

SKINNER 7000 Series General Purpose Two-Way Direct Lift and Pilot Operated Valves

IN THIS SECTION :
7221, 7222, 7321, 7322, 7423

SPECIFICATIONS

Mechanical Characteristics

Standard Materials of Construction

- Body—Brass or Stainless Steel (316 or 430F)
- Seals—NBR, FKM as listed
- Sleeve Tube—Stainless Steel (303 or 304)
- Plunger—Stainless Steel (430FR)
- Stop—Stainless Steel (430FR)
- Springs—Stainless Steel (18-8)
- Shading Ring—Copper
- Pilot Orifice—Stainless Steel (303)

Compatible Fluids

- Lubricated Air, Non-Lubricated Air, Inert Gases, Water, Hydraulic Fluids, Petroleum Products and additional fluids compatible with materials of construction. Use of non-lubricated gaseous media will substantially limit valve life.

Electrical Characteristics

Voltages

- DC—12, 24
- AC—24/60, 110/50-120/60, 220/50-240/60,(other AC/DC voltages available upon request)

Power Consumption

- 10, 22 watts
- Fluxtron* Electronic Coils and Magnelatch

Agency Approvals

- UL and CSA approvals are available on valves with applicable coil/enclosure combinations. For additional information see page 122.

Miscellaneous

Maximum Ambient Temperature

- 10 watt AC/DC—150°F
- 22 watt AC/DC—77°F
- Fluxtron*/Magnelatch—122°F

*** Fluxtron coils not for use on direct lift valves.**

7221 DIRECT LIFT BRASS VALVES— NORMALLY CLOSED, NBR SEALS

'B' and 'G' Family valves listed below are also available in FKM Seals.

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.** Fluid Temp. (F)	Pressure Vessel Number	UL/CSA*** Approval	Const. Ref.
			Min.*	Maximum		22 watt				
				10 watt	DC Ratings					
3/8"	5/8	3.0	0	100	40	185	72218BN3TN00	SS	8	
	19/32	4.4	0	230	100	185	7221GBN3VN00	SS	9	
1/2"	5/8	4.0	0	100	40	185	72218BN4UN00	SS	8	
	19/32	4.4	0	230	100	185	7221GBN4VN00	SS	9	
3/4"	3/4	5.0	0	100	40	185	72218BN5VN00	SS	8	
	19/32	5.5	0	230	100	185	7221GBN51N00	SS	9	
1"	19/32	5.5	0	230	100	185	7221GBN61N00	SS	9	
	1	11.7	0	230	85	185	7221GBN64N00	SS	9	

For Direct Lift Valve With 1" NPT Process Connection Please Go To Page 44.

7221 DIRECT LIFT STAINLESS STEEL VALVES— NORMALLY CLOSED, FKM SEALS

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.*** Fluid Temp. (F)	Pressure Vessel Number	UL/CSA** Approval	Const. Ref.
			Min.*	Maximum		22 watt				
				10 watt	DC Ratings					
3/8"	5/8	3.0	0	100	40	185	72218RN3TV00	SS	8	
1/2"	5/8	4.0	0	100	40	185	72218RN4UV00	SS	8	
3/4"	3/4	5.0	0	100	40	185	72218RN5VV00	SS	8	

* Direct lift valves will open at zero differential pressure, however full flow through the valve will not be safely achieved.

** Maximum fluid temperatures are provided for Class F coils. Valves with FKM seals (letter "V" in 10th position of pressure vessel number) can be used at fluid temperatures up to 240°F on DC and

250°F on AC provided a Class H coil is used.

*** UL/CSA Approval Information: SS= Safety Shutoff GP=General Purpose Blank=Not Approved See page 122 for additional agency approval information.

7000 Series General Purpose Two-Way Direct Lift and Pilot Operated Valves

DRAWINGS

Valve	Dimension			
	H	P	C	L
72218BN3TXXX	3.78	3.23	2.21	2.64
72218BN4UXXX	3.78	3.23	2.21	2.64
72218BN5VXXX	3.99	3.33	2.31	2.72
72218RN3TXXX	3.99	3.33	2.31	2.72
72218RN4UXXX	3.99	3.33	2.31	2.72
72218RN5VXXX	3.99	3.33	2.31	2.72

*X denotes multiple digit combinations for brevity.

