

# **Fixed Orifice Double Regulating Valve**



## **Flow Data and Installation Instructions**

## Technical Data

The Albion ART 255 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.

$$K_v = \frac{Q \cdot 36}{\sqrt{\Delta P}} \quad K_{vs} = \frac{Q \cdot 36}{\sqrt{\Delta P_s}}$$

where  $K_v$  &  $K_{vs}$  = flow coefficient ( $m^3/hr$  at 1 bar differential)

$Q$  = flow rate (l/s)

$\Delta P$  = headloss attributable to valve (kPa)

$\Delta P_s$  = differential pressure across tappings (signal) (kPa)

### $K_{vs}$ Values

Size	DN50	DN65	DN80	DN100	DN125	DN150
$K_{vs}$	47.5	88.6	125	228	341	487

Size	DN200	DN250	DN300
$K_{vs}$	826	1218	1794

### Pressure Loss

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

### $K_v$ Values

Size	DN50	DN65	DN80	DN100	DN125	DN150
$K_v$	38	57	79	137	260	415

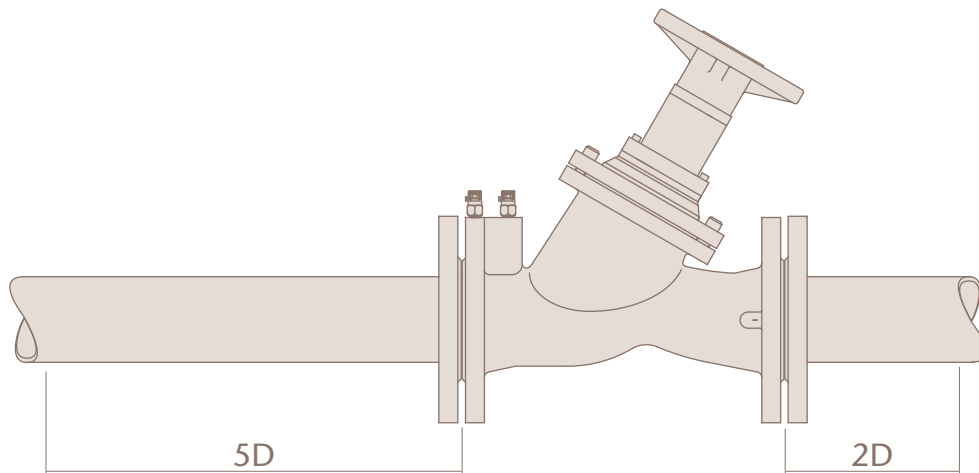
Size	DN200	DN250	DN300
$K_v$	612	971	1412

## Technical Data

### 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.



### Sizing

Once the required flow rate has been calculated, the size of the metering station can be determined based on the following:

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

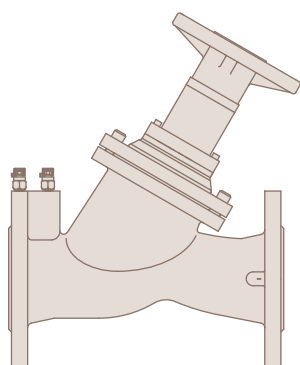
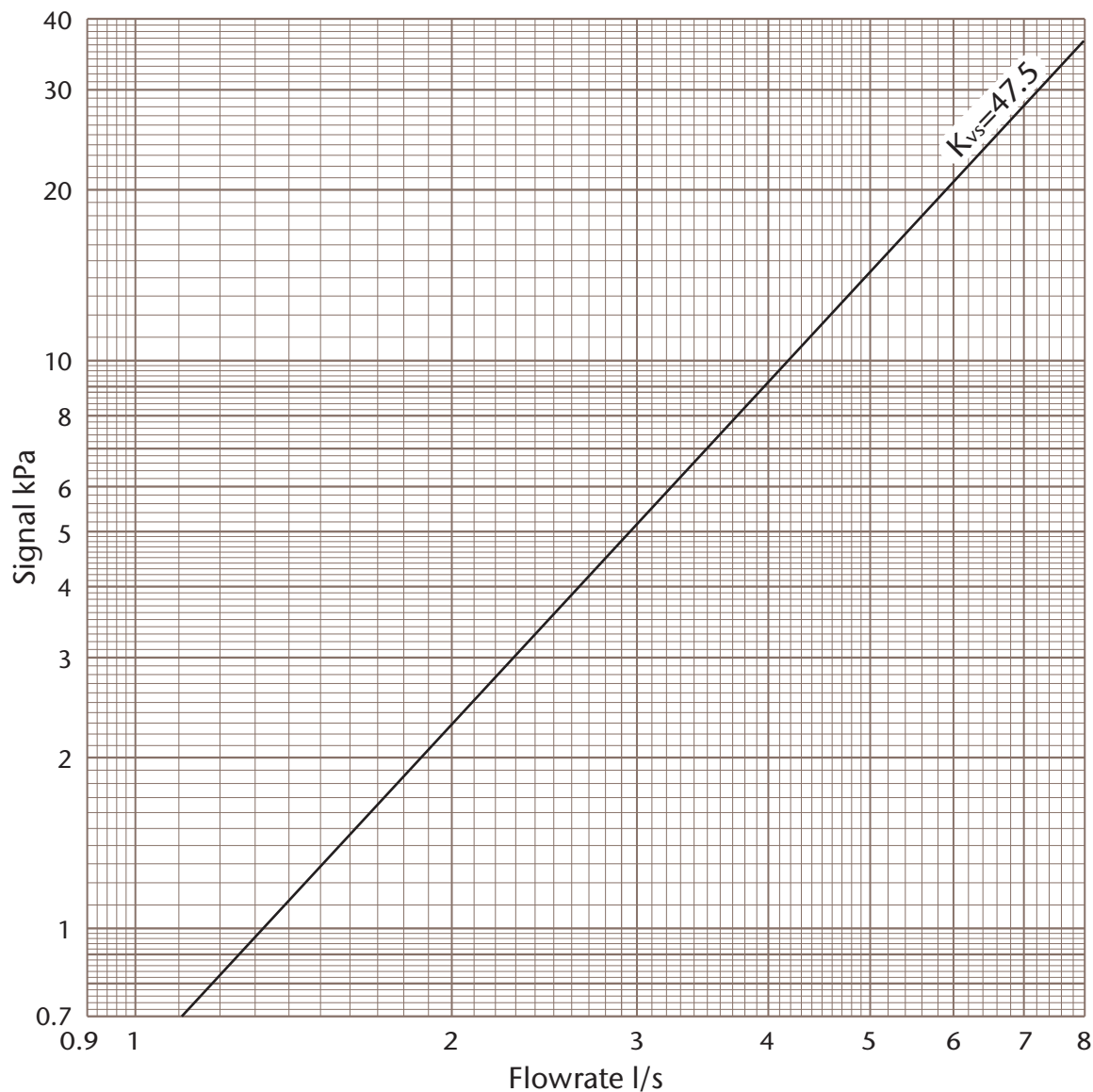
For minimum pressure loss, a maximum signal of 4.7 kPa, which corresponds to the maximum differential pressure range of a fluorocarbon manometer.

