

# VALVE

for General Application

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## BALANCING VALVE



## PRODUCT DATA SHEET

### FIXED ORIFICE DOUBLE REGULATING VALVE

#### Model : GDRV-101

15mm( $\frac{1}{2}$ " ) ~ 50 mm (2")



#### APPLICATION

Tozen Double Regulating Valves are installed and used in centralised heating and cooling systems to obtain design flow rates of each terminal units and balancing the circuits in the building.

#### FUNCTION

- Balancing
- Measuring
- Pre-setting
- Isolating

#### FEATURES

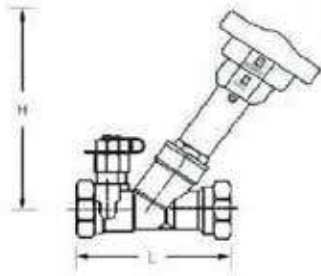
- Y-pattern globe design.
- Integral fixed orifice plate to form a fixed orifice flow measurement unit with regulation and isolation function.
- Accuracy of  $\pm 5\%$  at full open position of the valve.
- Equipped with 2 measuring nipples for differential pressure measurement.
- Microset handwheel adjustment with easily readable setting.
- Multi-turn adjustment range for maximum flow control.
- Double regulating feature allows valve opening to be set with allen key.
- Long neck for thermal insulation.
- Bronze body of PN25 pressure rating.
- Comply to BS 7350.

- |                         |                                       |
|-------------------------|---------------------------------------|
| • Type                  | : Fixed orifice                       |
| • Size range            | : 15mm ~ 50 mm                        |
| • Max. working pressure | : 25bar                               |
| • Testing pressure      | : 37.5bar (Shell)<br>: 27.5bar (Seat) |
| • Working temperature   | : -10°C to 120°C                      |
| • Connection            | : BS 21 (ISO 7)<br>: ANSI B1.20.1     |
| • Standard              | : Comply to BS 7350                   |

## MATERIALS

| Part               | Material         | ASTM        | EN             |
|--------------------|------------------|-------------|----------------|
| Body               | Bronze           | B62 B83600  | EN1982 CC491K  |
| Bonnet             | DZR Brass        | B453 C35330 | EN12164 CW602N |
| Stem               | DZR Brass        | B453 C35330 | EN12164 CW602N |
| Disc (15mm ~ 20mm) | DZR Brass        | B453 C35330 | EN12164 CW602N |
| Disc (25mm ~ 50mm) | DZR Brass + PTFE | B453 C35330 | EN12164 CW602N |
| Orifice Insert     | DZR Brass        | B453 C35330 | EN12164 CW602N |
| Measuring Nipples  | DZR Brass        | B453 C35330 | EN12164 CW602N |
| O-Ring             | EPDM             | -           | -              |
| Handwheel          | ABS              | -           | -              |

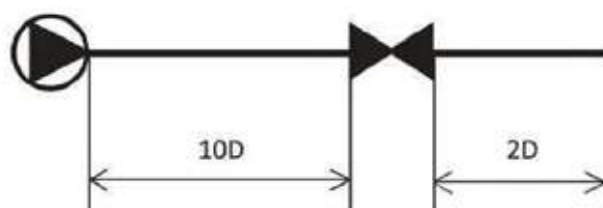
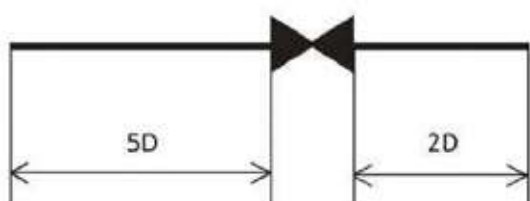
## DIMENSIONS & COEFFICIENTS

|  | Size (mm) | L (mm) | H (mm) | Weight (kg) | Kvs  |
|-------------------------------------------------------------------------------------|-----------|--------|--------|-------------|------|
|                                                                                     | 15        | 90     | 109    | 0.6         | 2.1  |
|                                                                                     | 20        | 98     | 110    | 0.6         | 4.4  |
|                                                                                     | 25        | 105    | 125    | 0.8         | 9.1  |
|                                                                                     | 32        | 120    | 128    | 1.1         | 17.5 |
|                                                                                     | 40        | 130    | 145    | 1.4         | 26.3 |
|                                                                                     | 50        | 150    | 148    | 2.0         | 49.3 |

Note: Kvs at fully open position.

