



Model GE

Electric Actuated

FEATURES

- ACCURATE AND REPEATABLE TEMPERATURE CONTROL
- LOW PRESSURE DROP, 0.15 TO 1.5 PSI
- SELECTABLE DIRECTIONS OF FLOW CONTROL
- VIBRATION RESISTANT
- MOUNT IN ANY POSITION
- COMPACT DESIGN
- NEMA 4 WEATHER PROOF CONSTRUCTION
- STANDARD MANUAL OVERRIDE
- POSITION INDICATOR
- SIZES 2" TO 16"
- 40 GPM TO 8300 GPM

APPLICATIONS

For Refineries, Chemical Plants & Oil Reproduction:

- ~ Waste Heat Boilers
- ~ Product Coolers
- ~ Product Heaters
- ~ Product Condensers

For Engines, Turbines, Gear Boxes & Heat Exchanges:

- ~ Charge Air Cooling
- ~ Secondary Cooling Systems
- ~ Fuel & Lube Oil Preheating
- ~ Co-Generation
- ~ Engine Jacket Water

3-Way Control Valves



AMOT Model GE Valves are 3-way control valves consisting of a heavy duty rotary valve and a quarter turn electric actuator. Model GE valves provide a high degree of accuracy and repeatability for accurate temperature control. The valves are equally accurate in mixing or diverting service over a wide flow range. The heavy duty rotor design provides tight temperature control without high maintenance requirements.

Designed for high vibration service, the valves are qualified to Lloyd's Marine Requirements for shipboard service. Valves can be directly mounted to reciprocating machinery such as diesel engines without vibration isolation. The heavy duty actuators are specially reinforced to provide vibration resistance.

The standard valves are suitable for a variety of fluids such as water, water/glycol, sea water, lubricating and hydraulic oils. Optional body and seal materials are available for services involving synthetic or fire resistant oils, deionized water and ammonia or freon in oil.

The compact design of the valves minimizes the installation space required. Combined with selectable direction of rotation and mode of operation, piping design can be simplified providing low installation cost. The internal design provides unobstructed full flow keeping the pressure drop across the valve between 0.15 to 1.5 psig.

Used in conjunction with the proven AMOT Electronic Controller and R.T.D., the complete system provides simplicity of operation together with close control of temperature as derived from a P.I.D. control system.

SPECIFICATIONS

Valve

Body See Table C "Model Code System"
 Rotor material:
 All except Steel body Bronze
 Steel body Stainless Steel
 Rotor shaft material: Stainless Steel
 Shaft seals material: Standard Buna N
 Optional Viton
 Flanges: See Table D "Model Code System"
 Maximum working pressure: Cast Iron/Bronze 145 psi
 Steel 230 psi
 Maximum temperature of fluid: 212°F (100°C)
 High temperature versions available to ... 300°F (150°C)
 Operation: Standard Mode A
 See "Mode of Operation"
 Pressure Drop Range . 0.15 psi (0.01 bar) to 1.5 psi (0.1 bar)

Actuator

Material: Housing Aluminum
 Cover Steel
 Finish Polyurethane
 Enclosure NEMA 4
 Conduit 1/2 NPT/M20
 Power Supply 110V or 220V AC
 Single Phase, 50/60 Hz

Size: Three sizes of Actuator are used depending on the valve size.

Actuator for	2", 3", 4" Valve	6", 8", 10" Valve	12", 14", 16" Valve
Running Current	0.4 Amp (220V) 1.1 Amp (120V)	1.1 Amp (220V) 2.1 Amp (120V)	1.1 Amp (220V) 2.1 Amp (120V)
Starting Current	0.5 Amp (220V) 1.6 Amp (120V)	1.7 Amp (220V) 2.9 Amp (120V)	1.7 Amp (220V) 2.9 Amp (120V)
Output Torque (Break)	310 in.lb. (35 Nm)	1328 in.lb. (150 Nm)	4425 in.lb. (500 Nm)

PRINCIPLE OF OPERATION

The valve actuator receives an open or close signal from the control system relays. The duration of the open or close signal is determined by the deviation between the actual system temperature and the selected set point.

