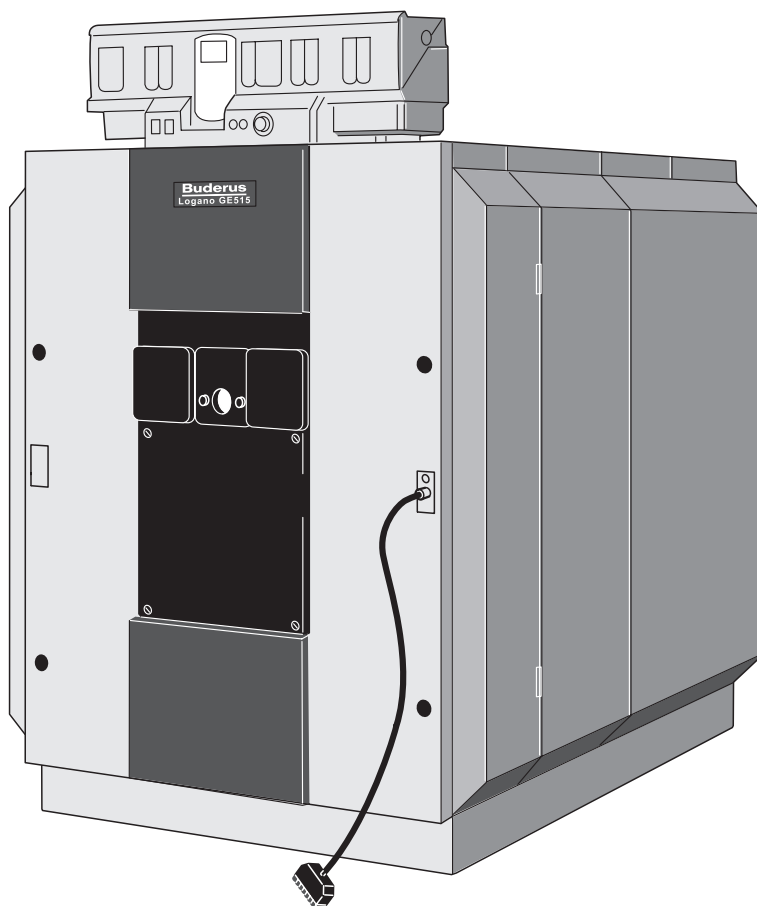


# Operating instructions

## Logano GE515 Oil- and gas-fired boilers



Buderus



This device meets all basic requirements of relevant standards and guidelines.

Its conformity has been verified. All associated documents and the original Declaration of Conformity are available from the manufacturer.

A copy of the Declaration of Conformity is included in the installation and maintenance instructions.

## Regarding these instructions

These operating instructions contain important information for the safe and appropriate operation and maintenance of the oil- and gas-fired boiler Logano GE515.

## Correct fuel

This system requires the correct fuel to ensure a proper operation. During commissioning, your system installer will enter the correct type of fuel, which your system requires, into the table below.



**CAUTION!**

### SYSTEM DAMAGE

through incorrect fuel.

- Only use the correct fuel identified for your system.



### USER NOTE

We recommend you seek the advice of your system installer if you intend changing the fuel for your system.

**Use the following fuel:**

---

---

company stamp/signature/date

## Subject to technical modifications.

Constant development may lead to minor deviations of illustrations, functional steps and specifications from those described/shown.

## Updating your documentation

Please let us know if you would like to make suggestions to improve our documentation or if you have noticed any errors.

