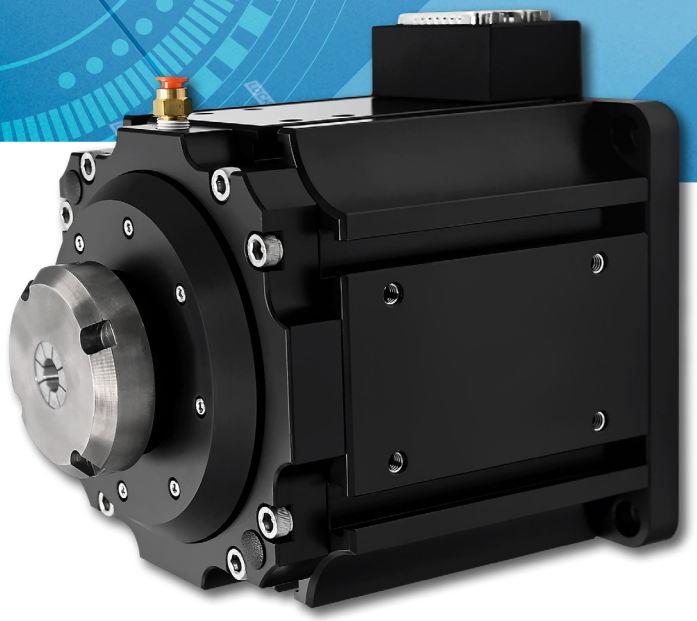
Mechanical-Bearing Direct-Drive Rotary Stage

ACS



Precise, Reliable & Dynamic Rotation with Integrated Workpiece Handling

ACS rotary stages combine a high-performance, direct-drive motor with an integrated pneumatic, ultra-low runout ER collet or 3-jaw gripper for a complete automated material handling solution. Ideal for processing cylindrical parts or tube stock, ACS stages are optimized for 24/7 production, delivering higher acceleration and top speeds for maximum throughput. The integral, frictionless rotary union ensures maintenance-free operation and reduces inertia for improved system accuracy and reproducibility. An all-in-one system, ACS stages streamline integration and offer the lowest total cost of ownership for demanding manufacturing applications.

Key Applications

ACS stages are ideal for applications that require rotary workpiece processing, including:

- Medical device manufacturing
- Tubular material processing
- Stent & hypotube cutting
- Sensor testing & inspection
- Laser cutting & laser micromachining
- Laser welding & joining
- Tube inspection & measurement

KEY FEATURES:

- Integrated ER collet (ER8, ER25 or ER40) or 3-jaw chuck provides **SEAMLESS MATERIAL HANDLING CAPABILITIES**
- Designed to achieve an **IDEAL BALANCE OF CONFIGURATION VERSATILITY** and **DYNAMIC PERFORMANCE**
- Slotless, direct-drive motor offers **SMOOTH, MAINTENANCE-FREE MOTION** with zero cogging
- Low-inertia shaft contributes to **HIGH ACCELERATION** and **PROCESS THROUGHPUT**
- Non-contact optical encoder provides **HIGH-RESOLUTION SERVO FEEDBACK**
- Clear aperture allows for **CONTINUOUS, AUTOMATED FEEDTHROUGH** of stock material up to ø 30 mm

ACS SPECIFICATIONS

Specifications		ACS100-85	ACS100-135	ACS150-115	ACS150-135	ACS150-180
Total Travel		±360° Continuous				
Gripper/Collet Option[1]		ER8		ER25, ER40, 3J-12		
Three-Jaw Gripper Travel		N/A		10 mm, 16 mm		
Maximum Torque (Continuous)		0.48 N·m	1.6 N·m	2.85 N·m	5.06 N·m	9.29 N·m
Accuracy[2]		Calibrated: ±73 µrad (±15 arc sec); Uncalibrated: ±146 µrad (±30 arc sec)				
Repeatability[2]		±29 µrad (±6 arc sec)				
Pin-Collet Runout (ER Collets)[3]		<25 µm				
Grip Repeatability/Max Jaw Length (3 Jaw)		±20 µm/50 mm				
Analog Outputs	**ER8**	5 mm		N/A		
	ER25	N/A		16 mm		
	ER40	N/A		30 mm		
	3J-12	N/A		12 mm		
Max Load[4]	**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)				
	3J-12	20 kg (Axial); 11 kg (Radial); 6 N·m (Moment)				
Rated Speed[5]		800 rpm		600 rpm		
Bus Voltage		Up to 340 VDC				
Finish	**Table**	Hardcoat				
	Stage	Black Anodize				

