



# **Installation & Operating Manual**



## **ART 255 Fixed Orifice Double Regulating Valve**

**Albion Valves (UK) Ltd**  
[www.albionvalvesuk.com](http://www.albionvalvesuk.com)  
Email: [sales@albionvalvesuk.com](mailto:sales@albionvalvesuk.com)  
Tel: 01226 729900



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### 1. Introduction

- Albion Valves (UK) Ltd ART 255 is a Fixed Orifice Double Regulating Valve (FODRV) used to regulate and measure the flow of media passing through it.
- The ART 255 has been classified in accordance with PED 2014/68/EU.

### 2. Technical Data

| Valve Type    | Size Range     | Connection Type | Temperature Rating | Pressure Rating (Max) |
|---------------|----------------|-----------------|--------------------|-----------------------|
| ART 255 PN 16 | DN 50 – DN 300 | EN 1092 PN 16   | -20°C – 120°C      | 16 bar                |

### Flow Coefficient

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

$$Kv = Q \cdot 36 / \sqrt{\Delta P} \quad Kvs = Q \cdot 36 / \sqrt{\Delta Ps}$$

Where Kv & Kvs = flow coefficient (m<sup>3</sup>/hr at 1 bar differential)

Q - Flow rate (l/s)

ΔP - Headloss attributable to valve (kPa)

ΔPs - Differential pressure across tappings (signal) (kPa)

### Kvs Values

| Size | 50   | 65   | 80  | 100 | 125 | 150 | 200 | 250  | 300  |
|------|------|------|-----|-----|-----|-----|-----|------|------|
| Kvs  | 47.5 | 88.6 | 125 | 228 | 341 | 487 | 826 | 1218 | 1794 |

### Pressure Loss

The pressure loss across the FODRV is the combined loss attributable to the orifice plate and the regulating valve in the fully open position.

### Kv Values

| Size | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300  |
|------|----|----|----|-----|-----|-----|-----|-----|------|
| Kv   | 38 | 57 | 79 | 137 | 260 | 415 | 612 | 971 | 1412 |

### 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:

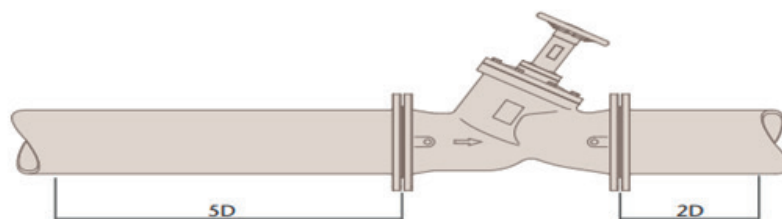
The minimum signal at the design flow rate of 1KPa. For minimum pressure loss, a maximum signal of 4,7 KPa which corresponds to the maximum differential pressure range of a fluorocarbon manometer.

### 3. Valve Features

- The ART 255 FODRV is manufactured in accordance with BS 7350.
- Test points are supplied with the ART 255 FODRV.

### 4. Valve Installation

- The valve should be sited to ensure ease of access.
- It is the responsibility of the installer to ensure the valve is suitable for service conditions e.g., temperature, pressure, and service media.
- Where fitted, remove flange protectors / dust caps and all other packaging material.
- Care should be taken to ensure the surface finish of the valve is protected during installation.
- The valves may be installed in horizontal or vertical pipework.
- The valve is uni-directional and should only be used for flow in the direction shown on the valve.
- Suitable gaskets / sealing material should be used during installation.
- ART 255 FODRV should be installed with a minimum of 5 pipe diameters upstream and 2 pipe diameters downstream, this is to ensure flow accuracy is maintained during the commissioning stage.
- The memory stop can be set once the valve is at the correct design flow rate. This can be done by removing the black handwheel cap and rotating the cross head screw in a clockwise direction until resistance is met.



### 5. Approvals Classification

- The valve is classified in accordance with PED 2014/68/EU as Sound Engineering Practice (SEP).

