

Balancing Valves

FIG 900XSS and 901XS Butterfly Venturi Commissioning Valve FODRV & DRV 65mm-300mm (PN16)

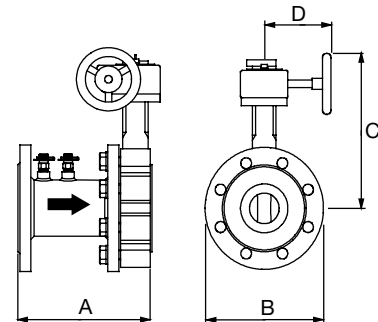


BOSS™ 900XSS
Venturi FODRV DN65-300

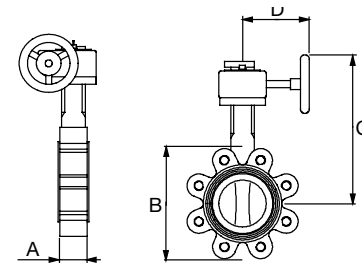


BOSS™ 901XS
Venturi DRV DN65-300

Dimensions



BOSS™ 900XSS



BOSS™ 901XS

Weights & Dimensions

Standard Butterfly FODRV Venturi DN65 – 300

Size DN	Nominal Size in	A mm	B mm	C mm	D mm	Number of bolts	Weight kg	Product Code
65	2½	182	185	285	100	4	13.3	32014110
80	3	249	200	295	100	8	16.2	32014121
100	4	325	220	310	160	8	23	32014132
125	5	341	250	325	160	8	30	32014143
150	6	354	285	340	160	8	36	32014154
200	8	378	340	430	200	12	55	32014165
250	10	411	405	465	200	12	78	32014176
300	12	465	460	535	250	12	105	32014187

Standard Butterfly DRV DN65 - 300

Size DN	Nominal Size in	A mm	B mm	C mm	D mm	Number of bolts	Weight kg	Product Code
65	2½	45	185	285	100	4	6.1	32014601
80	3	46	200	295	100	8	6.3	32014612
100	4	52	220	310	160	8	10.6	32014623
125	5	55	250	325	160	8	12.6	32014634
150	6	56	285	340	160	8	14.1	32014645
200	8	60	340	430	200	12	14.1	32014656
250	10	68	405	465	200	12	33.7	32014667
300	12	78	460	535	250	12	48.7	32014678

The larger sizes of the BOSS™ Venturi consist of a gear operated cast iron butterfly valve fitted with a double regulation feature mounted on a carbon steel tube fitted with the Venturi device.

These Venturi valves are available with flanged connections in a long or short pattern. The range covers sizes from 65mm (2½in) to 300mm (12in). This range of valves complement the DZR brass offering of Venturi valves and the long pattern version includes, within the valve, the upstream lengths which are required for accurate commissioning (5 times the valve diameter).

The flow is calculated based on the pressure differential across the nozzle. The measurement accuracy is better than $\pm 3\%$ and this accuracy is maintained over the entire measuring range from 1kPa to 100kPa.

The BOSS™ Venturi is available in two variations:

- FODRV: Includes regulation, isolation and a flow measurement unit.
- DRV: Includes regulation and isolation unit.

Benefits

- Regulation, Isolation and flow measurement in one single unit
- Measurement across a nozzle
- Flow measurement better than $\pm 3\%$
- Same measuring accuracy across the entire measuring area from 1kPa – 100kPa
- Regulation setting remains unchanged when isolated

Specification

The commissioning station incorporates a characterised regulation butterfly valve close coupled to a fixed orifice Venturi flow measuring device with double seal test points. The double regulating feature allows the disc setting to be locked in position using an allen key and return to the exact position after isolation.

Butterfly Venturi DN65 - 300		
	FODRV	DRV
Pressure & Temperature Classification		
Temperature Max (Max)	105°C	105°C
Pressure Flanged Connection (Max)	16 bar	16 bar
Materials of Construction		
Venturi pipe	Carbon Steel ST37	
Measuring P/T plug	DZR Brass CW602N CuZn36Pb2As	
Rubber in P/T plug	EPDM	
Butterfly Valve body	Cast Iron, Fully Lugged ASTM A126KL.B	
Disc	Stainless Steel ASTM A351	
Shaft	Stainless Steel ASTM A276	
Backing ring	EPDM	
Drive pin	Stainless Steel ASTM A276 Gr316	
Shaft seal	NBR 1	
Bearing	Lubricated Bronze ASTM B62	
Markings on Valves		
Venturi pipe	PN16, 105°C, St37	
Butterfly valve	Valve Type, DN & Kvs Value	
Connection		
Flanged	BS4504 PN16	
Compression	EN1254-2	
Pressure Test According to:	ISO5208:1993E	

Balancing Valves

Flow Range – Butterfly FODRV & DRV DN65 - 300								
FODRV			Signal	Head Loss Kvs	Loss Factor	DRV		Kvs
Valve Size	Kvs	Flow Rates*				Valve Size	Kvs	
DN	Description	m ³ /h	l/s	kPa	m ³ /h	DN	m ³ /h	
65	Standard	37.40	3.00 - 7.00	8 - 45	78.20	65	148	
80	Standard	72.90	6.00 - 15.00	9 - 55	169.00	80	237	
100	Standard	129.00	11.00 - 26.00	9 - 53	360.00	100	603	
125	Standard	190.00	17.00 - 40.00	10 - 57	502.00	125	888	
150	Standard	348.00	24.00 - 57.00	6 - 35	1010.00	150	2341	
200	Standard	586.00	42.00 - 100.00	7 - 38	1910.00	200	2845	
250	Standard	861.00	67.00 - 157.00	8 - 43	2540.00	250	4549	
300	Standard	1513.00	94.00 - 226.00	5 - 29	4850.00	300	7761	

* The flow rates given in the table are for water flow in steel pipes which provide a pressure loss of 100 to 500 Pa per metre of pipe.

Regulation/Operation

The valve is adjusted by rotating the hand wheel on the gearbox. The water flow increases when the hand wheel is turned anti-clockwise and reduces when turned clockwise. By using a flow meter or other measuring device the flow rate through the BOSS™ Venturi can be measured and adjusted to meet the specific requirements of the system. The gearbox can be locked against the memory stop when the desired setting is achieved. Once locked the valve can be isolated and when re-opened cannot travel past the memory stop.

