

ACS LP Series

Mechanical-Bearing Rotary Stage

Integral pneumatic ER collet chuck

Clear aperture for product feed-through

Low inertia shaft for maximum acceleration

Integral rotary union

Ultra-low profile minimizes working height



Aerotech's ACS LP series rotary stages with integrated ER collet chuck provides automated material handling capability for a wide range of materials and applications.

High Precision ER Collet

The collet chuck on the ACS-100LP accepts an ER8 series collet, while the ACS-150LP uses an ER25 collet and the ACS-200LP uses an ER40 collet. These collets are readily available from machine tool component suppliers in sizes that support tube diameters from 0.5 mm to 30 mm. ER collets provide excellent run-out characteristics for applications requiring high-precision gripping of tubular material. The collet is retained with a threaded retaining cap that enables quick changeover, and is configured in a "fail-safe" normally-closed mode where full clamping force is applied when no air pressure is present.

Compact Package

The design of the ACS LP series direct-drive rotary stage was optimized to minimize stage height. The low profile of the stage reduces the effective working height of the system minimizing "stack-up" related errors.

Integral Rotary Union

Air is delivered to the collet or gripper assembly through an integral rotary union using a seal-less, frictionless design. This 100% noncontact rotary-union design ensures a lifetime of maintenance-free operation. The combination collet chuck and rotary union assembly 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 ACS LP 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, which yields higher total overall throughput.

The low maintenance and high throughput characteristics of the ACS LP, coupled with the integral material handling capability, provide the lowest total cost of ownership when compared to component-level solutions.



ER collets provide excellent run-out characteristics for applications requiring high-precision gripping of tubular material.

ACS LP Series SPECIFICATIONS

ACS LP Series		ACS-100LP	ACS-150LP	ACS-200LP
Total Travel		±360° Continuous		
Collet Option ⁽¹⁾		ER8	ER25	ER40
Aperture	ER8	5 mm	NA	NA
	ER25	NA	16 mm	NA
	ER40	NA	NA	30 mm
Motor (-A/-B)		S-76-35-A/S-76-35-B	S-130-39-A/S-130-39-B	S-180-44-A/S-180-44-B
Bus Voltage		Up to 320 VDC		
Continuous Current, Stall	A _{pk}	2	3.8	5.1
	A _{rms}	1.43	2.7	3.6
Resolution		0.87-87.3 μrad (0.18-18 arc sec)	0.315-31.5 μrad (0.065-6.5 arc sec)	
Max Speed ⁽²⁾		1500 rpm	600 rpm	400 rpm
Accuracy	Uncalibrated	388 μrad (80 arc sec)		
	Calibrated ⁽⁴⁾	29.1 μrad (6 arc sec)	48.5 μrad (10 arc sec)	48.5 μrad (10 arc sec)
Repeatability		14.6 μrad (3 arc sec)	19.4 μrad (4 arc sec)	19.4 μrad (4 arc sec)
Max Load ⁽³⁾	ER8	1.5 kg (Axial); 0.5 kg (Radial); 0.75 N-m (Moment)		
	ER25	10 kg (Axial); 5 kg (Radial); 6 N-m (Moment)		
	ER40	15 kg (Axial); 10 kg (Radial); 12 N-m (Moment)		
Pin/Collet Runout ⁽⁴⁾		<25 μm		
Inertia	Unloaded	0.00038 kg-m ²	0.00242 kg-m ²	0.00843 kg-m ²
Total Mass		2.0 kg	4.3 kg	7.6 kg
Finish	Tabletop	Hardcoat		
	Stage	Black Anodize		

Note:

