

ASR1200 Series

Mechanical-Bearing Direct-Drive Rotary Collet Stage

ER16 collet accepts up to 5.8 mm O.D. tubing

Integral water jacket with scalable o-ring seal for wet cutting applications

Clear aperture for product feed-through

Threaded collet retainer enables rapid tooling changeover

Low inertia shaft for maximum acceleration

Direct-drive brushless motor and encoder

Maintenance-free frictionless rotary union

High-speed (2000 rpm) and standard-speed (800 rpm) options



Aerotech's ASR1200 series is an extension of the successful ASR1000 direct-drive rotary stage. The ASR1200 adds an integral pneumatically-operated collet chuck for automated material handling and a sealed water jacket for wet cutting processes.

Integral Collet Design

The collet chuck on the ASR1200 accepts ER16¹ series collets. These collets are readily available in sizes that support tube diameters from 0.5 mm to 5.8 mm. The collet is retained with a threaded retaining cap that enables quick-changeover. The collet is configured in a “fail-safe” mode where full clamping force is applied when no air pressure is present. Air is delivered to the rotating collet assembly through a custom-designed frictionless, seal-less rotary union. This 100% noncontact rotary union design ensures a lifetime of maintenance-free operation. The combination collet chuck and rotary union also has significantly less friction and inertia than external assemblies created from discrete parts. This reduced inertia improves system performance by allowing higher peak acceleration and reducing position error during laser machining operations.

Fluid Delivery System

The ASR1200 includes a fluid delivery system and seal assembly to support wet cutting processes. The rear of the unit has a quick release fitting for fluid input and an NPT thread that allows the user to customize the length of the “water jacket” to match the length of the tube material. Inside the ASR1200 is an O-ring assembly that seals the tubing against the I.D. of the ASR1200 shaft. This seal assembly rotates with the tubing, eliminating troublesome torsion-induced errors that are present when working with thin-walled tubing or extremely flexible materials such as Nitinol.

Direct Drive

The ASR1200 series utilizes direct-drive brushless motor technology to maximize positioning performance. Direct-drive technology is optimized for 24/7 production environments because there are no brushes to replace and no gear trains or belts to maintain. Direct drive also provides quicker acceleration and higher top speeds than gear- or belt-driven mechanisms yielding higher total overall throughput.

The low maintenance and high throughput characteristics of the ASR1200 provide a stage that yields the lowest total cost of ownership while the integral water jacket and pneumatic collet provide unmatched levels of integration and ease of use.



Replaceable O-ring seals are available to support wet cutting of 0.5 mm to 5.8 mm tubing.

ASR1200 Series SPECIFICATIONS

Mechanical Specifications		
Travel		±360 deg. continuous
Accuracy		±73 μrad (±15 arc sec)
Bidirectional Repeatability		±15 μrad (±3 arc sec)
Maximum Speed ⁽¹⁾		2000 rpm (-HS) 800 rpm (-SS)
Tube Capacity		5.8 mm (Water-jacket limited)
Maximum Torque (Continuous)		1.6 N·m
Load Capacity ⁽²⁾	Axial	3.0 kg
	Radial	2.0 kg
	Moment	3 N·m
Rotor Inertia (Unloaded)		0.0006 kg·m ²
Stage Mass		5.3 kg
Collet Type ⁽³⁾		ER16
Collet Runout ⁽⁴⁾		<25 μm
Minimum System Air Pressure ⁽⁵⁾		100 psig
Material	Electroless Nickel Aluminum; Stainless Steel Collet Chuck	
MTBF		10,000 Hours

Notes:

1. Maximum speed based on stage capability. Requires selection of appropriate amplifier with sufficient voltage and current.
2. Maximum loads are mutually exclusive. Loading limits are due to the collet chuck mechanism. Contact Aerotech if part load requirements exceed specifications.
3. Collet chuck accepts Rego-fix ER collets manufactured to DIN6499 specifications only.
4. Measured TIR of precision gage pin chucked with an ultra-precision ER collet (DIN6499) 10 mm away from collet face.
5. Collet chuck mechanism is normally-closed. Collet mechanism required air to open collet chuck. Air supply must be dry and oil-less OR 99.99% pure nitrogen. Air or nitrogen must be filtered to 1 microns particle size or better.

