



MODEL 131 Series Electronic Control Valves



- Simple Proven Design
- Quality Solenoid Pilot Controls
- Ideal For SCADA Systems
- Multi-Function Capability; Hydraulic Backup
- Security System to Prevent Unauthorized Changes
- Easy to Maintain

The Cla-Val Series 131 Electronic Control Valves are designed specifically for applications where remote control of the valve is preferred. It is a hydraulically operated, pilot controlled, diaphragm valve. The solenoid pilot controls are actuated by electrical signals from the optional VC-22D Electronic Valve Controller. The solenoid pilots either add or relieve line pressure from the cover chamber of the valve, causing it to open or close as directed by the electronic controller.

Series 131 Electronic Control valves can be configured to perform a wide range of functions, such as; pressure reducing, pressure sustaining, flow control, or level control. The electric controls can also be combined with hydraulic controls to create dual function, or fail-safe capability.

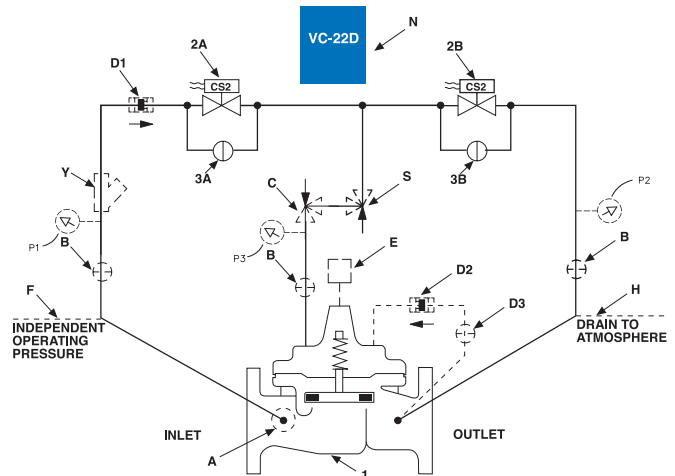
The basic 131-01 Electronic Control Valve (Schematic shown below) includes the main valve and solenoid pilot controls. Optional features include the VC-22D Electronic Valve Controller and the X117 Series Valve Position Transmitter. If the check feature option is added, and a pressure reversal occurs, the downstream pressure is admitted into the cover, closing the valve.

Schematic Diagram

| Item | Description |
|------|---------------------------|
| 1 | 100-01 Hytrol Main Valve |
| 2 | CS2 Solenoid Control |
| 3 | CK2 Solenoid Bypass Valve |

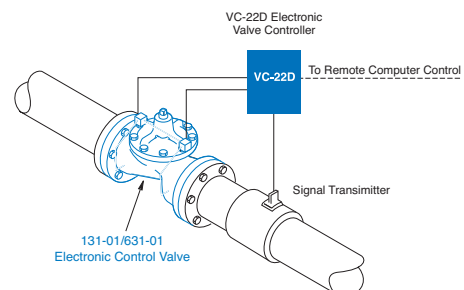
Optional Features

| Item | Description |
|------|-----------------------------------|
| A | X46A Flow Clean Strainer |
| B | CK2 Isolation Valve |
| C | CV Flow Control (Closing) |
| D | Check Valves With Isolation Valve |
| E | X117 Series Position Transmitter |
| F | Independent Operating Pressure |
| H | Atmospheric Drain |
| N | Electronic Controller |
| P | X141 Pressure Gauge |
| S | CV Flow Control (Opening) |
| Y | X43 "Y" Strainer |



Typical Applications

This data sheet contains typical applications that are modifications to the basic 131-01 Electronic Control Valve shown here. It is typically installed in a pipeline with a VC-22D Series Controller that receives a process variable signal that is compared to a set point and adjusts the main valve's capacity until the signals match. There are many different variations not shown in this brochure. Contact us with your specific application and we will provide a field proven solution.