#8
Port Identification: P-IN/ --OUT

Valve	Dimension				
	H	P	C	L	W
7221GBN3VXXX	3.66	3.07	2.06	2.95	2.09
7221GBN4VXXX	3.66	3.07	2.06	2.95	2.09
7221GBN51XXX	3.75	3.07	2.06	3.15	2.09
7221GBN61XXX	4.03	3.15	2.12	3.35	2.09
7221GBN64XXX	4.25	3.35	2.34	3.94	2.75

*X denotes multiple digit combinations for brevity.

#9
Port Identification: Flow arrow on body indicates flow direction—ports are not marked.

7222 DIRECT LIFT BRASS VALVES— NORMALLY OPEN, FKM SEALS

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.** Fluid Temp. (F)	Pressure Vessel Number	UL/CSA*** Approval	Const. Ref.
			Min.*	Maximum		DC Ratings				
				AC Ratings	DC Ratings					
3/8"	5/8	3.0	0	10 watt	22 watt	125	185	72228BN3TV00	GP	102
1/2"	5/8	4.0	0	10 watt	22 watt	125	185	72228BN4UV00	GP	102
3/4"	3/4	5.0	0	10 watt	22 watt	125	185	72228BN5VV00	GP	102

- * Direct lift valves will open at zero differential pressure, however full flow through the valve will not be safely achieved. If full flow is required at zero differential pressure, consult Skinner.
- ** Maximum fluid temperatures are provided for Class F coils. Valves with FKM seals (letter "V" in 10th position of pressure vessel number) can be used at fluid temperatures up to 240°F on DC and 250°F on AC provided a Class H coil is used.
- *** UL/CSA Approval Information: SS=Safety Shutoff GP=General Purpose Blank=Not Approved See page 122 for additional agency approval information.
- + Rating suitable for all 22 watt integrated coils except D300 DIN coil. Consult Skinner Valve for application review.

DRAWINGS

Valve	Dimension			
	H	P	C	L
72228BN3TXXX	4.04	3.49	2.43	2.64
72228BN4UXXX	4.04	3.49	2.43	2.64
72228BN5VXXX	4.24	3.58	2.52	2.72
72228RN3TXXX	4.04	3.49	2.43	2.64
72228RN4UXXX	4.04	3.49	2.43	2.64
72228RN5VXXX	4.24	3.58	2.52	2.72

*X denotes multiple digit combinations for brevity.

#102
Port Identification: P-IN/ --OUT

7222 DIRECT LIFT STAINLESS STEEL VALVES— NORMALLY OPEN, FKM SEALS

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.** Fluid Temp. (F)	Pressure Vessel Number	UL/CSA*** Approval	Const. Ref.
			Min.*	Maximum		DC Ratings				
				AC Ratings	DC Ratings					
3/8"	5/8	3.0	0	10 watt	22 watt	125	185	72228RN3TV00	GP	102
1/2"	5/8	4.0	0	10 watt	22 watt	125	185	72228RN4UV00	GP	102
3/4"	3/4	5.0	0	10 watt	22 watt	125	185	72228RN5VV00	GP	102

7000 Series General Purpose Two-Way Direct Lift and Pilot Operated Valves

7321 PILOT OPERATED BRASS VALVES – NORMALLY CLOSED, NBR SEALS

'K', '8' and 1/4" '2' Family valves also available with FKM seals

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.** Fluid Temp. (F)	Pressure Vessel Number	UL/CSA*** Approval	Const. Ref.
			Maximum							
			Min.*	AC Ratings		DC Ratings				
10 watt	22 watt	10 watt		22 watt						
1/4"	1/4	0.76	5	300	300		185	73212BN2MN00	SS	10
	7/16	2.0	3	150	60	150	185	7321KBN2RN00	SS	98
3/8"	1/2	2.4	5	300	300		185	73212BN3SN00	SS	11
	5/8	3.0	5	150	60	150	185	73218BN3TN00	SS	12
	7/16	2.5	3	150	60	150	185	7321KBN3SN00	SS	98
1/2"	1/2	2.8	5	300	300		185	73212BN4TN00	SS	11
	5/8	4.0	5	150	60	150	185	73218BN4UN00	SS	12
	7/16	2.5	3	150	60	150	185	7321KBN4SN00	SS	98
3/4"	3/4	7.3	5	300	300		185	73212BN52N00	SS	13
	3/4	5.0	5	150	60	150	185	73218BN5VN00	SS	12
	25/32	9.6	5	230	60	230	185	7321GBN53N00	SS	14
1"	1	11.0	5	300	300		185	73212BN63N00	SS	13
	1 1/16	13.5	5	125	60	125	185	73218BN64N00	SS	15
	1	12.5	5	230	60	230	185	7321GBN64N00	SS	14
1 1/4"	1 1/8	15.0	5	125	60	125	185	73218BN75N00	SS	15
	1 1/8	19.3	5	230	60	230	185	7321GBN76N00	SS	14
1 1/2"	1 1/4	22.5	5	125	60	125	185	73218BN87N00	SS	16
	1 9/16	29.0	5	230	60	230	185	7321GBN88N00	SS	14
2"	1 9/16	38.6	5	230	60	230	185	7321GBN99N00	SS	14

