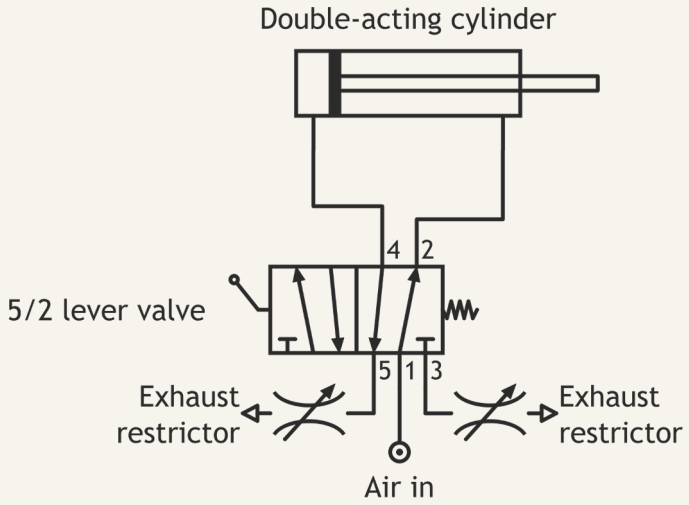
Daily Review

1	**State** the regulator setting while you build.	0 bar
2	**State** the pressure we test at.	1 to 2 bar
3	**State** what 3/2 means.	3 ports, 2 states
4	**State** what pushes a single-acting rod in.	A spring
5	**State** what pushes a double-acting rod in.	Air

Review

Everything for the test, one more time.



S3 Engineering Science

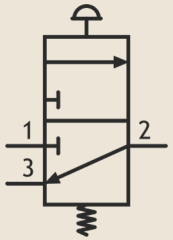
By the end of this lesson…



1. I can **name** every pneumatic **symbol** we have used
2. I can **use** P = F/A
3. I can **describe** what a circuit does