## Regulations and directives

### Installation:

90/396/EEC gas appliance directive  
92/42/EEC boiler efficiency directive  
73/23/EEC low voltage directive  
89/336/EEC EMC directive  
97/23/EC pressure equipment directive  
current Gas safety (Installation and Use) Regulations  
The Building Regulations  
Building Standards (Scotland)  
IEE Wiring Regulations BS 7671  
National and ByLaws of the local water undertaking  
Corgi registered required to work on the appliance (Competent Persons)  
Oftec registered required to work on the appliance (Competent Persons)

### Codes of practice:

BS 6880 Code of practice for low temperature hot water heating systems for output greater than 45kW  
BS 6644 Specification for Installation of gas-fired hot water boilers of rated inputs between 70kW (net) and 1.8 MW (net) (2nd and 3rd family gases)  
CP 342.2 centralised hot water supply  
BS 5449 Forced circulation hot water systems  
BS 5546 Installation of gas hot water supplies for domestic purpose (2nd. Family Gases)  
BS 6891 Low pressure installation pipes  
BS 5410 Code of practice for Oil firing Part 2  
BS 5854 & IM/11 Codes of Practice for flues (as appropriate)  
BS 7074 Application Selection & Installation of Expansion vessels & ancillary for sealed water systems Part 2  
IGE/UP/1 Soundness testing & purging of industrial & commercial installations  
IGE/UP/2 Gas installation pipework and compressors on industrial and commercial premises  
IGE/UP/7 Gas installations in Timber framed buildings  
IGE/UP/10 Installation of gas appliances in industrial and commercial premises, part 1: flued appliances  
CISBE Guide  
Management of Health and Safety at work regulations 1992 - Guidance note PM5  
Health & Safety at work act 1974  
Manual Handling Regulations 1992  
  
The Electricity at Work Regulations, 1989

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# 1 For your safety

Logano GE515 oil- and gas-fired special boilers have been developed and built employing the latest technologies and safety regulations.

Ease of operation was given a particularly high priority. Please observe the safety instructions and the operator's instructions to ensure optimum safe, economical and environmentally-friendly utilisation of your system.

## 1.1 Correct use

The Logano GE515 oil- and gas-fired special boiler was designed for the heating of central heating water. You may use any type-tested oil- or gas-fired burners acc. to EN 267 or EN 676 provided their operating range correlates with the boiler specification.

These boilers are operated with the 4000 series control systems.

## 1.2 Notes structure

Two levels of danger are identified by warnings:



**WARNING!**

### DANGER TO LIFE

Identifies possible dangers emanating from a product, which might lead to serious injury or death, if appropriate care is not taken.



**CAUTION!**

### DANGER OF INJURY/ SYSTEM DAMAGE

Points to a potentially dangerous situation, which might lead to medium or slight injuries or to material losses.



### USER NOTE

User tips for the optimum utilisation and setting of the equipment plus useful information.

## 1.3 Please observe these safety instructions

Inappropriate operation of Logano GE515 boilers may lead to material losses.

- Only operate the boiler as intended and when it is in perfect condition.
- Let a heating engineer install your heating system.
- Let your local heating engineer train you properly in the operation of this system.
- Please read these operating instructions carefully.



**WARNING!**

### DANGER TO LIFE

through the explosion of volatile gases. There is a risk of explosion if you can smell gas.

- Keep naked flames away. Do not smoke.  
Do not use lighters.
- Avoid sparks!  
Do not operate electrical switches, incl. telephone, plugs or door-bells.
- Close the mains gas shut-off valve.
- Open windows and doors.
- Warn all occupants, but do not use doorbells.
- Leave the building.
- Call your gas supplier and your local heating engineer from outside the building.
- If necessary, notify police or fire services.
- Immediately leave the danger zone if you hear gas streaming out.

## 1.3.1 Location

**DANGER TO LIFE**

through poisoning.

**WARNING!**

Insufficient ventilation can lead to dangerous flue gas leaks.

- Ensure that the ventilation and exhaust air openings are neither restricted nor closed.
- The boiler must not be operated, unless you immediately remedy the fault.

**RISK OF FIRE**

through combustible material or liquids.

**WARNING!**

- Never store flammable materials or liquids in the immediate vicinity of the heat generator.

**BOILER DAMAGE**

through contaminated combustion air.

**CAUTION!**

- Never use chlorinated cleaning agents or halogenated hydrocarbons (as, for example, contained in spray cans, solvents or cleaning agents, paints and adhesives).
- Avoid atmospheres which are frequently very dusty.
- Never hang washing to dry in the boiler room.

