

2/2-Way Angle-Seat Valve

for High-Quality Applications, Steam and Water

Type 2000

1/2" to 2-1/2" NPT; 0 to 230 PSI



Advantages / Benefits

- ▶ Spring return closed or open, double-acting
- ▶ Materials: bronze, stainless steel
- ▶ High flow rate
- ▶ Self-adjusting packing glands with intermediate relief and wiper
- ▶ Optical position indication
- ▶ Pilot connection can be rotated through 360°
- ▶ Low control air consumption due to minimized actuator volume
- ▶ Electrical position indication, stroke limitation and manual override available as accessories

Design

The externally piloted angle-seat valve is operated with a single- or double-acting piston actuator. The actuator is available in two different materials, depending on the ambient temperature. High flow rates are attained with the bronze or stainless steel 2-way body.

The reliable self-adjusting packing gland provides high sealing integrity. These maintenance-free and robust valves can be retro-fitted with a comprehensive range of accessories for position indication, stroke limitation or manual override.

Applications

Neutral gases and liquids up to 230 psi

Steam up to 145 psi / 356°F

Aggressive fluids with stainless steel body

Systems engineering

Food processing

Chemical industry

Sterilizers



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Easy Fluid Control Systems

2/2-Way Angle-Seat Valve

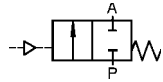
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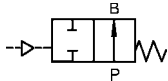
Technical Data

Control Functions

A – 2/2-way flow valve,
normally closed spring return

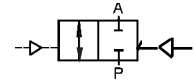


B – 2/2-way flow valve,
normally open spring return



Control Functions

I – 2/2-way flow valve,
with double-acting actuator
(on request)



Operating Data

Threaded connection	NPT	Body material	Bronze 316 Stainless steel
Nominal pressure	230 PSI	Seal material	PTFE
Minimum control pressure		Packing gland	Self-adjusting PTFE-stem seals, intermediate relief and wiper
control function A	See chart	Fluids	Water, alcohols, oils, fuels, hydraulic liquids, salt solutions, lyes, organic solvents, steam
control function B	See diagram	(Examples)	
Maximum control pressure	145 psi		
Control fluid	Neutral gases, air		
Maximum viscosity	24 in ² /s (600 mm ² /s)		
Ambient temperature			
PA-actuator	min. +14°F (-10°C) max. +140°F (+60°C)		
PPS-actuator	min. +40°F (+5°C) max. +266°F (+130°C)		
Fluid temperature	min. +14°F (-10°C) max. +356°F (+180°C)		

