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V Series Electric Actuators

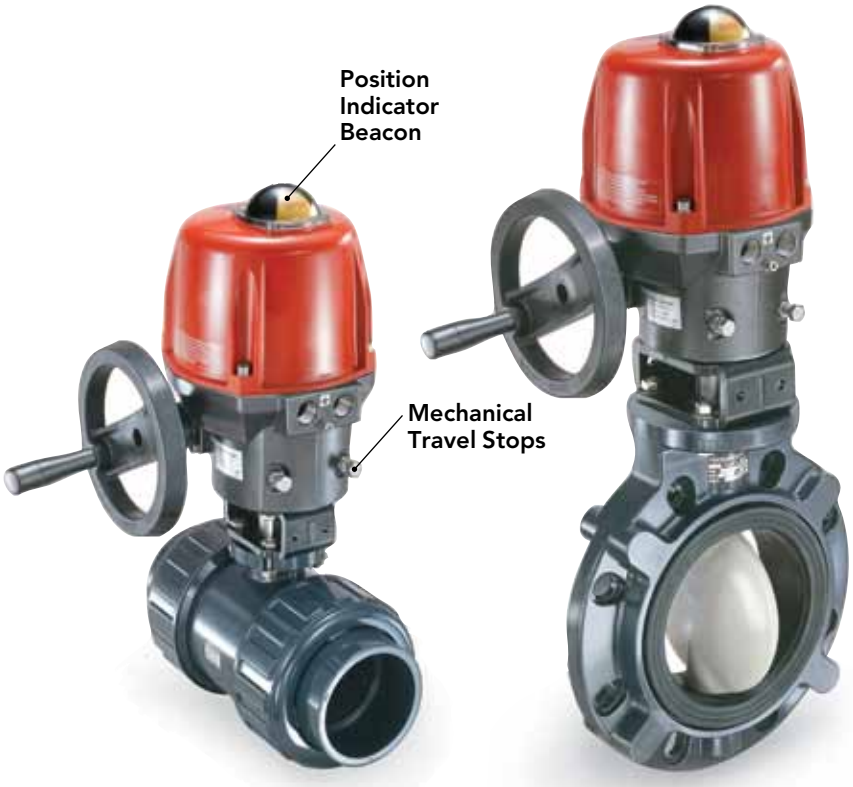
CHEMLINE PLASTICS
SUPERIOR FLOW SOLUTIONS

for Chemline ball valves up to 6" & butterfly valves up to 20"[1]

SERIES: VR – 220 to 660 in.lb.
VS – 880 to 2,660 in.lb.
VT – 5,300 to 8,860 in.lb.

VOLTAGES: 115/220 VAC (50/60Hz), 12/24 VDC, 24 VAC (50/60Hz)

ENCLOSURE: Polyamide 6.6 Cover & Epoxy Coated Aluminum Base, NEMA 4X



VS Series on Type 21 Ball Valve

VS Series on Type 57 Butterfly Valve

The Chemline **V Series** Electric Actuator is a reversible rotary unit with output torques up to 8,860 in.-lb. These actuators are ideal for Chemline butterfly valves up to 20"[1] size, as well as all sizes of Chemline ball valves up to 6". The V Series actuator features a moulded Polyamide 6.6 cover, a die cast aluminum base with a thermally bonded epoxy powder coating, rated as a NEMA 4X enclosure. NEMA 7 and 9 enclosures are available. Consult Chemline.

Chemline also offers complete actuated ball, butterfly and diaphragm valves, assembled and bench tested. Actuation service is also available for all quarter-turn metal valves.

features

Multiple Approvals and Compliances
- CSA[6]
- CE
- EAC
- RoHS

Multiple Operation/Control Options[2]
- 2 & 3-wire
- Adjustable Travel
- Adjustable Travel Stops[3]
- Manual Override
- Heater/Thermostat[4,5]
- MODBUS-RTU Communication Protocol Module

Multiple Feedback Options
- Visual
- Feedback Switches

NEMA 4X/IP67 Enclosure[7]
- Waterproof, corrosion proof with high impact Polyamide 6.6 cover, thermally bonded epoxy powder coated die cast aluminum base and stainless steel fasteners

No Maintenance
- Permanently lubricated gear train
- Designed for 250,000 + cycles

Thermal Overload Protection
- Thermal switch embedded onto control board

Extended Operating Temperature Range
- –20 to 70C (–4 to 158°F) (standard)[4]
- –50 to 70C (–58 to 158°F) (optional)[5]

Irreversible Gearing
- No accidental backing off fully closed position
- No need for supplementary braking

