

Name _____

Class _____

Date _____

By the end of this worksheet I can...

- ☐ recognise and draw the main pneumatic components
- ☐ name the different actuators
- ☐ carry out force, pressure and area calculations
- ☐ describe a circuit using the correct terms

I DO

Key facts

From the revision mind map

Calculations

- $F = P \times A$, with force in N, pressure in N/mm^2 and area in mm^2 .
- $\text{Area} = \pi r^2$, and $r = \sqrt{(A \div \pi)}$.
- Instroke calculation: effective area = piston area – rod area.

Describing a circuit

- Think input → process → output.
- Use the valve names given in the question, and mark up the diagram to check you mention every component.

Remember

Word bank: actuate · change state · outstroke · instroke · slowly · time delay.

Actuators

Push button · solenoid · roller trip · plunger · lever · diaphragm · roller · pilot air · foot pedal.

YOU DO

Revision tasks

Use your notes if you get stuck.

1 Which two components are used together to create a time delay?

2 Which actuator is operated by a low-pressure signal from an air bleed?

3 A 32 mm cylinder works at 0.5 N/mm^2 . Calculate the outstroke force.

4 Use the word bank to describe what happens when valve 1 (a push-button 3/2 valve) is pressed in a circuit where it pilots a 5/2 valve controlling a double-acting cylinder.

5 Complete the table: draw each symbol and say what the component does.

Component	Draw the symbol	What it does
3/2 valve		
5/2 valve		
Single-acting cylinder		
Double-acting cylinder		
Shuttle valve		
Restrictor		
Uni-directional restrictor		
Reservoir		

Check and reflect

Mark your answers with the answer sheet. Which “I can” statement above still needs work? Look back at the notes for that topic on the site.
