Installation & Operating Manual

CORE 931
Fixed Orifice Double Regulating Valve

For more information, please contact your local SBS representative.

Contents

1. Introduction

- The CORE 931 is a Fixed Orifice Double Regulating Valve (FODRV) used to regulate and measure the flow of media passing through it.
- The CORE 931 has been classified in accordance with PED 2014/68/EU.

2. Technical Data

Valve Type	Size Range	Connection Type	Temperature Rating	Pressure Rating (Max)
CORE 931	DN 15 – DN 50	ISO 228/1	-10°C – 120°C	25 bar

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

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

Where Kv & Kvs = flow coefficient (m3/hr at 1 bar differential)
Q - Flow rate (l/s)
ΔP - Head loss attributable to valve (kPa)
ΔPs - Differential pressure across tappings (signal) (kPa)

Kv Values

Size	15	20	25	32	40	50
Kv	2.31	5.58	7.55	12.59	21.17	30.17

Kvs Values

Size	15	20	25	32	40	50
Kvs	3.00	8.17	11.16	17.17	25.67	45.13

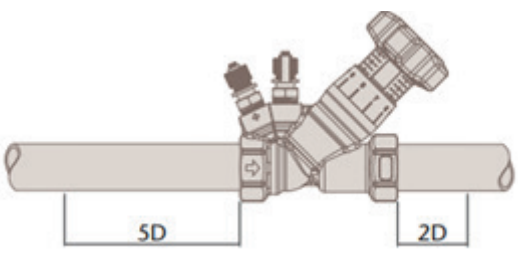
SBS recommend that any CORE 931 FODRV are sized prior to installation to ensure the correct valve selection.

3. Valve Features

- The CORE 931 FODRV is manufactured in accordance with BS 7350:1990
- The CORE 931 is used for balancing the flow in heating, cooling and domestic water systems.
- The CORE 931 is a combined manual pre-setting valve with the following features:
  - Fixed measurement orifice
  - Supplied with 2 measuring binder points
  - Handwheel with shut-off function and clear 360° reading
  - Digital scale with lock function.
- Made of “DZR” (Dezincification Resistant) brass.
- This article is made in compliance with the quality management requirements of ISO 9001 standard.
- All articles are tested in accordance with the EN 12266-1 standard.
- It can be used in a wide variety of sectors: heating, air conditioning, water, sanitary systems and generally with any non-corrosive liquid.

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.
- CORE 931 FODRV should be installed with a minimum of 5 pipe diameters upstream and 2 pipe diameters downstream as per the image below, this is to ensure flow accuracy is maintained during the commissioning stage.



- When the regulated position is achieved the double regulating feature is set by rotating a 3mm allen key in a clockwise direction until resistance is met. The regulating feature is now set and the valve can be closed for isolation and then reopened to the previously set position.
- This flow rate can be measured using a suitable differential manometer. This interfaces with the balancing valve through two sensors inserted in the binder test points placed before and after the valves fixed orifice plate.

Flushing
Control valves are sized to give good control over the system water and have therefore been designed with small, convoluted flow paths. These water ways may not allow adequate water velocities needed for flushing the system during the pre-commissioning stages of water treatment, even when fully open. In line with BSRIA recommendations, suitable consideration needs to be made as to how the removal of system debris can be achieved during the system flushing process.

5. Regulating

- To close the valve rotate the handle clockwise until it stops. Using the data reported in the attached diagrams, the flow can be regulated by rotating the handle counter-clockwise until the required flow rate is reached.
- This flow rate can be measured using a suitable differential manometer.
- This interfaces with the balancing valve through two sensors inserted in the binder points (Kvs) placed before and after the valve's gauged diaphragm.
- The main scale with values from 0 to 4 on the handle, indicates the turns for opening the obturator, while the second circular scale from 0 to 9 records the tenths of one turn.
- The position of the handle at the required flow rate can be memorised using a 3 mm Allen Key.