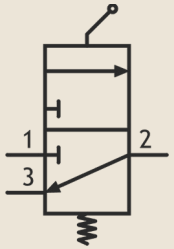
Name the Symbol: Round 1

1



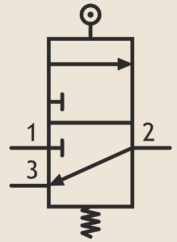
3/2 push-button valve

2



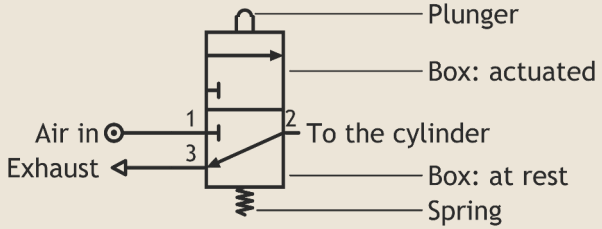
3/2 lever valve

3



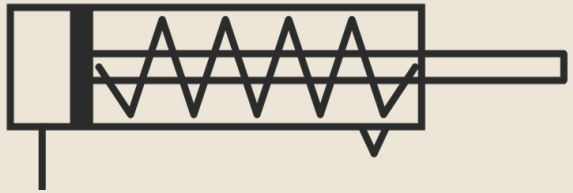
3/2 roller valve

4



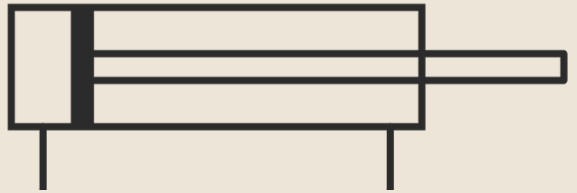
Plunger

5



Single-acting cylinder

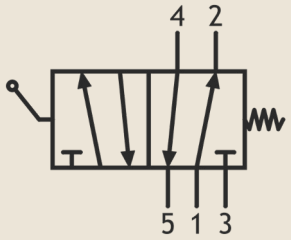
6



Double-acting cylinder

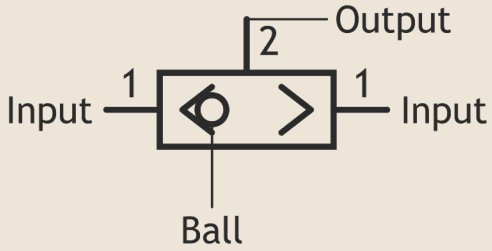
Name the Symbol: Round 2

1



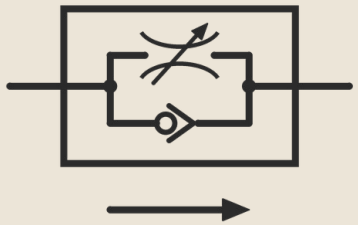
5/2 lever valve

2



Shuttle valve

3



Uni-directional restrictor

4



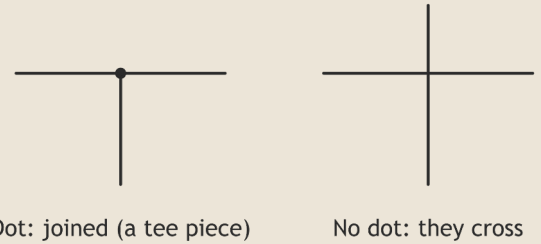
Air supply

5



Exhaust

6



Joined; not joined

Show Me: Lessons 1 to 4

1	**State** what a flow control valve does.	Slows the air one way
2	**Name** the rod moving out.	The outstroke
3	**State** what moves a lever valve back.	Its spring
4	**State** how many ports a double-acting cylinder has.	Two

Second Start

1	**State** check 1 when fault-finding.	Regulator at 0
2	Tubes 4 and 2 swapped: **state** what the rod does.	Goes out at once
3	**Name** the valve OR needs.	Shuttle valve
4	**State** which buttons work AND.	Both
5	**State** the formula for pressure.	P = F/A

We Do: Will It Lift?

The air pressure is 0.2 N mm^{-2} and the piston area is 500 mm^2. Calculate the outstroking force.

