

TA 1000-0206

Technical Instruction



Quality of circuit water in hot water and warm water heating systems



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1 Scope

This Technical Instruction [TA] applies to the following Jenbacher Gas Engines:

- Type 2 engines
- Type 3 engines
- Type 4 engines
- Type 6 engines
- Type 9 engines

2 Purpose

This Technical Instruction [TA] describes the composition of circuit water in hot water (permissible flow temperature above 100 °C) and warm water heating systems.

It does not apply to the engine cooling water circuit (Refer to TA 1000-0200)!

3 Quality of circuit water

Non-saline water

Appearance		Clear and odourless, no deposits or suspended solids
pH value (25°C)		9 - 10.5
Electr. conductivity (at 25°C)	µS/cm	< 100
Oxygen O ₂ content	mg/l	< 0.05
Alkaline earths Ca ²⁺ , Mg ²⁺	mmol/l	< 0.02
Total hardness	°dH	< 0.1
Chlorides Cl ⁻	mg/l	< 20
Phosphate PO ₄	mg/l	5 - 10

4 Important

- 4.1 If there is a risk of below-zero temperatures (freezing), make sure to contact a specialist firm to determine the type of cooling agent required. Always comply with the specifications of the waste-heat boiler .
- 4.2 You should always check the water quality after filling up larger quantities of make-up water, but at least four times a year using a water-analysis procedure.
- 4.3 If the values in the table (⇒ Quality of circuit water) are not achieved, the customer should contact a specialist outside firm familiar with water treatment.
- 4.4 Always use trisodium phosphate for the basic alkalisation of the filling and make-up water.
- 4.5 Minimum filling pressure:
In the case of plants that use exhaust gas heat and operate on a water/glycol mixture, please observe the following minimum filling pressure values depending on the inlet temperature.

Supply temperature °C	Minimum filling pressure required bar
< 105	3.5
110	4.0

5 Water analysis

Always take the following points into account when performing water analyses:

- 5.1 Sampling should be done properly, as the analysis results can be easily influenced.
Always use clean glass or plastic sample containers.
Always rinse the sample containers thoroughly (3 to 5 times) with the water to be tested before taking the actual sample. In the case of water temperatures in excess of 25 °C, you must take the sample via a cooler which cools down the water to be examined to a temperature of 25 °C.
- 5.2 You should determine the temperature, pH value, oxygen or carbon dioxide content immediately following sample taking on site.
- 5.3 You must carry out the analytical tests according to the analysis instructions for the water quality concerned.
- 5.4 You must exercise great care and be very precise when carrying out the water analysis.
Because of the minute quantities of substances in the water, with an order of magnitude of less than 0.1% and in some cases even less than 0.01%, a water analysis is similar to a chemical trace analysis and therefore requires very sensitive detection methods.
- 5.5 Always use uniform units of measure to indicate the concentrations of substances in the water.

The most common units are "mg/l" or "g/l" or "µg/l".

Sometimes "mol/m³" or "val/kg" are also used.

- 5.6 A one-off water analysis will never guarantee the actual water quality of the water present in the systems over a longer period of time. You should therefore always use average analysis results to assess the water quality.

6 Revision code

Revision history

Index	Date	Description / Revision summary	Expert Auditor
4	09.04.2019	GE durch INNIO ersetzt / GE replaced by INNIO	Opoku <i>Pichler R</i>
3	29.02.2016	Änderung des Mindestfülldruckes (Abschnitt 4.5) / Change of Minimum filling pressure (Section 4.5)	Thummer M. <i>Nota F.</i>
2	13.12.2012	Punkt 2 und 3.2 / Point 2 and 3.2	Bilek <i>Anderson</i>
1	26.05.2012	Umstellung auf CMS / Change to C ontent M anagement S ystem ersetzt / replaced Index: c	Schartner <i>Giese</i>