131 Series (Uses 100-01 Hytrol Main Valve)

Pressure Ratings (Recommended Maximum Pressure - psi)

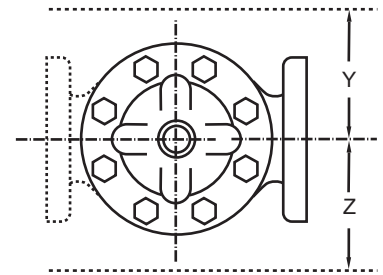
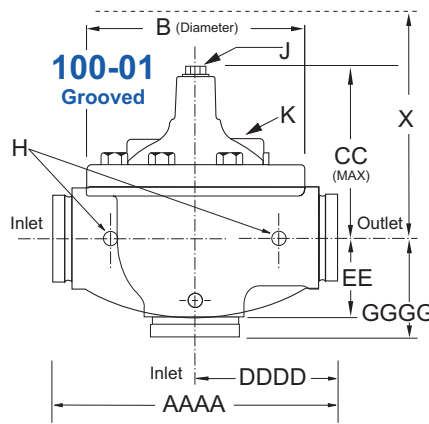
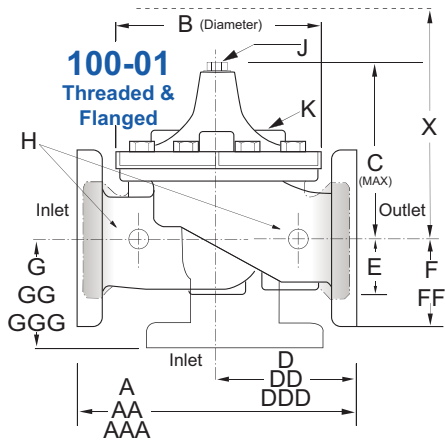
| Valve Body & Cover | | Pressure Class | | | | |
|--------------------|--------------|-----------------|-----------|-----------|-----------|--------------|
| | | Flanged | | | Grooved | Threaded |
| Grade | Material | ANSI Standards* | 150 Class | 300 Class | 300 Class | End† Details |
| ASTM A536 | Ductile Iron | B16.42 | 250 | 400 | 400 | 400 |
| ASTM A216-WCB | Cast Steel | B16.5 | 285 | 400 | 400 | 400 |
| UNS 87850 | Bronze | B16.24 | 225 | 400 | 400 | 400 |

Note: * ANSI standards are for flange dimensions only.
 Flanged valves are available faced but not drilled.
 † End Details machined to ANSI B2.1 specifications.
Valves for higher pressure are available; consult factory for details

Materials

| Component | Standard Material Combinations | | |
|--|---|-------------------------|-------------------------|
| Valve Body & Cover | Ductile Iron | Cast Steel | Bronze |
| 100-01 Available Sizes | 1" - 36" 25 - 900 mm | 1" - 16" 25 - 400 mm | 1" - 16" 25 - 400 mm |
| Disc Retainer & Diaphragm Washer | Cast Iron | Cast Steel | Bronze |
| Trim: Disc Guide, Seat & Cover Bearing | Bronze is Standard Stainless Steel is Optional | | |
| Disc | Buna-N® Rubber | | |
| Diaphragm | Nylon Reinforced Buna-N® Rubber | | |
| Stem, Nut & Spring | Stainless Steel | | |

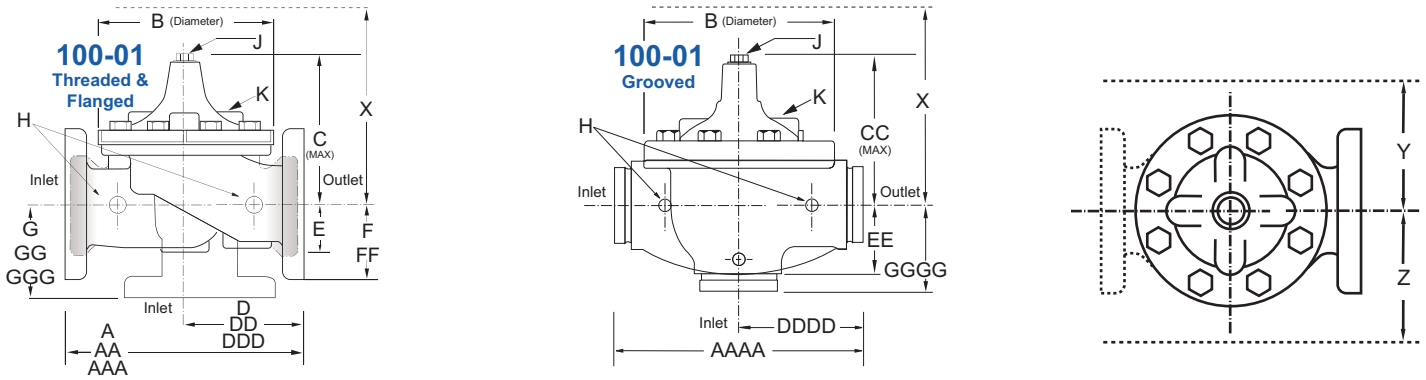
For material options not listed, consult factory.
 Cla-Val manufactures valves in more than 50 different alloys.



