

## Series 65

UL Listed Basic Untrimmed Valve Model: 65FC

The series 65 control valves are automatic, hydraulically actuated, diaphragm operated, rigid seal globe and angle pattern valves. These valves are designed for use in fire protection applications, including deluge, pressure control, water, foam and seawater fire protection systems. The valves consist of three major components: the body, the bonnet and the internal diaphragm assembly.



Model 65FC

### CERTIFICATION & COMPLIANCE



- Valves are UL Listed under the following categories:
  - "Fire Pump Relief Valves" (QXZQ)
  - "Special Systems Water Control Valves" Deluge (VLFT)
  - "Special Systems Water Control Valves, Pressure Reducing and Pressure Control" (VLMT)
- The valves are FM approved under the following categories:
  - "Water Pressure Reg Valves" (1363)
  - "Water Pressure Relief Valves" (1361)
- ABS type approval
- Fire tested to EN ISO 19921

*Consult the UL Listing Guide, FM Approval Guide, or contact OCV Fluid Solutions for a complete list of approved applications and valve sizes.*

### FEATURES

- Listed & approved for use in fire protection systems by various global standards
- Quick opening; Non-slam closing operation
- Drip-tight shut off to ANSI FCI 70-2 VI seat leakage class
- Simple and reliable construction
- Easy installation & maintenance
- High-grade construction materials
- Reliable pressure control
- Low pressure losses at high flow rates

### OPTIONAL FEATURES

- Local or remote reset
- Electric, pneumatic & electro-pneumatic control trims
- Explosion proof solenoids & trim accessories
- Seawater & foam concentrate services

**OPERATION**

**Valve Closed**

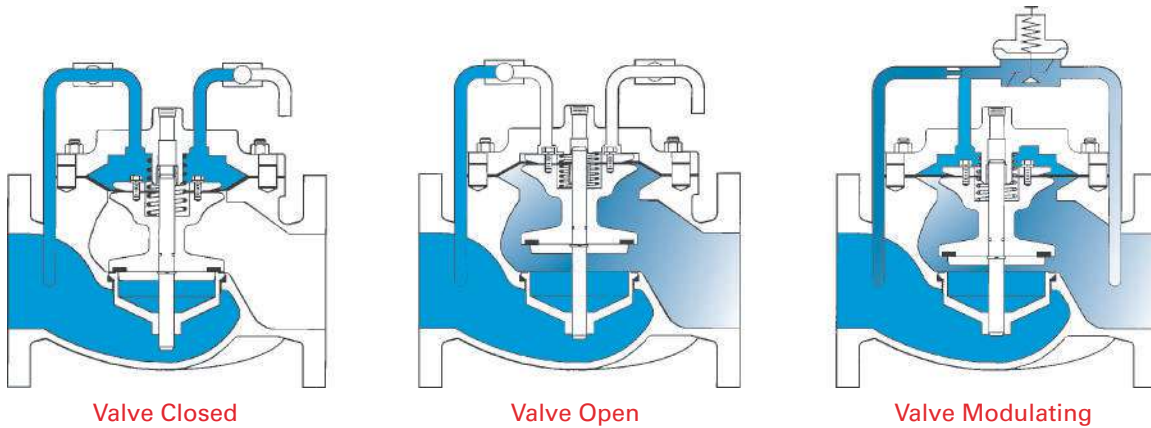
When line pressure from the valve inlet is applied to the cover chamber, pressurizing the diaphragm, the valve is closed drip-tight.

**Valve Open**

When cover chamber pressure is vented, the valve shifts to the fully open position.

**Valve Modulating**

The valve is between fully open and closed positions. The valve's control pilot modulates the pressure in the cover chamber, positioning the valve to control the desired pressure or flow. OCV pilot systems provide accurate control in a wide range of performance requirements.



**FLOW CHARACTERISTICS**

VALVE SIZE	US	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
	METRIC	DN32	DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN600
GLOBE Cv	US	23	27	47	68	120	200	450	760	1250	1940	2200	2850	6900
	METRIC	20	23	40.5	59	104	173	389	657.5	299	1081	1903	2465	5968.5
ANGLE Cv	US	30	35	65	87	160	270	550	1000	1600	2400	--	4000	--
	METRIC	26	30	56	75	138.5	233.5	476	865	1384	2076	--	3460	--

$$DP = sg (Q/Cv)^2$$

where:

Q = Flow Rate in USGPM (U.S.) or Q = Flow Rate in cubic meters/sec (Metric)