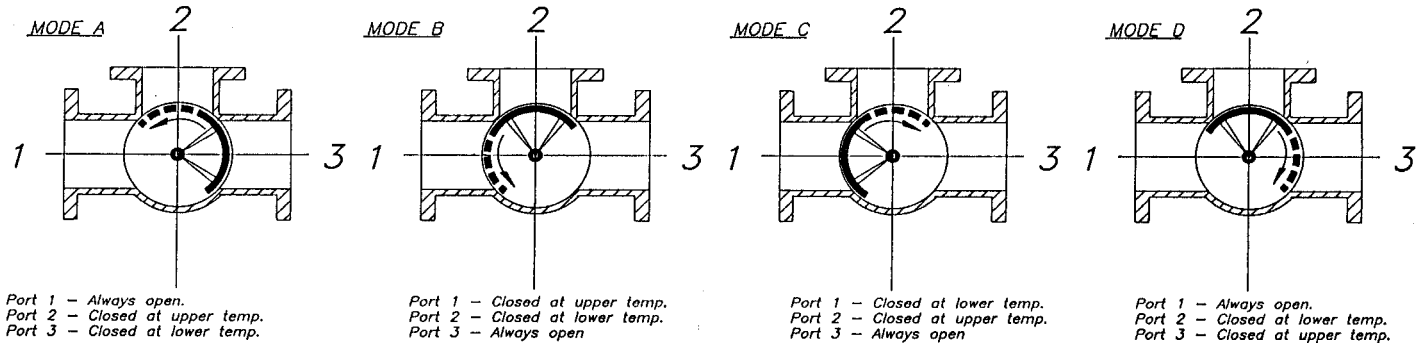
The actuator of the GE valve assembly uses an electric motor which rotates in either direction in response to the ON-OFF signals received. The motor drives a gearbox connected to the rotor shaft and turns the valve rotor clockwise or counterclockwise, a maximum of 90 degrees. At the end of travel, limit switches are incorporated to isolate the electrical supply to the motor when the valve rotor has reached either end of the rotation. A feedback potentiometer is standard and provides position indication to the control system.

MODES OF OPERATION (Valves illustrated in "Cold" Position)

STANDARD

COUNTERCLOCKWISE ROTATION

CLOCKWISE ROTATION



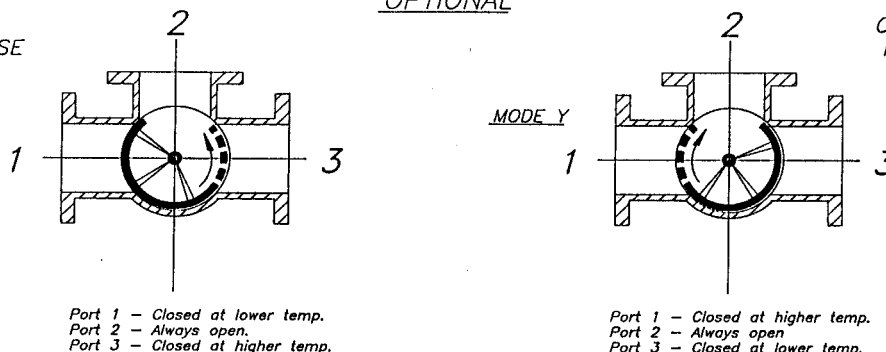
OPTIONAL

COUNTERCLOCKWISE ROTATION

CLOCKWISE ROTATION

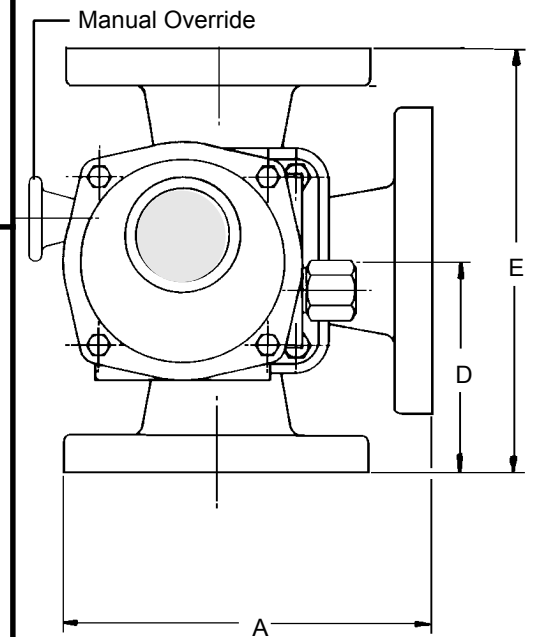
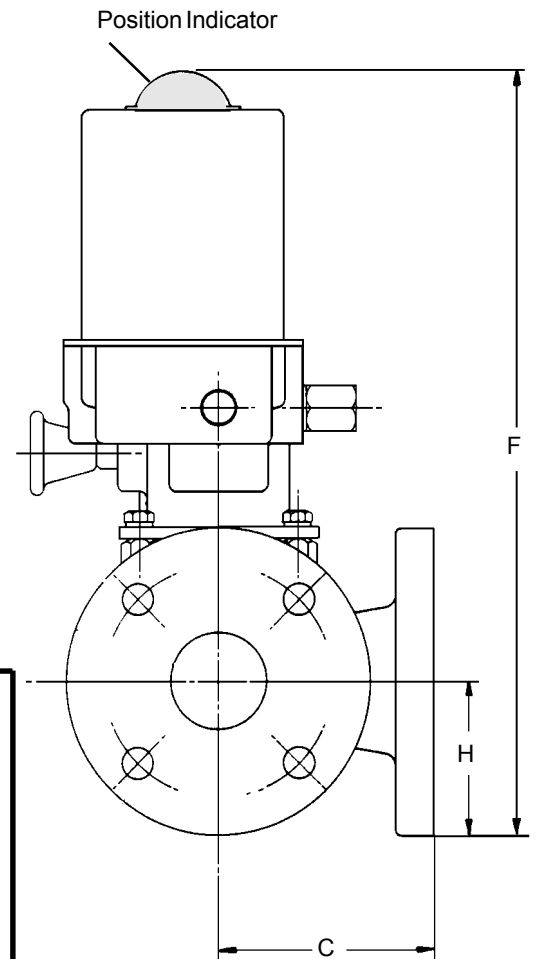
MODE X