131 Series Dimensions (In Inches)

| Valve Size (Inches) | 1 | 1 1/4 | 1 1/2 | 2 | 2 1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 30 | 36 |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A Threaded | 7.25 | 7.25 | 7.25 | 9.38 | 11.00 | 12.50 | — | — | — | — | — | — | — | — | — | — | — | — |
| AA 150 ANSI | — | — | 8.50 | 9.38 | 11.00 | 12.00 | 15.00 | 20.00 | 25.38 | 29.75 | 34.00 | 39.00 | 41.38 | 46.00 | 52.00 | 61.50 | 63.00 | 72.75 |
| AAA 300 ANSI | — | — | 9.00 | 10.00 | 11.62 | 13.25 | 15.62 | 21.00 | 26.38 | 31.12 | 35.50 | 40.50 | 43.50 | 47.64 | 53.62 | 63.24 | 64.50 | 74.75 |
| AAAA Grooved End | — | — | 8.50 | 9.00 | 11.00 | 12.50 | 15.00 | 20.00 | 25.38 | — | — | — | — | — | — | — | — | — |
| B Diameter | 5.62 | 5.62 | 5.62 | 6.62 | 8.00 | 9.12 | 11.50 | 15.75 | 20.00 | 23.62 | 28.00 | 32.75 | 35.50 | 41.50 | 45.00 | 53.16 | 56.00 | 66.00 |
| C Maximum | 5.50 | 5.50 | 5.50 | 6.50 | 7.56 | 8.19 | 10.62 | 13.38 | 16.00 | 17.12 | 20.88 | 24.19 | 25.00 | 39.06 | 41.90 | 43.93 | 54.60 | 59.00 |
| CC Maximum Grooved End | — | — | 4.75 | 5.75 | 6.88 | 7.25 | 9.31 | 12.12 | 14.62 | — | — | — | — | — | — | — | — | — |
| D Threaded | 3.25 | 3.25 | 3.25 | 4.75 | 5.50 | 6.25 | — | — | — | — | — | — | — | — | — | — | — | — |
| DD 150 ANSI | — | — | 4.00 | 4.75 | 5.50 | 6.00 | 7.50 | 10.00 | 12.69 | 14.88 | 17.00 | 19.50 | 20.81 | — | — | 30.75 | — | — |
| DDD 300 ANSI | — | — | 4.25 | 5.00 | 5.88 | 6.38 | 7.88 | 10.50 | 13.25 | 15.56 | 17.75 | 20.25 | 21.62 | — | — | 31.62 | — | — |
| DDDD Grooved End | — | — | — | 4.75 | — | 6.00 | 7.50 | — | — | — | — | — | — | — | — | — | — | — |
| E | 1.12 | 1.12 | 1.12 | 1.50 | 1.69 | 2.06 | 3.19 | 4.31 | 5.31 | 9.25 | 10.75 | 12.62 | 15.50 | 12.95 | 15.00 | 17.75 | 21.31 | 24.56 |
| EE Grooved End | — | — | 2.00 | 2.50 | 2.88 | 3.12 | 4.25 | 6.00 | 7.56 | — | — | — | — | — | — | — | — | — |
| F 150 ANSI | — | — | 2.50 | 3.00 | 3.50 | 3.75 | 4.50 | 5.50 | 6.75 | 8.00 | 9.50 | 10.50 | 11.75 | 15.00 | 16.50 | 19.25 | 22.50 | 28.50 |
| FF 300 ANSI | — | — | 3.06 | 3.25 | 3.75 | 4.13 | 5.00 | 6.25 | 7.50 | 8.75 | 10.25 | 11.50 | 12.75 | 15.00 | 16.50 | 19.25 | 24.00 | 30.00 |
| G Threaded | 1.88 | 1.88 | 1.88 | 3.25 | 4.00 | 4.50 | — | — | — | — | — | — | — | — | — | — | — | — |
| GG 150 ANSI | — | — | 4.00 | 3.25 | 4.00 | 4.00 | 5.00 | 6.00 | 8.00 | 8.62 | 13.75 | 14.88 | 15.69 | — | — | 22.06 | — | — |
| GGG 300 ANSI | — | — | 4.25 | 3.50 | 4.31 | 4.38 | 5.31 | 6.50 | 8.50 | 9.31 | 14.50 | 15.62 | 16.50 | — | — | 22.90 | — | — |
| GGGG Grooved End | — | — | — | 3.25 | — | 4.25 | 5.00 | — | — | — | — | — | — | — | — | — | — | — |
| H NPT Body Tapping | 0.375 | 0.375 | 0.375 | 0.375 | 0.50 | 0.50 | 0.75 | 0.75 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 |
| J NPT Cover Center Plug | 0.25 | 0.25 | 0.25 | 0.50 | 0.50 | 0.50 | 0.75 | 0.75 | 1.00 | 1.00 | 1.25 | 1.50 | 2.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 |
| K NPT Cover Tapping | 0.375 | 0.375 | 0.375 | 0.375 | 0.50 | 0.50 | 0.75 | 0.75 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 |
| Stem Travel | 0.40 | 0.40 | 0.40 | 0.60 | 0.70 | 0.80 | 1.10 | 1.70 | 2.30 | 2.80 | 3.40 | 4.00 | 4.50 | 5.10 | 5.63 | 6.75 | 7.50 | 8.50 |
| Approx. Ship Weight (lbs) | 15 | 15 | 15 | 35 | 50 | 70 | 140 | 285 | 500 | 780 | 1165 | 1600 | 2265 | 2982 | 3900 | 6200 | 7703 | 11720 |
| Approx. X Pilot System | 11 | 11 | 11 | 13 | 14 | 15 | 17 | 29 | 31 | 33 | 36 | 40 | 40 | 43 | 47 | 68 | 79 | 85 |
| Approx. Y Pilot System | 9 | 9 | 9 | 9 | 10 | 11 | 12 | 20 | 22 | 24 | 26 | 29 | 30 | 32 | 34 | 39 | 40 | 45 |
| Approx. Z Pilot System | 9 | 9 | 9 | 9 | 10 | 11 | 12 | 20 | 22 | 24 | 26 | 29 | 30 | 32 | 34 | 39 | 42 | 47 |

