

KLSC Series

DN20, DN25 and DN32 boiler charging units with electronic fixed point control for systems with solid fuel boilers

Installation and operating manual

(translated from the original operating manual)



KLSC20



KLSC25 / KLSC32

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1 General information

1.1 Important notes about the Installation and Operating Manual

NOTICE The operator is responsible for ensuring adherence to the local laws and regulations (e.g. accident prevention regulations, etc.).

Incorrect operation or operating the boiler charging unit contrary to the specifications shall void all rights to any warranty claim.

This Installation and Operating Manual

- is part of the boiler charging unit
- contains instructions and information for the safe and correct installation and commissioning of the boiler charging unit.
- must be available to all users throughout the entire service life of the boiler charging unit.
- is intended for trained personnel who are familiar with the applicable standards and provisions and, in particular, with the relevant safety concepts and the operation and maintenance of the boiler charging unit.
- is protected by copyright and may not be altered without the manufacturer's permission

1.2 Product conformity

This boiler charging unit conforms to the 2006/42/EC machinery directive.

1.3 Product features

- Stable wall bracket with fixings
- 3-part patented EPP insulation shell
- Compact, space-saving design

2 Safety

2.1 Safety notices

⚠ DANGER DANGER indicates an imminent danger that may cause serious physical injury or death if the appropriate safety precautions are not in place.

⚠ WARNING WARNING indicates a danger arising through incorrect behaviour (e.g. misuse, disregarding notices, etc.) that may cause serious physical injury or death.

⚠ CAUTION CAUTION indicates a potentially dangerous situation that may cause minor or slight injuries if the appropriate safety precautions are not in place.

NOTICE NOTICE indicates a situation that may cause material damage if the corresponding precautions are not taken.

2.2 Important safety information

- Read this operating manual carefully before use.
- Only connect this boiler charging unit to a power supply which matches the supply voltage stated on the boiler charging unit's data plate.
- The power supply on the boiler charging unit must be disconnected before completing any maintenance, cleaning or repair work.
- Maintenance, cleaning and repair work may be carried out by trained specialist personnel only.
- If the boiler charging unit is damaged or is not functioning correctly, it must no longer be used. In this case, contact your specialist dealer immediately.
- Observe the maintenance instructions and intervals.
- Protect the boiler charging unit against the effects of weather.
- Never use the boiler charging unit outdoors.
- The boiler charging unit may only be used in accordance with its intended use.

2.3 Intended use

The boiler charging unit is used to reduce the time required to reach the boiler operating temperature (to avoid dropping below the dew point). This extends the service life of the boiler while also reducing the emission of harmful substances. The boiler charging unit is fully pre-assembled and is designed for wall-mounting. The boiler charging unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of specialist knowledge or experience.

2.4 Foreseeable misuse

The following is regarded as foreseeable misuse:

- operating the boiler charging unit contrary to the specifications;
- using the boiler charging unit for use other than its intended use;
- making modifications to the boiler charging unit not agreed with the manufacturer;
- using replacement or wear parts not approved by the manufacturer;
- operating the boiler charging unit outdoors (parts and components are not UV-resistant).

2.5 Operator's responsibility

The operator must ensure that:

- the boiler charging unit is only used for its intended purpose;
- the boiler charging unit is installed, operated and maintained according to the specifications in the Installation and Operating Manual;
- the boiler charging unit is only operated according to local directives and occupational health and safety regulations;
- all precautions have taken to avoid hazards originating from the boiler charging unit;
- all precautions for first aid and fire suppression are carried out;
- only authorised and trained users have access to and operate the boiler charging unit;
- users have access to this Installation and Operating Manual at all times.

2.6 Users

Only qualified persons may operate the boiler charging unit or carry out service and maintenance work.

Operators

An operator is deemed to be qualified if they have read this operating manual and understood the potential hazards associated with improper behaviour.

Fitters/commissioners

Due to their technical training, expert knowledge and consideration of the relevant standards, provisions, regulations and laws, fitters/commissioners are able to carry out work on the boiler charging unit and to identify and prevent potential hazards.

3 Technical features

| Hydraulic data | KSLC20 | KLSC25 | KLSC32 |
|--------------------------------------|---|------------|------------|
| Max. operating pressure | 6 bar | 6 bar | 6 bar |
| Ambient temperature | -2 °C to +40 °C (observe pump specifications) | | |
| Operating temperature | +2 °C to +90 ° (observe pump specifications) | | |
| Gravity brake opening pressure | 10 mbar | 10 mbar | 10 mbar |
| Kvs bypass | 6.3 | 10.0 | 18.0 |
| Temperature display range | 0 - 120 °C | 0 - 120 °C | 0 - 120 °C |
| Temperature setting range controller | 5 - 95 °C | 5 - 95 °C | 5 - 95 °C |
| Pre-setting controller | 60 °C | 60 °C | 60 °C |
| Media | Water or water with glycol as per VDI (Association of German Engineers) 2035 / ÖNORM (Austrian standard) H 5195 | | |

Electrical connection

Power supply See separate pump documentation

| Dimensions | KSLC20 | KLSC25 | KLSC32 |
|---------------------------------------|----------------|--------------------|--------------------|
| Width x height x depth with EPP shell | 240x310x217 mm | 300 x 370 x 240 mm | 300 x 370 x 240 mm |
| Centre distance | 90 mm | 125 mm | 125 mm |
| Sealing surfaces distance | 293 mm | 342.5 mm | 342.5 mm |

Connections to pipe network

| | KSLC20 | KLSC25 | KLSC32 |
|------------------------------------|--------------------|-----------------------|----------------------|
| Boiler (top) | 1" M, flat sealing | ½" M, flat sealing | 2" M, flat sealing |
| Tank (bottom) | 1" M, flat sealing | 1½" M, flat sealing | 1½" M, flat sealing |
| 2 x screw fitting (top connection) | - | 1 ½" union nut x 1" F | 2" union nut x 1¼" F |

Tightening torques for screw fittings

| | KSLC20 | KLSC25 | KLSC32 |
|-----|--------|--------|--------|
| ¾" | 35 Nm | 35 Nm | 35 Nm |
| 1" | 55 Nm | 55 Nm | 55 Nm |
| 1¼" | - | 90 Nm | 90 Nm |
| 1½" | - | 130 Nm | 130 Nm |
| 2" | - | - | 190 Nm |

