



Haskel

MILTON ROY



HIGH-PRESSURE VALVES AND SYSTEM COMPONENTS



OUR PRODUCTS ARE BACKED BY OUTSTANDING TECHNICAL SUPPORT, AN
EXCELLENT REPUTATION FOR RELIABILITY AND WORLDWIDE DISTRIBUTION



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Haskel International, Inc.
Burbank, California, U.S.A.



Haskel Energy Systems, Ltd.
Sunderland, England, U.K.

Haskel International, Inc. has almost 50 years of hydraulic and pneumatic engineering experience in the design and manufacture of air driven gas boosters, air amplifiers and liquid pumps. Located in Burbank, California, U.S.A., with an additional manufacturing plant in Sunderland, United Kingdom, the company is supported by a worldwide network of offices and distributors.

Haskel products now offer the most complete range in this industry, whether measured by ultimate pressure flow or output horsepower capability; or by the variety of media with which they are compatible. The high-pressure valves and system components described in this catalog have been designed to assist in the controlled use of pressure and flow-generating equipment manufactured by Haskel, as well as others.

Continuous investment in the most modern machinery and technology ensures that Haskel will remain the leader in this field.

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AIR PILOT SWITCHES



STYLE A

Externally Adjusted

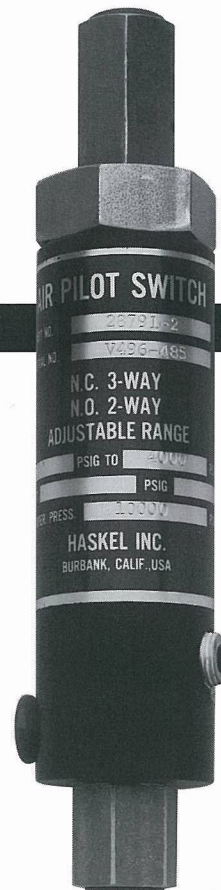
- 19 models
- Sensing pressures to 25,000 psi
- Air valve* 3-way, 2-way normally open or closed



STYLE B

Remote Air Adjusted "Remoteset™"

- 4 models
- Sensing pressures to 60,000 psi
- Air valve* 3-way normally closed, 2-way normally closed, normally open



STYLE C

Internally Adjusted

- 34 models
- Sensing pressures to 60,000 psi
- Air valve* 3-way normally closed, 2-way normally closed, normally open

Description

An Air Pilot Switch is a pressure switch. These units produce a pneumatic signal up to 150 psi at any sensing pressure within their adjustment range. The signal valve may be piped normally open, normally closed*, 3-way or 2-way depending on model.

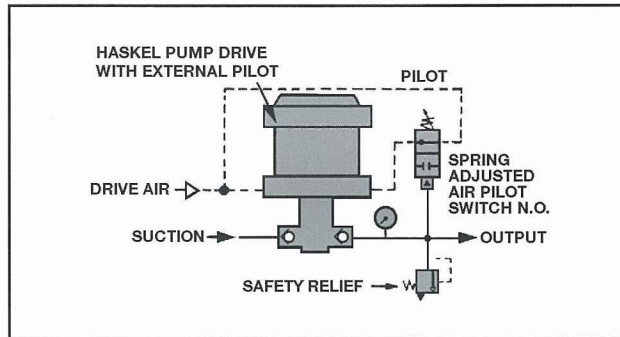
All models use a 2-position poppet-type air signal valve which is shifted from its normal position by a rod from the sensing end which first must overcome an adjustable force spring (styles A and C) or air-regulated dome loader (style B).

* Air valve terminology is the reverse of an electrical switch. Closed means no flow; open means flow.

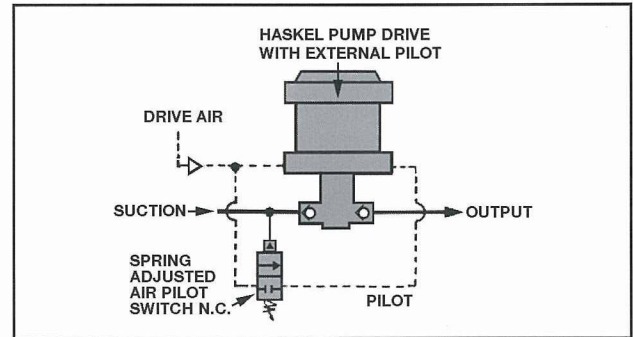
Applications

- Direct automatic start/stop control of any Haskel pump, gas booster, air amplifier or indirectly to the drive of any pump or compressor sensing either output or suction (schematics 1 & 2)
- Valve actuators (schematic 5)
- Pneumatic alarm signals
- Replace an explosion-proof pressure switch in hazardous applications (schematic 6)

