

**Butterfly Valve with Lug types**

- Disc 304 stainless steel
- Bubble tight shut-off
- Resilient seat
- Valve face-to-face dimensions comply with API 609 & MSS-SP-67
- Completely assembled and tested, ready for installation



5-year warranty

**Type overview**

<b>Type</b>	<b>DN</b>
F650HD	50

**Technical data**

<b>Functional data</b>	Valve size [mm]	2" [50]
	Fluid	chilled or hot water, up to 60% glycol
	Fluid Temp Range (water)	-22...250°F [-30...120°C]
	Body Pressure Rating	ANSI Class Consistent with 125, 232 psi CWP
	Close-off pressure Δps	200 psi
	Flow characteristic	modified equal percentage
	Leakage rate	0% leakage, leakage rate A
	Servicing	maintenance-free
	Flow Pattern	2-way
	Controllable flow range	90° rotation
	Cv	115
	Maximum Velocity	12 FPS
	Lug threads	5/8-11 UNC
<b>Materials</b>	Valve body	Ductile cast iron ASTM A536
	Body finish	epoxy powder coating (blue RAL 5002)
	Stem	416 stainless steel
	Stem seal	EPDM (lubricated)
	Seat	EPDM
	Pipe connection	for use with ANSI class 125/150 flanges
	Bearing	RPTFE
	Disc	304 stainless steel
Gear operator materials	Gears - hardened steel	
<b>Suitable actuators</b>	Non-Spring	ARB(X) GRB(X)
	Spring	AFRB(X)