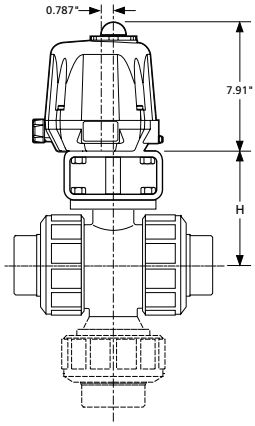
Multi-Voltage Operation
- 115/220 VAC (standard)[8]
- 12/24 VDC or 12 VAC (optional)[9]

Standard Mounting Dimensions
- ISO-5211 mounting bolt circle and drive

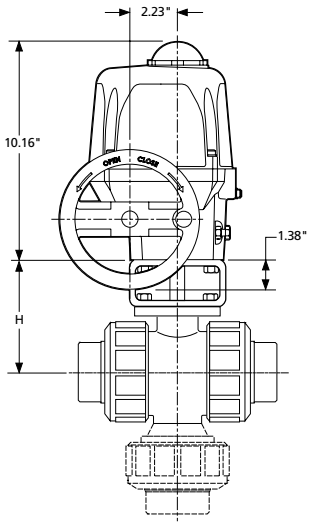
[1] Contact Chemline for specific line pressure ratings
[2] For operation and feedback options, see Operation/Control Options, page 4
[3] VS and VT only
[4] 10W heater: ON-OFF and POS models: –20 to 70C (–4 to 158°F); Failsafe models: –10 to 40C (15 to 104°F)
[5] 20W heater: Low temperature ON-OFF models only: –50 to 70C (–58 to 158°F)
[6] VR and VS only
[7] IP67 (submersible to 2 metres up to 72 hours) with polyamide cover. Rated to IP68 (submersible to 5 metres up to 72 hours) with optional VS-IP68 metal cover.
[8] Voltage range = 100 to 240 VAC 50/60Hz, 100 to 350 VDC
[9] Voltage range = 15 to 30 VAC 50/60Hz, 12 to 48 VDC

V Series Electric Actuators

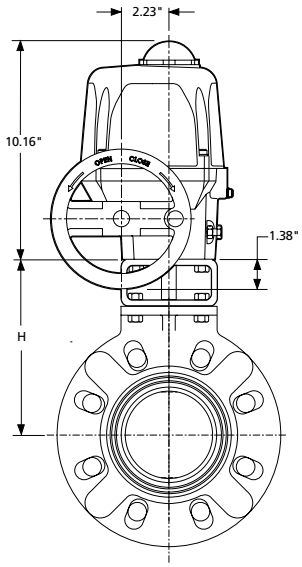
DIMENSIONS INCHES



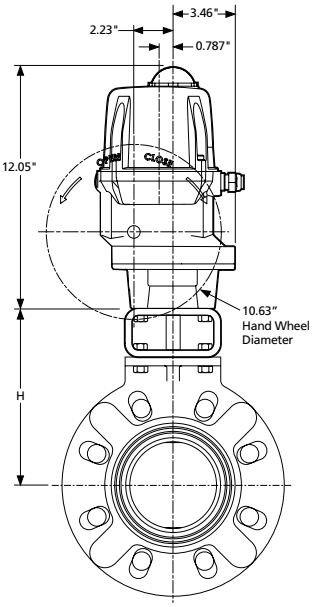
VR Series
Type 21 True Union and
Type 23 Multi Port Ball Valves