6. Approvals Classification

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

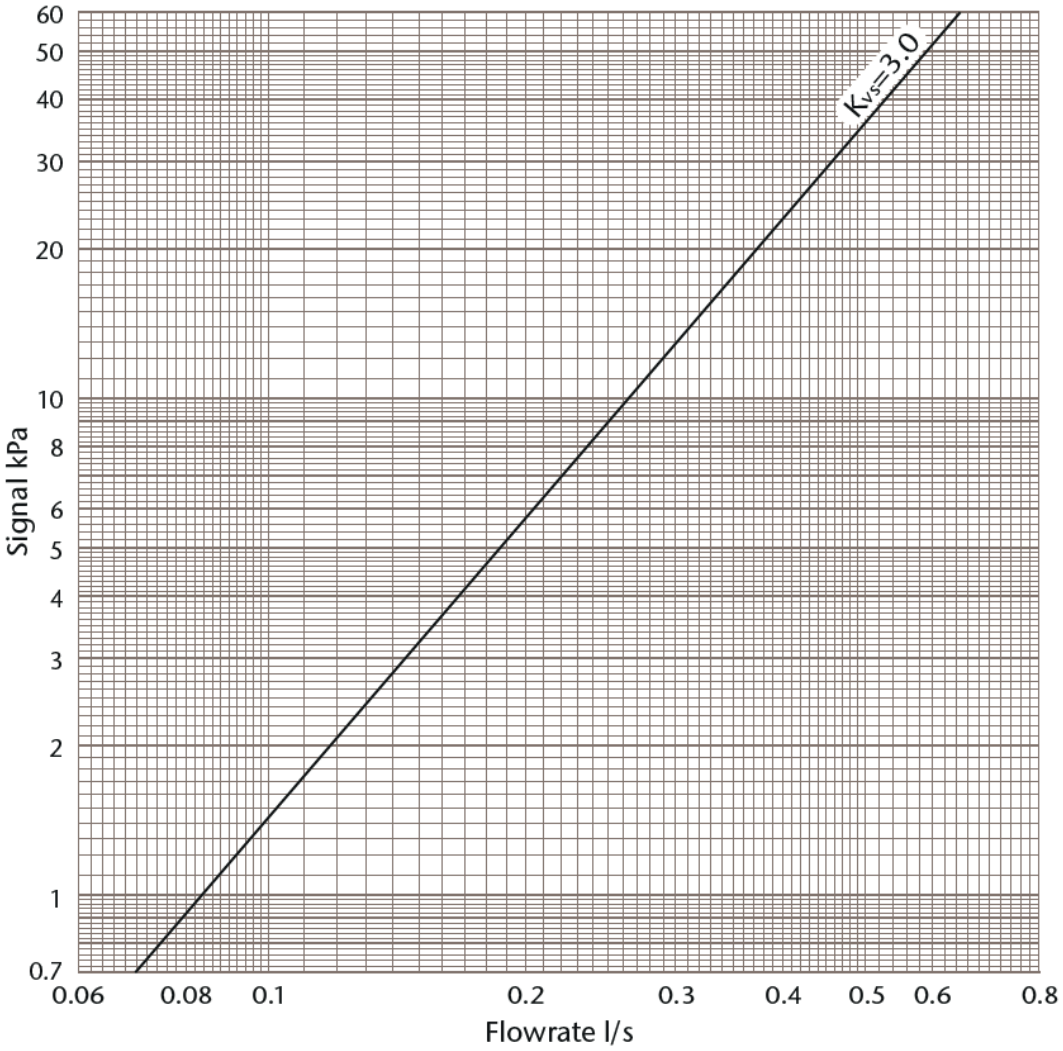
7. Troubleshooting

- 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 depressurised.
- A full risk assessment should be undertaken prior to any works taking place.

8. Warranty

- For further details about the CORE range's warranty period, please contact your CORE representative.