### 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 DN50 to DN300 are classified as SEP (Sound Engineering Practice)

## DN50 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

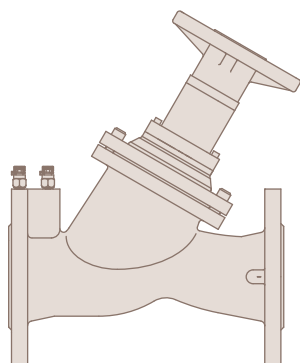
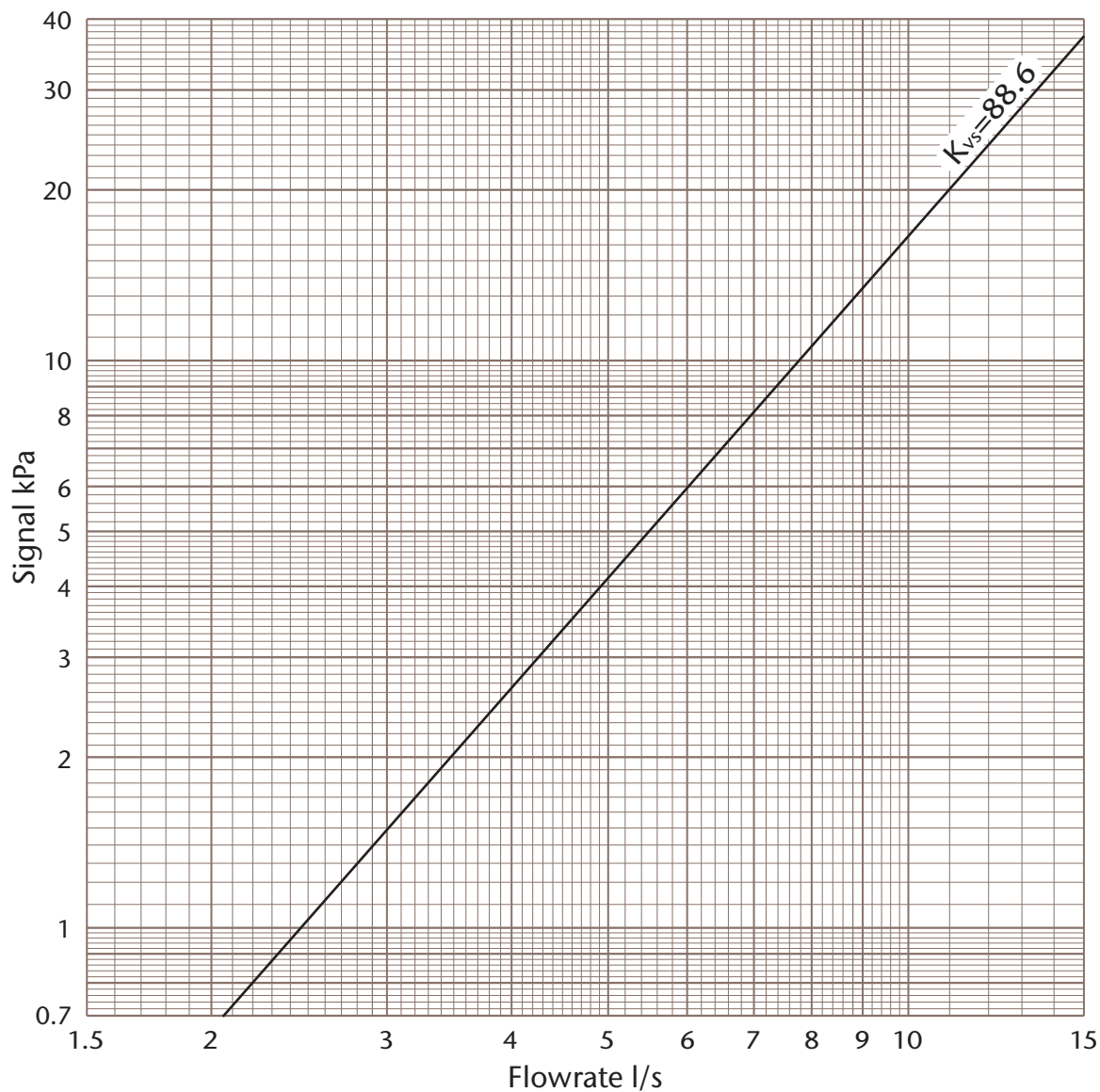
Chart used to determine flowrate from signal measured across orifice