Cv = Flow Rate in USGPM @ 1 psi pressure drop (U.S.) or

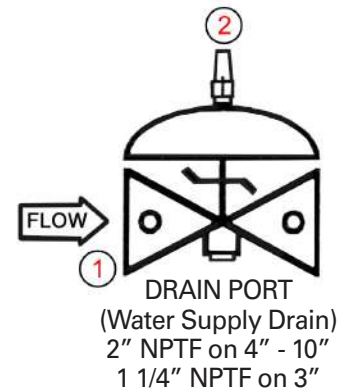
Cv = Flow Rate in cubic meters/sec @ 1 bar pressure drop (Metric)

DP = Pressure Drop in psi (U.S.) or DP = Pressure Drop in bar (Metric)

sg = Specific Gravity of line fluid

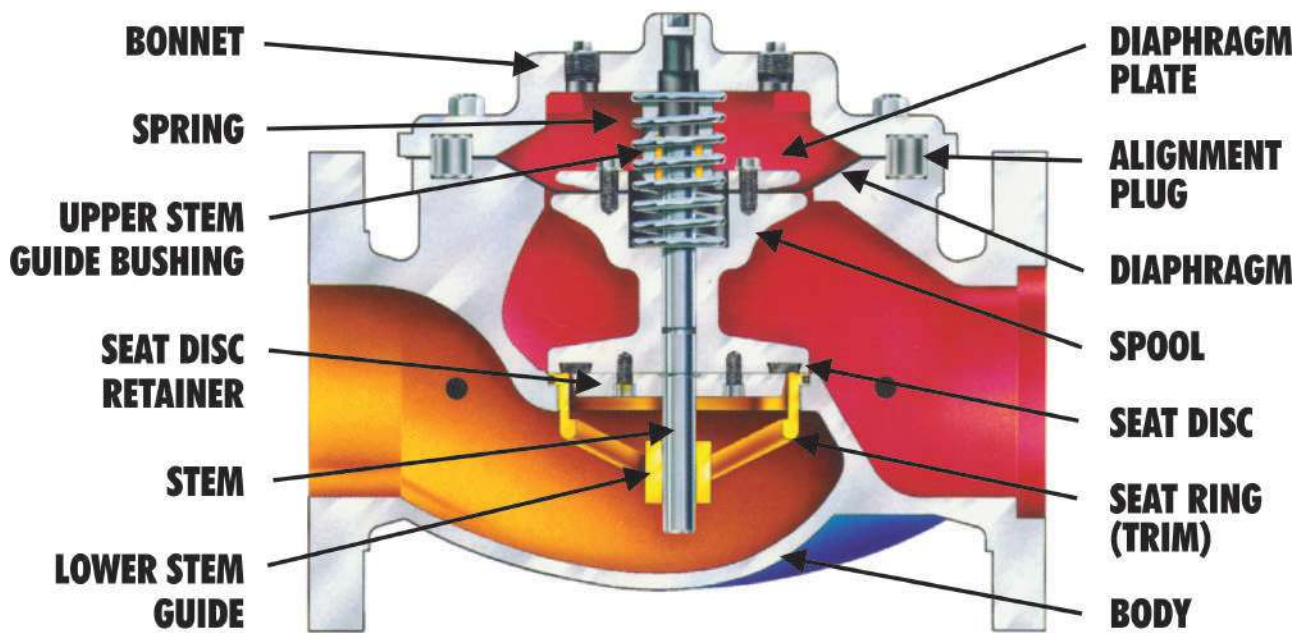
The Model 65FC consists of the following components, arranged as shown on the schematic diagram:

- [1] **Model 65FC Basic Control Valve:** a UL Listed, hydraulically operated, diaphragm actuated globe valve which closes with an elastomer-on-metal seal.
- [2] **Model 155 Visual Indicator Assembly:** (optional) provides indication of valve position at a glance.



**BASIC VALVE COMPONENTS**

Description	Standard	Optional
Valve Body	Ductile Iron	Cast Steel, Stainless Steel, NAB
Seat Ring	Bronze	Stainless Steel, NAB
Stem	Stainless Steel	Monel
Spring	Stainless Steel	Elgiloy / MP35N
Diaphragm	Buna-N	EPDM
Seat Disc	Buna-N	EPDM
Pressure Relief Pilot	Bronze	Stainless Steel, NAB
Tubing / Fittings	Copper, Bronze/Brass	Stainless Steel