Materials

| | KSLC20 | KLSC25 | KLSC32 |
|-------------------|--|--|--|
| Fittings | CW617N | CW617N | CW617N |
| Pipes | Stainless steel Ø33 mm | Tubular steel | Tubular steel |
| Plastics | impact-resistant and temperature-resistant | impact-resistant and temperature-resistant | impact-resistant and temperature-resistant |
| Flat seals | AFM 34/2 | AFM 34/2 | AFM 34/2 |
| Bypass pipe | CW617N | CW617N | CW617N |
| Gravity brake | POM, NBR, stainless steel | POM, NBR, stainless steel | POM, NBR, stainless steel |
| O-rings | EPDM | EPDM | EPDM |
| Insulation | EPP | EPP | EPP |
| Retaining bracket | Spring steel | - | - |
| Wall brackets | Galvanised sheet steel | Galvanised sheet steel | Galvanised sheet steel |

Circulation pump

Technical information on the circulation pumps can be found in the relevant pump documentation.

Actuator including controller

Technical information on the actuators can be found in the relevant actuator documentation.

4 Pressure loss diagram

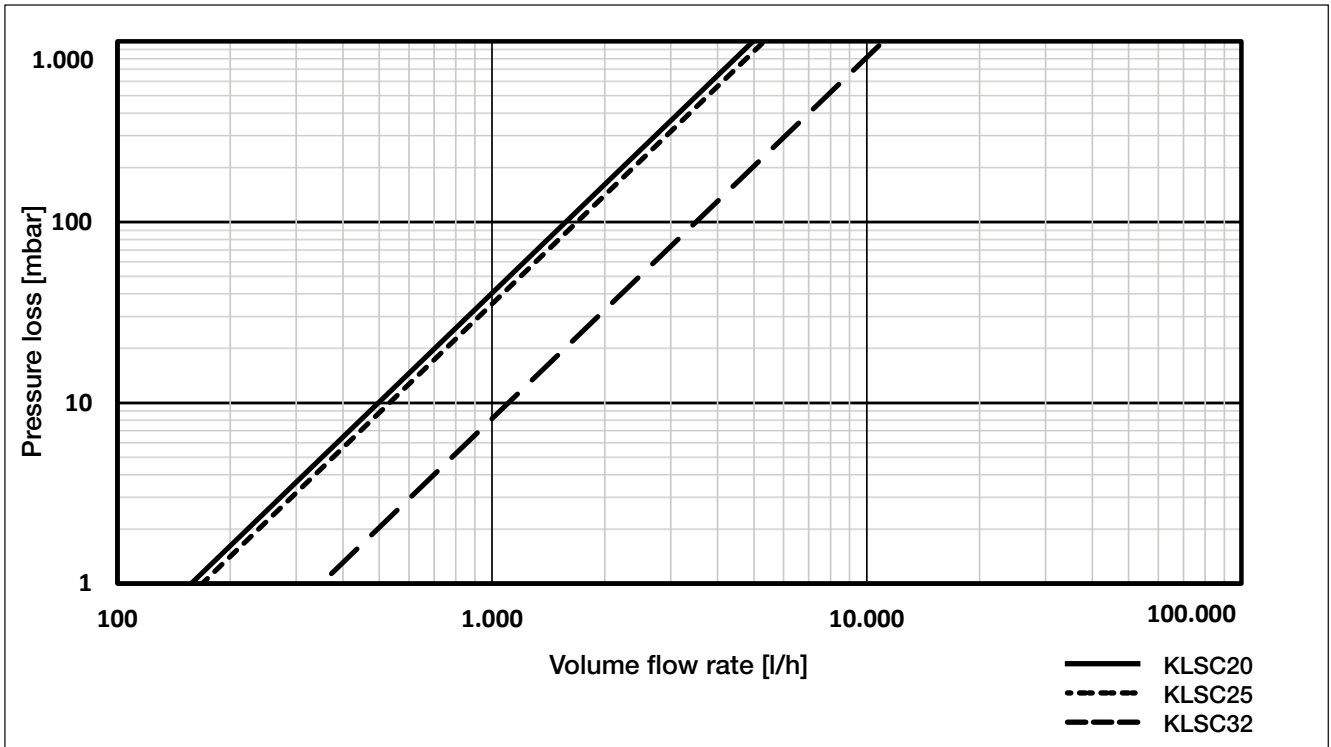