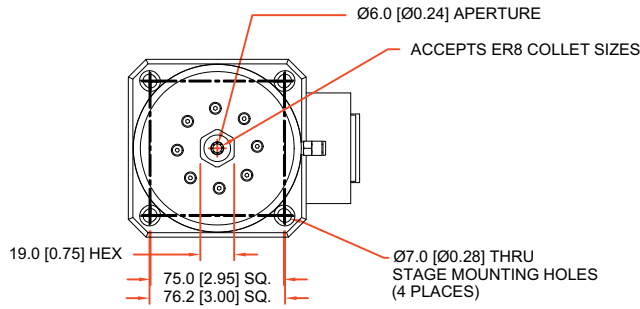
- Collet chuck accepts Rego-Fix ER collets manufactured to DIN6499 specifications only.
- Maximum speed based on stage capability; maximum application velocity may be limited by system data rate, system resolution, and load.
- Maximum loads are mutually exclusive. Loading limits are due to the collet chuck mechanism. Contact Aerotech directly if part load requirement exceeds specifications.
- Measured TIR of precision gage pin chucked with an ultraprecision ER collet (DIN6499) 6 mm away from collet face with no load.
- Collet chuck mechanism is normally-closed. Collet mechanism requires air to open 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 0.25 micron particle size or better.

ACS LP Maximum Encoder Frequency

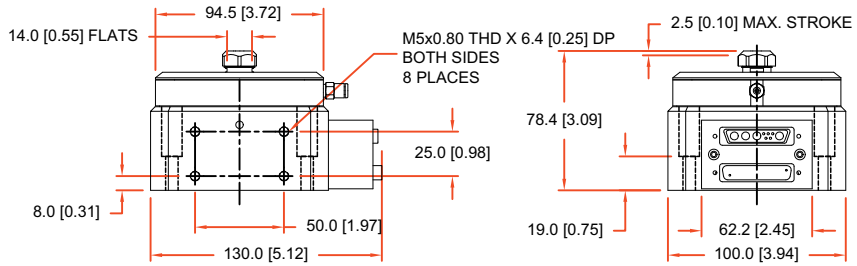
Resolution-Speed	ACS-100LP	ACS-150LP	ACS-200LP
AS/X5/X10	1500 rpm	600 rpm	600 rpm
X25	1067 rpm	384 rpm	384 rpm
X50	533 rpm	192 rpm	192 rpm