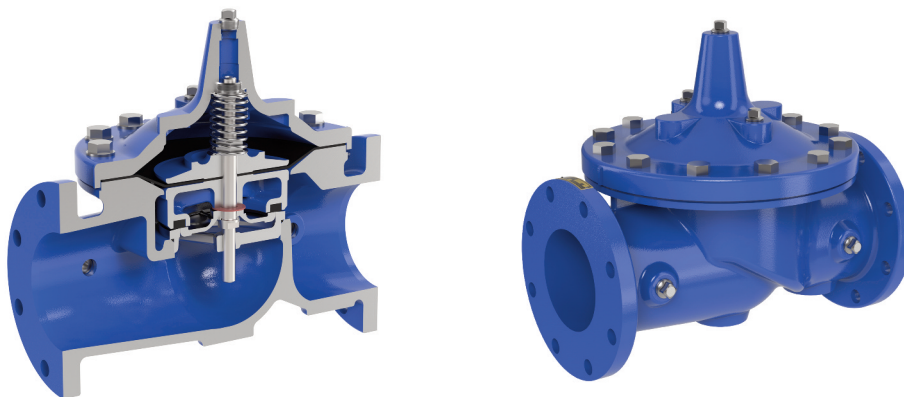
131 Series Metric Dimensions (Uses 100-01 Hytrol Main Valve)