7321 PILOT OPERATED STAINLESS STEEL VALVES – NORMALLY CLOSED, NBR SEALS

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.** Fluid Temp. (F)	Pressure Vessel Number	UL/CSA*** Approval	Const. Ref.
			Maximum							
			Min.*	AC Ratings		DC Ratings				
10 watt	22 watt	10 watt		22 watt						
1/4"	1/4	0.76	5	300	300		185	73212SN2MN00	SS	17

* Pilot operated valves require the minimum pressure differential specified for proper valve operation.

** Maximum fluid temperatures are provided for Class F coils. Valves with FKM seals (letter "V" in 10th position of pressure vessel number) can be used at fluid temperatures up to 240°F on DC

and 250°F on AC provided a Class H coil is used.

*** UL/CSA Approval Information: SS=Safety Shutoff GP=General Purpose Blank=Not Approved See page 122 for additional agency approval information. 1/4"-2" Family SS valve also available with FKM seals.

DRAWINGS

Valve	Dimension				
	H	P	C	L	R
7321KBN4SXXX	3.56	2.97	1.96	2.17	
7321KBN2RXXX	3.56	2.97	1.96	1.97	
7321KBN3SXXX	3.56	2.97	1.96	1.97	

*X" denotes multiple digit combinations for brevity.

Flow arrow on body indicates flow direction—ports are not marked.

#98


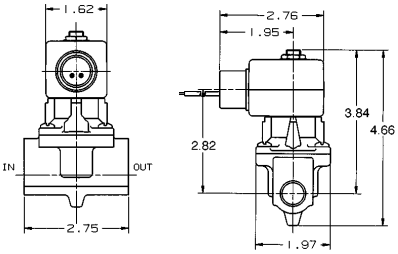
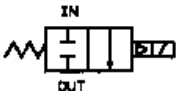
Valve	Dimension				
	H	P	C	L	R
73218BN3TXXX	4.38	3.84	2.81	2.64	1.39
73218BN4UXXX	4.38	3.84	2.81	2.64	1.39
73218BN5VXXX	4.59	3.94	2.91	2.72	1.43

*X" denotes multiple digit combinations for brevity.

#12


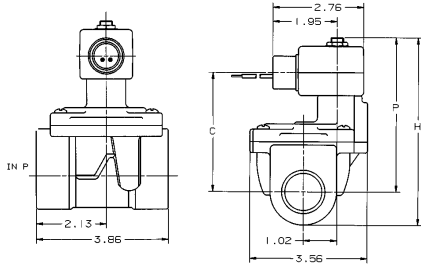
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7000 Series General Purpose Two-Way Direct Lift and Pilot Operated Valves

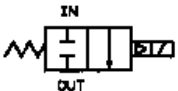
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Port Identification: IN-IN/ OUT-OUT


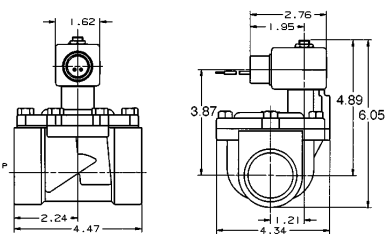
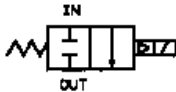
Valve	Dimension		
	H	P	C
73218BN64XXX	5.45	4.59	3.57
73218BN75XXX	5.74	2.97	1.96

"X" denotes multiple digit combinations for brevity.




