

Precision Collet Rotary Stage

FEATURES

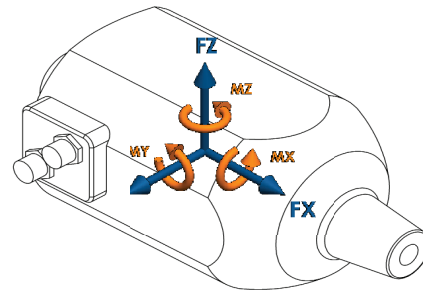
- Continuous 360° rotation
- High Resolution Rotary Encoder
- Brushless DC motor
- Ø 13.00mm through bore
- Pneumatically activated collet chuck
- Accepts Hardinge 3C Type collets
- Ready for Wet-Cutting Applications



These rotary spindles are designed for high throughput and precise positioning to suit a variety of applications. The brushless direct drive technology eliminates backlash and improves reliability by eliminating sliding friction throughout the stage. The pneumatic dead-length collet chuck allows the collet to remain stationary axially during opening and closing. The sealed design allows for wet cutting applications.

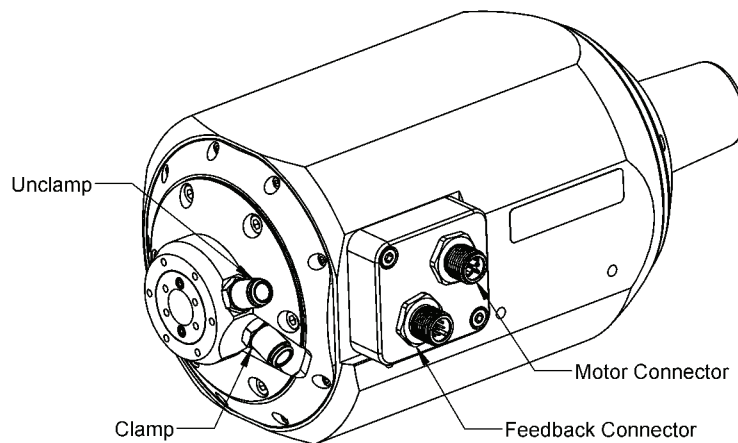
Product Specifications

Air Pressure Maximum (PSI)*	90
Air Quality Required	ISO 8573-1 Class 1
Angular Accuracy +/- (arc-sec)	30
Angular Repeatability +/- (arc-sec)	4
Collet Sizes Available (OD, mm)	0.6-12.7
Encoder Output	1Vp-p
Height (mm)	104
Length (mm)	241.5
Maximum Aperture (mm)	13.0
Peak Torque (Nm)	4.4
Radial Runout of gage pin in collet (μm)	<30
Rotational Inertia ($\text{kg}\cdot\text{m}^2$)	0.00134
Rotational Speed (rpm)	3000
Stage Mass (kg)	5.4
Travel Range (deg)	360
Width (mm)	110
*Collet clamping force decreases with air pressure	



