

# ROTARY STAGES **ASR1300** SERIES



*The ASR1300 features improved acceleration in a smaller package size.*

The ASR1300 boasts significantly higher acceleration capability due to a complete system-level optimization of torque-to-inertia ratio. As a result, the ASR1300 is supremely agile and yet comes in a reduced package size and weight to maintain high-throughput on supporting motion equipment. The ASR1300 maintains all of the “out-of-the-box” material handling capability of the ASR1100 and ASR1200.

#### **Integral Collet Design**

The ASR1300 comes with a D-style/Levin collet chuck. These collets are readily available in multiple sizes supporting tube diameters from 0.1 mm to 2.0 mm. They also provide outstanding run-out characteristics for those applications requiring high-precision gripping of tubular material. Applying air pressure adjusts the collet from fully open to fully closed. Air is delivered to the rotating collet assembly through a custom-designed frictionless, seal-less rotary union. This 100% noncontact union ensures a lifetime of maintenance-free operation.

#### **Throughput Optimized Design**

The ASR1300 has been designed from the ground up with agility in mind. An ultra-high torque-to-inertia ratio, a unique

combination collet chuck and rotary union design, and Aerotech's renowned precision manufacturing allow for a remarkable 8000 rad/s<sup>2</sup> acceleration. This equates to reaching over 1500 rpm in just 90° of travel, making the ASR1300 perfect for the most demanding tube handling applications or any rotary-based manufacturing process where throughput is key. Reduce your overall part cost by producing more parts per minute.

#### **Compact Packaging**

The ASR1300 is the smallest member of the ASR family. In addition to being the fastest ASR rotary stage, it weighs a mere 2.8 kg, less than 60% of the weight of the ASR1100. Minimizing the weight and package size of the ASR1300 allows any multi-axis system carrying the rotary stage to accelerate faster with less dynamic error, allowing for further improvement to your process output.

## — PRODUCT HIGHLIGHTS —

Optimized system design for maximum acceleration

High-speed operation (3000 rpm)

Integral captive pneumatic collet chuck for minimal part motion during clamping

Type-D collet accepts 0.1 mm to 2 mm O.D. tubing

Clear aperture and guide system for product feed-through

Direct-drive brushless motor with water cooling for performance stability

Maintenance-free, frictionless rotary union

## ASR1300 Series Specifications

Mechanical Specifications		
Travel		±360° continuous
Accuracy		±73 μrad (±15 arc sec)
Bidirectional Repeatability		±10 μrad (±2 arc sec)
Maximum Speed <sup>1</sup>		3000 rpm
Acceleration	Peak <sup>1</sup>	8000 rad/s <sup>2</sup>
	Continuous <sup>1,2</sup>	3300 rad/s <sup>2</sup>
Maximum Torque (Continuous)		0.7 N·m
Tube Capacity		Up to 2 mm Collet ID
Load Capacity <sup>3</sup>	Radial	2.0 kg
	Axial	0.50 kg
	Moment	0.75 N·m
Analog Outputs		0 (Available with -EB1 I/O Expansion Board, see below)
Rotor Inertia (Unloaded)		0.00013 kg·m <sup>2</sup>
Stage Mass		2.8 kg
Collet Type		Type D (Louis Levin & Sons™) Normally-Open
Collet Runout <sup>4</sup>		<25 μm
Minimum System Air Pressure <sup>5</sup>		100 psig
Material		Hard Coat Aluminum; Stainless Steel; Polymer
MTBF		10,000 Hours

1 Requires selection of appropriate amplifier with sufficient voltage, current, and encoder frequency. Over 2000 rpm requires HPe drive or Npaq.

2 Based on steady-state temperature rise of motor by 20°C from ambient with Water Cooling option. Continuous accel limit is 1600 rad/s<sup>2</sup> without Water Cooling option.

3 Maximum loads are mutually exclusive. Loading limits are due to the collet chuck mechanism. Contact Aerotech directly if part load requirement exceeds specifications.

