

ASR1100 Series

Mechanical-Bearing Direct-Drive Rotary Collet Stage

Integral pneumatic collet chuck

ER16 collet accepts 0.5 mm to 10 mm O.D. tubing

Clear aperture for product feed-through

Threaded collet retainer enables rapid tooling changeover

Normally-closed collet configuration

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 ASR1100 series is an extension of the hugely successful ASR1000 direct-drive rotary stage. The ASR1100 adds an integral pneumatically-operated collet chuck providing "out-of-the-box" material handling capability.

Integral Collet Design

The collet chuck on the ASR1100 accepts ER16 series collets. These collets are readily available in multiple sizes supporting tube diameters from 0.5 mm to 10 mm. The collet is retained with a threaded retaining cap that enables quick changeover to different tube diameters. The collet chuck is configured in a "fail-safe" mode where full clamping force is applied when no air pressure is present. Applying air pressure up to 100 psi adjusts the collet from fully closed to fully open. 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.



Brushless Direct-Drive

The ASR1100 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. This makes the ASR1100 an excellent choice for processing small-diameter tubular materials.

The low maintenance and high throughput characteristics of the ASR1100 provide a stage that yields the lowest total cost of ownership.

Compact Packaging

The design of the ASR1100 series direct-drive rotary stage was optimized to minimize stage weight and rotating inertia. The resulting product, with a net overall weight under 5 kg (11 lb), is significantly lighter than competitive product offerings. When used in a multi-axis system, the lower weight results in an increase in performance for all positioning stages carrying the rotary stage.

ASR1100 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	14 mm (shaft aperture) with max. 10 mm Collet ID	
Maximum Torque (Continuous)	2.3 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	4.9 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 (Mean Time Between Failure)	10,000 Hours	

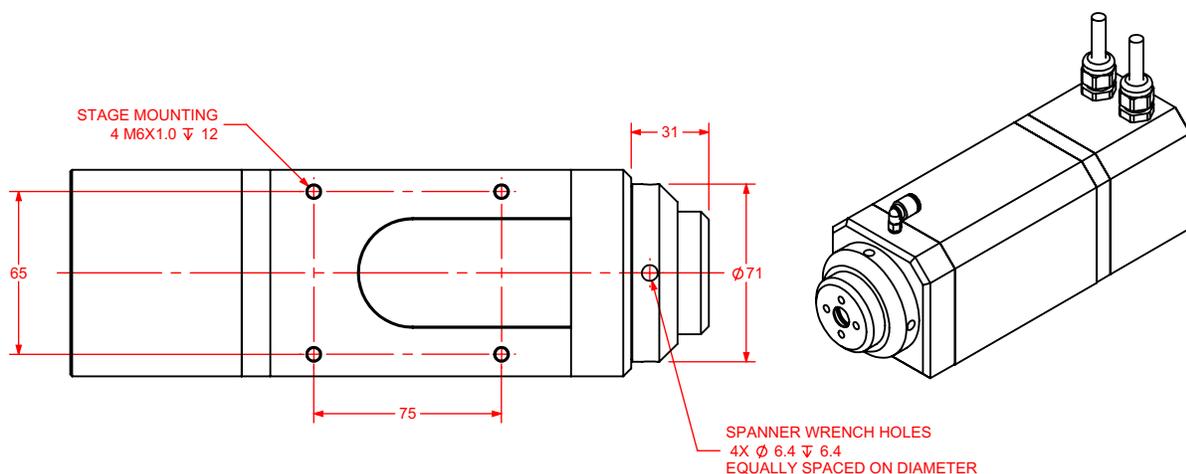
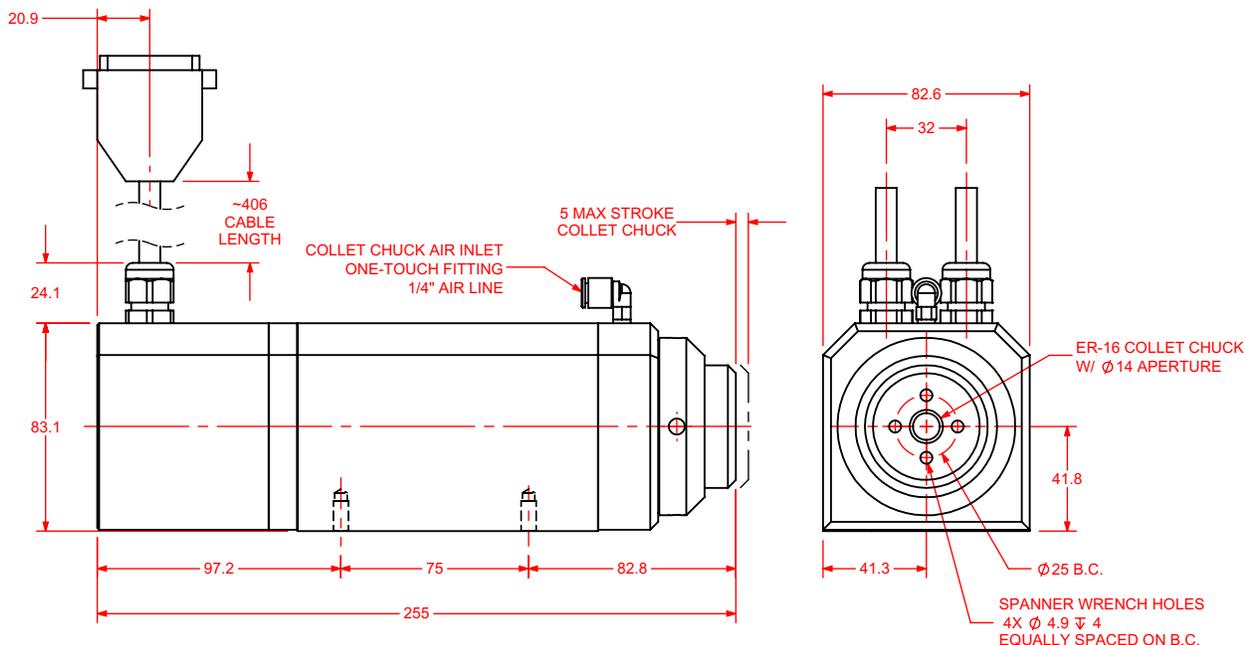
Notes:

- Maximum speed based on stage capability. Requires selection of appropriate amplifier with sufficient voltage and current.
- Maximum loads are mutually exclusive. Loading limits are due to the collet chuck mechanism. Contact Aerotech if part load requirements exceed specifications.
- Collet chuck accepts Rego-fix ER collets manufactured to DIN6499 specifications only.
- Measured TIR of precision gage pin chucked with an ultra-precision ER collet (DIN6499) 10 mm away from collet face.
- 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.

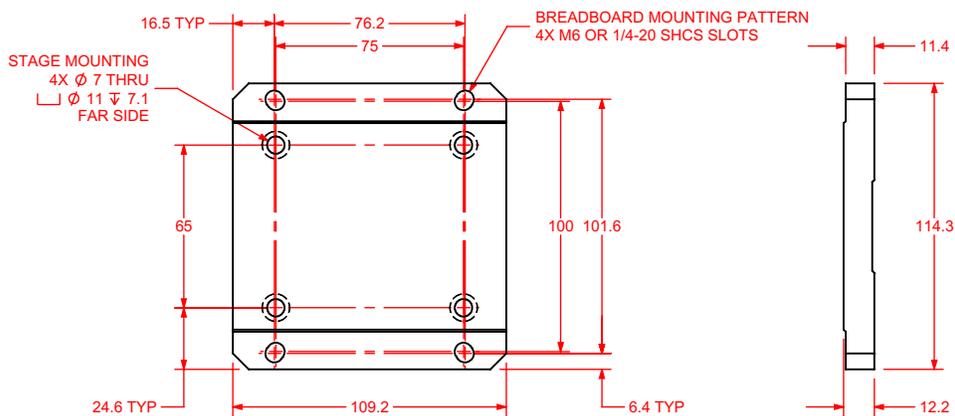
Electrical Specifications	
Drive System	Brushless Direct-Drive Servomotor
Feedback System	1 Vpp, Incremental Non-Contact Optical Encoder, 8192 lines/rev
Maximum Bus Voltage	320 VDC

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

ASR1100 Series DIMENSIONS



-MP (MOUNTING PLATE BREADBOARD)



DIMENSIONS: MILLIMETERS

ASR1100 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

Rear Seal (Optional)

-SL	Rear seal
-----	-----------

Mounting Plate (Optional)

-MP	Mounting plate
-----	----------------

Wrench (Optional)

-WR	Wrench for changing collet
-----	----------------------------

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