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

Where

$Q$  = Flowrate                      l/s  
 $\Delta p$  = Signal                      kPa  
 $K_{vs}$  = Signal Co-efficient

## DN65 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

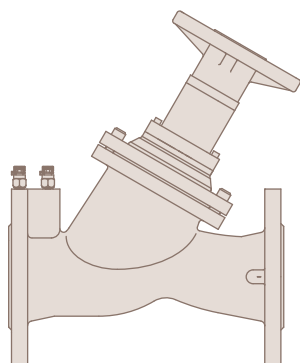
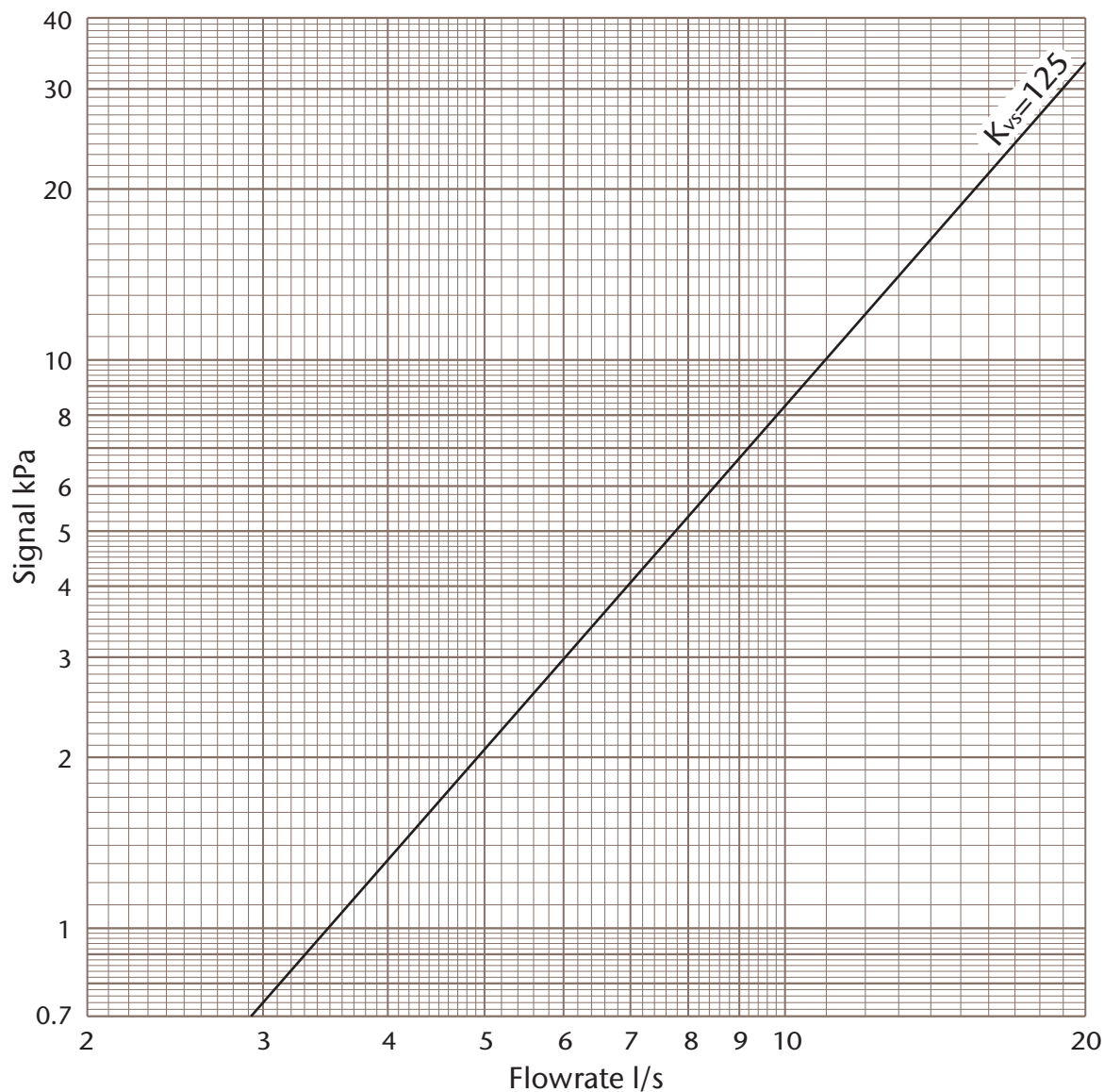
Where