Installation

Installation As required

2/2-Way Angle-Seat Valve

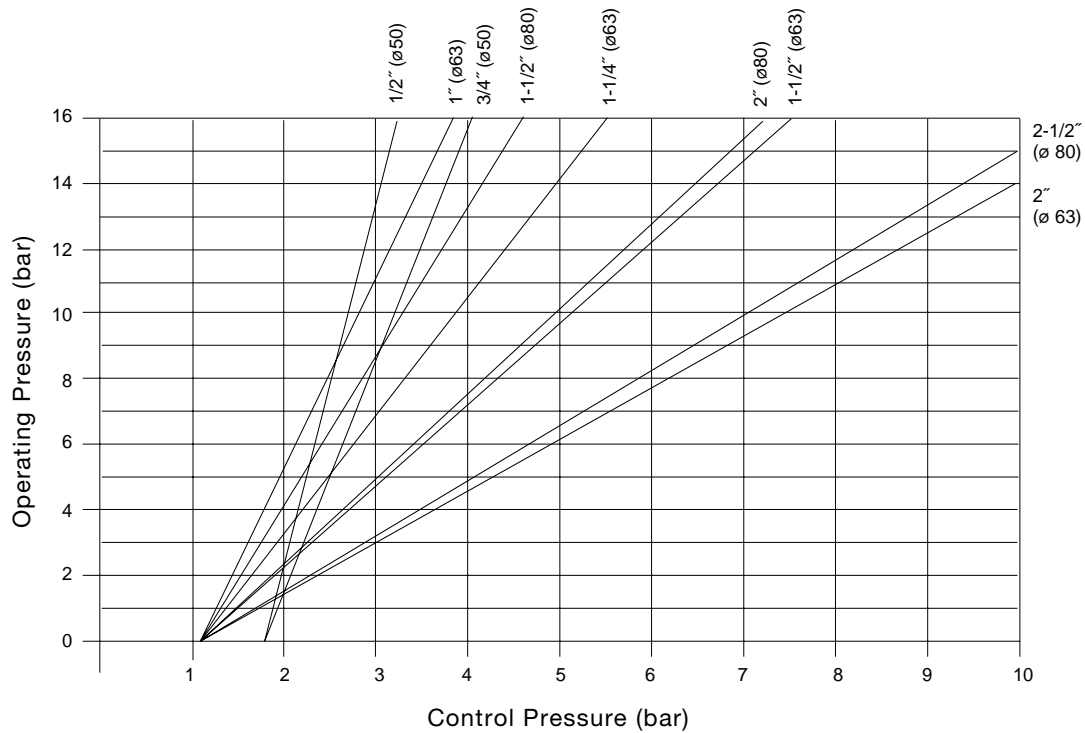
Type 2000

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Specifications – Liquid Applications (Waterhammer Free)

Control Pressure

Control Function B; Actuator 50 - 80 mm



Note: 1 bar = 14.5 psi

Specifications

Connections NPT	Orifice [inch]	Cv	Max. Operating Pressure ²⁾ } → Differential Pressure ¹⁾		Required Control Pressure CFA [psi]	Weight [lbs.]	Actuator Size [mm] ø DIA
			CFA [psi]	CFB [psi]			
1/2	1/2	4.9	230	230	56	1.9	50
3/4	3/4	9.4	160	230	56	2.1	50
1	1	22.3	160	230	61	4.0	63
1-1/4	1-1/4	32.2	203	189	65	6.8	80
1-1/2	1-1/2	49.1	116	131	65	7.1	80
			189	230	65	8.8	100
2	2	64.4	116	87	65	15.4	100
			174	131	65	13.2	63
				131	65	22.4	125
2-1/2	2-1/2	105.3	102	87	65	14.3	80
					65	24.2	125
						18.3	80

¹⁾ Higher differential pressures by other combinations of actuators on request.

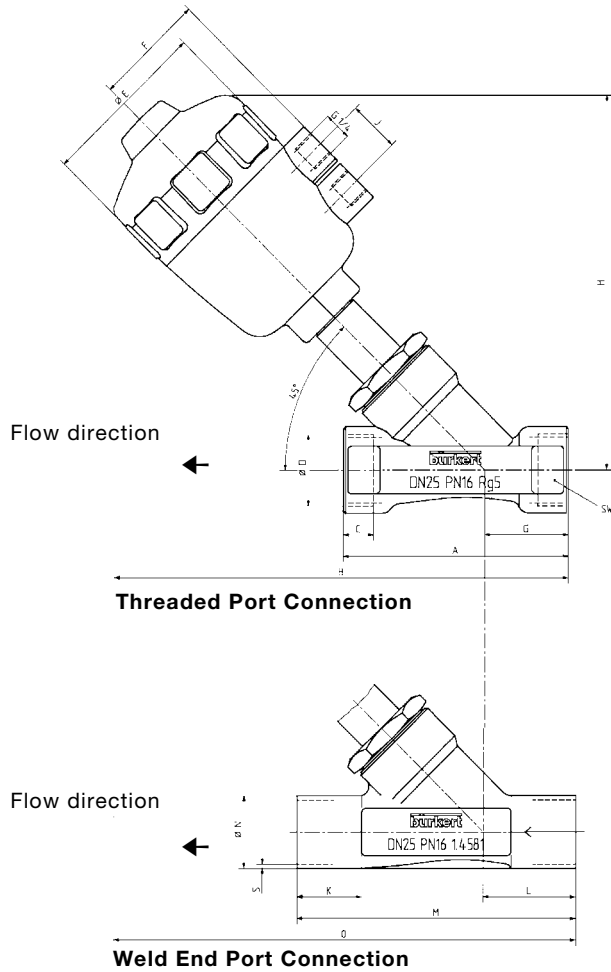
²⁾ Max. operating pressure with steam -> 145 psi (356°F).

