

# ServoTube Electric Actuator



High Speed Positioning • Simple Installation • Food-Safe  
IP67 • No Lubricant • Quiet Operation

# ServoTube Position Control

## Breakthrough Technology

ServoTube combines the speed and ruggedness of pneumatics with the flexible, quiet, reliable operation of a linear motor. ServoTube's patented magnetic design delivers peak forces from 312-1860 N with speeds up to 8.7 m/sec. A non-contact internal sensor provides up to 12 micron repeatability. No external encoder is required.

### IP67 Enclosure

Sealed magnets and coils  
Mount load directly to T-slots  
on rugged forcer

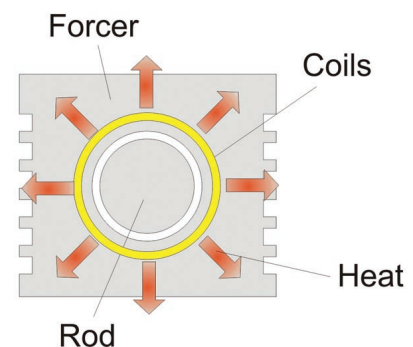
### Integral Bearing

(ServoTube Actuator)  
Long-life, dry-running, quiet



## The Tubular Motor

The symmetrical design of the tubular motor is magnetically efficient and unaffected by misalignment. A large air gap simplifies installation. ServoTube has superior thermal efficiency, radiating heat uniformly. High duty cycles are possible without forced-air or water cooling.

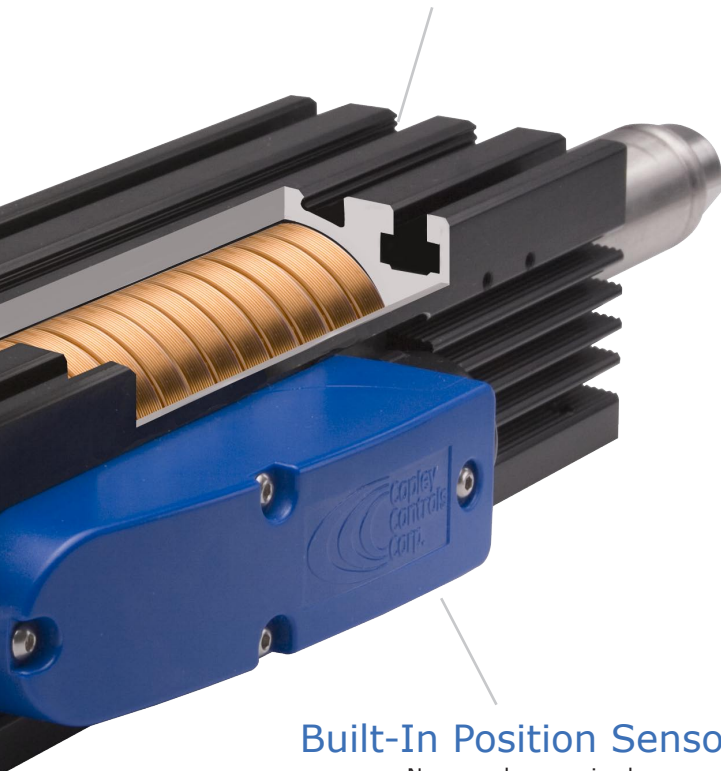


## Positioning Solution

Copley Controls delivers a complete solution for linear actuation. Position control is simple with an easy-to-use range of DC or AC-powered controllers complete with cabling.

### Built-In Heatsink

Thermally efficient design eliminates air/water cooling



### Built-In Position Sensor

No encoder required  
Standard sin/cos output

### Standard Mounting

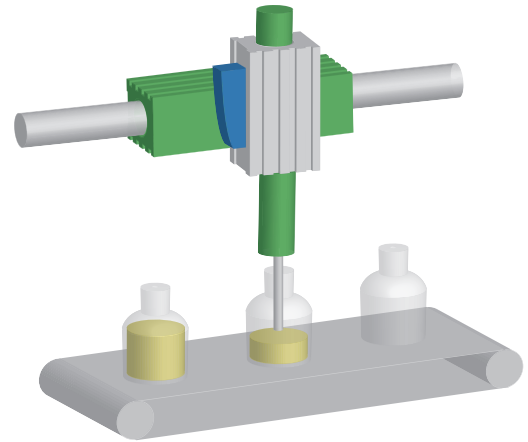
Easy mechanical integration  
Standard mounting accessories