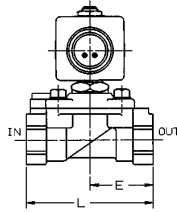
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Port Identification: P-IN/ --OUT

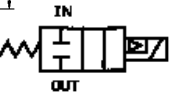
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Port Identification: P-IN/ --OUT


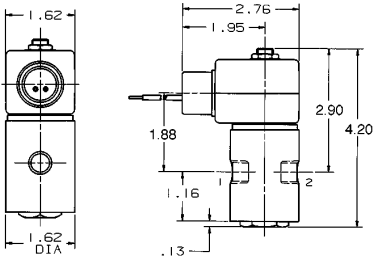
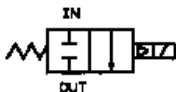



Valve	Dimension			
	H	P	C	W
7321GBN53XXX	4.75	3.86	2.84	3.94
7321GBN64XXX	4.75	3.86	2.84	3.94
7321GBN76XXX	5.41	4.11	3.09	4.33
7321GBN88XXX	5.66	4.37	3.35	5.51
7321GBN99XXX	6.25	4.60	3.58	5.91

"X" denotes multiple digit combinations for brevity.
Flow arrow on body indicates flow direction—ports are not marked.


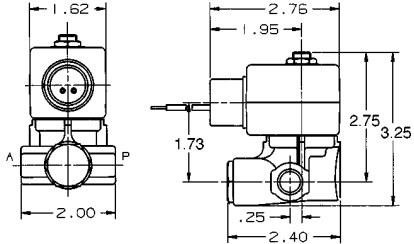
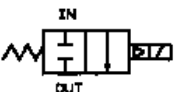


#14

#17

Port Identification: 2-IN/ 1-OUT


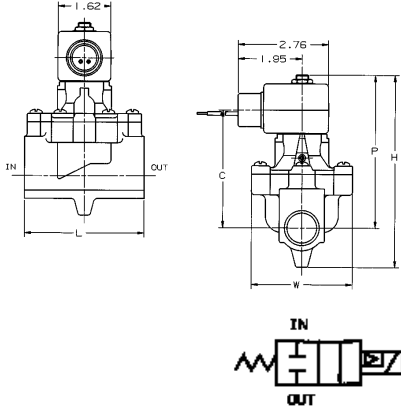





#10

Port Identification: P-IN/ A-OUT

7000 Series General Purpose Two-Way Direct Lift and Pilot Operated Valves

Valve	Dimension					Port Identification	
	H	P	C	L	W	IN	OUT
73212BN52N00	5.81	4.62	3.59	3.62	3.09	IN	OUT
73212BN63N00	6.22	4.89	3.87	4.31	3.45	P	A

#13


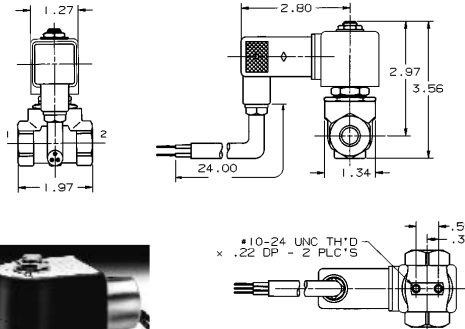
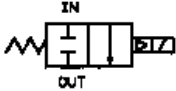
7321 PILOT OPERATED BRASS TIMER DRAIN VALVES—NORMALLY CLOSED, FKM SEALS

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX. Fluid Temp. (F)	Pressure Vessel Number	UL/CSA** Approval	Const. Ref.
			Min.*	Maximum						
				10 watt	22 watt					
1/4"	7/16	1.75	3	300	45	210	7321KBY61640	SS	18	
3/8"	7/16	2.5	3	300	45	210	7321KBY63200	SS	18	
1/2"	7/16	2.7	3	300	45	210	7321KBY6320A	SS	18	

* Pilot operated valves require the minimum pressure differential specified for proper valve operation.
 ** UL/CSA Approval Information: SS=Safety Shutoff GP=General Purpose Blank=Not Approved

See page 122 for additional agency approval information.
 NOTE: See Electrical options section on page 121 for timer available for these valves. These valves are rated for intermittent duty cycle applications only.

DRAWINGS

#18

Port Identification: Flow arrow on body indicates flow direction—ports are not marked.

7000 Series General Purpose Two-Way Direct Lift and Pilot Operated Valves

7322 PILOT OPERATED BRASS VALVES— NORMALLY OPEN, NBR SEALS

'8' and 1/4" '2' Family valves listed below are also available in FKM Seals.