Fig. 4-1: Pressure loss diagram KLSC20, KLSC25, KLSC32

5 Dimensions

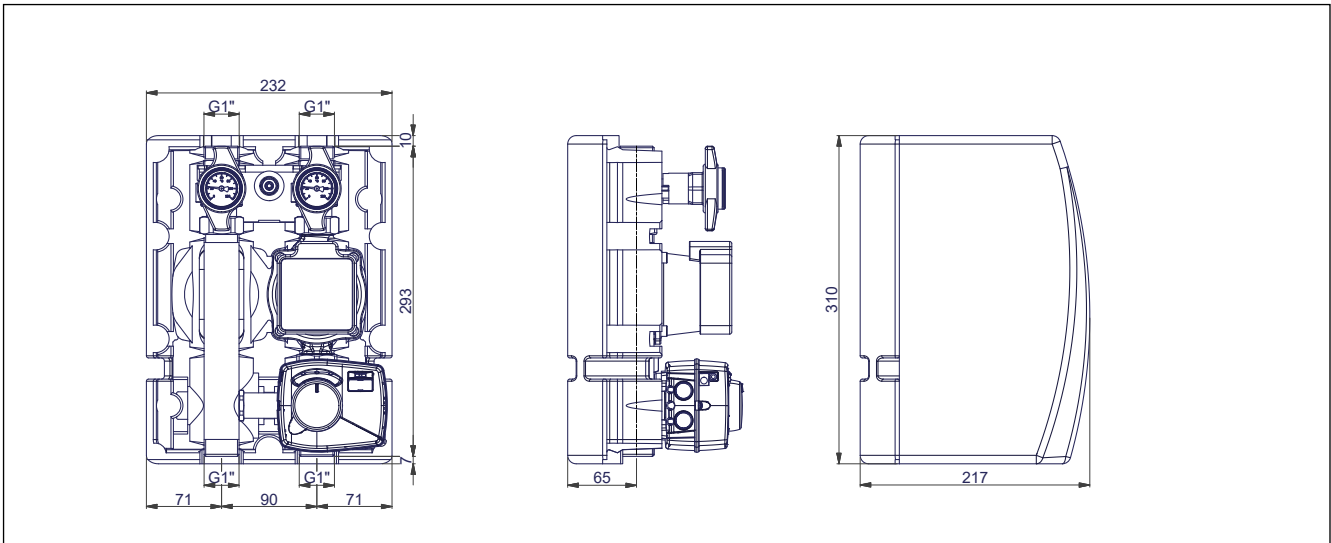


Fig. 5-1: KLSC20 dimensions

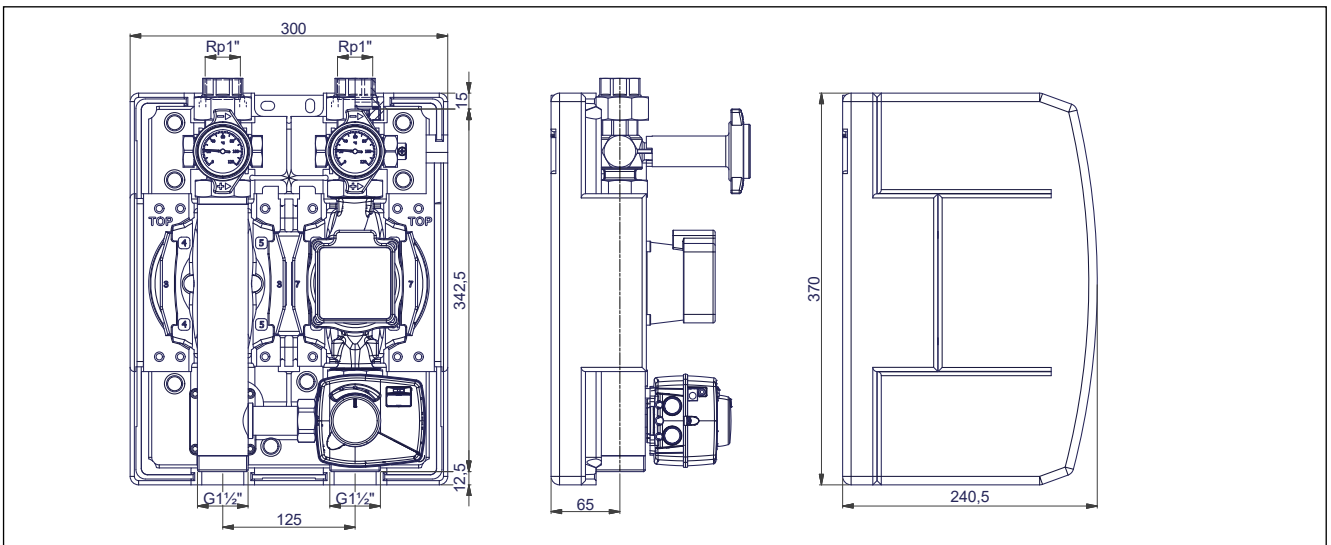


Fig. 5-2: KLSC25 dimensions

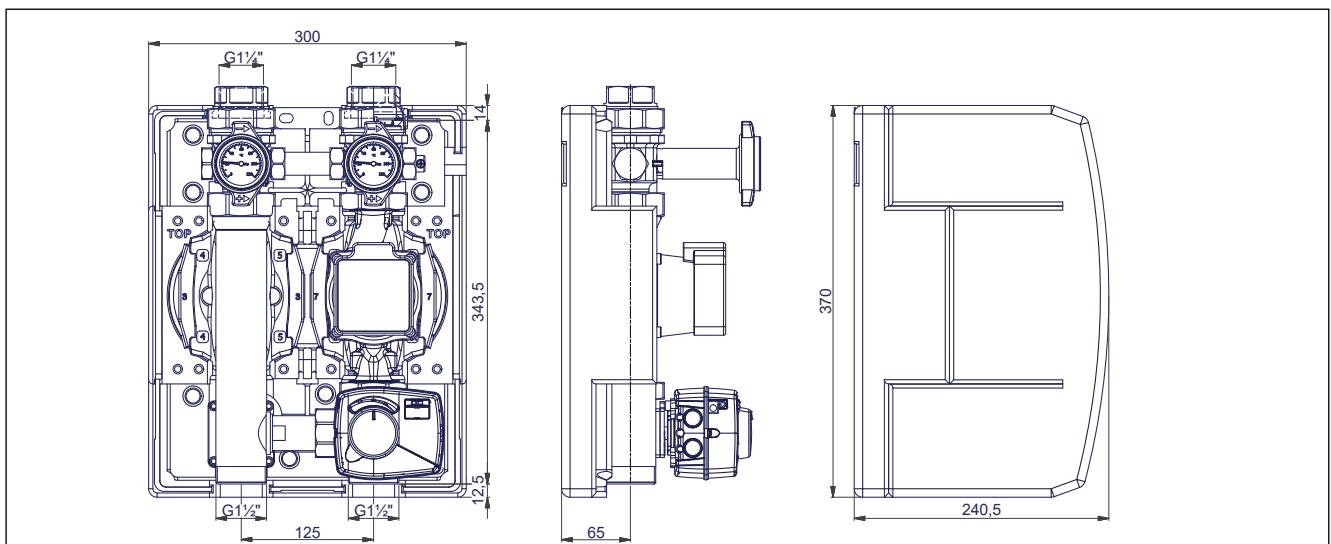


Fig. 5-3: KLSC32 dimensions

6 Component overview

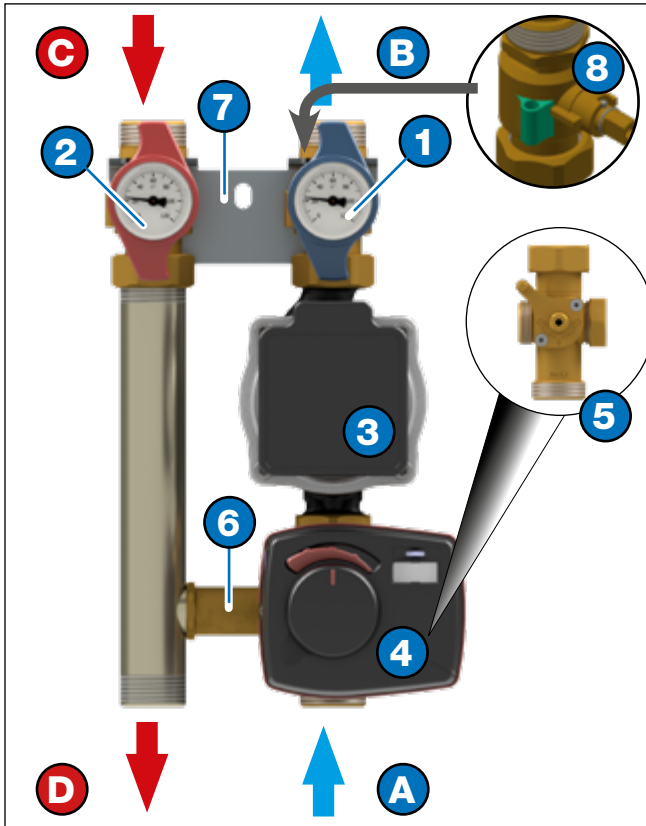


Fig. 6-1: KLSC20 construction

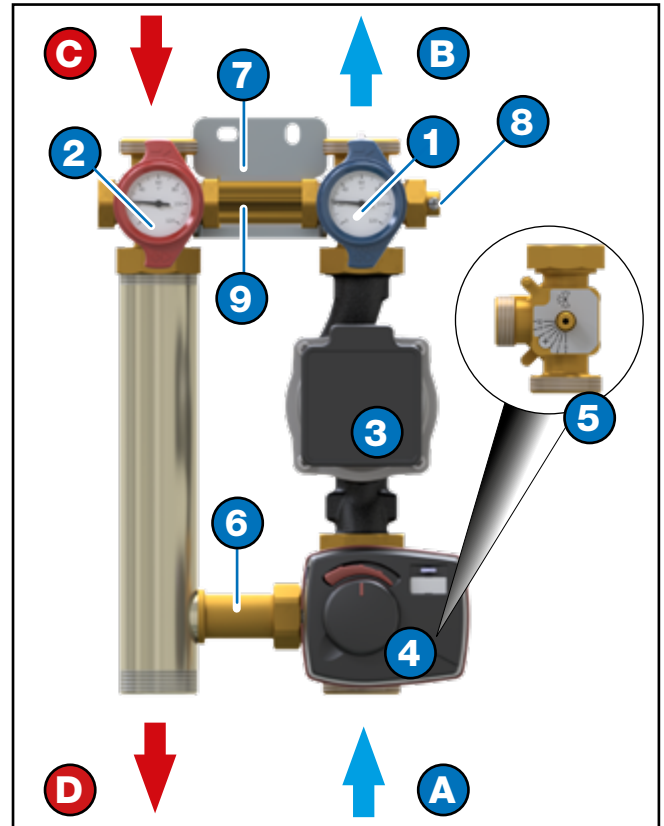


Fig. 6-2: KLSC25 and KLSC32 construction

- 1 Ball valve with gravity brake¹⁾ (return)
- 2 Ball valve (supply)
- 3 Circulation pump
- 4 Actuator including regulator
- 5 3-way mixing valve
- 6 Bypass pipe
- 7 Wall bracket
- 8 Sensor well for supply line temperature sensor from the actuator
- 9 Spacer (on KLSC32 only)

- A Tank return
- B Boiler return
- C Boiler supply
- D Tank supply

1) Gravity brake (see 7.4 on page 9)

7 Installation and commissioning

⚠ DANGER Electricity!

Risk of death from electric shock!

- Work on live parts must be carried out only by trained electricians.
