

### Butterfly Valve with ANSI Class 150 Lug types

- Disc 316 stainless steel
- Bubble tight shut-off
- Teflon seat
- Valve face-to-face dimensions comply with API 609 & MSS-SP-67
- For use with dead-end service
- Completely assembled and tested, ready for installation



5-year warranty

### Type overview

Type	DN
F650-150SHP	50

### Technical data

Functional data	Valve size [mm]	2" [50]
	Fluid	chilled or hot water, up to 60% glycol, steam
	Fluid Temp Range (water)	-22...400°F [-30...204°C]
	Body Pressure Rating	ANSI Class 150
	Close-off pressure Δps	285 psi
	Flow characteristic	modified equal percentage, unidirectional
	Pipe connection	Flange for use with ASME/ANSI class 150
	Servicing	maintenance-free
	Flow Pattern	2-way
	Leakage rate	0%
	Controllable flow range	quarter turn, mechanically limited
	Cv	102
	Maximum Inlet Pressure (Steam)	50 psi
	Maximum Velocity	32 FPS
	Lug threads	5/8-11 UNC
Materials	Valve body	Carbon steel full lug (ASME B16.34)
	Stem	17-4 PH stainless steel
	Seat	RPTFE
	Bearing	glass backed PTFE
	Disc	316 stainless steel
Suitable actuators	Non Fail-Safe	PRB(X) GMB(X)
	Spring	2*AFB(X)
	Electrical fail-safe	PKRB(X) GKRB(X)