1/2” CORE 931 DZR Fixed Orifice Double Regulating Valve



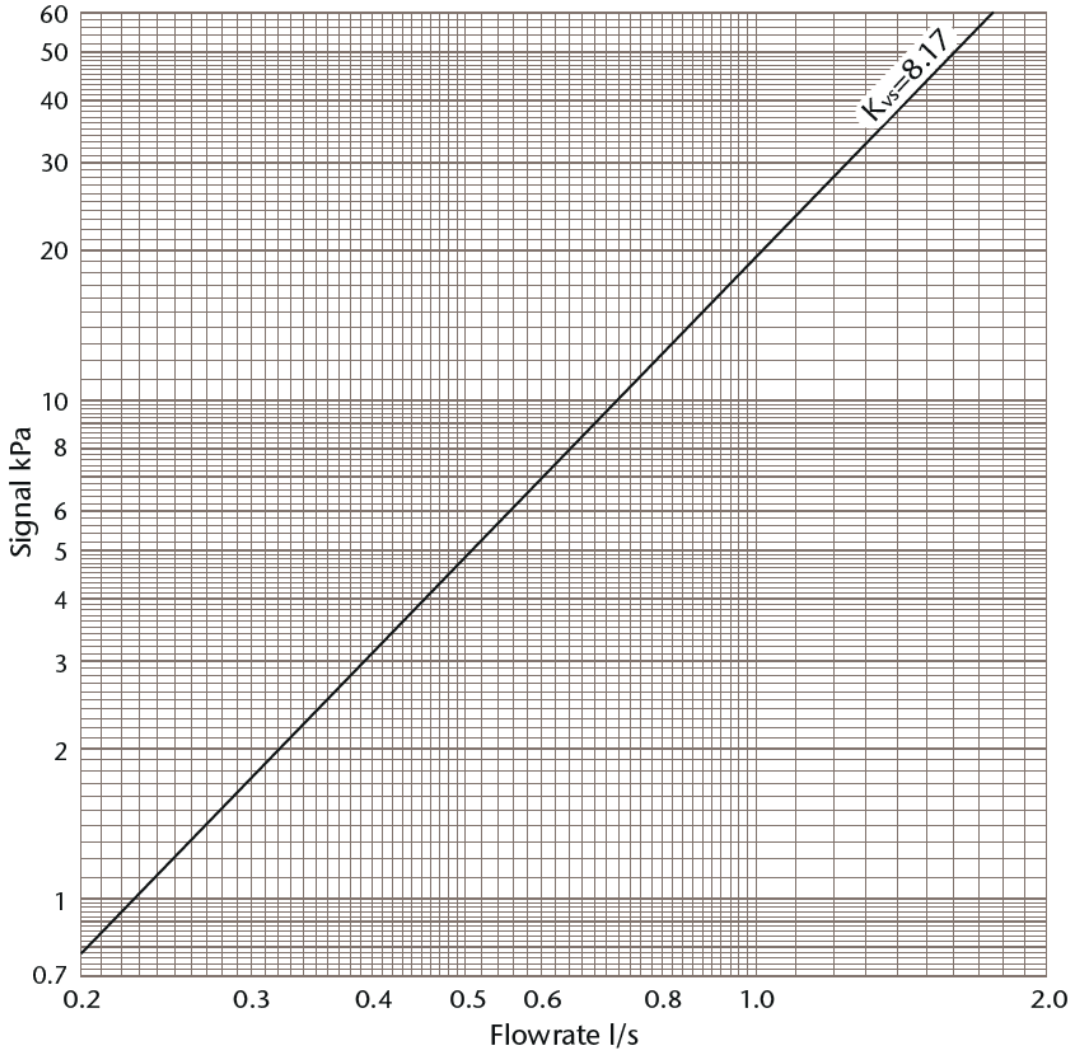
Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

