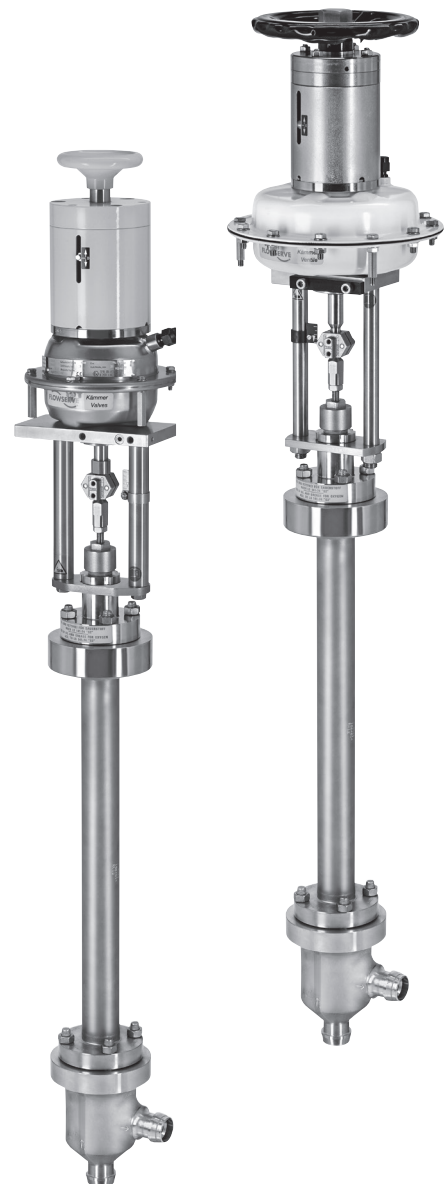




TECHNICAL BULLETIN

Kämmer ColdFlow - 041000A Low temperature Control Valve

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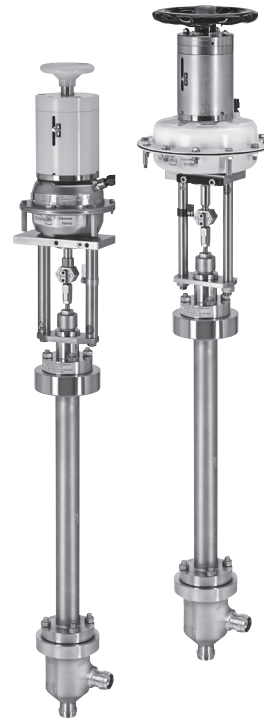


Experience In Motion

ColdFlow - 041000A Series

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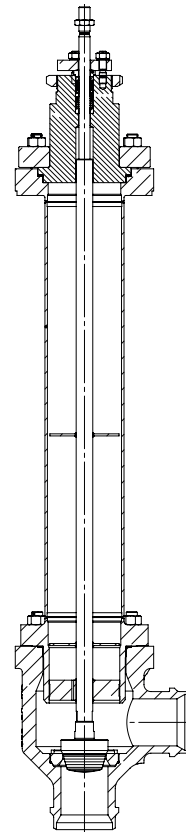


1 Introduction

By using an extended bonnet, the packing, gaskets and seals are protected from cryogenic temperatures, thus ensuring their sealing properties. Optional special gaskets and packings can be used to operate at temperatures as low as -196°C (80K). Depending on the application, Flowserve cryogenic valves are available with a top entry design for the easy maintenance of valves located in a cold box or with a simple extended bonnet attached to the valve body.

2 Features and Benefits

- **Easy maintenance**
- **Optional bellows seal**
- **Modular design**
- **Low maintenance packing system**
- **Less convection**
- **Optional soft seat inserts**



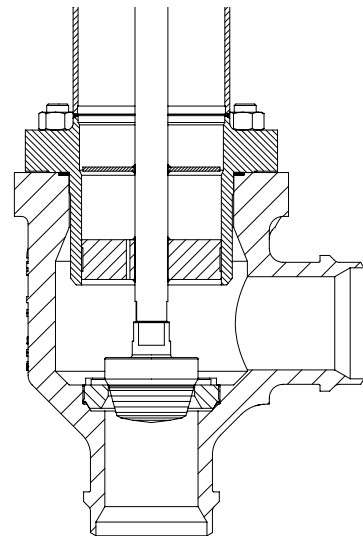
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3 Specification