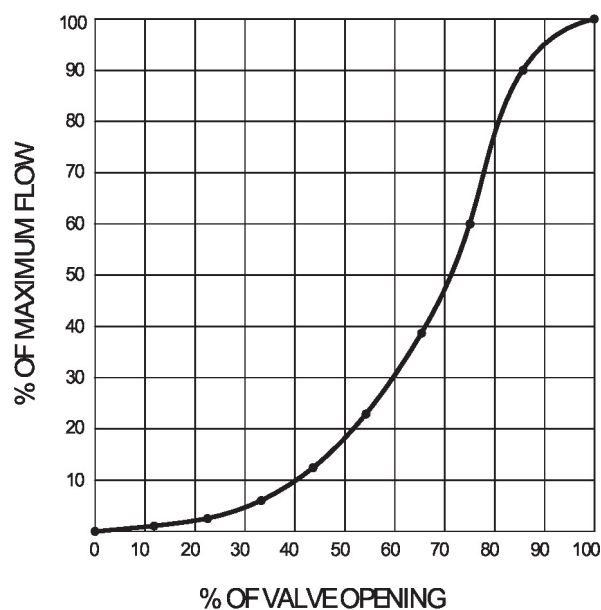
### Safety notes



- WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

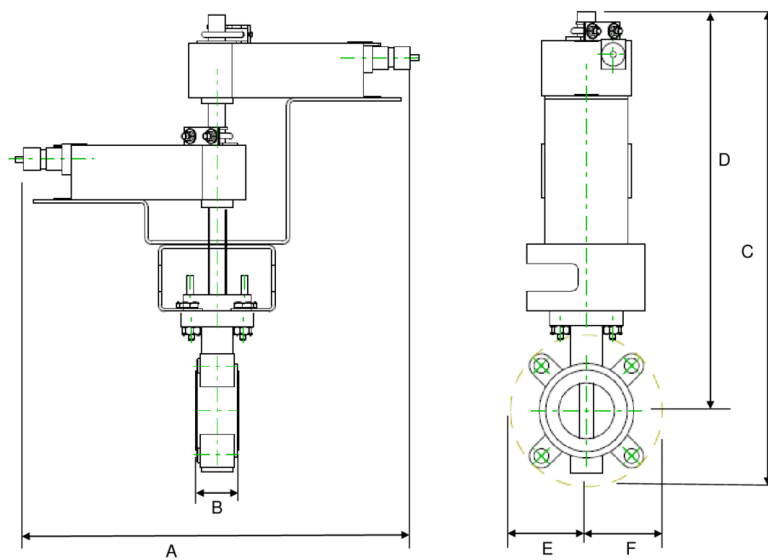
## Product features

## Flow/Mounting details

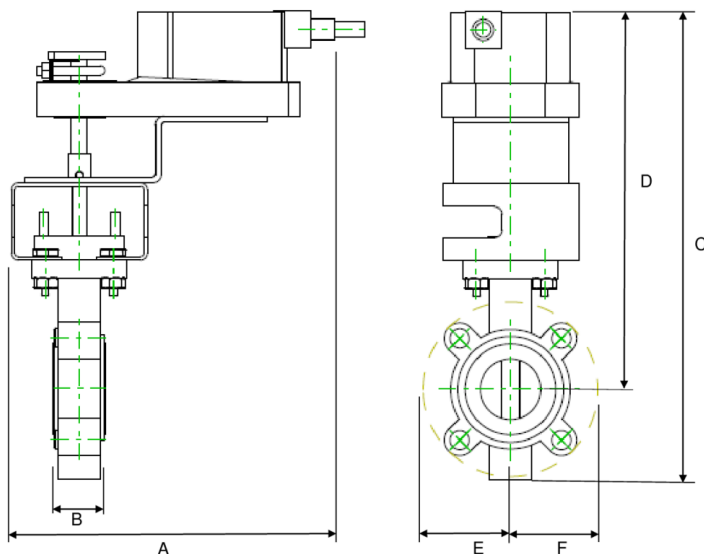


## Dimensions

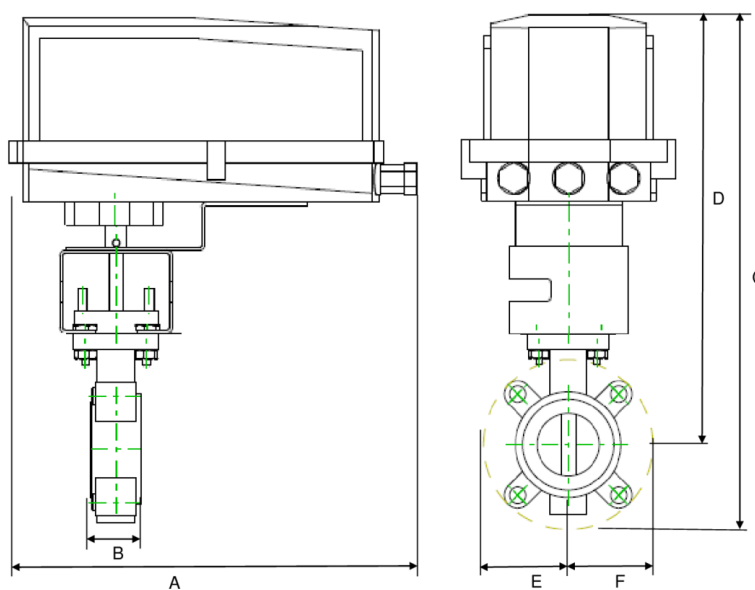
Type	DN	Weight
F650-150SHP	50	270 lb [120 kg]



A	B	C	D	E	F	Number of Bolt Holes
18.0" [457]	1.8" [45]	20.0" [509]	17.0" [431]	2.9" [73]	2.9" [73]	4