ACS LP Series DIMENSIONS

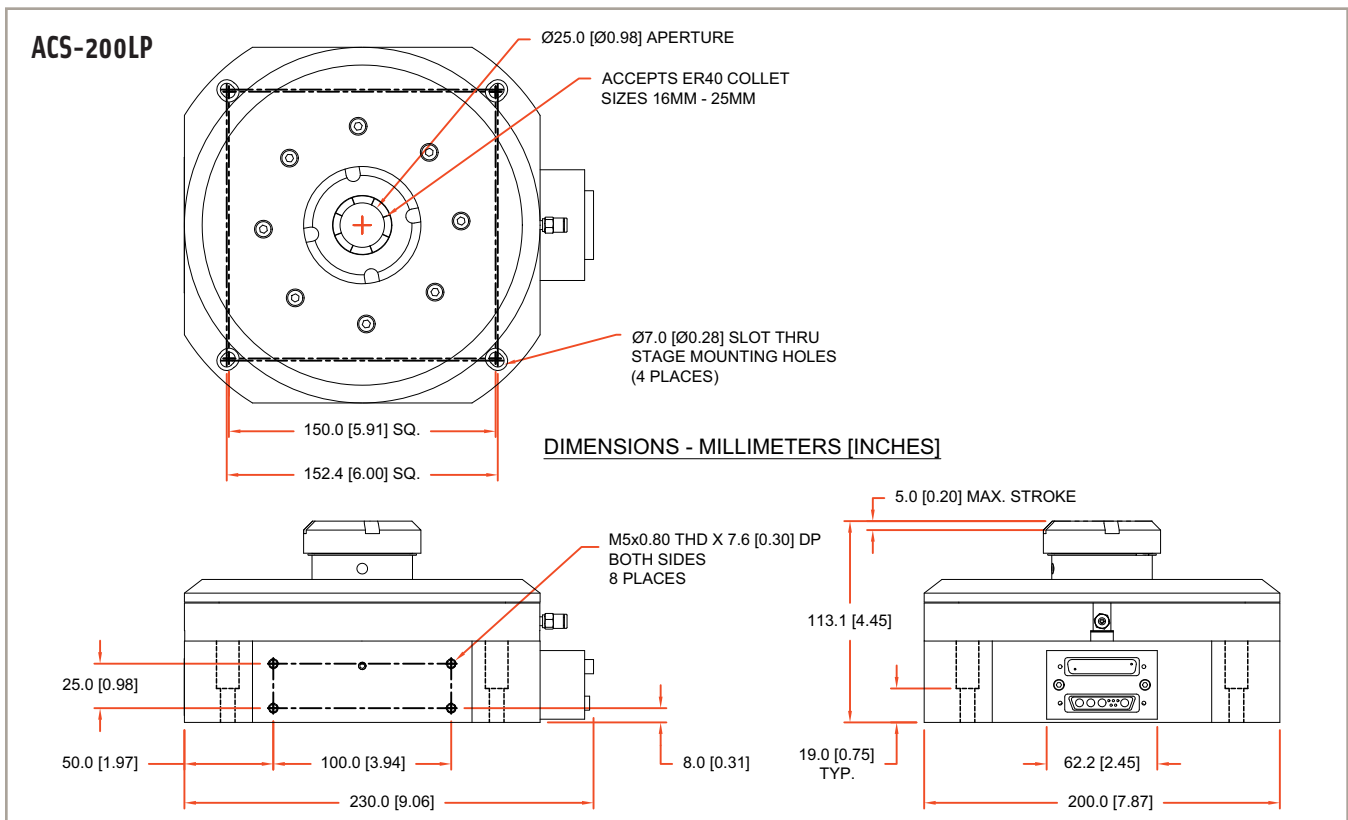
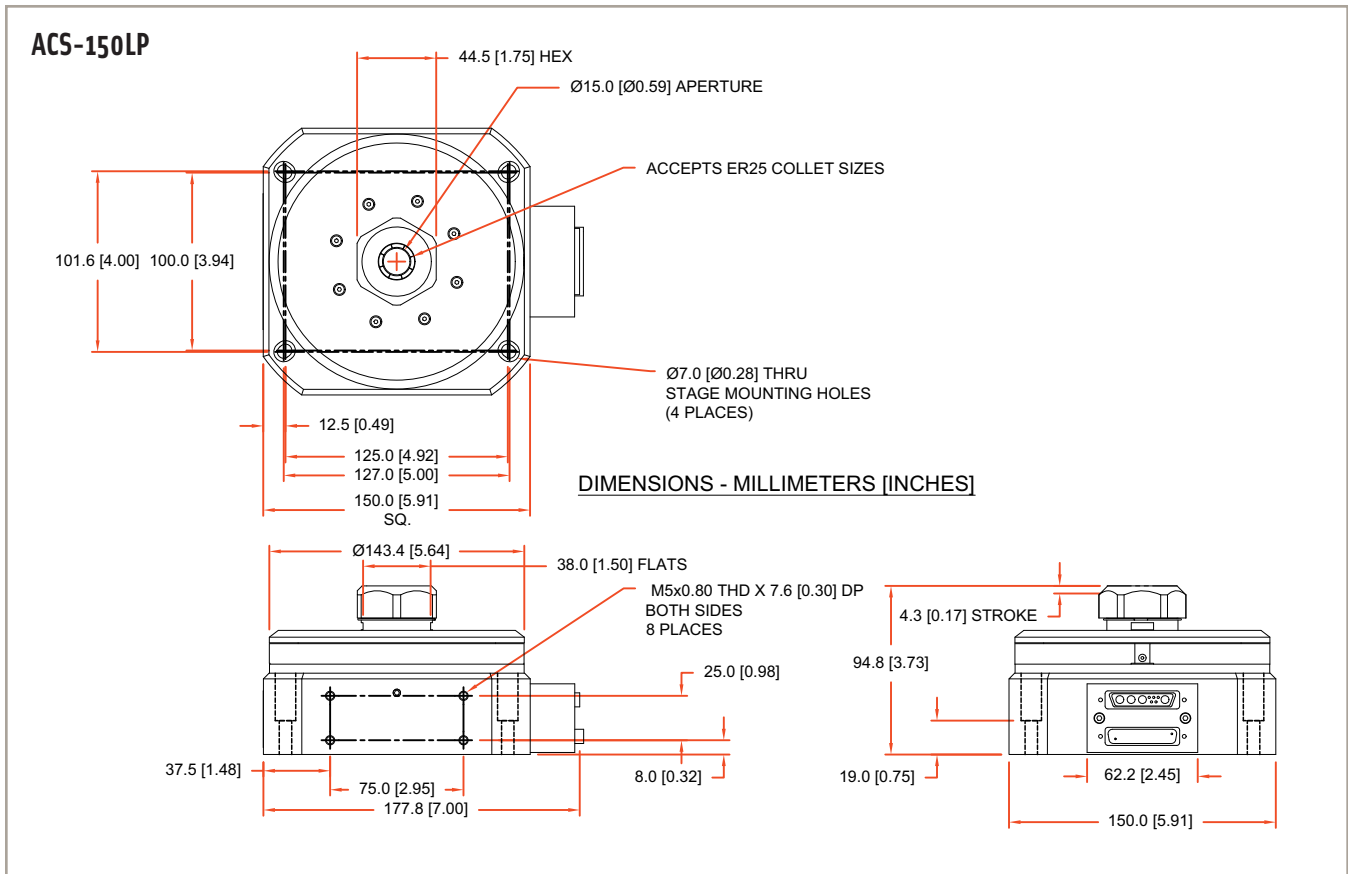
ACS-100LP



