PRODUCT OVERVIEW

ELECTRIC CYLINDERS Stroke [mm] 10 - 25 | Peak Fore [N]: 1.5 - 130

CAL12
Stroke [mm]: 10
Force [N]: 1.5

CBL35
Stroke [mm]: 10, 15, 25
Force [N]: 8.5-22

CBL50
Stroke [mm]: 10, 25
Force [N]: 23-100

CBL35C with Built-in Controller
Stroke [mm]: 10, 15, 25
Force [N]: 8.5-22

CBL50C with Built-in Controller
Stroke [mm]: 10, 25
Force [N]: 23-100

CTL50
Stroke [mm]: 10
Force [N]: 47

ELECTRIC CYLINDERS | CAL/CBL/CTL SERIES

Direct replacement of air cylinders. High speed, compact and price-competitive cylinder actuators are the ideal solution for new machine designs and upgrade.

- ✓ Direct replacement of air cylinders
- ✓ Cost competitive
- ✓ Long life expectancy, typically over 100 million cycles
- ✓ IP protection optional

Part Number	Voltage [DC]	Size: Dia.x L [mm]	Stroke [mm]	Peak Force [N]	Continuous Force [N]	Force Constance [N/A]	Maximum Current [Amp]	Moving Mass [kg]	Weight [kg]
CAL12-010-55-1	24	Ø12x112	10	1.5	0.4	1	1.5	0.01	0.08
CBL35-010-55-1	24	Ø35x96	10	15	6	9	1.5	0.04	0.45
CBL35-010-75-1	48	Ø35x96	10	22	8.8	13.4	1.6	0.04	0.45
CBL35-015-55-1	24	Ø35x101	15	10	4	7	1.5	0.06	0.5
CBL35-015-75-1	48	Ø35x101	15	14	5.6	8.8	1.6	0.06	0.5
CBL35-025-55-1	24	Ø35x111	25	8.5	3.4	5.8	1.5	0.06	0.6
CBL35-025-75-1	48	Ø35x111	25	14	5.6	8.8	1.6	0.06	0.6
CBL50-010-55-1	24	Ø50x123	10	33	13	22	1.5	0.14	1.14
CBL50-010-55-2	24	Ø50x166	10	49	19	16	3	0.21	1.7
CBL50-010-75-1	48	Ø50x123	10	40	16	26	1.5	0.14	1.14
CBL50-010-75-2	48	Ø50x166	10	100	40	33	3	0.21	1.7
CBL50-025-55-1	24	Ø50x138	25	23	9	15	1.5	0.15	1.3
CBL50-025-55-2	24	Ø50x203	25	40	16	13	3	0.24	2.1
CBL50-025-75-1	48	Ø50x138	25	40	16	26	1.5	0.15	1.3
CBL50-025-75-2	48	Ø50x203	25	70	28	23	3	0.24	2.1
CTL50-010-75-2	48	Ø48x160	10	47	18	12.7	3	0.19	1.1

NOTE: For any SMAC Moving Coil Actuators, the maximum recommended continuous duty current is 600mA supplied to the actuator over a 1 second period. For anything beyond this in terms of current draw or time please consult the factory. We manufacture actuators to suit our customers' requirements. Please call us if you do not find the right actuator in this list.

CAL12

CBL35


CBL50


CTL50

ELECTRIC CYLINDERS WITH BUILT-IN CONTROLLER

A complete self-contained unit, suggested for replacement of pneumatic cylinders where increased lifetime, speed and control are desirable.

- ✓ Built-in controller
- ✓ Airless and quiet operation
- ✓ Graphical User Interface for simple set-up
- ✓ IP protection optional