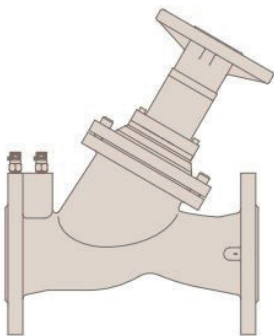
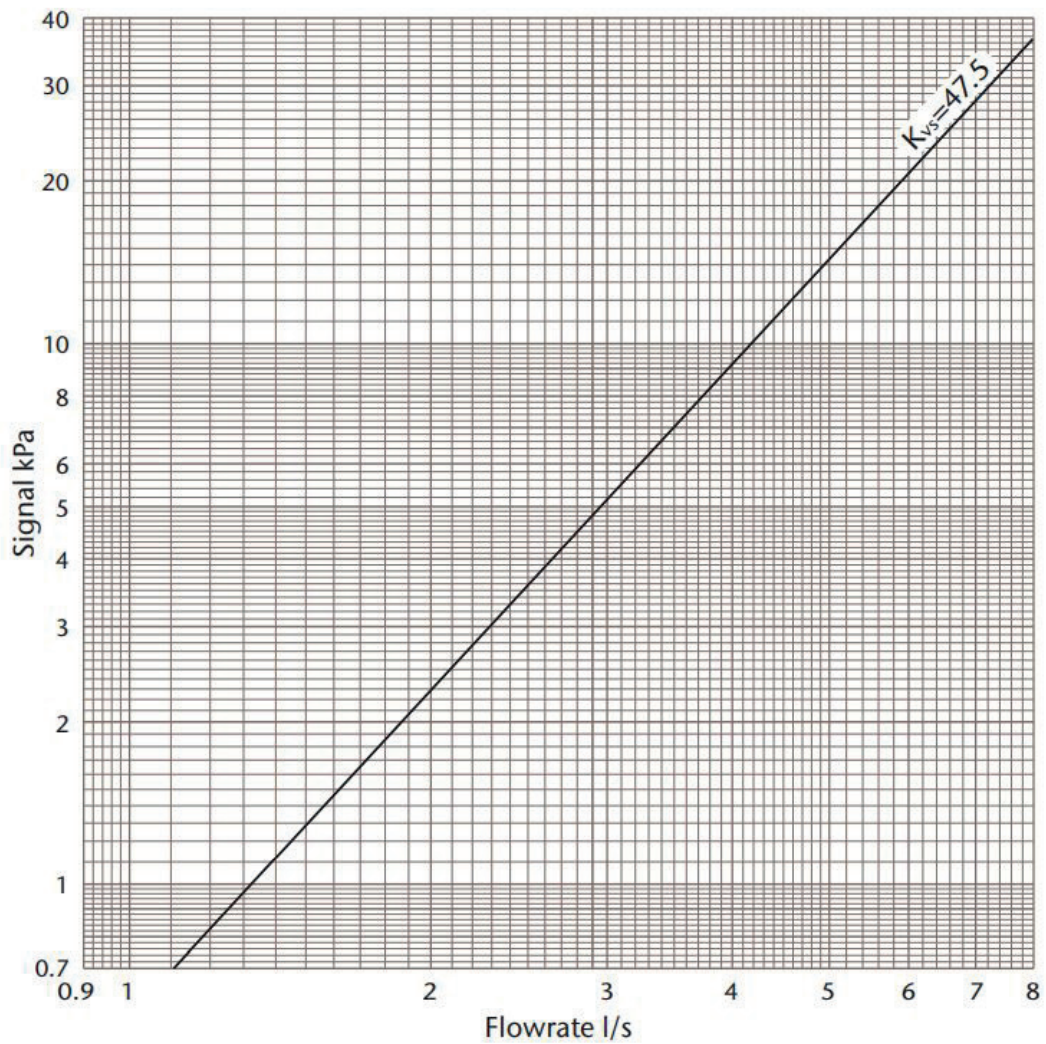
### 6. Troubleshooting

- If any maintenance is to be undertaken on the valve it is the responsibility of the installer to ensure the system is adequately drained and depressurized.
- A full risk assessment should be undertaken prior to any works taking place.

### 7. Warranty

- For further details of Albion Valves (UK) Ltd warranty period, please refer to Albion Valves (UK) Ltd 'Conditions of Sale' available on our website.

## DN50 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

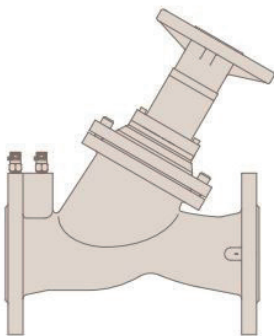
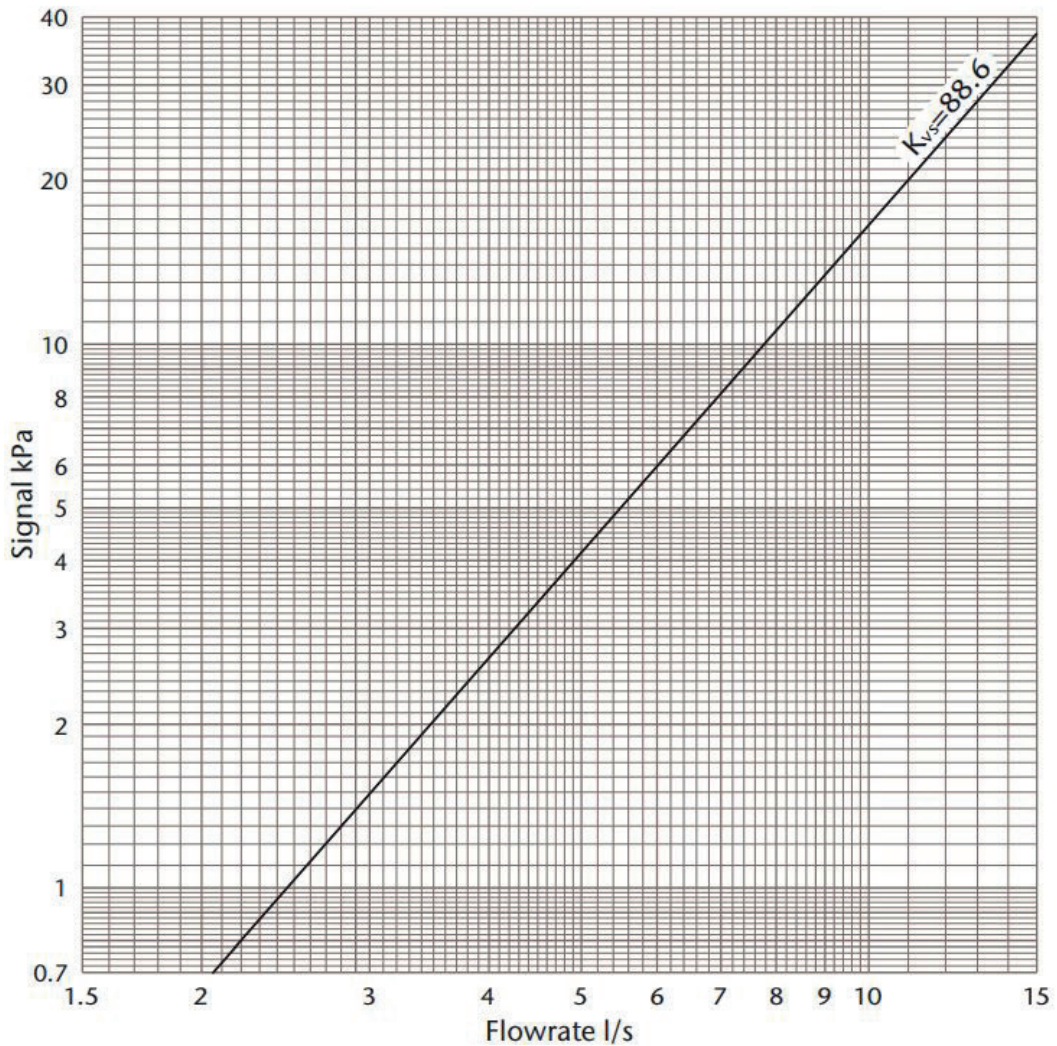
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient

## DN65 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

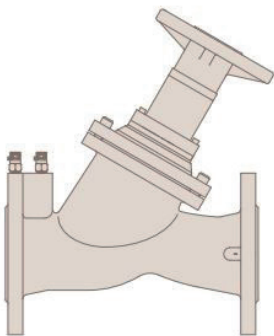
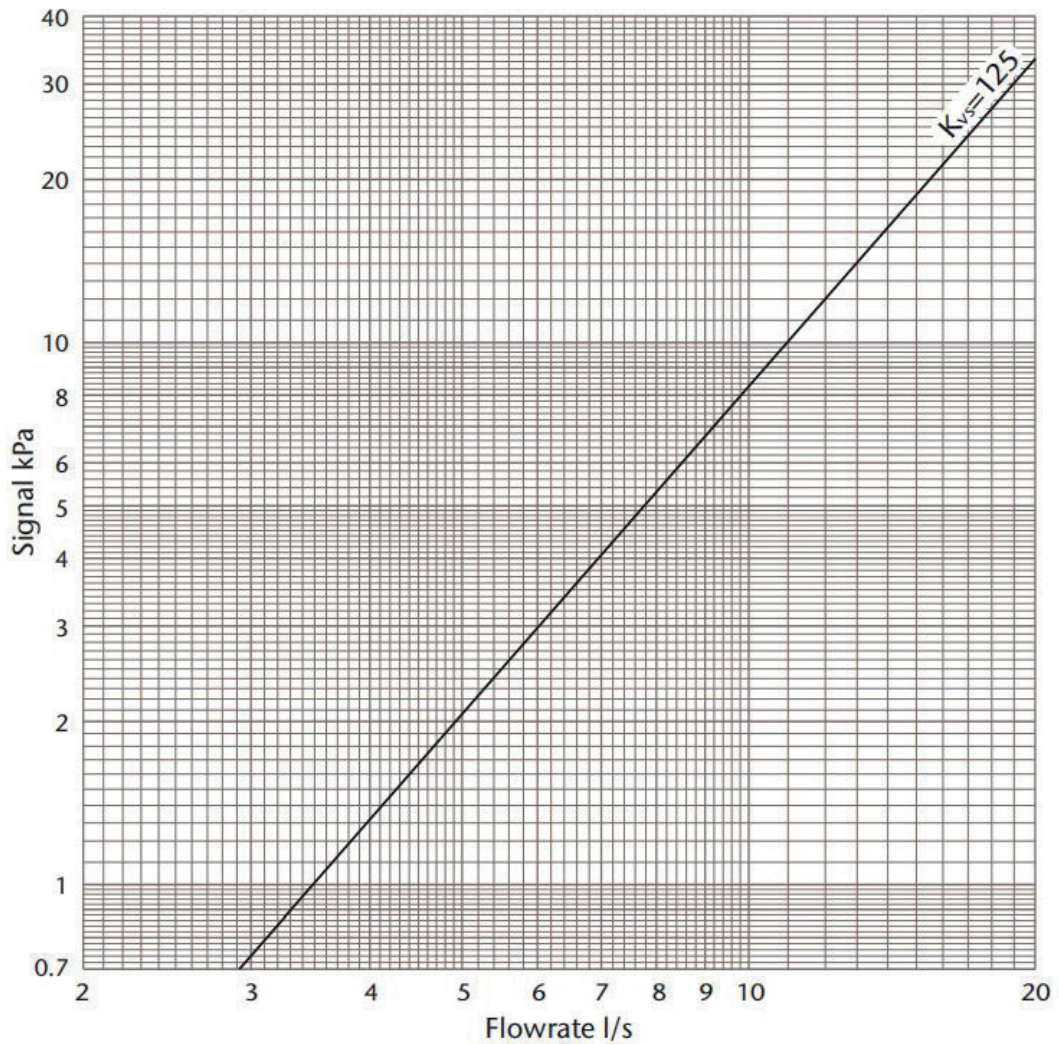
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient

## DN80 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

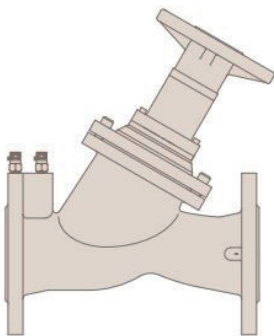
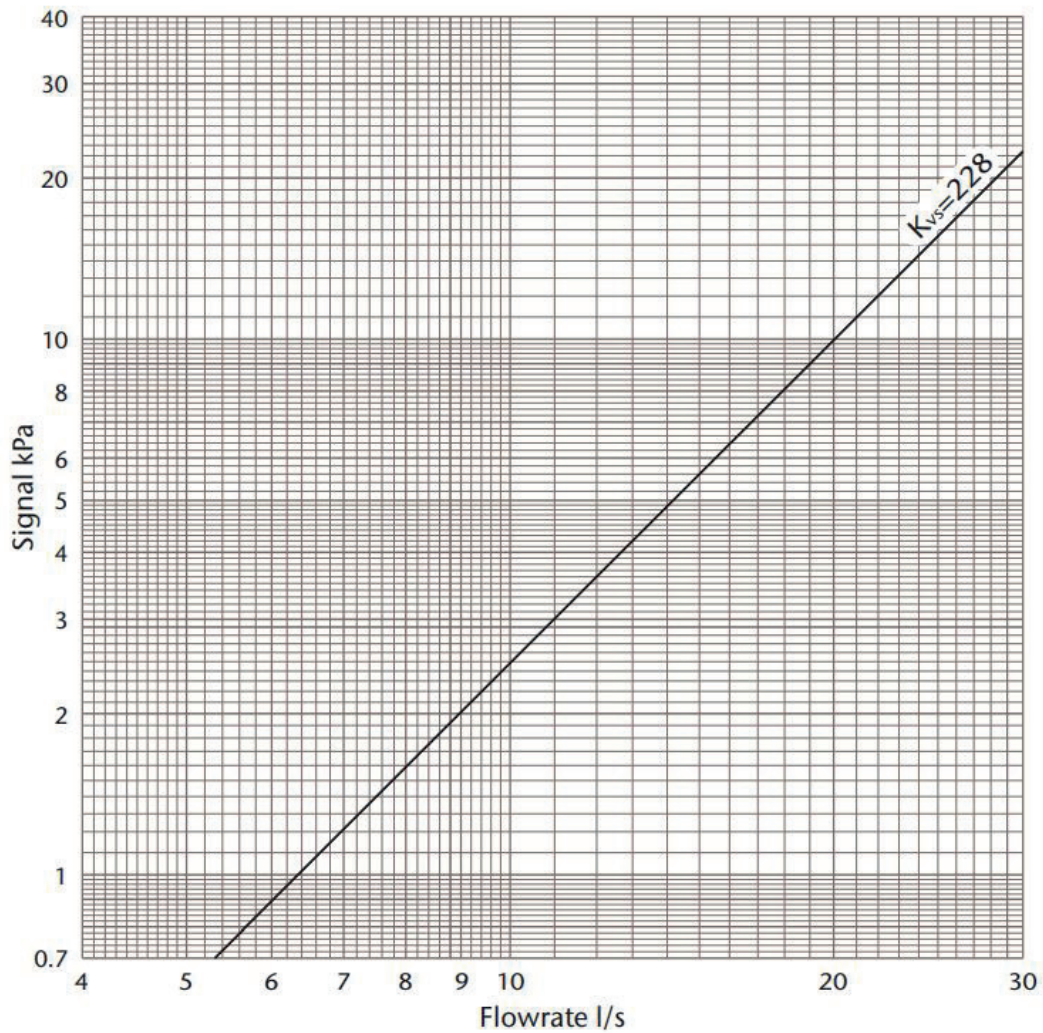
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient

## DN100 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

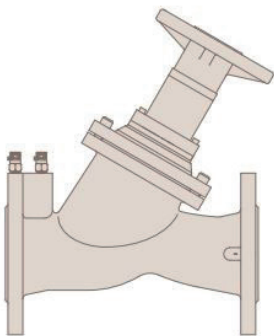
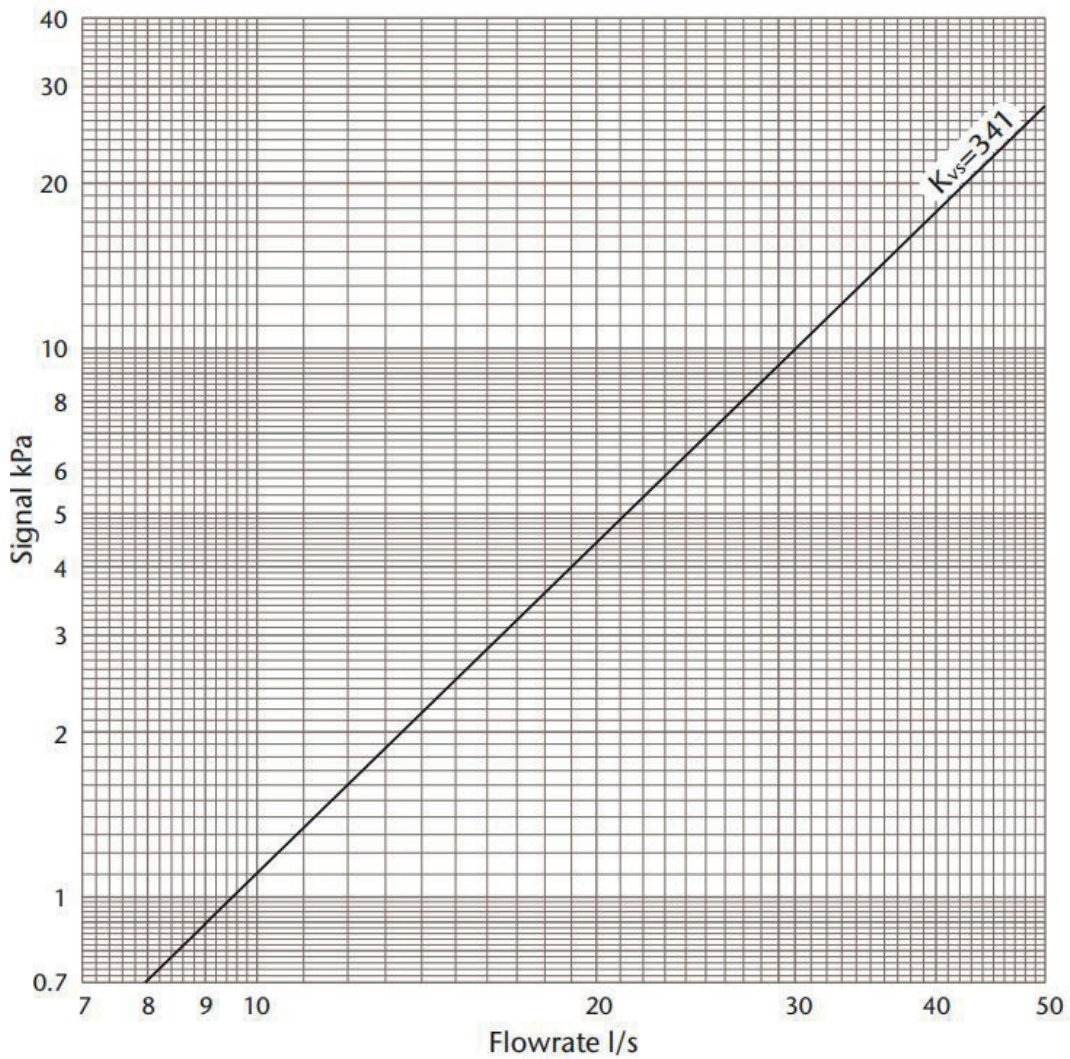
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient

## DN125 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

Where

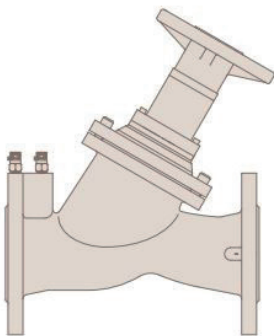
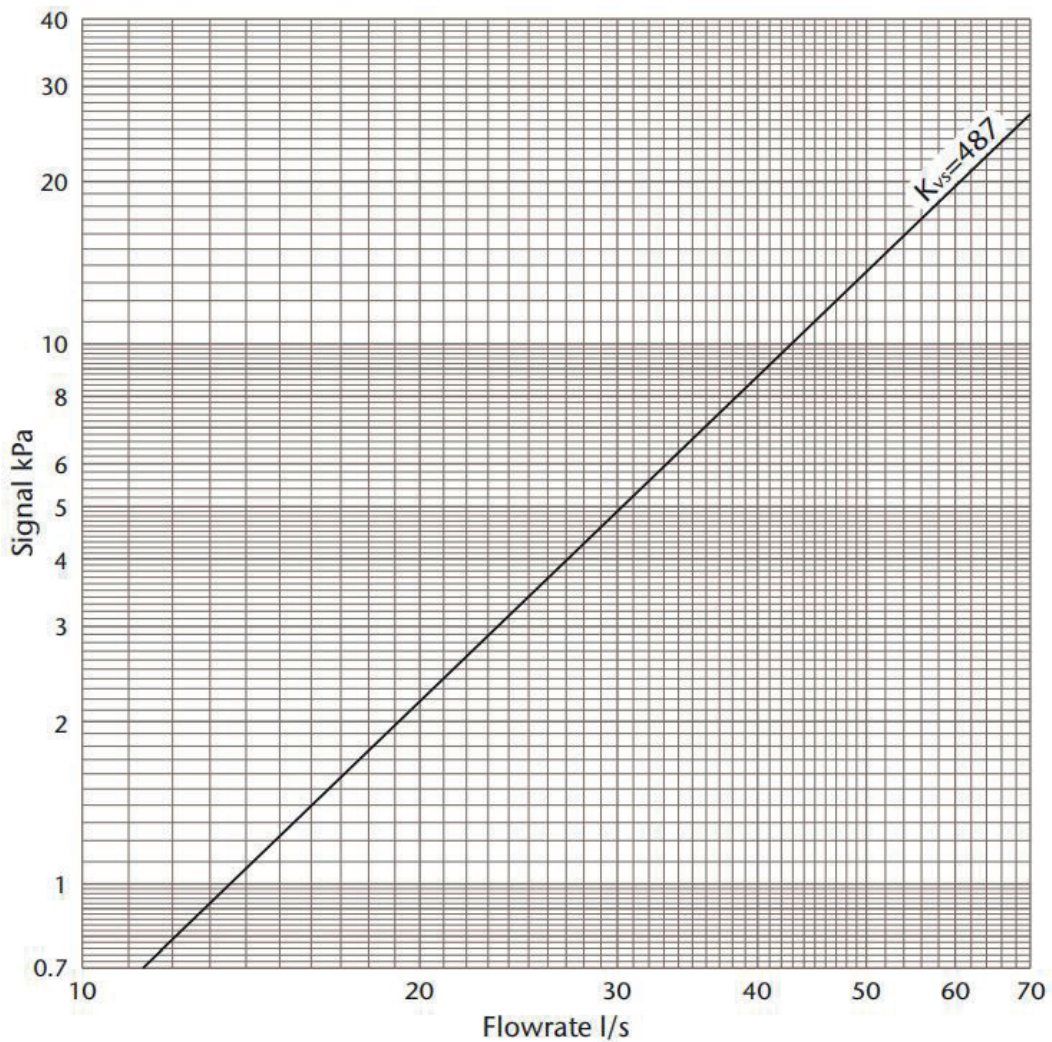
Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient



## DN150 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

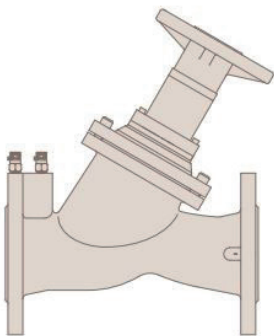
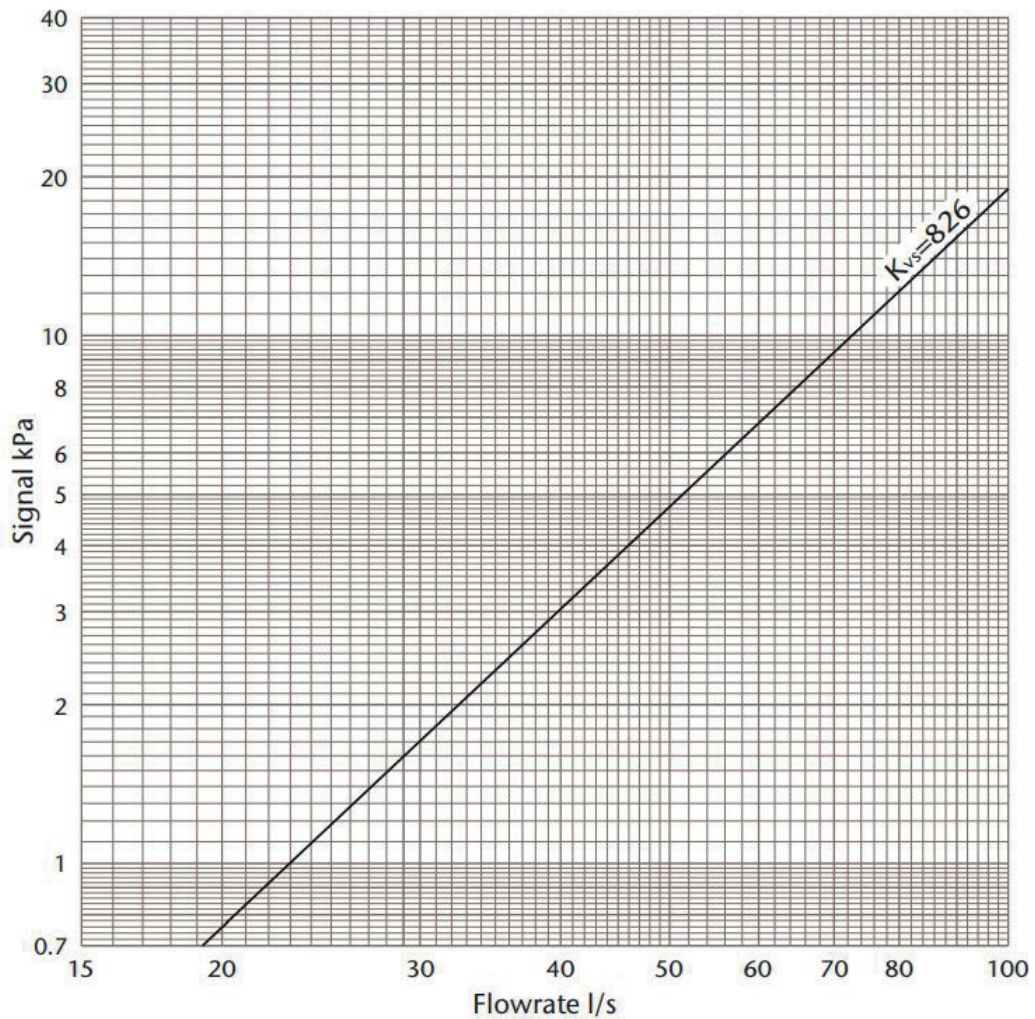
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient

## DN200 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

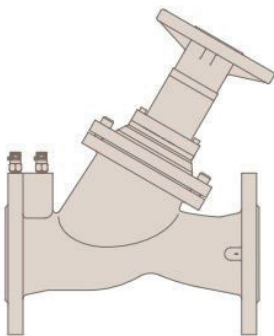
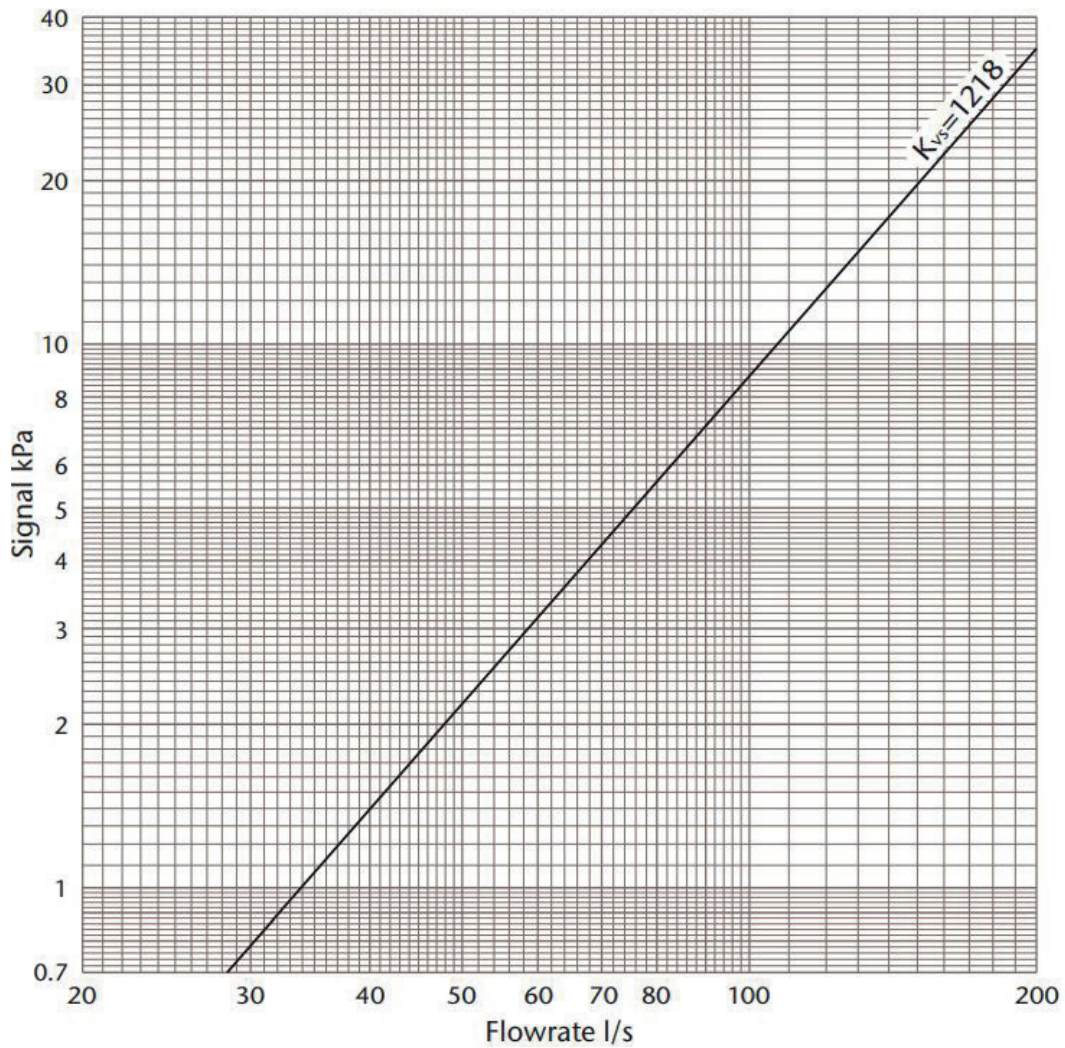
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient

