

The actuator operates using the material TERFENOL-D. This material is able to grow in length when subjected to a magnetic field. ETREMA harnesses this phenomena, known as magnetostriction, in order to precisely position the cutting insert at extremely fast speeds.

Key features:

- **High Speed** - spindle speeds up to 6000 RPM - more parts per hour
- **Long Life** - no moving parts means nothing to wear out - more up time
- **Repeatability** - solid state motion prevents backlash, produces more accurate parts - less rejected parts
- **Flexibility** - ovality and profile can be varied along the length of the part; software tables provide maximum flexibility to incorporate the latest part design - no master cam to grind in

Control Cabinet I/F Specs

Size: 194h x 56w x 68d cm
 Power: 208 VAC, 20 Amps, 50-60 Hz
 Cable Length: 4.8 m (16 ft)

Spindle Encoder Communications Protocol:
 RS 422

Spindle Encoder Pulse Count:
 4096 pulses per revolution (2 phase with quadrature)

Support

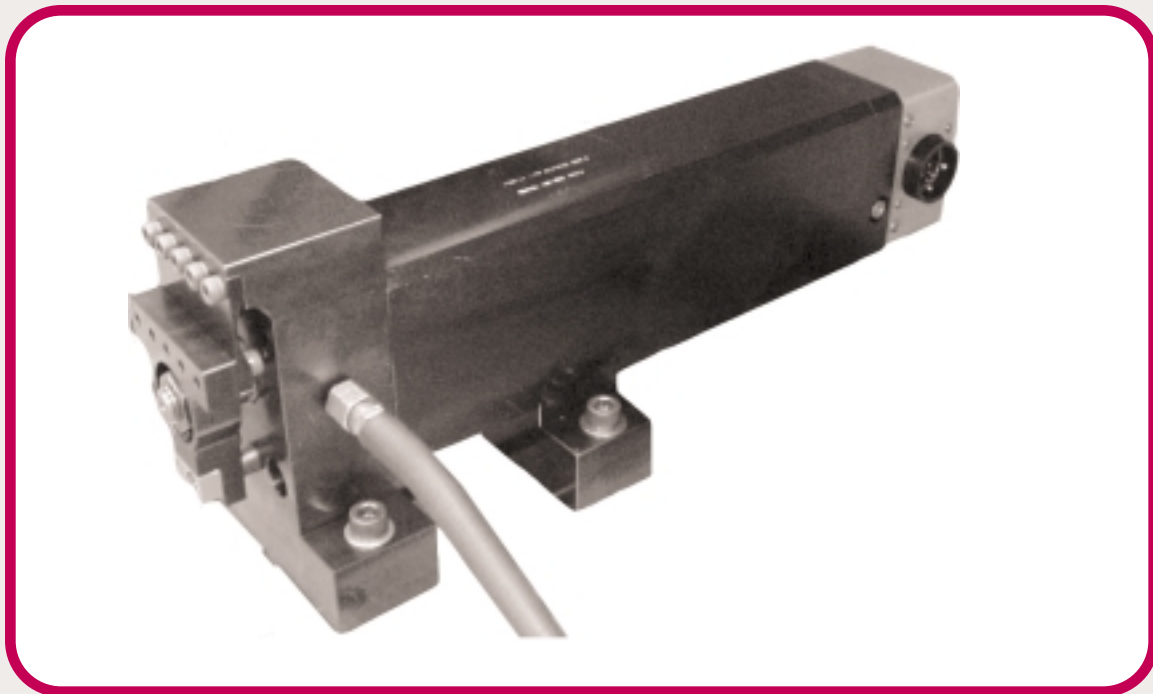
Installation and setup by factory representative
 One additional full day of operator training on hardware and software
 Additional training on site available
 Additional training available at factory
 Special engineering on site for equipment retrofit

Warranty

1 year parts and labor assuring unit free from manufacturing defects

Features of Basic Model

- Magnetostrictive Actuator/Tool Holder with Feedback (Air Cooled - 15 psi.)
- Tool Centerline from Mounting Surface-55mm
- Left Hand Holder for Kennemetal TPGM-21 or equivalent insert (insert not included)
- Single Spindle Speed
- Single Ovality with Variable Magnitude (linear interpolation) (See Note 1)
- Profile with Variable Magnitude (linear interpolation) *
- Z-Axis Inferred from Position and Feed Rate
- Spindle Encoder Synchronization with Angle Adjustment
- Temperature Compensation
- NEMA Class 12 Electronics & Enclosure
- Operator Interface Software



Available Options

- E-Stop Interface
- Multi-Channel I/O - Provides system status to host: Ready, Busy, or Fault
- Discrete Spindle Speed Selection Other Than 3000 RPM
- Variable Speed to 6000 RPM (Stroke Reduced Linearly From 3000 to 6000) - 50 foot cable
- Cable Access Directions For The Cabinet And Actuator

Options (will be quoted on request)

- Multiple Ovality
- Z-Axis Encoder Positioning-(May require lathe modification)
- NURBS Interpolation Instead of Linear Interpolation for Profile & Ovality Magnitudes
- Custom Mounting Configuration or Other Specialized Interface Engineering
- Larger or Smaller Actuators for Increased or Decreased Stroke Requirements
- Remote Network Connections for Diagnostics and Upgrades
- Multi-Spindle System
- Single Spindle, Dual Actuators for Rough and Final Machining on Same Pass