Part Number	Voltage [DC]	Size: Dia.x L [mm]	Stroke [mm]	Peak Force [N]	Continuous Force [N]	Force Constance [N/A]	Maximum Current [Amp]	Moving Mass [kg]	Weight [kg]
CBL35C-010-55-1	24	Ø35x135	10	15	6	9	1.5	0.04	0.52
CBL35C-010-75-1	48	Ø35x135	10	22	8.8	13.4	1.6	0.04	0.52
CBL35C-015-55-1	24	Ø35x140	15	10	4	7	1.5	0.06	0.57
CBL35C-015-75-1	48	Ø35x140	15	14	5.6	8.8	1.6	0.06	0.57
CBL35C-025-55-1	24	Ø35x150	25	8.5	3.4	5.8	1.5	0.06	0.67
CBL35C-025-75-1	48	Ø35x150	25	14	5.6	8.8	1.6	0.06	0.67
CBL50C-010-55-1	24	Ø50x177.5	10	33	13	22	1.5	0.14	1.29
CBL50C-010-55-2	24	Ø50x220.5	10	49	19	16	3	0.21	1.8
CBL50C-010-75-1	48	Ø50x177.5	10	40	16	26	1.5	0.14	1.29
CBL50C-010-75-2	48	Ø50x220.5	10	100	40	33	3	0.21	1.8
CBL50C-025-55-1	24	Ø50x192.5	25	23	9	15	1.5	0.15	1.38
CBL50C-025-55-2	24	Ø50x258	25	40	16	13	3	0.24	2.25
CBL50C-025-75-1	48	Ø50x192.5	25	40	16	26	1.5	0.15	1.38
CBL50C-025-75-2	48	Ø50x255.5	25	70	28	23	3	0.24	2.25

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CBL35C

CBL50C

Options & Modifications (Consult factory for availability)

SMAC Actuators' Unique Features

Soft-Land™

A patented capability to apply controlled light force without damaging parts/materials being handled.

Feedback

Built-in sensing that can report if the desired work was accomplished or not. It can be used for Data Acquisition.

Linear Rotary Motion

The precision Z-theta motion within one small compact actuator, providing convenient pick, orient, and place movements.

IP Protection

Optional IP65 and IP67, dustproof and waterproof features.

Graphical User Interface (GUI)

SMAC GUI provides a simple and straightforward way to quickly configure motion parameters of a variety of SMAC actuators and controllers. Application-based GUIs are also available.

GRAPHICAL USER INTERFACE

Graphical User Interface (GUI)

SMAC Graphical User Interface provides a simple and straightforward way to quickly configure motion parameters of a variety of SMAC single/dual axis actuators and controllers. Pre-installed, user configurable application-based GUIs are also available.

- Little to no programming experience required
- Menu-driven, Windows based, easy setup
- Pre-programmed with application-specific features
- Real time analysis
- Data and graphical feedback tools
- Built-in tutorial and help features

LCC Control Center

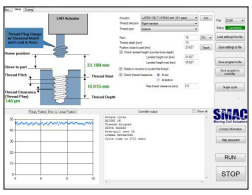
Achieve high level programming with no programming experience, monitoring and logging of parameters, fine-tuning of control parameters for LCC and CBC controller.

LAC-X Editor

Easy setup and tuning of control parameters for LAC-1 and LAC-25.

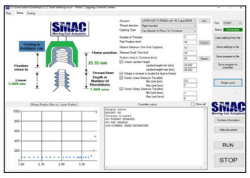
Thread Check Center: TCC

User configurable Thread-Checking applications. Fully automated 100% inspection of internal & external threads. Verification of counter bore height, thread pitch, oversized/ undersized threads, cross thread and shallow thread, etc.



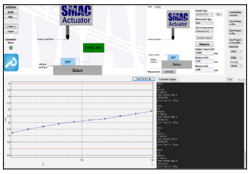
Capping Control Center: CCC

User configurable threaded bottle/container capping applications. Detect and report no/ obstructed cap. Adjust force and torque, show the different quality check capabilities such as cap height, torque limit, force required to press-in, and even check the clicks on child proof caps.



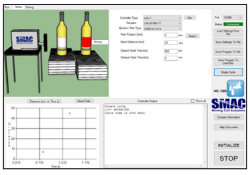
Gauging Control Center: GCC

User configurable gauging applications. Provide real time plot of measured values in relation to limits. The user may save a .csv or image file of the measured values or graph area respectively for data logging.



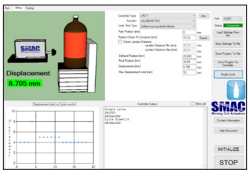
Ejection Control Center: ECC

User configurable Ejection applications. Select and program between 4 types of ejection sequence including soft eject, rapid eject etc. Control velocity for ejection based on customer cycle time requirements. Adjust force to eject based on the weight/mass of the object to eject. Manipulate position to park the actuator based on the program sequence.