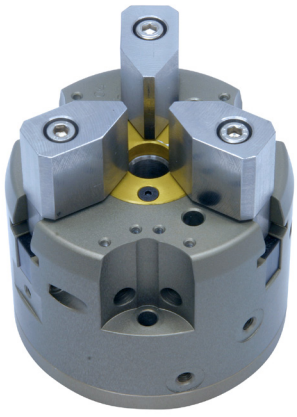
Notes:

1. Collet chuck accepts Rego-Fix ER collets manufactured to DIN6499 specifications only.
2. Repeatability and accuracy are dependent on encoder resolution. To achieve the listed specifications, encoder resolution must be 1.2 arc sec or less.
3. Measured TIR of precision gage pin chucked with an ultraprecision ER collet (DIN6499) 6 mm away from collet face with no load.
4. Maximum loads are mutually exclusive. Loading limits are due to the collet chuck mechanism. Contact Aerotech directly if part load requirement exceeds specifications.
5. Maximum speed based on stage capability; maximum application velocity may be limited by system data rate, system resolution, and load.
6. Collet chuck mechanism is normally-closed. Collet mechanism requires air to open collet chuck. Air supply must be dry (0ºF dew point) oil-less air OR 99.99% pure nitrogen. Air or nitrogen must be filtered to 1 micron particle size or better. With 3-jaw gripper, air or nitrogen should be filtered to 20 micron particle size or better.

ACS SPECIFICATIONS

Specifications		ACS200-155	ACS200-185
Total Travel		±360° Continuous	
Gripper/Collet Option		-3J1 through -3J8 (see ordering options)	
Maximum Torque (Continuous)		11.12 N·m	15.93 N·m
Accuracy[1]		Calibrated: ±73 µrad (±15 arc sec); Uncalibrated: ±146 µrad (±30 arc sec)	
Repeatability[1]		±29 µrad (±6 arc sec)	
Grip Repeatability[2]		±20 µm/50 mm	
Max Jaw Length From Chuck Face		50 mm for 3J-12; 70 mm for 3J-25	
Aperature	**3J-12**	12 mm	
	3J-25	25 mm	
Max Load[3]	**3J-12**	20 kg (Axial); 11 kg (Radial); 6 N·m (Moment)	
	3J-25	30 kg (Axial); 18 kg (Radial); 13 N·m (Moment)	
Rated Speed[4]		600 rpm	
Bus Voltage		Up to 340 VDC	
Finish	**Table**	Hardcoat	
	Stage	Black Anodize	

Notes:
1. Repeatability and accuracy are dependent on encoder resolution. To achieve the listed specifications, encoder resolution must be 1.2 arc sec or less.
2. Measured TIR of precision gage pin 10 mm away from grpper face with no load.
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. Maximum speed based on stage capability; maximum application velocity may be limited by system data rate, system resolution, and load.
5. Collet chuck mechanism is normally-closed. Collet mechanism requires air to open collet chuck. Air supply must be dry (0º F dew point) oil-less air OR 99.99% pure nitrogen. Air or nitrogen must be filtered to 1 micron particle size or better. With 3-jaw gripper, air or nitrogen should be filtered to 20 micron particle size or better.



The 3-jaw gripper option supports non-round material clamping with custom jaws.