Where
Q = Flowrate l/s
Δp = Signal kPa
Kvs = Signal Co-efficient

3/4” CORE 931 DZR 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
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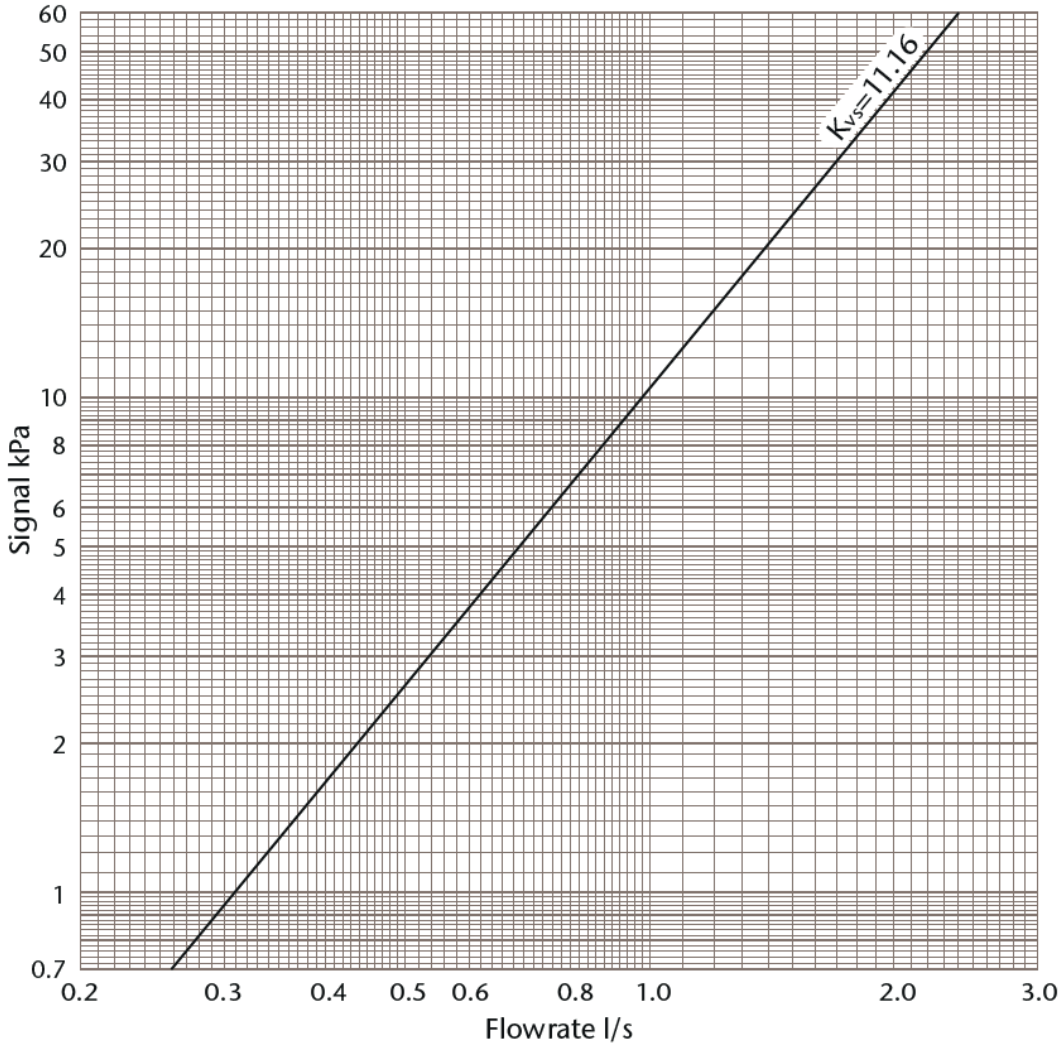
Δp = Signal kPa
Kvs = Signal Co-efficient

