



Technical English  
Unit 37  
professional english  
**Fluid containment**

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# Content

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- A. Pipes, ducts and hoses
  - B. Tanks
  - C. Pumps, fans and turbines

## A. Pipes, ducts and hoses



A pipe



An air duct



A hose

**Pipes** are rigid tubes, made from materials such as steel and plastic. They carry **fluids** (liquids or gases). Pipes can be fitted together with different **pipe fittings**(see Appendix IX on page 111). Assemblies of pipes are often referred to as **pipework**.

## A. Pipes, ducts and hoses

**Mains** are underground pipes for water and natural gas.

**Water mains** and **gas mains** run beneath the streets of cities to supply buildings.

**Pipelines** are long-distance pipes, often above ground, for crude oil or natural gas.

**Drains** are underground pipes that carry waste water. Large drains, as found below the streets in cities, are called sewers. Drains and sewers rely on gravity to allow them to flow. They therefore have a downward slope, called a **fall**.

## A. Pipes, ducts and hoses

**Ducts** are pipes used for moving air that is not under pressure- usually for heating or air conditioning. **Ductwork** often consists of rectangular cross-section ducts.

**Hoses** are flexible tubes, often made from plastic, for liquids and gases. They are fitted together using **hose fittings** (or **hose couplings**). Examples of hoses are fuel hoses and compressed air hoses-sometimes called **fuel lines** and **air lines**.

Note: In everyday English, **fluid** usually means a liquid. In physics and engineering, the word refers to both liquids and gases.

## B. Tanks

A **tank** is a container for liquid or gas. It may be **watertight** (will not leak water) and open at the top. It may also be enclosed and **airtight** (will not leak gas), and may contain gas that is under pressure.

A **pressure vessel** is a tank for storing gas- or a mixture of liquid and gas- that is under pressure. The **vessel** must therefore be **scaled**- with no openings, so that gas cannot escape.

It must also be strong enough to withstand the pressure inside. Pressure vessels include small portable **gas cylinders**( also called **gas bottles**).

## B. Tanks

Some pressure vessels also function as **boilers** they heat the liquid inside them in order to boil it and increase pressure- for example, a water boiler that produces high-pressure steam.

## c. Pumps, fans and turbines

Liquids can be forced to flow (move) along pipes by mechanical devices called pumps. For example, in cars, fuel is **pumped** from the fuel tank to the engine by a fuel pump. The **flow** of fluids can be controlled by valves (see Appendix IX on page 111). A pump used to increase the pressure of gas is called a **compressor**.



This compressor produces compressed air for powering tools.



## c. Pumps, fans and turbines



A device powered by a motor which rotates in order to move air or gas – for example, along a duct – is called a **fan**.



A **turbine** has the opposite function to a fan – it is designed to be moved by a flow of air or gas. For example, a **wind turbine** revolves due to the wind, and can be used to drive a generator (to generate electricity).



## 37.1 Complete the emails about the design of a new manufacturing plant using words from A opposite.

### New message

Air temperature will be high in this area, due to the presence of four large-diameter steel steam(1)----- running along the ceiling. This opens up the possibility extracting hot air and transferring it, via(2)-----, to other areas of the plant, for heating use.

**37.1** Complete the emails about the design of a new manufacturing plant using words from A opposite.

New message

Given that this machine will move to an extent, due to vibration, it should be connected to the water supply using a flexible (3) -----, rather than a rigid (4)----- .

The pressure of the supply may also need to be increased, depending on the pressure of water coming into the plant from the (5) ----- .

**37.1** Complete the emails about the design of a new manufacturing plant using words from A opposite.

New message

Waste water will exit the plant via a (6) ----- on the western edge of the site. This will run into the (7) ----- under the street on the north side of the plant.

The survey has confirmed that the level of the site, relative to the street, will allow an adequate (8) ----- .

37.2 One sentence in each pair is false. Choose the true sentence. Look at A and B opposite and Appendix IX on page 111 to help you.

- 1 a All gas cylinders are pressure vessels.  
b All pressure vessels are gas cylinders.
- 2 a Elbows are types of pipes or hose fitting.  
b Pipe or hose fittings are types of elbow.
- 3 a Any watertight tank will also be airtight.  
b Any airtight tank will also be watertight.

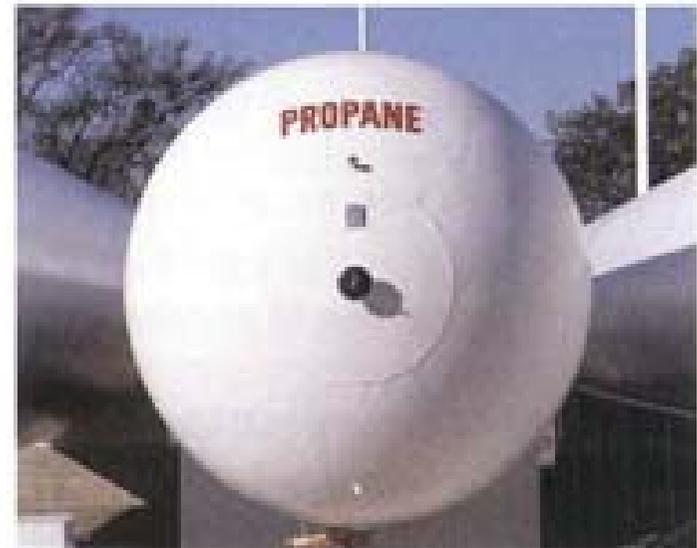
37.2 One sentence in each pair is false. Choose the true sentence. Look at A and B opposite and Appendix IX on page 111 to help you.

4 a All pressure vessels are types of tank.

b All tanks are types of pressure vessel.

5 a A pipe is a specific sort of pipeline.

b A pipeline is a specific sort of pipe.



A propane gas tank

37.3 Change one word in each of the sentences below to make them correct. Look at C opposite and Appendix IX on page 111 to help you.

1 A fan is designed to be driven by a flow of air or gas.

2 A pump used to increase the pressure in a vessel is called a turbine.

3 A safety valve is an inlet which releases excess pressure.

4 A non-return valve is also called a safety valve.

5 Stone valves can be partly closed to stop a flow, reducing its rate.

## Over to you

Think about a machine or installation you're familiar with, in which liquid or gas is stored, supplied or circulated. What equipment is used to contain the gas or liquid? How are flow and pressure managed?



I see you  
got right

Any Questions