$Q$  = Flowrate l/s

$\Delta p$  = Signal kPa

$K_{vs}$  = Signal Co-efficient

## DN80 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

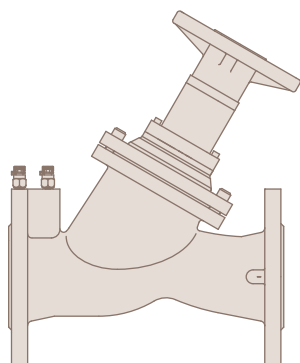
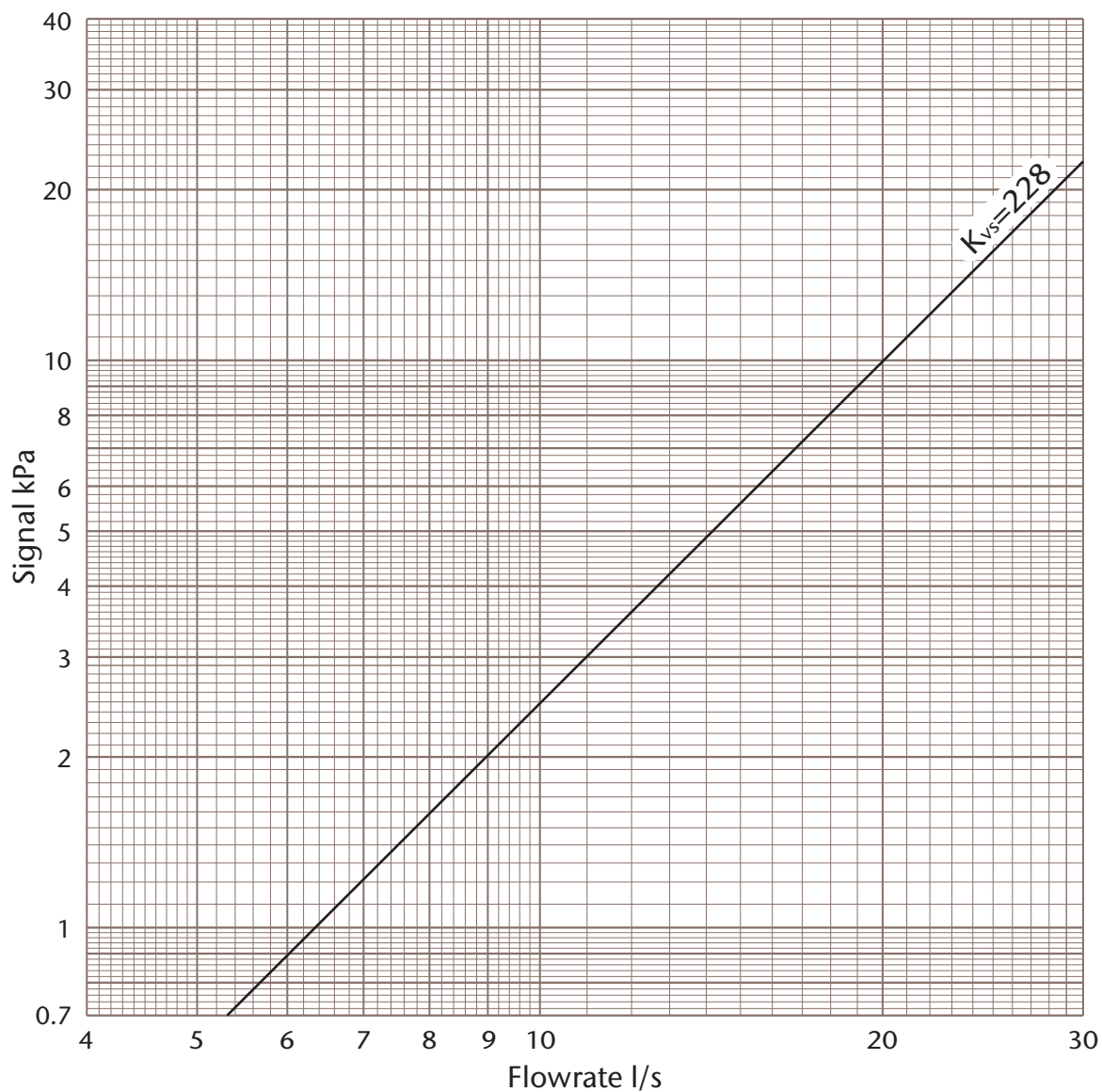
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