- Disconnect the power supply to the unit before carrying out any installation, maintenance, cleaning or repair work and secure it against reconnection.

NOTICE The boiler charging unit may only be installed and commissioned by specialist personnel who have been duly trained and authorised by the manufacturer.

⚠ CAUTION When carrying out repairs and replacing parts, the prescribed mounting positions and flow directions for the individual components to be replaced must be observed.

⚠ CAUTION Material damage due to water hammer. Water hammer may occur if the shut-off valves are opened and closed quickly.

- Always open and close the shut-off valves slowly and in a controlled way.

7.1 Installation diagram

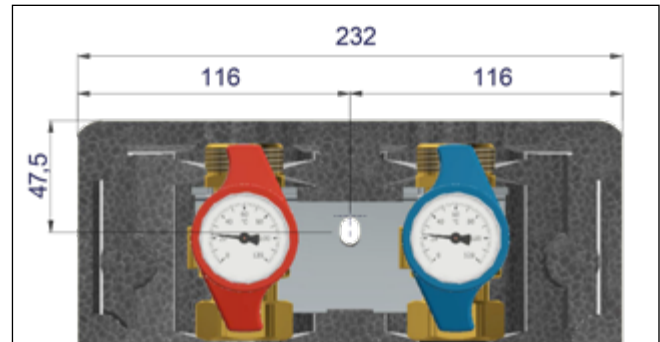


Fig. 7-1: KLSC20 installation diagram

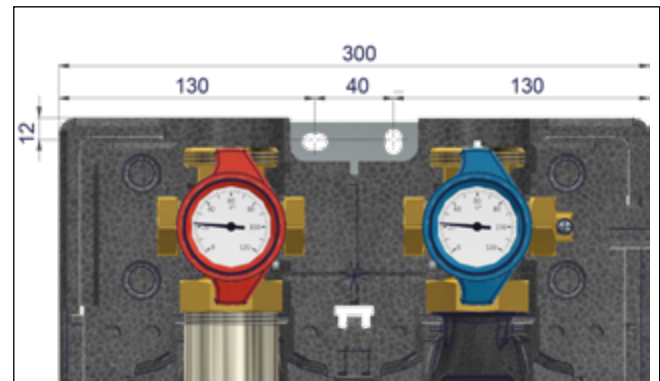


Fig. 7-2: KLSC25 and KLSC32 installation diagram

7.2 Installation

Before installing the unit and starting it for the first time, check all screw fittings and retighten if necessary!