MODE Y

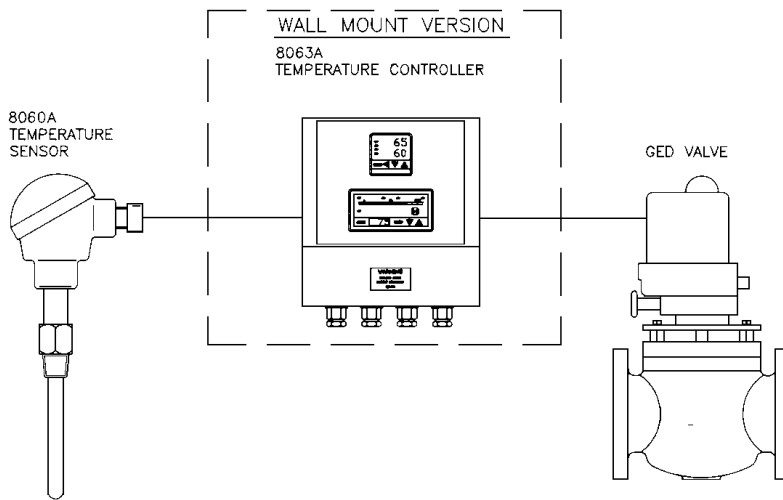


VALVE DIMENSIONS AND WEIGHT

VALVE SIZE INCHES (MM)									
Dimension	2 (50)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)	12 (3000)	14 (350)	16 (400)
A	7.78 (198)	9.45 (240)	10.24 (260)	12.56 (319)	15.63 (397)	18.47 (469)	22.60 (574)	24.57 (624)	27.80 (706)
C & D	4.53 (115)	5.51 (140)	5.91 (150)	7.28 (185)	8.86 (225)	10.24 (260)	11.81 (300)	13.37 (340)	15.16 (385)
E	9.06 (230)	11.02 (280)	11.81 (300)	14.57 (370)	17.72 (450)	20.47 (520)	23.62 (600)	26.77 (680)	30.32 (770)
F	16.73 (425)	18.11 (460)	22.83 (580)	28.94 (735)	31.89 (810)	34.84 (885)	42.32 (1075)	45.28 (1150)	48.43 (1230)
H	3.24 (82)	3.94 (100)	4.96 (126)	6.85 (174)	8.35 (212)	9.92 (252)	11.69 (297)	13.35 (339)	14.88 (378)
APPROXIMATE WEIGHT IN POUNDS (Kg)									
Cast Iron	49 (22)	72 (33)	83 (38)	193 (88)	328 (149)	420 (191)	663 (301)	977 (443)	1292 (586)
Bronze	54 (24)	79 (36)	99 (45)	225 (102)	368 (167)	470 (213)	717 (325)	1089 (494)	1507 (684)
Steel	65 (29)	95 (43)	110 (50)	250 (113)	440 (200)	560 (254)	880 (399)	1300 (590)	1800 (816)



TYPICAL INSTALLATION



LEAKAGE RATE

Non-contact metal to metal rotor seats require no maintenance. Close tolerances limit leakage.

Size	Leakage Rate C_v	Max. Leakage in GPM
2G	0.6	$Q = C_v \sqrt{\Delta P}$
3G	1.0	
4G	1.9	$Q =$ Leakage in GPM $C_v =$ Flow Coefficient $\Delta P =$ Differential Pressure
6G	3.4	
8G	4.9	
10G	6.2	
12G	8.8	
14G	11.1	
16G	14.1	

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