$K_{vs}$  = Signal Co-efficient

## DN100 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

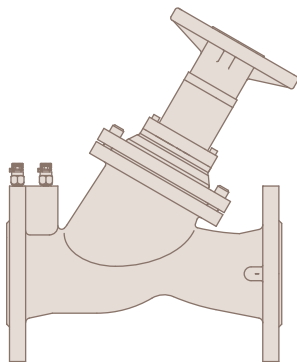
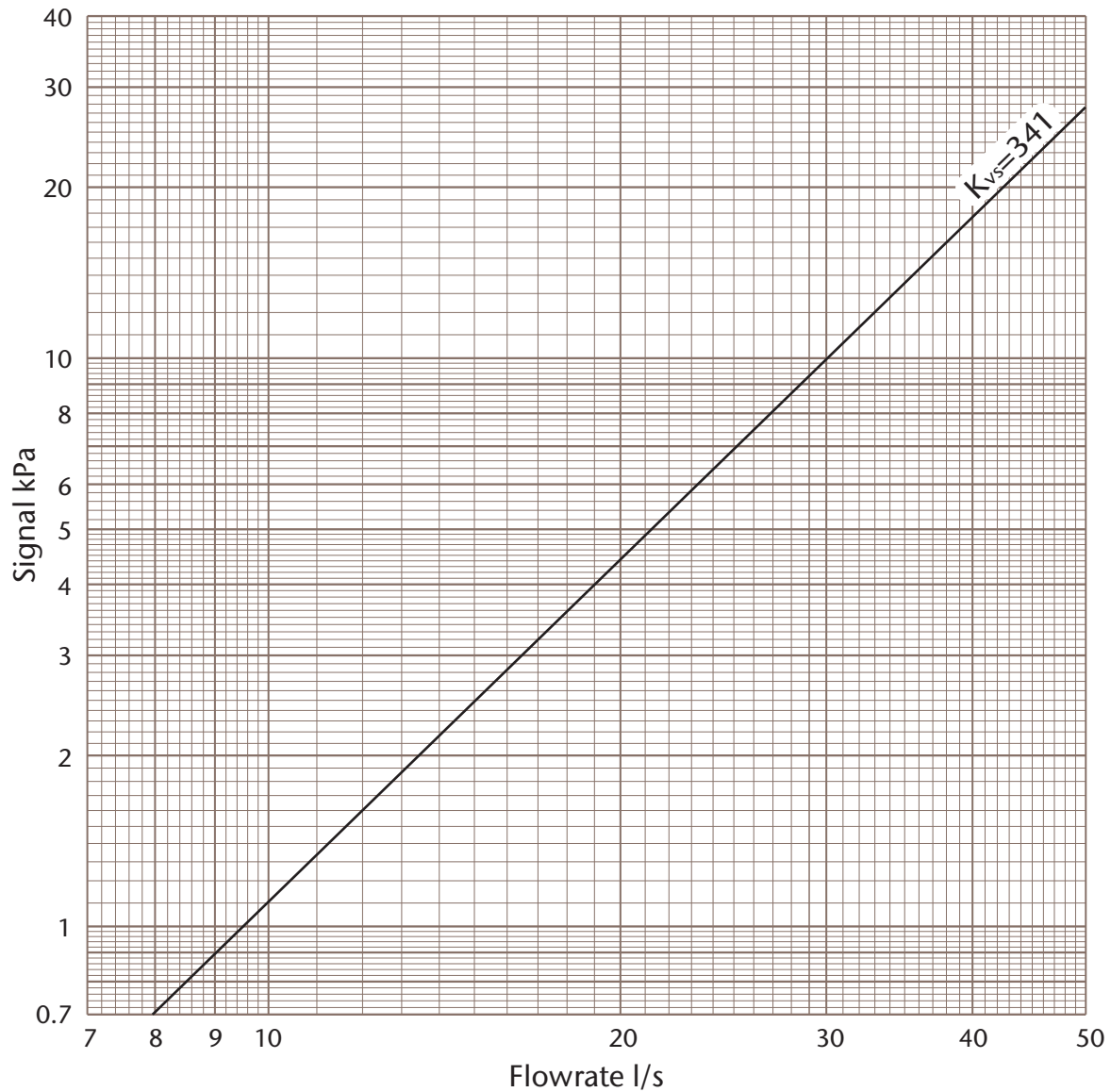
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