Isolation

The valve is isolated by turning the hand wheel clockwise up to the “S” position stamped on the gearbox. After isolation the valve is re-opened to the pre-set position when the indicator cam reaches the memory stop.

Flow Measurement

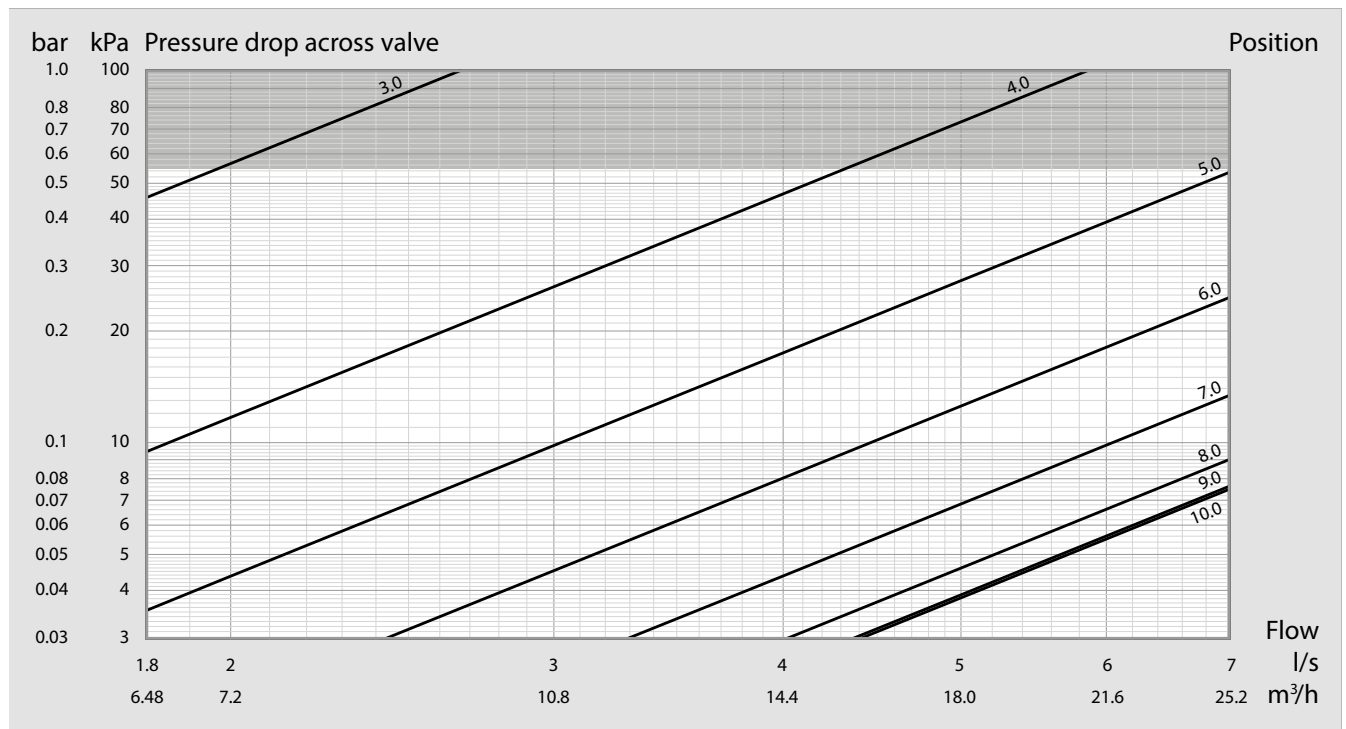
Flow measurements are via the Venturi nozzle. The BOSS™ Venturi has two test points (P/T plugs). The high pressure test point is identified by the RED retaining clip and the low pressure test point is identified by the BLUE retaining clip. The pressure differential measured between these test points can be used to calculate the actual flow through the Venturi. This differential can be measured using a flow meter or other measuring device. This is converted into a flow rate of litres per second (l/s) or metres cubed per hour (m³/h) either electronically or using a calculation formula.

Valve Sizing

Sizing disc available on request via your local BSS branch or the BOSS™ Technical Team on 0116 245 5940.

FIG 900XSS & 900XSL FODRV Venturi Valve DN 65 flange/flange – Flow diagram / Measuring signal diagram