# Application Flexibility

## Moving-Rod & Moving Forcer

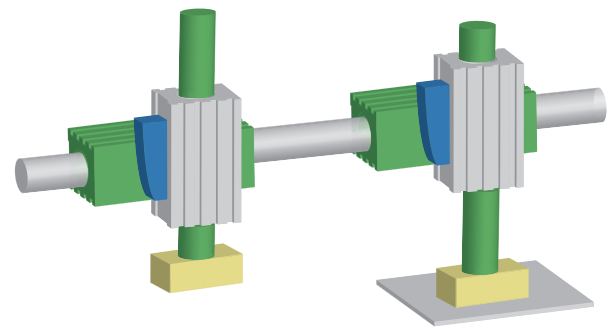
ServoTube is available as a moving-rod actuator with integral bearing and as a moving-forcer linear motor. The actuator bearing is lubricant-free and rated up to 64,000 km. Linear motors and actuators can be easily combined into horizontal/vertical axes for gantry systems.



Synchronized Moving Rod & Forcer

## Multiple Forcers

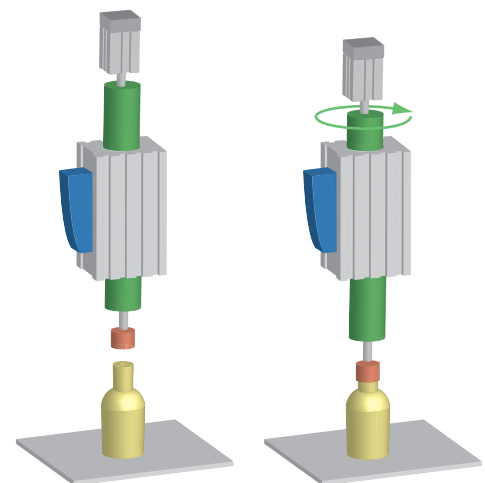
Multiple independent forcers can be mounted on a single rod. This facilitates simultaneous loading and unloading and pick-and-place applications that require parts to be placed at different relative positions.



Multiple Forcer Loader/Unloader

## Rotating Rod

The ability to rotate the rod of an actuator can greatly simplify the mechanics in applications that require a combination of linear and rotary motion.



Rotating Rod Bottle Capper

## Drop-In Air Cylinder Replacement

ServoTube accepts a wide range of industry-standard mounting accessories for simple, drop-in pneumatic cylinder replacement.

## Vertical Holding Brake

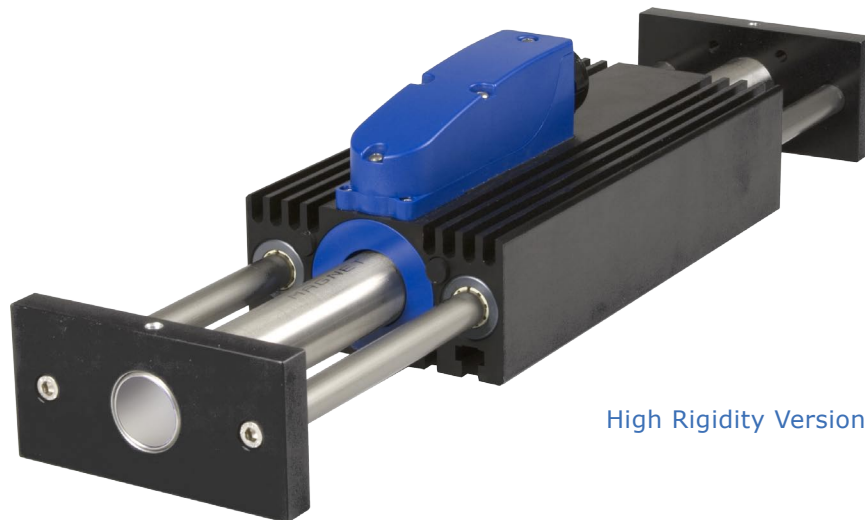
The Servotube Actuator brake is a cost-effective, compact solution to power-down parking of vertical axes. 24 VDC operated, the brake provides a holding force of 200 N (45 lb) and is adjustment-free.

