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Title: 250A/AA, 250-4A/4AA, 250AL, 250AH Air Piloted Valves

ISO Date: April 10, 2006

Don't Take Chances

Compressed air is an extremely powerful medium. Always take maximum precautions when handling any component of a compressed air system. **Never** attempt to construct, replace, operate or service any component of a compressed air system unless you have been specifically and properly trained to do so. **Always** disconnect the supply air, and exhaust the air system before attempting to remove or service a component of that system. Failure to heed these warnings could result in SERIOUS, EVEN FATAL, PERSONAL INJURY.

Design And Specifications

The design and specifications and other product information contained in this catalog is for general reference purposes based upon customary and usual manufacturing standards and product applications. However, it is difficult to predict or to anticipate the functioning or suitability of the product for any particular application or use. Therefore, nothing herein shall be deemed a representation or warranty of the product design or specifications and Buyer shall have the responsibility for investigating and testing the product in any particular application or use and all risks attendant in such use.

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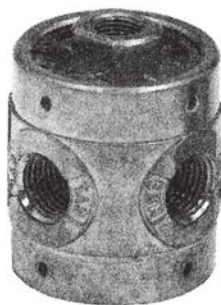
Humphrey 250 Series Air-Piloted Valves

Humphrey 250 Series air-piloted valves are simple, reliable, 2-position, pressure-operated, spring- and pressure-return, 2-way or 3-way valves offering high flow rates (75 scfm at 125 psig) and fast cycling (to 600 cpm). They feature a short stroke for fast response.

These small, lightweight, double diaphragm poppet, "no-stick" valves require no lubrication and are ideal for use with instrument air or other media which prohibit lubrication. The use of lubrication, however, will not prevent a 250 Series Valve from functioning if the lubricant is varied or removed.

250 Series air-piloted valves have no sliding seals subject to cuts, metal seals subject to scratches, or O-rings subject to damage or replacement, so they are ideal for use with contaminated media and are unaffected by compressor varnish.

These versatile and economical valves can be mounted in any position.

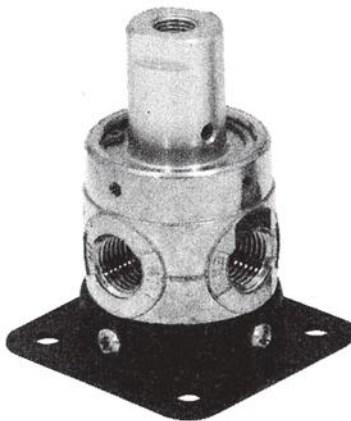


250A

250A-3-10-20

Model 250A is a normally closed 0.250-inch orifice valve. For use with low-pressure pilot signals, specify "w/pilot booster."

Model SS250A is identical in design to the 250A valve but is fabricated of 316 stainless steel and is furnished with fluoroelastomer diaphragms.



250A

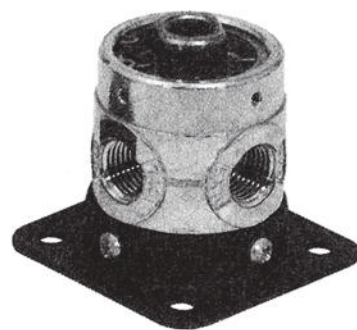
250A-3-11-21

Model 250A is a normally open 0.250-inch orifice valve. Furnished with pilot booster. Three additional functions are possible:

Directional: Supply pressure to CYL port (Open to IN).

Two-pressure selector: High pressure to EXH port (75 psig max.). Low pressure to IN port (50 psig max.). Insure adequate pilot pressure.

Normally closed: Supply pressure to EXH port.



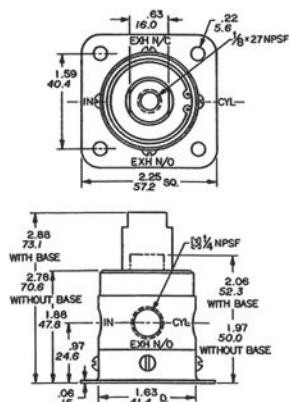
250AA

250AA-3-10-21

Model 250AA is a normally closed, 3-way or detented 3-way valve. Its internal compensating orifice maintains actuated position after momentary pilot signal, maintains "trapped" pilot pressure to compensate for minor leaks, and speeds both the opening and closing response time.