Tightening torque:

| | KLSC20 | KLSC25 | KLSC32 |
|-----|--------|--------|--------|
| ¾" | 35 Nm | 35 Nm | 35 Nm |
| 1" | 55 Nm | 55 Nm | 55 Nm |
| 1¼" | - | 90 Nm | 90 Nm |
| 1½" | - | 130 Nm | 130 Nm |
| 2" | - | - | 190 Nm |

Requirements

- The fittings are preassembled at the factory; however, the tightness of the seal is to be checked before commissioning (pressure test).
 - Observe Fig. 7-1 on page 8 and Fig. 7-2 on page 8 when mounting the unit.
- Remove the boiler charging unit (A) front cover.

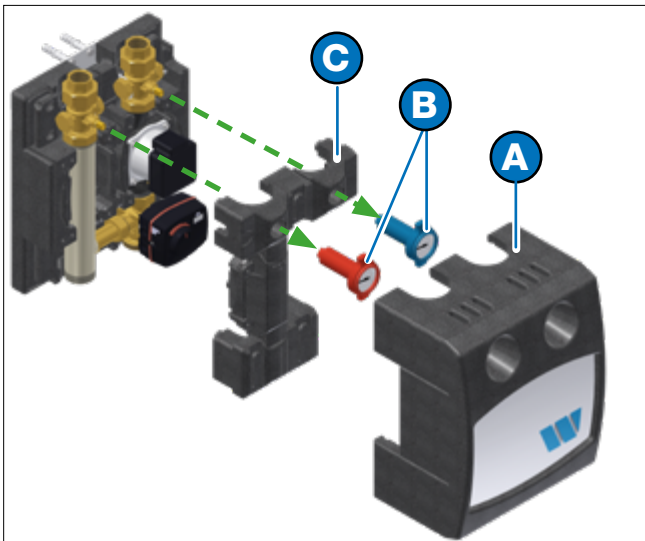


Fig. 7-3: Removing the front and central covers

- Mark the drilling points for mounting the boiler charging unit.
- Drill holes for the relevant size screws and wall plugs.
- Insert the wall plug (1 x for KLSC20 and 2 x for KLSC25 / KLSC32).
- For KLSC20 only.** Screw the dowel screw into the wall plug leaving at least 50 mm protruding.
- Locate the boiler charging unit vertically on the wall.
- For KLSC25 and KLSC32 only.** Fix 2 screws into the wall plugs.
- Remove the thermometer handles (B) and the intermediate insulation (C).
- Connect the supply and return lines and check all screw connections are tight.

7.3 Starting the unit

Requirements

- The boiler charging unit is fully assembled.

Connection of the power supply

- Connect the power supply (see separate pump documentation).
- ✓ **The boiler charging unit automatically switches itself on when the power supply is connected.**
- Vent the heating system.

NOTICE The boiler charging unit must be switched off during the venting process.

- Fit intermediate insulation (C) and thermometer handles.
- Fit the boiler charging unit front cover.

Controller and actuator adjustment

Setpoint temperature is preset to 60 °C.

- ✓ **Further information on the controller and actuator can be found in the accompanying instructions.**

7.4 Thermometer handle settings

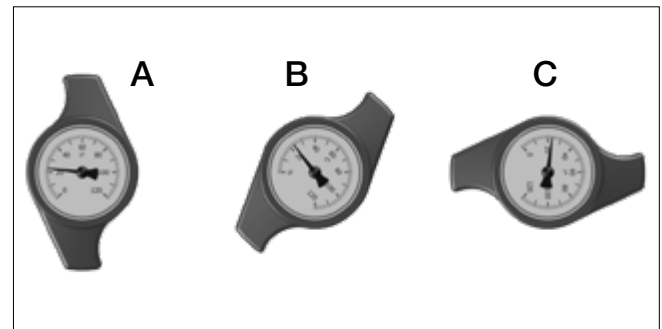


Fig. 7-4: Thermometer handle settings

- A Operating position: gravity brake ready to work; ball valve open.
- B Drain: gravity brake open; ball valve half open (only included in the return line).
- C Service position: ball valve closed.

7.5 Switching the KLSC20 supply and return lines

**Initial setup:
the supply is on the left-hand side.**

Disconnect the power supply and secure against reconnection.

1. Remove the lines from the bracket.
2. Remove the actuator from the 3-way mixing valve.
3. Disconnect the connecting pipe from the 3-way mixing valve.
4. Change the lines over.

The supply is now on the right-hand side.

5. Loosen the connection to the ball valve, rotate the return line and then tighten the connection to the ball valve again.
 6. Remove the end cap from the 3-way mixing valve and then use it to close off the opposite side.
 7. Connect the connecting pipe to the 3-way mixing valve and fit the lines into the bracket.
 8. Reset the regulating insert (spindle) and fit the actuator (see 8.7 on page 13).
- ✓ **Observe the separate operating instructions for the actuator.**
 - ✓ **Check the seals on the boiler charging unit are not leaking.**

