MODEL 131-73
631-73

# Electronic Interface Control Valve For Industrial Service

- **Simple Proven Design**
- **Long-Life Solenoid Pilot Controls**
- **Ideal For SCADA Systems**
- **Industrial Air Operated**
- **Easy To Maintain**

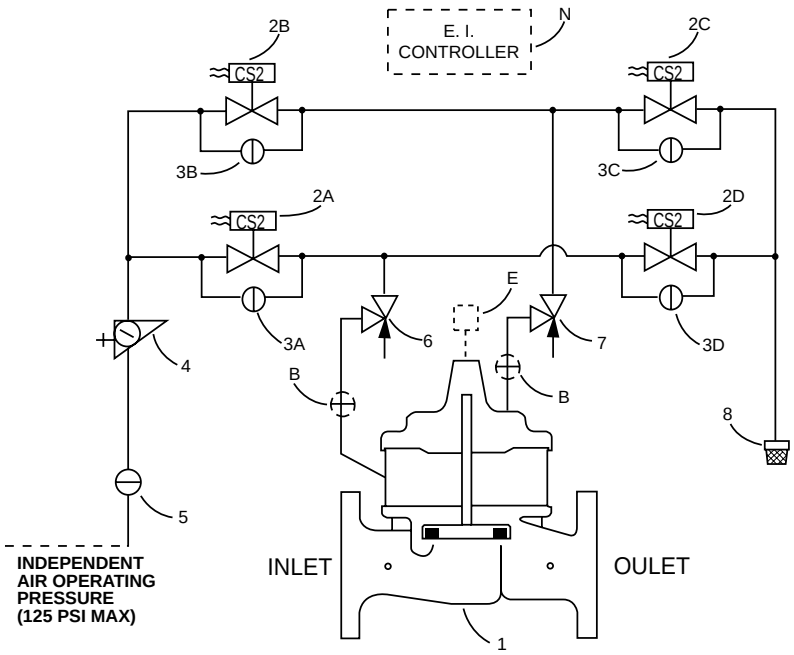
The Cla-Val Model 131-73/631-73 Electronic Interface Control Valve is well suited for applications where the line pressure is low or the media is aggressive. It uses independent air pressure for operating the valve. The pilot system applies or relieves pressure to either side of the diaphragm, causing the valve to open, close or modulate as desired. The optional 131VC Electronic Controller is easily programmed to modulate the valve for precise control of flow, pressure, tank level or valve position.

## Schematic Diagram

| Item | Description |
|---|---|
| 1 | Powertrol Main Valve |
| 2 | CS2 Solenoid Control |
| 3 | CK2 Cock (Solenoid Bypass) |
| 4 | Regulator/Filter |
| 5 | CK2 Cock (Isolation Valve) |
| 6 | CV Flow Control (Closing) |
| 7 | CV Flow Control (Opening) |
| 8 | Exhaust Muffler |

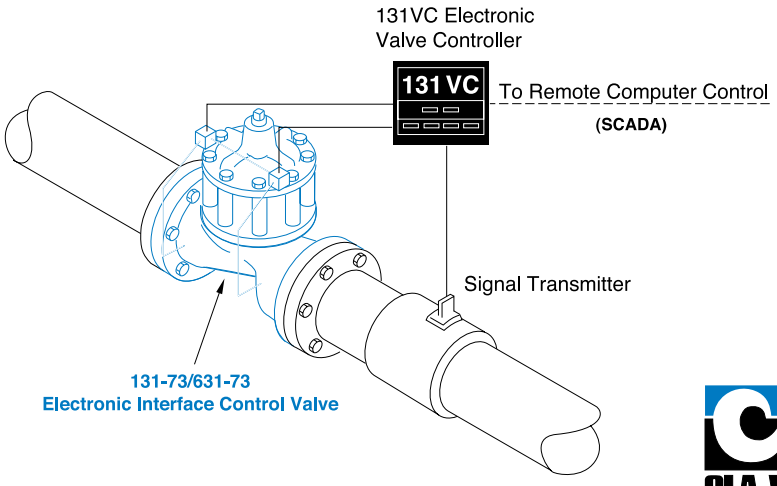
## Optional Features

| Item | Description |
|---|---|
| B | CK2 Cock (Isolation Valve) |
| E | X117C Position Transmitter |
| N | Electronic Controller |




