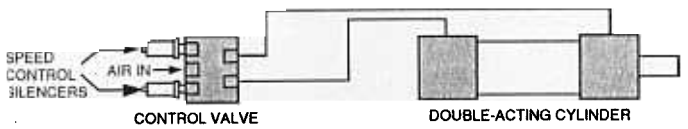
HELPFUL ANSWERS TO FREQUENTLY ASKED QUESTIONS

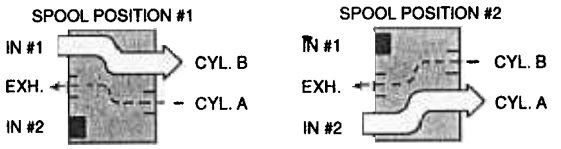
VALVES; FIVE-PORTED

Question: What are the advantages of a five-ported four-way valve over a four ported four-way valve?

Answer: Five ported valves have separate exhaust ports for each cylinder port. If exhaust silencers with built–in speed controls are used (page 43), the speed of the cylinder motion may be individually controlled in each direction.



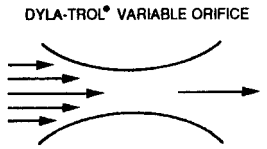
Also, five ported valves will function as dual pressure valves where air flows from the exhaust ports to the cylinder ports and both cylinder ports use the inlet as a common exhaust. Vacuum may also be used in five ported valves. Both the Mead Nova line (page 28-29) and the Capsula line (page 30-31) provide five ported flow patterns.



VALVES; FLOW CONTROLS

Question: Are there valves available that provide adjustable control of air flow?

Answer: Mead Dyla-Trol® valves perform this function. See page 44 for details, and see the "Cylinders; Speed Control" question for application information.



Dura-matic directional valves have built-in flow controls. See page 32 for details.

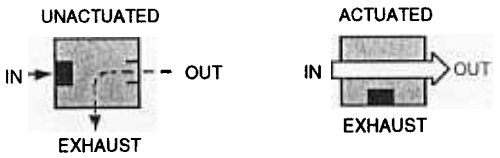
Exhaust silencers on page 43 have built-in needle valves that also provide speed regulation.

VALVES; FLOW PATTERNS, 3-WAY & 4-WAY

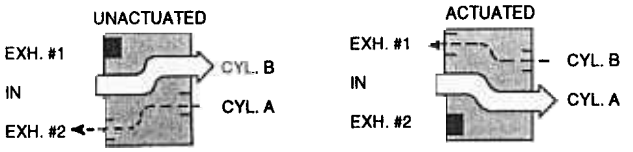
Question: What is the difference between a three-way and a four-way valve?

Answer: Three-way valves have one power output and four-way valves have two power outputs. Generally, three-way valves operate single-acting cylinders and four-way valves operate double-acting cylinders.

THREE-WAY FLOW PATTERN (NORMALLY CLOSED)



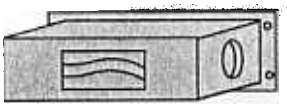
FOUR-WAY FLOW PATTERN (TWO POSITION)



VALVES; FOR SAFER HAND ACTUATION

Question: How may I keep the hands of my employees out of hazardous locations?

Answer: Use two-hand, anti-tie-down devices such as those discussed on page 46.



VALVES; LOW FORCE TO ACTUATE

Question: Are there valves available that requre an unusually low force to actuate?

Answer: Low-stress valves (page 33) need only 6-8 ounces of force to initiate a signal. These valves reduce stress on worker's hands.

LTV four-way valves (pages 34-35) and Hair-Trigger pilot valves (page 40) operate on a pressure differential basis that allows them to actuate on very little force.

VALVES; MANUAL OVERRIDES

Question: What are manual overrides in air valves used for?

Answer: Manual overrides permit the user to actuate the directional valves without using the switches or pilot valves that would normally be used. In this way, a circuit may be tested without actually moving the machine elements.

Both Capsula valves (pages 30-31) and Nova valves (pages 28-29) are available with manual overrides.