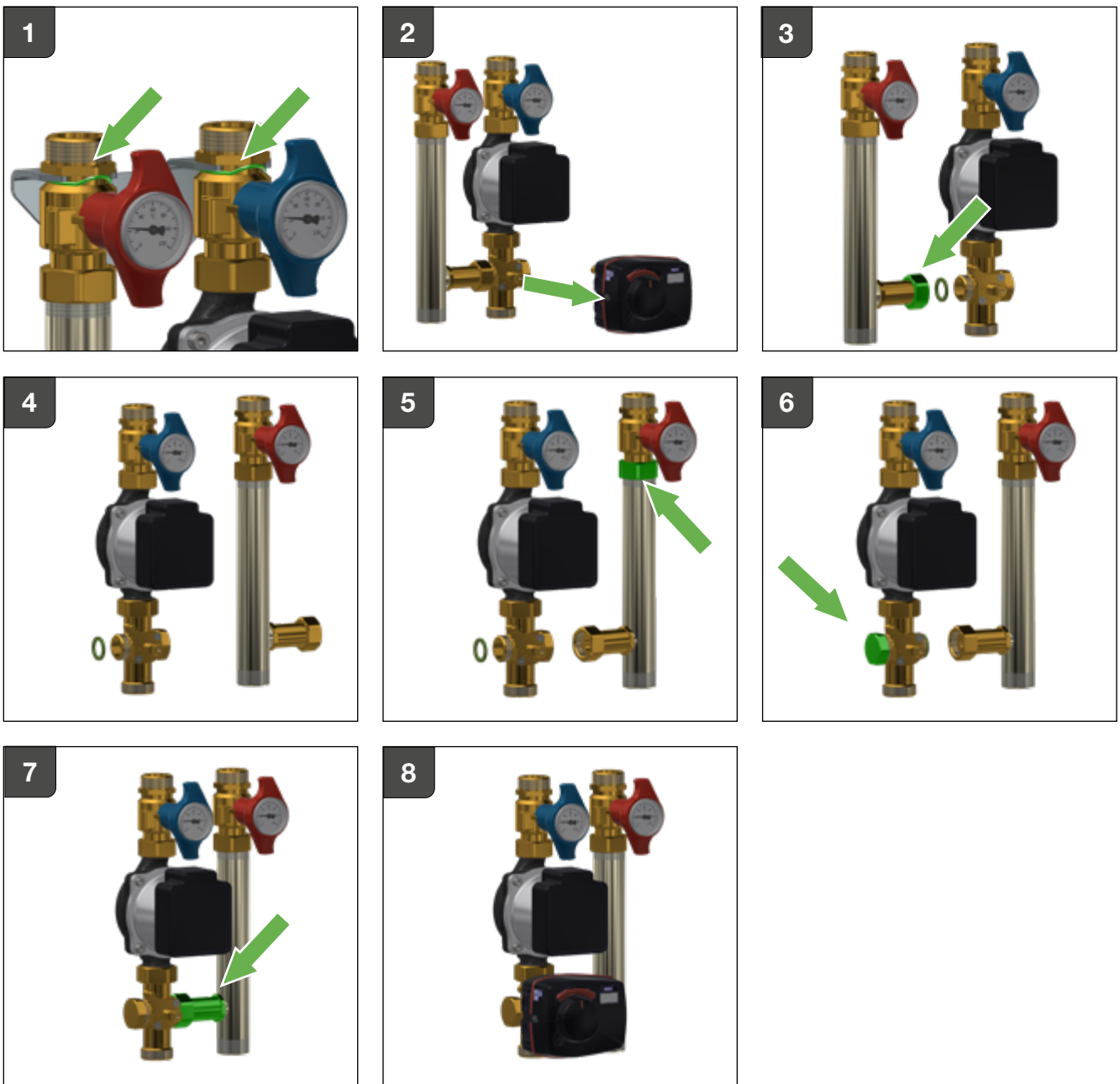


Fig. 7-5: Switching the KLSC20 supply and return lines in 8 steps

7.6 Switching the KLSS25 and KLSC32 supply and return lines

Initial setup:
the supply is on the left-hand side.

Disconnect the power supply and secure against reconnection.

1. Loosen the lower nut on the pump connection.
2. Remove the thermowell and the end cap.
3. Rotate the pump and the return ball valve by 180 degrees.
4. Loosen the nut on the supply ball valve and rotate by 180 degrees. Remove the actuator from the 3-way mixing valve.
5. Rotate the boiler charging unit by 180 degrees. Tighten all screw fittings and other connectors. The thermowell must be placed on the outer side.

The supply is now on the right-hand side.

6. Reset the regulating insert (spindle) and fit the actuator (see 8.8 on page 13).

- ✓ Observe the separate operating instructions for the actuator.
- ✓ Check the seals on the boiler charging unit are not leaking.

