



# Sample cooler

IGEMA SC32-SC132



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**Installation and maintenance instruction**



## Product philosophy

**Thank you for placing your trust in IGEMA and deciding in favour of one of our high-quality products.**

For more than 100 years, measuring and control systems have been developed, produced and sold worldwide under the IGEMA brand name.

“Steam is our passion” and we offer you the entire programme for the safe and economic operation of your plants, especially in the steam and condensate sector.

Please read the installation and operating instructions carefully to ensure a safe and reliable operation.

In addition to the information on installation and operation, you will also find important information on maintenance, care, safety and value retention of your measuring and control system.



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# 1. Important safety instructions




## KEEP THESE INSTALLATION AND OPERATING INSTRUCTIONS IN A SAFE PLACE!




Commissioning as well as maintenance and repair work may only be carried out by qualified persons in compliance with the installation instructions given in this operating manual. The correct installation, commissioning, maintenance and operation of the device presupposes that the person in charge is familiar with measurement and control systems and complies with the general installation and safety instructions. In addition, the correct and intended use of tools and the handling of safety devices must be ensured. Unqualified persons must not be assigned the above tasks!

IGEMA GmbH accepts no liability for damage to property or personal injury caused by unqualified persons or by failure to observe these installation and operating instructions. If no sufficiently qualified person can be found, IGEMA GmbH can be commissioned with the installation/maintenance.

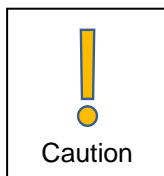
## 1.1 Symbols used in these instructions

In the following installation and operating instructions, safety instructions are marked with the following symbols:

 Danger	This symbol and signal word refer to a potentially hazardous situation which could result in death or injuries if ignored.
 Caution electrical voltage	This symbol and signal word indicate live parts with an immediate danger of death from electric shock.
 Caution hot	This symbol with a signal word indicates a potentially hazardous situation that can result in severe burns and scalds all over the body.

 <p>Caution</p>	<p>This symbol and signal word refer to a potentially hazardous situation which could result in personal injury, property and environmental damage if ignored.</p>
 <p>Caution</p>	<p>This symbol and signal word refer to a potentially hazardous situation which could result in damage to the equipment if ignored.</p>
 <p>Info</p>	<p>This symbol indicates useful information and recommendations as well as measures that will prolong the value of your measuring and control system.</p>

## 1.2 Intended use of the device



Use these installation and operating instructions, the identification on the rating plate and the technical data sheet to check whether the device is suitable for the intended use/application. The device complies with the requirements of the European Pressure Equipment Directive 2014/68/EU.

The device may only be used to indicate fill levels on containers.

The maximum values of the pressure and temperature range of the device must be checked before installation. If the maximum allowable operating values of the device are lower than those of the system on which it is to be installed, protective instruments for the device, such as pressure reducers or similar, must be provided to avoid limit situations. The device may only be used in accordance with the information in these installation and operating instructions or for the parameters and applications agreed in the supply contract (see rating plate). The operator of the direct water level indicator is obliged to familiarise himself on the compatibility of the medium and the device. In case of doubt, contact the relevant installation manager or site manager.

The correct installation position, alignment and flow direction of the device must be observed! Before installing the IGEMA product on boilers or containers, it is essential to remove all protective covers and, if necessary, the protective film from rating plates and sight glasses.

### 1.3 Safety at work



Before installation or carrying out maintenance work on the device, safe access must be ensured and a secure working area with sufficient lighting must be defined and marked out. Always use lifting equipment for heavy loads!

Before starting any work, carefully check which liquids or gases are or have been in the pipeline. (flammable substances, irritating substances, substances hazardous to health) When opening or dismantling the device, residues of the medium can escape. Subsequent fumes are also possible in unpressurized and cold systems. Use designated PPE such as safety goggles and respiratory protection!

Special attention must be paid to the condition of the environment around the installation or maintenance site. Be aware of e.g.: potentially explosive atmospheres, lack of oxygen in tanks and pits, dangerous gases/liquids, extreme temperatures, hot surfaces, fire hazard (e.g. during welding) and moving machine and system components. Protect yourself from excessive noise by taking the required protective measures.

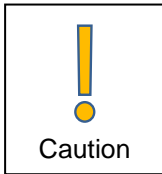
For all maintenance work or new installations, on new or existing boilers or vessels, it is imperative to check that the boiler or vessel has been depressurised and that the pressure has been safely reduced to atmospheric pressure. In principle, no system should be regarded as unpressurized even if indicated by pressure measuring devices such as pressure gauges or sensors. When releasing the pressure, make sure that no persons are in the release area. Carefully check whether you and/or other persons in the vicinity need PPE to protect yourself from external influences such as high and low temperatures, radiation, noise, danger to eyes, loose objects that can fall down or chemicals.