Deliverables

- Actuator/Tool Holder (Choice of cable exit orientation)
- Electronics Cabinet
 - Computer
 - Controller
 - Amplifier
- Interface Cables
- Operator's Manual
- Software Recovery Disc
- Software License
- Maintenance Agreement (Free for first year)

Specifications

Accuracy ¹	+/- 1.1 µm + 2% of Stroke (See Note 1.)
Repeatability ¹ :	1.1 µm + 2% of Stroke
Spindle Speed:	3000 +/- 200 RPM
Maximum Total Stroke:	640 µm
Maximum Dynamic Stroke:	350 µm
Maximum Thrust:	2670 N
Maximum Stiffness:	14.9 MN/m
Actuator/Toolholder Weight:	20 Kg
Bleed Air Supply:	15 psi

Notes

*Accuracy shown is predicated on smooth transitions during ovality and profile changes. Step changes such as typical land to skirt ovality will result in significantly larger errors for 50 to one hundred spindle rotations depending on the magnitude of the change. If the change is coincident with a ring groove, the effect will not be seen.

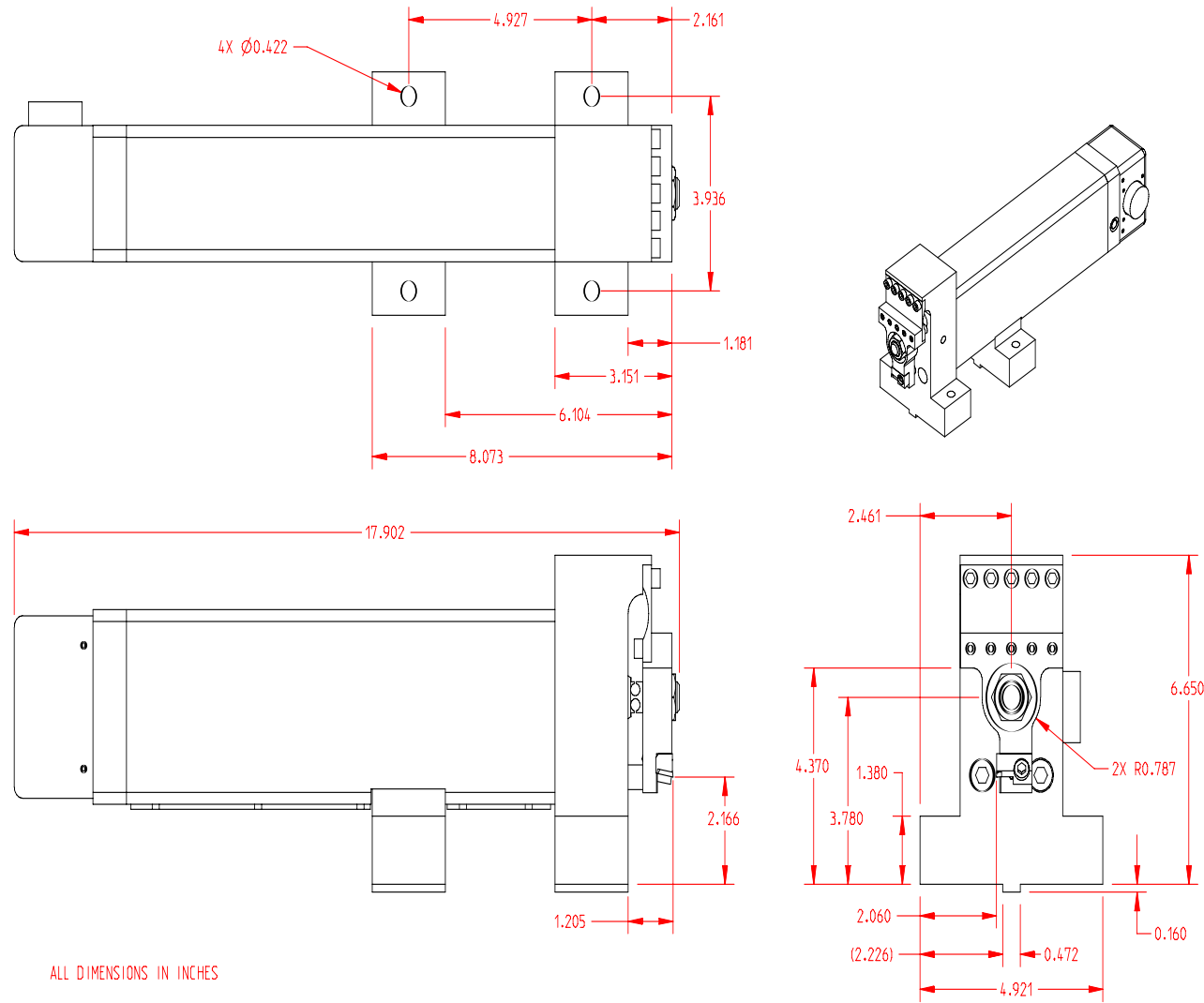
Information contained in this specification is subject to change without prior notice.

¹per ISO 230-2



Active Machining Systems™

PISTON PROFILE & OVALITY TURNING



Cabinet and Actuator Shown in Typical Mounting
Lathe Not Included

For Additional Information Please Contact:

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