VALVES;NORMALLY CLOSED VS NORMALLY OPEN

Question: What is the difference between a three-way normally closed valve and a three-way normally open valve?

Answer: Normally open valves allow air to pass when **not** actuated. Normally closed valves allow air to pass only when they **are** actuated.

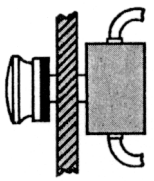
NORMALLY OPEN FLOW PATTERN

NORMALLY CLOSED FLOW PATTERN

VALVES; PANEL MOUNTED

Question: Are there valves available that fit through "knockouts" in control panels?

Answer: Micro-Line three-way valves (page 36) and LTV four-way valves (page 34) have threaded mounting stems for panels.



VALVES; PRESSURE PILOTED -VS- BLEED PILOTED

Question: What is the difference between pressure piloted valves and bleed piloted valves?

Answer: Pressure piloting and bleed piloting refer to two different modes in which valves may be actuated.

Pressure piloting allows directional valves to be actuated by an external air signal that comes from a remote three-way valve, such as the Micro-Line valve series (page 36).

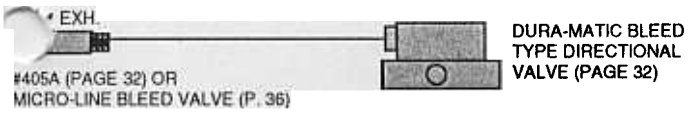
Air pressure piloting provides an economical alternative to the use of electric switches and solenoids.

•Question is continued on following page•

HELPFUL ANSWERS TO FREQUENTLY ASKED QUESTIONS

•Valves; Pressure Piloted -VS- Bleed Piloted, continued•

Bleed piloting uses internal air from the directional valve to feed the pilot valve.



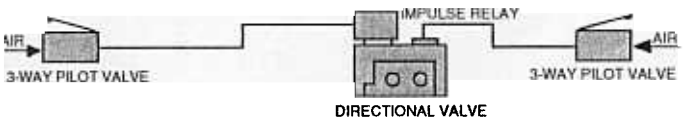
Air flows **from** the directional valve to the bleed valve. When the bleed valve is actuated, a pressure drop occurs in the directional valve pilot section. This causes a differential pressure and a valve shift.

The main advantage of bleed piloting is that only one line enters the bleed valve. However, if that line is severed, a shift occurs. Pressure piloting is considered more positive and reliable.

VALVES; PULSE TYPE

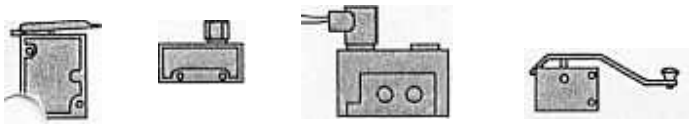
Question: When I am using a double air piloted directional valve, how do I get the valve to shift when one of the two pilots is already being charged?

Answer: Place a Mead impulse relay valve (page 41) between the pilot valve and the directional valve on the side that is being rested upon.



VALVES; SIZING

Question: How do I select the right valve to control a cylinder?



Answer: There are many factors that contribute to the performance of a cylinder. Some of these factors are: quantity and type of fittings leading to the cylinder, tube length and capacity, cylinder operating load, and air pressure.

Rather than attempting to place a value on these, and other contributing factors, it is more practical to provide valve users with a general guide to valve sizing.

The sizing table below relates various Mead air valves to cylinder bore sizes between ¾" and 6". The cylinder operating speed resulting from the use of each valve at 80 PSI is rated in general terms as:

"F" for high speed operation
"M" for average speed operation
"S" for slow speed operation

