

# VG221F 65-150C



## Two-way Pressure Balanced Globe Valve, Flanged, PN16

The VG221F 65-150C valve is primarily intended to be used in heating, cooling and air conditioning applications.

The VG221F 65-150C valve can be used with the following types of fluids:

- hot water, or deaerated cooling water.
- deaerated water with glycol-type antifreeze agent (max.50%)

With cooling medias at temperatures below 0°C a stem heater must be fitted, to protect from stem seizure due to freezing.

## SPECIFICATIONS

Design. . . . . two-way pressure balanced plug valve  
 Valve closed position. . . . . stem up closed  
 Pressure class . . . . . PN 16  
 Flow characteristics . . . . . EQ%  
 Rangeability  $K_v/K_{v_{min}}$  . . . . . >50  
 Stroke  
   DN 65 . . . . . 25 mm  
   DN 80 – DN 150 . . . . . 45 mm  
 Leakage . . . . . <0.03% of  $K_v$   
 $\Delta P_m$  . . . . . 200 kPa (29 psi), water  
 Max. temperature of medium . . . . . 150 °C  
 Min. temperature of medium . . . . . -10 °C  
 Connection . . . . . Flange according ISO 7005-2

### Materials

Body . . . . . Grey cast iron (EN JL1040)  
 Stem . . . . . Stainless steel (AISI 303)  
 Plug . . . . . Bronze (CB491K UNI EN 1982)  
 Seat . . . . . Grey cast iron (EN JL1040)  
 Packing box . . . . . FKM (Viton)

### NOTE:

It is the responsibility of the end user/ installer to check valve material compatibility against any media containing anti-freeze or anti-rust additives or water conditioners with the manufacturer or supplier of such solutions.

## ORDERING TABLE

| Size |     | Kvs<br>(m <sup>3</sup> /h) | Part number | Type Designation      | Stroke<br>(mm) |
|------|-----|----------------------------|-------------|-----------------------|----------------|
| in.  | DN  |                            |             |                       |                |
| 2½"  | 65  | 63                         | VG221F-65C  | VG221F-65C 63M SU00   | 25             |
| 3"   | 80  | 100                        | VG221F-80C  | VG221F-80C 100M SU00  | 45             |
| 4"   | 100 | 130                        | VG221F-100C | VG221F-100C 130M SU00 |                |
| 5"   | 125 | 200                        | VG221F-125C | VG221F-125C 200M SU00 |                |
| 6"   | 150 | 300                        | VG221F-150C | VG221F-150C 300M SU00 |                |

### Key to technical specifications

- The rangability is the ratio of  $K_v$ s and  $K_{v_{min}}$
  - $K_v$ s is the maximum flow capacity (m<sup>3</sup>/h) of a fully open valve at a pressure drop of 100 kPa across the seat.
  - $K_{v_{min}}$  is the minimum controllable flow (m<sup>3</sup>/h) at a pressure drop of 100 kPa
  - $\Delta P_m$  is the maximum allowable pressure drop across a fully open valve.
- $\Delta P_c$  is the maximum close off pressure the actuator will deliver

FUNCTION AND FLOW CHARACTERISTIC

The design of the VG221F plug is pressure balanced to ensure high close off pressure with lower actuator force.

The valve closes with the stem up.

The flow characteristic of the VG221F is equal percentage (EQ%, also called logarithmic).

this provides an equal percentage change in flow which is desirable in temperature control systems with large load variations.

INSTALLATION

The valve should be mounted with flow direction in accordance with the valve marking.

It is recommended to install the valve in the return pipe, in order to avoid exposing the actuator to high fluid temperatures.

The valve must not be mounted so that the actuator is positioned underneath the valve.

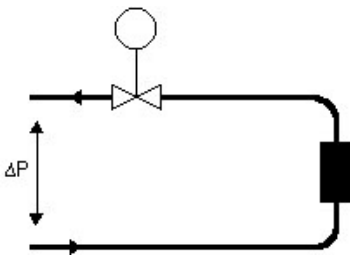
To ensure that suspended solids will not become jammed between the valve plug and seat, a filter should be installed upstream of the valve and the pipe system should be flushed before the valve is installed.