$P = 0.2\ \text{N mm}^{-2}$

$A = 500\ \text{mm}^2$

$F = ?$

$P = F/A$

$0.2 = F/500$

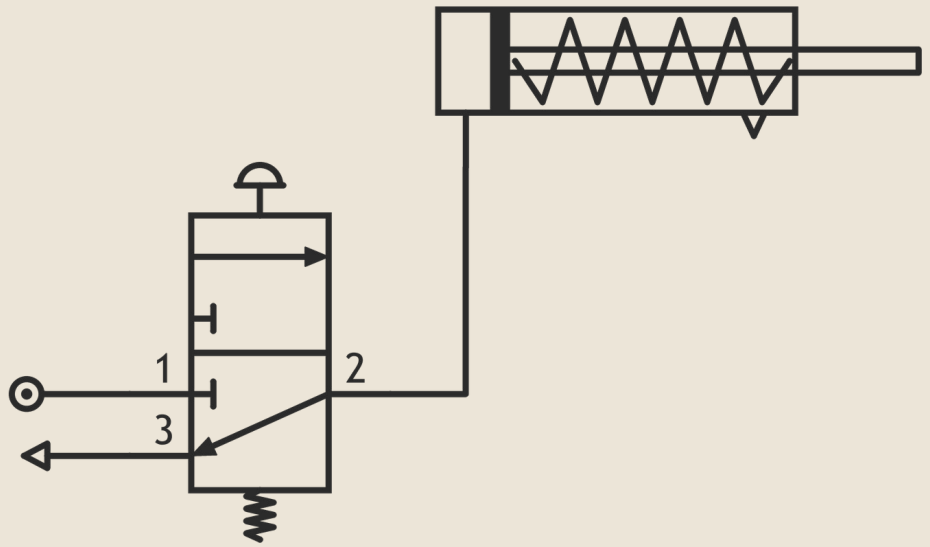
$F = 0.2 \times 500$

$F = 100\ \text{N}$

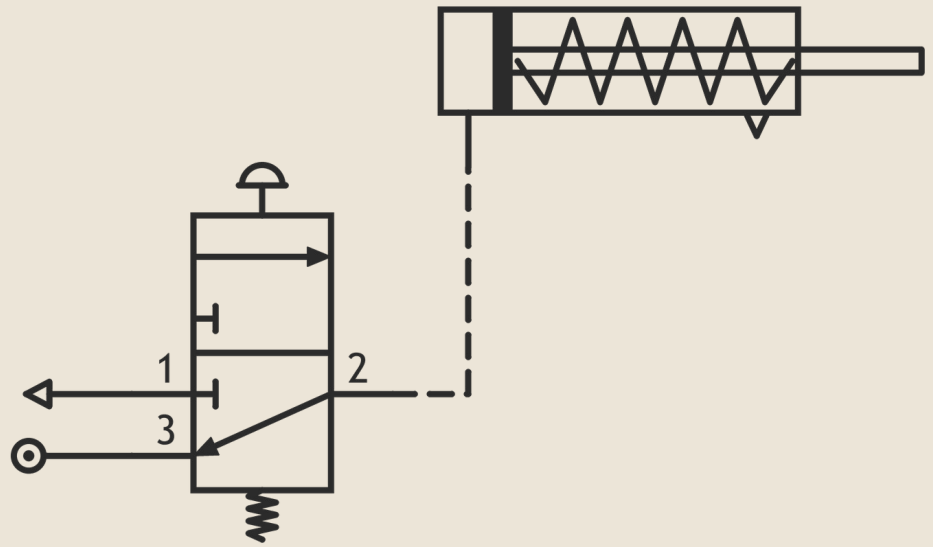
Show Me: OR or AND?

1	Two valves side by side, into a shuttle valve.	OR
2	Out of one valve, into the next.	AND
3	A press needs both hands on buttons.	AND
4	A door opens from inside or outside.	OR

Spot the Mistakes



Right



Two mistakes: what?

Air in and exhaust are on the wrong ports

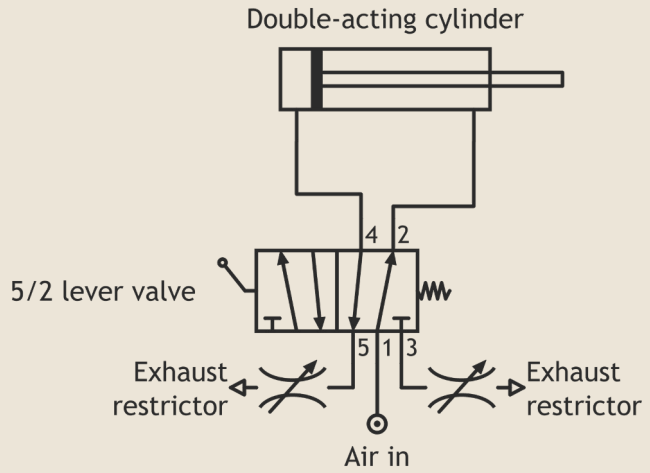
The main pipe is dashed: it should be solid

Review Questions

Booklet page 21

Answer Questions 1 to 5 on your own.

Finished? Try the Challenge.



Answers: Review Questions

Question	Answer
1	A roller; B shuttle; C 5/2 lever; D double
2	outstroke; instroke
3	$P = 60 \div 400 = 0.15\ N\ mm^{-2}$
4	OR; AND
5	0; out
Challenge	$0.25 = 100/A$; $A = 100/0.25 = 400\ mm^2$

Look back — by the end of this lesson…



1. I can **name** every pneumatic **symbol** we have used
2. I can **use** P = F/A
3. I can **describe** what a circuit does

Credits

Symbols: Sources: symbols drawn by R Stewart to BS ISO 1219, as the Matrix CP2080 kit worksheets.

R Stewart - October 2026