

# Low Flow Valve 7041



## with integrated positioner

### Pneumatic control valve for low and lowest flows with integrated positioner.

- pneumatic 3 - 15 psi
- electro-pneumatic (also Ex-protection)
- digital, microprocessor-control



### Technical Information

Nominal sizes	1/4", 1/2", 3/4" ( DN 8, 15, 20 )			
Connection	NPT, further connections on demande			
Nominal Pressure	1/4" and 1/2" (DN 8, DN 15) : 4930 psi 3/4" (DN 20): 1450 psi			
Fluid temperature	-40°F up to +410°F Special versions: -454°F up to +1472°F			
Ambient temperature	analog positioner:		14°F up to +140°F	
	digital positioner:		14°F up to +167°F	
Rangeability	Cv	3.94 - 3.48	lin 50:1	equal% 60:1
		2.49 - 0.50	lin 40:1	equal% 50:1
		0.31- 0.05	lin 30:1	equal% 40:1
		0.03 - 0.003	lin 25:1	--
		0.002 -1.7E-6	lin 15:1	--
Leakage rate (% of Cv)	< 0.01 % for Cv-value ≤ 0.003 ( ANSI Class IV )			
	< 0.1 % for Cv-value ≤ 0.002 ( ANSI Class III )			

### Cv-Values

DN 8, 1/4"						
0.32	0.20	0.13	0.08	0.05	0.03	0.02
0.01	0.006	0.003	0.002	0.0013	0.001	0.0006
4.0E-04	2.7E-04	1.8E-04	1.2E-04	8.0E-05	5.0E-05	3.6E-05
2.4E-05	1.6E-05	1.0E-06	6.0E-06	4.0E-06	2.7E-06	1.8E-06
DN 15, 1/2"						
2.5/2.18*	2.0	1.25	0.8	0.50	0.32	0.2
0.13	0.08	0.05	0.03	0.02	0.01	0.006
0.003	2.0E-03	1.3E-03	1.0E-03	6.0E-04	4.0E-04	2.7E-04
1.8E-04	1.2E-04	8.0E-05				
DN 20, 3/4"						
4.0	42493,00	2.5/2.18*	2.0	1.25	0.8	0.5
0.32	0.2	0.13	0.08	0.05	0.03	0.02
0.01	0.006	0.003				

\* The stroke/flow characteristic corresponds to the characteristic of a Cv of 2.5 up to a stroke of 75%. The real Cv-value however is only 2.18.

### Materials

Body and bonnet	Stainless steel 316 SST or 1.4571			
Actuator	Aluminium, coated			
Packing, sealing	PTFE, graphite, bellows			
Trims	for Cv ≤ 0.0030	for Cv ≤ 0.000016	for Cv ≤ 0.0020	for Cv ≤ 0.049
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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## Operating Limits

Material	Medium	Temperature °F	psi, max.	Remarks
Plug: 316 SST Seat: 316 SST	Gas	-450 up to +600	290	Trims of sizes "K" to "O" can be used for gases up to p=696 psi and t=199 °F if stellite is not possible.
		-450 up to +199	493	
	Liquids	-450 up to +600	145	
		-450 up to +199	290	
Plug: Stellite Seat: 316 SST, stellite	Gas	-450 up to +1500	4930	Damage due to wear or cavitation is possible.
	Liquids	-450 up to +899	2988	
Plug: Stellite Seat: 416 SST ( for Cv £ 0,0020 )	Gas	-450 up to +199	4930	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	-20 up to +800	4930	
	Liquids	-20 up to +199	986	

## Selecting The Trim Guiding

Nominal Size	Trim (Order Code)	Guiding	Max. admissible pressure in psi	
			Control operation	On/Off operation
DN 20, 3/4"	R - S	standard	365	580
DN 15, 1/2"	A - B	standard	510	1450
DN 15, 1/2"	A - B	heavy duty	1740	1740
DN 15, 1/2"	C	standard	725	1960
DN 15, 1/2"	C	heavy duty	2900	2900
DN 15, 1/2"	D - E	standard	870	3990
DN 15, 1/2"	D - E	heavy duty	3990	3990
DN 15, 1/2"	F - J	standard	2900	4930
DN 15, 1/2"	F - J	heavy duty	4930	4930
DN 8, 1/4"	F - J	standard	800	1450
DN 8, 1/4"	K - O	standard	4930	4930
DN 8, 1/4" - DN 15, 1/2"	"P" (all)	standard	4930	4930

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  
3/4" (DN20) 1450 psi (PN100)

Cv-value	supply air pressure [psi]	max. working pressure [psi] for spring pressure range [psi]					
		3 - 14,5	6 - 17	9 - 20	12 - 23	14,5 - 44	17 - 46
3.48 - 3.94	51 - 58	167	334	500	666	832	1002
1.97 - 2.44	51 - 58	297	595	890	1188	1450	1450
1.24	36 - 58	528	1056	1450	1450	-	-
0.50 - 0.79	36 - 58	668	1335	1450	1450	-	-
0.050 - 0.31	36 - 58	1450	1450	1450	1450	-	-
0.0030 - 0.030	36 - 58	1450	1450	1450	1450	-	-

