

Low Flow Valve

with integrated positoner

7041

SCHUBERT & SALZER
**CONTROL
SYSTEMS**

Pneumatic Control Valve for low and lowest flows with integrated positoner

- pneumatic 0,2 - 1 bar
- electro-pneumatic (also Ex-protection)
- digital, microprocessor-control

Technical Information

Nominal sizes	1/4", 1/2", 3/4" (DN 8, 15, 20)																						
Connection	NPT, BSP-thread, further connections on demande																						
Nominal Pressure	DN 8 and DN 15: PN 340 DN 20 : PN 100																						
Fluid temperature	-40°C up to +210°C Special versions -270°C up to +800°C																						
Ambient temperature	analog positoner: -10°C up to +60°C digital positoner: -10°C up to +75°C																						
Rangeability	<table> <tr> <td>Kvs</td><td>3,4 - 3,0</td><td>lin 50:1</td><td>equal% 60:1</td></tr> <tr> <td></td><td>2,15 - 0,43</td><td>lin 40:1</td><td>equal% 50:1</td></tr> <tr> <td></td><td>0,27-0,043</td><td>lin 30:1</td><td>equal% 40:1</td></tr> <tr> <td></td><td>0,026 - 0,003</td><td>lin 25:1</td><td>--</td></tr> <tr> <td></td><td>0,002 - 1,5E-6</td><td>lin 15:1</td><td>--</td></tr> </table>			Kvs	3,4 - 3,0	lin 50:1	equal% 60:1		2,15 - 0,43	lin 40:1	equal% 50:1		0,27-0,043	lin 30:1	equal% 40:1		0,026 - 0,003	lin 25:1	--		0,002 - 1,5E-6	lin 15:1	--
Kvs	3,4 - 3,0	lin 50:1	equal% 60:1																				
	2,15 - 0,43	lin 40:1	equal% 50:1																				
	0,27-0,043	lin 30:1	equal% 40:1																				
	0,026 - 0,003	lin 25:1	--																				
	0,002 - 1,5E-6	lin 15:1	--																				
Leakage rate (% of Kvs)	< 0,01 % for Kvs-value $\geq$ 0,003 (ANSI Class IV) < 0,1 % for Kvs-value $\leq$ 0,002 (ANSI Class III)																						



K_{vs}-Values

DN 8, 1/4"

0,27	0,17	0,11	0,068	0,043	0,026	0,017
0,009	0,005	0,0026	1,7E-03	1,1E-03	8,5E-04	5,1E-04
3,4E-04	2,3E-04	1,5E-04	1,0E-04	6,8E-05	4,3E-05	3,1E-05
2,1E-05	1,4E-05	8,5E-06	5,1E-06	3,4E-06	2,3E-06	1,5E-06

DN 15, 1/2"

2,15/1,88*	1,71	1,07	0,68	0,43	0,27	0,17
0,11	0,068	0,043	0,026	0,017	0,009	0,005
0,0026	1,7E-03	1,1E-03	8,5E-04	5,1E-04	3,4E-04	2,3E-04
1,5E-04	1,0E-04	6,8E-05				

DN 20, 3/4"

3,42	2,99	2,15/1,88*	1,71	1,07	0,68	0,43
0,27	0,17	0,11	0,068	0,043	0,026	0,017
0,009	0,005	0,0026				

* The stroke/flow characteristic corresponds to the characteristic of a Kvs of 2,15 up to a stroke of 75%. The real Kv-value however is only 1,88.

Materials

Body and bonnet	Stainless steel 1.4571 or 316 SST			
Actuator	Aluminium, coated			
Packing, sealing	PTFE, graphite, bellows			
Trims	for Kvs ≥ 0,0026	for Kvs ≥ 0,000014	for Kvs ≤ 0,0017	for Kvs ≥ 0,043
Plug	Stainless steel 316	Stellite	Stellite	Stainless steel 316
Seat	Stainless steel 316	Stainless steel 316, stellite	Stainless steel 416	PTFE
	Special materials on request			

