

Sample Cooler PK 40

Description

For the safe operation of steam boilers the analysis of boiler water, boiler feedwater and condensate is of great importance. Accurate and true analytical findings require correct sampling methods and properly working analytical instruments.

A water sample can be taken from a steam boiler, a steam regenerator, a feedwater tank or a condensate receiver tank.

For example, if hot uncooled boiler water is taken from a steam boiler for analytical purposes, the risk of accidents for operating personnel will be higher and errors in the water analysis due to flashing will occur. Some of the uncooled boiler water flashes off as flash steam and, as a consequence, the density of the sample will appear higher and does not represent the true salt content (TDS value) of the boiler water. The increased concentration of non-volatile solids in the sample results in an incorrect water analysis and, consequently, excessive boiler blowdown. The GESTRA sample cooler PK 40 is designed to safely cool down the boiler water sample to a reference temperature of 25 °C. As a result a true sample is obtained and the TDS value, pH value and oxygen content truly corresponds to the boiler water. The PK 40 is supplied as an assembled unit ready for installation.

All continuous blowdown valves BA(E)... from GESTRA are equipped with a sampling valve to which the sample cooler PK 40 can be connected.

Function

The pressurised boiler water, boiler feedwater and condensate flows through a high-pressure needle valve and through the cooling coils of the sample cooler PK 40. Completely demineralised water (make-up water) flows in the opposite direction through a ball valve and then through the housing into the cooling water discharge line of the PK 40. At maximum cooling water flowrate the high-pressure needle valve reduces the amount of boiler water coming from the steam boiler until the reference temperature is reached and can be read off the water sample thermometer of the PK 40. The reference temperature is in compliance with the accredited state of the technical art. This representative boiler water sample can now be used for analysis and is drawn from the sample outlet. The sampling and the chemical analysis of the dissolved solids must be in accordance with the pertinent rules and regulations.

Design

PK 40 (standard):

Constructed in high-alloy stainless steel 1.4571, supplied as assembled unit ready for installation and fitted with ball valve, high-pressure needle valve and water sample thermometer. The housing is completely welded, the cooling coils cannot be removed.

PK 40 (for laboratories):

Suitable for sampling applications where the sampling point and the analysis facilities are in separate rooms (e.g. in test laboratories). Design as standard version but the unit is completely assembled, interconnected and mounted on a supporting plate.

Technical Data

Efficiency

1.5 kW with water samples at 200 °C
with 7 l/h sampling flowrate referred to 25 °C

The cooling capacity of the sample cooler PK 40 decreases as the temperature of the cooling water increases.

Materials

Housing and cooling coils:	1.4571
Needle valve:	1.4571
Ball valve:	1.4408

Surface treatment

Outside:	passivated and pickled (optionally: with electropolishing)
Inside:	passivated and pickled

Pressure/Temperature Ratings

Max. service pressure for housing:	10 bar
Max. service temperature for housing:	100 °C
Max. service pressure for cooling coils:	40 bar
Max. service temperature for cooling coils:	260 °C

Mechanical connection (standard version)

Sampling inlet:	Progressive ring fitting 8 mm
Sampling outlet:	Tube \varnothing 8 x 1
Cooling water inlet:	G ½
Cooling water outlet:	Tube ¾"
Thermometer:	G ½

Mechanical connection (version for laboratories)

Sampling IN :	progressive ring fitting 12 mm
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Sampling OUT :	progressive ring fitting 12 mm
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Cooling water IN:	G ½ A
Cooling water OUT:	G ½ A
Thermometer:	G ½

Weight

approx. 8 kg
approx. 20 kg (version for laboratories)

Sample Cooler PK 40

Order & Enquiry Specification

GESTRA Sample cooler type PK 40 (standard)

with welded cooling coils, pressure reducing valve mounted at sampling inlet, thermometer and shut-off valve for cooling water. PK 40 is assembled and ready for wall mounting.

Materials:

Housing and cooling coils: 1.4571

Surface treatment:

passivated and pickled

Pressure/temperature range:

Max. service pressure for housing: 10 bar
Max. service temperature for housing: 100 °C
Max. service pressure for cooling coils: 40 bar
Max. service temperature for cooling coils: 260 °C

Weight:

approx. 8 kg

GESTRA Sample cooler type PK 40

(version for laboratories)

Suitable for sampling applications where the sampling point and the analysis facilities are in separate rooms (e. g. in test laboratories). Design as standard version but the unit is completely assembled, interconnected and mounted on a supporting plate.