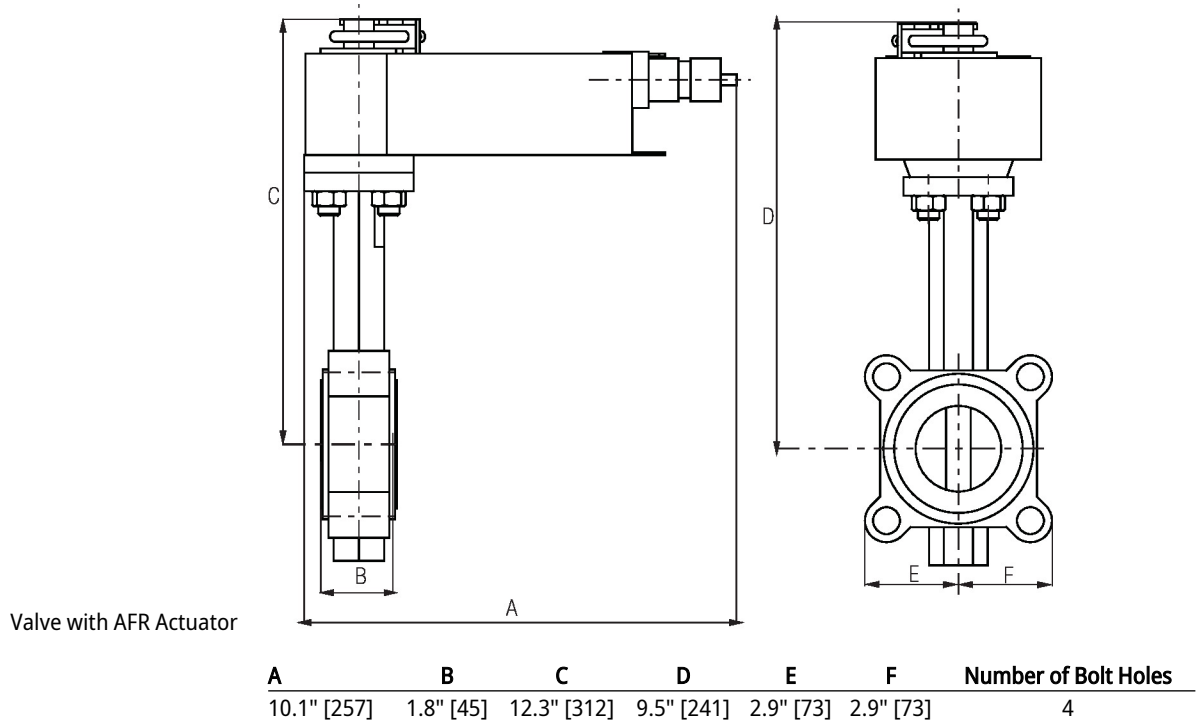
Product features

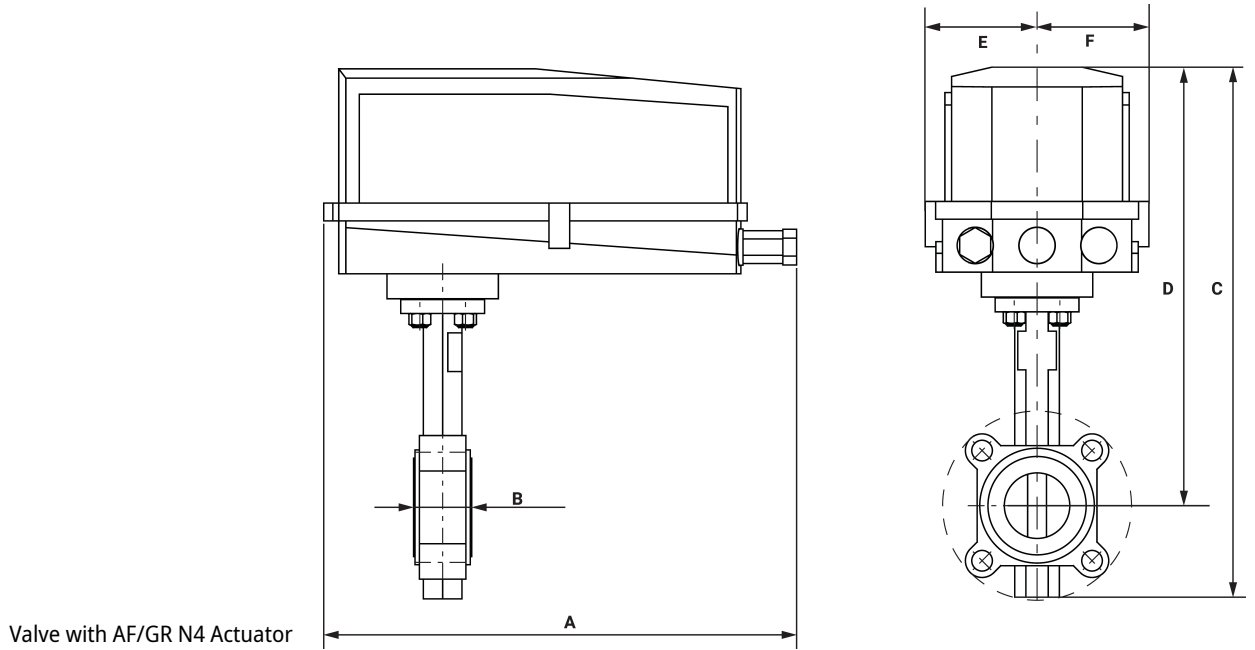
Flow/Mounting details



Dimensions

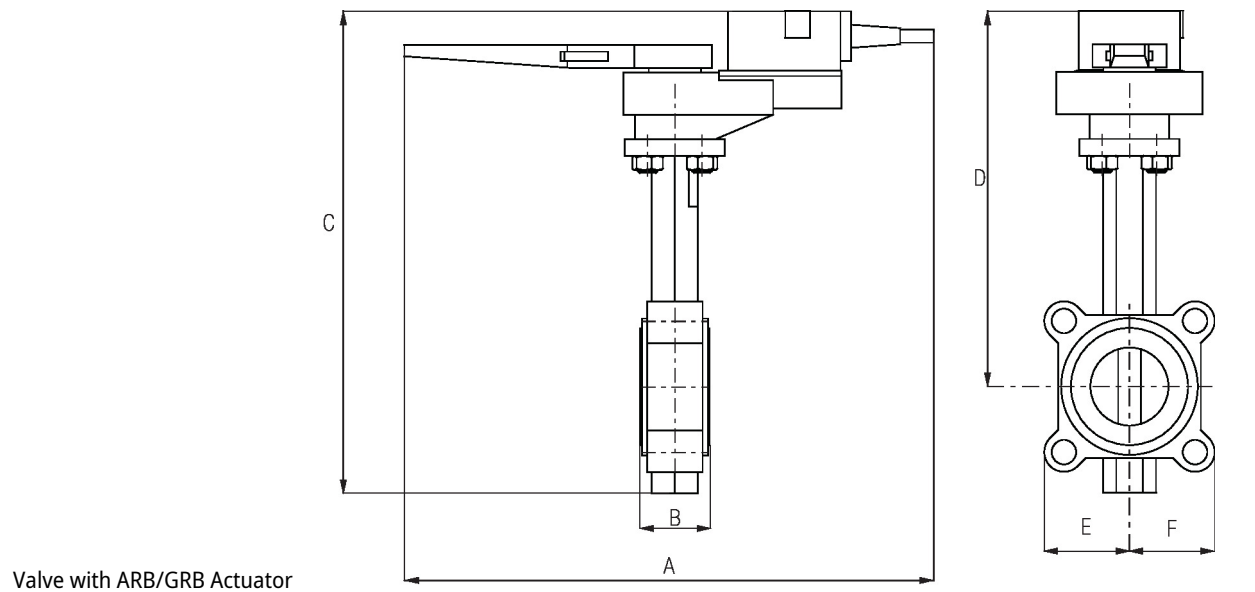
Type	DN	Weight