**SYSTEM DAMAGE**

through frost.

**CAUTION!**

- Ensure that the boiler room is always free from frost.

## 1.3.2 Working on the heating system

**DANGER TO LIFE**

through the explosion of volatile gases.

**WARNING!**

- Ensure that the installation, the gas, oil and flue gas connections, the initial start-up, the power connection, maintenance and repair work are only carried out by competent specialists.
- Ensure that work on parts of the gas installation is only carried out by a licensed specialist.

**SYSTEM DAMAGE**

through inadequate cleaning and maintenance.

**CAUTION!**

- Have your system inspected, cleaned and maintained annually by a specialist contractor.
- We recommend you enter into a contract covering an annual inspection and maintenance on a demand-dependent basis.

## 2 Product description

The main components of the Logano GE515 oil- and gas-fired special boiler are:

- Boiler block (Fig. 1, **item 3**).  
The boiler block transfers the heat generated by the burner to the heating water.
- Boiler shell (casing, Fig. 1 and Fig. 2, **item 1**), thermal insulation (Fig. 1, **item 2**).  
Boiler shell and thermal insulation prevent energy loss.
- Control unit (Fig. 1, **item 4**).  
The control unit is designed to monitor and control all electrical components of the Logano GE515 oil- and gas-fired special boiler.

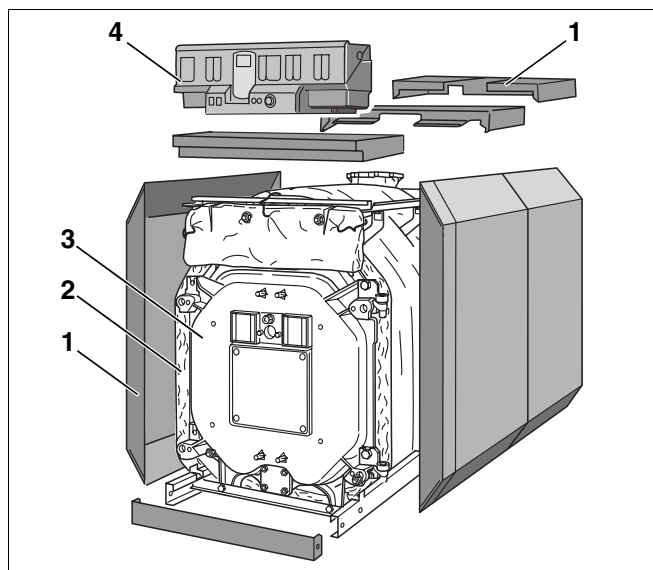


Fig. 1 Logano GE515 oil- and gas-fired special boiler

**Item 1:** Boiler shell (casing)

**Item 2:** Thermal insulation

**Item 3:** Boiler block

**Item 4:** Control unit

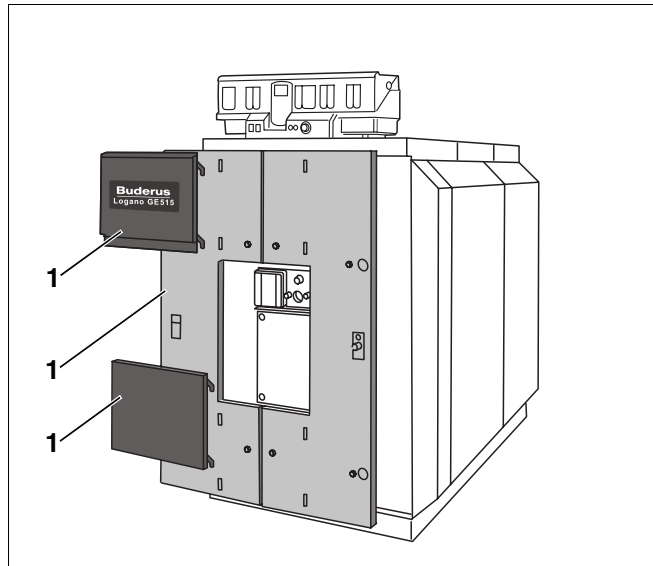


Fig. 2 Logano GE515 oil- and gas-fired special boiler

**Item 1:** Boiler shell (casing)

### 3 Using correct fill and make-up water

This chapter comprises general information to describe the water in your heating system.