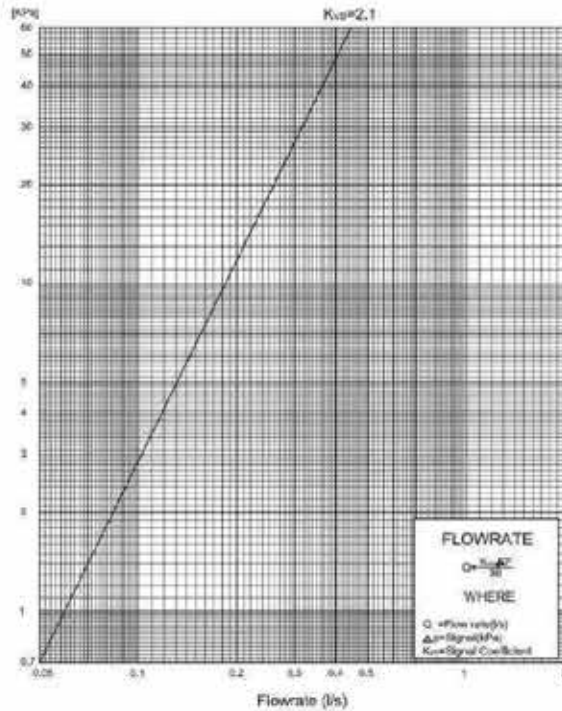
### Installation

- The Double Regulating Valve shall be installed with the arrow marking on the valve body in accord to the same flow direction in the pipe. It may be installed at any angle.
- Use adequate seal material to protect the thread on pipe side from leaking or rusting. For connection, use proper tool (spanner, etc) to screw correctly in accordance to thread standard. Do not connect by using wrench on valve side.
- Up and down stream from the valve is required to avoid turbulence which will affect the accuracy.