F650HD	50	5.3 lb [2.4 kg]





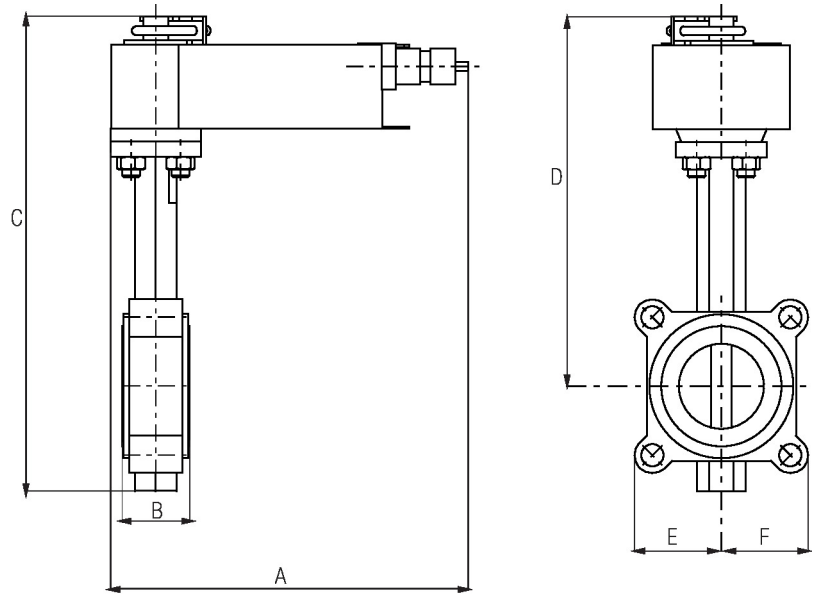
Valve with AF/GR N4 Actuator

A	B	C	D	E	F	Number of Bolt Holes
14.5" [368]	1.8" [45]	16.1" [409]	13.3" [338]	3.4" [86]	3.4" [86]	4