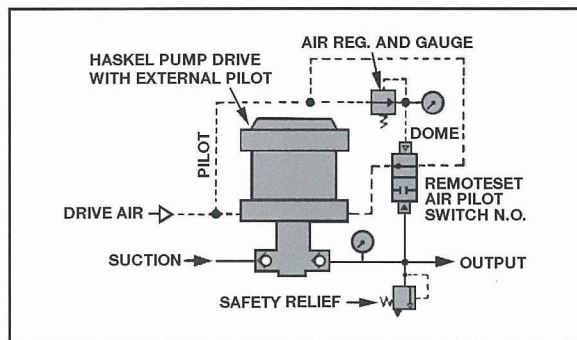
Application Schematics



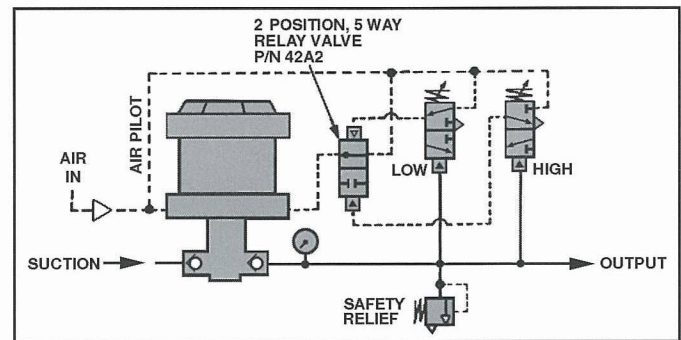
1. Maximum output pressure control, spring adjusted



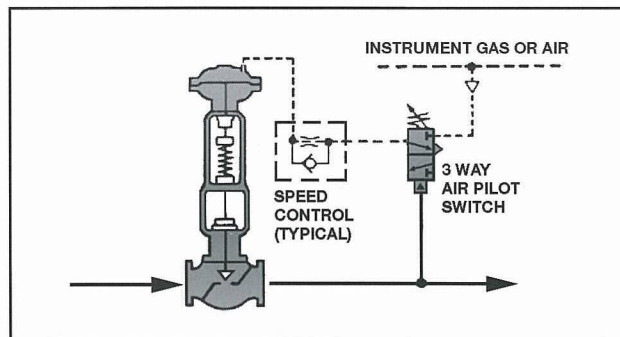
2. Minimum suction pressure control, spring adjusted



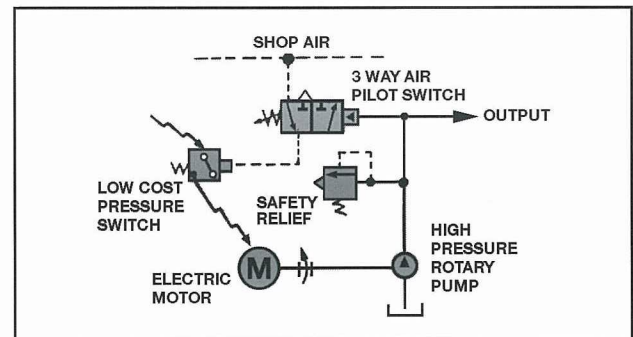
3. Maximum output pressure control remote, air adjusted



4. Wide deadband control with two adjustable air pilot switches plus a two-position valve



5. Process valve control



6. Electric pump/motor control where standard pressure switches are unsuitable at pump output

A word about "deadband"

Users often try to compare the on-off action of the air signal with the action of an electrical switch. They are not really comparable. The air switch has no "snap-over" mechanism required with an electric switch to prevent arcing. Therefore, "on" or "off" before or after a dead tight seal condition can be quite subjective. In other words, if the air pilot switch is turning on a device that not only requires a miniscule leak to start, it will start much sooner than some other larger device that may need a flow of air to start.