1/2" (DN15) 4931 psi (PN340)

Cv-value	supply air pressure [psi]	max. working pressure [psi] for spring pressure range [psi]					
		3 - 14,5	6 - 17	9 - 20	12 - 23	14,5 - 44	17 - 46
1.97 - 2.44	51 - 58	297	595	890	1188	1485	1785
1.24	51 - 58	528	1056	1583	2111	2639	-
0.50 - 0.79	51 - 58	668	1335	2004	2671	3339	-
0.050 - 0.31	36 - 58	1721	3442	4930	4930	-	-
0.0030 - 0.030	36 - 58	4930	4930	4930	4930	-	-
0.000079 - 0.0020	36 - 58	4930	-	-	-	-	-

1/4" (DN08) 4931 psi (PN340)

Cv-value	supply air pressure	max. working pressure [psi] for spring pressure range [psi]					
		3 - 14,5	4,5-16	6 - 17	9 - 20	-	-
0.050 - 0.31	29 - 36	1108	1662	2216	3325	-	-
0.0030 - 0.030	29 - 36	3684	4930	4930	4930	-	-
0.000079 - 0.0020	29 - 36	4930	4930	4930	-	-	-
0.0000017 - 0.000050	29 - 36	4930	4930	4930	-	-	-

For  $P_2 > 0$  the admissible differential pressure may decrease significantly. Therefore the sizing should be checked by the manufacturer.

## Admissible Pressures (NC - spring closes)

Analog positioner  
3/4" (DN20) 1450 psi (PN100)

Cv-value	supply air pressure	max. working pressure [psi] for spring pressure range [psi]					
		3 - 14,5	6 - 17	9 - 20	12 - 23	14,5-44	17 - 46
3.48 - 3.94	60,0 ±3.0	16	167	334	500	666	835
1.97 - 2.44	60,0 ±3.0	29	297	595	890	1188	1450
1.24	44,0 ±3.0	52	528	1056	1450	1450	-
0.50 - 0.79	44,0 ±3.0	67	668	1335	1450	1450	-
0.050 - 0.31	44,0 ±3.0	173	1450	1450	1450	1450	-
0.0030 - 0.030	44,0 ±3.0	573	1450	1450	1450	1450	-

1/2" (DN15) 4931 psi (PN340)

Cv-value	supply air pressure	max. working pressure [psi] for spring pressure range [psi]					
		3 - 14,5	6 - 17	9 - 20	12 - 23	14,5-44	17 - 46
1.97 - 2.44	60,0 ±3.0	29	297	595	890	1188	1489
1.24	60,0 ±3.0	52	528	1056	1583	2111	-
0.50 - 0.79	60,0 ±3.0	67	668	1335	2004	2671	-
0.050 - 0.31	44,0 ±3.0	173	1721	3442	4930	4930	-
0.0030 - 0.030	44,0 ±3.0	573	4930	4930	4930	4930	-
0.000079 - 0.0020	44,0 ±3.0	1059	-	-	-	-	-

1/4" (DN08) 4931 psi (PN340)

Cv-value	supply air pressure	max. working pressure [psi] for spring pressure range [psi]					
		3 - 14,5	4,5-16	6 - 17	9 - 20	-	-
0.050 - 0.31	36,0 ±3.0	110	554	1108	2216	-	-
0.0030 - 0.030	36,0 ±3.0	368	1842	3684	4930	-	-
0.000079 - 0.0020	36,0 ±3.0	682	3408	4930	-	-	-
0.0000017 - 0.000050	36,0 ±3.0	1514	4930	4930	-	-	-

For  $P_2 > 0$  the admissible differential pressure may decrease significantly. Therefore the sizing should be checked by the manufacturer.

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## Admissible Pressures (NO - spring opens)

3/4" (DN20) 1450 psi (PN100)

Cv-value	max. working pressure [psi]	Supply air pressure [psi] at actual working pressure P1 [psi] (admissible deviance max. +1,45 psi)			
		14.5 - 363	377 - 725	740 - 1088	1102 - Pmax
3.94	914	22	28	-	29
1.97 - 2.44	1450	19	22	26	29
1.24	1450	17	19	20	23
0.50 - 0.79	1450	16	17	19	22
0.050 - 0.31	1450	16	16	17	17
0.0030 - 0.030	1450	15	15	15	16

1/2" (DN15) 4931 psi (PN340)

Cv-value	max. working pressure [psi]	Supply air pressure [psi] at actual working pressure P1 [psi] (admissible deviance max. +1,45 psi)				
		14.5 - 725	740 - 1450	1465 - 2900	2915 - 4350	4365 - P max
1.97 - 2.44	1639	22	29	-	-	29
1.24	2378	19	23	-	-	26
0.50 - 0.79	3045	17	22	28	-	26
0.050 - 0.31	4930	16	17	20	22	23
0.0030 - 0.030	4930	15	15	16	17	17
0.000079 - 0.0020	4930	15	15	15	16	16

1/4" (DN08) 4931 psi (PN340)

Cv-value	max. working pressure [psi]	Supply air pressure [psi] at actual working pressure P1 [psi] (admissible deviance max. +1,45 psi)				
		14.5 - 725	740 - 1450	1465 - 2900	2915 - 4350	4365 - P max
0.050 - 0.31	2755	16	19	-	-	20
0.0030 - 0.030	4930	15	16	17	18	19
0.000079 - 0.0020	4930	15	15	16	17	17
0.0000017 - 0.000050	4930	15	15	15	16	16

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 !