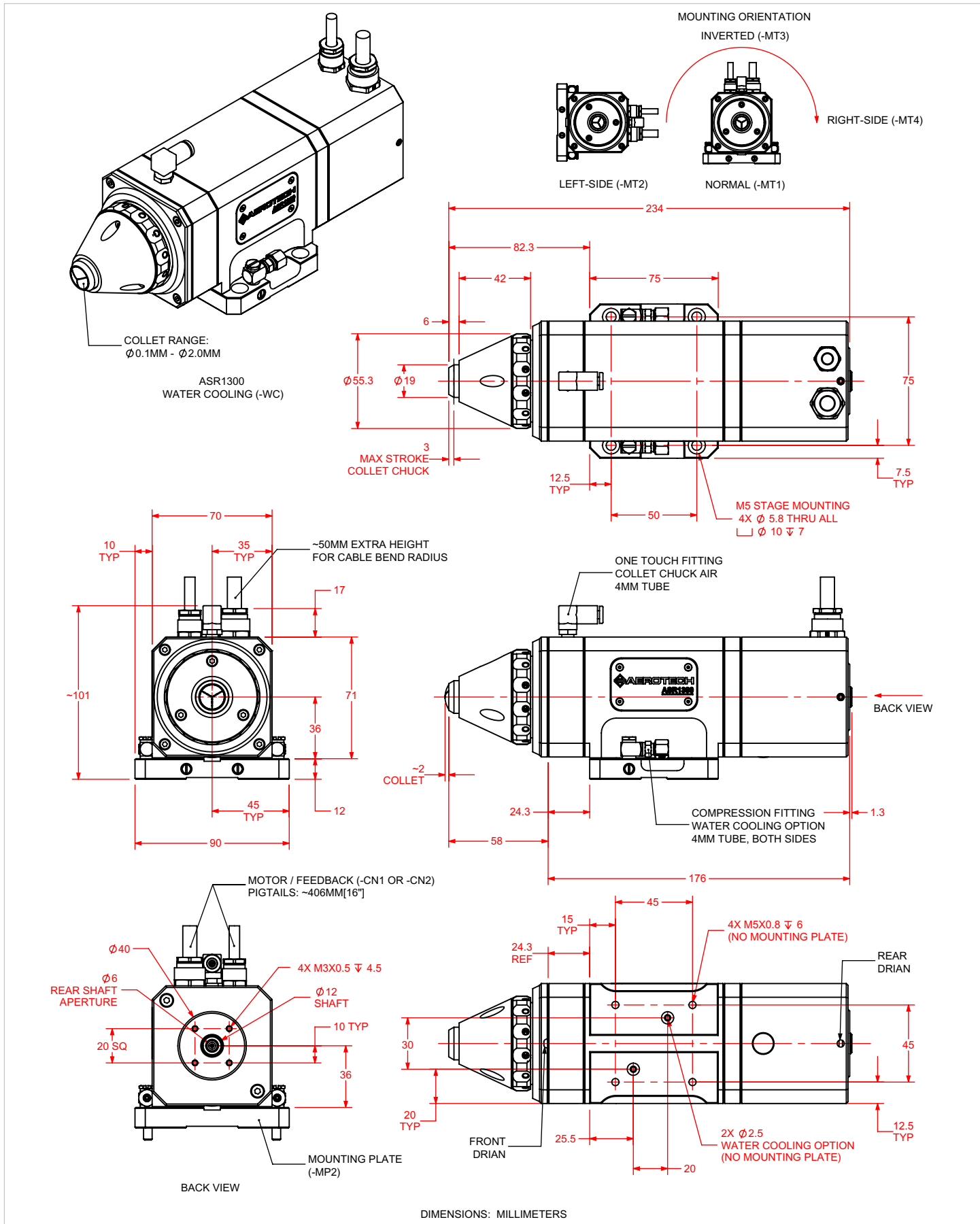
4 TIR of precision gage pin in an ultra-precision collet. Measured 3 mm away from collet face at 100 psig applied air pressure for ASR1300.

5 The ASR1300 contains a collet chuck mechanism that is normally-open. Collet mechanism requires air to close collet chuck. Air supply must be dry (0°F dew point), oil-less air or 99.99% pure nitrogen. Air or nitrogen must be filtered to 1 micron particle size or better.

Electrical Specifications		
Drive System		Brushless, Direct-Drive Servomotor
Feedback System		1 Vpp, Incremental Noncontact Optical Encoder, 7200 lines/rev
Maximum Bus Voltage		320 VDC

Recommended Controller		
A3200		Npaq, Ndrive HLe, Ndrive HPe, Ndrive CP

# ASR1300 Series Dimensions



## ASR1300 Series **Ordering Information**

### Water Cooling (Optional)

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-WC Motor water cooling

### Connector (Required)

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-CN1 4-pin HPD motor and 25-pin D feedback connectors

-CN2 25-pin D motor and 25-pin D feedback connectors

### Mounting Plate (Optional)

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-MP1 Mounting plate - no water cooling

-MP2 Mounting plate - with water cooling

### Mounting Orientation (Required)

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-MT1 Normal mounting

-MT2 Left-side mounting

-MT3 Inverted mounting

-MT4 Right-side mounting

### Integration (Required)

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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 Integration - Test as system

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.

-TAC Integration - Test as components

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.

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

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Collet-D-CLTxx Collet, Type-D, Part Sizes from 0.1 mm to 2 mm

CGF Collet and gripper filtration kit