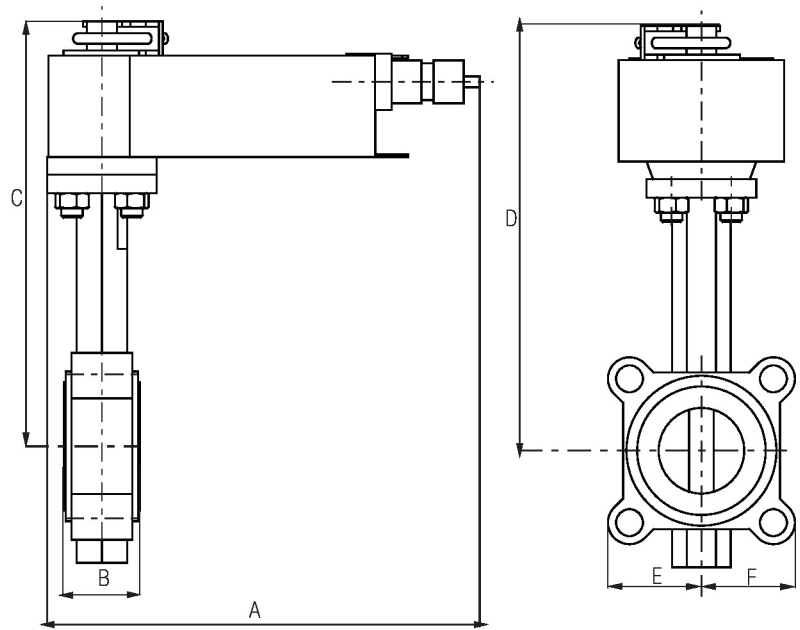
Valve with ARB/GRB Actuator

A	B	C	D	E	F	Number of Bolt Holes
14.6" [370]	1.8" [45]	12.4" [314]	9.7" [246]	2.9" [73]	2.9" [73]	4