DIMENSIONS - MILLIMETERS [INCHES]



ACS LP Series DIMENSIONS



ACS LP Series ORDERING INFORMATION

Ordering Example

ACS	-150LP	-A	-AS	-P
Series	Frame Size and Fixture Type	Winding Option	Position Transducer	Construction Options
	-100LP		-AS	
	-150LP	-A	-X5	-WRENCH SET
	-200LP	-B	-X10	-XMM
			-X25	
			-X50	

ACS LP Series Direct-Drive Rotary Stage

ACS Direct-drive rotary stage with integral pneumatic collet chuck

Frame Size and Fixture Type

-100LP	100 mm wide direct-drive rotary stage with 1.8 N-m peak torque output and integral rotary union, air-actuated ER8* collet holder, normally closed, supports tube diameters from 0.7 mm to 5 mm
-150LP	150 mm wide direct-drive rotary stage with 11.7 N-m peak torque output and integral rotary union, air-actuated ER25* collet holder, normally closed, supports tube diameters from 1 mm to 16 mm
-200LP	200 mm wide direct-drive rotary stage with 30 N-m peak torque output and integral rotary union, air-actuated ER40* collet holder, normally closed, supports tube diameters from 16 mm to 30 mm

*Note: Collet holder requires dry (0°C dewpoint), oil-less, filtered air (0.25 micron) or 99.99% pure filtered nitrogen (0.25 micron).

Winding Options

-A	Standard motor winding
-B	Optional motor winding (consult Aerotech for availability)

Position Transducer

-AS	Standard feedback device; 1 Vpp sine wave output; 360 arc-sec resolution on ACS-100LP and 240 arc-sec on ACS-150/200LP
-X5**	Square wave digital output; 18 arc-sec resolution on ACS-100LP and 6 arc-sec resolution on ACS-150/200LP
-X10**	Square wave digital output; 9 arc-sec resolution on ACS-100LP and 3 arc-sec resolution on ACS-150/200LP
-X25**	Square wave digital output; 3.6arc-sec resolution on ACS-100LP and 2.4 arc-sec resolution on ACS-150/200LP
-X50**	Square wave digital output; 1.8 arc-sec resolution on ACS-100LP and 1.2 arc-sec resolution on ACS-150/200LP

**Note: Requires a controller with a 16 MHz encoder sample rate.

Construction Options

-WRENCH SET	Spanner wrench for changing ER collets
-XMM	DIN6499 AA collet. Consult factory for available sizes