1” CORE 931 DZR Fixed Orifice Double Regulating Valve



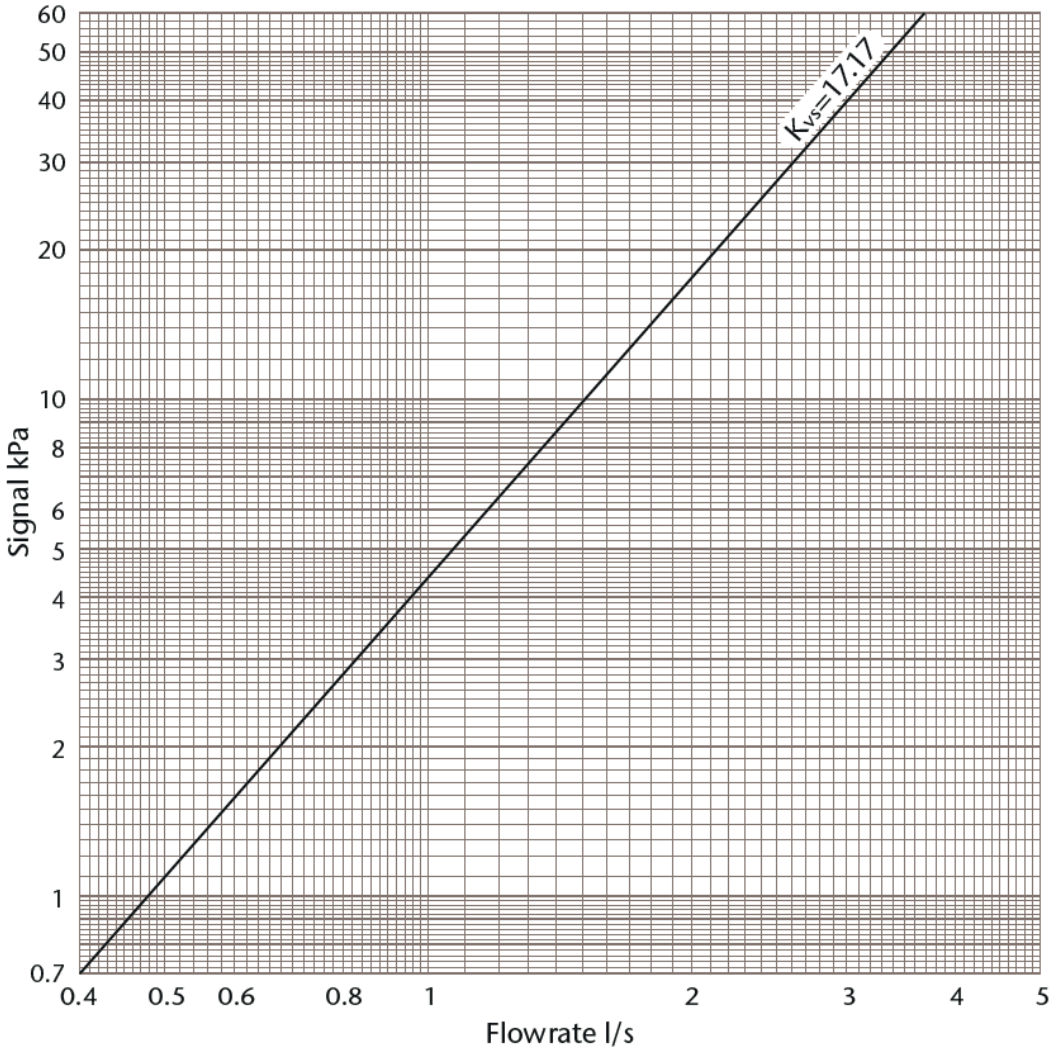
Signal / Flowrate

Chart used to determine flowrate
from signal measured across orifice

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

Where
Q = Flowrate l/s
Δp = Signal kPa
Kvs = Signal Co-efficient

1.1/4” CORE 931 DZR Fixed Orifice Double Regulating Valve



