CS & CL Electric Actuators

Conbraco's CS and CL electric actuators are split phase reversing AC and DC motors. Eight sizes are available which produce breakaway torques between 150 lbs. ins. and 3000 lbs. ins. They are excellent industrial quality units capable of on/off, fail safe, and modulating applications.The efficient spur gear drive train is supported by needle bearings which make it very secure while eliminating the potential for side loading of the output shaft.

Conbraco offers as standard a 75% AC extended duty cycle motor. 100% DC motors are also readily available. All units are rated for use in ambient temperatures of -40°F (with heater & thermostat) to 150°F max. Choose from standard NEMA 4 enclosures and combination NEMA 4, 4x, 7 and 9 enclosures with CSA approvals. Units are also available with CE approvals and some UL listings (consult factory).

Other standard features include:

- Locked rotor protection
- Dual conduits
- Position indicators
- Composite PVC plastic covers on CL Series NEMA 4/4X only
- Captive cover bolts on CS Series
- Declutchable overrides or with optional handwheel manual overrides

Three New Boards to Simplify Inventory, Set-up and Calibration

All "Standard" actuators will have the new boards installed. Features of the new Motor Boards include:

- Plug-in connectors for the motor, the brake option, the heater/thermostat option and the new Control Board - field upgrades are easier than ever.
- All connectors are coded to prevent mis-wiring.
- Limit switch wires are soldered to the board - no more loose connections.
- A six position terminal strip clearly labeled so it can be wired up in the field without an instruction manual.

Introducing Simplicity for Calibrating Modulating Actuators

The new Control Board brings a whole new level of simplicity to the field. It will work with either of the Motor Boards (115VAC or 230VAC). Features include:

- Switch selector for 4-20mA or 0-10VDC input
- Switch selector for 4-20mA or 0-10VDC position readback
- Switch selector for either "fail in-place" or "fail to zero" upon loss of control signal (provided input power remains)
- On-board push buttons to manually position the actuator
- An adjustable pot for Speed Control (motor pulsing)
- An adjustable pot for deadband adjustment
- A "Mode Selector" switch with LEDs, which are used for:
  - "No tools" pot calibration
  - Setting Zero and Span
  - Manually positioning the actuator
- Locked Rotor Protection if the actuator cannot achieve the position commanded by the control signal, it will cut power to the motor. Repeated stalls will not damage the actuator.
- Reverse acting operation with no rewiring.
- Split range operation with no rewiring.

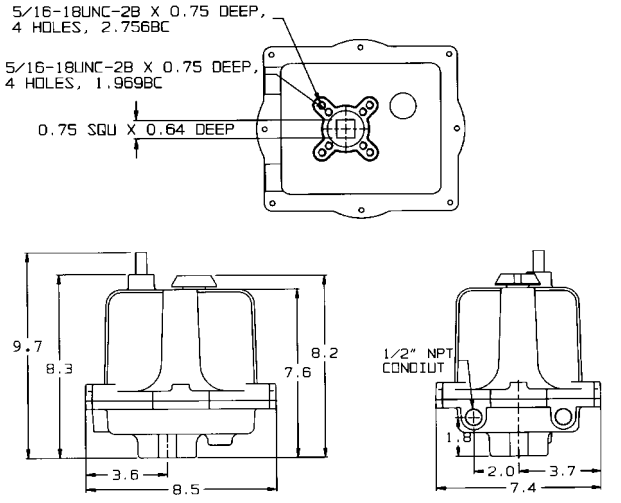
Limit Switches and Feedback Pots with Flying Leads

These options are now provided without terminal strips. Instead, they have "flying leads" to which the user may wire directly. If users require internal terminal block connections, you can order either of the two new Terminal Block Kits (6 position or 12 position, depending upon how many wires you need to connect).

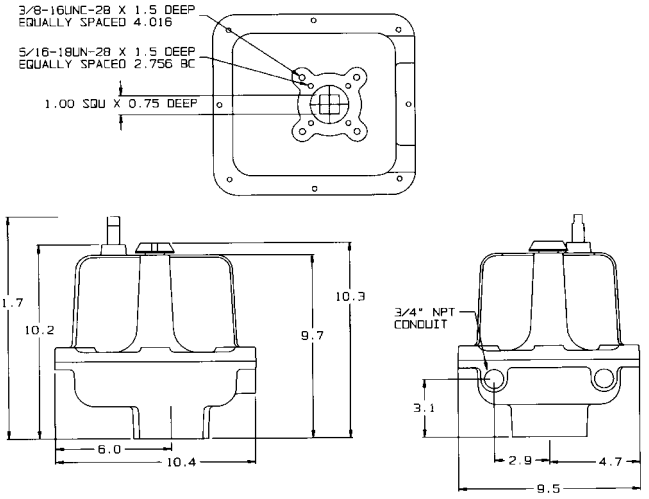
Speed Control with a Positioner?