## Typical Applications

The Model 131-73/631-73 Electronic Interface Control Valve is typically installed in a pipeline with an electronic signal transmitter and the Model 131VC Electronic Valve Controller. This system can provide control of flow, pressure, tank level or valve position. The 131VC Electronic Valve Controller enables remote or local computer control over valve operations. For optimum valve operation, fluid maximum inlet pressure must be less than (or equal to) independent air pressure source.



**Model 131-73** (Uses Basic Valve Model 100-02)

## Specifications

### Available Sizes

| Pattern | Screwed | Flanged |
|---|---|---|
| Globe | 2½" - 3" | 2½" - 24" |
| Angle | 2½" - 3" | 2½" - 16" |

### Operating Temp. Range

| Fluids |
|---|
| -40° to 180° F |

## Cover Capacity

| Liquid Volume Displaced from Diaphragm Chamber When Valve Opens or Closes | | | |
|---|---|---|---|
| Valve Size | Displacement | Valve Size | Displacement |
| 2 ½" | .043 gal | 10" | 2.51 gal |
| 3" | .080 gal | 12" | 4.00 gal |
| 4" | .169 gal | 14" | 6.50 gal |
| 6" | .531 gal | 16" | 9.57 gal |
| 8" | 1.260 gal | 24" | 29.00 gal |

## Pressure Ratings (Recommended Maximum Pressure - psi)

| Valve Body & Cover | | | Pressure Class | | | | |
|---|---|---|---|---|---|---|---|
| | | | Flanged | | | | Screwed |
| Grade | Material | ANSI Standards* | 125 lb. | 250 lb. | 150 lb. | 300 lb. | End** Details |
| ASTM A536 | Ductile Iron | B16.42 | — | — | 250 | 400 | 400 |
| ASTM A216-WCB | Cast Steel | B16.5 | — | — | 285 | 400 | 400 |
| ASTM B62 | Bronze | B16.24 | — | — | 225 | 400 | 400 |
| ASTM A743 | Stainless Steel | B16.5 | — | — | 285 | 400 | 400 |
| 356-T6 | Aluminum | B16.1 | — | — | 275 | — | — |

Note: *ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
**End Details machined to ANSI B2.1 Specifications