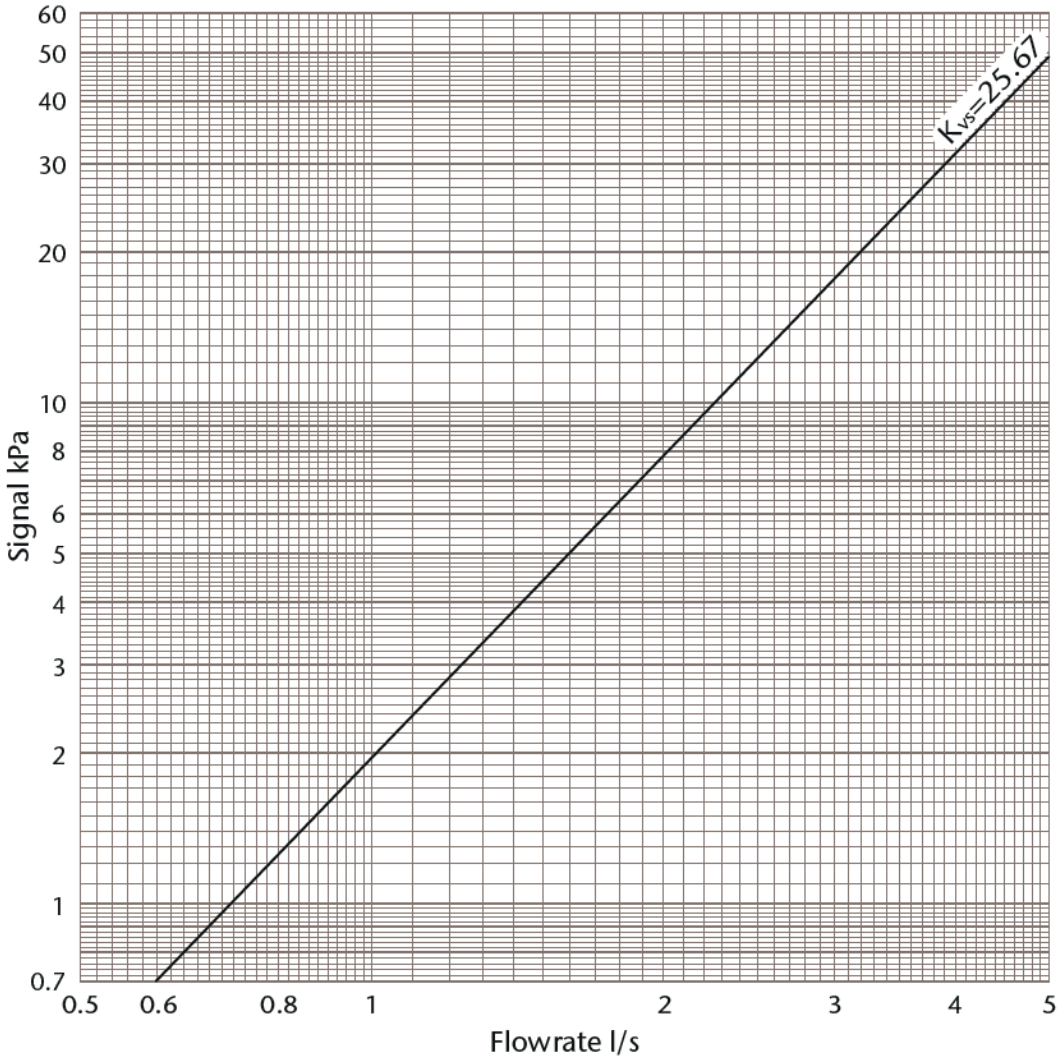
Signal / Flowrate

Chart used to determine flowrate from signal measured across orifice

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

Where
Q = Flowrate l/s
Δp = Signal kPa
Kvs = Signal Co-efficient

1.1/2” CORE 931 DZR Fixed Orifice Double Regulating Valve