2/2-Way Angle-Seat Valve

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Type 2000

Dimensions in Inches – Waterhammer Free



Function	CFA - B			CFA						CFB					
	ø 50 mm		ø 63 mm	ø 80 mm		ø 100 mm		ø 125 mm		ø 63 mm			ø 80 mm		
Actuator DN	DN 13	DN 20	DN 25	DN 32	DN 40	DN40	DN50	DN50	DN65	DN32	DN40	DN50	DN 40	DN 50	DN65
Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	1-1/2"	2"	2"	2-1/2"	1-1/4"	1-1/2"	2"	1-1/2"	2"	2-1/2"
A	3.3	3.7	4.1	4.7	5.1	5.1	5.9	5.9	7.2	4.7	5.1	5.9	5.1	5.9	7.2
B	6.8	7.0	8.3	10.0	9.8	11.8	12.6	13.6	14.6	8.9	9.0	9.8	9.8	10.6	11.6
C	.47	.47	.55	.63	.70	.70	.78	.78	.82	.63	.70	.78	.70	.78	.86
E	2.5	2.5	3.1	3.9	3.9	5.0	5.0	6.0	6.0	3.1	3.1	3.1	3.9	3.9	3.9
F	1.7	1.7	2.0	2.3	2.3	2.8	2.8	3.3	3.3	2.0	2.0	2.0	2.3	2.3	2.3
G	1.3	1.4	1.5	1.6	1.6	1.6	1.7	1.7	2.2	1.6	1.6	1.7	1.6	1.7	2.2
H	5.4	5.7	6.8	8.2	8.3	10.2	12.4	11.8	12.4	7.3	7.4	8.0	8.3	8.8	9.4
K	.78	.98	1.1	1.1	1.1	1.1	1.1	1.1	-	1.1	1.1	1.1	1.1	1.1	-
L	1.3	1.5	1.7	1.7	1.9	1.9	1.9	1.9	-	1.7	1.9	1.9	1.9	1.9	-
M	3.9	4.5	5.1	5.7	6.3	6.3	6.8	6.8	-	5.7	6.3	6.8	6.3	6.8	-
N	.83	1.0	1.3	1.6	1.9	1.9	2.3	2.3	-	1.6	1.9	2.3	1.9	2.3	-
O	6.8	7.1	8.5	10.2	10.1	12.1	12.8	13.8	-	9.0	9.3	10.0	10.1	10.8	-
S	.06	.06	.07	.07	.07	.07	.10	.10	-	.07	.07	.10	.07	.10	-

2/2-Way Angle-Seat Valve

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Ordering Chart – Waterhammer Free Version

Standard-Program

Type 2000 with Bronze Body; PA-Actuator, Pilot Ports with Bronze Inserts;

Type 2000 with Stainless Steel Body, PA-Actuator, Pilot Ports with Stainless Steel Inserts

Control Function	Orifice [inch]	Port Connection NPT	Actuator Size (DIA) [mm]	Flow Direction	Operating Pressure ¹⁾²⁾		Item Number	
					PSI	Bar	Stainless Body	Bronze Body
A	1/2	1/2	ø 50	below seat	230	16	454 619 D	454 604 F
	3/4	3/4	ø 50	below seat	160	11	454 620 A	454 605 G
	1	1	ø 63	below seat	160	11	454 621 X	454 606 H
	1-1/4	1-1/4	ø 80	below seat	205	14	454 622 Y	454 607 A
	1-1/2	1-1/2	ø 80	below seat	116	8	454 623 Z	454 608 K
	1-1/2	1-1/2	ø 100	below seat	188	13	454 788 F	454 784 T
	2	2	ø 100	below seat	116	8	454 624 S	454 610 G
	2	2	ø 125	below seat	174	12	454 789 G	454 785 U
	2-1/2	2-1/2	ø 125	below seat	102	7	454 625 T	454 611 V
B	1/2	1/2	ø 50	below seat	230	16	454 597 Q	454 612 W
	3/4	3/4	ø 50	below seat	230	16	454 598 Z	454 613 X
	1	1	ø 63	below seat	230	16	454 599 S	454 614 Y
	1-1/4	1-1/4	ø 63	below seat	188	13	454 600 P	454 615 Z
	1-1/2	1-1/2	ø 63	below seat	131	9	454 601 C	454 616 S
	1-1/2	1-1/2	ø 80	below seat	230	16	454 790 D	454 786 V
	2	2	ø 63	below seat	87	6	454 602 D	454 617 T
	2	2	ø 80	below seat	131	9	454 791 S	454 787 W
	2-1/2	2-1/2	ø 80	below seat	87	6	454 603 E	454 618 C

¹⁾ Required control pressure > 65 PSI ²⁾ 145 PSI with steam

On request:

- Double-acting actuator
- PPS-actuator for ambient temperatures up to 266°F (130°C)
- Vacuum-version
- Control function B for pressures up to 230 psi

Options:

- Stroke limitation (min./max flow)
- Position indication Type 1062 or position indication with external inductive switches.
- Manual override
- Namur adapter for pilot valve