## High Sideloading

For applications with higher side-loading, Copley provides a high-rigidity version with integrated outrigger-bearings. A ball-bushing option with steel bearing rails provides maximum side-loading support. Polymer bushings use aluminum rails for reduced weight and are ideal for vertical loads.



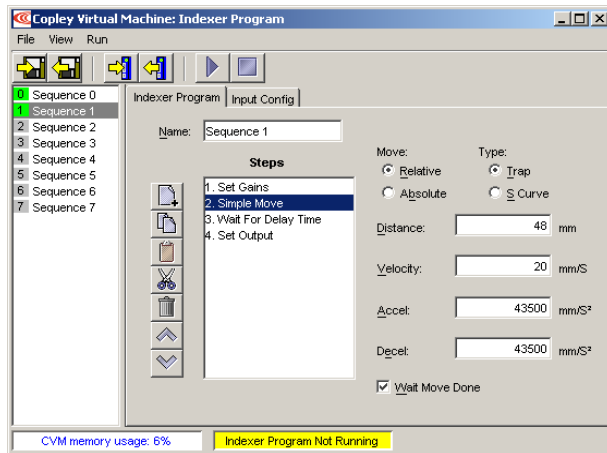
Add-On Holding Brake



High Rigidity Version

# Control Solutions

## Build a Multi-Position Sequence - *Simply*



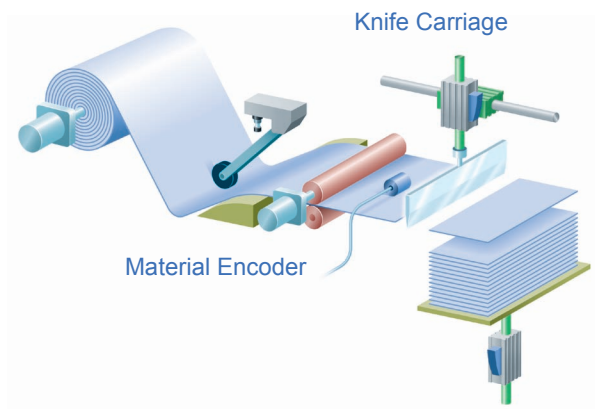
Point-and-click to define up to 32 sequences of motion commands. Simply select the sequence via I/O or serial interface and command GO. Any motion command parameter can be assigned to a register for efficient adjustment by a PLC.

Commands include:

Absolute Move	Wait Move Done
Relative Move	Set Output
Velocity Move	Wait Time
Force Move	Wait Input
Home	Set Parameter

For more complex applications, Copley can provide custom functions. Simply install and fill-in the blanks.

## Electronic Gearing and Camming



Camming is an effective way to produce repetitive motion synchronized to an external device. In this example, the knife carriage synchronizes to material speed, the knife is activated then the carriage rapidly retracts. Cut length is programmable and independent of material speed.

Implementation is simple. Define a cam-table of knife carriage positions for the advance and retract cycle. This table of slave positions is then cycled through by the material encoder connected to the controller. The controller can perform interpolation between points to minimize cam-table size.

## Flexible Connectivity

Copley controllers integrate seamlessly into PLC and PC-based systems. A wide range of interfaces and operating modes are available. For CANopen distributed control, Copley provides powerful tools

for LabView, Visual Basic and C++. All network management is taken care of automatically. Engineers with no prior CANopen experience can get a multi-axis system up and running quickly.