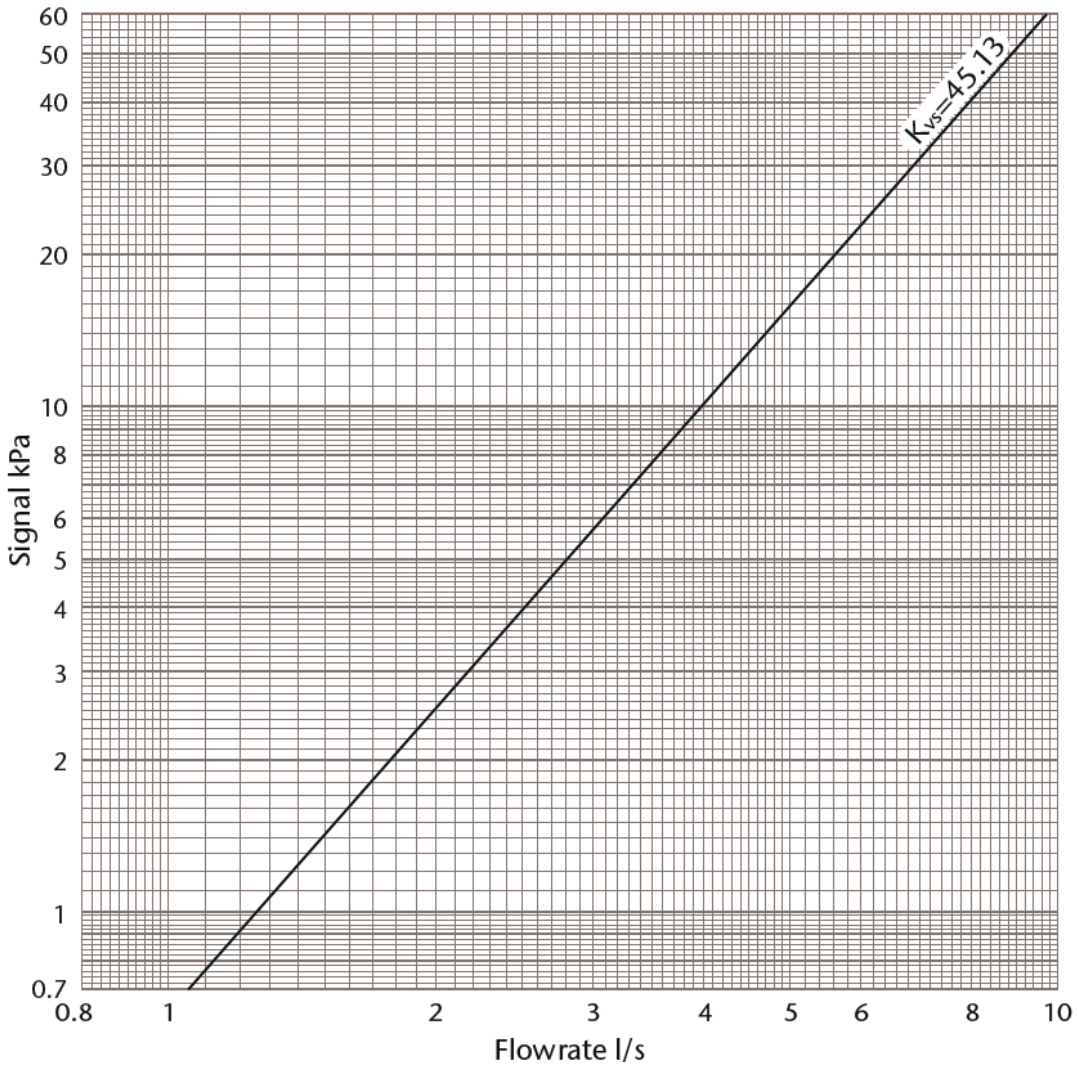
Signal / Flowrate

Chart used to determine flowrate
from signal measured across orifice

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

Where
Q = Flowrate l/s
Δp = Signal kPa
Kvs = Signal Co-efficient

2” CORE 931 DZR 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
Δp = Signal kPa
Kvs = Signal Co-efficient