

2	B1	System description
2	B1.1	General
2	B1.2	Function
2	B2	Operating conditions
2	B3	Assembly and installation
2	B3.1	General
2	B3.2	Assembly and installation
2	B3.3	Commissioning
3	B4	Attachments

► This section is a part of the documentation for the 'Exhaust gas purification system'. You must also observe the chapters 'Foreword', Definition, Safety, Disposal in Index 1 of the folder 'Exhaust gas purification system'.

B1 System description

B1.1 General

The low-pressure reactant control box is responsible for dosing and monitoring both the process air and the reactant.

B1.2 Function

As soon as the low-pressure reactant control box receives a signal from the control unit to initiate cooling (when the exhaust gas generator is in operation) the reactant nozzle is flushed and cooled with process air via the control box.

When injection status is enabled the control box switches a ball valve to supply reactant. The reactant is metered by means of a control valve.

As soon as the controls withdraw the injection process enabling signal the control box switches back to cooling and flushing the reactant nozzles.

The control box is fitted with a flow meter that displays the actual consumption of reactant. In addition, the air pressure is monitored by means of a pressure switch.

B2 Operating conditions

The operating conditions (operating temperature, type of enclosure protection, current and air consumption) are specified in the relevant data sheets. ([→ Data sheet](#))

When installing outside in regions prone to frost it must be ensured that the inside of the low-pressure reactant control box is insulated and fitted with a heating system.

B3 Assembly and installation

B3.1 General

All assembly and installation operations must be performed by qualified personnel only. The technical data required to install the components (dimensions, weights) are contained in the relevant data sheets. ([→ Data sheet](#))

Electrical installation

Exact information pertaining to the electrical installation must be obtained from the wiring diagram. Analogue signal cables must be shielded. They should be routed separately and not parallel to power-conducting cables and components. The shielding of analogue signal cables must be earthed on one side. ([→ Wiring diagram](#))

B3.2 Assembly and installation

Installation position

When installing, position the low-pressure reactant control box as indicated in the data sheet.

Ensure that the connections between the control box and the reactant nozzle are kept as short as possible (max. 2 meters); the reason being, the hose between the control box and nozzle is purged when the injection process is switched off. When it is turned on again the empty length of hose must be refilled with reactant. This repeated re-filling process can take a long time, particularly when small injection amounts are involved.

Outdoor installation

When installing outdoors ensure that all cable entry glands are hermetically sealed.

Furthermore, ensure that all lines are heated.

B3.3 Commissioning

The system shall be commissioned by Hug Engineering AG or an authorized partner. However, various preparatory measures must be taken to ensure efficient commissioning:

- Check the electrical installation and wiring of the components.
- Check the electric signals.
- Check the compressed-air and reactant lines.
- The engine must be ready for operation.
- The engine cooling system must be operational.

([→ Maintenance Manual folder](#))

Operating
Manual

Low-pressure reactant control box
SEN



B4 Attachments

2	B1	System description
2	B2	Operating conditions
2	B3	Assembly and installation
2	B4	Commissioning
2	B4.1	General
2	B4.2	Filling the pulsation damper
2	B4.3	Adjusting the pressure switch
2	B4.4	Determining and setting the flow rate
3	B5	Servicing
3	B5.1	Repairs / replacement
4	B6	Attachments

► This section is a part of the documentation for the 'Exhaust gas purification system'. You must also observe the chapters 'Foreword', Definition, Safety, Disposal in Index 1 of the folder 'Exhaust gas purification system'.

B1 System description

A detailed system description is provided in the Operating Manual.

(→ Folder: [Operating Manual](#), [Data sheet](#), [Drawing](#))

B2 Operating conditions

The operating conditions (operating temperature, type of enclosure protection, current and air consumption) are specified in the relevant data sheets. (→ [Data sheet](#))

B3 Assembly and installation

Assembly and installation instructions are provided in the Operating Manual.

(→ [Operating Manual folder](#))

B4 Commissioning

B4.1 General

System components are generally pre-installed by the customer. This section principally describes the initial commissioning of the individual system components. Service technicians or authorized and trained personnel with corresponding resources are responsible for the initial commissioning and complex service work. System components with electrical equipment must be commissioned in accordance with the corresponding commissioning record protocol.

(→ [Commissioning record protocol](#))

Required resources

As well as personal tools the following equipment and materials are required to commission the exhaust gas purification system:

- Temperature measuring instrument 0...1000 °C
- Digital multimeter
- Reactant collecting tank
- Measuring jug

Check assembly and installation

Before commissioning check if the system has been correctly installed.

⚠ The compressed air lines must be routed without kinks and not subject to tension; they must not come into contact with hot surfaces.

The compressed air lines must be kept absolutely clean. The lines must be flushed as required.

⚠ The reactant lines must be routed without kinks and not subject to tension; they must not come into contact with hot surfaces.

The reactant lines must be kept clean. The lines must be flushed as required.

⚠ The electric cables must be routed without kinks and not subject to tension; they must not come into contact with hot surfaces.