Size	DIN DN 25 - DN 200 ANSI 1 - 8 inch
Pressure Class	PN10 - 63 Class 150 - 400
Body materials	Aluminium (AlMg 4.5) Stainless Steel (1.4571) (optional)
Body type	Angle
End connections	Weld ends (see dimensional table)
Face-to-face	see dimensional table
Trim type	Unbalanced / Balanced
Trim design	Metal Seat Soft seated trim
Trim materials	Stainless Steel (1.4571) Alloy 6 Monel K500 (2.4375)
Shutoff	ANSI Class IV, V, VI
Flow characteristic	Modified equal percentage Modified linear On-Off
Stem sealing	PTFE - V-Ring - spring loaded Graphite
Stem sealing	Metal bellows (1.4571)
Flow capacity (Cv)	see Cv table
Actuator	Spring diaphragm actuator type KF (carbon steel) Spring diaphragm actuator type KP (stainless steel) Spring diaphragm actuator type FlowAct (carbon steel) Electric actuator

4. Trim Design

The new plug and plug guiding design provides excellent control performance with lower heat transfer. This makes the new ColdFlow-041000A better with regards to life cycle cost. Sizes DN25 (1") to DN100 (4") are designed in a Top-Entry version. Plug and seat can be assembled and disassembled while the valve is completely insulated. This reduces maintenance cost and downtime losses. An optional soft seat for non-oxygen services is also available as well as a metal bellows seal.



Plug with bellows and stem



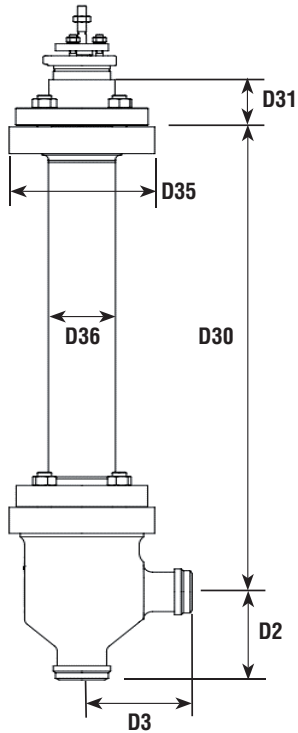
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5. Cv / Kvs Table

Kvs	Cv	Seat	Trim#		25	40	50	80	100	150	200	
			mm	in	mm	1"	1.5"	2"	3"	4"	6"	8"
						20		40		60		
0.1	0.12	4.5	.18E	4.5E	0.1							
0.16	0.19		.18D	4.5D								
0.25	0.29		.18C	4.5C								
0.4	0.47		.18B	4.5B								
0.63	0.74		.18A	4.5A								
1	1.2	7	.28B	7B								
1.6	1.9		.28A	7A								
2.5	2.9	10	.40A	10A								
4	4.7	12	.63B	12A		4	4					
6.3	7.4	16	.63A	16A								
10	12	20	.80A	20A	10			10	10			
16	19	25	1.00A	25A								
25	29	32	1.25A	32A		25				25		
40	47	40	1.60A	40A			40					
63	74	50	2.00A	50A								
100	120	63	2.50A	63A				100			100	
160	190	80	3.20A	80A					160			
250	290	100	3.90A	100A								
400	470	138	5.40A	138A						400		
630	740	160	6.30A	160A							630	

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6 Dimensional Data



Standard LS 809-02

DN	ANSI	D2 [mm]	D3 [mm]	D30 [mm]	D31 [mm]	D35 [mm]	D36 [mm]	BW [mm]	weight [kg]
25	1"	100	100	635	TBD	130	60,3	see separate Tables 4 and 5	
40	1.5"	125	125	660	TBD	165	89		
50	2"	125	125	660	TBD	165	89		
80	3"	155	155	800	TBD	200	114,3		
100	4"	175	175	815	TBD	260	114,3		
150	6"	220	220	800	TBD	200	89		
200	8"	260	260	840	TBD	260	89		

7. Weld End Connections

Table 4: Pipeclass Aluminium DIN / EN, UVV-Gases

DN	ANSI			PN63	PN40	PN25	PN16	PN10
25	1"			34 x 2				
40	1.5"			48 x 3				
50	2"			60 x 3,5				
80	3"			89 x 4				
100	4"			114 x 6		114 x 3		
150	6"			168 x 8			168 x 3	
200	8"			219 x 12	219 x 8		219 x 3	
250	10"			273 x 14	273 x 8		273 x 4	

