

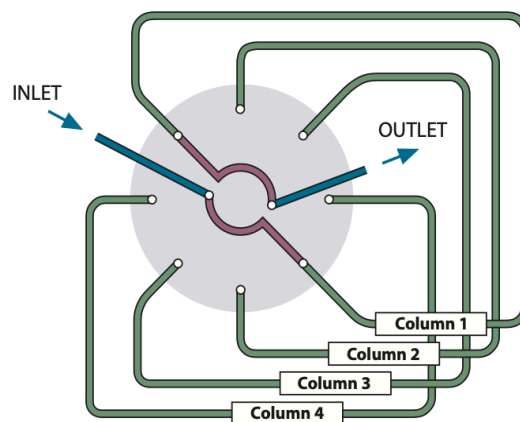
CST4UW & CST6UW COLUMN SELECTION VALVES

Technical Note 709

ACTUATOR CONSIDERATIONS

In almost every case, the number of positions a multi-position actuator must index as it rotates through a 360° cycle is indicated by the product number; i.e., a CSD4MW makes four 90° steps ($360^\circ \div 4 = 90^\circ$), and an SC10MW makes ten 36° steps ($360^\circ \div 10 = 36^\circ$). The VICI Valco CST4UW and CST6UW high pressure column selection valves are the exceptions to this rule.

Valco column selection valves select from among four (CST4UW) or six (CST6UW) HPLC columns. Sample flows from the injector to the inlet of the selected column, and from the outlet of the column to the detector. As can be observed in the CST4UW schematic at right, as the actuator steps the rotor from column to column, the selection sequence begins to repeat after the rotor has rotated 180° (four 45° steps). So a four column selection valve actually requires an actuator programmed for eight positions, with position 5 selecting the same column as position 1, 6 the same as 2, etc. A six column valve needs a twelve position actuator, with 7 the same as 1, 8 the same as 2, etc.



COLUMN SELECTION VALVES ON A STANDARD ELECTRIC ACTUATOR

Our standard electric actuators are available in two models specifically for use with these high pressure column selection valves. The E4X2 for the CST4UW is an 8 position actuator with the position indication display modified to reflect the actual column selected (1, 2, 3, or 4) rather than the position of the valve/actuator (1, 2, 3, 4, 5, 6, 7, or 8). In other words, you don't have to remember that position 5 is selecting the same column as position 1, or that position 8 selects the same column as position 4. Similarly, the E6X2 actuator for the CST6UW is a 12 position actuator which displays 1 through 6, reflecting which of the six columns is selected.

VALVE TYPE	NO. OF COLUMNS	ACTUATOR MODEL	ACTUATOR POSITIONS	DISPLAY/FEEDBACK READING
CST4UW	4	E4X2	8 (4x2)	1, 2, 3, 4, 1, 2, 3, 4
CST6UW	6	E6X2	12 (6x2)	1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6

COLUMN SELECTION VALVES ON A MICRO-ELECTRIC ACTUATOR

Our micro-electric actuators are easily programmed to index any number of positions from 3 to 99, and offer an additional benefit: when a column selection valve is ordered on a micro-electric actuator, the valve and actuator are “keyed” with a pin to insure that the actuator/valve combination cannot be assembled incorrectly – that is, with improper alignment. The position indicator of the micro-electric actuator will always show the actual actuator position as it increments through 360°; it cannot be modified to reflect the column selection sequence that repeats after 180°.

VALVE TYPE	NO. OF COLUMNS	ACTUATOR POSITIONS	DISPLAY/FEEDBACK READING
CST4UW	4	8	1, 2, 3, 4, 5, 6, 7, 8 (1=5, 2=6, etc.)
CST6UW	6	12	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 (1=7, 2=8, etc.)

To change the number of positions on a micro-electric actuator:

1. Shift the actuator into the setup mode by depressing the STEP and HOME switches on the manual controller, and holding them down for 8 seconds. The position display LEDs will begin to flash, displaying the current setting for the total number of positions in a full rotation.
2. Use the STEP switch to increase or the HOME switch to decrease this setting to the desired number of positions.
3. Return to the operating mode by depressing both switches until the LEDs stop blinking.