

# V222

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

The V222 is a flanged plug valve, designed for control of large flows in heating and air conditioning installations. The plug is balanced for high close off pressures from a low actuating force. Stainless steel plug and seat provide a long life in demanding applications.

The V222 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%).



### Specifications

|  |                                      |
|--|--------------------------------------|
| Design   | Two-way pressure balanced plug valve |
| Pressure class                                 | PN 16                                |
| Connection                                     | Flange according ISO 7005-2          |
| Flow Characteristics                           | EQ%                                  |
| Stroke   |                                      |
| DN65-100                                       | 30 mm                                |
| DN125-150                                      | 50 mm                                |
| Rangeability                                   |                                      |
| Kvs / Kv <sub>min</sub> (EN 60534-1)           | >50                                  |
| Leakage  | <0.05% of Kvs                        |
| Stem   |                                      |
| DN65-100                                       | M8                                   |
| DN125-150*                                     | M16                                  |
| (* fitted with Hex Bush for M22/M50 actuators) |                                      |
| Medium Temperature                             |                                      |
| Maximum  | 150 °C                               |
| Minimum*                                       | -10 °C                               |
| Main Construction Materials                    |                                      |
| Body   | Nodular iron GG25                    |
| Stem   | Stainless steel SS 1.4021            |
| Plug   | Stainless steel SS 1.4021            |
| Seat   | Stainless steel SS 1.4021            |
| Packing Box                                    | Spring-loaded PTFE-V-ring            |

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

### Ordering Table

| Size DN | Kvs (m <sup>3</sup> /h) | Part Number | Actuator                                    |
|---------|-------------------------|-------------|---|
| 65      | 63                      | 7212254010  | M800, M1500,<br>MV15B, M3000<br>M700, MG900 |
| 80      | 85                      | 7212258010  |   |
| 100     | 130                     | 7212262010  |   |
| 125     | 250                     | 7212266000  | M22, M50                                    |
| 150     | 350                     | 7212270000  |   |

- The rangeability is the ratio of Kvs and Kv<sub>min</sub>.
- Kvs is the flow capacity of a fully open valve, measured in m<sup>3</sup>/h at a pressure drop of 100 kPa.
- Kv<sub>min</sub> is the minimum controllable flow at a pressure drop of 100 kPa, within the flow range where the characteristic meets the requirements on characteristic slope according to EN 60534-1.

### Accessories and Spare Parts

| Description                               | DN 65-100  | DN 125...150 |
|---|------------|--------------|
| Gland Service Kit                         | 100108201  | 100108210    |
| Stem Heater                               | 8800112000 | 8800113000   |
| Hex Bush: Valve to actuator stem coupling | -          | 8800134000   |

## Valve and Actuator Sizing Tables

| Size DN | Kvs (m <sup>3</sup> /h) | $\Delta P_m$ (kPa) | Max Close Pressure, $\Delta P_c$ (kPa) |              |       |          |         |       |       |
|---------|-------------------------|--------------------|--|--------------|-------|----------|---------|-------|-------|
|         |                         |                    | M800                                   | M1500/ MV15B | M3000 | MG900 SR | M700 SR | M22** | M50** |
| 65      | 63                      | 800                | 1500                                   | 2500         | 2500  | 1500     | 1200    | -     |       |
| 80      | 85                      | 400                |  |              |       | 1100     | 800     |       |       |
| 100     | 130                     | 150                | 1100                                   | 1600         | 1100  | 800      |         |       |       |
| 125     | 250                     | 100                | -                                      |              |       |          |         | 1800  | 2500  |
| 150     | 350                     | 100                |  |              |       |          |         | 1400  |       |

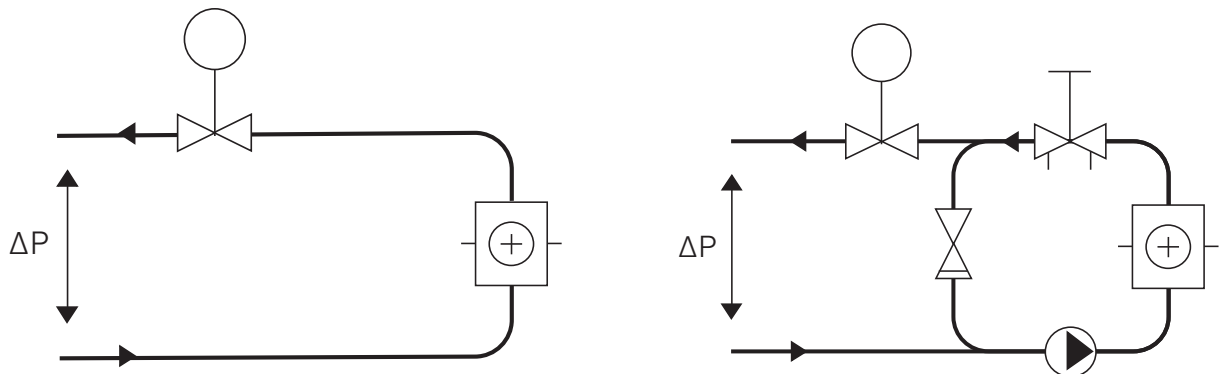
$\Delta P_c$  = Maximum allowed pressure differential across a closed valve (a function of actuator performance)  
 $\Delta P_m$  = Maximum allowed pressure drop across a fully 'open' valve (a function of hydronic valve performance)  
 \*\*M22 and M50 actuators will not fit to valves DN65...100

## 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 temperatures. The valve must not be installed with the actuator mounted below 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.