There is always a risk of injury when handling large and/or heavy equipment. Observe the load handling regulation as a minimum requirement for working with loads. Avoid handling the device with your own physical force, e.g. by lifting, pulling, carrying, pushing or supporting it, especially to prevent back injuries. Use lifting equipment to move heavy and bulky equipment in accordance with Article 1, Section 2 of the German Load Handling Regulation (LasthandhabV).



Under normal operating conditions the surface of the device can become very hot! Under the maximum operating conditions, the surface temperature can exceed 350°C. After shutting off or, if necessary, shutting down the boiler, wait until the temperature has normalized to room level. To avoid the risk of burns and scalds, always use PPE including safety goggles!

## 1.4 Safety instructions for this device



These installation and operating instructions are an integral part of the device and must be forwarded to the responsible departments "Goods inward, Transport, Installation, Commissioning and Maintenance". They must be kept in such a way that the technical staff have access to these documents at all times. If the device is passed on to a third party, these installation and operating instructions must also be included in the national language of the third party.

Avoid shocks and hard contact during transport, as this can lead to damage. During intermediate storage, the device must be kept dry and secured against damage.

When servicing the unit, make sure to use sharp-edged internal parts and avoid shards of broken glass. There is a risk of cutting hands and arms! Always wear work gloves when changing packing, valve seat and valve plug.

When returning goods to IGEMA GmbH, the applicable safety and environmental laws according to GGVSEB [German ordinance on the national and international carriage of dangerous goods by road, rail, and inland waterways] must always be observed. If there are any risks to health or the environment due to residues or the device has a mechanical defect this must be indicated when returning the device and the necessary precautionary measures must be taken. If the returned goods are devices that have come into contact with or contain hazardous substances, a safety data sheet must be enclosed, and the goods must be clearly marked. In addition, the hazardous substance must be reported to the logistics service provider.

## 1.5 Exclusion of liability

IGEMA GmbH Measuring and control technology will assume no liability if the above regulations, instructions and safety precautions are not observed and followed. If they are not expressly listed in the installation and operating instructions, changes to an IGEMA device are carried out at the risk of the user.

## 2. Contents of the packaging

1. Sample cooler
2. Installation and maintenance instruction



### 3. General

- These instructions must be carefully read before any work involving products supplied by IGEMA is undertaken.
- The installation procedure is a critical stage in a life of any device and care should be taken to avoid damage to the sample cooler or equipment.
- IGEMA sample coolers are designed to cool samples of boiler water or steam for analysis. They prevent steam flashing-off from hot pressurized liquid samples, which can be dangerous and will result in an incorrect water sample.

#### 3.1 Note

- Current regional safety regulations should be taken in to account and followed, while doing the installation and maintenance work.
- Handling, installation and maintenance work must be carried out by trained personnel. A supervisor must follow and check all activities.
- For the problems that cannot be solve with the help of this instructions, please contact the supplier or the manufacturer.
- The manufacturer reserves the right to change the design and material of this product without notice.

#### 3.2 General Safety Instructions



- If malfunction of any other equipment or system operation failure may result in a dangerous overpressure, over temperature or even vacuum condition, a safety device must be included in the system to prevent such situations.
- Do not touch the equipment without appropriate protection during working operation because it may conduct heat if the used fluid is at high temperature.
- Before starting maintenance be sure that the equipment is not pressurized or hot. Even if upstream and downstream isolating valves have been closed care should be taken since fluid under pressure may be trapped between them.
- The equipment must be used within the working temperature and pressure limits laid down for them, otherwise they may fail (refer to nameplate and/or IS- Information Sheet).

- Manual handling of products may present a risk of injury. You are advised to assess the risks taking into account the task, the individual, the load and the working environment.
- Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine IGEMA replacement parts.
- Do not remove the nameplate attached to the equipment. Serial number and other useful information are stamped on it.
- This unit must not be used for oxygen applications, it has been specially designed for the use specified here.
- During the assembly work, apply protective measures against dirt.
- Correct installation of the equipment is full responsibility of the contractor.
- Sample coolers are designed to be applied in places protected from exposure to weather.
- We recommend special constructions or protective measures for applications on the outside or in adverse environments like corrosion-promoting conditions (sea water, chemical vapours, etc).