DN 65 flange/flange - Flow diagram



DN 65 flange/flange - Measuring signal diagram

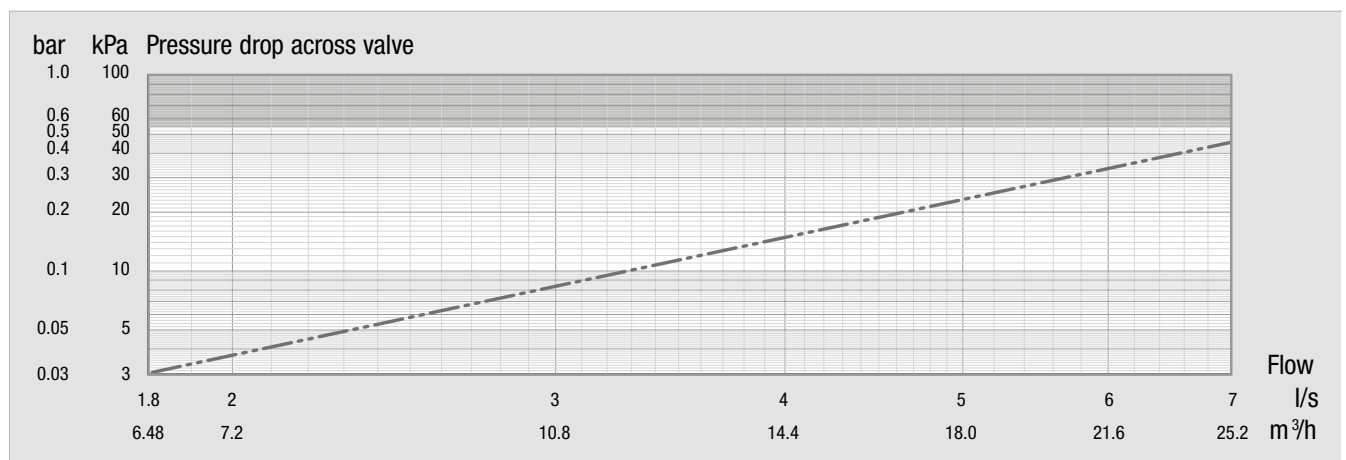
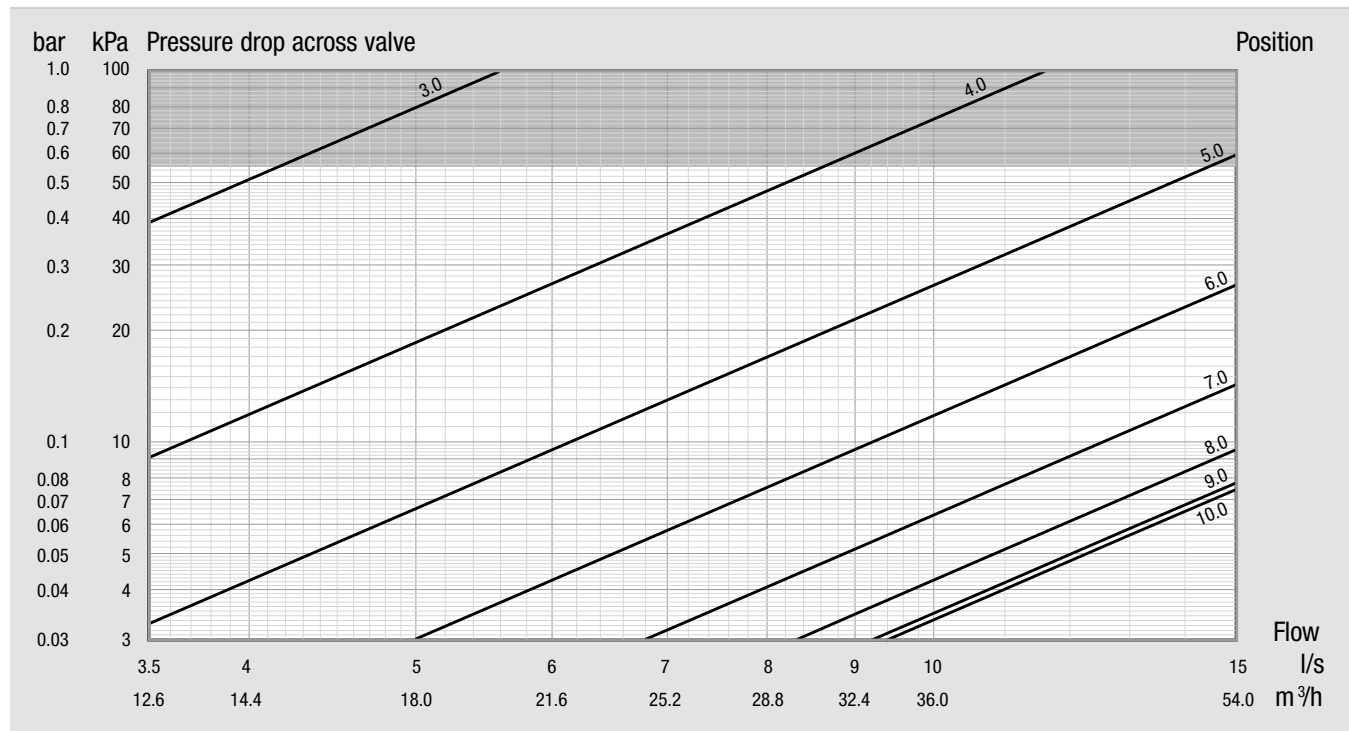