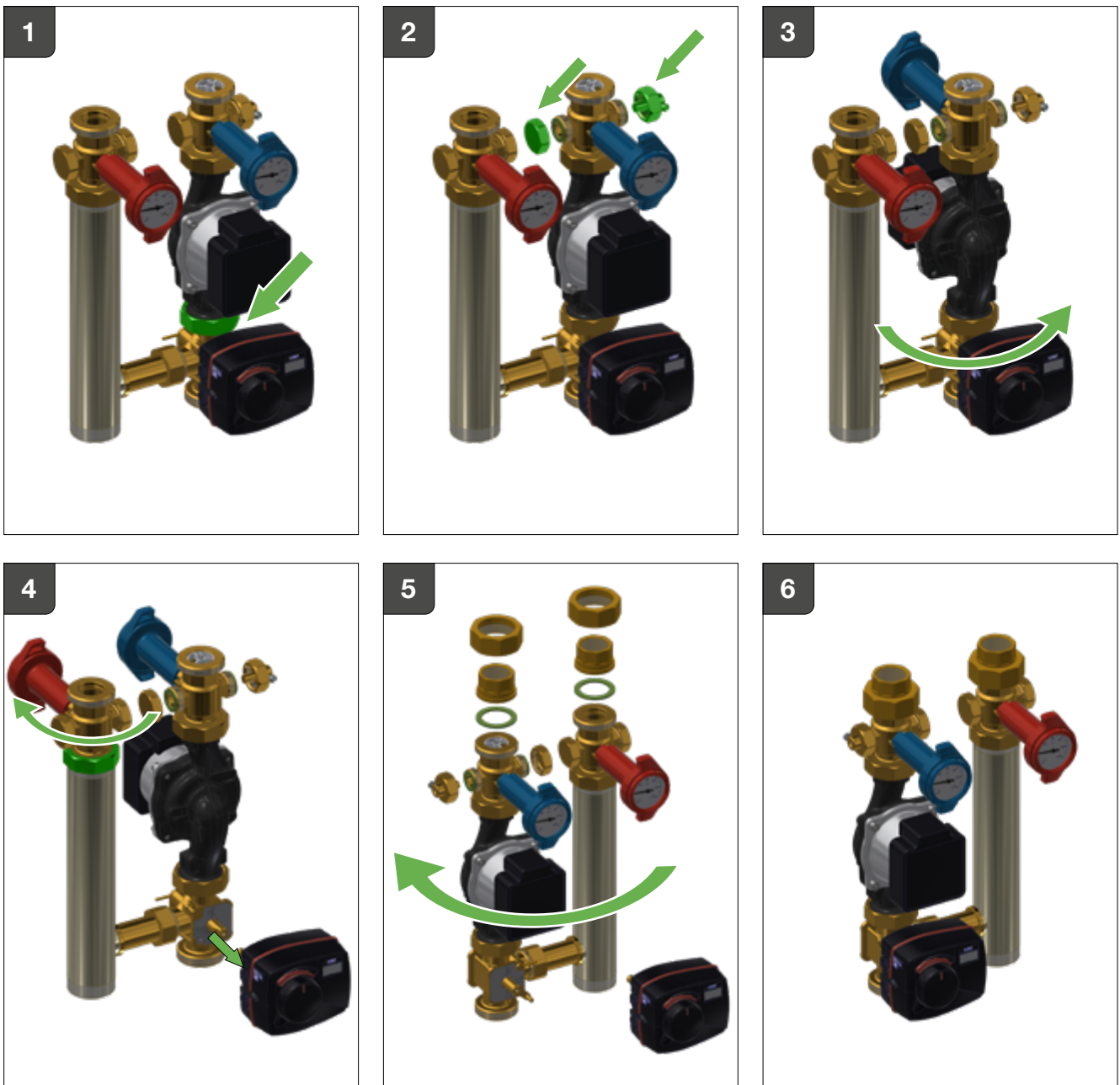


Fig. 7-6: Switching the supply and return on the KLSC25 and KLSC32 in 6 steps

8 Maintenance

⚠ DANGER Electricity!

Risk of death from electric shock!

- Maintenance work on the boiler charging unit may only be carried out once the power supply has been disconnected.

⚠ WARNING Hot water!

Severe scalding possible.

- Do not put hands into hot water when draining the boiler charging unit. Allow the boiler charging unit to cool down before completing any maintenance, cleaning or repair work.

⚠ WARNING Hot surfaces!

Severe scalding possible.

- Do not hold pipework or components while the unit is in operation. Allow the boiler charging unit to cool down before completing any maintenance, cleaning or repair work. Wear heat-resistant safety gloves if it is necessary to work on hot components.

NOTICE

Maintenance of the boiler charging unit must be carried out only by specialist personnel who have been duly trained and authorised by the manufacturer.

8.1 Annual maintenance schedule

1. General visual inspection

- Check the unit for leaks and retighten connections with flat seals or replace the seals.

2. Functional check

- Check the correct adjustment and operating and performance parameters.
- Check for noisy operation.
- Check with the user in the event of anomalies.

3. Ball valves

- Check for correct operation of shut-off valves and ball valves.

4. Pump

- Be aware of noise build-up in the pump.

5. Mixing valve

- Check functionality of mixing valve.

7. Post-maintenance checks

- Check all loosened screw connections for a firm seating and retighten if necessary.
- Remove all tools, materials and other equipment used from the work area.
- Bleed the system.

8.2 Replacing wear parts

Note that the boiler charging unit has parts which are subject to wear that naturally occurs as a result of normal use even when properly maintained and serviced.

Specifically, these are mechanical parts and parts which are in contact with hot water and steam such as hoses, seals, valves, etc.

Normal wear and tear is not a defect and is not covered under warranty or guarantee. Nevertheless, defects and malfunctions may only ever be remedied by trained specialist personnel.

Contact your specialist dealer for more information.

8.3 Removing the circulation pump

1. Disconnect the power supply and secure against reconnection.
2. Remove the boiler charging unit (A) front cover.
3. Close the shut-off valves.
4. Remove the thermometer handles (B) and the intermediate insulation (C).
5. Disconnect the circulation pump (D) from the power supply.
6. Undo the nuts (X) and remove the circulation pump.

8.4 Installing the circulation pump

1. Replace damaged or defective seals if necessary.
2. Fit the circulation pump and tighten the nuts (X) (see Chapter 3 on page 4 for tightening torques).
3. Connect the circulation pump (D) to the power supply.
4. Slowly open the ball valve by turning the thermometer handle (B).
5. Slowly pressurise the boiler charging unit and vent the system.
6. Check the seals on the boiler charging unit are not leaking.
7. Reconnect the power supply to the boiler charging unit.
8. Remove the thermometer handles (B).
9. Fit the intermediate insulation (C), thermometer handles (B) and front cover (A).

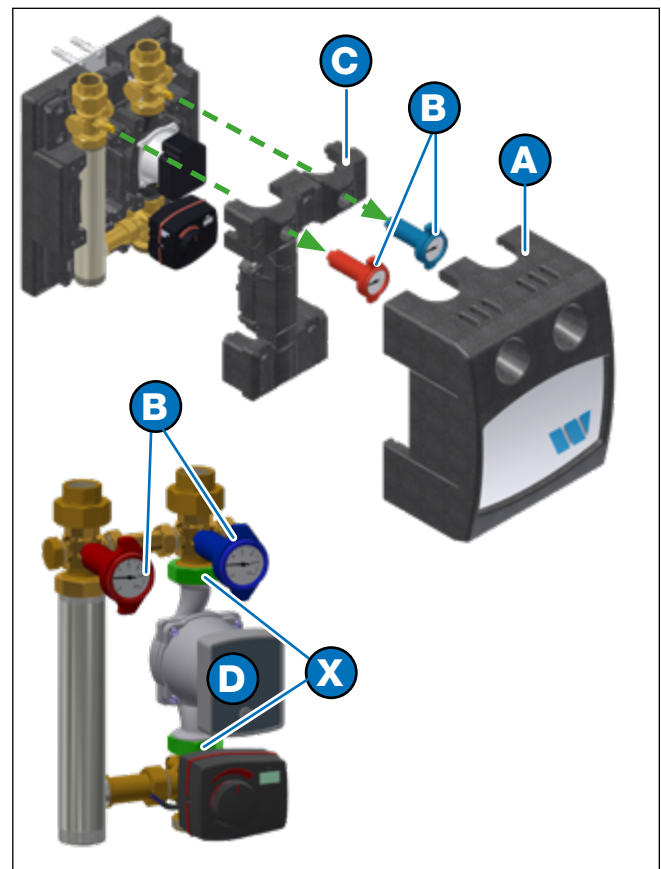


Fig. 8-1: Circulation pump removal and fitting

8.5 Removing the 3-way mixing valve

1. Disconnect the power supply and secure against reconnection.
 2. Remove the boiler charging unit (A) front cover.
 3. Close all shut-off valves by rotating the thermometer handle.
 4. Remove the thermometer handles (B) and the intermediate insulation (C).
 5. Move the regulating insert (spindle) to centre position using the lever on the actuator.
 6. Remove the actuator (S).
 7. Remove the mixer (M) by loosening the union nuts (X).
- ✓ **Instructions for fitting/removing the actuator can be found in the relevant manufacturer's manual.**