Observe the basic, system-specific requirements for water quality in chapter 3.2 "Water quality".

#### 3.1 Water description

In your heating system, water is used as the heat transfer medium. Depending on its purpose, water is given different descriptions.

- Heating water:  
Water contained within your heating system.
- Fill water:  
Water used for the first filling of your system before commissioning.
- Make up water:  
Pre-treated water for topping up the system pressure (via make up tank and pumpset)



### 3.2 Water quality

Any water contains substances, e. g.  $\text{Ca}(\text{HCO}_3)_2$  (Calcium hydrogen-carbonate), which may influence the function of your heating system. These may lead to corrosion, scaling or deposits.

Regularly check your water quality and, if necessary, treat your fill and make-up water, to ensure that your heating system permanently retains its economy, function, operational reliability and energy efficiency.



**CAUTION!**

#### SYSTEM DAMAGE

through corrosion and scaling because of fill and make-up water, which does not comply with system-specific requirements.

- Check with your local installer or your water supply company regarding the  $\text{Ca}(\text{HCO}_3)_2$  concentration (calcium hydrogen-carbonate) in your area.
- You should treat the fill and make-up water, if it does not comply with system-specific requirements. In such cases contact your local heating engineer.

Observe the following table regarding the appropriate use and treatment of the fill and make-up water.

This table is an extract from the Code of Practice K8 "Water treatment for hot water heating systems" in the Buderus sales catalogue.

Total rated boiler output in kW	$\text{Ca}(\text{HCO}_3)_2$ concentration in mol/m <sup>3</sup>	Maximum fill and make-up water volume $V_{\max}$ in m <sup>3</sup>	Heating water pH value
100 < Q ≤ 350	≤ 2.0	$V_{\max} = \text{three times the system volume}$	8.2–9.5
350 < Q ≤ 1000	≤ 1.5		
100 < Q ≤ 350	> 2.0	$V_{\max} = 0,0313 \cdot \frac{Q(\text{kW})}{\text{Ca}(\text{HCO}_3)_2 \left( \frac{\text{mol}}{\text{m}^3} \right)}$	8.2–9.5
350 < Q ≤ 1000	> 1.5		

Tab. 1 Requirements of filling, make-up and heating water

## 4 System start-up

This chapter explains, how you prepare the system for operation and how to commission the control unit and the burner.

### 4.1 Making the system operational

You should check the following to prepare the system for operation:

- the system water pressure (see chapter 7.2 "Checking and correcting the water pressure", page 14),
- whether the fuel supply to the main fuel shut-off valve is open,
- whether the heating system emergency stop switch is switched on.

Let your specialist show you where the fill valve is located in the pipework of your system (return).

### 4.2 Commissioning the control unit and the burner

Start up your boiler via the control unit (in this example, Fig. 3: series 4000 control unit). By commissioning the control unit, you also automatically commission the burner. The burner can then be started via the control unit. For further details in this connection, see the operating instructions of the relevant control unit or burner.

- Switch the boiler water thermostat (Fig. 3, **item 1**) to "AUT" (Automatic).
- Set the On/Off switch (Fig. 3, **item 2**) to "I" (ON).



#### USER NOTE

- Please observe the operating instructions of the control unit.