2/2-Way Angle-Seat Valve

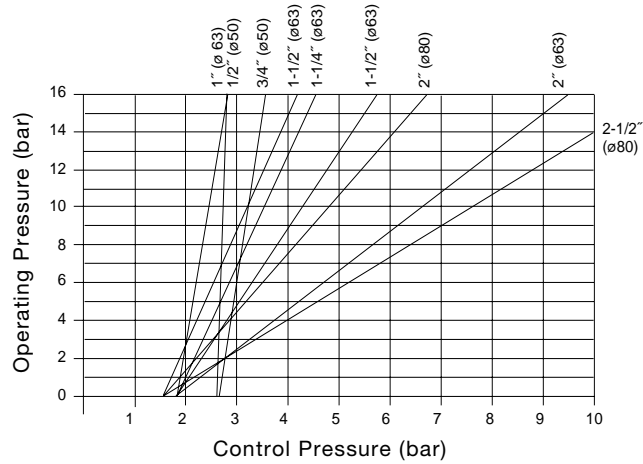
Type 2000

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Specifications – High Quality Air, Gas & Steam Applications

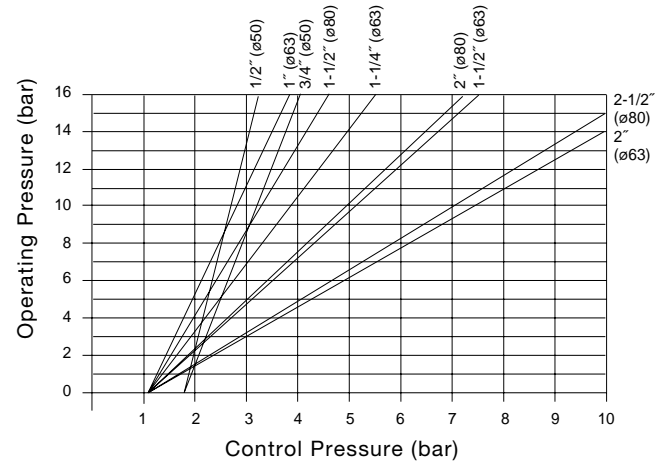
Control Pressure

Control Function A; Actuator 50 - 80 mm



Note: 1 bar = 14.5 psi

Control Function B; Actuator 50 - 80 mm



Note: 1 bar = 14.5 psi

Specifications (continued) – High Quality Air, Gas & Steam Applications

Connections NPT	Orifice [inch]	Cv	Maximum Operating Pressure ³⁾ Differential Pressure ¹⁾				Operating Pressure with Steam 356°F (180°C)		Weight [lbs.]	Actuator Size [inch]
			CFA		CFB ²⁾		PSI	Bar		
			PSI	Bar	PSI	Bar				
1/2	1/2	4.9	230	16			145	10	1.9	2
					230	16	145	10		
3/4	3/4	9.4	230	16			145	10	2.1	2
					230	16	145	10		
1	1	22.3	230	16			145	10	4.0	2-1/2
					230	16	145	10		
1-1/4	1-1/4	32.2	230	16			145	10	6.8	2-1/2
					189	13	145	10		
1-1/2	1-1/2	4.1	230	16			145	10	7.7	2-1/2
					131	9	145	10		
			203	14			145	10	11.0	3
					230	16	145	10		
2	2	64.4	230	16			145	10	15.4	2-1/2
					87	6	145	10		
			218	15			145	10	15.4	2
					131	9	145	10		
2-1/2	2-1/2	105.3	87	6			145	10	24.2	3
					87	6	145	10		

¹⁾ Higher differential pressures by other combinations of actuators on request.

²⁾ Flow below seat only.

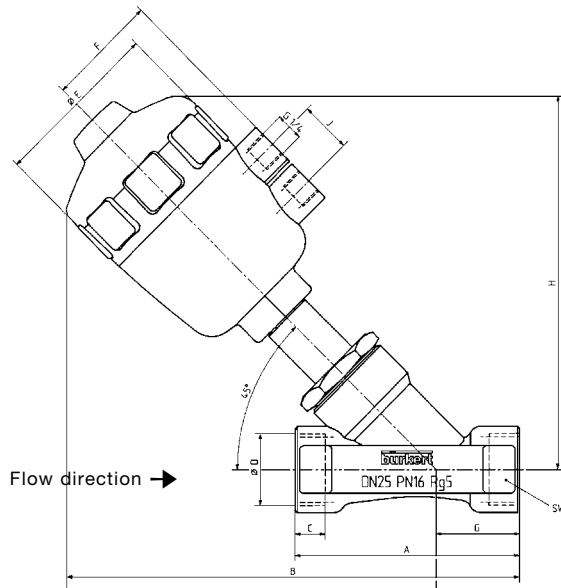
³⁾ Required control pressure 65 psi (4.5 bar)