FIG 900XSS & 900XSL FODRV Venturi Valve

DN 80 flange/flange – Flow diagram / Measuring signal diagram

DN 80 flange/flange - Flow diagram



DN 80 flange/flange - Measuring signal diagram

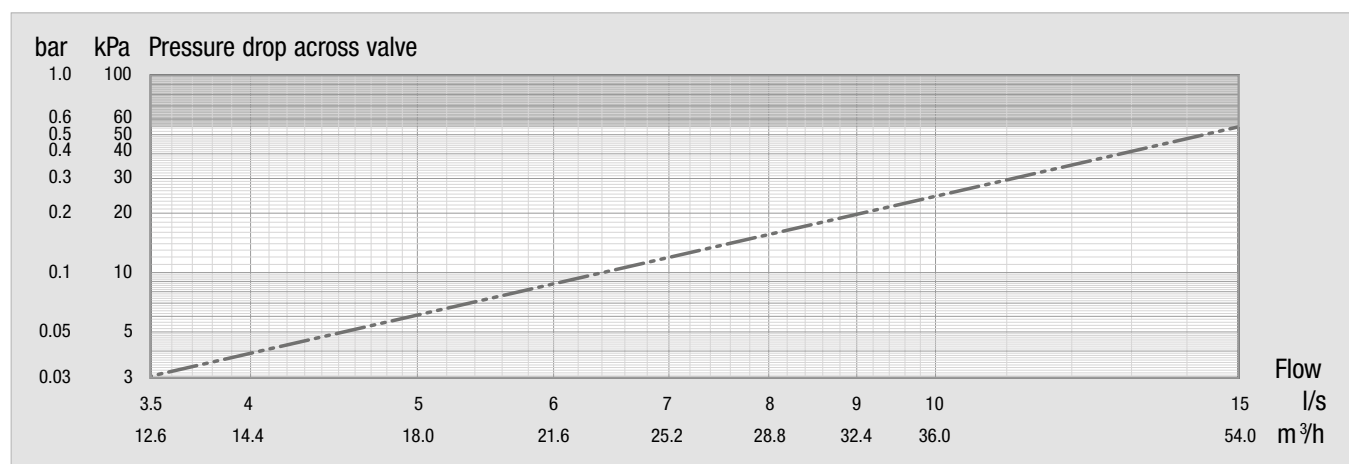
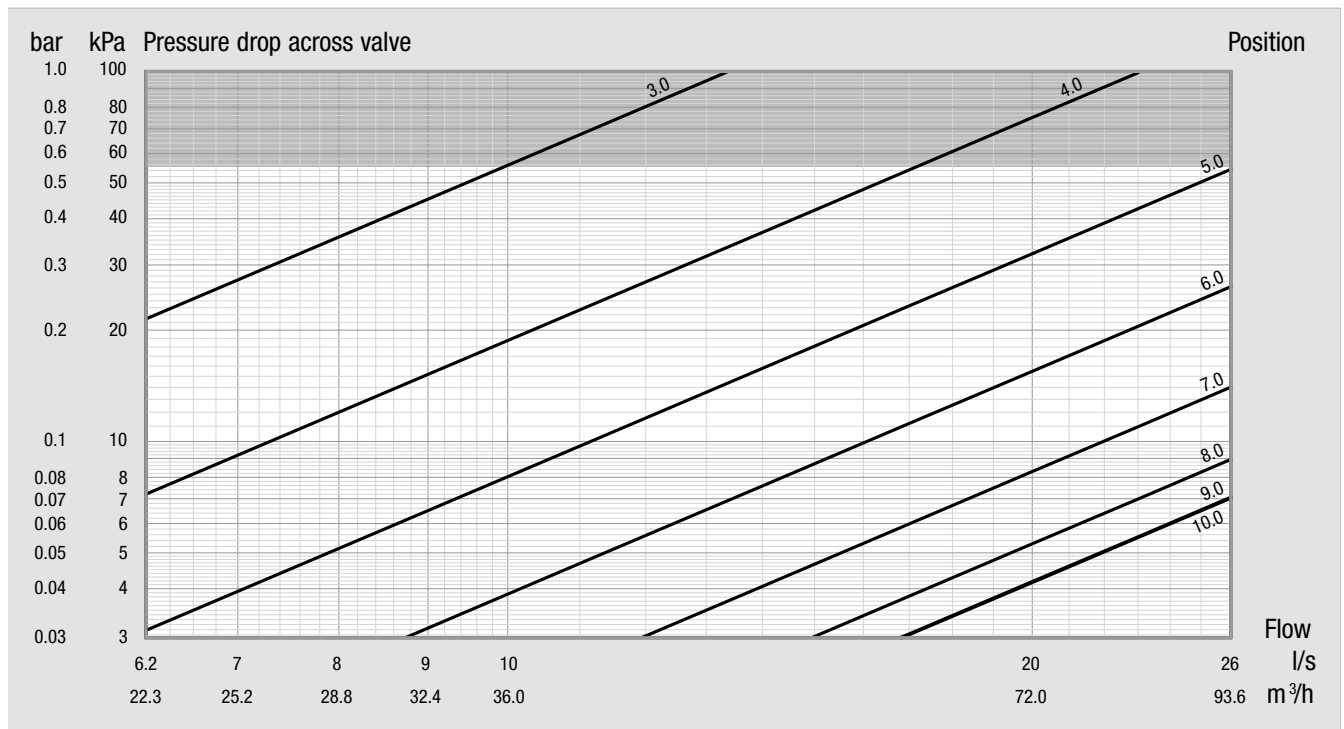