$K_{vs}$  = Signal Co-efficient

## DN125 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

Where

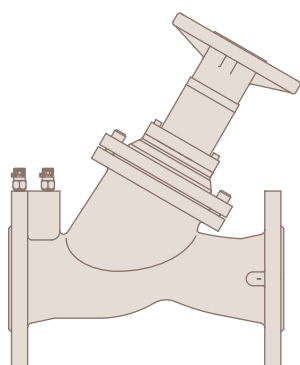
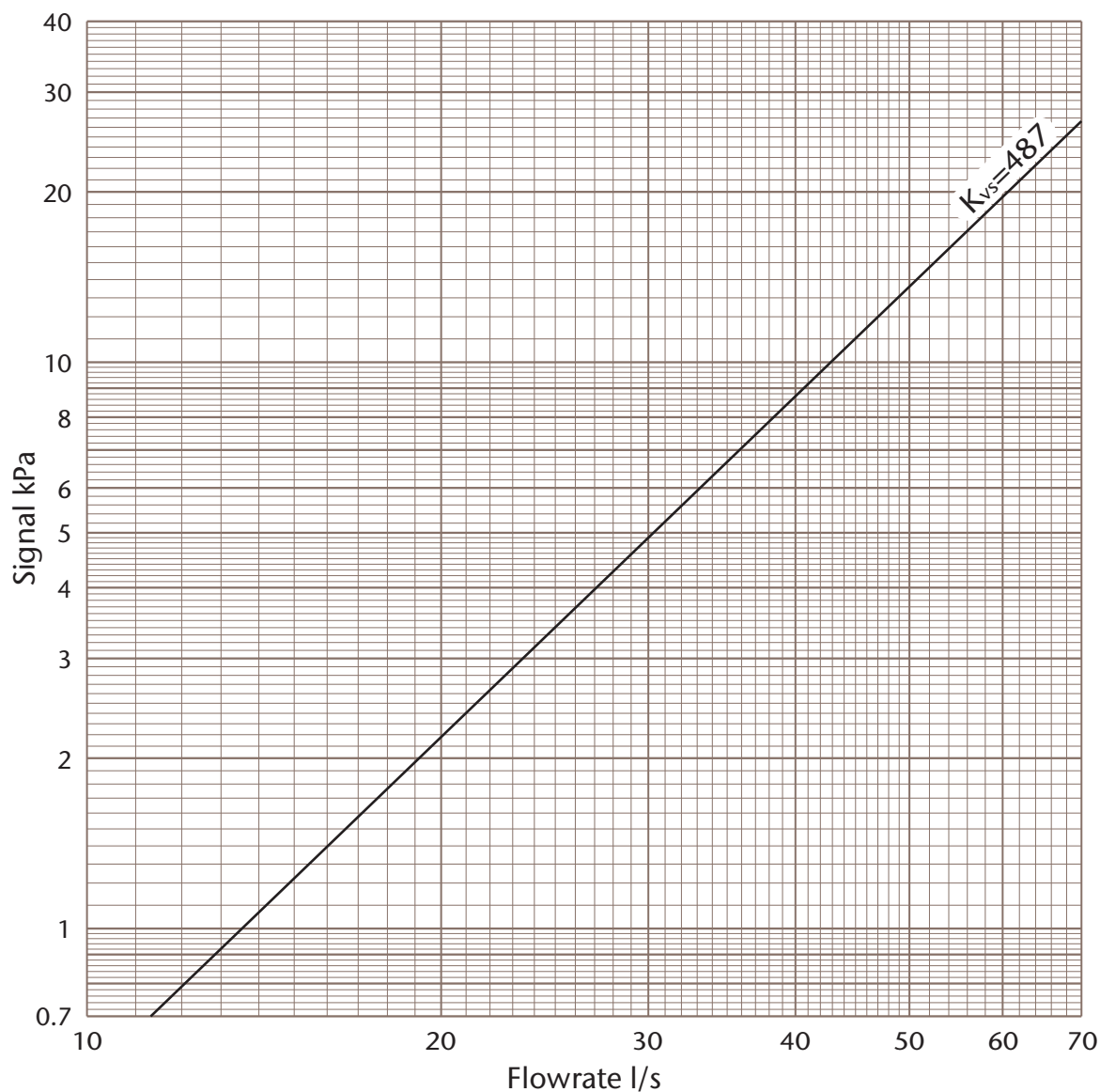
Q = Flowrate l/s

$\Delta p$  = Signal kPa

$K_{vs}$  = Signal Co-efficient



## DN150 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

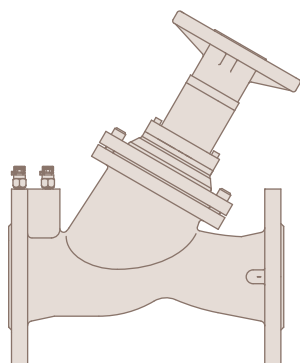
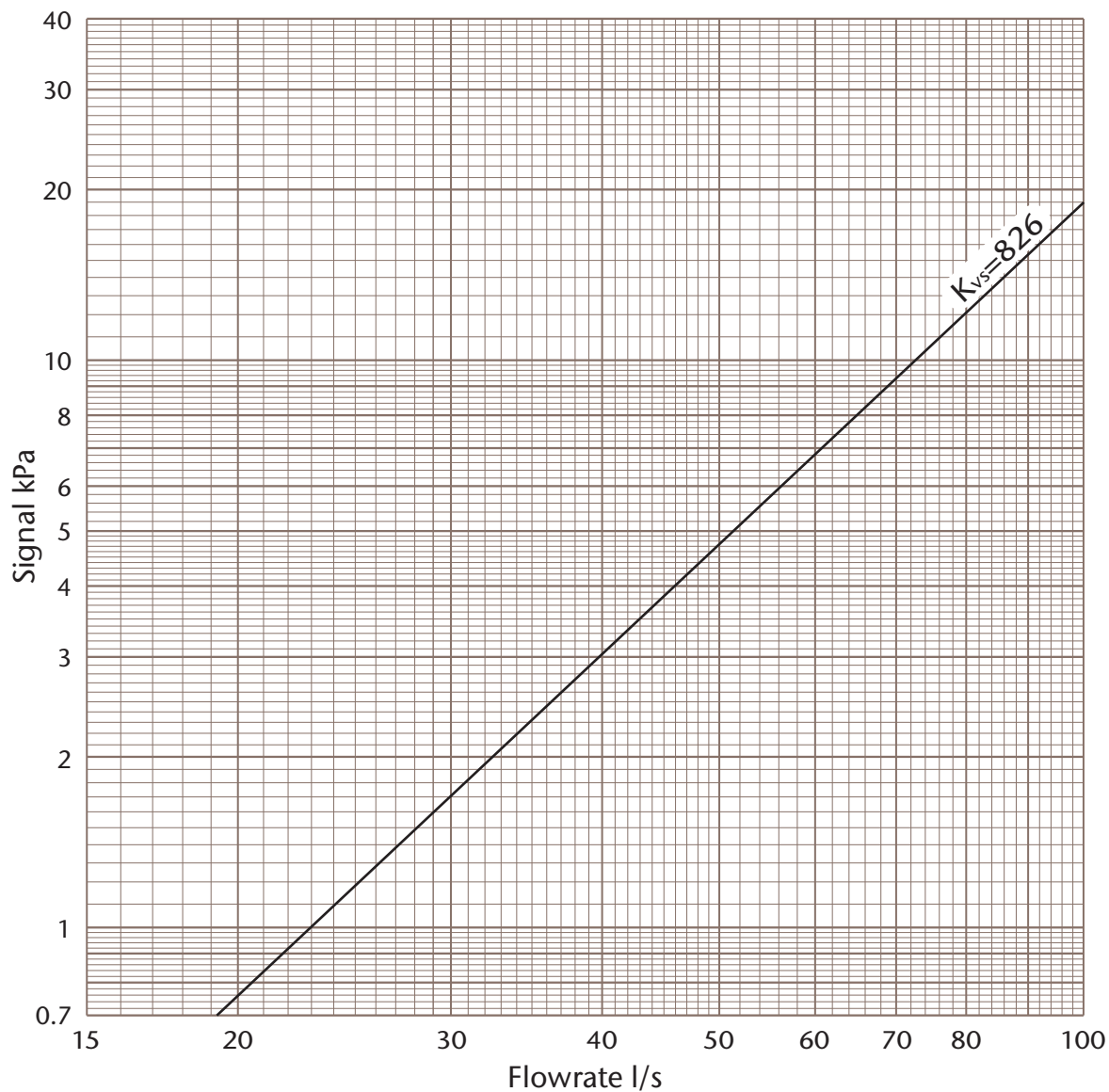
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