8.6 Fitting the 3-way mixing valve

1. Replace the seals on the screw connections.
 2. Insert the 3-way mixing valve (M) and tighten the nuts (see Chapter 3 on page 4 for tightening torques).
 3. Fit the actuator (S).
 4. Slowly open the ball valve by turning the thermometer handle (B).
 5. Reconnect the power supply to the boiler charging unit.
 6. Remove the thermometer handles (B).
 7. Fit the intermediate insulation (C), thermometer handles (B) and front cover (A).
- ✓ **Instructions for fitting/removing the actuator can be found in the relevant manufacturer's manual.**

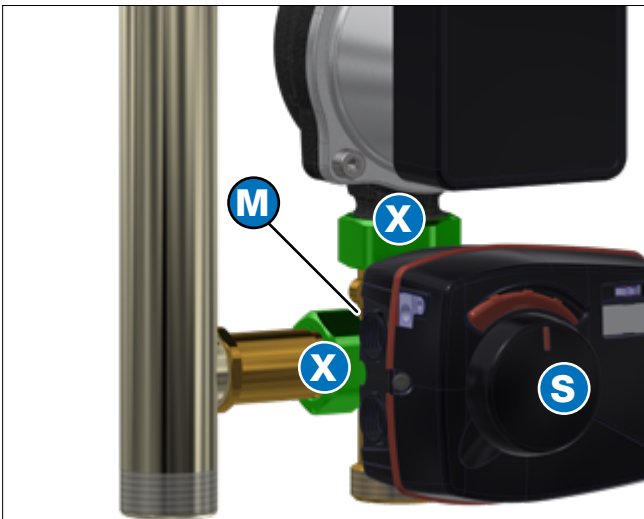


Fig. 8-2: Removing and fitting the 3-way mixing valve

8.7 3-way mixing valve actuator settings for KLSC20

NOTICE When reinstalling the actuator, make sure the bearing shaft is in the correct position.

When setting up the regulating insert (spindle) for the first time, refer to the images below.

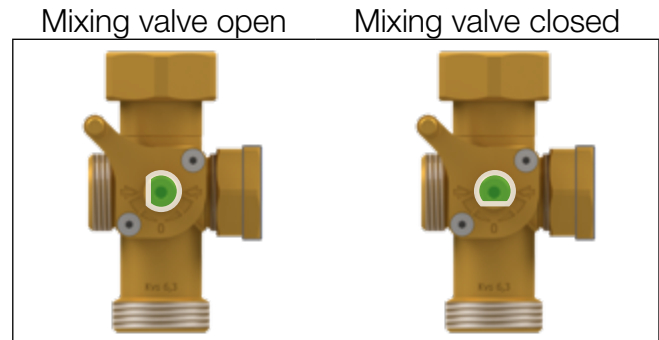


Fig. 8-3: Regulating insert (spindle) settings for KLSC20

8.8 3-way mixing valve actuator settings for KLSC25 and KLSC32

NOTICE When reinstalling the actuator, make sure the bearing shaft is in the correct position.

When setting up the regulating insert (spindle) for the first time, refer to the images below.

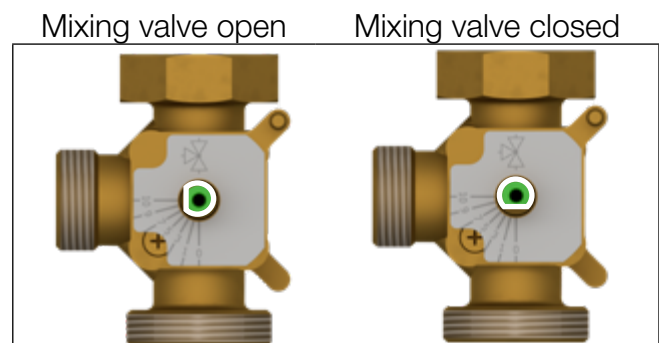


Fig. 8-4: Regulating insert (spindle) settings for KLSC25 and KLSC32

9 Disposal

⚠ WARNING Improper disposal can lead to contamination of the environment and groundwater!

When disposing of components and operating materials, the provisions and guidelines of the country of use must be observed.

1. Make sure the current to all subassemblies and components has been disconnected.
2. Remove the boiler charging unit in the correct way or engage a specialist company to do this.
3. Separate the subassemblies and components into recyclable materials and operating materials.
4. Dispose of the subassemblies and components in accordance with local laws and provisions or take them to a recycling facility.

9.1 Return to manufacturer

Contact the manufacturer if you wish to return the boiler charging unit or component parts.

9.2 Informing authorities and the manufacturer

Inform the manufacturer when decommissioning and disposing of the boiler charging unit for statistical purposes.

10 Warranty

WATTS products are tested extensively. WATTS therefore guarantees only the replacement or, at the sole discretion of WATTS, the free-of-charge repair of components of the supplied products where these, in the opinion of WATTS, exhibit verifiable manufacturing faults. Warranty claims due to defects or defects of title may be asserted within one (1) year of delivery/transfer of risk. Excluded from the warranty are damages attributable to normal use of the product or wear and damages resulting from modifications or non-authorised repairs on the products, for which WATTS rejects all claims for compensation (direct or indirect). (For more detailed information, please refer to our website.) In all cases, supply is subject to the General Terms and Conditions, which can be found at www.wattswater.eu/gtc/.

The descriptions and photographs contained in this product specification sheet are supplied by way of information only and are not binding. Watts Industries reserves the right to carry out any technical and design improvements to its products without prior notice.

Warranty: all sales and contracts for sale are expressly conditioned on the buyer's assent to Watts terms and conditions found on its website at www.wattswater.eu/gtc/ Watts hereby objects to any term, different from or additional to Watts terms, contained in any buyer communication in any form, unless agreed to in a writing signed by an officer of Watts.



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