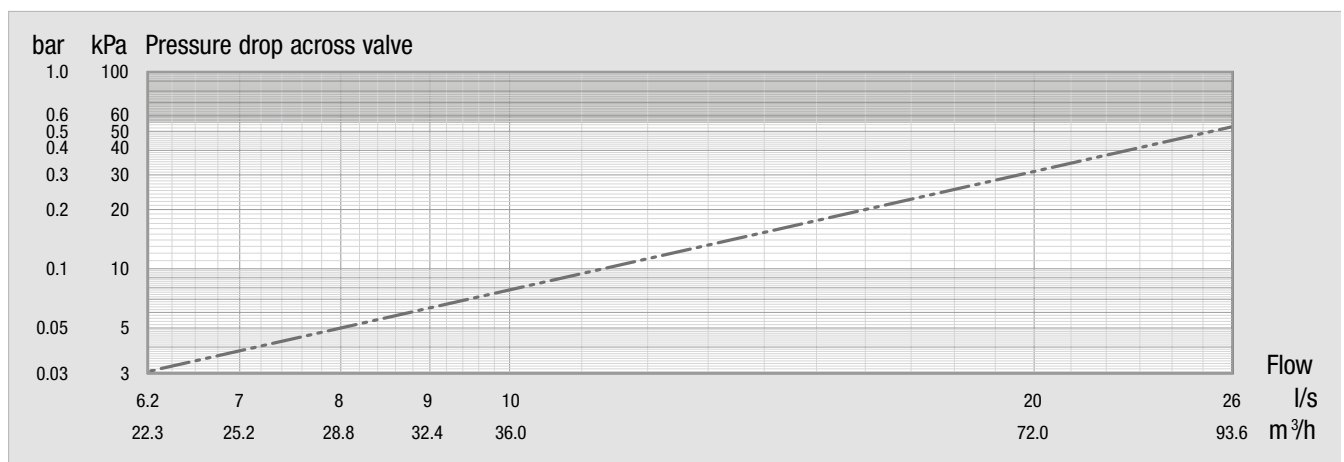
FIG 900XSS & 900XSL FODRV Venturi Valve

DN 100 flange/flange – Flow diagram / Measuring signal diagram

DN 100 flange/flange - Flow diagram



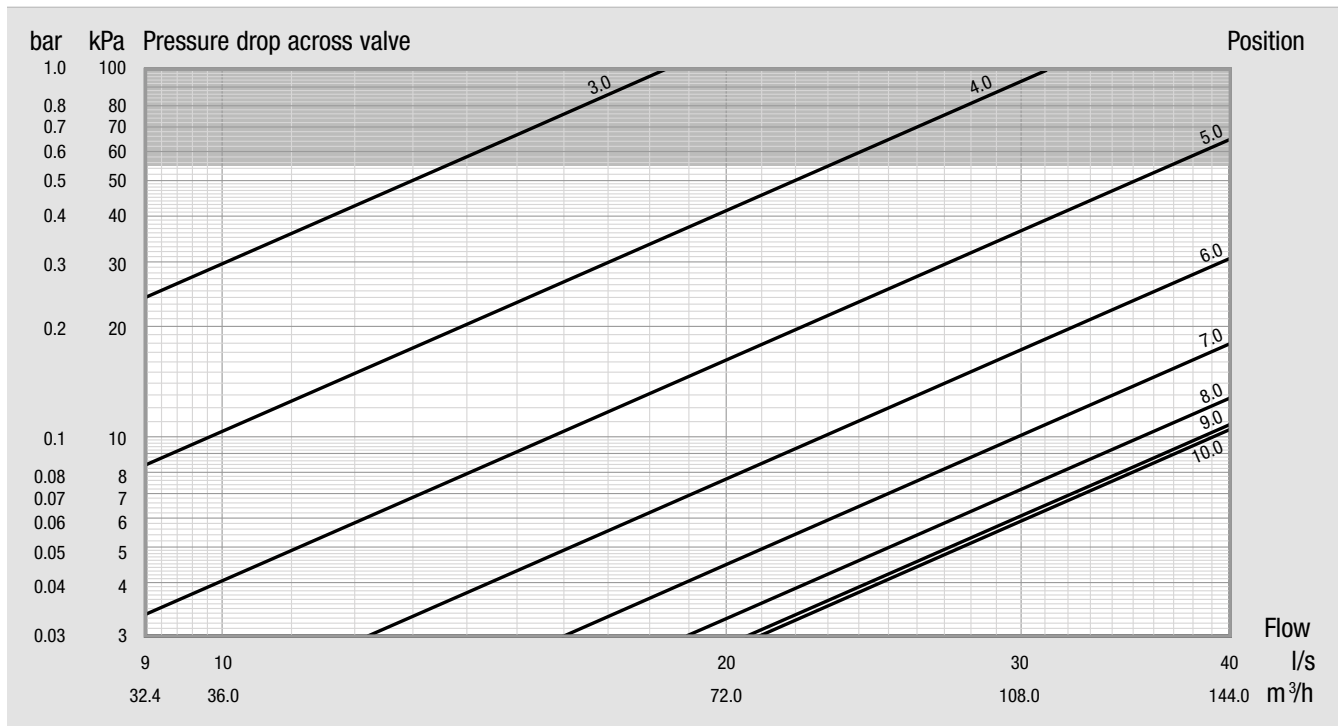
DN 100 flange/flange - Measuring signal diagram



Balancing Valves

DN 125 flange/flange – Flow diagram / Measuring signal diagram

DN 125 flange/flange - Flow diagram



DN 125 flange/flange - Measuring signal diagram

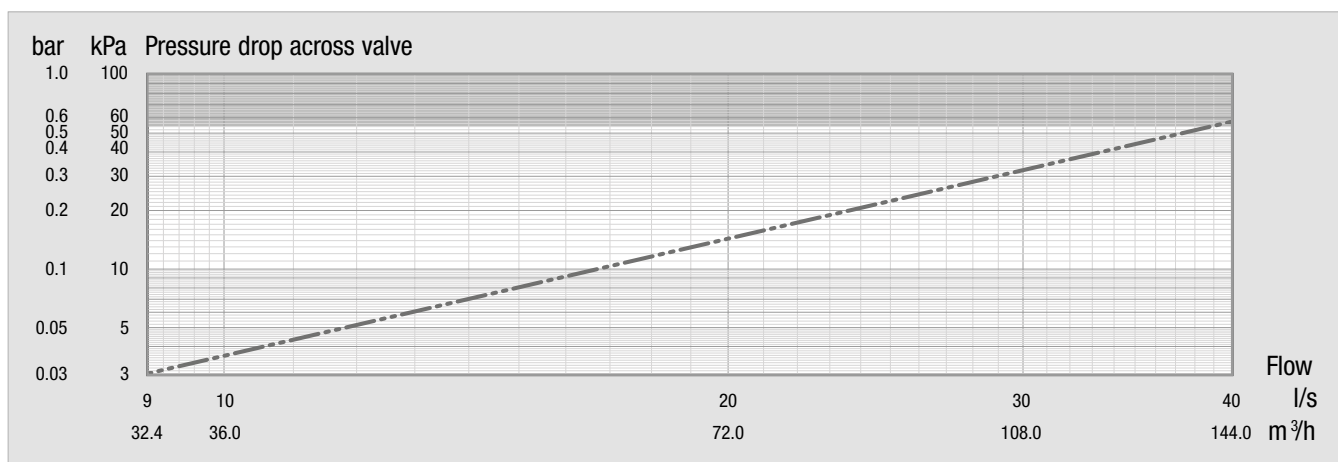
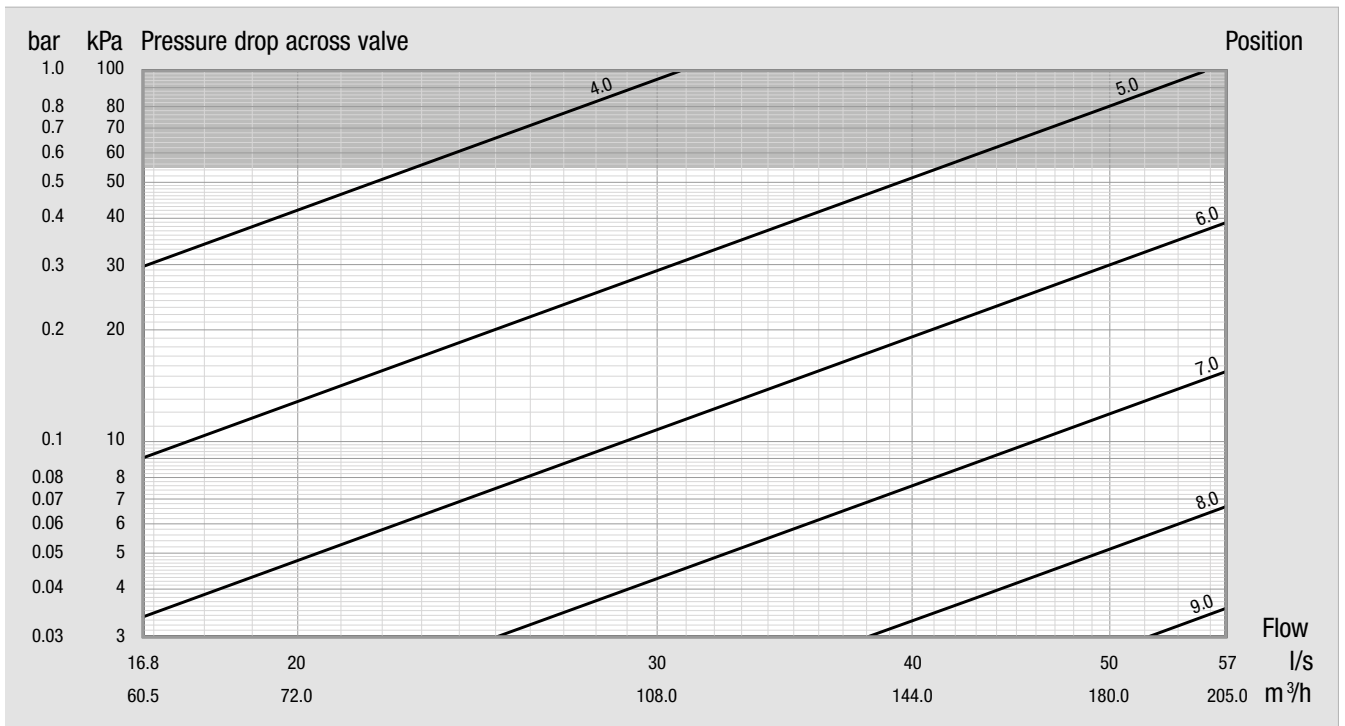