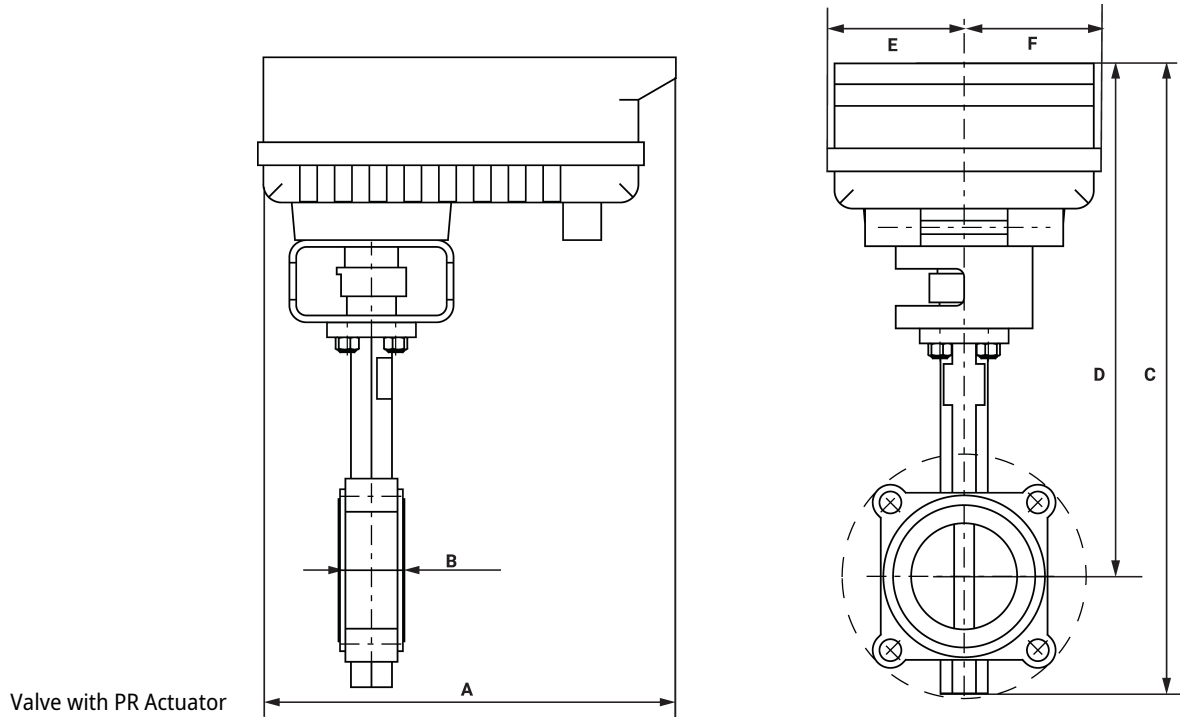
Valve with AFB/AFX Actuator

A	B	C	D	E	F	Number of Bolt Holes
10.1" [257]	1.8" [45]	15.1" [384]	12.4" [315]	2.9" [73]	2.9" [73]	4



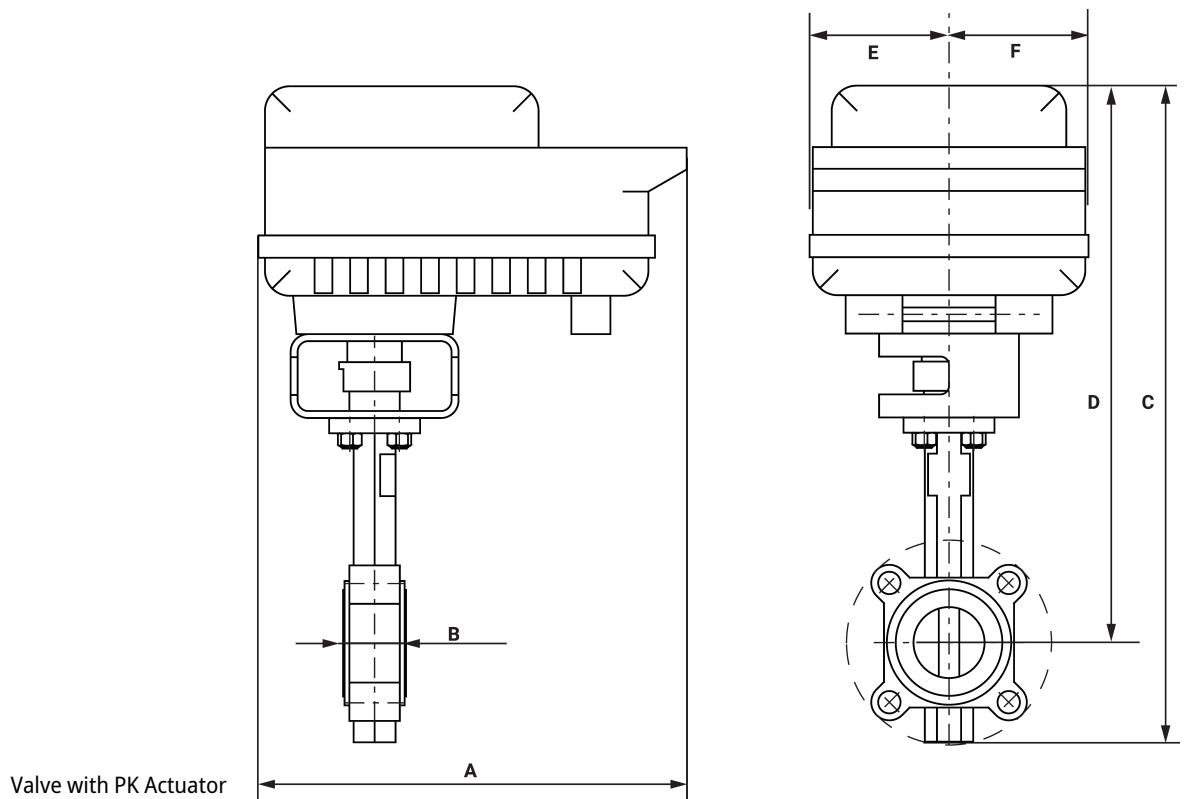
Valve with AMB/AMX Actuator

A	B	C	D	E	F	Number of Bolt Holes
8.3" [211]	1.8" [45]	15.1" [384]	12.4" [315]	2.9" [73]	2.9" [73]	4



