



▲ Model 94-1QC

The Model 94-1QC non-surge check valve is a simple on/off valve which effectively minimizes pump start up surges. The 94-1QC opens at an adjustable speed to allow forward flow and closes quickly and tightly to prevent reverse flow.

## SERIES FEATURES

- ▶ Opens slowly on pump start
- ▶ Closes quickly on pump shut-down
- ▶ Visual indicator enables operator to determine valve position at a glance
- ▶ Can be maintained without removal from the line

## OPERATION

The 94-1QC operates on the balance between the inlet pressure, acting under the seat of the valve, and the downstream pressure, acting on the diaphragm via the hydraulic lines. When the inlet pressure is the greater of the two forces, the valve opens at the rate set by the opening speed control (2). When the downstream pressure is greater, the valve is forced fully closed through the check valve (3) and the free-flow direction of the opening speed control.

## COMPONENTS

The Model 94-1QC consists of the following components, arranged as shown on the schematic diagram:

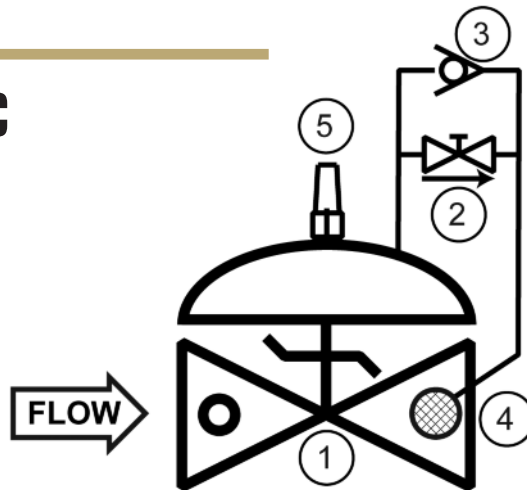
- 1.) Model 65 Basic Control Valve
- 2.) Model 141-3 Flow Control Valve (opening speed control)
- 3.) Model 141-1 Check Valve
- 4.) Model 123 Inline Strainer
- 5.) 155 Visual Indicator

## SIZING

The 94-1QC is normally sized to match the line size; however, in no case should the maximum velocity exceed 15 ft/sec, as shown below.

SIZE	1 1/4", 1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
MAX. FLOW, GPM	90	150	210	345	600	1350	2250	3100	4500	5400	7200	18750

## SCHEMATIC



## RECOMMENDED INSTALLATION

Install the valve with adequate space above and around the valve to facilitate servicing. Refer to the Dimension Table.

Valve should be installed with the bonnet (cover) at the top, particularly 8" and larger valves, and any valve with a limit switch.

Shut-off valves should be installed upstream and downstream of the control valve. These are used to isolate the valve during start-up and maintenance.

## MAX. PRESSURE

(The pressures listed here are maximum working pressures at 100°F)

END CONNECTIONS	DUCTILE IRON	STEEL/STN STL	ALUMINUM
Threaded	640 psi	640 psi	285 psi
Grooved	300 psi	300 psi	200 psi
150# Flanged	250 psi	285 psi	285 psi
300# Flanged	640 psi	740 psi	---

# Model 94-1QC (Aviation Fueling)



## SIZES

Screwed Ends - 1 1/4" - 3"  
 Grooved Ends - 1 1/2" - 4" (globe)  
 1-1/2" - 4" (angle)  
 Flanged Ends - 1 1/4" - 24" (globe);  
 1 1/4" - 16" (angle)

## FLUID OPERATING TEMPERATURE

### RANGE (Valve Elastomers)

Buna-N -40°F to 180°F  
 Viton 20°F to 230°F  
 Fluorosilicone -40°F to 150°F  
 EPDM 0°F to 230°F

## MATERIALS

Consult factory for others.