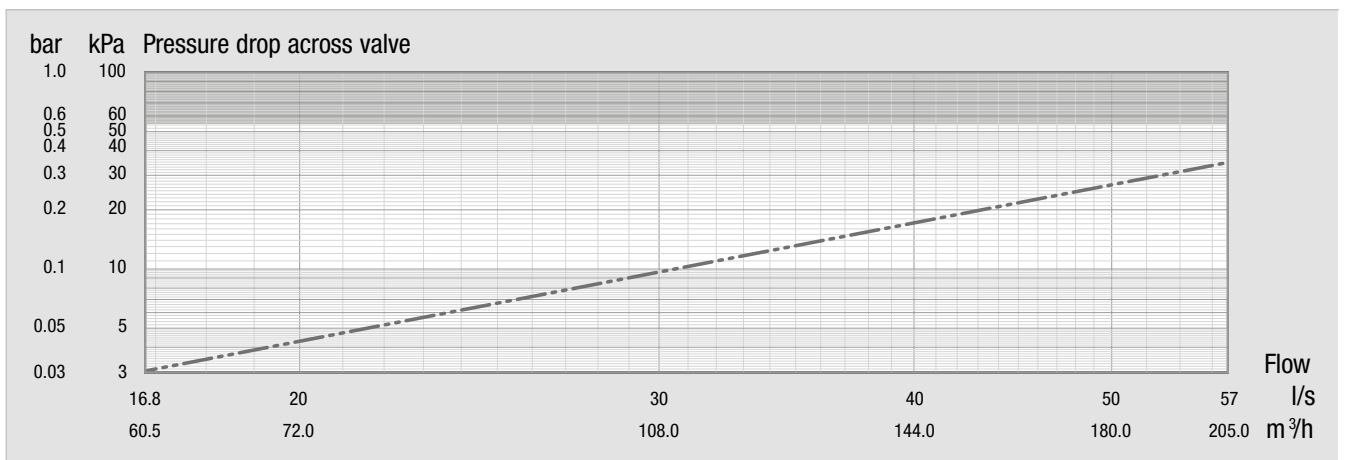
FIG 900XSS & 900XSL FODRV Venturi Valve

DN 150 flange/flange – Flow diagram / DN 150 flange/flange – Measuring signal diagram

DN 150 flange/flange - Flow diagram



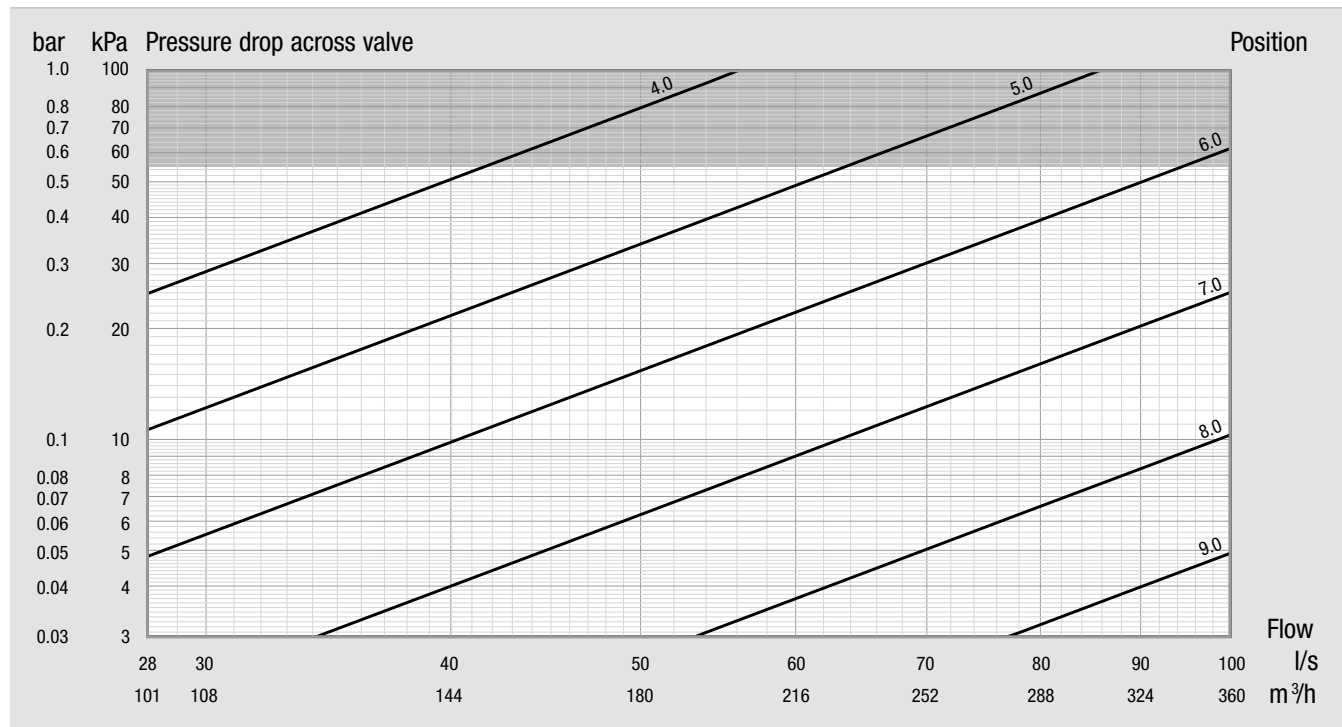
DN 150 flange/flange - Measuring signal diagram



