

EXCELLENCE IN MOTION®

# Servo-Driven Welding

## HT Actuator • Weld Axis Motion Control



- COMPACT, SEALED UNIT CONTAINS INTEGRATED MOTOR AND ACTUATOR FOR DECREASED WEIGHT AND FOOTPRINT
- FACTORY LUBRICATED FOR 6 MILLION WELDS WITH **NO MAINTENANCE**
- PROGRESSIVE MOTION PROFILES AND TIP THRUSTS RESULT IN CONSISTENT, UNIFORM WELDS



**TOL-O-MATIC, INC.**





# WHY SERVO-DRIVEN WELDING IS BETTER:

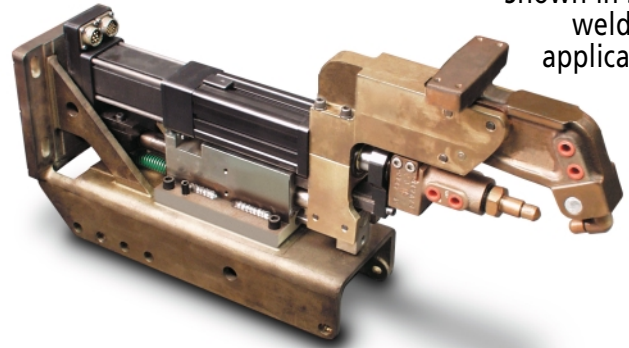
- Precise, consistent, uniform welds
- Increased electrode life
- **Faster cycles:** 1. no wait, in-position signal sent to PLC to start weld, 2. shorter strokes possible in multiple weld series
- "Soft touch" programmed tip thrusts
- Programmable motion profiles
- Easily changed for different material thickness and tip force
- Reduced utility costs, due to elimination of air
- Perfect for fixture or robotic applications

# HT ACTUATOR FEATURES:

- Factory Lubricated for 6 million welds with **NO Maintenance** makes the HT Actuator Ideal for Welding Gun Applications
- Compact package fits most pneumatic cylinder footprints
- Integrated actuator/motor/feedback
- Internal side load guide and anti-rotation bearing system.
- Dimensions and weight capacities comparable to pneumatic counterpart
- Rare earth magnet, 3-phase, brushless servo motor.
- Thermostat integral to windings.
- Rotatable MS style electrical connectors and rear housing for orientation within any gun configuration.
- Housing window provides access to manual override.
- Standard with 1000 line incremental encoder. Easily adapted to most encoders or resolvers.
- **Customized pulsecoder can be created for inline actuators on new 7th axis robots (current partners include Fanuc and Nachi Tamagawa)**
- Cooling: No water or forced cooling required for most weld schedules
- Mounting: Most existing pneumatic mounting configurations can be accommodated.

# HT7 ACTUATOR 700 LBS. OF THRUST (3.1 KN)

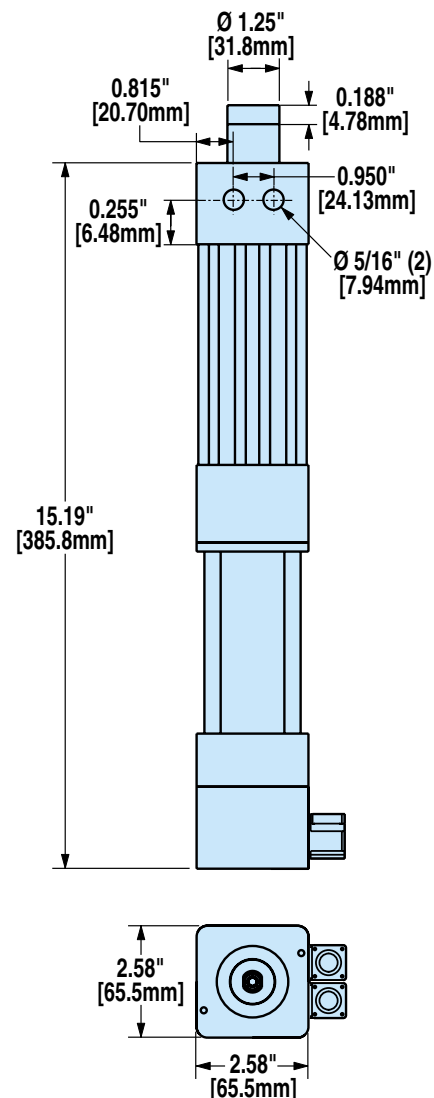
Shown in spot weldgun application



Max. Speed: 14.5-in./sec. (368mm/sec.)