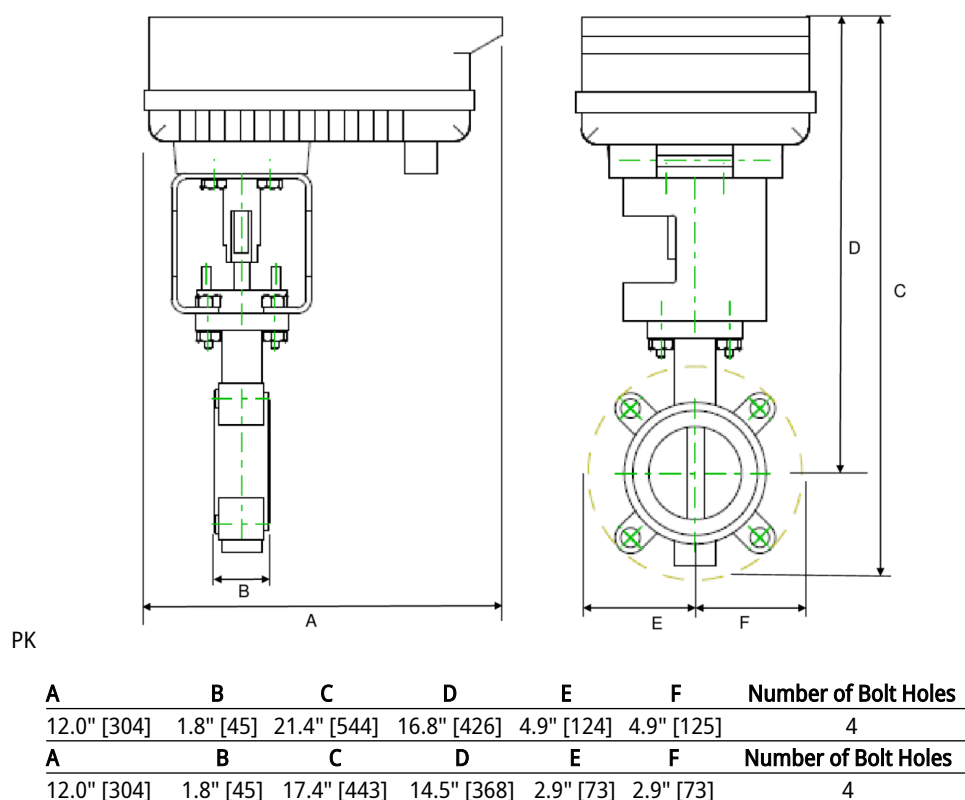
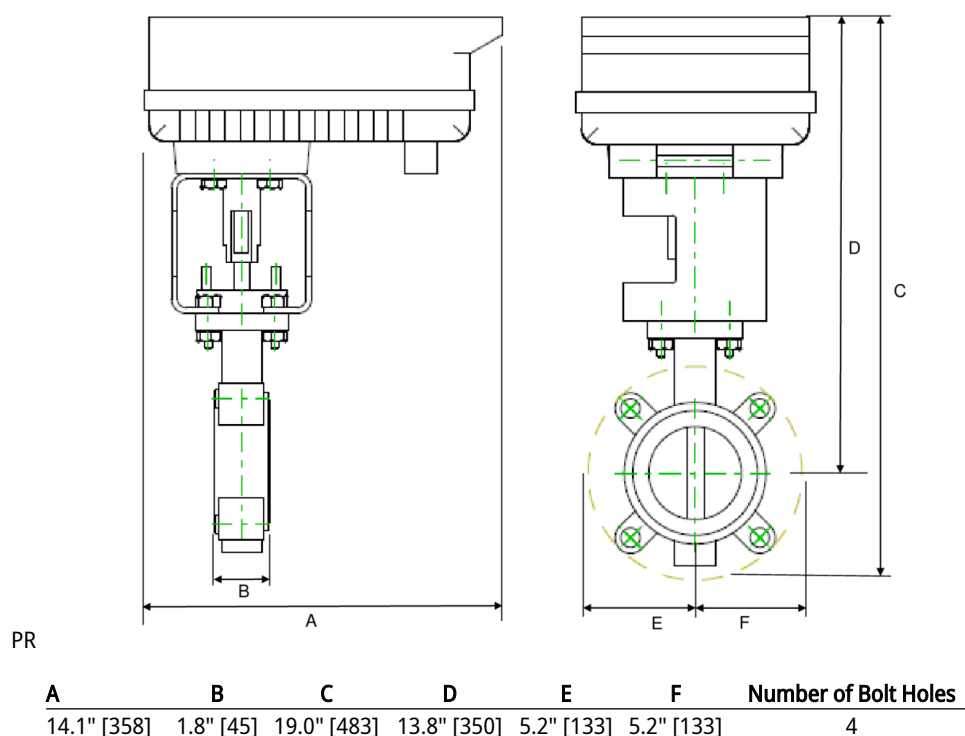
A	B	C	D	E	F	Number of Bolt Holes
10.9" [277]	1.8" [45]	17.2" [438]	12.5" [318]	4.9" [124]	4.9" [125]	4

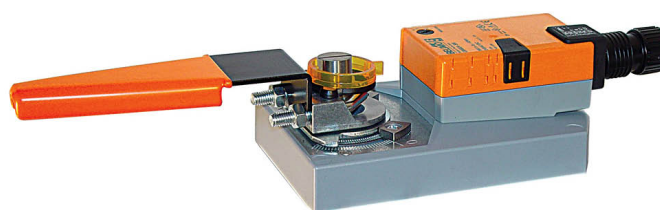


GM N4

A	B	C	D	E	F	Number of Bolt Holes
9.1" [231]	1.8" [45]	13.0" [330]	9.2" [234]	3.9" [100]	3.9" [100]	4