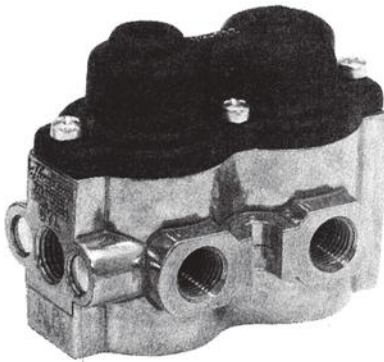
250A



Options for 125 and 250 Series Valves

- Mounting Base, Code 21.
- Fluoroelastomer diaphragms for resistance to mild chemicals and for sustained temperatures to 400°F (204.4°C) and intermittent temperatures to 600°F (315.5°C).
- Brass Body (Not available for 4-way valves).
- Bottom inlet for normally closed models (Not available for 4-way valves).

Order Information on page 204.



250-4A

Model 250-4A is a 4-way, 5-port valve with common supply and exhaust ports. Can be mounted in any position using four #10-32 holes in bottom, two slotted lugs on body, or with mounting base (Code 21).



Specifications

MEDIA:
Compressed Air (Consult factory for others)

PRESSURE RANGE:

250A NC: 10 to 125 psig (.7 to 8.6 bars)
250 NO, 250A NC with booster, 250-4A: 10 to 125 psig (.7 to 8.6 bars)
250-4AA: 20 to 125 psig (1.4 to 8.6 bars)
250AA: 15 to 125 psig (1.0 to 8.6 bars)

TEMPERATURE RANGE:
-20 to 225°F (-28.9 to 107.2°C)

OPERATING SPEEDS:
To 600 CPM

MATERIALS:
Zinc Die Cast, Zinc Plated Steel, Aluminum, Brass, Stainless Steel, Buna N

LUBRICATION Not required
FILTRATION Not required

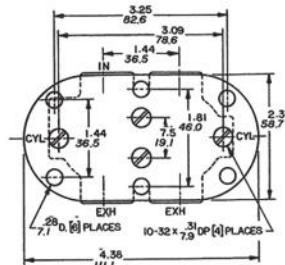
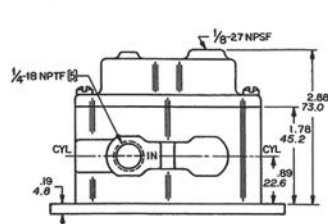
Air Flow to Atmosphere

MODEL	25 PSIG CFM	(1.7 BARS) LPM	125 PSIG CFM	(8.6 BARS) LPM
250A/AA	25.0	707.5	75	2122.5
250-4A/AA				

Weight

MODEL	ACTUAL LBS	KGS
250A/AA	0.5	0.2
250-4A/AA	1.8	0.8

250-4A



250-4AA

Model 250-4AA is identical to the 250-4A valve but has an internal compensating orifice which maintains actuated position after momentary pilot signal, maintains "trapped" pilot reserve to compensate for minor leaks,

and speeds both the opening and the closing response time.



Fill/Exhaust Times (Seconds)

MODEL	SUPPLY PRESSURE							
	At 50 psig (3.5 bars)				At 100 psig (7.0 bars)			
	Chamber Fill 0-40 psig (0-2.8 bars)	Exhaust 50-10 psig (3.5-7 bars)	Chamber Fill 0-80 psig (0-5.5 bars)	Exhaust 100-20 psig (7.0-1.4 bars)	Chamber Fill 0-40 psig (0-2.8 bars)	Exhaust 50-10 psig (3.5-7 bars)	Chamber Fill 0-80 psig (0-5.5 bars)	Exhaust 100-20 psig (7.0-1.4 bars)
	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)
250A NC	0.032	0.044	0.312	0.433	0.033	0.059	0.324	0.565
250A NO	0.035	0.044	0.311	0.384	0.036	0.055	0.305	0.438
250AA	0.032	0.044	0.312	0.433	0.033	0.059	0.324	0.565
250-4A NC	0.032	0.049	0.307	0.405	0.033	0.060	0.315	0.505
250-4A NO	0.037	0.048	0.305	0.368	0.039	0.055	0.305	0.425
250-4AA/NC	0.034	0.045	0.310	0.427	0.034	0.057	0.300	0.527
250-4AA/NO	0.037	0.048	0.305	0.368	0.039	0.055	0.305	0.425