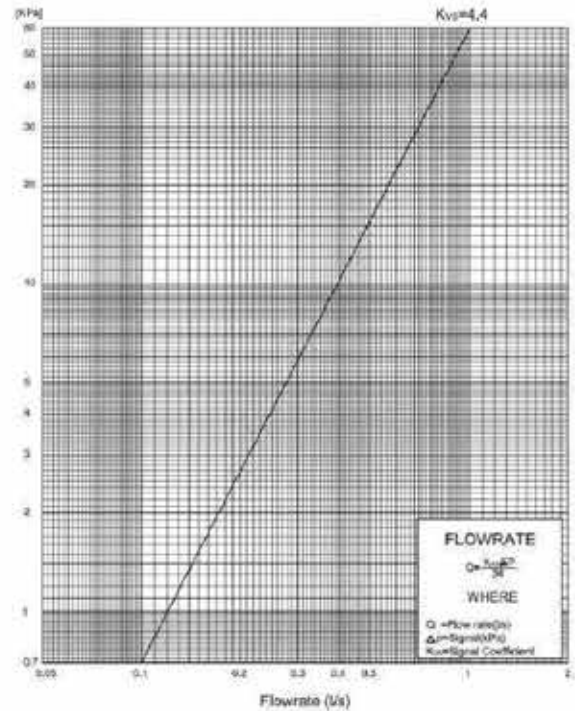


## FLOW MEASUREMENT GRAPHS

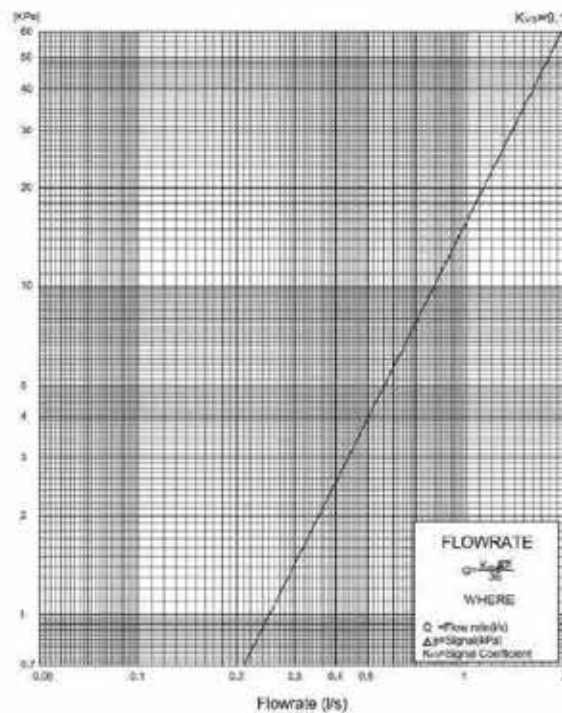
GDRV-101  
Diameter : 15mm



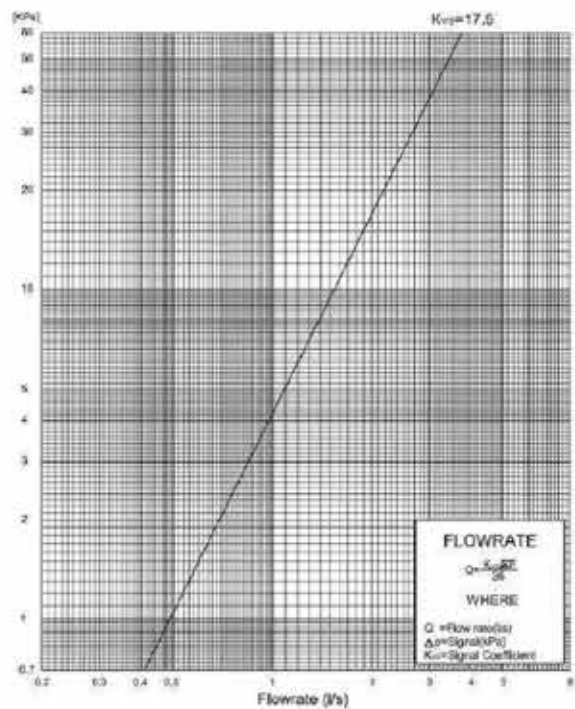
GDRV-101  
Diameter : 20mm



GDRV-101  
Diameter : 25mm



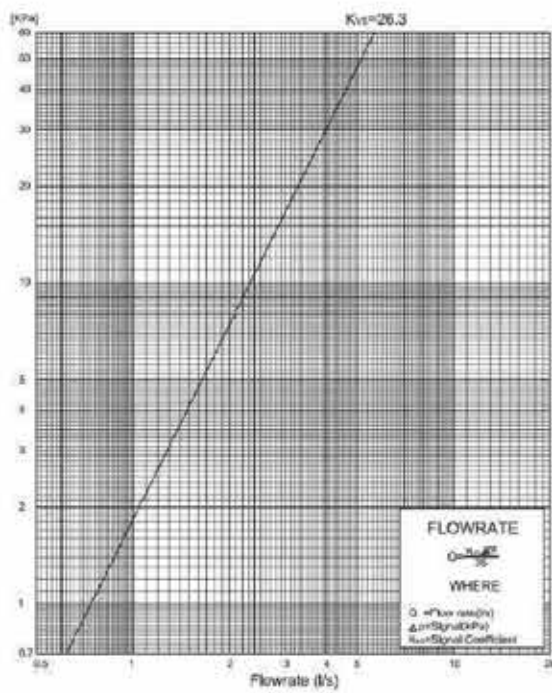
GDRV-101  
Diameter : 32mm



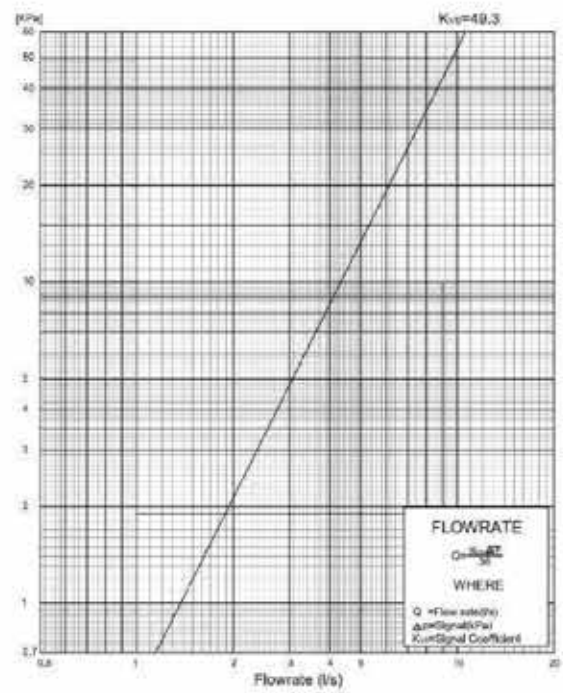


## FLOW MEASUREMENT GRAPHS

GDRV-101  
Diameter : 40mm



GDRV-101  
Diameter : 50mm



**DDRV-B**  
**DDRV-B25**

**FIXED ORIFICE  
DOUBLE REGULATING VALVE**



## PRODUCT DATA SHEET

### FIXED ORIFICE DOUBLE REGULATING VALVE

**Model : DDRV-B  
DDR-B25**

65mm (2½") ~ 300mm (2")



### APPLICATION

Tozen Double Regulating Valves are installed and used in centralised heating and cooling systems to obtain design flow rates of each terminal units and balancing the circuits in the building.

### FUNCTION

- Balancing
- Measuring
- Pre-setting
- Isolating

### FEATURES

- Y-pattern globe design.
- Integral fixed orifice plate to form a fixed orifice flow measurement unit with regulation and isolation function.
- Accuracy of +/-5% at full open position of the valve.
- Equipped with 2 measuring nipples for differential pressure measurement.
- Microset handwheel adjustment with easily readable settings.
- Multi-turn adjustment range for maximum flow control.
- Double regulating feature allows valve opening to be set with allen key.
- Long neck for thermal insulation.
- Ductile iron body of PN16 & PN25 pressure rating.
- Comply to BS 7350.

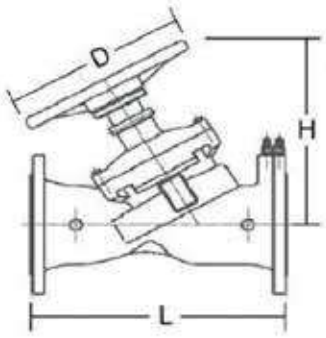