2/2-Way Angle-Seat Valve

Type 2000

for High-Quality Applications, Steam and Water

Dimensions in Inches – High Quality Air, Gas & Steam Applications



Threaded Port Connection

Actuator	ø 50 mm		ø 63 mm				ø 80 mm		
	DN 13 1/2"	DN 20 3/4"	DN 25 1"	DN 32 1-1/4"	DN 40 1-1/2"	DN50 2"	DN40 1-1/2"	DN50 2"	DN65 2-1/2"
A	3.3	3.7	4.1	4.7	5.1	5.9	5.1	5.9	7.2
B	6.8	7.0	8.3	8.9	9.0	9.8	9.8	10.6	11.6
C	.47	.47	.55	.63	.70	.78	.70	.78	.86
E	2.5	3.1	3.1	3.1	3.1	3.1	3.9	3.9	3.9
F	1.7	1.7	2.0	2.0	2.0	2.0	2.3	2.3	2.3
G	1.3	1.4	1.5	1.6	1.6	1.7	1.6	1.7	2.2
H	5.3	5.7	6.8	7.3	7.4	8.0	8.3	8.8	9.4
J	.94	.94	.94	.94	.94	.94	.94	.94	.94
K	.78	.98	1.1	1.1	1.1	1.1	1.1	1.1	—
L	1.3	1.5	1.7	1.7	1.9	1.9	1.9	1.9	—
M	3.9	4.5	5.1	5.7	6.3	6.9	6.3	6.9	—
N	.83	1.0	1.4	1.6	1.9	2.3	1.9	2.3	—
O	6.8	7.1	8.5	9.0	9.3	10.0	10.1	10.8	—
S	.06	.06	.07	.07	.07	.10	.07	.10	—

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Ordering Charts (Other Versions on Request)

Standard-Program

Type 2000 with Bronze Body; PA-Actuator, Pilot Port with Bronze Inserts;
Type 2000 with Stainless Steel Body, PA-Actuator, Pilot Port with Stainless Steel Inserts

Control Function	Orifice [inch]	Port Connection NPT	Actuator Size (DIA) [mm]	Flow Direction	Operating Pressure ¹⁾²⁾		Item Number	
					PSI	Bar	Stainless Body	Bronze Body
A	1/2	1/2	ø 50	above seat	230	16	454 635 V	454 626 U
	3/4	3/4	ø 50	above seat	230	16	454 636 W	454 627 V
	1	1	ø 63	above seat	230	16	454 637 X	454 628 E
	1-1/4	1-1/4	ø 63	above seat	230	16	454 638 G	454 629 F
	1-1/2	1-1/2	ø 63	above seat	230	16	454 639 H	454 630 C
	1-1/2	1-1/2	ø 80	above seat	230	16	454 640 N	454 631 Z
	2	2	ø 63	above seat	205	14	454 641 B	454 632 S
	2	2	ø 80	above seat	230	16	454 642 C	454 633 T
	2-1/2	2-1/2	ø 80	above seat	218	15	454 643 D	454 634 U
	B	1/2	1/2	ø 50	below seat	230	16	454 597 Q
3/4		3/4	ø 50	below seat	230	16	454 598 Z	454 613 X
1		1	ø 63	below seat	230	16	454 599 S	454 614 Y
1-1/4		1-1/4	ø 63	below seat	188	13	454 600 P	454 615 Z
1-1/2		1-1/2	ø 63	below seat	131	9	454 601 C	454 616 S
1-1/2		1-1/2	ø 80	below seat	230	16	454 790 D	454 886 V
2		2	ø 63	below seat	87	6	454 602 D	454 617 T
2		2	ø 80	below seat	131	9	454 791 S	454 787 W
2-1/2		2-1/2	ø 80	below seat	87	6	454 603 E	454 618 C

¹⁾ Required control pressure > 65 PSI ²⁾ 145 PSI with steam

On request:

- Double-acting actuator
- PPS-actuator for ambient temperatures up to 266°F (130°C)
- Vacuum-version
- Control function B for pressures up to 230 psi with ø3" piston

Options:

- Position indication Type 1062 or position indication with external inductive switches.
- Manual override
- Namur adapter for pilot valve
- Independently adjustable stroke limitation – for high and low flow



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