Weight with 2.38-in. Stroke: 8 lbs. (3.6 kgs.)

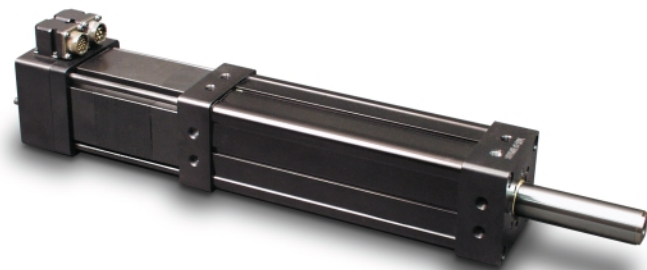
Length with 2.38-in. Stroke: 17.6-in. (447.0mm)



CUSTOMIZED MOUNTING READILY AVAILABLE

# HT12 ACTUATOR

## 1,200 LBS. OF THRUST (5.3 KN)



Max. Speed: 14.5-in./sec. (368mm/sec.)

Weight with 6-in. Stroke: 24 lbs. (10.9 kgs.)

Length with 6-in. Stroke: 20.6-in. (523.2mm)

# HT23 ACTUATOR

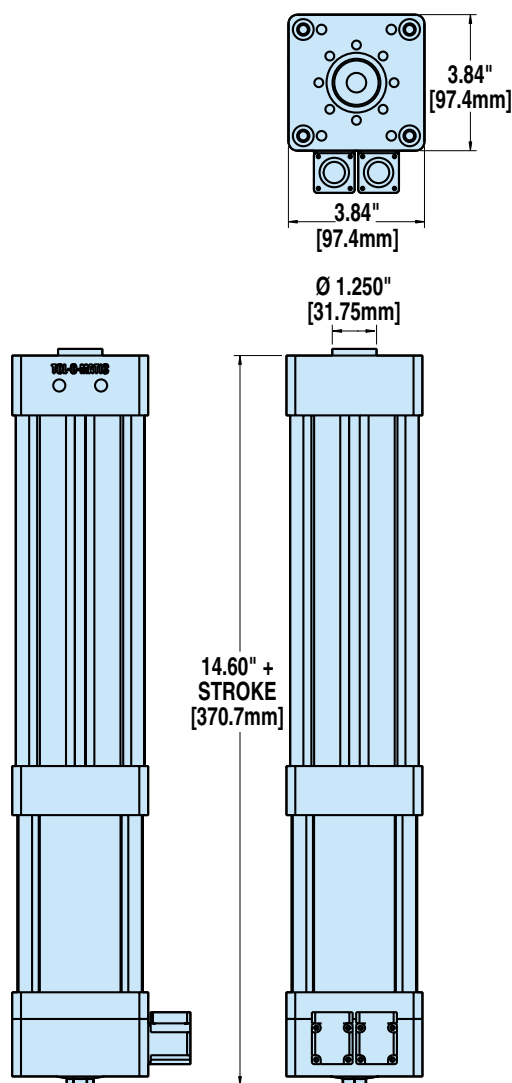
## 2,300 LBS. OF THRUST (10.2 KN)