Balancing Valves

DN 200 flange/flange – Flow diagram DN 200 flange/flange – Measuring signal diagram

DN 200 flange/flange - Flow diagram



DN 200 flange/flange - Measuring signal diagram

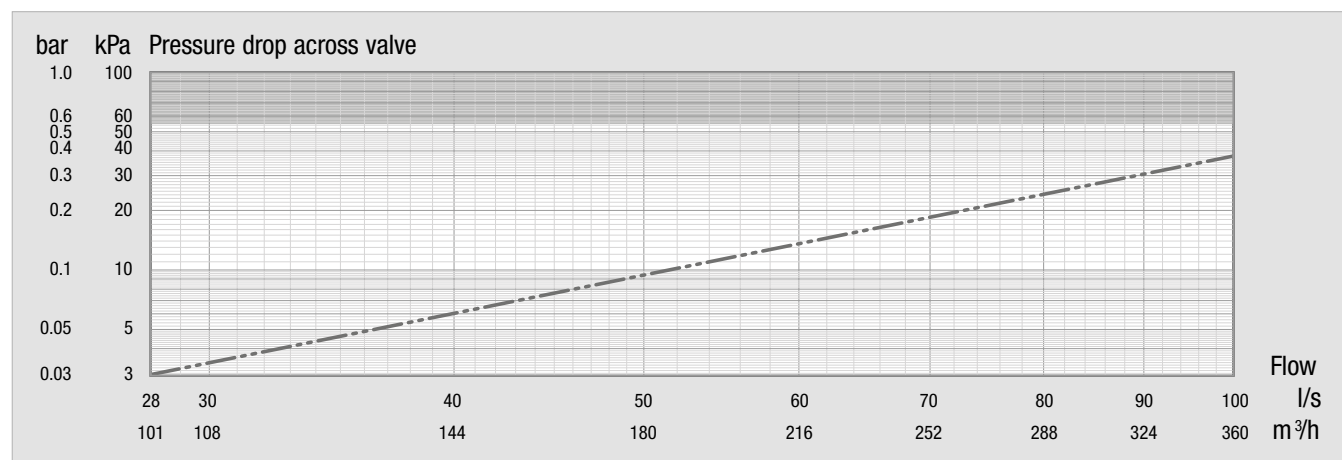
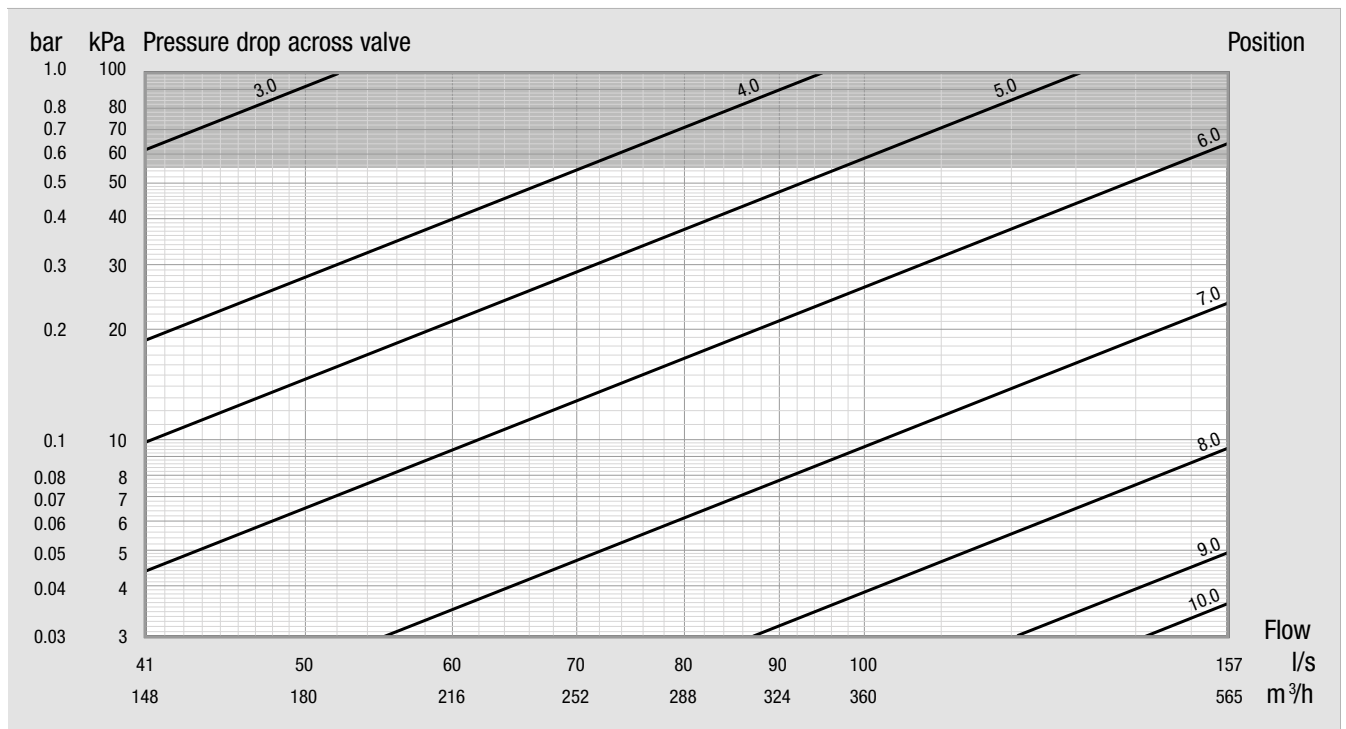