$K_{vs}$  = Signal Co-efficient

## DN200 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

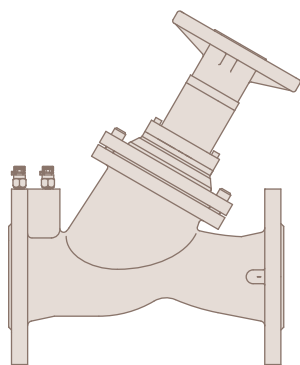
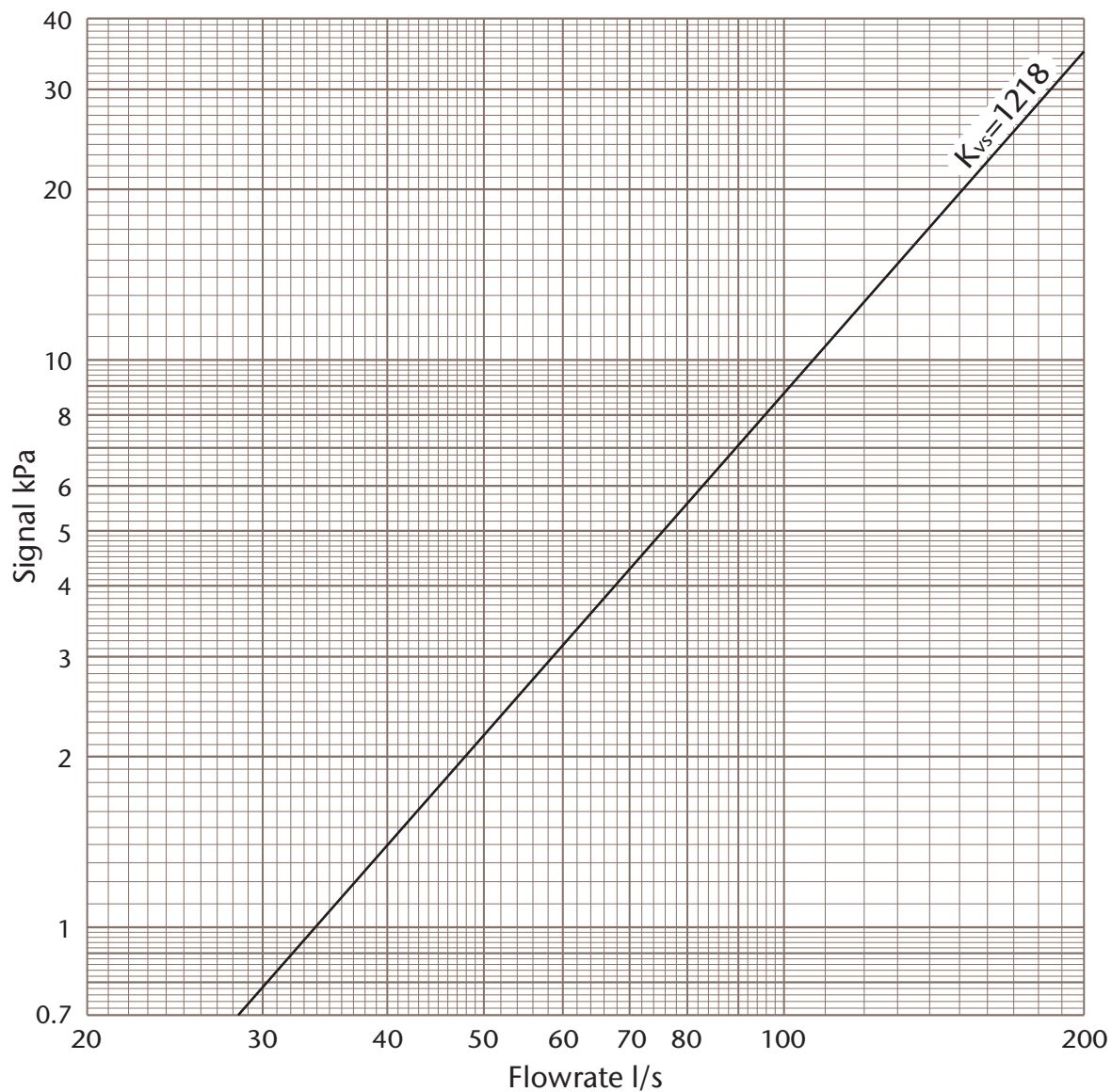
Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

