1000-line TTL encoder
-M2	BM130 servo motor with 1000-line TTL encoder and holding brake
-M3	BM250 servo motor with 1000-line TTL encoder
-M4	BM250 servo motor with 1000-line TTL encoder and holding brake
-M5	SM280 high-voltage stepper motor

### Motor Orientation (Optional)

-2	Rear cable exit
-3	Left-side cable exit (Standard)
-5	Right-side cable exit

### Limits (Required)

-LI1	Normally-closed limit switches
-LI2	Normally-open limit switches

### Metrology (Optional)

-PL5	Metrology, Horizontal/Vertical Straightness Correction (HALSF)
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### Integration (Required)

Aerotech offers both standard and custom integration services to help you get your system fully operational as quickly as possible. The following standard integration options are available for this system. Please consult Aerotech if you are unsure what level of integration is required, or if you desire custom integration support with your system.

-TAS	<p><b>Integration - Test as system</b></p> <p>Testing, integration, and documentation of a group of components as a complete system that will be used together (ex: drive, controller, and stage). This includes parameter file generation, system tuning, and documentation of the system configuration.</p>
-TAC	<p><b>Integration - Test as components</b></p> <p>Testing and integration of individual items as discrete components. This is typically used for spare parts, replacement parts, or items that will not be used or shipped together (ex: stage only). These components may or may not be part of a larger system.</p>