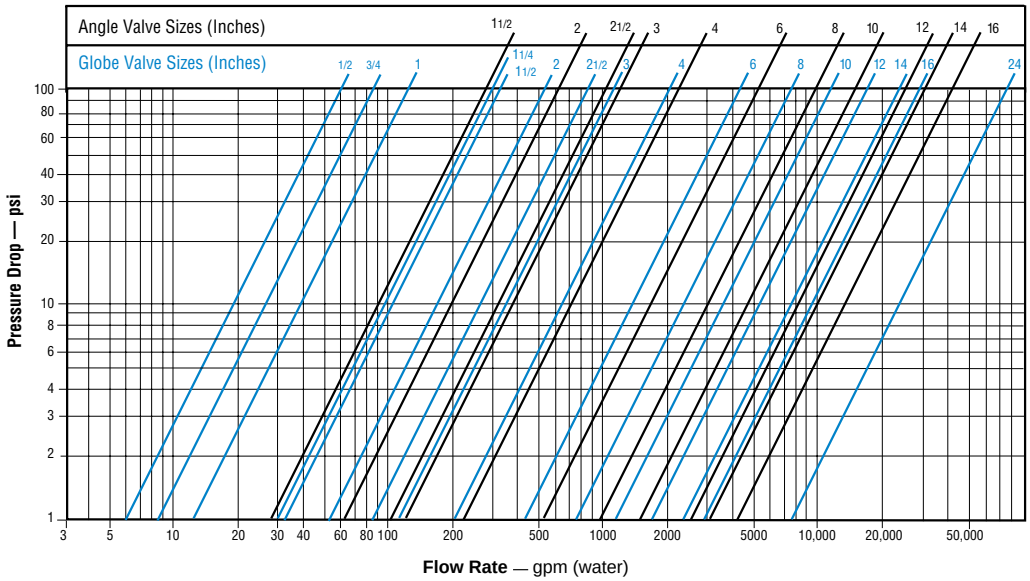
2 1/2" Globe, Screwed

## Materials

| Component | Material Options | | | | |
|---|---|---|---|---|---|
| Body, Cover & Power Unit Body | Ductile Iron | Cast Steel | Bronze | Stainless Steel | Aluminum |
| Available Sizes | 2½" -16, 24" | 2½" -16, 24" | 2½" - 16" | 2½" - 16" | 2½" - 16" |
| Disc Retainer & Diaphragm Washers | Cast Iron | Cast Steel | Bronze | Stainless Steel | Aluminum |
| Trim: Disc Guide, Seat, Cover Bearing & Stem Bearing | Bronze is standard. Stainless Steel is optional. | | | Stainless Steel is standard. | |
| Disc | Buna-N® Rubber | | | | |
| Diaphragm | Nylon Reinforced Buna-N® Rubber | | | | |
| Stem, Nut | Stainless Steel | | | | |

4" Angle, Flanged

## Model 131-73 Flow Chart (Based on normal flow through a wide open valve)



**Model 631-73** (Uses Basic Valve Model 100-21)

## Specifications

### Available Sizes

| Pattern | Flanged |
|---|---|
| Globe | 3" - 30" |
| Angle | 4" - 8" |

### Operating Temp. Range

| Fluids |
|---|
| -40° to 180° F |

## Pressure Ratings (Recommended Maximum Pressure - psi)

| Valve Body & Cover | | Pressure Class | | |
|---|---|---|---|---|
| | | Flanged | | |
| Grade | Material | ANSI Standards* | 150 lb. | 300 lb. |
| ASTM A536 | Ductile Iron | B16.42 | 250 | 400 |
| ASTM A216-WCB | Cast Steel | B16.5 | 285 | 400 |
| ASTM B62 | Bronze | B16.24 | 225 | 400 |
| ASTM A743 | Stainless Steel | B16.5 | 285 | 400 |
| 356-T6 | Aluminum | B16.1 | 275 | — |

Note: *ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.

## Cover Capacity

Liquid Volume Displaced from Diaphragm Chamber When Valve Opens or Closes

| Valve Size | Displacement | Valve Size | Displacement |
|---|---|---|---|
| 3" | .032 gal | 14" | 2.51 gal |
| 4" | .080 gal | 16" | 4.00 gal |
| 6" | .169 gal | 18" | 4.00 gal |
| 8" | .531 gal | 20" | 9.57 gal |
| 10" | 1.260 gal | 24" | 9.57 gal |
| 12" | 2.510 gal | 30" | 29.00 gal |