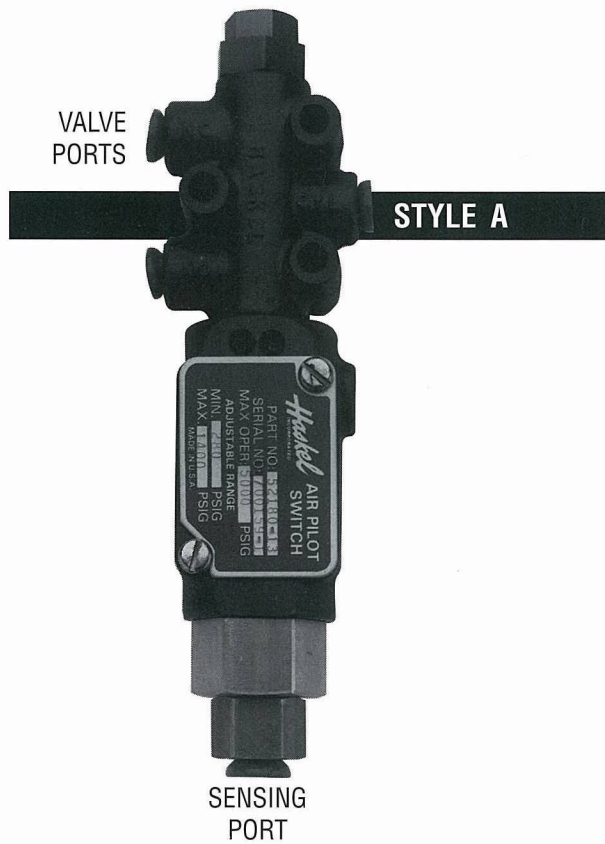
Therefore, it is not possible to publish precise deadband data such as that available for most electric pressure switches.

Style B Remoteset units have the lowest and most consistent deadband (5% - 10% of set pressure) because there is no heavy coil spring to compress.

Styles A and C may vary from 5% to as high as 40% depending on model and the application details.

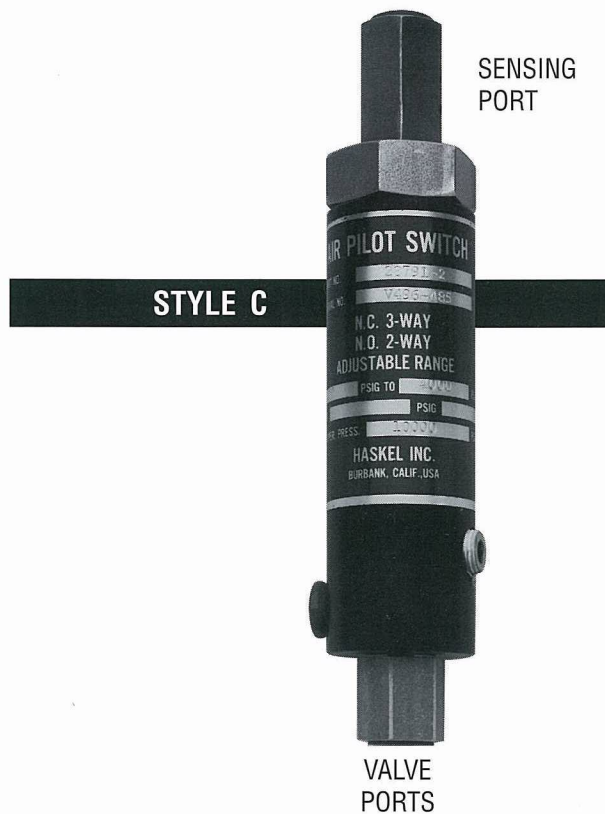
In some applications a wider than normal deadband is needed. Schematic 4 illustrates how to provide this with two air pilot switches and a simple 2-position air valve.