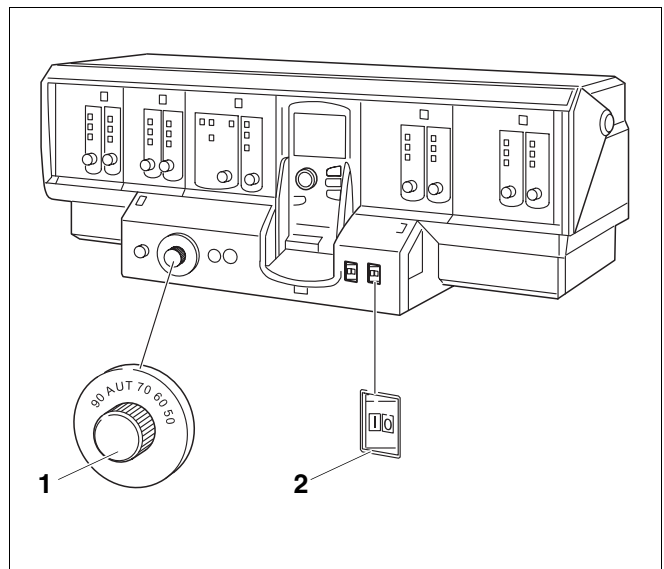


Fig. 3 Control unit (for example: Logamatic 4000)

**Item 1:** Boiler water thermostat

**Item 2:** On/Off switch

## 5 System shutdown

This chapter explains, how you shut down your boiler, the control unit and the burner. Furthermore, you will find explanations as to how you can shut down your system in an emergency.



### SYSTEM DAMAGE

through frost.

#### CAUTION!

The system can freeze up if it is not in use, e.g. through a shut-down because of fault(s).

- Protect your system against frost damage, where temperatures below zero must be expected.
- Drain the heating water at the drain valve at the lowest point in the system, using the drain valve (boiler cut drain valve). To do this, open the air vent valve at the highest point in the system.
- Shut off the fuel supply at the main fuel shut-off valve.

### 5.1 Shutting down the control unit and the burner

Shut down your boiler via the control unit (in this example 3: series 4000 control unit). The burner is automatically shut down when the control unit is shut down.

- Set the On/Off switch (Fig. 3, **item 1**) to "0" (OFF).



#### USER NOTE

For further details in this connection, see the operating instructions of the relevant control unit.

### 5.2 Shutting down the system in an emergency



#### USER NOTE

- Only in an emergency, switch off the system via the boiler room fuse or heating system emergency stop switch.

In other dangerous circumstances, isolate the main fuel shut-off valve and the electrical power supply of the system via the boiler room main fuse or the emergency stop switch for the boiler room (see chapter 1.3 "Please observe these safety instructions", page 5).

## 6 Correcting burner faults

Heating system faults are indicated in the control unit display. You will find detailed information regarding fault displays in the service instructions of each respective control unit. In addition any burner fault is indicated by a fault lamp on the burner.



### SYSTEM DAMAGE

through frost.

#### CAUTION!

The system can freeze up if it is not in use, e.g. through a shut-down because of fault(s).

- You should drain the heating water via the drain valve at the lowest point in the system, to protect it against freezing, if the system remains switched off for several days because of a fault shut down.



### SYSTEM DAMAGE

through frequent activation of the reset button.

#### CAUTION!

The burner ignition transformer may be damaged if you press the reset button more than three times in succession after the burner refuses to start.

- Do not attempt to clear a fault more than three times in succession by using the reset button.
- Press the burner reset button (see burner operating instructions).

See the technical burner documentation for information regarding the resetting of the burner, if the burner will not start after three attempts.

## 7 System maintenance

This chapter explains why regular maintenance is important for your system. It will also indicate to you, how you can check and regulate the water pressure.



**CAUTION!**

### **SYSTEM DAMAGE**

through inadequate cleaning and maintenance.

- Have your system inspected, cleaned and maintained annually, by a specialist contractor.
- We recommend you enter into a contract covering an annual inspection and maintenance on a demand-dependent basis.

### 7.1 Why is regular maintenance important?

You should have your system serviced for the following reasons:

- to achieve a high level of efficiency and to operate the system economically (low fuel consumption),
- to achieve a high level of operational reliability,
- to maintain the highest level of environmentally responsible combustion.