VALVED PRESSURE		25 psig	1.7 bars	75 psig	5.2 bars	125 psig	8.6 bars
PILOT PRESSURE							
MODEL	250A NC	21.7	1.5	48.3	3.3	88.3	6.1
	250A NO	23.0	1.6	48.3	3.3	84.0	5.3
	250AA	18.7	1.3	44.8	3.1	72.5	5.0
	250-4A	22.3	1.5	46.1	3.2	72.0	5.0
	250-4AA	8.5	0.6	25.1	1.7	41.2	2.8

Order Information on page 204.

Humphrey 250 Series Interface Valves

Humphrey 250 Series valves are 2-way or 3-way valves for interfacing low (fluidic) pilot pressures with full working pressures. These high flow valves offer exceptional performance and durability. Vibration or shock will not cause unwanted actuation. A 250 Series valve has a full 0.250-inch orifice (75 scfm at 125 psig). They mount in any position, and require a clean, dry air supply, filtered to 10 microns.



250AL

Model 250AL is a super-sensitive pilot operated interface valve for operation at the ultra-low pilot pressures encountered in jet sens-

ing and some fluidic applications. See Pilot Pressure Requirements Chart. A 250AL valve has a full 0.250-inch orifice.



250AH

Model 250AH is a sensitive pilot operated interface valve for operation at the low pilot pressures encountered in jet sensing

and some fluidic applications. See Pilot Pressure Requirement Chart. A 250AH valve has a full 0.250-inch orifice.



Options for 250 Interface Valves

- Mounting Base, Code 21.
- Brass Body.
- Bottom Inlet.

Specifications

MEDIA:
Compressed Air (Consult factory for others)

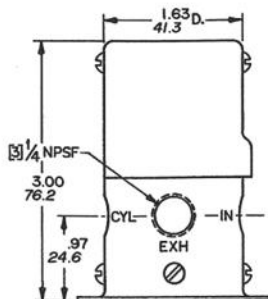
PRESSURE RANGE:
30 to 125 psig (2.1 to 8.6 bars)

TEMPERATURE RANGE:
40 to 125°F (4.4 to 51.7°C)

OPERATING SPEEDS:
60-125 psig, 600 CPM
30-60 psig, 400 CPM

MATERIALS:
Aluminum, Brass, Zinc Plated Steel, Stainless Steel, Buna N
LUBRICATION Not required
FILTRATION Recommended, 10 Microns Minimum

Base — 2.25 Sq. w/four 0.22 D. holes on 1.59 Sq. centers.



Air Flow to Atmosphere

MODEL	25 PSIG CFM	(1.7 BARS) LPM	125 PSIG CFM	(8.6 BARS) LPM	Weight	
					ACTUAL LBS	KGS
250AL	16.0	452.8	40.0	1132.0	0.77	0.35
250AH						

Fill/Exhaust Times (Seconds)

MODEL	SUPPLY PRESSURE							
	At 50 psig (3.5 bars)				At 100 psig (7.0 bars)			
	Chamber Fill 0-40 psig (0-2.8 bars)		Exhaust 50-10 psig (3.5-.7 bars)		Chamber Fill 0-80 psig (0-5.5 bars)		Exhaust 100-20 psig (7.0-1.4 bars)	
	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)
	FILL	EXHAUST	FILL	EXHAUST	FILL	EXHAUST	FILL	EXHAUST
250AL	0.082	0.083	0.339	0.460	0.081	0.093	0.365	0.581
250AH	0.075	0.084	0.346	0.465	0.076	0.093	0.371	0.578

Pilot Pressure Requirements

Minimum pilot pressures to open the valve at valved pressures of

MODEL	MAXIMUM PILOT	HYS-TER-ESIS +	30 PSIG (Minimum (2.1 BARS)	80 PSIG (5.5 BARS)	125 PSIG (Maximum) (8.6 BARS)
250AL	10 psig	30%	.8 in. of water col.	1.2 in. of water col.	2.1 in. of water col.
250AH	30 psig	30%	9 in. of water col.	9 in. of water col.	9 in. of water col.