\* General representation of valve

**BASIC VALVE DIMENSIONS**

**U.S. DIMENSIONS - INCHES**

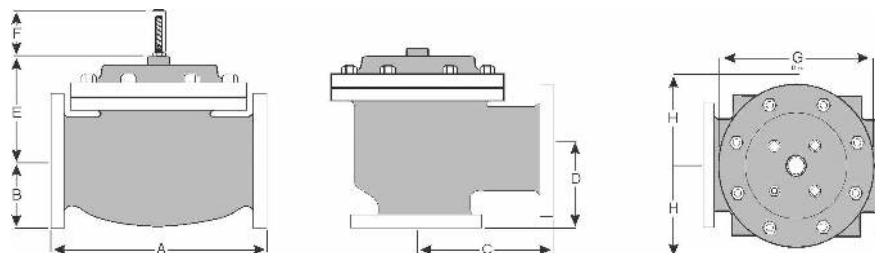
DIM	END CONN.	1 1/4" - 1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
A	THREADED	8 3/4	9 7/8	10 1/2	13	---	---	---	---	---	---	---	---
	GROOVED	8 3/4	9 7/8	10 1/2	13	15 1/4	--	--	---	---	---	---	---
	150# FLGD	8 1/2	9 3/8	10 1/2	12	15	17 3/4	25 3/8	29 3/4	34	39	40 3/8	62
	300# FLGD	8 3/4	9 7/8	11 1/8	12 3/4	15 5/8	18 5/8	26 3/8	31 1/8	35 1/2	40 1/2	42	62 3/4
B	THREADED	1 7/16	1 1/16	1 7/8	2 1/4	---	---	---	---	---	---	---	---
	GROOVED	1*	1 3/16	1 7/16	1 3/4	2 1/4	---	---	---	---	---	---	---
	150# FLGD	2 5/16 - 2 1/2	3	3 1/2	3 3/4	4 1/2	5 1/2	6 3/4	8	9 1/2	10 5/8	11 3/4	16
	300# FLGD	2 5/8 - 3 1/16	3 1/4	3 3/4	4 1/8	5	6 1/4	7 1/2	8 3/4	10 1/4	11 1/2	12 3/4	18
C	THREADED	4 3/8	4 3/4	6	6 1/2	---	---	---	---	---	---	---	---
	GROOVED	4 3/8*	4 3/4	6	6 1/2	7 5/8	---	---	---	---	---	---	---
	150# FLGD	4 1/4	4 3/4	6	6	7 1/2	10	12 11/16	14 7/8	17	---	20 13/16	---
	300# FLGD	4 3/8	5	6 3/8	6 3/8	7 13/16	10 1/2	13 3/16	15 9/16	17 3/4	---	21 5/8	---
D	THREADED	3 1/8	3 7/8	4	4 1/2	---	---	---	---	---	---	---	---
	GROOVED	3 1/8*	3 7/8	4	4 1/2	5 5/8	---	---	---	---	---	---	---
	150# FLGD	3	3 7/8	4	4	5 1/2	6	8	11 3/8	11	---	15 11/16	---
	300# FLGD	3 1/8	4 1/8	4 3/8	4 3/8	5 13/16	6 1/2	8 1/2	12 1/16	11 3/4	---	16 1/2	---
E	ALL	6	6	7	6 1/2	8	10	11 7/8	15 3/8	17	18	19	27
F	ALL	3 7/8	3 7/8	3 7/8	3 7/8	3 7/8	3 7/8	6 3/8	6 3/8	6 3/8	6 3/8	6 3/8	8
G	ALL	6	6 3/4	7 11/16	8 3/4	11 3/4	14	21	24 1/2	28	31 1/4	34 1/2	52
H	ALL	10	11	11	11	12	13	14	17	18	20	20	28 1/2

\* GROOVED END NOT AVAILABLE IN 1 1/4"

**METRIC DIMENSIONS - M.M.**

DIM	END CONN.	DN32-DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN600
A	THREADED	222	251	267	330	---	---	---	---	---	---	---	---
	GROOVED	222	251	267	330	387	--	--	---	---	---	---	---
	150# FLGD	216	238	267	305	381	451	645	756	864	991	1026	1575
	300# FLGD	222	251	283	324	397	473	670	791	902	1029	1067	1619
B	THREADED	37	43	48	57	---	---	---	---	---	---	---	---
	GROOVED	25*	30	37	44	57	---	---	---	---	---	---	---
	150# FLGD	59-64	76	89	95	114	140	171	203	241	270	298	406
	300# FLGD	67-78	83	95	105	127	159	191	222	260	292	324	457
C	THREADED	111	121	152	165	---	---	---	---	---	---	---	---
	GROOVED	111*	121	152	165	194	---	---	---	---	---	---	---
	150# FLGD	108	121	152	152	191	254	322	378	432	---	529	---
	300# FLGD	111	127	162	162	198	267	335	395	451	---	549	---
D	THREADED	79	98	102	114	---	---	---	---	---	---	---	---
	GROOVED	79*	98	102	114	143	---	---	---	---	---	---	---
	150# FLGD	76	98	102	102	140	152	203	289	279	---	398	---
	300# FLGD	79	105	111	111	148	165	216	306	298	---	419	---
E	ALL	152	152	178	165	203	254	302	391	432	457	483	686
F	ALL	98	98	98	98	98	162	6 3/8	162	162	162	162	203
G	ALL	152	171	195	222	298	356	533	711	794	794	876	1321
H	ALL	254	279	279	279	305	330	356	457	508	508	508	724

