The Sliding Gate Valve

TetraTec® Instruments

• **Lightweight construction:**	The simple seat design, short stroke and small actuator minimise weight and space requirements
• **Selectable K_{vs}/Cv-Values:**	Interchangeable function units allow easy change of flow capacity Ranges from K_{vs} = 0.04 up to 560
• **Tight shut-off:**	Differential pressure forces the two discs together which with the self-lapping action and overlap in the closed position ensures a leakage rate <0.0001% of K_{vs}-Value even at temperatures >200°C Area seal instead of ring seal
• **Excellent rangeability:**	40:1 linear or equal percentage characteristics
• **High speed:**	Fast response through short stroke E.g. DN150: 8.5mm stroke
• **Quiet operation:**	Flow streamed through multiple orifices minimising turbulence, noise and erosion
• **Low energy consumption:**	Due to short strokes and low actuation force required
• **Easy installation:**	Wafer design and low weight (e.g. DN150 with actuator: 14.2 kg only) allow easy handling
• **Minimum wear:**	Low turbulence means less erosion. Specially selected high grade materials for disc reduces wear
• **Maximum differential pressures:**	Compact design with small actuators even at high differentials (up to 100 bar)

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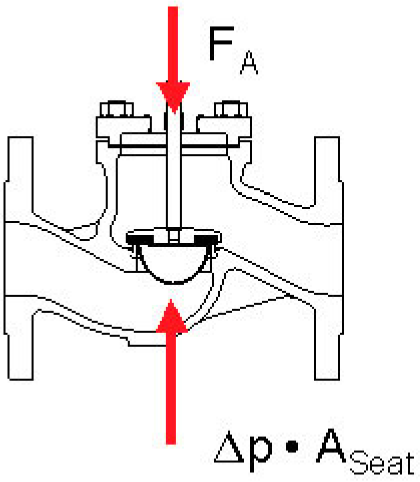
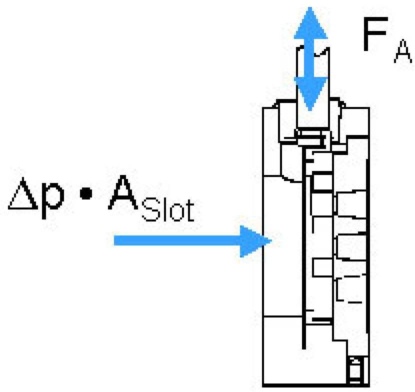
The Sliding Gate Valve

The principle is both simple and elegant: with a sliding gate valve, the disc moves perpendicular to the flow and the actuator has only to overcome frictional forces, whereas with a conventional single seat globe valve, the actuator has to overcome the force from the differential pressure acting across the valve seat. (see picture below)





$$F_A = \Delta p \cdot \mu \cdot A_{Slot}$$

$$\frac{F_{a,GS\ Valve}}{F_{a,Seat\ V.}} = \frac{\Delta p \cdot \mu \cdot A_{Slot}}{\Delta p \cdot A_{Seat}} \approx 0.1$$

With $\mu = 0.25$

and $\frac{A_{Slot}}{A_{Seat}} \approx 0.36$

The result is that 10 times less force is required to modulate a sliding gate valve than a single seat globe valve. Furthermore the pressure of the process medium against the moving disc assists the tight seal across the valve.

In addition to the original wafer design for DIN/BS flanges we now have the GS2-Series for ANSI flanges.

"The Sliding Gate Valve - for precise, fast-acting and economic control of liquids, steam and gases !!!"

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GS-Valve

DN 15 up to DN 200

TetraTec Instruments®

Kvs - Values

Ordering code		-	A	1	B	6	2	7	C	3	4	8	5	9
DN	Charact.	100 %	63 %	40 %	25 %	20%	16 %	12 %	10 %	6,3 %	2,5 %	2 %	1%	0,4%
15	(mod.) linear	4	2,6	1,7	1,4	-	0,71	0,49	0,44	0,26	0,14	-	0,04	-
	eq. perc.	1,7	-	1,1	-	-	-	-	-	0,1	-	-	-	-
20	(mod.) linear	6,4	-	-	-	-	1	-	-	-	-	0,125	-	-
	eq. perc.	2,7	-	-	-	-	-	-	-	-	-	-	-	-
25	(mod.) linear	11	5,4	4	-	-	1,6	-	0,93	0,62	-	-	-	0,04
	eq. perc.	5	-	2,4	-	1,1	-	-	-	-	-	-	-	-
32	(mod.) linear	16	10	-	-	-								
40	(mod.) linear	26	16	11	7	-								
	eq. perc.	11	8,5	-	2,75	-								
50	(mod.) linear	45	28	20	12	10								
	eq. perc.	19	12	-	-	-								
65	(mod.) linear	52	35	-	-									
	eq. perc.	30	-	-	8									
80	(mod.) linear	92	58	40										
	eq.perc.	48	35	-										
100	(mod.) linear	154	95	62										
	eq.perc.	77	48	-										
125	(mod.) linear	237	-	95										
	eq.perc.	116	-	-										
150	(mod.) linear	338	212	-										
	eq.perc.	147	90	-										
200	(mod.) linear	560	-	-										
	eq.perc.	-	-	-										

Cv = Kv x 1.16

Definition of the Kvs-Value:
The Kvs-value corresponds to the volume flow of water (m^3/h), passing the valve if a pressure difference of 1 bar is applied. Kvs is the Kv-value for a fully opened valve from the series production (acc. DIN IEC 534).

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