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.** Fluid Temp. (F)	Pressure Vessel Number	UL/CSA*** Approval	Const. Ref.	
			Min.*	Maximum		10 watt					22 watt
				10 watt	22 watt						
1/4"	1/4	0.76	5	200	200	185	73222BN2MN00	GP	104		
3/8"	1/2	2.4	5	200	200	185	73222BN3SN00	GP	105		
	5/8	3.0	5	150	150	185	73228BN3TN00	GP	106		
1/2"	1/2	2.8	5	200	200	185	73222BN4TN00	GP	105		
	5/8	4.0	5	150	150	185	73228BN4UN00	GP	106		
3/4"	3/4	7.3	5	200	200	185	73222BN52N00	GP	107		
	3/4	5.0	5	150	150	185	73228BN5VN00	GP	106		
	25/32	9.6	5	230	230	185	7322GBN53N00	GP	108		
1"	1	11.0	5	200	200	185	73222BN63N00	GP	107		
	1 1/16	13.5	5	125	125	185	73228BN64N00	GP	110		
	1	12.5	5	230	230	185	7322GBN64N00	GP	108		
1 1/4"	1 1/8	15.0	5	125	125	185	73228BN75N00	GP	110		
	1 1/8	19.3	5	230	230	185	7322GBN76N00	GP	108		
1 1/2"	1 1/4	22.5	5	125	125	185	73228BN87N00	GP	111		
	1 9/16	29.0	5	170	170	185	7322GBN88N00	GP	108		
2"	1 9/16	38.6	5	170	170	185	7322GBN99N00	GP	108		

7322 PILOT OPERATED STAINLESS STEEL VALVES— NORMALLY OPEN, NBR SEAL

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.** Fluid Temp. (F)	Pressure Vessel Number	UL/CSA*** Approval	Const. Ref.	
			Min.*	Maximum		10 watt					22 watt
				10 watt	22 watt						
1/4"	1/4	0.76	5	200	200	185	73222SN2MN00	GP	112		

* Pilot operated valves require the minimum pressure differential specified for proper valve operation.

** Maximum fluid temperatures are provided for Class F coils. Valves with FKM seals (letter "V" in 10th position of pressure vessel number) can be used at fluid temperatures up to 240°F on DC

and 250°F on AC provided a Class H coil is used.

*** UL/CSA Approval Information: SS= Safety Shutoff GP= General Purpose Blank= Not Approved See page 122 for additional agency approval information. 1/4"-2" Family valves listed are also available with FKM seals.

DRAWINGS

Valve	Dimension				
	H	P	C	L	W
7322GBN53XXX	4.75	3.86	2.84	3.94	2.75
7322GBN64XXX	4.75	3.86	2.84	3.94	2.75
7322GBN76XXX	5.41	4.11	3.09	4.33	2.75
7322GBN88XXX	5.66	4.37	3.35	5.51	3.90
7322GBN99XXX	6.25	4.60	3.58	5.91	3.90

*X denotes multiple digit combinations for brevity.

Port Identification: Flow arrow on body indicates flow direction—ports are not marked.

#108


Valve	Dimension				
	H	P	C	L	R
73228BN3TXXX	4.62	4.07	3.01	2.64	1.39
73228BN4UXXX	4.62	4.07	3.01	2.64	1.39
73228BN5VXXX	4.83	4.17	3.11	2.72	1.43

*X denotes multiple digit combinations for brevity.

Port Identification: P-IN / -- OUT

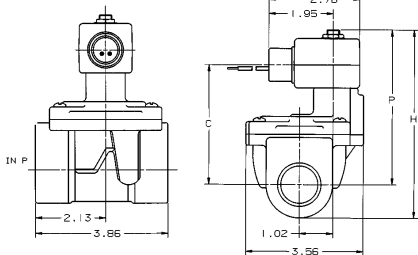
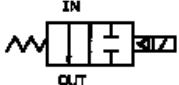
#106

7000 Series General Purpose Two-Way Direct Lift and Pilot Operated Valves




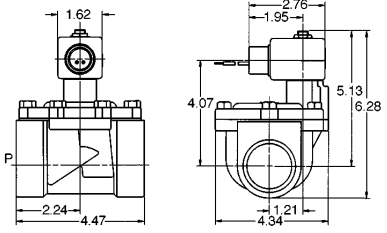

Valve	Dimension		
	H	P	C
73228BN64XXX	5.69	4.83	3.77
73228BN75XXX	5.97	4.97	3.91

"X" denotes multiple digit combinations for brevity.