Stage Size (Required)

-85	85 mm stage height
-135	135 mm stage height

Chuck Style (Required)

-ER8	ER8 ultra-precision collet
-ER8MB	ER8 micro-bore collet

Feedback (Required)

-E6	Incremental Encoder, 1 Vpp
-E7	Incremental Encoder, Digital RS422, 6.48 arc sec Electrical Resolution
-E8	Incremental Encoder, Digital RS422, 3.24 arc sec Electrical Resolution
-E9	Incremental Encoder, Digital RS422, 1.62 arc sec Electrical Resolution
-E10	Incremental Encoder, Digital RS422, 1.30 arc sec Electrical Resolution

Rear Seal (Optional)

-SL	Rear seal

Connector (Required)

-CN1	4-pin HPD motor and 25-pin D Fbk connectors
-CN2	25-pin D motor and 25-pin D Fbk connectors

Wrench (Optional)

-WR	Wrench for changing collet

Air Purge (Optional)

-PR	Air purge

Metrology (Required)

-PL1	Metrology, uncalibrated with performance plots
-PL2	Metrology, calibrated (HALAR) with performance plots

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-ER8-CLTxx	ER8 DIN6499AA electropolished collet, 0.5 mm to 5 mm part diameter sizes available
Collet-ER8MB-CLTxx	ER8 DIN6499AA electropolished micro-bore collet, 0.2 mm to 0.9 mm part diameter available
CGF	Collet and gripper filtration kit

Stage Size (Required)

-115	115 mm stage height
-135	135 mm stage height
-180	180 mm stage height

Chuck Style (Required)

-ER25	ER25 ultra-precision collet
-ER40	ER40 ultra-precision collet
-3J1	3-jaw gripper, 10 mm stroke, normally closed
-3J2	3-jaw gripper, 10 mm stroke, normally open
-3J3	3-jaw gripper, 16 mm stroke, normally closed
-3J4	3-jaw gripper, 16 mm stroke, normally open

Feedback (Required)

-E6	Incremental Encoder, 1 Vpp
-E7	Incremental Encoder, Digital RS422, 4.48 arcsec Electrical Resolution
-E8	Incremental Encoder, Digital RS422, 2.24 arcsec Electrical Resolution
-E9	Incremental Encoder, Digital RS422, 1.12 arcsec Electrical Resolution
-E10	Incremental Encoder, Digital RS422, 0.90 arcsec Electrical Resolution

Rear Seal (Optional)

-SL	Rear seal

Wrench (Optional)

-WR	Wrench for changing collet

Metrology (Required)

-PL1	Metrology, uncalibrated with performance plots
-PL2	Metrology, calibrated (HALAR) with performance plots

Integration (Required)

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Accessories (To Be Ordered As Separate Line Item)

Collet-ER25-CLTxx	ER25 DIN6499AA electropolished collet, 0.5 mm to 15 mm part holding sizes available
Collet-ER40-CLTxx	ER40 DIN6499AA electropolished collet, 15.5 mm to 25 mm part holding sizes available

Note: ER40 collet sizes below 15.5 mm diameter are not supported. Use the ER25 collet chuck if these sizes are required.

CGF	Collet and gripper filtration kit

Stage Size (Required)

-155	155 mm stage height
-185	185 mm stage height

Chuck Style (Required)

-3J1	3-jaw gripper with 12 mm clear aperture, 10 mm stroke, normally closed
-3J2	3-jaw gripper with 12 mm clear aperture, 10 mm stroke, normally open
-3J3	3-jaw gripper with 12 mm clear aperture, 16 mm stroke, normally closed
-3J4	3-jaw gripper with 12 mm clear aperture, 16 mm stroke, normally open
-3J5	3-jaw gripper with 25 mm clear aperture, 13 mm stroke, normally closed
-3J6	3-jaw gripper with 25 mm clear aperture, 13 mm stroke, normally open
-3J7	3-jaw gripper with 25 mm clear aperture, 20 mm stroke, normally closed
-3J8	3-jaw gripper with 25 mm clear aperture, 20 mm stroke, normally open

Feedback (Required)

-E6	Incremental Encoder, 1 Vpp
-E7	Incremental Encoder, digital RS422, 2.91 arc sec electrical resolution
-E8	Incremental Encoder, digital RS422, 1.45 arc sec electrical resolution
-E9	Incremental Encoder, digital RS422, 0.73 arc sec electrical resolution
-E10	Incremental Encoder, digital RS422, 0.58 arc sec electrical resolution

Metrology (Required)