+ Once the valve is open, the valve will close when the minimum pilot pressure is reduced by the percentage shown.

Order Information on page 204.

125/250/500/501/590 Series

1/8-, 1/4-, 1/2-, and 3/4-inch ports, 2-way, 3-way, 4-way

VALVES

	2 Way	3 Way	Norm. Closed	Norm. Open	Universal	w/Out Mounting Base	With Mounting Base	Panel Mounting Nuts	Booster (STD on NO)	FKM** Seals	Brass Body	Bottom Inlet (NC only)
Option Code	2	3	10	11	12	20	21	22	w/BOS	w/VAI	w/BRB	w/BIN
MODEL												
125A	SP	N/C	N/C	SP	NA	N/C	SP	SP	SP	SP	SP	SP
125AA	NA	N/C	N/C	NA	NA	N/C	SP	SP	SP	SP	SP	SP
125AH	SP	N/C	N/C	NA	NA	N/C	SP	SP	NA	NA	NA	SP
125LA	SP	N/C	N/C	NA	NA	N/C	SP	SP	NA	NA	NA	SP
250A	SP	N/C	N/C	SP	NA	N/C	SP	NA	SP	SP	SP	SP
250AA	NA	N/C	N/C	NA	NA	N/C	SP	NA	SP	SP	SP	SP
250AH	SP	N/C	N/C	NA	NA	N/C	SP	NA	NA	NA	NA	SP
250AL	SP	N/C	N/C	NA	NA	N/C	SP	NA	NA	NA	NA	SP
250-4A	NA	NA	NA	NA	NA	N/C	SP	NA	NA	SP	NA	NA
250-4AA	NA	NA	NA	NA	NA	N/C	SP	NA	NA	SP	NA	NA
500A	SP	N/C	N/C	*	NA	NA	STD	NA	NA	SP	STD	NA
500AB	SP	N/C	N/C	*	NA	NA	STD	NA	STD	SP	STD	NA
590A	SP	N/C	N/C	*	NA	NA	STD	NA	NA	SP	SP	NA
590AB	SP	N/C	N/C	*	NA	NA	STD	NA	STD	SP	SP	NA
501A	SP	N/C	*	*	N/C	N/C	SP	NA	NA	SP	NA	NA
501AA	NA	N/C	N/C	NA	NA	N/C	SP	NA	NA	SP	NA	NA
501-4A	NA	NA	NA	NA	NA	NA	STD	NA	NA	SP	NA	NA
501-4AA	NA	NA	NA	NA	NA	NA	STD	NA	NA	SP	NA	NA
SS250A	NA	STD	STD	NA	NA	STD	NA	NA	NA	STD	NA	NA

*These options can be achieved by plumbing supply to the appropriate port. See specific catalog section.

**Fluoroelastomer

HOW TO ORDER

Starting with Model Number specify options in order from left to right.

Example: To Order Model 125A-3-10-22 w/BRB

3-Way Operation	(125A-3)
Normally Closed	(125A-3-10)
Panel Mounting Nuts	(125A-3-10-22)
With Brass Body	(125A-3-10-22 w/BRB)

Remember: Option Codes marked STD and NA are not used as part of the Model Number when ordering. N/C indicates no charge but Option Code must be included in the Model Number. OS indicates that Option must be ordered separately and is not used as part of the Model Number.

N/C=No charge	STD=Standard
NA =Not available	SP=Specify, additional
OS =Order separately,	charge for this option
additional charge	
for this option	