**Body/Bonnet:** Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, Aluminum

**Seat Ring:** Stainless Steel, Bronze

**Stem:** Stainless Steel, Monel

**Spring:** Stainless Steel

**Diaphragm:** Buna-N, Viton, (Nylon reinforced)

**Seat Disc:** Buna-N, Viton

**Pilot:** Stainless Steel, Bronze

**Other pilot system components:**

Stainless Steel, Bronze/Brass

**Tubing & Fittings:** Stainless Steel, Copper/Brass

# SPECIFICATIONS (Typical Aviation Fueling Application)

The non-surge check valve shall function to prevent pump start-up surges and reverse flow by opening slowly after pump start and closing quickly when the pump stops. Valve opening speed shall be adjustable.

## DESIGN

The non-surge check valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled globe valve. The valve shall seal by means of a corrosion-resistant seat and a resilient, rectangular seat disc. These, and other parts, shall be replaceable without removing the valve from the line. The stem of the main valve shall be guided top and bottom by integral bushings. Alignment of the body, bonnet and diaphragm assembly shall be by precision dowel pins. The diaphragm shall not be used as a seating surface, nor shall the pistons be used as an operating means. The pilot system shall be furnished complete, installed on the main valve and include an opening speed control, pilot check valves and an inline strainer. The non-surge check valve shall be operationally and hydrostatically tested prior to shipment.

## MATERIALS OF CONSTRUCTION

The main valve body and bonnet shall be ductile iron. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be stainless steel. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. The opening speed control, check valves, and control line tubing shall be stainless steel.

## OPERATING CONDITIONS

The non-surge check valve shall be suitable for a flow rate of <X> gpm at maximum pressures of <X> psi.

## ACCEPTABLE PRODUCTS

The non-surge check valve shall be a <size> Model 94-1QC, <globe pattern, angle pattern>, with <150# flanged, 300# flanged, threaded, grooved> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

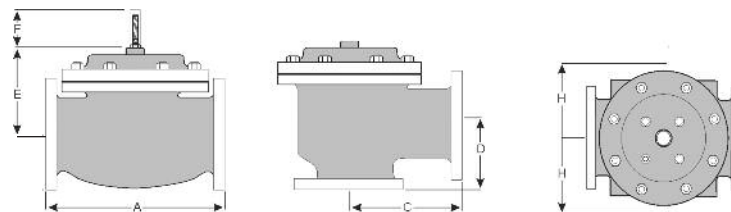
U.S. DIMENSIONS - INCHES

DIM	END CONN.	1 1/4-1 1/2	2	2 1/2	3	4	6	8	10	12	14	16	24
A	SCREWED	8 3/4	9 7/8	10 1/2	13	--	--	--	--	--	--	--	--
	GROOVED	8 3/4	9 7/8	10 1/2	13	15 1/4	20	--	--	--	--	--	--
	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
C	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	63 3/4
	SCREWED	4 3/8	4 3/4	6	6 1/2	--	--	--	--	--	--	--	--
	GROOVED	4 3/8*	4 3/4	6	6 1/2	7 5/8	--	--	--	--	--	--	--
ANGLE	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	--
	SCREWED	3 1/8	3 7/8	4	4 1/2	--	--	--	--	--	--	--	--
D	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 (OPT)	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	8
H	ALL	10	11	11	11	12	13	14	17	18	20	20	28 1/2

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

\*\*Note: for military fueling valves, 6" 150# flanges have 20" face to face dimensions and 6" 300# flanges have 21" face to face dimensions.

For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing 8" and larger valves, or any valves with a limit switch, in positions other than described. Space should be taken into consideration when mounting valves and their pilot systems.



United States/Canada Joint Certification Program (JCP)  
 Certification Number 0073030

A routine inspection & maintenance program should be established and conducted yearly by a qualified technician. Consult our factory @ 1-888-628-8258 for parts and service.

## How to order your Model 94-1QC valve

When ordering please provide:  
 Fluid to be controlled - Model Number - Size - Globe or Angle - End Connection - Body Material - Trim Material - Special Requirements / Installation Requirements

Represented by:

TOLL FREE 1.888.628.8258 • phone: (918)627.1942 • fax: (918)622.8916 • 7400 East 42nd Place, Tulsa, Oklahoma 74145  
 email: sales@controlvalves.com • website: www.controlvalves.com