-PL1	Metrology, uncalibrated with performance plots
-PL2	Metrology, calibrated (HALAR) with performance plots

Integration (Required)

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-TAS **Integration - Test as system**
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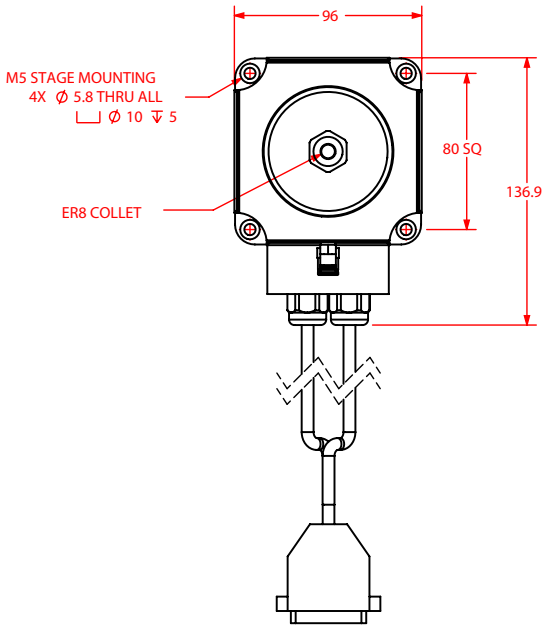
-TAC **Integration - Test as components**
Testing and integration of individual items as discrete components that ship together. This is typically used for spare parts, replacement parts, or items that will not be used together. These components may or may not be part of a larger system.

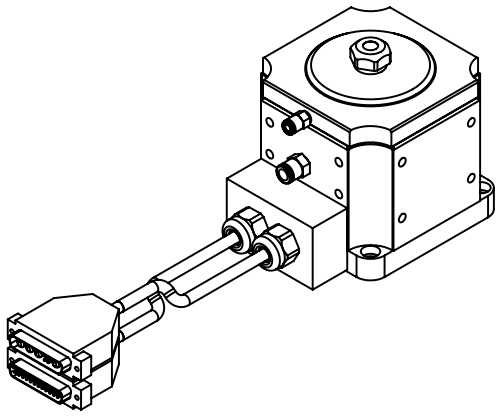
Accessories (To Be Ordered As Separate Line Item)

