

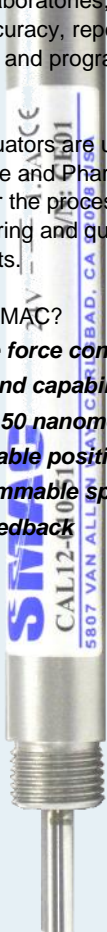
The ability to do work and verify its accuracy at the same time.

SMAC Moving Coil Actuators' technology has been adopted by nano technology companies, research laboratories, universities for its high accuracy, repeatable positioning and programmable speed.

SMAC actuators are used in Medical, Bio-Science and Pharmaceutical industry for the process for manufacturing and quality control of the products.

Why use SMAC?

- **Precise force control**
- **Soft-Land capability**
- **5µm to 50 nanometer accuracy**
- **Repeatable positioning**
- **Programmable Speed**
- **Data feedback**



Actual Size

Programmable
Electric Cylinder
CAL12 Series

12mm diameter,
1µm encoder
resolution,
life cycle 100million

SMAC Moving Coil Actuators manufactures precision electric actuators based on Moving Coil Technology. These actuators are unique in that force, position and speed are totally programmable.

If you have an application where you feel SMAC can be of help, please feel free to contact us.

CAL35 Series Electric Cylinder



35mm diameter
Precise force control
Sub-micron resolution
Long life cycle

SMAC Moving Coil Actuators

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The ability to do work and verify its accuracy, and feedback the data to improve quality for FDA approval.



**SMAC Solutions in
Medical, Bio-Science,
Pharmaceutical
Industry**

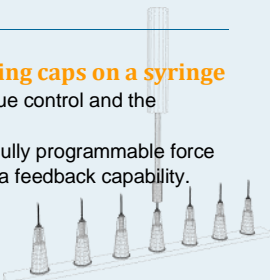


Medical

Automated screwing caps on a syringe

Required precise torque control and the process data capture.

SMAC Advantages: fully programmable force with accuracy and data feedback capability.



Suture pulling test

Ensure to meet the minimum pull test requirements where the suture is pulled apart from the needle. Test value is used in the control scheme to adjust how hard they are swaging the needle.

Simplifies suture assembly process

Complex and tedious process with pneumatic system & the load cell can be over sensitive and receptive to noise introduced by the surrounding environment. This system requires periodic calibration which increases down time.

SMAC Advantage: No down time for calibration, elimination of the load cell, less maintenance, fewer components, and cost effective.

Pull test on medical stent used in Catheters

Certain pulling force is applied and then position is checked; OK – NOK information to PLC.

SMAC Advantages: Adjustable force and position feedback.

Medical

Diabetes dosing assembly and test

Effort tests by the LAR55 series linear rotary actuator. Monitors the torque and the amount of dosing desired, and press the end button inward and monitor the effort and position. Checks that all of the internal components are functioning properly.

SMAC Advantages: a complete package, linear and rotary axis are all in one. No need to have a load cell, LVDT, and ball screw.

Medical catheter assembly

Needle is assembled to housing by LAR95 series linear rotary actuator within 3 seconds from pick up to fully tighten. (Tightening force range within 15Ncm - 25Ncm) Check for over tighten, under tighten thread aligned and controlled the final torque.

SMAC Advantages: Linear & rotary in one package, precise force control, fast and accurate in handling (do not damage parts)

Catheter Tube Welding

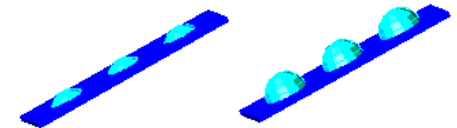
Welding high accuracy Teflon medical tubing to a hard plastic component

SMAC advantage : Velocity control, Force and Position Control. SMAC controllers replace PLC to signal on/off to welders and component part grippers.

Bio-Science

Measuring cells height

In two conditions, dry and saturated. Smoothness of motion and accuracy (0.1µm) are important. Compact size (portable bench top test station) and pricing are also SMAC's advantage.



Scanning

Micro scope scanning

Move 2.5 mm in 1 micron steps. Record and graph data. Required: Position: 0.1 micron position stability/accuracy at position, Velocity: 0.02 to 2.5 mm / sec., Max Acceleration = 10 m/s² (~ 1 G)

SMAC achieved: 1.0 micron moves with 0.1 micron position accuracy at position. 2.5 mm move in 192 seconds.

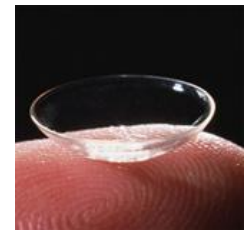
SAMC Advantages: Precise positioning, flexibility in speed and stroke.

Pharmaceutical

Soft contact lens moulding

Automate the moulding station. When the monomer is still fluid, a smooth velocity profile and good force control is essential to prevent any bubbles or imperfections forming in the lens.

SMAC Advantages: Force control and programmable velocity.



- Pill Packaging
- Dispensing

What is a Soft-Land?

The "Soft-Land" is a routine which allows the actuator rod or gripper jaw to land on the surface of component with a low programmable force.

This is particularly useful for handling delicate or high value components and materials.