VS Series
Type 21 True Union and
Type 23 Multi Port Ball Valves



VS Series
Type 57 Butterfly Valves

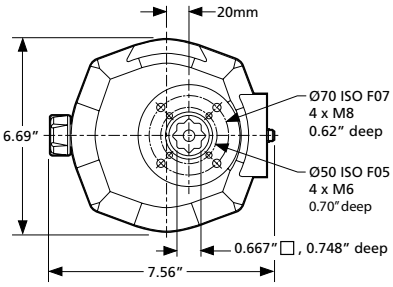


VT Series
Type 57 Butterfly Valves

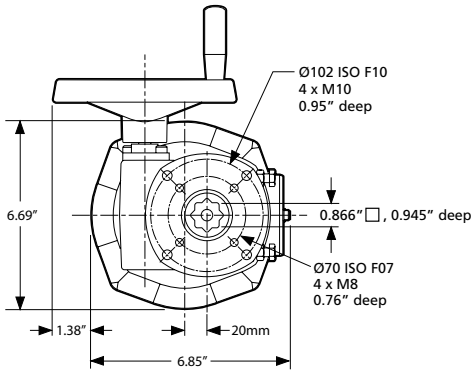
VR Series

VS Series

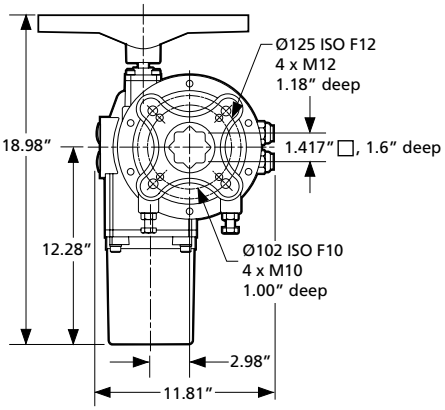
VT Series



VR Bottom View



VS Bottom View



VT Bottom View

V Series Electric Actuators

VR & VS SERIES DIMENSION "H" INCHES

Valve Size	Valve Type				
	Type 21 Ball	Type 23 Multiport	HC Series Ball	Type 57 Butterfly	ChemValve Butterfly
1/2"	2.76	2.76	–	–	–
3/4"	3.01	3.01	–	–	–
1"	3.29	3.29	–	–	–
1-1/4"	3.64	3.98	–	–	–
1-1/2"	3.98	3.98	–	5.65	–
2"	4.43	4.43	–	5.95	6.89
2-1/2"	5.12	5.47	–	6.35	7.52
3"	5.47	5.47	–	6.65	8.27
4"	6.97	6.97	6.75	7.35	9.05
5"	–	–	–	8.80	–
6"	–	–	8.30	9.30	10.31
8"	–	–	–	10.50	11.65

Valves are not to scale. For valve dimensions and parts refer to separate valve data sheets.

VT SERIES DIMENSION "H" INCHES

Valve Size	Valve Type			
	Type 57 Butterfly	Type 56 Butterfly	TB Series Butterfly	ChemValve Butterfly
10"	11.50	–	–	12.63
12"	14.20	–	–	14.13
14"	15.30	–	–	–
16"	–	16.00	–	–
18"	–	–	20.53	–
20"	–	–	21.73	–
24"	–	–	24.23	–

Valves are not to scale. For valve dimensions and parts refer to separate valve data sheets.

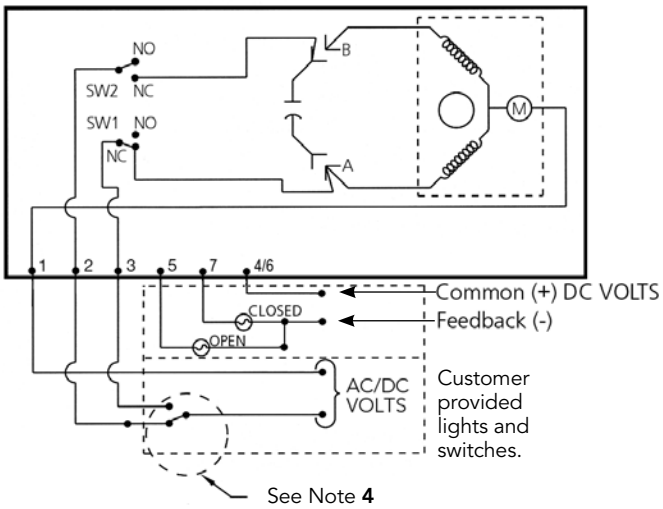
SPECIFICATIONS

Model	Running Torques (in.-lbs.)	Running Torques Nm	115 VAC / 220 VAC (x=12) Power Draw (Watts)[1]	115 VAC / 220 VAC (x=12) Duty Cycle	12/24 VDC & 24 VAC (x=346) Power Draw (Watts)[1]	12/24 VDC & 24 VAC (x=346) Duty Cycle	Cycle Time/90° (fixed, sec.)	Weight (lbs.)
VR25.x	220	25	85W	80%	85W	80%	7	8.8
VR45.x	400	45	85W	80%	85W	80%	15	8.8
VR75.x	660	75	85W	80%	85W	80%	20	8.8
VS100.x	880	100	85W	80%	85W	80%	15	14.3
VS150.x	1,330	150	85W	80%	85W	80%	30	14.3
VS300.x	2,660	300	85W	80%	85W	80%	50	14.3
VT600.x[2]	5,300	600	250W	50%	–	–	38	39.7
VT1000.x[2]	8,860	1,000	250W	50%	–	–	38	39.7