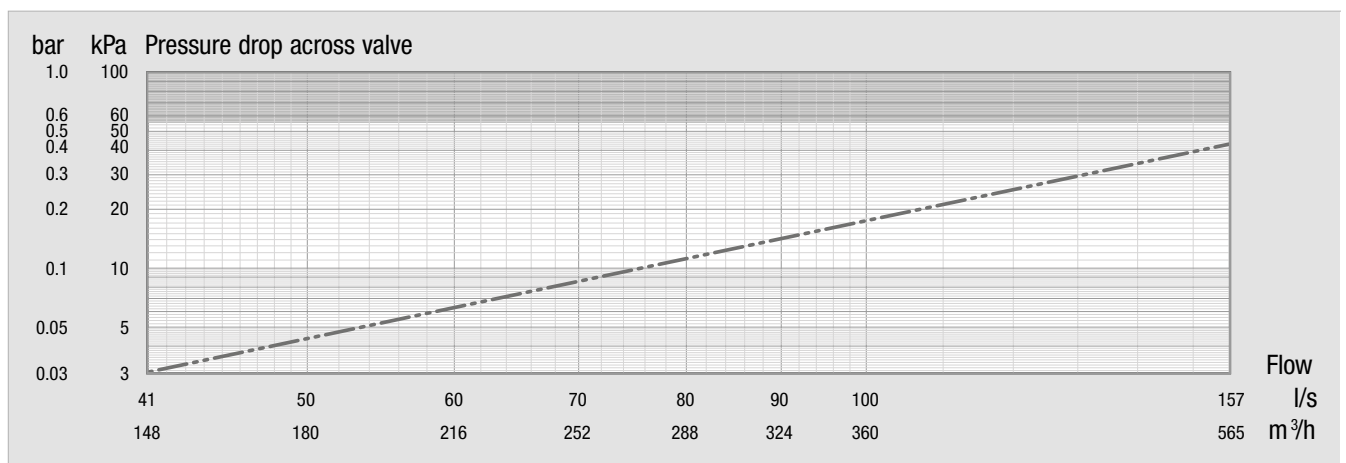
FIG 900XSS & 900XSL FODRV Venturi Valve

DN 250 flange/flange – Flow diagram / DN 250 flange/flange – Measuring signal diagram

DN 250 flange/flange - Flow diagram



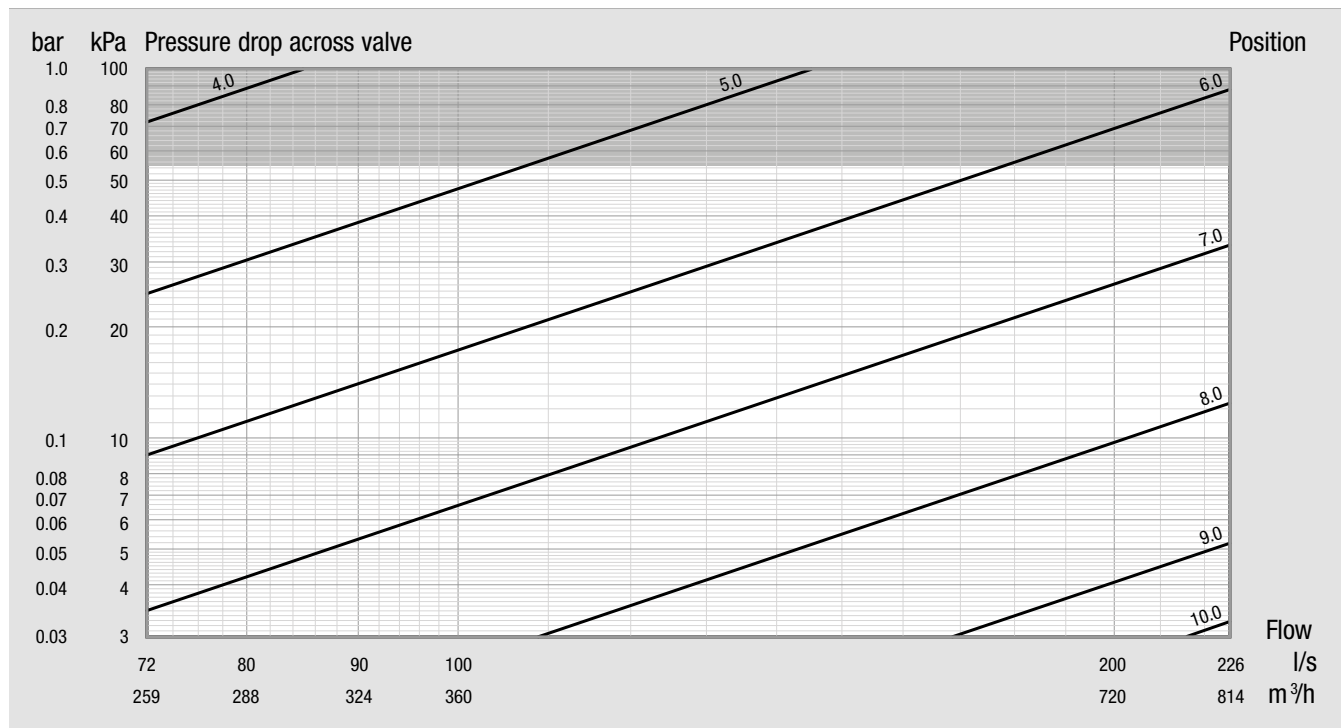
DN 250 flange/flange - Measuring signal diagram



Balancing Valves

DN 300 flange/flange – Flow diagram / DN 300 flange/flange – Measuring signal diagram

DN 300 flange/flange - Flow diagram



DN 300 flange/flange - Measuring signal diagram