PRESSURE DROP PERFORMANCE vs ACTUATOR

| Size | Kvs<br>(m3/h) | M700               | MG900 SR | M800 | M1500/<br>MV15B |
|------|---------------|--------------------|----------|------|-----------------|
| DN   |               | $\Delta p_c$ (kPa) |          |      |                 |
| 65   | 63            | 1300               | 1600     | 1600 | 1600            |
| 80   | 100           | 1000               | ..       | 1450 |                 |
| 100  | 130           | 700                |          | 1000 |                 |
| 125  | 200           | 470                |          | 750  |                 |
| 150  | 300           | 300                |          | 550  | 1450            |

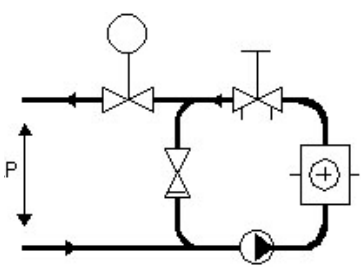
$\Delta P_c$  = Maximum allowed pressure drop across a closed valve (that the nominal force of the actuator will open or close against).

SCHEMATICS and PRESSURE DROP



A. Typical installation without local circulating pump.

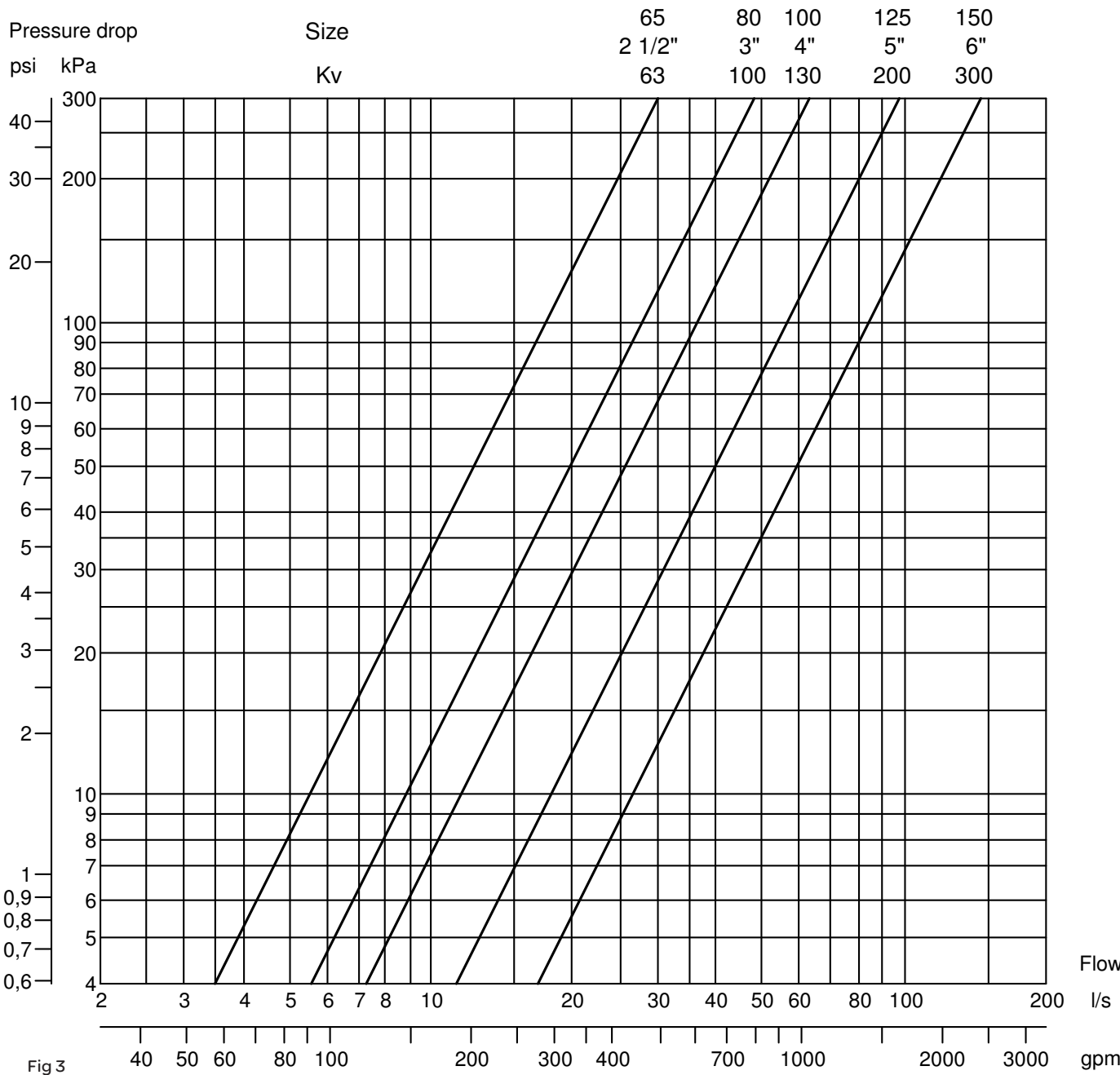
To provide a good function, the pressure drop across the valve should be no less than half of the available pressure ( $\Delta P$ ). This corresponds to a valve authority of 50%.