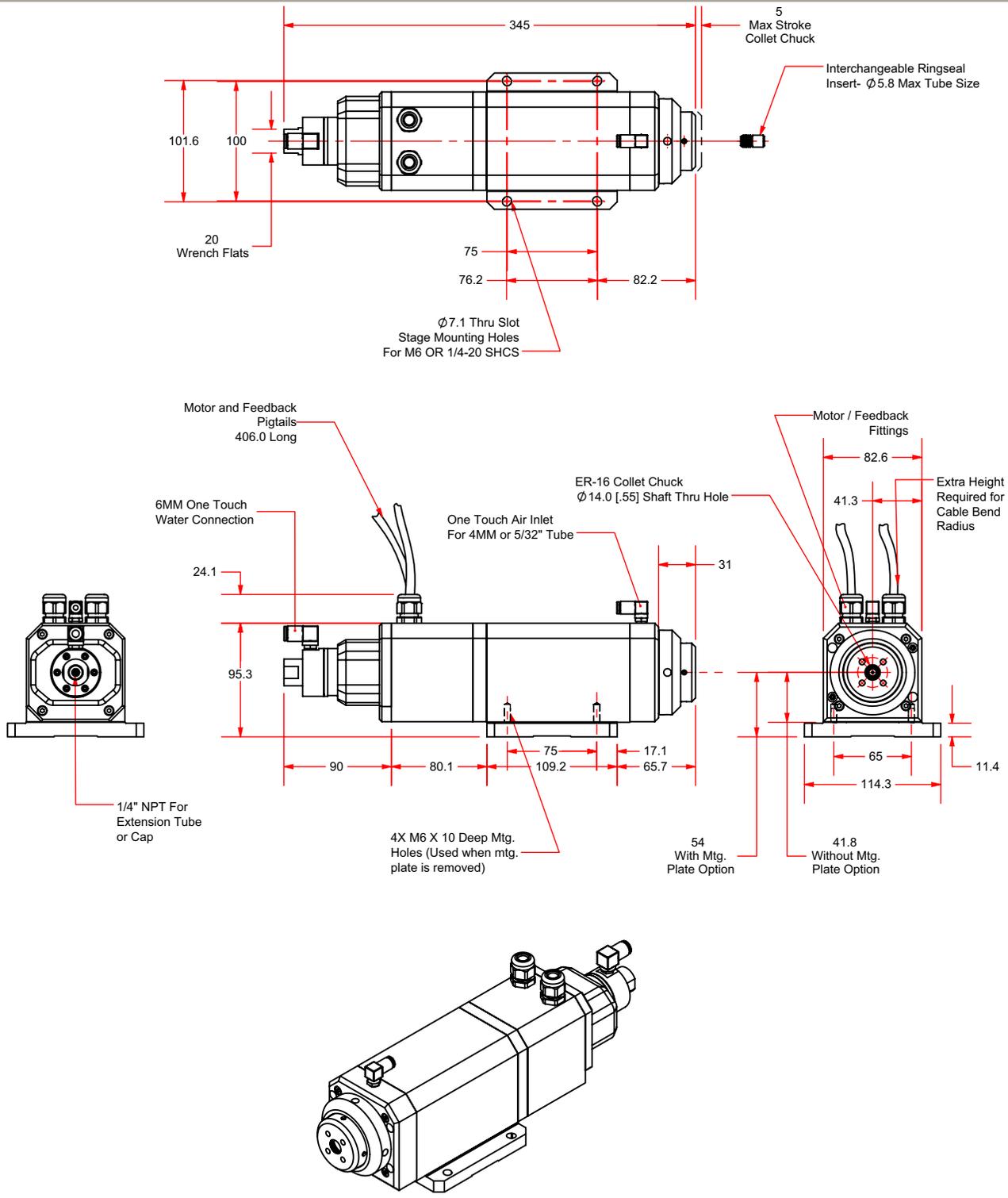
Electrical Specifications

Drive System	Brushless Direct-Drive Servomotor
Feedback System	1 Vpp, Incremental Non-Contact Optical Encoder, 8192 lines/rev
Maximum Bus Voltage	320 VDC

Recommended Controller

A3200	Npaq, Ndrive HLe, Ndrive HPe, Ndrive CP
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ASR1200 Series DIMENSIONS



DIMENSIONS: MILLIMETERS

ASR1200 Series Ordering information

Speed (Required)

-SS	Standard speed
-HS	High speed

Connector (Required)

-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)

-MP	Mounting plate
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Wrench (Optional)

-WR	Wrench for changing collet
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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	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 that ship together. This is typically used for spare parts, replacement parts, or items that will not be used together. These components may or may not be part of a larger system.

Accessories (to be ordered as separate line item)

Collet-ER16-CLTxx	ER16 DIN6499AA electropolished collet, 0.5 mm to 10 mm part diameter sizes available
CGF	Collet and gripper filtration kit