## 4. Transport and Storage

### 4.1 Safety instruction



- Handling and lifting of materials should be made with adequate equipment.
- The sample coolers and equipment should be protected from impacts and forces during transportation and storage.
- The manufacturer doesn't assume the responsibility of damaged equipment due to inappropriate handling during the transportation and storage.

## 5. Installation

### 5.1 Safety Instructions



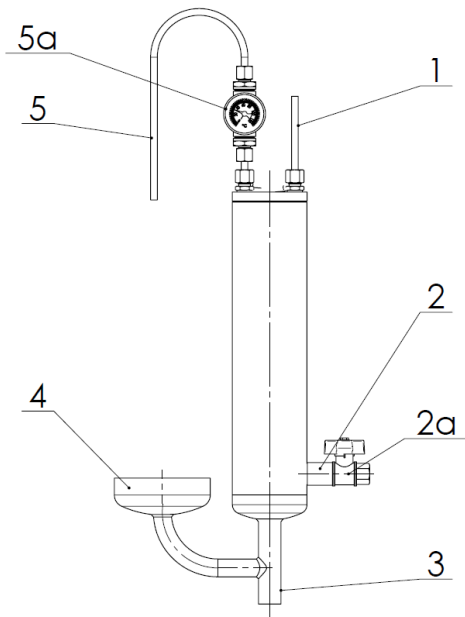
- Account for over pressure conditions, according with the local laws or standards.
- For the problems that cannot be solve with the help of this instructions, please contact the supplier or the manufacturer.

### 5.2 Installation area requirements

- The installation area should have easy access and provide enough space for maintenance and removing operations.
- The pipework before and after the sample cooler, must be sized in order to avoid that the max flow speed recommended, for the fluid in question, is exceeded.
- In order to allow installation and maintenance work without emptying the system, stop valve should be installed upstream of the sample cooler water and steam supply.

### 5.3 Procedure

- Prior to install check that the product is suitable for the intended application: materials and pressure/temperature ratings.
- Before installing remove plastic covers placed on flanges or connection ends. The equipment has arrows or inlet/outlet designations. Be sure that it will be installed on the appropriate direction.
- Take care with jointing material to ensure that none may be permitted to block or enter the sample cooler.
- Sample coolers are recommended to be fitted with the centre line of the cooler in a vertical position to ensure that the best results are obtained.
- Stop valves are necessary on the cooling water and sample inlet.
- The outlet cooling water should be piped into a drain and be free of obstructions or isolation valves.
- The sample cooler pipe work should be properly supported and free from strain and it should not be subjected to undue surges of pressure. The start-up condition should be considered.