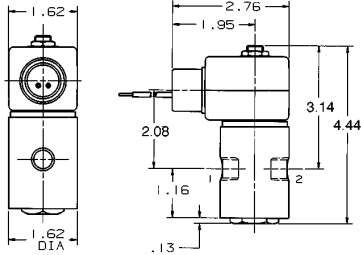
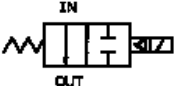
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#110


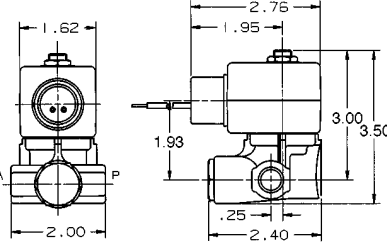
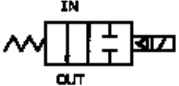
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#111

Port Identification: 2-IN/ 1-OUT


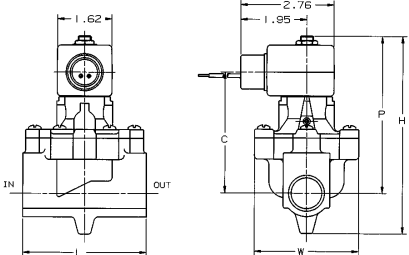
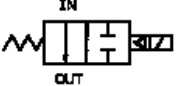
#112

Port Identification: P-IN/ A-OUT


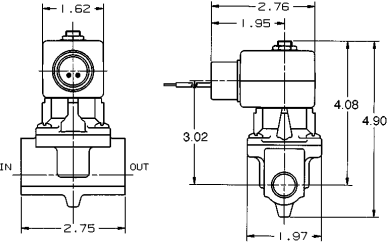
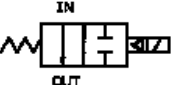
#104

Valve	Dimension					Port Identification	
	H	P	C	L	W	IN	OUT
73222BN52N00	6.04	4.85	3.79	3.62	3.09	IN	OUT
73222BN63N00	6.46	5.13	4.07	4.31	3.45	P	A

Port Identification: P-IN/ - -OUT

#107

Port Identification: IN-IN/ OUT-OUT

#105

7000 Series General Purpose Two-Way Direct Lift and Pilot Operated Valves

7423 PILOT OPERATED BRASS VALVES— DUAL PURPOSE, NBR SEALS

Pipe Size NPT	Orifice Size (inch)	Cv Factor	Operating Pressure Differential (PSI)				MAX.* Fluid Temp. (F)	Pressure Vessel Number	UL/CSA** Approval	Const. Ref.
			Maximum							
			Min.*	AC Ratings		DC Ratings				
10 watt	22 watt	10 watt		22 watt						
3/8"	1/2	2.4	0	150	150	185	74232BN3SNJ1	GP	19	
1/2"	1/2	2.8	0	150	150	185	74232BN4TNJ1	GP	19	
3/4"	3/4	7.3	0	150	150	185	74232BN52NJ1	GP	20	
1"	1	11.0	0	150	150	185	74232BN63NJ1	GP	20	

* Maximum fluid temperatures are provided for Class F coils. Valves with FKM seals (letter 'V' in 10th position of pressure vessel number) can be used at fluid temperatures up to 240°F on DC and 250°F on AC provided a Class H coil is used.

Note: External Pilot Pressure valves require a minimum external pilot pressure equal to the main line pressure plus 10 PSI. Maximum external pilot pressure is 145 PSI for vacuum applications, and 160

PSI for pressure applications.

Pressure ratings may be reduced, however. Consult factory for details.

** UL/CSA Approval information: SS= Safety Shutoff GP=General Purpose

BLANK = Not Approved

See page 122 for additional agency approval information.

DRAWINGS

#19

IN
OUT

NORMALLY CLOSED

IN
OUT

NORMALLY OPEN

Port Identification: IN-IN/ OUT-OUT
Note: Valve may be normally closed or normally open, depending on piping of external pilot.

Valve	Dimension						Port Identification	
	H	P	C	L	W	S	IN	OUT
74232BN52NJ1	6.78	5.59	3.59	3.62	3.09	2.28	IN	OUT
74232BN63NJ1	7.19	5.86	3.87	4.31	3.45	2.56	P	A

Valve can be normally closed or normally open, depending on piping of external pilot.

#20

IN
OUT

NORMALLY CLOSED

IN
OUT

NORMALLY OPEN