AIR PILOT SWITCHES — SELECTION CHARTS



STYLE	MODEL NO.		MAXIMUM SENSING PRESSURE (PSI)	AIR VALVE	ADJUSTABLE RANGE PSI FACTORY SETTING AT NO CHARGE (Specify if Increasing or Decreasing)		APPROXIMATE DIMENSIONS (inches)		PORTS	
	SERVICE SENSING PORT				NORMALLY OPEN	NORMALLY CLOSED	LENGTH	OUTSIDE DIA.	AIR (2)	SENSING (3)
	LIQUID OR GAS	OXYGEN GAS								
A	51940-1	-11	10,000 Standard 5000 Oxygen	(1) 3-Way. May be piped N.C. or N.O. or 2-Way N.C. or N.O.	2000 - 10,000	3500 - 10,000	8	2	1/8" NPT	1/4" NPT
	51940-2	-12			700 - 4400	1200 - 4800				
	51940-3	-13			200 - 950	500 - 1300				
	52160-1	N/A	25,000		6000 - 11,000	7000 - 12,000	8-5/8			1/4" Super-pressure
	52160-2				8000 - 25,000	10,000 - 25,000				
	52160-3				3000 - 8500	4000 - 9500				
52180-1	-11	10,000 Standard 5000 Oxygen	60 - 240	150 - 300	7-5/8	1/4" NPT				

B	MODEL NO.	SERVICE SENSING PORT	MAXIMUM SENSING PRESSURE (PSI)	AIR VALVE	ADJUSTABLE RANGE PSI FACTORY SETTING AT NO CHARGE (Specify if Increasing or Decreasing)	APPROXIMATE DIMENSIONS (inches)	PORTS	RATIO	
								LENGTH	OUTSIDE DIA.
	55792	N/A	25,000	3-Way. May be piped N.C. or N.O. or 2-Way N.C. or N.O.	4500 - 23,400 with 20-100 Dome Load. Nominal Ratio 245:1	8-3/4	1/8" NPT	1/4" Super-pressure	245:1
	55796	N/A	600		135 - 530 with 20-100 Dome Load. Nominal Ratio 6:1	7-1/2		1/4" NPT	6:1



Notes:

- (1) SAFETY: When using N.O. models to limit pump output pressure, also include a backup relief valve. (Ref. schematics 1, 3, 4, 6, page 5.)
- (2) AIR VALVE: Materials are Aluminum, Stainless Steel, Bronze, and Buna suitable for air and most gases. Modification available for sour natural gas to meet NACE SPEC. MR-01-75.
- (3) SENSING SECTIONS: Materials are Stainless Steel, PTFE, Buna (with Viton or Silicone for Oxygen) suitable for most liquids or gases. Modification available for sour natural gas and fire-resistant hydraulic fluids.

STYLE	MODEL NO.		MAXIMUM SENSING PRESSURE (PSI)	AIR VALVE	ADJUSTABLE RANGE PSI FACTORY SETTING AT NO CHARGE (Specify if Increasing or Decreasing)		APPROXIMATE DIMENSIONS (inches)		PORTS	
	SERVICE SENSING PORT				NORMALLY OPEN	NORMALLY CLOSED	LENGTH	OUTSIDE DIA.	AIR (2)	SENSING (3)
	LIQUID OR GAS	OXYGEN GAS								
C	28755-1 28755-2 28755-3 28755-8	-11 -12 -13 -18	10,000 Standard 5000 Oxygen	3-Way N.C.		1500 - 10,000 300 - 3500 150 - 700 800 - 9500	5-11/16	1-3/8	1/8" NPT (Vent not Threaded)	1/4" NPT
	28791-1 28791-2 28791-3 28791-4	-11 -12 -13 -14		2-Way N.O. (1)	2500 - 10,000 750 - 4000 250 - 750 2000 - 8500	6-1/8	1/4" NPT Out 1/8" NPT In			
	28974-24 28974-25	N/A	25,000	3-Way N.C.		6000 - 25,000	8	2	1/8" NPT (Vent not Threaded)	1/4" Super-pressure
	28974-59 28974-60	N/A		2-Way N.C.		20,000 - 60,000	8			
	29074-25 29074-60	N/A	25,000 60,000 (Intermittent)	2-Way N.O. (1)	6000 - 25,000 20,000 - 60,000		8		1/4" NPT Out 1/8" NPT In	
	55230-1 55230-3	-11 -13	600	3-Way N.C.		12 - 37 17 - 200	6-1/2	2-1/8	1/8" NPT (Vent not Threaded)	1/4" NPT
	55416-1 55416-2	-11 -12		Pipe either (1) 3-Way N.C. or 2-Way N.O.	13 - 47 28 - 200	13 - 47 28 - 200	7		1/4" NPT N.O. 1/8" NPT Others	
	56650-1 56650-2	-11 -12	10,000 Standard 5000 Oxygen	3-Way N.C.		50 - 180 110 - 900	6-5/16	1-3/8	1/8" NPT (Vent not Threaded)	



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