### SPECIFICATION

- Type : Fixed orifice
- Size range : 65mm ~ 300mm
- Max. working pressure : 16bar (DDR-B)  
: 25bar (DDR-B25)
- Testing pressure (Shell) : 24bar (DDR-B)  
: 37.5bar (DDR-B25)
- Testing pressure (Seat) : 17.6bar (DDR-B)  
: 27.5bar (DDR-B25)
- Working temperature : -10°C to 120°C
- Connection : ANSI150  
(Other flange standard available upon request)
- Standard : Comply to BS 7350

## MATERIALS

| Part                | Material                 | ASTM          | EN              |
|---------------------|--------------------------|---------------|-----------------|
| Body                | Ductile Iron             | A536 65-45-12 | EN-JS 1050      |
| Bonnet              | Ductile Iron             | A536 65-45-12 | EN-JS 1050      |
| Stem                | Stainless Steel 410      | S41000        | BS970 410S21    |
| Disc                | EPDM Coated Ductile Iron | A536 65-45-12 | EN-JS 1050      |
| Gland (65 - 150mm)  | DZR Brass                | B453 C35330   | EN 12164 CW602N |
| Gland (200 - 300mm) | Ductile Iron             | A536 65-45-12 | EN-JS 1050      |
| Gland Nut           | DZR Brass                | B453 C35330   | EN 12164 CW602N |
| Measuring Nipples   | DZR Brass                | B453 C35330   | EN 12164 CW602N |
| Handwheel           | Ductile Iron             | A536 65-45-12 | EN-JS 1050      |
| Orifice Insert      | DZR Brass                | B453 C35330   | EN 12164 CW602N |
| Packing             | EPDM                     | -             | -               |