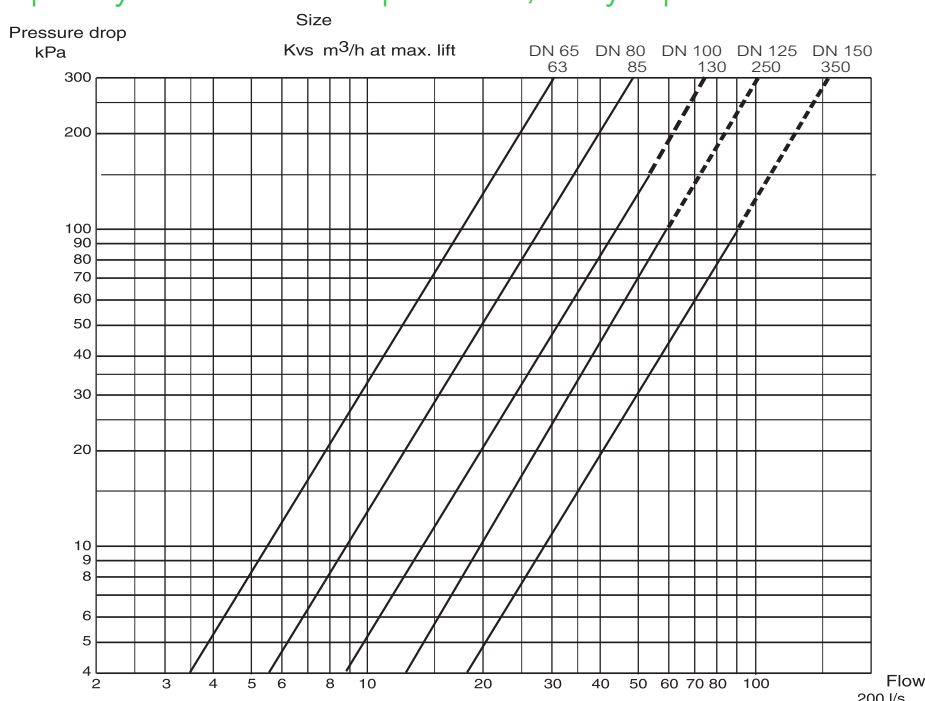
## System Schematics



A. Typical installation without local circulation pump. To obtain good function the pressure drop across the valve should be no less than half of the available pressure drop ( $\Delta P$ ). This will give a valve authority of 50%.

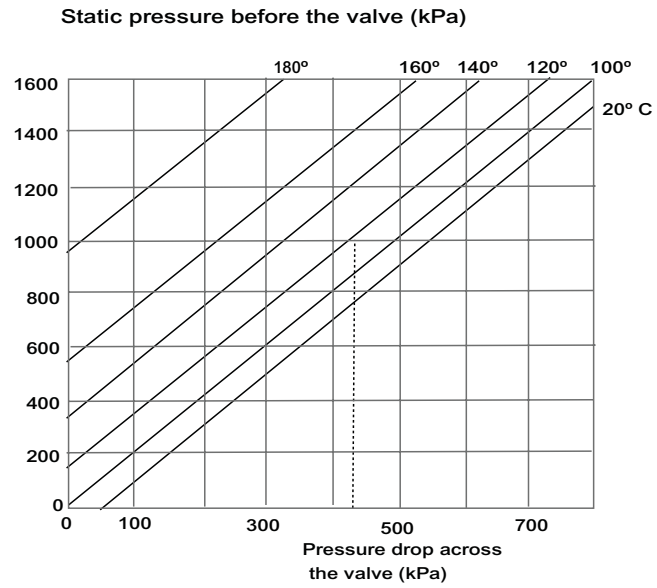
B. Typical installation with local circulation pump. The Kvs value of the valve is to be selected so that the entire available pressure drop ( $\Delta P$ ) falls across the control valve.