## DN250 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

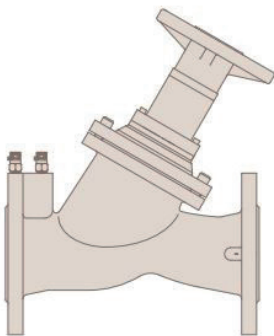
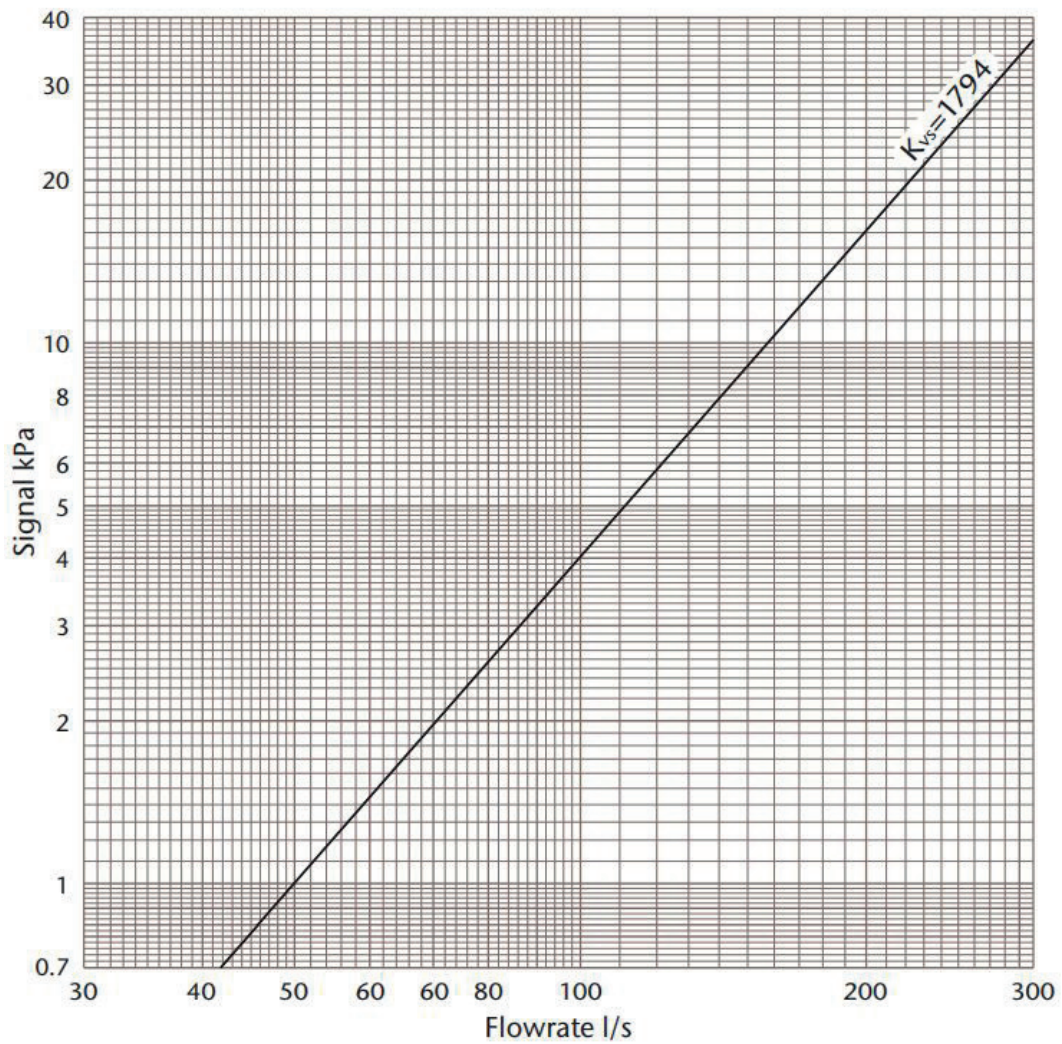
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient

## DN300 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

$$Q = \frac{Kvs \sqrt{\Delta p}}{36}$$

Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

Kvs = Signal Co-efficient



## **About Albion Valves (UK) Ltd**

Albion has been supplying valves and fittings to the building services and industrial markets for the past 40 years.

Albion was created with the sole purpose of providing quality products at an affordable price. With a growing reputation for quality and reliability, Albion is now an established brand providing the industry with a trusted alternative to premium-priced products.

Our commitment to setting the highest standards in all areas of our business means, if you're looking for quality, service, delivery and choice — you'll find it's all at Albion.

### **Quality**

Whatever you need, you can rest assured that if it comes from Albion it has been designed and manufactured to deliver optimum performance and is accredited with the necessary approvals. Our in-house quality department are always on hand too!

### **Service**

We pride ourselves on our customer service – we have even won awards for it! Our cradle to grave approach means you will never be on your own!

### **Delivery**

We know that time is money, and when a priority project depends on a part you can trust Albion to deliver – next day for all orders placed before 4:00PM.

### **Choice**

We may have started out with a single brass ball valve, but our range has grown substantially since and we now consider ourselves to be a 'One Stop Shop' with our comprehensive range. It is becoming more and more apparent to the industry, that it really is all at Albion.