## Dimensions





5-year warranty



## Technical data

<b>Electrical data</b>	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	4 W
	Power consumption in rest position	2 W
	Transformer sizing	6 VA
	Electrical Connection	18 GA plenum cable, 1 m, with 1/2" NPT conduit connector, degree of protection NEMA 2 / IP54
	Overload Protection	electronic throughout 0...95° rotation
<b>Functional data</b>	Torque motor	40 Nm
	Direction of motion motor	selectable with switch 0/1
	Manual override	external push button
	Angle of rotation	Max. 95°
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	150 s / 90°
	Running time motor note	constant, independent of load
	Noise level, motor	45 dB(A)
	Position indication	Mechanical, 30...65 mm stroke
<b>Safety data</b>	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2
	Enclosure	UL Enclosure Type 2
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02 CE acc. to 2014/30/EU and 2014/35/EU
	Quality Standard	ISO 9001
	UL 2043 Compliant	Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
<b>Weight</b>	Weight	4.1 lb [1.9 kg]
<b>Materials</b>	Housing material	Galvanized steel and plastic housing

**Footnotes** †Rated Impulse Voltage 800V, Type action 1, Control Pollution Degree 3.

## Accessories

Electrical accessories	Description	Type
	Battery backup system, for non-spring return models	NSV24 US
	Battery, 12 V, 1.2 Ah (two required)	NSV-BAT
	Feedback potentiometer 140 $\Omega$ add-on, grey	P140A GR
	Feedback potentiometer 500 $\Omega$ add-on, grey	P500A GR
	Feedback potentiometer 1 k $\Omega$ add-on, grey	P1000A GR
	Feedback potentiometer 2.8 k $\Omega$ add-on, grey	P2800A GR
	Feedback potentiometer 5 k $\Omega$ add-on, grey	P5000A GR
	Feedback potentiometer 10 k $\Omega$ add-on, grey	P10000A GR
	Auxiliary switch 1x SPDT add-on	S1A
	Auxiliary switch 2x SPDT add-on	S2A

## Electrical installation

### ✂ INSTALLATION NOTES

- A** Actuators with appliance cables are numbered.
- 1** Provide overload protection and disconnect as required.
- 3** Actuators may also be powered by DC 24 V.
- 6** Actuators Hot wire must be connected to the control board common. Only connect common to neg. (-) leg of control circuits. Terminal models (-T) have no-feedback.
- 11** Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.

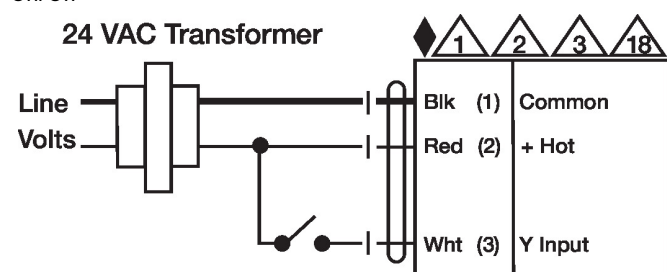
**◆** Meets cULus requirements without the need of an electrical ground connection.

### **⚠ Warning! Live electrical components!**

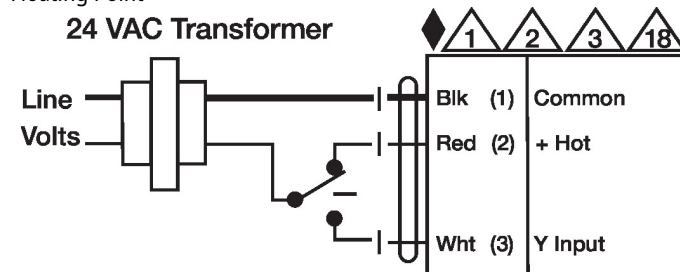
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

### Wiring diagrams

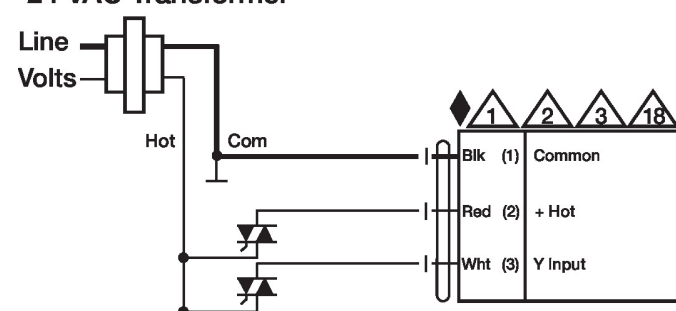
#### On/Off



#### Floating Point



#### 24 VAC Transformer



#### Floating Point - Triac Sink