## 7.2 Checking and correcting the water pressure

Your heating system must contain sufficient water to ensure the functionality of your system.



### SYSTEM DAMAGE

through frequent re-filling.

#### CAUTION!

The system may be damaged, depending on water quality, by corrosion and scaling, if you frequently need to re-fill your system with make-up water.

- Notify your local installer, if you regularly need to add make-up water to your system.

Fill make-up water into your system, if the system pressure is too low (see chapter 3 "Using correct fill and make-up water", page 8).

### 7.2.1 When do you need to check the water pressure in your heating system?

- Recently introduced make-up water loses much of its volume in the first few days because it releases gases. With new systems, therefore, check the water pressure in your heating system initially on a daily basis, and thereafter at increasing intervals.



### USER NOTE

Air pockets may form through the fill or make-up water releasing gases.

- Vent the system via the radiators and, if required, replenish the system with make-up water.
- Check the water pressure monthly, if the heating system still loses volume.

Systems are generally differentiated as open or sealed systems. Open systems are now only rarely installed. Therefore, a sealed system is used as an example of how you can check the water pressure.

The specialist will have carried out all initial settings during commissioning.

### 7.2.2 Open systems

On open systems (if fitted) the pressure gauge needle (Fig. 4, **item 1**) must be within the red range (Fig. 4, **item 3**).

### 7.2.3 Sealed systems

On sealed systems the pressure gauge needle (Fig. 5, **item 2**) must be within the green range (Fig. 5, **item 3**). Set the red needle (Fig. 5, **item 1**) on the pressure gauge to the required system pressure.

- Check the system water pressure



**CAUTION!**

#### SYSTEM DAMAGE

through over pressure during leak testing. Pressure, control and safety equipment may be damaged through excessive pressure.

- When you carry out a leak test, make sure that no pressure, control or safety equipment is fitted which cannot be isolated from the boiler water chamber.
- Shut off the pressure expansion vessel from the system by closing the cap valve.
- Check the connections and pipework for leaks.
- Open the mixing and shut-off valves on the hot water (primary) side.
- Fill the system via an approved filling link.