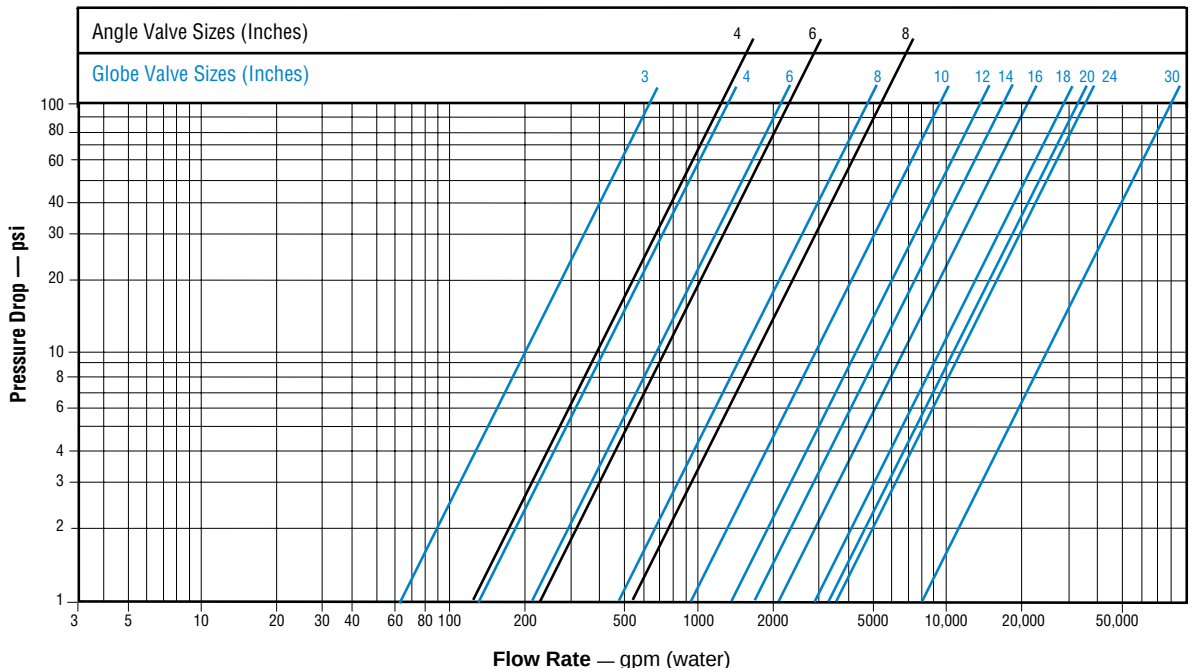
4" Globe, Flanged

6" Angle, Flanged

## Materials

| Component | Material Options | | | | |
|---|---|---|---|---|---|
| Body Cover & Power Unit Body | Ductile Iron | Cast Steel | Bronze | Stainless Steel | Aluminum |
| Available Sizes | 3" - 30" | 3" - 30" | 3" - 16" | 3" - 16" | 3" - 16" |
| Disc Retainer & Diaphragm Washers | Cast Iron | Cast Steel | Bronze | Stainless Steel | Aluminum |
| Trim: Disc Guide, Seat Cover Bearing & Stem Bearing | Bronze is standard. Stainless Steel is optional. | | | Stainless Steel is standard. | |
| Disc | Buna-N® Rubber | | | | |
| Diaphragm | Nylon Reinforced Buna-N® Rubber | | | | |
| Stem, Nut | Stainless Steel | | | | |

## Model 631-73 Flow Chart (Based on normal flow through a wide open valve)



## Valve Selection

| | | These Symbols and Indicate Available Sizes | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inches | 2 1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 30 |
| | mm | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 750 |
| | End Detail | Screwed & Flanged | | Flanged | | | | | | | | | | |
| Model 131-73 | Basic Valve 100-02 Globe | | | | | | | | | | | | | |
| | Basic Valve 100-02 Angle | | | | | | | | | | | | | |
| | Suggested Flow (GPM) Max. Continuous | 300 | 460 | 800 | 1800 | 3100 | 4900 | 7000 | 8400 | 11000 | | | 25000 | |
| | Suggested Flow (GPM) Max. Intermittent | 370 | 580 | 990 | 2250 | 3900 | 6150 | 8720 | 10540 | 13700 | | | 31300 | |
| | Suggested Flow (GPM) Min. Continuous | 20 | 30 | 50 | 115 | 200 | 300 | 400 | 500 | 650 | | | 1750 | |
| | Suggested Flow (Liters/sec) Max. Continuous | 19 | 29 | 50 | 113 | 195 | 309 | 441 | 529 | 693 | | | 1575 | |
| | Suggested Flow (Liters/sec) Max. Intermittent | 23 | 37 | 62 | 142 | 246 | 387 | 549 | 664 | 863 | | | 1972 | |
| | Suggested Flow (Liters/sec) Min. Continuous | 1.3 | 1.9 | 3.2 | 7.2 | 13 | 19 | 25 | 32 | 41 | | | 110 | |
| Model 631-73 | Basic Valve 100-21 Globe | | ** | | | | | | | | | | | |
| | Basic Valve 100-21 Angle | | | | | | | | | | | | | |
| | Suggested Flow (GPM) Max.Continuous | | 260 | 580 | 1025 | 2300 | 4100 | 6400 | 9230 | 9230 | 16500 | 16500 | 16500 | 28000 |
| | Suggested Flow (GPM) Min. Continuous | | 15 | 30 | 50 | 115 | 200 | 300 | 500 | 500 | 900 | 900 | 900 | 1850 |
| | Suggested Flow (Liters/sec) Max.Continuous | | 16 | 37 | 65 | 145 | 258 | 403 | 581 | 581 | 1040 | 1040 | 1040 | 1764 |
| | Suggested Flow (Liters/sec) Min. Continuous | | .9 | 1.9 | 3.2 | 7.2 | 13 | 19 | 32 | 32 | 57 | 57 | 57 | 117 |