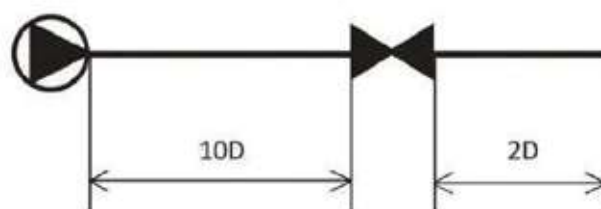
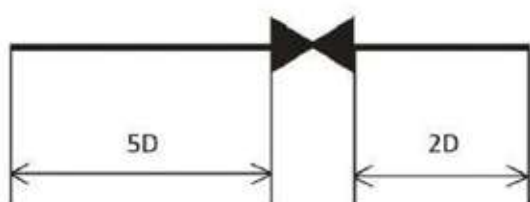
## DIMENSIONS & COEFFICIENTS

|  | Size (mm) | L (mm) | H (mm) | D (mm) | Weight (kg) | Kvs     |
|------------------------------------------------------------------------------------|-----------|--------|--------|--------|-------------|---------|
|                                                                                    | 65        | 290    | 265    | 200    | 17          | 98.40   |
|                                                                                    | 80        | 310    | 270    | 200    | 20          | 131.24  |
|                                                                                    | 100       | 350    | 310    | 240    | 29          | 189.33  |
|                                                                                    | 125       | 400    | 340    | 290    | 40          | 354.73  |
|                                                                                    | 150       | 480    | 340    | 290    | 52          | 472.39  |
|                                                                                    | 200       | 600    | 537    | 350    | 113         | 735.55  |
|                                                                                    | 250       | 730    | 570    | 420    | 185         | 1153.21 |
|                                                                                    | 300       | 850    | 690    | 420    | 248         | 1712.62 |

Note: Kvs at fully open position.

## Installation

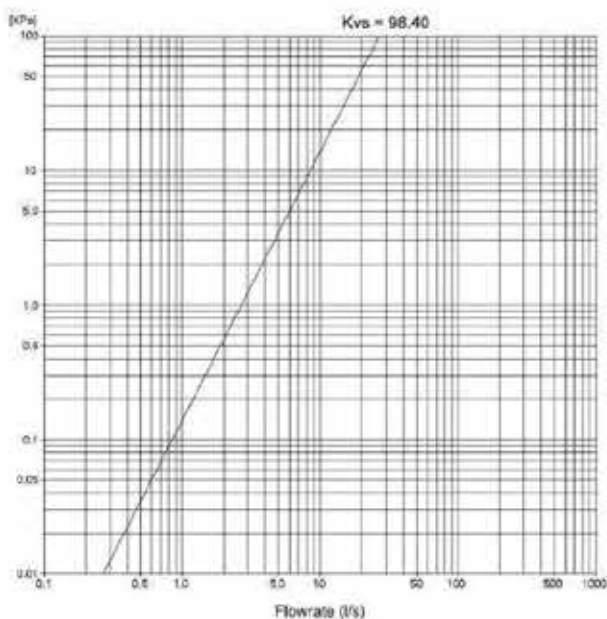
- The Double Regulating Valve shall be installed with the arrow marking on the valve body in accord to the same flow direction in the pipe. It may be installed at any angle.
- The gasket must be assembled between the flanges when the valve is installed. It can ensure that the valve is concentric with the pipe and the exact measurement data can be read.
- Avoid welding with pipe while it is connected, Tighten flanges bolts alternately, diagonally and repeatedly with the same force.
- Up and down stream from the valve is required to avoid turbulence which will affect the accuracy.