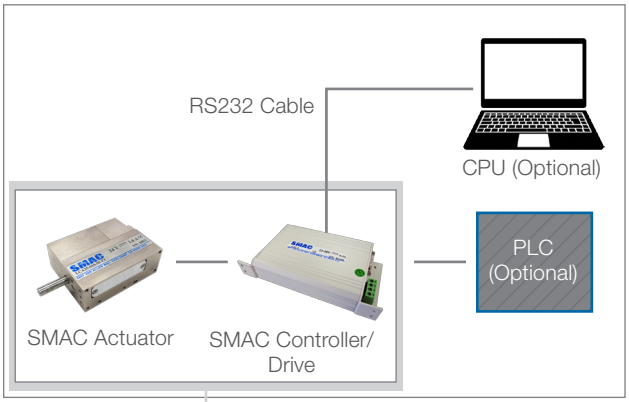
Leak Test Center: LTC

User configurable Leak testing applications: Select and program between two types of leak testing procedure(Velocity and Force). Unique capability of SMAC actuator to soft land on the object and applying force can be programmed using this GUI. Precise monitoring of displacement of the bottle/container/ or any testing sample during leak testing. Adjust the force to be applied on the test object using this software.

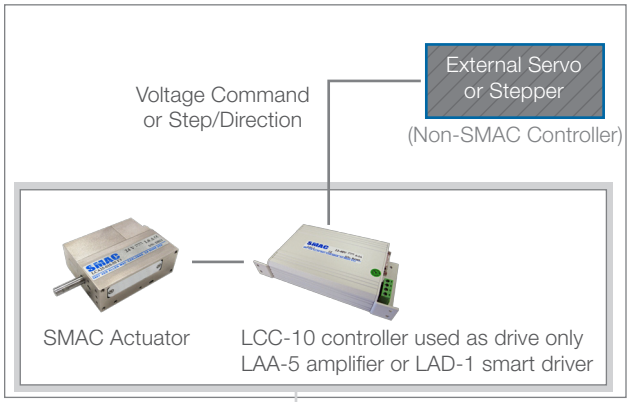


SYSTEM CONFIGURATION

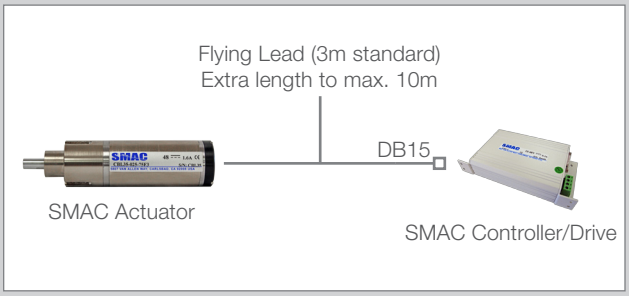
Configuration with SMAC Controllers



Configuration with Non-SMAC Controllers

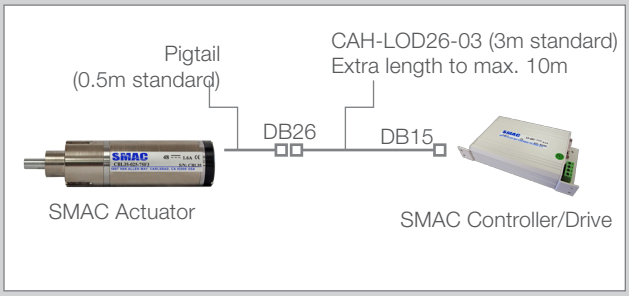


Configuration for Flying Lead Cable

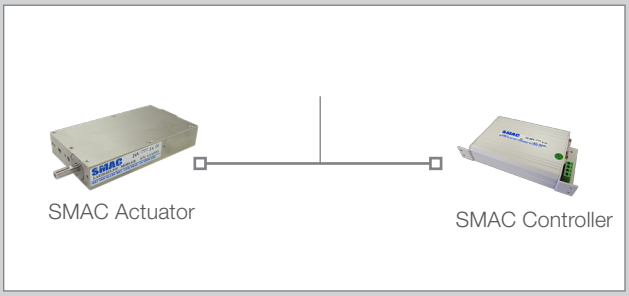


CAL, CBL, CTL, LCA, LCB, LBL, MGR and SLA series

Configuration for Pigtail Cable

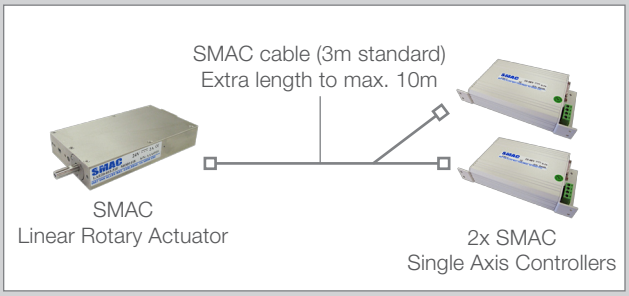


Configuration for SMAC Cable



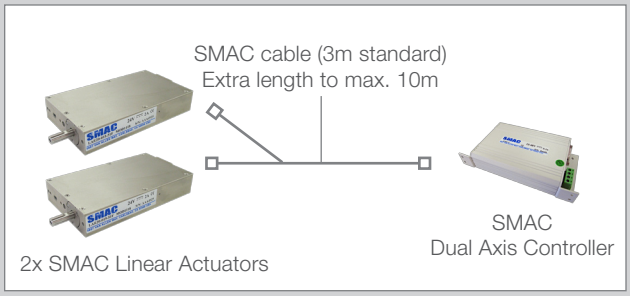
LAL(S), LAR, GRP and LXY series

Configuration with 2 Single Axis Controllers



LAR and LCR series

Configuration with 1 Dual Axis Controller



LAL(S) series

INSTALLATION GUIDE / INDIVIDUAL MODIFICATIONS

INSTALLATION GUIDE

Duty Cycle
For any SMAC Moving Coil Actuator, the maximum recommended continuous duty current is 600mA supplied to the actuator over a 1 second period. For anything beyond this in terms of current draw or time please consult the factory.

NOTE: Failure to observe this duty cycle recommendation may result in the actuator sustaining damage through overloading. Overloading will overheat the coil and may cause deformation or an impact on the magnet housing.

Continuous Force
Peak force applied for duration shorter than 0.4 sec. in one second interval. (force mode): 40% of peak force, continuous.

Force Mode
The specified current may be applied continuously to generate the desired force. However, the recommended continuous force limit should be set in the control program.

In vertical operation, the actuator rod will drop when power is cut off. The rod in a lowered position may be damaged by other moving parts in the machine. A return spring (optional feature) will keep the rod raised. A safety lock-out should be installed in the machine program to confirm the rod location before another interfering component can be moved.

SMAC actuators are equipped with these safety features:

- Index line/home position: used to monitor absolute position
- Breakaway shaft (optional)

Safety Considerations
Unintentional full force may be applied continuously under the following conditions:

- missed target position
- excessive friction
- equipment malfunction, i.e. jam

If left undetected, this can cause destruction of the coil in some units. A servo program should perform the following checks regularly:

- Re-home: to assure target position has not shifted beyond end of stroke
- Time-outs: to shut power down within 10 seconds of error detection
- Following Error Limits: software safety

Mounting
If the actuator is mounted vertically, the shaft drops down when the actuator is powerless. It is possible that other moving parts of the machine may damage the actuator at this position. A return spring would hold the actuator in an upper position when it is powerless.

A safety function in your machine should check the actuator's current position before other components may move into the working area of the actuator.

INDIVIDUAL MODIFICATION

Many of our standard actuators listed on previous pages are compatible with both add-on options and modifications. In addition to the standard vacuum and spring option SMAC can offer the following modifications subject to approval by the factory.

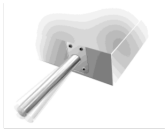
Linear Guide Options
Increased rigidity and side load tolerance can be gained by using a higher specification "wide guide". Additionally, in force sensitive applications we can fit a low friction guide.

Double Coil
Integrating an extra coil can enhance both force and acceleration.

Custom Nose-Bushing
An extended nose bushing with increased side load tolerance are available on many models. We can also offer scraper and wiper seals around the shaft to protect the bearings from excessive wear in harsh environments.

Custom Shafts
In addition to the standard male/female rod ends we can also offer options such as "breakaway" shafts and custom shaft diameters.

10µm T.I.R.
Total indicator run-out under 10µm is available on several linear/rotary models.



Rotary
Increased torque/gear ratio can be gained by using alternative geared motors or direct drive motors.

Higher rotary encoder resolutions are optional. Please consult factory for availability.

If a longer life rotary is required, then we can fit a brushless rotary motor.

Flying Lead
Instead of the standard chassis connector we can offer a flying lead option. The flying lead is standard for all the CA and LCA series actuators.

Cable Options
Whenever an SMAC actuator is mounted to any 3rd party device such as a gantry or multi-axis robot, SMAC strongly recommends that a superflex cable is used. Cable lengths with a standard of 3 meters up to a maximum of 10 meters can be offered.