PLC



PC

### DeviceNet

INDEXER • POINT-TO-POINT • VELOCITY • FORCE

### I/O - Select & Go

INDEXER

### ±10V Command

POSITION • VELOCITY • FORCE

### Step/Direction

POSITION



### CANopen

PVT • POINT-TO-POINT • VELOCITY • FORCE

### RS232\* ASCII

INDEXER • POINT-TO-POINT

\* For multi-drop RS232, connect drives via CAN with a single RS232 connection to one drive



CANopen

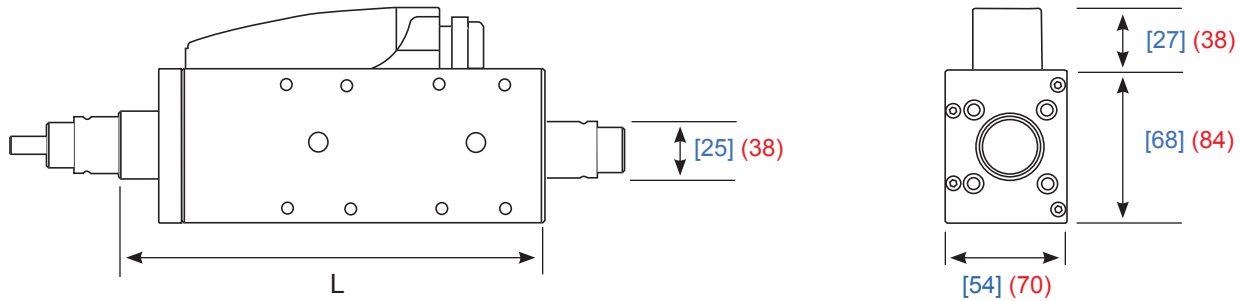
## Xenus Controllers

Input Power: 115 / 230 VAC  
 Peak Current: 2 - 40 A  
 Continuous Current: 1 - 20 A  
 Dimensions: 191 x 140 x 64 mm  
 123 x 90 x 53 mm

## Accelnet Controllers

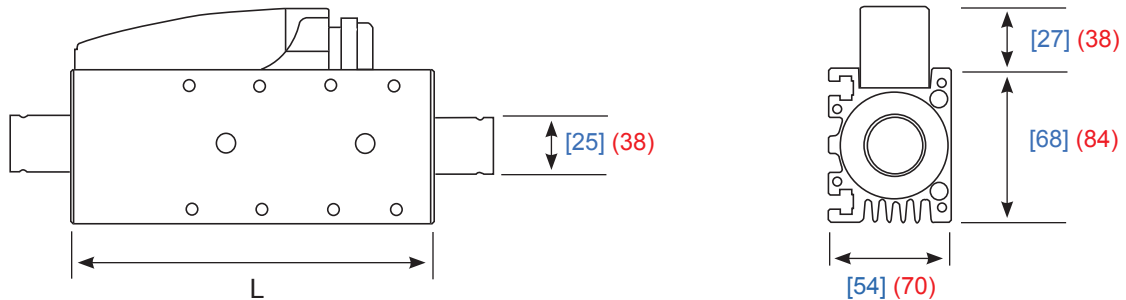
Input Power: 20 - 180 VDC  
 Peak Current: 3 - 36 A  
 Continuous Current: 1 - 12 A  
 Dimensions: 168 x 99 x 31 mm  
 97 x 64 x 33 mm

# ServoTube Actuator



		2504	2506	2508	2510	3804	3806	3808	3810
<b>Force (peak)</b>	N	312	486	624	780	744	1116	1488	1860
<b>Force (cont.)</b>	N	51	70	87	102	137	187	232	276
<b>Velocity (max.)</b>	m/s	5.9	5.3	4.7	4.2	4.6	3.7	3.1	2.6
<b>Length L</b>	mm	189	240	291	342	258	329	400	471
<b>Stroke</b>	mm	27 - 309				33 - 318			

# ServoTube Motor



		2504	2506	2508	2510	3804	3806	3808	3810
<b>Force (peak)</b>	N	312	486	624	780	744	1116	1488	1860
<b>Force (cont.)</b>	N	51	70	87	102	137	187	232	276
<b>Velocity (max.)</b>	m/s	8.7	6.5	5.4	4.6	6.0	4.4	3.4	2.8
<b>Length L</b>	mm	160	211	262	313	218	289	360	431
<b>Travel (max.)</b>	mm	1186	1135	1084	1033	1362	1291	1220	1149

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