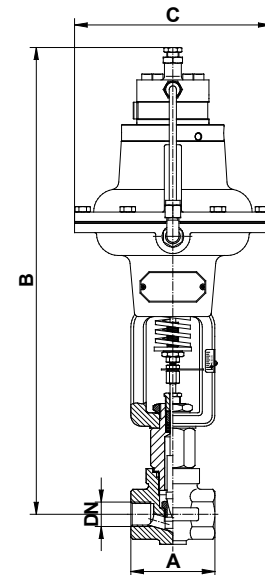
## Pressure-Temperature Table (Body)

Temperature	¾" (DN20)	½" (DN15)	¼" (DN08)
°F	Adm. Pressure (psi) for stainless steel body ( 316, 1.4571 )		
68	1450	4930	4930
212	1436	4640	4640
392	1189	3901	4234
572	1059	3509	3872
752	696	3277	3611
932	-	2755	2306

## Dimensions

Nominal Size		Actuator cm <sup>2</sup>	A	B pneumatic positioner	B electropneum. Positioner	B digital positioner	C
DN 8	1/4"	45.57	2.13	13.31	13.94	15.2	5.12
DN 15	1/2"	70.68	2.76	15.79	16.42	17.68	6.42
DN 20	3/4"	70.68	3.39	16.89	17.48	18.74	6.42

Dimension in inch

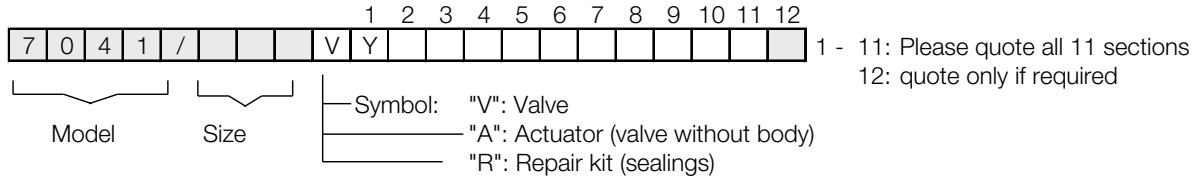


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## Ordering-Number System



1. Design	2. Connection	3. Body material	4. Trim	5. Positioner	6. Springs	7. Function
Y low flow valve	5 NPT-thread	1 stainless steel 1.4571 2 stainless steel 316 SST	- metal to metal 316 for Cv ³ 0.0030 0 PTFE for Kvs ³ 0,050 1 Stellite / 316-stellited for Cv ³ 0,000016 2 Stellite / 416 (for Cv £ 0.0020)	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 C digital pos. Type 8049 4 wire R digital pos. Type 8049 2 wire T digital pos. Type 8049 AS-i version W digital pos. Type 8049 2 wire, ex-version	1 3.0 - 14.5 psi 2 4.4 - 16 psi 3 5.8 - 17.4 psi 4 8.7 - 20.3 psi 5 11.6 - 23.2 psi 6 14.5 - 43.5 psi 7 17.4 - 46.4 psi	- spring closes with positioner 1 spring opens with positioner * (only for spring pressure range 2.9 - 14.5 psi)

8. Characteristic	9. Outer sealing	10. Trim guiding	11. Cv-Value	12. Cv-Value P-Trim (opt.)
- linear	- PTFE-Packing	- standard	S 4.0 R 3.5	-- no P-Trim 01 0.002
1 equal percentage	1 bellow	M medium	A 2.50/2.18 B 2,00	02 0.0013 03 0.0001
	2 graphite-Packing	H heavy duty	C 45658,00 D 0.8	04 0.0006 05 0.0004
	3 PTFE-Packing with cooling fins		E 0.5 F 0.32	06 0.00027 07 0.00018
	4 PTFE-Packing with extended cooling fins		G 0.2 H 0.13 I 0.08 J 0.05 K 0.03 L 0.02 M 0.01 N 0.006 O 0.003 P P-Trim	08 0.00012 09 0.00008 10 0.00005 11 0.000036 12 0.000024 13 0.000016 14 0.00001 15 0.000006 16 0.000004 17 0.0000027 18 0.0000018

**Ordering example:** 7041/015VY52-R4---MD  
 Low flow valve 7041, 1/2", NPT-thread, stainless steel body 316 SST, trim 316 / 316, digital positioner Type 8049 2 wire, spring pressure range 8.7 - 20.3 psi, spring closes (with positioner), linear characteristics, PTFE-Packing, medium trim guiding, Cv-value 0.79

Text and pictures are not binding. We reserve the right, to alter the equipment.