CGF	Collet and gripper filtration kit

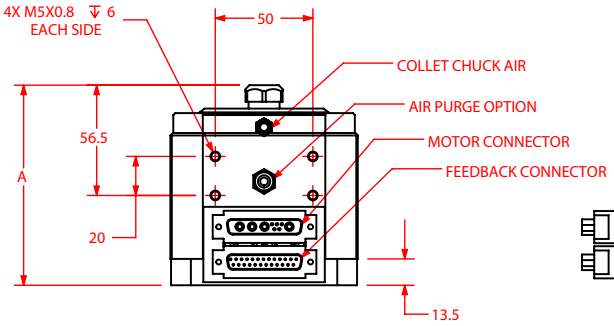
ACS SERIES DIMENSIONS

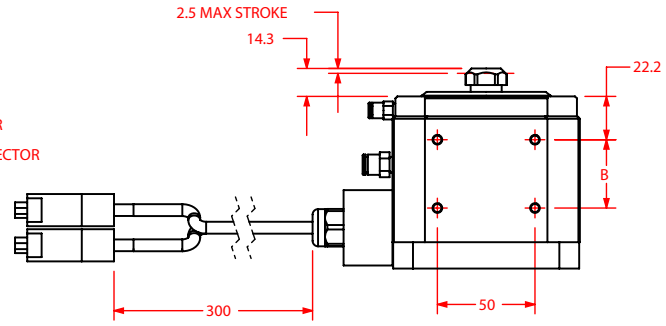
ACS100



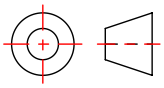


DIMENSIONS: MILLIMETERS		
BASIC MODEL	A	B
ACS100-85	102.4	35
ACS100-135	152.4	85



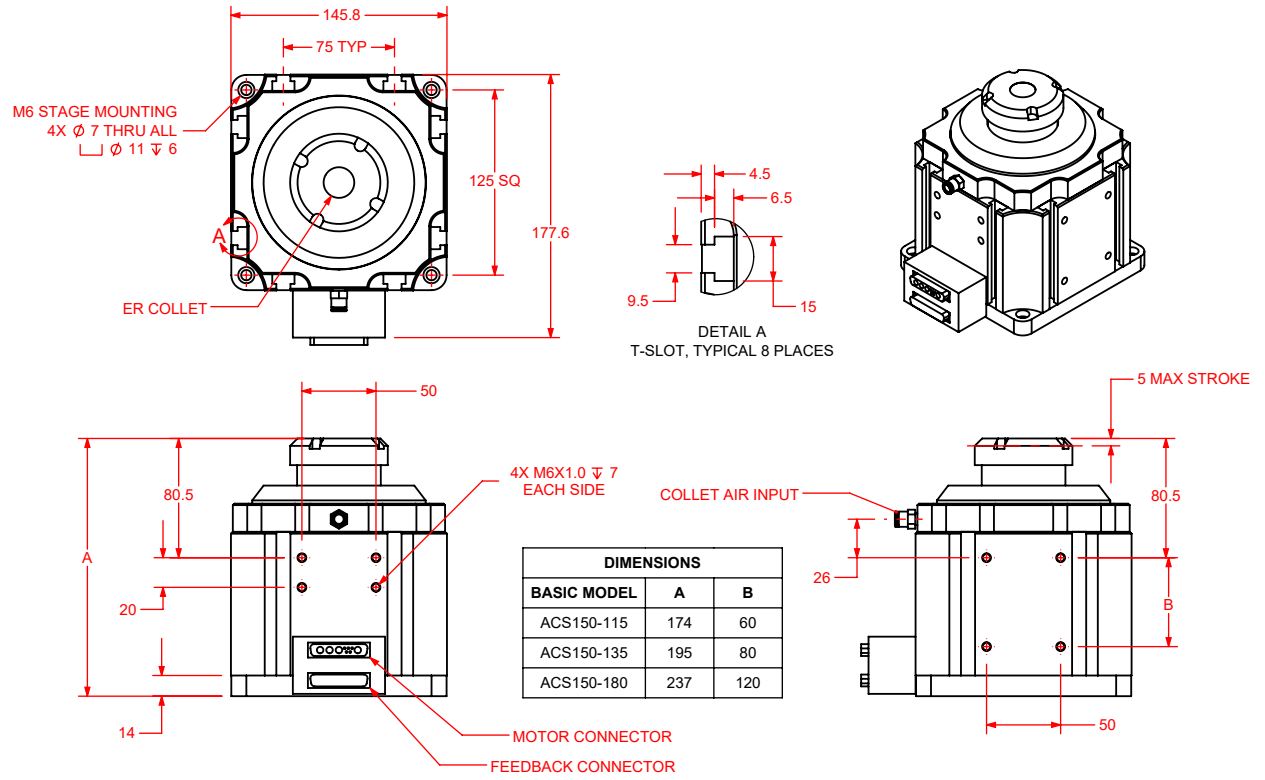


DIMENSIONS: MILLIMETERS



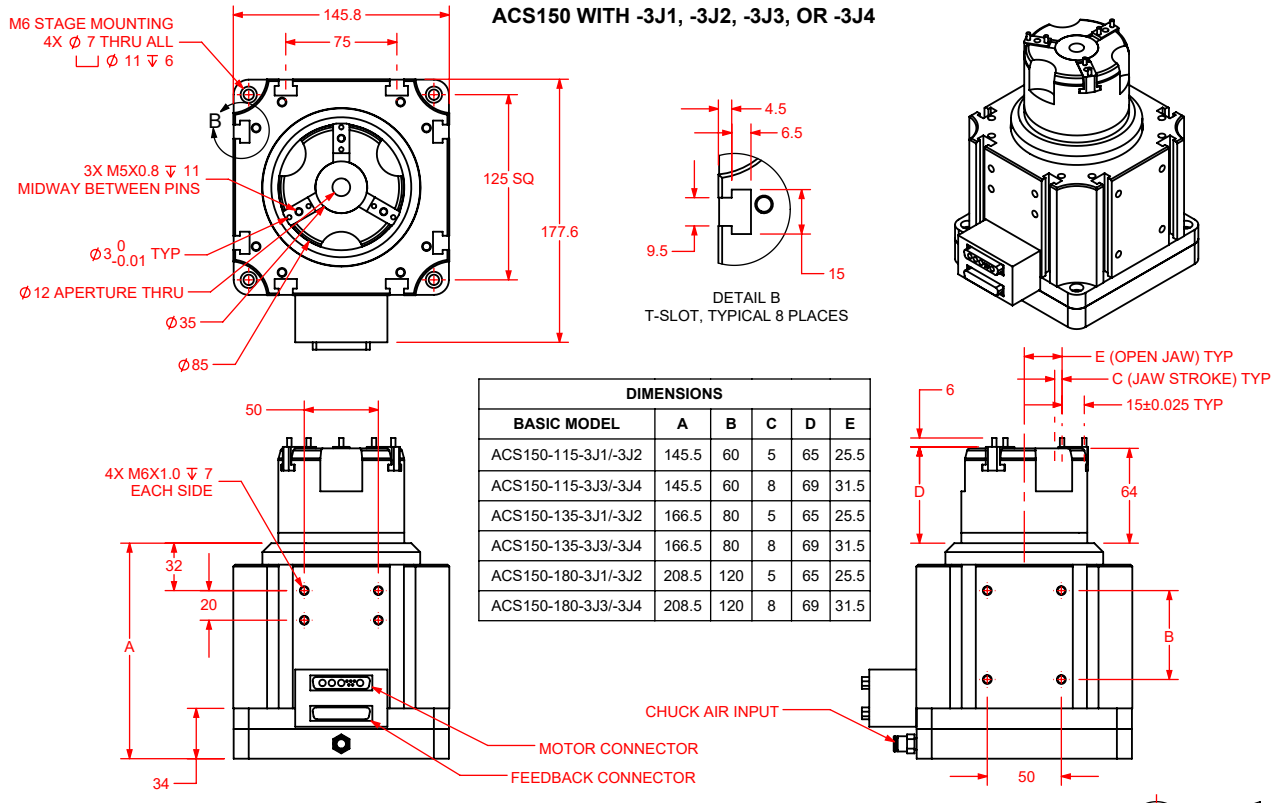
ACS SERIES DIMENSIONS

ACS150



DIMENSIONS		
BASIC MODEL	A	B
ACS150-115	174	60
ACS150-135	195	80
ACS150-180	237	120