Model 131 Series Dimensions (In mm)

| Valve Size (mm) | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 750 | 900 |
|---------------------------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| A Threaded | 184 | 184 | 184 | 238 | 279 | 318 | — | — | — | — | — | — | — | — | — | — | — | — |
| AA 150 ANSI | — | — | 216 | 238 | 279 | 305 | 381 | 508 | 645 | 756 | 864 | 991 | 1051 | 1168 | 1321 | 1562 | 1600 | 1848 |
| AAA 300 ANSI | — | — | 229 | 254 | 295 | 337 | 397 | 533 | 670 | 790 | 902 | 1029 | 1105 | 1210 | 1326 | 1606 | 1638 | 1899 |
| AAAA Grooved End | — | — | 216 | 228 | 279 | 318 | 381 | 508 | 645 | — | — | — | — | — | — | — | — | — |
| B Diameter | 143 | 143 | 143 | 168 | 203 | 232 | 292 | 400 | 508 | 600 | 711 | 832 | 902 | 1054 | 1143 | 1350 | 1422 | 1676 |
| C Maximum | 140 | 140 | 140 | 165 | 192 | 208 | 270 | 340 | 406 | 435 | 530 | 614 | 635 | 992 | 1064 | 1116 | 1387 | 1499 |
| CC Maximum Grooved End | — | — | 120 | 146 | 175 | 184 | 236 | 308 | 371 | — | — | — | — | — | — | — | — | — |
| D Threaded | 83 | 83 | 83 | 121 | 140 | 159 | — | — | — | — | — | — | — | — | — | — | — | — |
| DD 150 ANSI | — | — | 102 | 121 | 140 | 152 | 191 | 254 | 322 | 378 | 432 | 495 | 528 | — | — | 781 | — | — |
| DDD 300 ANSI | — | — | 108 | 127 | 149 | 162 | 200 | 267 | 337 | 395 | 451 | 514 | 549 | — | — | 803 | — | — |
| DDDD Grooved End | — | — | — | 121 | — | 152 | 191 | — | — | — | — | — | — | — | — | — | — | — |
| E | 29 | 29 | 29 | 38 | 43 | 52 | 81 | 110 | 135 | 235 | 273 | 321 | 394 | 329 | 381 | 451 | 541 | 624 |
| EE Grooved End | — | — | 52 | 64 | 73 | 79 | 108 | 152 | 192 | — | — | — | — | — | — | — | — | — |
| F 150 ANSI | — | — | 64 | 76 | 89 | 95 | 114 | 140 | 171 | 203 | 241 | 267 | 298 | 381 | 419 | 489 | 572 | 724 |
| FF 300 ANSI | — | — | 78 | 83 | 95 | 105 | 127 | 159 | 191 | 222 | 260 | 292 | 324 | 381 | 419 | 489 | 610 | 762 |
| G Threaded | 48 | 48 | 48 | 83 | 102 | 114 | — | — | — | — | — | — | — | — | — | — | — | — |
| GG 150 ANSI | — | — | 102 | 83 | 102 | 102 | 127 | 152 | 203 | 219 | 349 | 378 | 399 | — | — | 560 | — | — |
| GGG 300 ANSI | — | — | 102 | 89 | 110 | 111 | 135 | 165 | 216 | 236 | 368 | 397 | 419 | — | — | 582 | — | — |
| GGGG Grooved End | — | — | — | 83 | — | 108 | 127 | — | — | — | — | — | — | — | — | — | — | — |
| H NPT Body Tapping | 0.375 | 0.375 | 0.375 | 0.375 | 0.50 | 0.50 | 0.75 | 0.75 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 |
| J NPT Cover Center Plug | 0.25 | 0.25 | 0.25 | 0.50 | 0.50 | 0.50 | 0.75 | 0.75 | 1.00 | 1.00 | 1.25 | 1.50 | 2.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 |
| K NPT Cover Tapping | 0.375 | 0.375 | 0.375 | 0.375 | 0.50 | 0.50 | 0.75 | 0.75 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 |
| Stem Travel | 10 | 10 | 10 | 15 | 18 | 20 | 28 | 43 | 58 | 71 | 86 | 102 | 114 | 130 | 143 | 171 | 190 | 216 |
| Approx. Ship Weight (kgs) | 7 | 7 | 7 | 16 | 23 | 32 | 64 | 129 | 227 | 354 | 528 | 726 | 1027 | 1353 | 1769 | 2812 | 3494 | 5316 |
| Approx. X Pilot System | 280 | 280 | 280 | 331 | 356 | 381 | 432 | 737 | 788 | 839 | 915 | 1016 | 1016 | 1093 | 1194 | 1728 | 2007 | 2159 |
| Approx. Y Pilot System | 229 | 229 | 229 | 229 | 254 | 280 | 305 | 508 | 559 | 610 | 661 | 737 | 762 | 813 | 864 | 991 | 1016 | 1143 |
| Approx. Z Pilot System | 229 | 229 | 229 | 229 | 254 | 280 | 305 | 508 | 559 | 610 | 661 | 737 | 762 | 813 | 864 | 991 | 1067 | 1194 |