## Flow Capacity / Pressure Drop Charts, Fully Open Valve



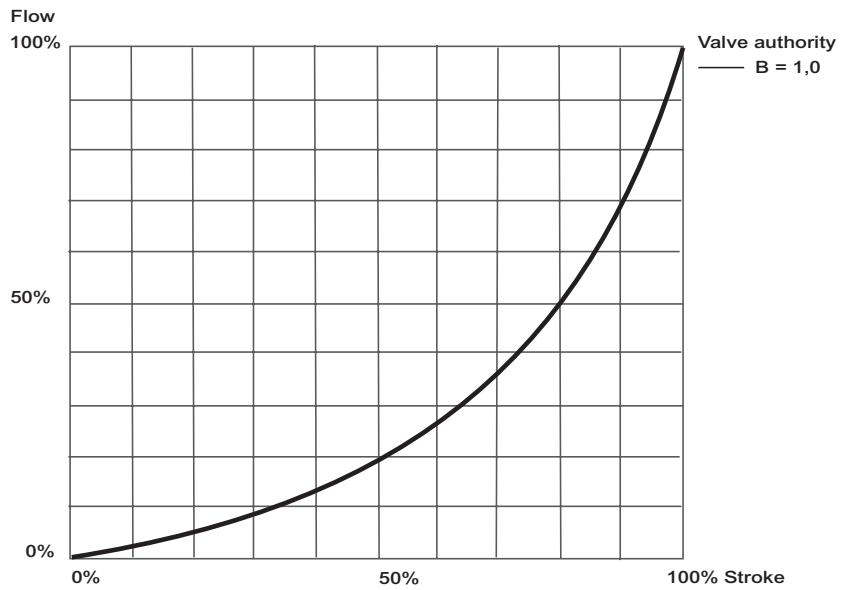
## Cavitation

If the computed pressure drop exceeds the value read from the diagram, there is risk of cavitation. In general the flow velocity of the media should be under  $2 \text{ m/s}^{-1}$



### EQ % flow characteristic

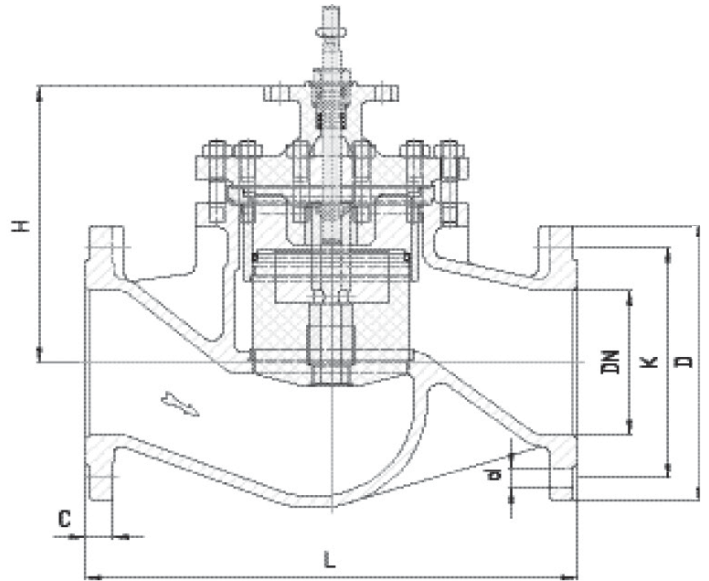
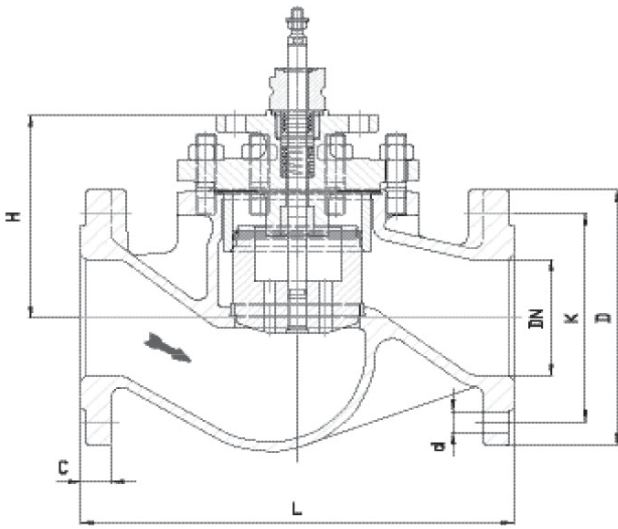
The flow characteristic of the V222 is equal percentage (EQ%, also called logarithmic), giving an equal-percentage change in flow. This is necessary to give good linear heat transfer control in systems with large load variations.



## Dimensions and Weight

DN 65...100

DN 125...150



| Part No.   | Size | Stroke | Dimensions (mm) |     |      |     |     |    | Weight<br>kg |
|------------|------|--------|-----------------|-----|------|-----|-----|----|--------------|
|            |      |        | L               | H   | d    | D   | K   | C  |              |
| 7212254010 | 65   | 30     | 290             | 137 | 4x18 | 185 | 145 | 20 | 16.8         |
| 7212258010 | 80   |        | 310             | 152 | 8x18 | 200 | 160 | 22 | 22.9         |
| 7212262010 | 100  |        | 350             | 171 | 8x22 | 235 | 190 | 24 | 36.9         |
| 7212267000 | 125  | 50     | 400             | 228 | 8x26 | 270 | 220 | 26 | 63.0         |
| 7212270000 | 150  |        | 480             | 288 |      | 300 | 250 | 28 | 93.0         |