B. Typical installation with local circulating pump.

The  $K_v$  value of the valve to be selected so that the entire available pressure drop ( $\Delta P$ ) falls across the control valve.

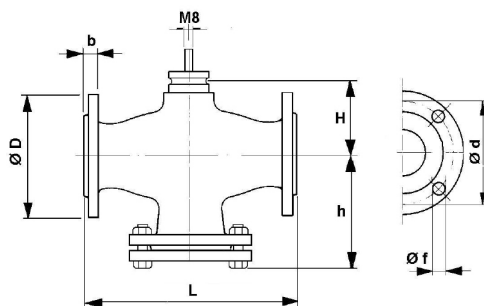
PRESSURE DROP CHART - Water



SPARES and ACCESSORIES

- Stem packing gland (all sizes)..... 1-001-0810-0
- Forta Yoke Heater (-8°C Media) .....FYH050
- Stem Heater (-10°C Media).....880-0108-000

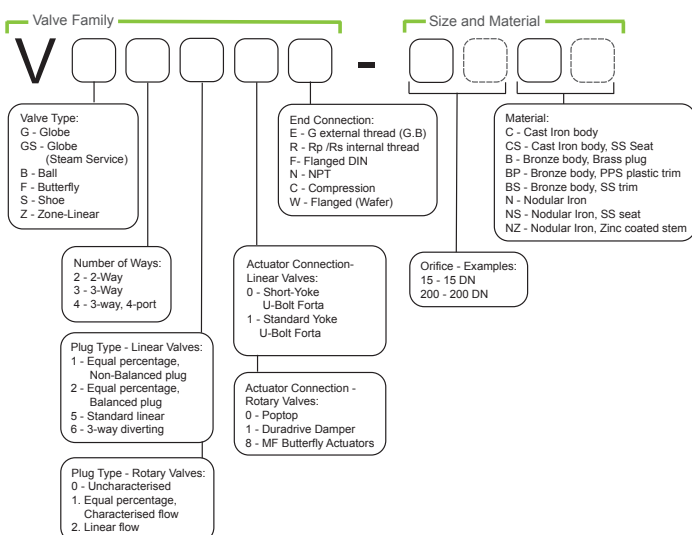
## DIMENSIONS AND WEIGHT



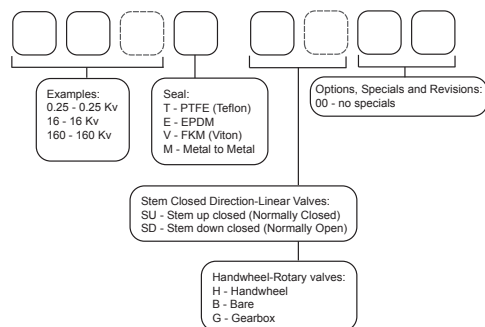
| Size | Stroke | Dimensions |     |     |    |     |     |    | Weight |
|------|--------|------------|-----|-----|----|-----|-----|----|--------|
|      |        | L          | H   | h   | f  | D   | d   | b  |        |
| DN   | mm     | mm         |     |     |    |     |     |    | Kg     |
| 65   | 25     | 290        | 115 | 175 | 18 | 185 | 145 | 20 | 18     |
| 80   | 45     | 310        | 125 | 186 |    | 200 | 160 | 22 | 28     |
| 100  |        | 350        | 137 | 206 |    | 220 | 180 | 24 | 32     |
| 125  |        | 400        | 159 | 255 |    | 250 | 210 | 26 | 45     |
| 150  |        | 480        | 177 | 275 | 22 | 285 | 240 | 26 | 60     |

## Type Designation and Part number construction

### Main Type



### Specification Code



### Construction Guide:

The updated designation covering the changes in one of the large 2 way cast iron valves are:

Full Type Designation:  
 VG221F-65C 63M SU00

Family:  
 VG221F 65-150C

Part Number:  
 VG221F-65C

### Part Number