Table 5: Linde China Standard

DN	ANSI			PN63	PN40	PN25	PN16	PN10
25	1"			34 x 3				
40	1.5"			48 x 4				
50	2"			60 x 4				
80	3"			89 x 4				
100	4"			114 x 6		114 x 4		
150	6"			168 x 8			168 x 5	
200	8"			219 x 10	219 x 8		219 x 4	
250	10"			273 x 12,7	273 x 10	273 x 8	273 x 4	

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8 Actuator Selection

KF Diaphragm

Size	25	40	50	80	100	150	200
	1"	1.5"	2"	3"	4"	6"	8"
stroke [mm]	20			40		60	
Actuator Size	F2 (250cm ²)						
	F3 (500cm ²)			F3 (500cm ²)			
	F4 (700cm ²)			F4 (700cm ²)		F4 (700cm ²)	
				F5 (1500cm ²)		F5 (1500cm ²)	
				F6 (3000cm ²)		F6 (3000cm ²)	

KP Diaphragm

Size	25	40	50	80	100	150	200
	1"	1.5"	2"	3"	4"	6"	8"
stroke [mm]	20			40		60	
Actuator Size	P2 (120cm ²)						
	P3 (300cm ²)			P3 (300cm ²)			
	P4 (600 cm ²)			P4 (600cm ²)		P4 (600cm ²)	
				P5 (1200cm ²)		P5 (1200cm ²)	

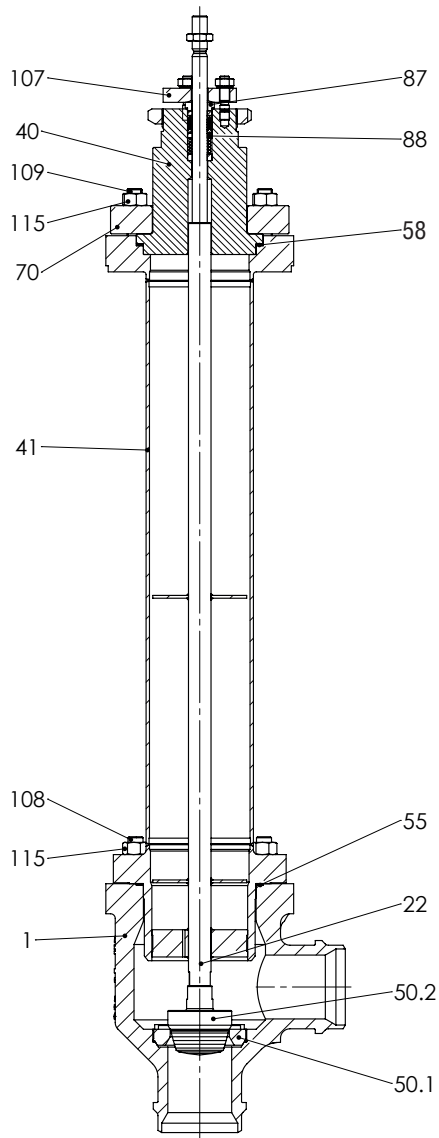
9. Model Code

0	4	1	5	F	3	A
Valve Type		Bonnet Type		Actuator		
041	Angle Valve	3	Bellows / Extended	F2	KF (250cm ²)	
		5	Extension	F3	KF (500cm ²)	
				F4	KF (700cm ²)	
				F5	KF (1500cm ²)	
				F6	KF (3000cm ²)	
				P2	KP (120cm ²)	
				P3	KP (300cm ²)	
				P4	KP (600cm ²)	
				P5	KP (1200cm ²)	

KP Diaphragm	KF Diaphragm F2 to F4	KF Diaphragm F5 to F6
<ul style="list-style-type: none"> Stainless Steel Multispring 80cm² - 1200cm² Single acting 10 - 40mm stroke 	<ul style="list-style-type: none"> Carbon Steel Multispring 250cm² - 700cm² Single acting 10 - 40mm stroke 	<ul style="list-style-type: none"> Carbon Steel Multispring 1500cm² - 3000cm² Single acting 40 - 60mm stroke

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10. Parts List



Item	Description
1	Body
22	Stem with guiding
40	Bonnet
41	Low temperature extension
50.1	Seating
50.2	Plug
55	Body gasket
58	Bonnet gasket
70	Bonnet flange
87	Gland flange assembly
88	Packing
107	Locknut
108	Body bolts
109	Bonnet bolts
115	Hexnuts



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