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Low Flow Valve 7041

with integrated positioner

Operating Limits

Material	Medium	Temperature °C	Δp in bar, max.	Remarks
Plug: 316 SST Seat: 316 SST	Gas	-268 up to +316	20	Trims of sizes "K" to "O" can be used for gases up to p=48 bar and t=93 °C if stellite is not possible.
		-268 up to +93	34	
	Liquids	-268 up to +316	10	
		-268 up to +93	20	
Plug: Stellite Seat: 316 SST, stellite	Gas	-268 up to +816	340	Damage due to wear or cavitation is possible.
	Liquids	-268 up to +482	206	
Plug: Stellite Seat: 416 SST (for Kvs ≤ 0,0017)	Gas	-268 up to +93	340	This standard material for the "P"-series trims is NOT recommend for hydrogen or other dry gases. In this cases a seat with a stellite inlay or a coated seat should be used.
		-29 up to +427	340	
	Liquids	-29 up to +93	68	

Selecting The Trim Guiding

Nominal Size	Trim (Order Code)	Guiding	Max. admissible pressure drop p in bar	
			Control operation	On/Off operation
DN 20, 3/4"	R - S	medium	25	40
DN 15, 1/2"	A - B	medium	35	100
DN 15, 1/2"	A - B	heavy duty	120	120
DN 15, 1/2"	C	medium	50	135
DN 15, 1/2"	C	heavy duty	200	200
DN 15, 1/2"	D - E	medium	60	275
DN 15, 1/2"	D - E	heavy duty	275	275
DN 15, 1/2"	F - J	medium	200	340
DN 15, 1/2"	F - J	heavy duty	340	340
DN 8, 1/4"	F - J	Standard	55	100
DN 8, 1/4"	F - J	medium	135	200
DN 8, 1/4"	K - O	standard	340	340
DN 8, 1/4" - DN 15, 1/2"	"P" (all)	standard	340	340

Use the table for selecting the appropriate trim guiding depending on the pressure drop for control and on/off applications. This table only refers to the guiding and does not comment any valve materials or materials of the inner parts.

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with integrated positioner



Admissible Differential Pressures (NC - spring closes)

Analog positioner

DN20, 3/4" (PN100)

Kvs-value	supply air pressure [bar]	max. working pressure [bar] for spring pressure range [bar]					
		0,2 - 1,0	0,4 - 1,2	0,6 - 1,4	0,8 - 1,6	1,0 - 3,0	1,2 - 3,2
3,0 - 3,4	4,0 ±0,2	1,1	11,5	23	34,5	45,9	57,6
1,7 - 2,1	4,0 ±0,2	2	20,5	41	61,4	81,9	100
1,07	3,0 ±0,2	3,6	36,4	72,8	100	100	-
0,43 - 0,68	3,0 ±0,2	4,6	46,1	92,1	100	100	-
0,043 - 0,27	3,0 ±0,2	11,9	100	100	100	100	-
0,0026 - 0,026	3,0 ±0,2	39,5	100	100	100	100	-

DN15, 1/2" (PN340)

Kvs-value	supply air pressure [bar]	max. working pressure [bar] for spring pressure range [bar]					
		0,2 - 1,0	0,4 - 1,2	0,6 - 1,4	0,8 - 1,6	1,0 - 3,0	1,2 - 3,2
1,7 - 2,1	4,0 ±0,2	2	20,5	41	61,4	81,9	102,7
1,07	4,0 ±0,2	3,6	36,4	72,8	109,2	145,6	-
0,43 - 0,68	4,0 ±0,2	4,6	46,1	92,1	138,2	184,2	-
0,043 - 0,27	3,0 ±0,2	11,9	118,7	237,4	340	340	-
0,0026 - 0,026	3,0 ±0,2	39,5	340	340	340	340	-
0,000068 - 0,0017	3,0 ±0,2	73	-	-	-	-	-

DN08, 1/4" (PN340)

Kvs-value	supply air pressure [bar]	max. working pressure [bar] for spring pressure range [bar]					
		0,2 - 1,0	0,4 - 1,2	0,6 - 1,4	0,8 - 1,6	-	-
0,043 - 0,27	2,5 ±0,2	7,6	38,2	76,4	152,8	-	-
0,0026 - 0,026	2,5 ±0,2	25,4	127	254,1	340	-	-
0,000068 - 0,0017	2,5 ±0,2	47	235	340	-	-	-
0,0000015 - 0,000043	2,5 ±0,2	104,4	340	340	-	-	-

For P2 > 0 the admissible differential pressure may decrease significantly.
Therefore the sizing should be checked by the manufacturer.

