

## England, Scotland and Wales

The Pressure Systems Safety Regulations 2000 deal with the safe operation of a pressure system.

The Pressure Equipment Regulations 1999 deal with the design, manufacture and supply of pressure systems.

## Northern Ireland

The Pressure Systems Safety Regulations (Northern Ireland) 2004 deal with the safe operation of a pressure system.

The Pressure Equipment Regulations 1999 deal with the design, manufacture and supply of pressure systems.

# Pressure Equipment

Many types of pressure equipment can be hazardous. These include steam boilers and associated pipework, pressurised hot-water boilers, air compressors, air receivers and associated pipework, autoclaves, gas (such as LPG) storage tanks and chemical reaction vessels.

When things go wrong, these types of equipment can cause serious injuries and even fatalities. However, assessing the risks and putting proper precautions in place will minimise the chances of any accidents occurring.

## *What are the hazards?*

If a piece of pressure equipment fails and bursts violently apart, the results can be devastating to people in its vicinity.

Parts of the equipment could also be propelled over great distances, causing injury and damage to people and buildings hundreds of metres away.

## *What do I have to do?*

### Assess the risks

You need to assess the risks of working with pressure equipment. Failure of pressure systems and equipment depend on a number of factors, including the following:

- The pressure in the system
- The type of liquid or gas and its properties
- The suitability of the equipment and pipework that contains it
- The age and condition of the equipment
- The complexity and control of its operation
- The prevailing conditions (e.g. a process carried out at high temperature)
- The skills, knowledge and experience of the people who maintain, test and operate the pressure equipment and systems

### Basic precautions

To reduce the risks, you need to know and act on some basic precautions.

- Ensure the system can be operated safely, without having to climb or struggle through gaps in pipework or structures.
- Be careful when repairing or modifying a pressure system. Following a major repair or modification, you may need to have the whole system re-examined before allowing the system to come back into use.

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- Ensure there is a set of operating instructions for all of the equipment in the system and for the control of the whole system, including in emergencies.
  - There should be a maintenance programme for the whole system. It should take into account the system and equipment age, its uses and the environment in which it is being used.

### **Written scheme of examination**

A written scheme of examination is required for most pressure systems.

- The scheme should be drawn up (or certified as suitable) by a competent person—someone who has the necessary skills, knowledge and experience to carry out the work safely.
- It must cover all protective devices, every pressure vessel and the parts of pipelines and pipework that, if they fail, could be dangerous.
- The written scheme must specify the nature and frequency of examinations, and include any special measures that may be needed to prepare a system for a safe examination.

Remember, a statutory examination carried out in line with a written scheme is designed to ensure your pressure system is suitable for your intended use. It is not a substitute for regular and routine maintenance

### ***How can I do it?***

- Consider whether the job can be done another way without using pressure equipment, such as using vacuum equipment for cleaning rather than compressed air. If you have to use pressure equipment, don't use high-pressure equipment when low-pressure equipment will do.
- Ensure that you buy pressure equipment that complies with the relevant product regulations.
- Before using pressure equipment, ensure that you have a written scheme of examination if one is required. Make sure that any necessary inspections have been completed by a competent person, and that the results have been recorded.
- Always operate the equipment within the safe operating limits. If these are not provided by the manufacturer or supplier, a competent person such as your employers' liability insurer can advise you.
- Provide instruction and training for the workers who are going to operate the pressure equipment, and include what to do in an emergency.
- Ensure you have an effective maintenance plan in place, which is carried out by appropriately trained people.
- Ensure modifications are planned and recorded and do not lead to danger.



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## Case Study:

Scenario	How to Prevent the Accident
<p>A company used a steam boiler in its manufacturing processes. An alteration to pipework inadvertently caused salty water to be introduced into the boiler.</p> <p>The resulting build-up of scale caused the furnace to overheat and collapse internally, creating an explosion. This blew out the ends of the boiler house, and the ejected boiler demolished an electrical substation hundreds of feet away before coming to rest.</p>	<p>This accident could have been prevented by giving the maintenance staff correct information and instruction, and by adequately managing the maintenance operation.</p> <p>As a result of the damage to the building, its contents and exterior damage, the company had to replace the boiler and rebuild the boiler house, with significant loss of production.</p>