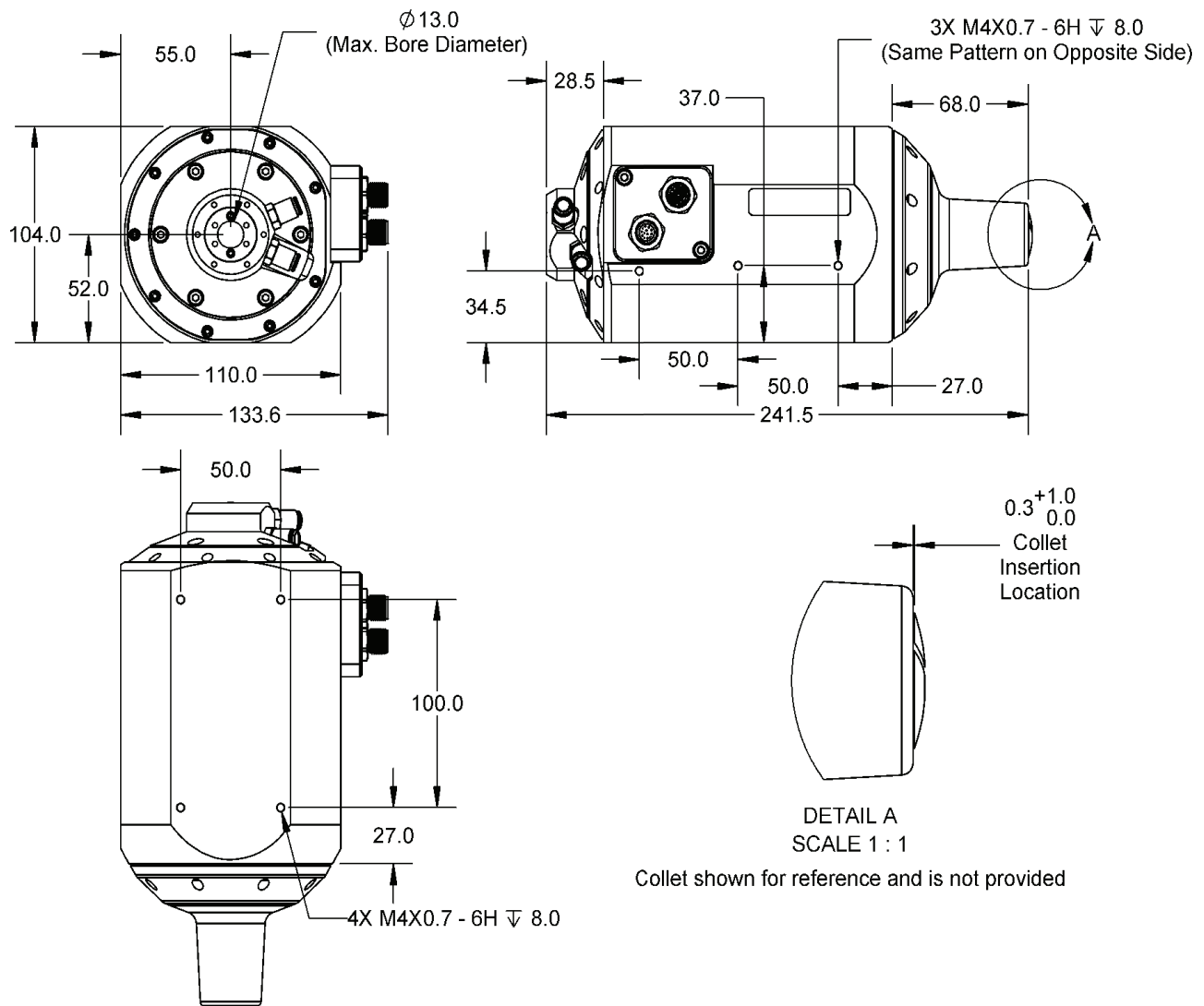
LOAD DIRECTIONS

Note: Supply pressure to each port to move piston.
Air flow will return from the non-pressurized port and must be vented to atmosphere.

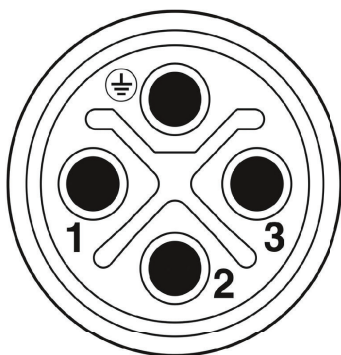


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Mechanical Specifications

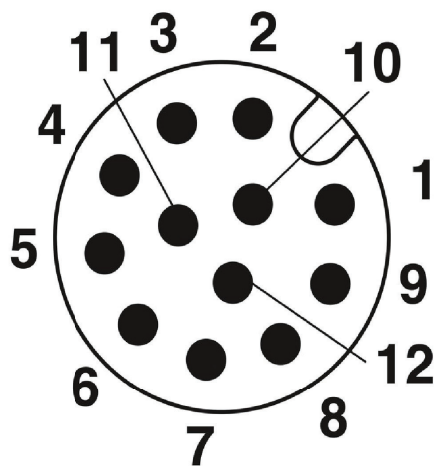


View of Connectors from Outside of Stage



Power Connector
(Motor)

Motor Connector (M12-4POS MALE S CODED)	
Pin	Name
1	Phase A
2	Phase B
3	Phase C
4	PE GND



Feedback Connector
(Encoder, Halls)

Feedback Connector (M12-12POS MALE A CODED)	
Pin	Name
1	+5V
2	SIN+
3	GND
4	COS+
5	*
6	COS-
7	HALL A
8	HALL B
9	SIN-
10	HALL C
11	IDX+
12	IDX-
*Reserved	



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Electrical Specifications

Motor Specifications

Motor Type	3 Φ Brushless DC
BEMF Constant (V/KRPM)	83
Electrical Time Constant (ms)	0.72
Max Bus Voltage (VDC)	340
Max Continuous Current (A _{pk})	3.22
Motor Torque Constant (Nm/A _{pk})	0.684
Peak Current (A _{pk})	6.44
Pin to Pin Inductance (mH)	3.48
Pin to Pin Resistance (Ω)	4.83
Pole Pairs per Revolution	8
Continuous Torque (Nm)	2.2
Peak Torque (Nm)	4.4

Note: A_{pk} refers to Amps-peak-of-sine which is the maximum current in one phase during the full electrical cycle

Feedback Specifications

Supply Voltage (V)	5.0 $\pm$ 10%
Supply Current (mA)	200
Encoder Feedback	Yes
Encoder Type	Incremental
Encoder Output	1V _{pp} ; Sin, Cos, Idx, differential pairs
Encoder Resolution	9000 Periods/rev
Hall Switch Output	Open Collector, Internal Pullup
Hall Switch Max Current (mA)	-20
Limit Switches	No
Indux Pulse	Yes, one per rev

The encoder has one index mark. It will output a pulse once per revolution when this index mark is passed. This pulse is highly repeatable and can be used to find an absolute position (within one revolution of the output shaft) upon power up.