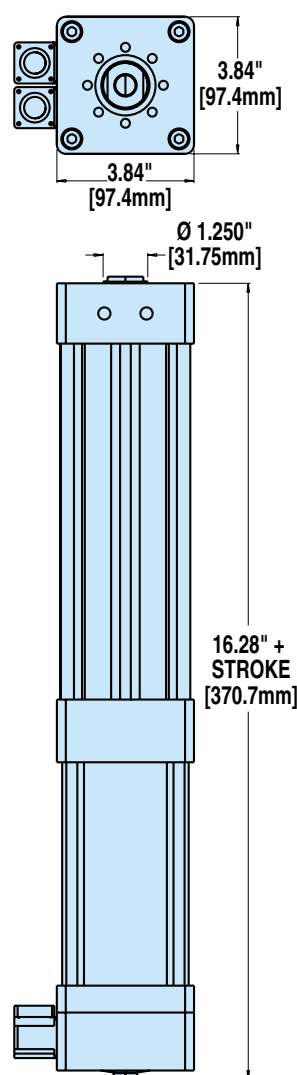
Max. Speed: 14.5-in./sec. (368mm/sec.)

Weight with 6-in. Stroke: 28 lbs. (12.7 kgs.)

Length with 6-in. Stroke: 22.3-in. (565.9mm)



CUSTOMIZED MOUNTING READILY AVAILABLE



CUSTOMIZED MOUNTING READILY AVAILABLE

# WELD AXIS

Tol-O-Matic's Weld Axis is designed to be used in stand-alone applications with the HT actuator or other manufacturer's servo actuators. **Retrofit an existing pneumatic cylinder on a 6-axis robot or a fixture application with the HT actuator and Weld Axis** – Weld Axis will use the PLC actuate and weld signals just like the existing pneumatic cylinder or it can be programmed to send inposition signal back to the PLC to shorten the cycle time

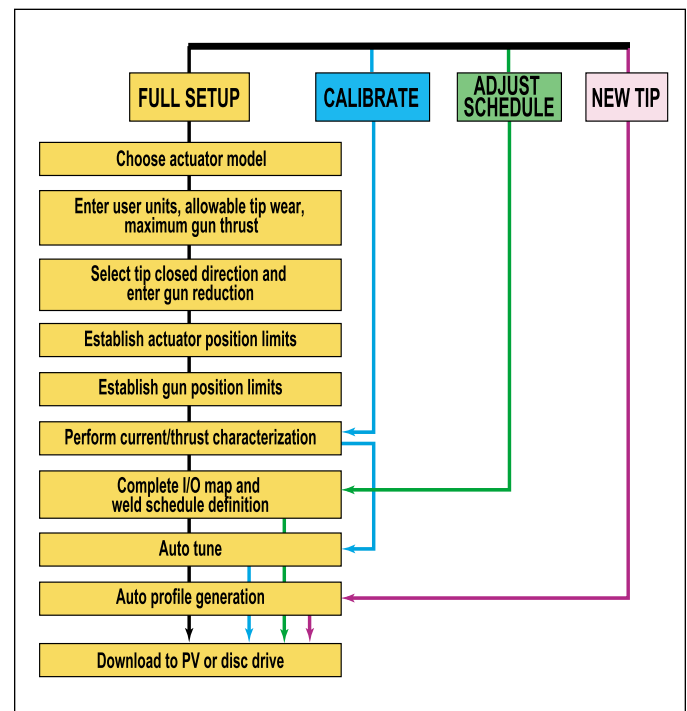
## FEATURES:

- Seamless retrofit to 6-axis robots, or fixture welding applications, I/O for retrofit to existing devices or communication with master devices
- A fraction of the cost of a new 7-axis robot system
- Integrates behind existing safety protocols
- Easily programmed to monitor tip wear and seat new tips
- Data storage on memory card
  - Auto-save insures program consistency
  - System technician can easily master initial setup as well as calibration, adjust schedule, and new tip procedures
  - No need to repeat initial programming if an electronic component fails
- \* Integrated PLC option on single-axis controller
- Does not use a hard-wired drive
- Available as complete panel or as kit to place in existing panel
- **Vector current control drive for maximum motor efficiency**
  - Auto-phasing – no hall sensors required
  - Short-circuit, overcurrent, and overvoltage protected
  - Pluggable screw terminals
- Single pendant can be used to program multiple workstations



Weld Axis pendant

Weld Axis panel



*This flow chart outlines how Weld Axis handles the functions commonly performed in automotive welding.*



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