Model 100-01 Full Port Hytrol Main Valve



for applications requiring a reduced port valve, please refer to the 631 Series Engineering Data Sheet

131 Series (Uses 100-01 Hytrol Main Valve)

| | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|------|------|-----------|----------|-----------|----------|-------|--------|--------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 131 Series Valve Selection | 100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes | | | | | | | | | | | | | | | | | | |
| | Inches | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 30 | 36 |
| | mm | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 750 | 900 |
| Main Valve 100-01 | Pattern | G, A | G, A | G, A | G, A | G, A | G, A | G, A | G, A | G, A | G, A | G, A | G, A | G, A | G | G | G, A | G | G |
| | End Detail | T | T | T, F, Gr* | T, F, Gr | T, F, Gr* | T, F, Gr | F, Gr | F, Gr* | F, Gr* | F | F | F | F | F | F | F | F | F |
| Suggested Flow (gpm) | Maximum | 55 | 93 | 125 | 210 | 300 | 460 | 800 | 1800 | 3100 | 4900 | 7000 | 8400 | 11000 | 14000 | 17000 | 25000 | 42000 | 50000 |
| | Maximum Intermittent | 68 | 120 | 160 | 260 | 370 | 580 | 990 | 2250 | 3900 | 6150 | 8720 | 10540 | 13700 | 17500 | 21700 | 31300 | 48000 | 62500 |
| | Minimum | 1 | 1 | 1 | 1 | 2 | 2 | 4 | 10 | 15 | 35 | 50 | 70 | 95 | 120 | 150 | 275 | 450 | 650 |
| Suggested Flow (Liters/Sec) | Maximum | 3.5 | 6 | 8 | 13 | 19 | 29 | 50 | 113 | 195 | 309 | 442 | 530 | 694 | 883 | 1073 | 1577 | 2650 | 3150 |
| | Maximum Intermittent | 4.3 | 7.6 | 10 | 16 | 23 | 37 | 62 | 142 | 246 | 387 | 549 | 664 | 863 | 1104 | 1369 | 1972 | 3028 | 3940 |
| | Minimum | .03 | .03 | .03 | .06 | .09 | 0.13 | 0.25 | 0.63 | 0.95 | 2.2 | 3.2 | 4.4 | 6.0 | 7.6 | 9.5 | 17.4 | 28.4 | 41.0 |

100-01 Series is the full internal port Hytrol. For Lower Flows Consult Factory *Globe Grooved Only

131 Series Pilot System Specifications

Temperature Range

Water: to 180°F

Rubber Parts:

Buna-N® Rubber Synthetic

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.

Please consult factory for pilot system adjustment ranges

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: 200 psi unless otherwise specified

Coil:

| | |
|-------------------------|------|
| Insulation molded Class | F |
| Watts AC | 6 |
| AC Volt Amps Inrush | 30 |
| AC Volt Amps Holding | 16 |
| Watts DC | 10.6 |

When Ordering, Specify:

1. Catalog No. 131 Series
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded, Flanged or Grooved
6. Trim Material
7. Adjustment Range
8. Desired Options
9. When Vertically Installed

131 Series Flow Data