\* GROOVED END NOT AVAILABLE IN 1 1/4"



\* General representation of valve

**SPECIFICATIONS**

VALVE BODY & BONNET	Ductile Iron	Cast Steel	Stainless Steel
Material Specification	ASTM A536/65-45-12	ASTM A216/WCB	ALL GRADES
<b>END CONNECTIONS</b>			
Flange Standard (also available in metric)	ANSI B16.42		ANSI B16.5
Flange Class	150#	300#	150#
Flange Face	Flat	Raised	Raised
Maximum Working Pressure	250psi	640psi	285psi
Threaded Working Pressure: ANSI B1.20.1 640psi		Grooved End Working Pressure: 300psi	
<b>INTERNALS</b>			
Stem	Stainless Steel		
Spring	Stainless Steel		
Spool	Ductile Iron (epoxy coated) / Optional - Stainless Steel		Stainless Steel
Seat Disc Retainer	Ductile Iron (epoxy coated) (10" & Larger)		Stainless Steel
	Stainless Steel (8" & Smaller / Optional - All Sizes)		
Diaphragm Plate	Ductile Iron (epoxy coated) / Optional - Stainless Steel		Stainless Steel
Seat Ring Trim	Low-Lead Bronze or Stainless Steel		Stainless Steel
Upper Stem Bushing	Bronze or Teflon®		Teflon®
Lower Stem Bushing	Not Applicable for Low-Lead Bronze Seat Rings / Teflon® for Stainless Steel Seat Rings		
<b>ELASTOMER PARTS (Rubber)</b>			
Diaphragm/Seat Disc/O-Rings	EPDM, BUNA-N		
Operating Temperature*	BUNA-N = 32°F to 180°F, EPDM = 32°F to 230°F		
<b>COATINGS</b>			
Epoxy Coating			
<b>ELECTRICAL SOLENOIDS</b>			
Bodies	Brass / Stainless Steel		
Enclosures	Water Tight, NEMA 1, 3, 4, & 4X		
Power	AC, 60HZ - 24, 120, 240, 480 Volts	AC, 50HZ - In 110 Volt Multiples	DC, 6, 12, 24, 240 Volts
Operation	Energize to Open De-Energize to Open		
<b>CONTROL PILOTS</b>			
Bodies	Low-Lead Bronze	Stainless Steel, Monel	
Internal	Stainless Steel	Stainless Steel, Monel	
Tubing	Copper	Stainless Steel	
Fittings	Low-Lead Bronze	Stainless Steel	

\*Consult Factory when temperatures approach low or high temperature allowance



**Globe Flanged Sizes**

1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"*	20"*	24"
32mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm	2850	450mm*	500mm*	600mm

\* Consult factory



**Angle Flanged Sizes**

1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	16"
32mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm	250mm	300mm	400mm



**Globe/Angle Threaded Sizes**

1 1/4"	1 1/2"	2"	2 1/2"	3"
32mm	40mm	50mm	65mm	80mm



**Globe/Angle Grooved Sizes**

1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"*
32mm	40mm	50mm	65mm	80mm	100mm	150mm*

\* Consult factory

## TECHNICAL DATA

**Temperature:**

- Water up to 110°C / 230°F max

**Sizes:**

- Globe: 1.25" - 24" / 32-600 mm
- Angle: 1.25" - 16" / 32-400 mm

**End Connections:**

- Flanged:  
ISO PN16 & PN25  
ASME/ANSI B16.42 & B16.5  
Class #150 & #300
- Threaded: BSP / NPT
- Grooved: ASME/ANSI AWWA 606

**Pressure Rating (Ductile Iron at 100°F/37.8°C):**

- 250 psi for Class #150 & #300

**Body & Cover Material:**

- Ductile Iron ASTM A536
- Cast Steel ASTM A216
- Stainless Steel ASTM CF8M
- NAB ASTM B148 C-958000

**Coating Material:**

- High Built, Fusion Bonded Epoxy

**Optional Coating Material:**

- Seawater Coating

**Main Valve Trim Material:**

- Stainless Steel
- Bronze

**Elastomers:**

- EPDM
- BUNA-N
- Viton

**Control Trim & Accessories:**

- Bronze/Brass
- Brass
- Stainless Steel
- Monel
- NAB

**Optional Components:**

- Pressure Reducing Feature
- Position Indicator
- Pressure Switch
- Alarm Test Trim
- Drain Valve
- Explosion Proof
- Open/Close Speed Control
- Block & Bleed Valves for Pressure Sensing Control
- PPCS (Pneumatic Pressure Control System for Pneumatically Actuated Models)

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