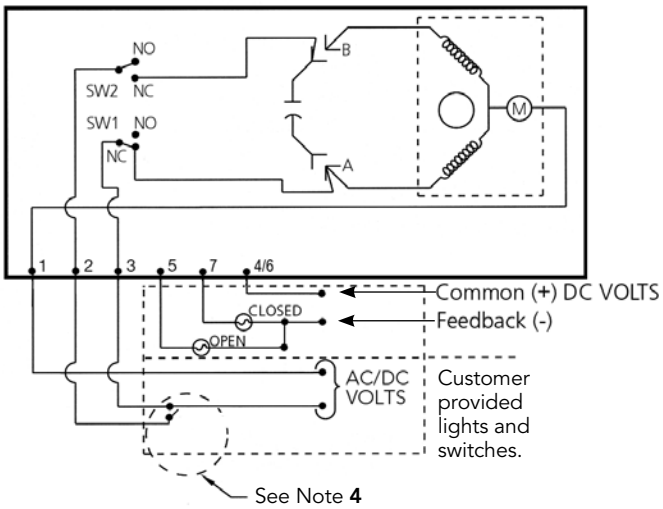
[1] Power draw values are for actuators with locked rotors. [2] VT are only available in 220 VAC.

Electrical Conduit Entry • 2 x 1/2" NPT

WIRING, 3-WIRE CONTROL



WIRING, 2-WIRE CONTROL



3-WIRE OPERATION

Neutral/Negative – To Terminal 1 (Constant)
To Open – Hot/Positive to Terminal 2
To Close – Hot/Positive to Terminal 3

2-WIRE OPERATION

Neutral/Negative – To Terminal 1 (Constant)
To Open – Jumper between Terminal 2 and Terminal 3
To Close – Hot/Positive to Terminal 3 (Constant)

NOTES:

1. Actuator shown in counter clockwise extreme of travel, or 'open' position.
2. Motor has a thermal protector as shown by (M) in the diagram.
3. ON-OFF actuator wiring shown. For other versions (Positioning, Failsafe) see operating manual.
4. Each actuator must be powered through its own individual switch contacts to avoid cross feeds.

OPERATION/CONTROL OPTIONS[4]

- **MODBUS-RTU Communication Protocol Module** – Bus communication/operation capability
- **Digital Positioner** – Onboard digital position controller accepts 4 to 20 mA, 0 to 20 mA, 0 to 10 VDC or other inputs. These units are easier to calibrate, have faster response and provide more precise proportional control.
- **Failsafe Capability** – Onboard backup battery pack powers actuator in case of power failure
- **Bluetooth™ Wireless Control** – For monitoring/administration/ maintenance/scheduling opening or closing when actuator is out of physical reach or to provide simple supervisory control

[4]Available for VR and VS only

FEEDBACK OPTIONS

- **Extra Feedback Switches** – For extra end-of-travel position feedback
- **Feedback Potentiometer** – To feedback the precise valve position to a remote location, or to allow "jogging" control
- **Feedback Transmitter** – A circuit board coupled with a feedback potentiometer provides 4 to 20 mA output used by other equipment (PLC, data logger, etc.)

V Series Electric Actuators

SAMPLE SPECIFICATION

1. All electric actuators shall be Chemline V Series or equal, CSA Approved 1/4 turn reversible rotary actuator with embedded thermal overload protection switch.
2. All electric actuators shall have a 2-piece NEMA 4X die cast aluminum base with thermally bonded epoxy powder coating, Polyamide 6 cover and stainless steel fasteners.
3. All electric actuators shall have the option of a 2-piece NEMA 4X die cast aluminum base and cover with thermally bonded epoxy powder coating for IP68 (5 meters for 72 hours) requirement.
4. All electric actuators shall have PC board control with built-in on-board 4-watt heater/thermostat.
5. All electric actuators shall consist of a reversible type electric motor with irreversible epicyclic gears to eliminate gear backlash or valve drift or standard gears.
6. All electric actuators shall have a permanently-attached manual override and visual position indicator.
7. All electric actuators shall have a visual mechanical indication, showing output shaft and valve position.
8. All electric actuators shall be minimum 50% duty cycle for high cycling applications.
9. All electric actuators shall have voltage options of 120, 220, 12 & 24 VAC and 12/24 VDC.
10. All electric actuators shall have two fully adjustable, cam-actuated, end-of-travel limit switches of the snap-acting, double-throw type rated to 250 VAC and listed to carry a power load equal to or greater than the locked rotor current of the actuator.
11. All electric actuators shall have torque outputs from 1,327 to 2,655 in-lbs.
12. All electric actuators shall have a permanently lubricated gear train.
13. All electric actuators shall have an ISO mounting bolt circle.
14. All electric actuators shall be available with terminal-wired internal options such as extra limit switches, adjustable 3-position control, 4-20 mA positioners and/or output signal, battery backup or mechanical spring failsafe, feedback potentiometer, cycle length control, 2-wire control, mechanical brake capability.
15. All electric actuators shall be custom tagged with manufacturers' inspection number(s) to provide traceability.

CHEMLINE PLASTICS
SUPERIOR FLOW SOLUTIONS

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