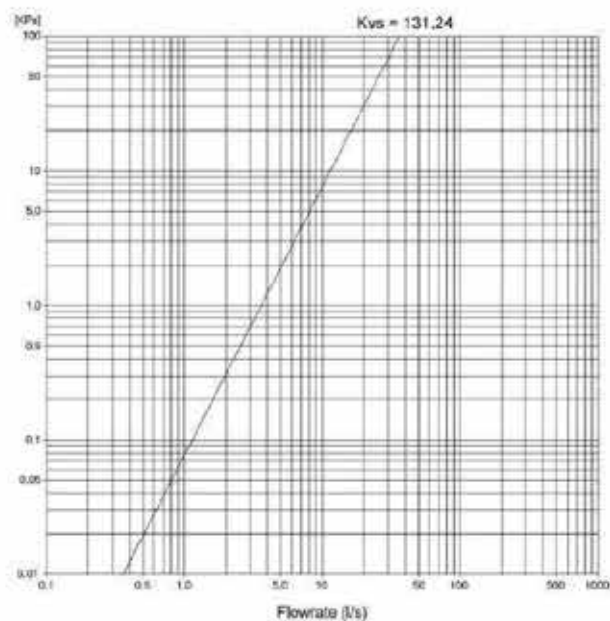


## FLOW MEASUREMENT GRAPHS

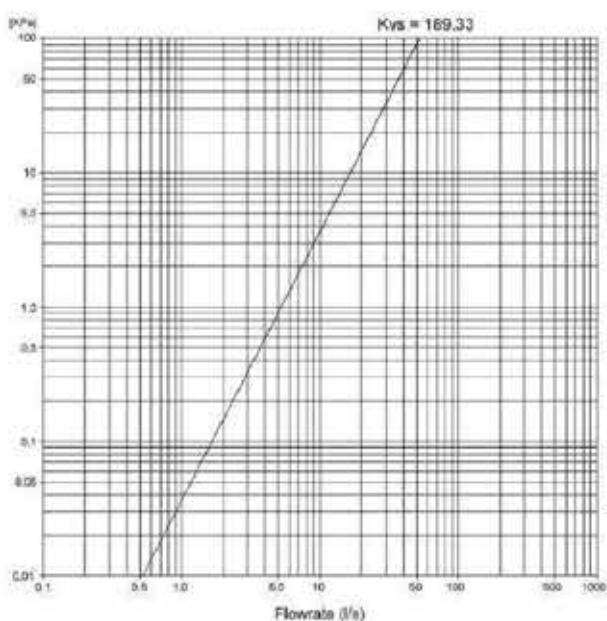
DDRV-B / DDRV-B25  
Diameter : 65mm



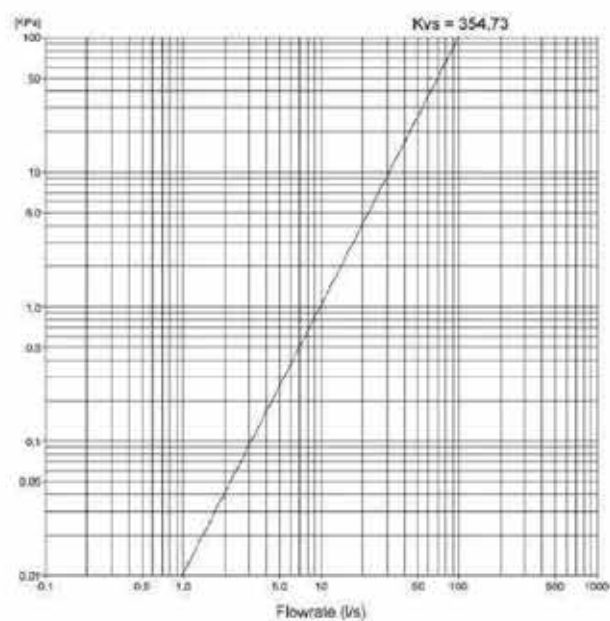
DDRV-B / DDRV-B25  
Diameter : 80mm



DDRV-B / DDRV-B25  
Diameter : 100mm

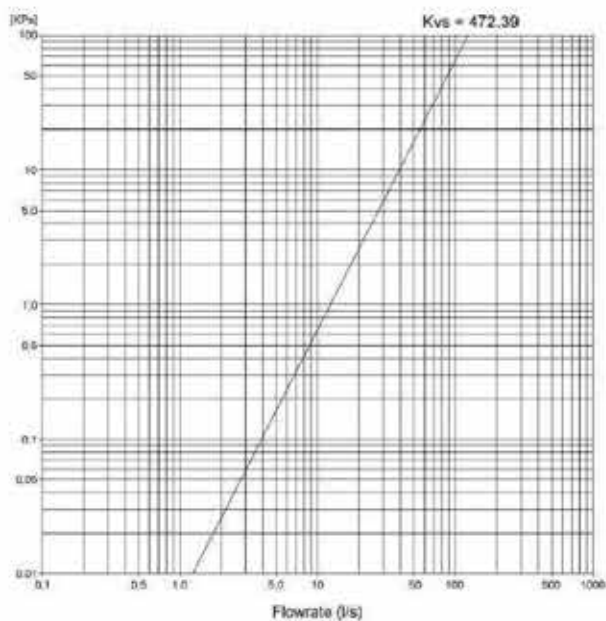


DDRV-B / DDRV-B25  
Diameter : 125mm

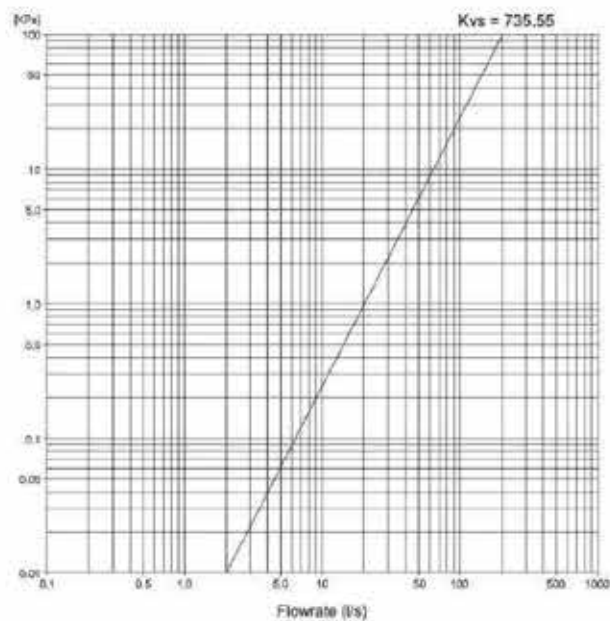


## FLOW MEASUREMENT GRAPHS

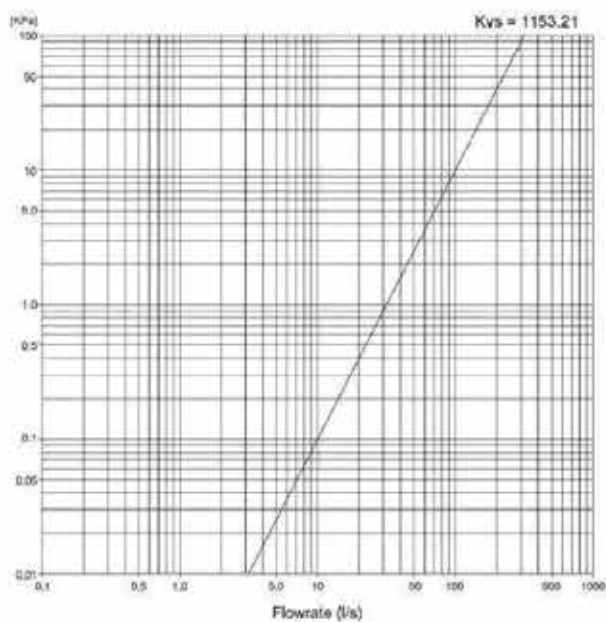
DDRV-B / DDRV-B25  
Diameter : 150mm



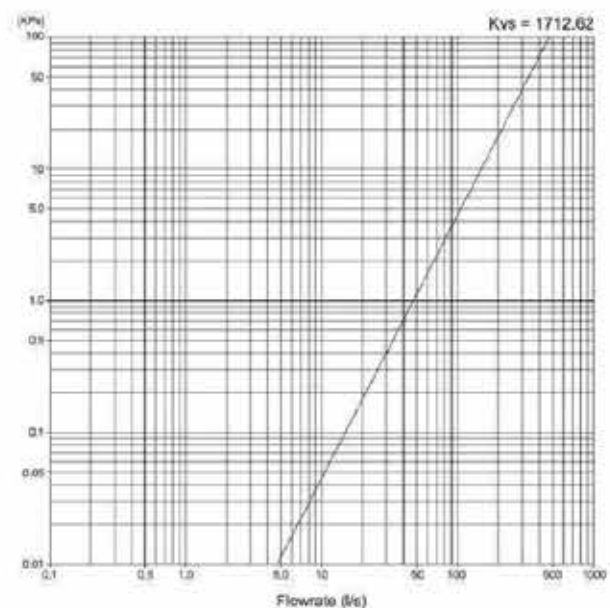
DDRV-B / DDRV-B25  
Diameter : 200mm



DDRV-B / DDRV-B25  
Diameter : 250mm



DDRV-B / DDRV-B25  
Diameter : 300mm





## ELECTRONIC MANOMETER

# TOCA6

The TOZEN TOCA6 electronic manometer Unit has been developed in response to demand from discerning commissioning engineers requiring an improvement in measuring techniques for differential pressures measurements primarily on balancing valves in heating and air conditioning systems. The nine button design allows simple navigation of the easy-to follow simple navigation of the easy-to follow menu system with all parameters visible on screen.