Valve with PR Actuator

A	B	C	D	E	F	Number of Bolt Holes
12.0" [304]	1.8" [45]	16.7" [425]	13.9" [354]	3.9" [100]	3.9" [100]	4



Valve with PK Actuator

A	B	C	D	E	F	Number of Bolt Holes
12.0" [304]	1.8" [45]	18.5" [470]	15.7" [399]	3.9" [100]	3.9" [100]	4
A	B	C	D	E	F	Number of Bolt Holes
10.8" [275]	1.8" [45]	13.0" [330]	10.2" [260]	2.9" [73]	2.9" [73]	4



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	2.5 W
	Power consumption in rest position	0.5 W
	Transformer sizing	5.5 VA
	Electrical Connection	18 GA plenum cable, 1 m, with 1/2" conduit connector, degree of protection NEMA 2 / IP54
	Overload Protection	electronic throughout 0...90° rotation
<b>Functional data</b>	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)	90 s / 90°
	Running time motor note	constant, independent of load
	Position indication	Mechanically, 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...149°F [-30...65°C]
	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
	<b>Weight</b>	Weight
<b>Materials</b>	Housing material	Galvanized steel and plastic housing

**Footnotes** †Rated Impulse Voltage 800V, Type action 1.B, 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

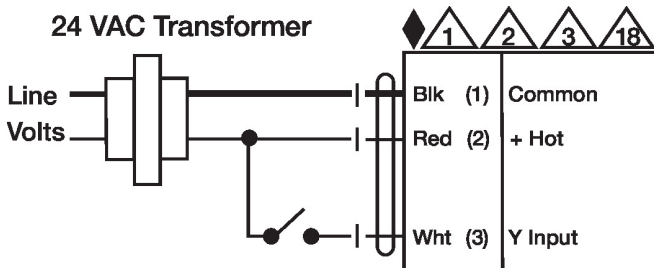
Electrical installation

**✂ INSTALLATION NOTES**

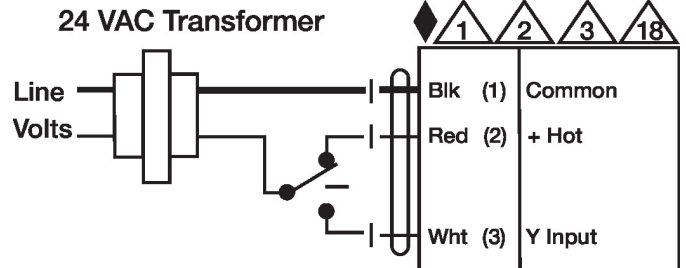
- (A)** Actuators with appliance cables are numbered.
- (1)** Provide overload protection and disconnect as required.
- (2)** Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- (3)** Actuators may also be powered by DC 24 V.
- (6)** Actuators Hot wire must be connected to the control board common. Only connect common to neg. (-) leg of control circuits. Terminal models (-T) have no-feedback.
- (18)** Actuators with plenum cable do not have numbers; use color codes instead.
- ◆** Meets cULus requirements without the need of an electrical ground connection.
- (1) 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**

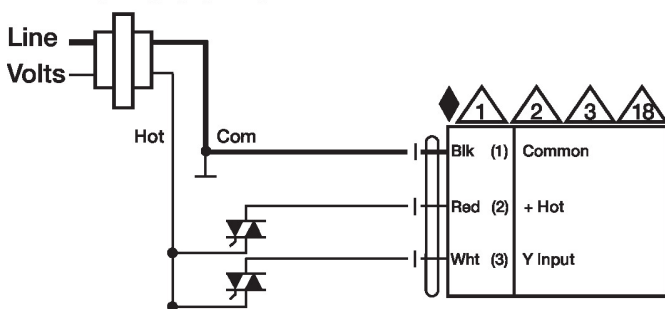
On/Off



Floating Point



**24 VAC Transformer**



Floating Point - Triac Sink

**24 VAC Transformer**