Digital positioner

DN20, 3/4" (PN100)

Kvs-value	supply air pressure [bar]	max. working pressure [bar] for spring pressure range [bar]					
		0,2 - 1,0	0,4 - 1,2	0,6 - 1,4	0,8 - 1,6	1,0 - 3,0	1,2 - 3,2
3,0 - 3,4	3,5 - 4	11,5	23	34,5	45,9	57,4	69,1
1,7 - 2,1	3,5 - 4	20,5	41	61,4	81,9	100	100
1,07	2,5 - 4	36,4	72,8	100	100	-	-
0,43 - 0,68	2,5 - 4	46,1	92,1	100	100	-	-
0,043 - 0,27	2,5 - 4	100	100	100	100	-	-
0,0026 - 0,026	2,5 - 4	100	100	100	100	-	-

DN15, 1/2" (PN340)

Kvs-value	supply air pressure [bar]	max. working pressure [bar] for spring pressure range [bar]					
		0,2 - 1,0	0,4 - 1,2	0,6 - 1,4	0,8 - 1,6	1,0 - 3,0	1,2 - 3,2
1,7 - 2,1	3,5 - 4	20,5	41	61,4	81,9	102,4	123,1
1,07	3,5 - 4	36,4	72,8	109,2	145,6	182	-
0,43 - 0,68	3,5 - 4	46,1	92,1	138,2	184,2	230,3	-
0,043 - 0,27	2,5 - 4	118,7	237,4	340	340	-	-
0,0026 - 0,026	2,5 - 4	340	340	340	340	-	-
0,000068 - 0,0017	2,5 - 4	340	-	-	-	-	-

DN08, 1/4" (PN340)

Kvs-value	supply air pressure [bar]	max. working pressure [bar] for spring pressure range [bar]					
		0,2 - 1,0	0,4 - 1,2	0,6 - 1,4	0,8 - 1,6	-	-
0,043 - 0,27	2 - 2,5	76,4	114,6	152,8	229,3	-	-
0,0026 - 0,026	2 - 2,5	254,1	340	340	340	-	-
0,000068 - 0,0017	2 - 2,5	340	340	340	-	-	-
0,0000015 - 0,000043	2 - 2,5	340	340	340	-	-	-

For P2 > 0 the admissible differential pressure may decrease significantly.
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Admissible Diff. Pressures (NO - spring opens)

DN20, 3/4" (PN100)

Kvs-value	max. working pressure [bar]	Supply air pressure [bar] at actual working pressure P1 [bar] (admissible deviance max. +0,1 bar)			
		0 - 25	26 - 50	51 - 75	76 - Pmax
3,4	63	1,5	1,9	-	2
1,7 - 2,1	100	1,3	1,5	1,8	2
1,07	100	1,2	1,3	1,4	1,6
0,43 - 0,68	100	1,1	1,2	1,3	1,5
0,043 - 0,27	100	1,1	1,1	1,2	1,2
0,0026 - 0,026	100	1,05	1,05	1,05	1,1

DN15, 1/2" (PN340)

Kvs-value	max. working pressure [bar]	Supply air pressure [bar] at actual working pressure P1 [bar] (admissible deviance max. +0,1 bar)				
		0 - 50	51 - 100	101 - 200	201 - 300	301 - P max
1,7 - 2,1	113	1,5	2	-	-	2
1,07	164	1,3	1,6	-	-	1,8
0,43 - 0,68	210	1,2	1,5	1,9	-	1,8
0,043 - 0,27	340	1,1	1,2	1,4	1,5	1,6
0,0026 - 0,026	340	1,05	1,05	1,1	1,2	1,2
0,000068 - 0,0017	340	1,05	1,05	1,05	1,1	1,1

DN08, 1/4" (PN340)

Kvs-value	max. working pressure [bar]	Supply air pressure [bar] at actual working pressure P1 [bar] (admissible deviance max. +0,1 bar)				
		0 - 50	51 - 100	101 - 200	201 - 300	301 - P max
0,043 - 0,27	190	1,1	1,3	-	-	1,4
0,0026 - 0,026	340	1,05	1,1	1,2	1,25	1,3
0,000068 - 0,0017	340	1,05	1,05	1,1	1,2	1,2
0,0000015 - 0,000043	340	1,05	1,05	1,05	1,1	1,1

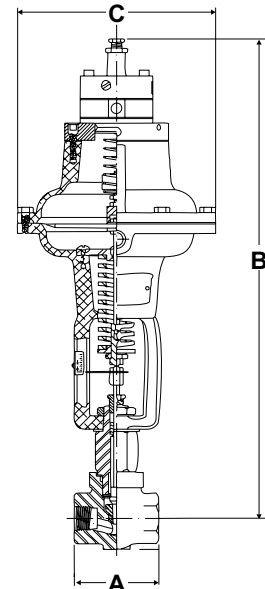
For P2 > 0 the admissible differential pressure may decrease significantly.