Yes. It is a standard feature of the new Control Board. Simply adjust a pot (a little dial on the board) to slow the actuator to up to six times its normal cycle time. The new "MSB series" is a totally mechanical failsafe arrangement with true spring return back up power. Contact factory for

CS Dimensions



CL Dimensions



CS & CL Specifications and Options

TECHNICAL DATA—115VAC AND 230VAC Models*								
Torque Output (breakaway)	Speed (seconds per 90°) rotation)	Duty Cycle	VA Rating		Max Running Current at Full Load (True RMS)		Max Effective Peak Inrush Current (=.66 x peak inrush)	
			115VAC	230VAC	115VAC	230VAC	115VAC	230VAC
150 in lb	8	75%	70vA	115vA	.6 amps	.5 amps	1.25 amps	.924 amps
300 in lb	15	75%	70vA	115vA	.6 amps	.5 amps	1.25 amps	.924 amps
600 in lb	30	75%	70vA	115vA	.6 amps	.5 amps	1.25 amps	.924 amps
1000 in lb	25	75%	92vA	161vA	.8 amps	.7 amps	1.66 amps	1.29 amps
1500 in lb	40	75%	92vA	161vA	.8 amps	.7 amps	1.66 amps	1.29 amps
2000 in lb	55	75%	92vA	161vA	.8 amps	.7 amps	1.66 amps	1.29 amps
2500 in lb	70	75%	92vA	161vA	.8 amps	.7 amps	1.66 amps	1.29 amps
3000 in lb	75	75%	92vA	161vA	.8 amps	.7 amps	1.66 amps	1.29 amps

TECHNICAL DATA—12VDC & 24VDC Models*					
Torque Output (breakaway)	Speed (seconds per 90° rotation)		Duty Cycle	Current Draw at full running	
	12VDC	24VDC		12VDC	24VDC
150 in lb	5	3	Continuous	1.9 amps	2.4 amps
300 in lb	10	5	Continuous	1.9 amps	2.4 amps
600 in lb	15	8	Continuous	1.9 amps	2.4 amps
1000 in lb	15	15	Continuous	3.5 amps	3.5 amps
1500 in lb	20	20	Continuous	3.5 amps	3.5 amps
2000 in lb	25	25	Continuous	4.8 amps	4.8 amps
2500 in lb	30	30	Continuous	4.8 amps	4.8 amps
3000 in lb	30	30	Continuous	4.8 amps	4.8 amps

*Notes:
1. The Current Draws stated above include all options. If the brake and/or heater & thermostat are not installed, the actual current draws will be less.
2. For DC models, Current Draws are provided at full running torque. If the actuator encounters an overtorque condition, such as a stall condition, the Current Draw will be vastly increased.
3. DC actuators have motors that do not generate excessive heat, so they are not limited by duty cycle restraints. However, due to limited brush life of the motors, Conbraco does not recommend using them in applications that require constant (24 hours per day/7 days per week) cycling.

ACTUATOR MODEL#'s/DESCRIPTION

230 VAC . . . . . 230 VAC MOTOR
24 VAC . . . . . 24 VAC MOTOR
12/24 VDC . . . . . 12 OR 24 VDC MOTOR
X . . . . . NEMA 7
W . . . . . NEMA 4 (WEATHER PROOF)
E. . . . . EXTENDED DUTY CYCLE (APOLLO® STD)
S1 . . . . . ONE AUXILIARY SWITCH SPDT
S2 . . . . . TWO AUXILIARY SWITCHES SPDT
T. . . . . HEATER AND THERMOSTAT
K . . . . . MOTOR BRAKE
Z. . . . . DECLUTCHABLE HANDWHEEL OVERRIDE

CONTROL OPTIONS*

R . . . . . SINGLE RELAY 2 WIRE CONTROL
C . . . . . POSITIONER (SPECIFY SIGNAL)
CL2 . . . . . POSITIONER WITH FAIL SAFE BACKUP FOR CS SERIES
CL3 . . . . . POSITIONER WITH FAIL SAFE BACKUP FOR CL SERIES
L2 . . . . . FAIL SAFE BATTERY BACKUP FOR CS SERIES
L3 . . . . . FAIL SAFE BATTERY BACKUP FOR CL SERIES
A . . . . . TIMER, SELECTABLE ON AND OFF TIMES
B . . . . . ROTATION CYCLE RATE REGULATOR

NOTE: NO MANUAL OVERRIDE ON FAILSAFE UNITS
*CONTACT ACTUATOR ENGINEERING FOR APPLICATIONS NOT COVERED BY INDICATED OPTIONS
*OPTION AVAILABILITY AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

How To Order Examples					
ACTUATOR MODEL	TORQUE	ENCLOSURE	OPTIONS	DUTY CYCLE	VOLTAGE
CS XXX	600	W-NEMA IV	C (POSITIONER)	E-EXTENDED	115VAC
CL XXX	2500	W-NEMA IV	S2 (TWO SWITCHES)	E-EXTENDED	230 VAC