## TECHNICAL SPECIFICATION

### Measurement accuracy Differential Pressure

Range 0.3-1kPa — Accuracy  $\pm 0.03\text{kPa}$   
Range 1-10kPa — Accuracy  $\pm 0.05\text{kPa}$   
Range 10-250kPa — Accuracy  $\pm 0.5\%$  reading  
Hysteresis 0.2% span

### Static Pressure

10 Bar Maximum with hoses supplied as standard  
High pressure options available

### Measurement Range

0.1kPa to 250kPa

### Effective operating time

20 hour with standard Alkaline PP3 battery

manometer



balancing valve



## ■ Structure



## ■ DESCRIPTION

**TOZEN TOCA6** Manometer unit comprise the following

Hand held transducer and display unit in rubber protection sleeve.

Quick connect tubing set complete with manually operated isolation valves.

Quick connect angle pattern 3.3mm insertion probes units.

Toolkit

Instruction manual

Quick start instruction set and menu map, which has been set up with default valves for all the editable function and are listed.

## ■ FUNCTIONS

**Flow/Pressure Display:** Shows valve type, Kvs value, hand-wheel setting (when use with variable orifice), differential pressure, flow, valve type, valve size. Flow and pressure are shown in large text format.

**Multi Display:** Shows valve type, Kvs value, handwheel setting (when use with variable orifice), design flow, target flow, differential pressure, flow, valve type, valve size.

**Pressure Display:** Large text differential pressure.

**Predictive Handwheel Position:** For adjusting variable orifice valves.

**Valve Storage:** Up to 100 storage locations are available for manually storing valves information on-site.

### Units

**Differential Pressure:** Pa, kPa, PSI, BAR, feet H<sub>2</sub>O, Inches H<sub>2</sub>O, mtrs H<sub>2</sub>O, mm H<sub>2</sub>O, cm H<sub>2</sub>O

**Flow :** l/s, l/M, l/h, USGPM, UKGPM

### Edit Functions

Design flow, target flow specific gravity, Kvs, valves maker, valve group, valve model, valves size, handwheel position.





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VLV-0325  
BALANCING VALVE