Therefore the sizing should be checked by the manufacturer.

The maximum supply air pressure may not be exceeded at any time !

Pressure-Temperature Table (Body)

Temperature	DN 20 (3/4")	DN 15 (1/2")	DN 8 (1/4")
°C	Adm. Pressure (bar) for stainless steel body (316, 1.4571)		
20	100	340	340
100	99	320	320
200	82	269	292
300	73	242	267
400	48	226	249
500	-	190	159



Dimensions

Nominal Size		Actuator cm²	A	B pneumatic positioner	B electropneum. positioner	B digital positioner	C
DN 8	1/4"	47	54	338	354	386	130
DN 15	1/2"	73	70	401	417	449	163
DN 20	3/4"	73	86	429	444	476	163

Dimensions in mm

Low Flow Valve 7041

with integrated positioner

Ordering Number System

	1	2	3	4	5	6	7	8	9	10	11	12
7	0	4	1	/			V	Y				

Symbol: "V": Valve
 "A": Actuator (valve without body)
 "R": Repair kit (sealings)

1 - 11: Please quote all 11 sections
12: quote only if required

1. Design	2. Connection	3. Body material	4. Trim	5. Positioner	6. Springs	7. Function
Y Low flow valve	0 Pipe thread acc. DIN 2999 / ISO 5 NPT-thread	1 Stainless steel 1.4571 2 Stainless steel 316 SST	- metal to metal 316 for Kvs ≥ 0,0026 0 PTFE for Kvs ≥ 0,043 1 Stellite / 316-stellited for Kvs ≥ 0,000014 2 Stellite / 416 (for Kvs ≤ 0,0017)	6 p/p-pos. Type 8047 7 i/p-pos. Type 8047 8 i/p-pos. with plug conn. Type 8047 9 i/p-pos. II 2 G Eex ib IIC T6, Type 8047 A digital pos. Type 8048 IPC C digital pos. Type 8049 4 wire D digital pos. Type 8048 IP 65 R digital pos. Type 8049 2 wire T digital pos. Type 8049 AS-i version	1 0,2 - 1 bar 2 0,3 - 1,1 bar 3 0,4 - 1,2 bar 4 0,6 - 1,4 bar 5 0,8 - 1,6 bar 6 1,0 - 3,0 bar 7 1,2 - 3,2 bar	- Spring closes with positioner 1 Spring opens with positioner * (only for spring pressure range 0,2 - 1 bar)

* digital positioner 8048 only

8. Characteristic	9. Outer sealing	10. Trim guiding	11. Kvs-Value	12. Kvs-Value P-Trim (opt.)
- linear 1 equal percentage	- PTFE-Packing 1 Bellow 2 Graphite-Packing 3 PTFE-Packing with cooling fins 4 PTFE-Packing with extended cooling fins	- Standard M medium H heavy duty	S 3,4 R 3,0 A 2,15/1,88 B 1,7 C 1,1 D 0,68 E 0,43 F 0,27 G 0,17 H 0,11 I 0,068 J 0,043 K 0,026 L 0,017 M 0,0085 N 0,0051 O 0,0026 P P-Trim	-- no P-Trim 01 0,0017 02 0,0011 03 0,00085 04 0,00051 05 0,00034 06 0,00023 07 0,00015 08 0,00010 09 6,8E-05 10 4,3E-05 11 3,1E-05 12 2,1E-05 13 1,4E-05 14 8,5E-06 15 5,1E-06 16 3,4E-06 17 2,3E-06 18 1,50E-06

Ordering example: 7041/015VY02-D4---MD

Low flow valve 7041, DN 15, Pipe thread acc. DIN 2999 / ISO 228, stainless steel body 316 SST, trim 316 / 316, digital positioner, spring pressure range 0,6 - 1,4 bar, spring closes (with positioner), linear characteristics, PTFE-Packing, medium trim guiding, Kvs-value 0,68