* **631-73 is the reduced internal port size version of the 131-73.**

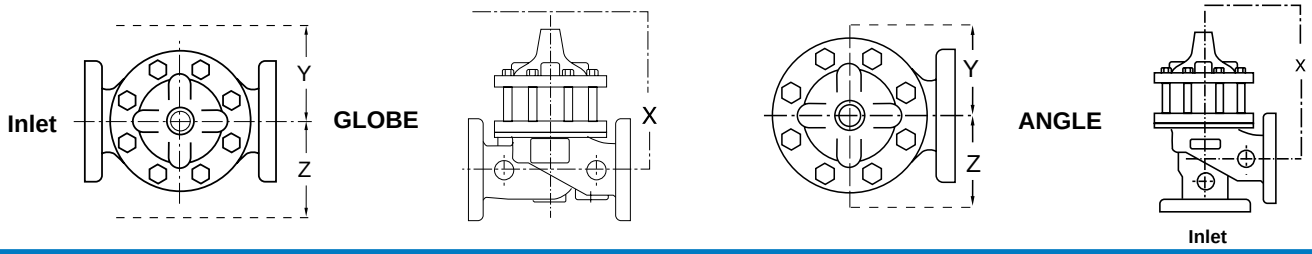
For 100-02 basic valves suggested flow calculations were based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 20 ft/sec (6.1 meters/sec) & maximum intermittent flow is approx. 25 ft/sec (7.6 meters/sec) & minimum continuous flow is approx. 1 ft/sec (.3 meters/sec). For 100-21 basic valves suggested flow calculations were based on flow through the valve seat. Approx. 26 ft/sec (7.9 meters/sec) is used for maximum continuous flow & 1 ft/sec (.3 meters/sec) is used for minimum continuous flow. Maximum continuous flow through the valve seat for the 30" 100-21 is approx. 20 ft/sec (6.1 meters/sec).

**Flanged End Detail Only

## Pilot System Dimensions (In Inches)

We recommend providing adequate space around valve for maintenance work

| VALVE SIZE | | 2½" | 3" | 4" | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 20" | 24" | 30" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | Max. | 16.75 | 17.75 | 20.00 | 23.75 | 26.75 | 26.75 | 33.50 | 39.00 | 42.25 | 42.25 | 46.00 | 50.25 | 50.25 |
| Z | Max. | 9.50 | 10.00 | 11.00 | 13.00 | 15.00 | 17.00 | 19.00 | 22.00 | 23.00 | 23.00 | 23.00 | 28.00 | 28.00 |
| Y | Max. | 4.50 | 5.00 | 6.00 | 8.00 | 10.25 | 12.00 | 14.25 | 16.75 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 |




## Pilot System Specifications

**Temperature Range**
Water: to 180°F
Air: to 140°F

**Rubber Parts:**
Buna-N® Rubber
Viton Optional

**Solenoid Control**
Body: Brass ASTM B283
Enclosure:
NEMA Type 1,2,3,3S,4,4X general purpose watertight
NEMA Type 6,6P,7,9 watertight explosion proof available at extra cost

Voltages:
110, 220, -50Hz Ac
24, 120, 240, 480 - 60Hz AC
6, 12, 24, 120, 240 - DC
Others available at extra cost

Max. operating pressure differential:
125 psi

Coil:
Insulation molded Class F
Watts AC 15.1

## When Ordering, Please Specify

1. Catalog No. 131-73 or 631-73
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Screwed or Flanged
6. Trim Material
7. Electrical Specifications
8. Desired Options
9. When Vertically Installed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