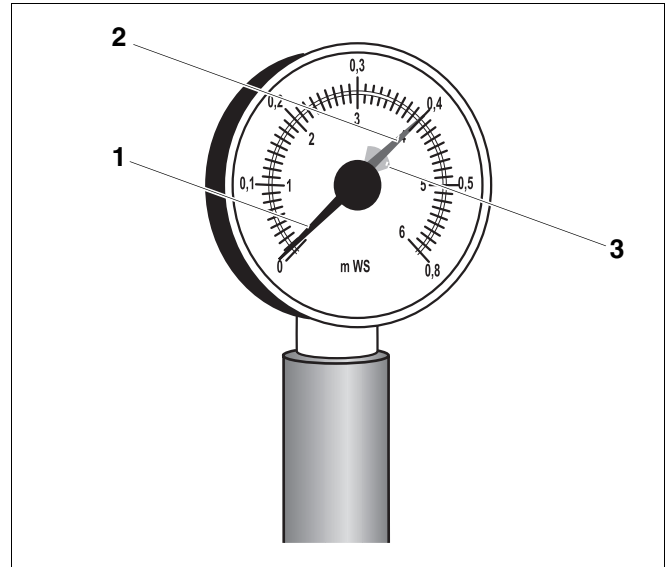


Fig. 4 Pressure gauge for **open systems**

**Item 1:** Pressure gauge needle

**Item 2:** Green needle

**Item 3:** Red marking

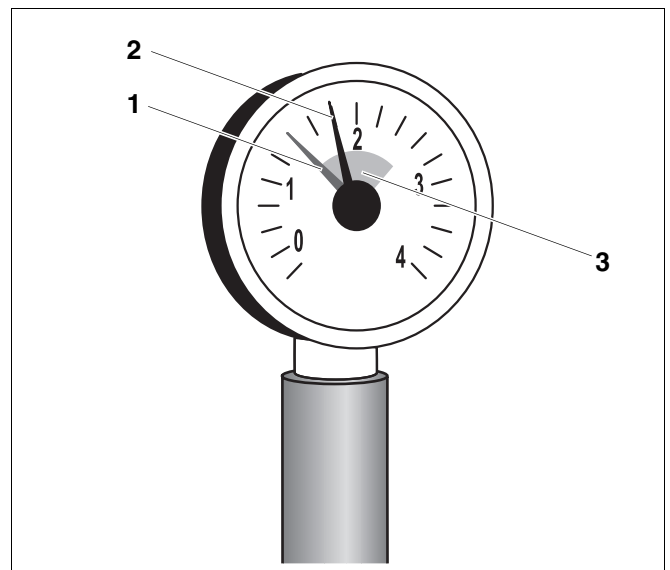


Fig. 5 Pressure gauge for **sealed systems**

**Item 1:** Red needle

**Item 2:** Pressure gauge needle

**Item 3:** Green marking

## Filling the heating system

Filling and refilling of the heating circuit must be carried out by a method that has been approved by the Water Regulation Advisory Scheme (WRAS), for the type of heating appliances, i.e. Domestic (in-house) Fluid Category 3. Non-Domestic (other than in-house) Fluid Category 4. Depending on the Fluid Category the approved method should comprise of the following:

1. Requirements Fluid Category 3 systems (fig see right)
    - Control valve (stop valve) including a double check valve on the mains cold water supply pipe
    - Temporary connection to be removed after filling (filling loop)
    - Control valve (stop valve) on the heating system pipework
  
  2. Requirements Fluid Category 4 systems (fig see right)
    - Control valve (stop valve) on the mains cold water supply pipe
    - Strainer
    - Verifiable Backflow Prevention Device with reduced pressure Zone (RPZ valve assembly) incorporating a Type BA air gap
    - Tundish
    - Control valve (stop valve) on the heating system pipework
- 
- Open the cap of the automatic air vent by one full turn to allow air to escape.
  - Slowly fill the heating system. Observe the pressure gauge whilst filling.
  - Close the water tap and the boiler drain valve once the required operating pressure has been reached.
  - Bleed the system via the radiator bleed valves.
  - Top up with water if the pressure drops as a result of bleeding the system.
  - Take the hose off the boiler drain valve.

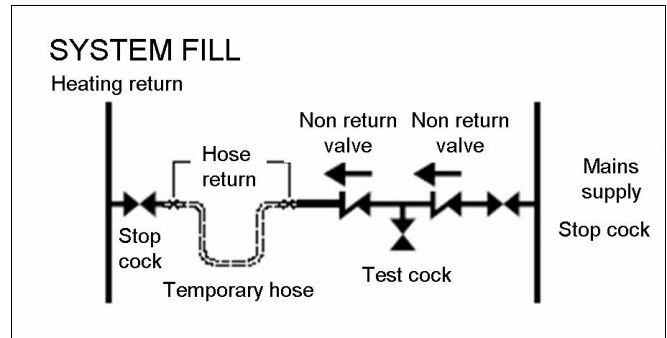


Fig. 6 Requirements Fluid Category 3 systems

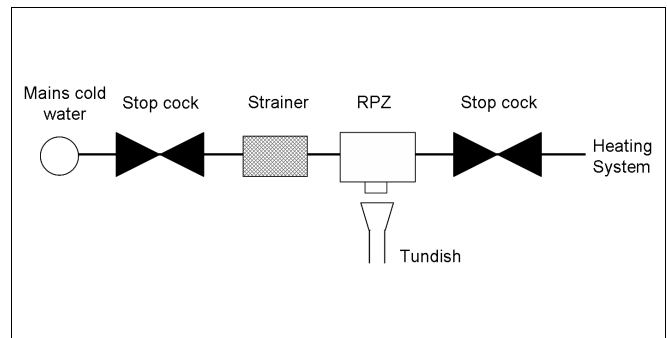


Fig. 7 Requirements Fluid Category 4 systems









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