B4.2 Filling the pulsation damper

The low-pressure reactant control boxes SEN60 und SEN115 are equipped with a pulsation damper to maintain the flow of reactant as constant as possible.

Procedure:

- Shut down the system
- Feed the free length of tube from the cross-over

- connection out of the control box
- Empty reactant from the tube into a urea tank
- Fill the pulsation damper with compressed air to the pressure indicated (generally 0.5 bar)
- Reseal the tube

B4.3 Adjusting the pressure switch

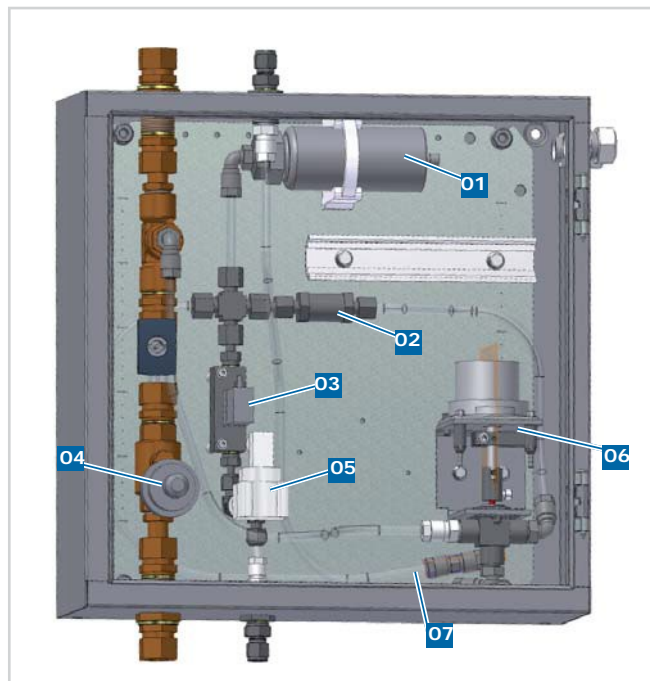
Ensure that the pressure switch switches at 0.5 bar; readjust the pressure switch, if necessary.

B4.4 Determining and setting the flow rate

Determining the flow rate

The flow rate can be determined as soon as the installation has been commissioned. Proceed as follows:

- Remove the reactant hose from the reactant nozzle and place into a measuring jug
- Turn on the metering valve
- Set the Injection rate to 100%
- Set the rotary drive to 'Inject'
- Drain into a container (minimum 3 liters) and then compare the measured amount in the measuring jug with the amount displayed
- If necessary adjust the rate and repeat the draining process as required
- Turn off the metering valve and set the rotary drive to 'Purge'
- Purge the reactant line and then refit to the reactant nozzle



- 01 Pulsation damper
- 02 Pressure holding valve
- 03 Control valve
- 04 Pressure switch
- 05 Flow meter
- 06 Rotary drive
- 07 Free-length of tube

Setting the flow rate

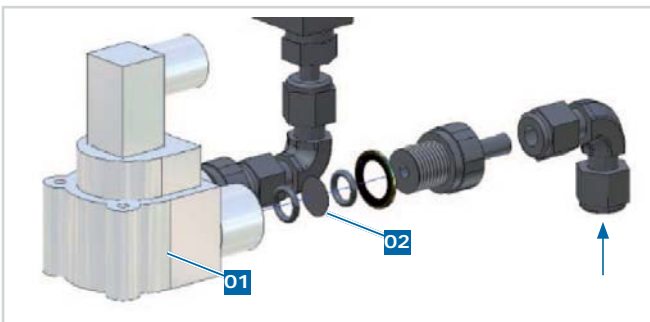
To set the flow rate, reactant dosing must be activated, and the metering valve / injection rate set to 100%.
If the measured value deviates from the displayed value, the parameter 'Flow rate meas. pulses per liter' on the controls must be adjusted and the value entered in the parameter list.
Once the flow rate has been correctly set the supply pump and metering valve parameters must be reset.

B5 Servicing

B5.1 Repairs / replacement

Replacing the filter sieve

A small sieve is fitted in the inlet of the flow measurement port of the low-pressure reactant control boxes SEN3 and SEN6; this sieve must be replaced.

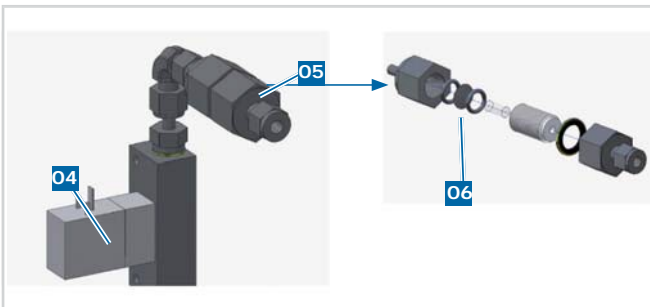


01 Flow meter

02 Sieve

Replacing the orifice

An orifice is fitted behind the control valve; this must be replaced.



04 Control valve

05 Sieve

06 Orifice

Maintenance

Manual

B6 Attachments

Low-pressure reactant control box
SEN