ACS150 WITH -3J1, -3J2, -3J3, OR -3J4

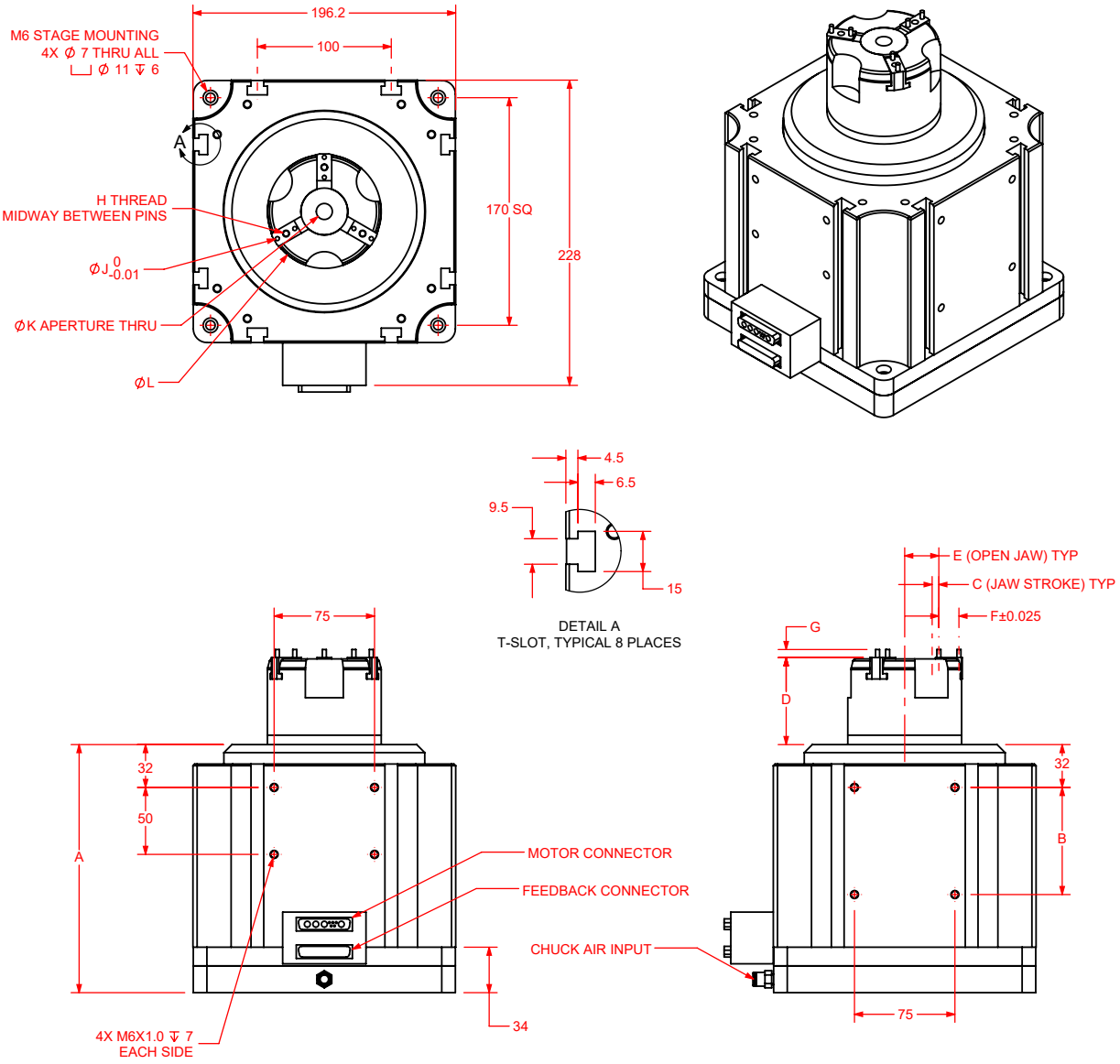


DIMENSIONS					
BASIC MODEL	A	B	C	D	E
ACS150-115-3J1/-3J2	145.5	60	5	65	25.5
ACS150-115-3J3/-3J4	145.5	60	8	69	31.5
ACS150-135-3J1/-3J2	166.5	80	5	65	25.5
ACS150-135-3J3/-3J4	166.5	80	8	69	31.5
ACS150-180-3J1/-3J2	208.5	120	5	65	25.5
ACS150-180-3J3/-3J4	208.5	120	8	69	31.5

DIMENSIONS: MILLIMETERS

ACS SERIES DIMENSIONS

ACS200



DIMENSIONS											
BASIC MODEL	A	B	C	D	E	F	G	H	J	K	L
ACS200-155-3J1/-3J2	185.3	80	5	65	25.5	15	6	M5X0.8↧11	3	12	85
ACS200-155-3J3/-3J4	185.3	80	8	69	31.5	15	6	M5X0.8↧11	3	12	85
ACS200-155-3J5/-3J6	185.3	80	6.5	77	37.5	20	7	M6X1.0↧12	4	25	115
ACS200-155-3J7/-3J8	185.3	80	10	82	44.5	20	7	M6X1.0↧12	4	25	115
ACS200-185-3J1/-3J2	210.3	100	5	65	25.5	15	6	M5X0.8↧11	3	12	85
ACS200-185-3J3/-3J4	210.3	100	8	69	31.5	15	6	M5X0.8↧11	3	12	85
ACS200-185-3J5/-3J6	210.3	100	6.5	77	37.5	20	7	M6X1.0↧12	4	25	115
ACS200-185-3J7/-3J8	210.3	100	10	82	44.5	20	7	M6X1.0↧12	4	25	115

DIMENSIONS: MILLIMETERS