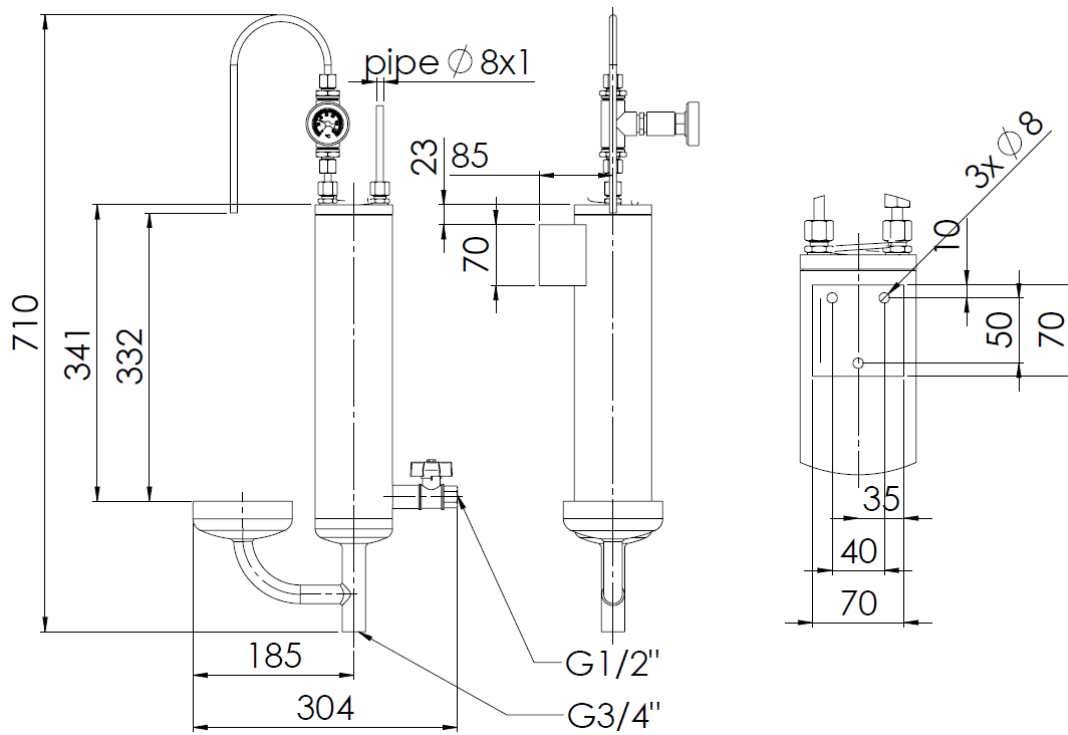


Pos.	Description
	Sample cooler
1	Sample intake
2	Cooling water intake
2a	Colling water valve
3	Draining connection
4	Funnel to take a measuring jug
5	Sample outlet
5a	Thermometer unit

\* Check operating conditions, see catalogue

\*\* Limited to max. 400 °C

## 5.4 Dimensions



## 6. Start up

### 6.1 Safety instruction



#### **Safety notice!**

**The device may become very hot as a result of the flow of the sample medium through it and it must be regularly checked for a good seal. There is a risk of being burnt or scalded. So appropriate protective clothing should be worn and relevant accident prevention regulations should be observed.**

- Current regional safety regulations should be taken into account and followed.
- Protective insulation and warning notice may be required.
- Until the start-up of an existing or a new plant, the following must be checked:
  - All works are completed.
  - The sample cooler is correctly installed.
  - All the necessary safety devices have been installed.
  - At start up, the presence of small particles in the fluid (dirt, scale, weld splatters, joint particles, remains of Teflon tape, etc) may cause an imperfect operation of the cooler. If this occurs, proceed to an accurate cleaning.
  - Protection varnishes from pipes and flanges, fats, leftover paint, graphite, etc, should also be carefully clean, because they can be dissolved in the fluids (like steam) and contaminate the system.
- During operation high flow noises can be heard.
- To avoid the risk of scalding, before open or close the sample inlet valve, make sure that the cooling water it is in the maximum flow.

## 6.2 Procedure to take boiler samples

1. The cooling water stop valve (3) and the sample needle valve (2) should be closed.
2. Open the cooling water valve slowly in order to avoid water hammer damaging, until the input pressure reaches its limit.
3. Open the needle valve slowly so that flashing does not occur. Allow to run approximately 10 seconds until fresh sample is drawn.
4. Adjust the sample outlet temperature (if necessary), by regulating the sample needle valve and the water valve.
5. Make sure that there is an adequate equipment to collect the sample in place.
6. After the sample collection, close first the sample valve and then the water valve but only after a small period of time in order to condense or cool the remaining steam inside the sample cooler.

## 6.3 Periodical checking

- 24 hours after the start up, it is recommended to check the pipe connections for leaks and retighten the connections if necessary.

## 7. Maintenance

- The sample cooler don't need any specific type of maintenance. Regular inspection may be recommended by local authorities according to specific or general pipe and/or vessels assembly procedures.
- For further information refer to relevant SC brochure or consult our sales office.
- When reassembling make sure that all gasket faces are clean and always use a new gasket.

### 7.1 Limiting Conditions

LIMITING CONDITIONS				
	BODY		COIL	
Model	Pressure bar	Related Temp. °C	Pressure bar	Related Temp. °C
SC32 -	20	120	110	400
SC132			90	450

Minimum operating temperature: -10°C

Design code: Igema - Merkblatt

## 8. Products-returning

### 8.1 Safety Instructions

- Information regarding any hazards and precautions to be considered because of contaminating fluids and residues or mechanical damage that may represent a health, safety or environmental risk, must be provided in writing by the distributors and costumers when returning products to IGEMA engineering.
- Health and safety data sheets regarding substances identified as hazardous or potentially hazardous must be provided with the information mentioned above.

## 9. Loss of warranty

- **LOSS OF WARRANTY: Total or partial disregard of above instructions involves loss of any right to warranty.**



This high-quality IGEMA product was designed, manufactured and tested with the application of the QM System guidelines in accordance with DIN EN ISO 9001:2000.

If the device supplied indicates transport damage or gives cause for complaint in spite of our final quality control, please contact our SERVICE department on telephone +49 2501 92424-0 by return.

**IGEMA GmbH**

Antwerpener Str. 1  
48163 Münster  
Deutschland

[www.igema.com](http://www.igema.com)

Fon.: +49 2501 92424-0  
Fax.: +49 2501 92424-99  
[info@igema.com](mailto:info@igema.com)