$K_{vs}$  = Signal Co-efficient

## DN250 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

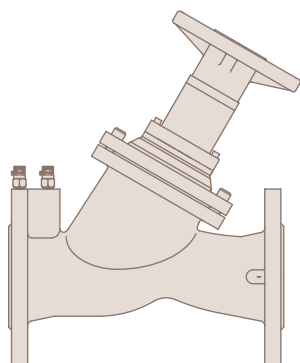
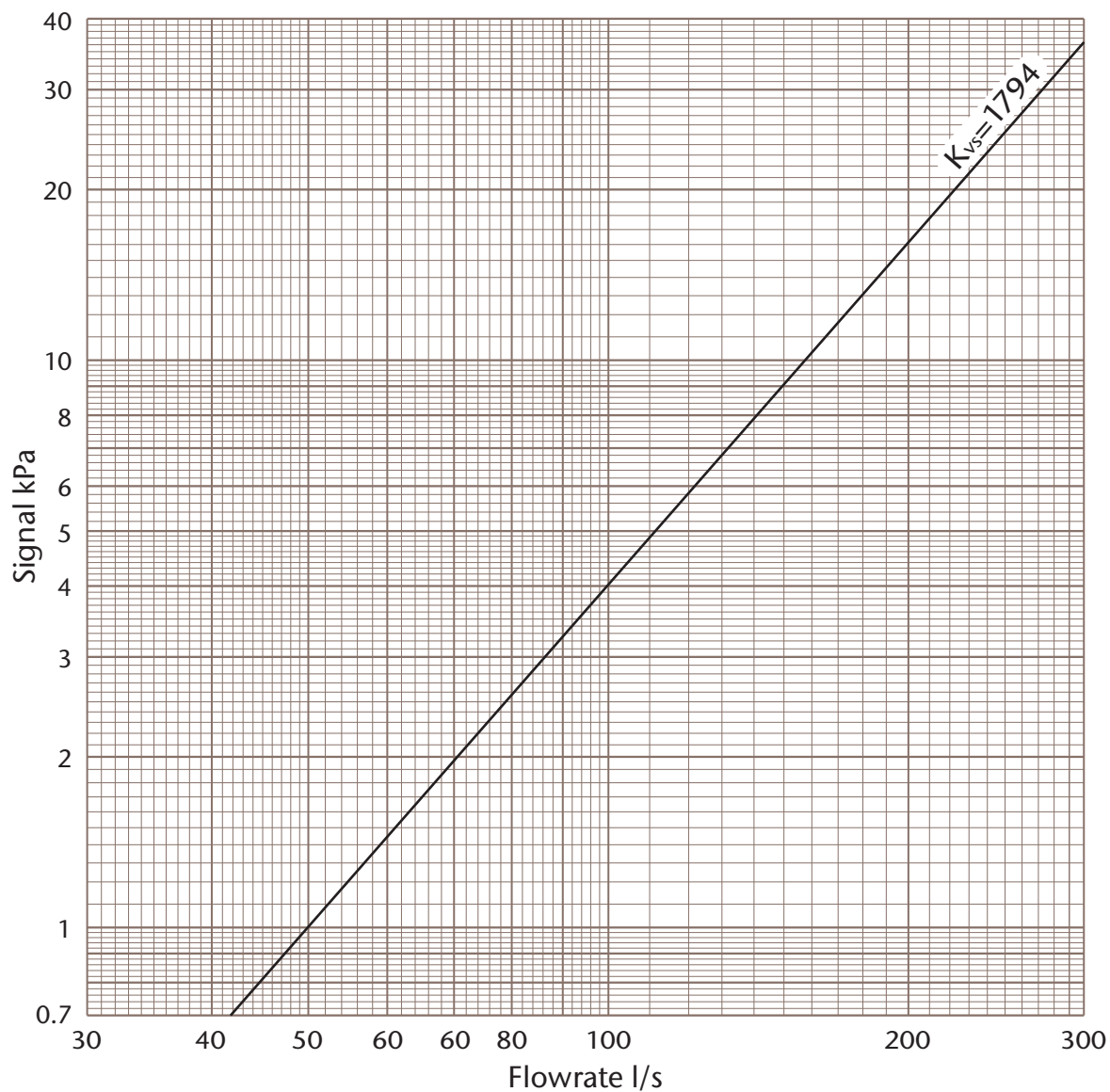
Chart used to determine flowrate from signal measured across orifice

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

Where

$Q$  = Flowrate                      l/s  
 $\Delta p$  = Signal                      kPa  
 $K_{vs}$  = Signal Co-efficient

## DN300 ART 255 Fixed Orifice Double Regulating Valve



### Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

Where

Q = Flowrate l/s

$\Delta p$  = Signal kPa

$K_{vs}$  = Signal Co-efficient