

## with integrated positioner

### Pneumatic Control Valve for low and lowest flows with integrated positioner

- 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 2: PN 100			
Fluid temperature	-40°C up to +210°C Special versions: -270°C up to +800°C			
Ambient temperature	analog positioner:	-10°C up to +60°C		
	digital positioner:	-10°C up to +75°C		
Rangeability	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	< 0,01 % for Kvs-value ≤ 0,003 (ANSI Class IV)			
	< 0,1 % for Kvs-value ≤ 0,002 (ANSI Class III)			



### Kvs-Values

DN 8, 1/4"						
0,27	0,17	0,11	0,068	0,043	0,026	0,017
0,009	0,005	0,003	0,002	0,001	0,001	0,001
3,4E-4	2,3E-4	1,5E-4	1,0E-4	6,8E-5	4,3E-5	3,1E-5
2,1E-5	1,4E-5	8,5E-6	5,1E-6	3,4E-6	2,3E-6	1,5E-6
DN 15, 1/2"						
2,15/1,88*	1,70	1,10	0,68	0,43	0,27	0,17
0,11	0,068	0,043	0,026	0,017	0,009	0,005
0,003	0,002	0,001	0,001	0,001	3,4E-4	2,3E-4
1,5E-4	1,0E-4	6,8E-5				
DN 20, 3/4"						
3,40	3,00	2,15/1,88*	1,70	1,10	0,68	0,43
0,27	0,17	0,11	0,068	0,043	0,026	0,017
0,009	0,005	0,003				

\* 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 316 SST or 1.4571			
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

# Low Flow Valve 7041



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## Operating Limits

Material	Medium	Temperature °C	Dp in bar, max.	Remarks
Plug: 316 SST Seat: 316 SST	Gas	-268 up to +316 -268 up to +93	20 34	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.
	Liquids	-268 up to +316 -268 up to +93	10 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 -29 up to +427	340 340	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.
	Liquids	-29 up to +93	68	

## Selecting The Trim Guiding

Nominal Size	Trim (Order Code)	Guiding	Max. admissible pressure drop Dp in bar	
			Control operation	On/Off operation
DN 20, 3/4"	R - S	standard	25	40
DN 15, 1/2"	A - B	standard	35	100
DN 15, 1/2"	A - B	heavy duty		
DN 15, 1/2"	C	standard	50	135
DN 15, 1/2"	C	heavy duty	200	200
DN 15, 1/2"	D - E	standard	60	275
DN 15, 1/2"	D - E	heavy duty	275	275
DN 15, 1/2"	F - J	standard	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"	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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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.  
Therefore the sizing should be checked by the manufacturer.

## Admissible Differential Pressures (NC - spring closes)

Analogue 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.  
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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			
		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)

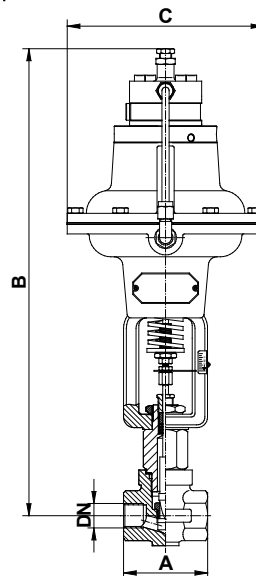
Kvs-value	max. working pressure [bar]	Supply air pressure [bar] at actual working pressure P1 [bar]				
		0 - 50	51 - 100	101 - 200	201 - 300	301 - Pmax
1,7 - 2,1	113	1,5	2	-	-	2
1,07	164	1,3	1,6	-	-	1,8
0,43 - 0,68	210	1,2	1,5	1,9	-	1,8
0,043 - 0,27	340	1,1	1,2	1,4	1,5	1,6
0,0026 - 0,026	340	1,05	1,05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

## 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

Nennweite	Antrieb cm <sup>2</sup>	A	B			C
			pneumatischer Stellungsregler	elektropneum. Stellungsregler	digitaler Stellungsregler	
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

