

Fixed Orifice Double Regulating Valve



Flow Data and Installation Instructions



Technical Data

The Albion ART 22 is a fixed orifice double regulating valve used to regulate and measure the flow passing through it.

Flow Coefficient

The flow rate can be calculated using the K_v value and a measured signal.

 $\begin{array}{ll} \mathsf{K}_{\mathsf{V}} = \mathsf{Q}^{\star}36 & \mathsf{K}_{\mathsf{VS}} = \mathsf{Q}^{\star}36 \\ \sqrt{\Delta \mathsf{P}} & \sqrt{\Delta \mathsf{P}}\mathsf{s} \end{array} \\ \text{where } \mathsf{K}_{\mathsf{V}} \& \mathsf{K}_{\mathsf{VS}} & = \mathsf{flow \ coefficient} \ (\mathsf{m}^3/\mathsf{hr} \ \mathsf{at} \ 1 \ \mathsf{bar} \ \mathsf{differential}) \\ \mathsf{Q} & = \mathsf{flow \ rate} \ (\mathsf{l/s}) \\ \Delta \mathsf{P} & = \mathsf{headloss \ attributable \ to \ valve} \ (\mathsf{kPa}) \\ \Delta \mathsf{Ps} & = \mathsf{differential} \ \mathsf{pressure \ across \ tappings} \ (\mathsf{signal}) \ (\mathsf{kPa}) \end{array}$

Kvs Values

| Size | L | ML | 1⁄2″ | ³ ⁄4″ | 1″ | 1¼″ | 11⁄2″ | 2″ |
|------|------|-----|------|------------------|-----|------|-------|------|
| Kvs | 0.62 | 1.1 | 2.3 | 5.3 | 9.2 | 19.0 | 22.1 | 42.3 |

Pressure Loss

The pressure loss across the fixed orifice double regulating valve is the combined loss attributable to the orifice plated and double regulating valve in the fully open position.

Kv Value

| Size | L | ML | 1⁄2″ | 3⁄4″ | 1″ | 1¼" | 11⁄2″ | 2″ |
|------|-------|-------|------|------|------|-------|-------|-------|
| Κv | 0.533 | 0.733 | 2.00 | 3.88 | 7.28 | 13.39 | 18.60 | 30.10 |

Installation

Fixed orifice double regulating valves must always be installed with a minimum of 5 pipe diameters of straight pipe, without intrusion, upstream of the orifice plate.

Downstream of the valve a minimum of 2 pipe diameters of straight pipe are required.





Technical Data

Sizing

Once the required flow rate has been calculated, the size of the fixed orifice double regulating valve can be determined based on the following:

The minimum signal at the design flow rate of 1 kPa.

For minimum pressure loss, a maximum signal of 4.7 kPa, which corresponds to the maximum differential pressure range of a fluorocarbon manometer.

Pressure Equipment Directive

Under the Pressure Equipment Directive (PED) these fixed orifice double regulating valves have been specified for Group 2 Liquids i.e. non-hazardous

Sizes 1/2" to 2" are classified as SEP (Sound Engineering Practice)

ART 22

¹/₂" ART 22L DZR Fixed Orifice Double Regulating Valve



 K_{vs} = Signal Co-efficient

ART 22

¹/₂" ART 22ML DZR Fixed Orifice Double Regulating Valve



ART 22

¹/₂" ART 22 DZR Fixed Orifice Double Regulating Valve



ART 22

³/₄" ART 22 DZR Fixed Orifice Double Regulating Valve



Kvs = Signal Co-efficient

1" ART 22 DZR Fixed Orifice Double Regulating Valve

ART 22



ART 22

1¹/₄" ART 22 DZR Fixed Orifice Double Regulating Valve



ART 22

1¹/₂" ART 22 DZR Fixed Orifice Double Regulating Valve





Signal / Flowrate Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{K_{vs} \sqrt{\Delta p}}{36}$$

Where

- Q = Flowrate l/s kPa
- $\Delta p = Signal$
- Kvs = Signal Co-efficient

2" ART 22 DZR Fixed Orifice Double Regulating Valve

ART 22





ISSUE 1 This data sheet is designed as a guide and should not be regarded as wholly accurate in every detail. We reserve the right to amend the specification of any product without notice