Valve Type	C_v	Pg. No	Cyl. Type*	Cylinder Bore Sizes (in inches)										
				¾	1	1⅛	1½	2	2½	2½	3	3¼	4	6
Micro-Line	0.11	36	SA		F				S		S			
LTV	0.18	34	SA,DA	F	F	F	F	M	M	M	M	S	S	
Nova	1.00	28	SA,DA			F	F	F	F	F	F	F	M	M
⅛"Duramatic	0.18	32	SA,DA	F	F	F	F	M	M	M	M	S	S	
¼"Duramatic	0.63	32	SA,DA			F	F	F	F	F	M	M	M	M
¼" Capsula	0.75	30	SA,DA			F	F	F	F	F	F	M	M	M
½" Capsula	3.17	30	SA,DA									F	F	F
FT-1, FC-1	0.13	38	SA		F				F		M		S	
4B-1, 4W-1	0.48	38	SA,DA			F	F	F	F	M	M	M	S	
FC51, PC51	0.81	38	SA						F		F		M	M
FT-101, 201	1.15	38	SA						F		F		F	F

*SA = Single-Acting Cylinder; DA = Double-Acting Cylinder

Where no rating is shown, the valve is considered unsuitable for use in that particular bore size. To determine the suitablity of valves not listed in the table, compare the C_v of the unlisted valve with the one nearest it on the table and use that line for reference.

VALVES; SCFM

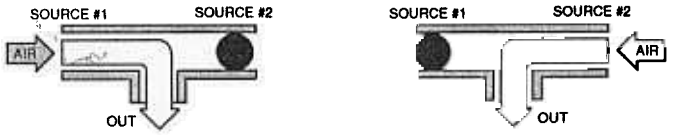
Question: What does SCFM mean?

Answer: SCFM means Standard Cubic Feet per Minute. "Standard" is air at sea level and at 70°F. See "Valves; C_v" question to convert SCFM into C_v.

VALVES; SHUTTLE

Question: Is there a valve that will direct air coming from either of two sources to a single destination?

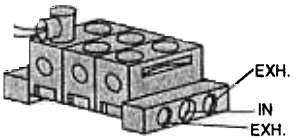
Answer: Use a shuttle valve. See page 43 for details.



VALVES; STACKING

Question: How may I reduce piping and simplify trouble-shooting when a group of valves is used in an application?

Answer: Order your valves stacked to take advantage of a common air inlet, common exhausts, and control centralization.

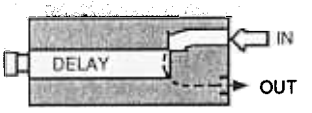


See stacked models of ¼" ported Nova valves (page 29), ¼" ported Capsula valves (page 31), and ⅛" ported LTV valves (page 35).

VALVES; TIME DELAY

Question: Are there valves that allow me to delay a signal in my air circuit?

Answer: Yes, use one of the air timers shown on page 41.



AIR TIMER

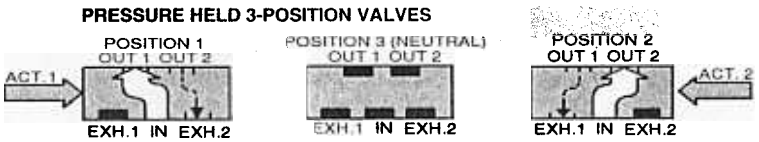
VALVES; TWO-POSITION VS THREE-POSITION

Question: What is the difference between two-position and three-position valves?

Answer: In two-position four-way directional valves, the two output ports are always in an opposite mode. When one is receiving inlet air, the other is connected to the exhaust port.

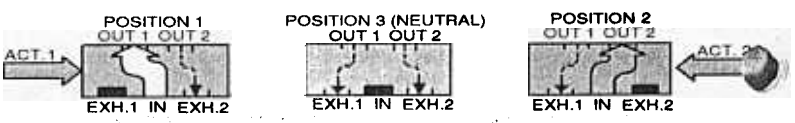
When actuated, three-position valves function the same as above. However, a center or "neutral" position is provided that blocks all ports (PH), or connects both output ports to the exhausts (PR) when the valve is not being actuated.

PRESSURE HELD 3-POSITION VALVES



Pressure held models are ideal for "inching" operations where you want the cylinder rod to move to a desired position and then hold.

PRESSURE RELEASED 3-POSITION VALVES



See page 30 for details on three-position valves.