Materials:

Housing and cooling coils: 1.4571

Surface treatment:

passivated and pickled

Pressure/temperature range:

Max. service pressure for housing: 10 bar
Max. service temperature for housing: 100 °C
Max. service pressure for cooling coils: 40 bar
Max. service temperature for cooling coils: 260 °C

Weight:

approx. 20 kg

Available on request at extra cost:

Type PK 40: version for laboratories

Material inspection certificate according to DIN EN 10204-3.1. All inspection requirements have to be stated with the order. After supply of the equipment certification cannot be established.

Surface treatment, outside: electropolished.

PED (Pressure Equipment Directive)

The equipment fulfills the requirements of the Pressure Equipment Directive PED 97/23/EC.

For use with fluids of group 2.

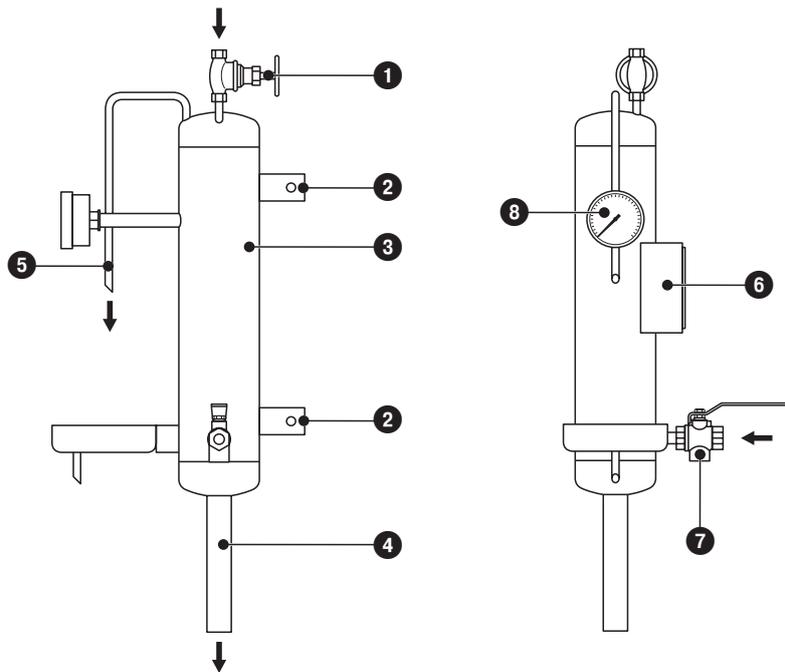
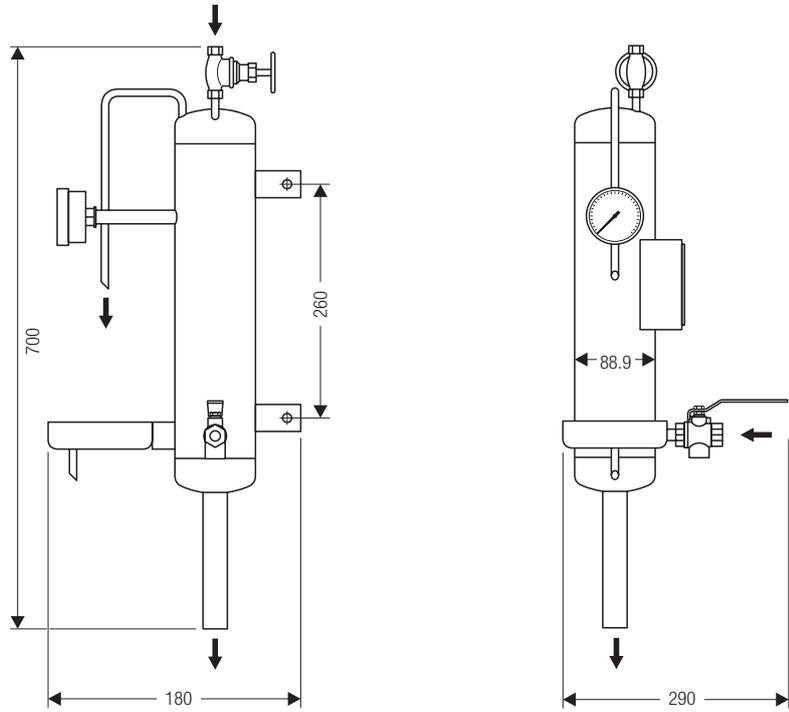
The equipment is excluded from the scope of the PED according to Article 3.3 and must not bear a CE marking.

ATEX (Atmosphère Explosible)

The equipment does not have its own potential source of ignition and is therefore not subject to the ATEX Directive 94/9/EC. Applicable in Ex zones 0, 1, 2, 20, 21, 22 (1999/92/EC). The equipment does not bear an Ex marking. For more information refer to our ATEX Declaration of Manufacturer.

Supply in accordance with our general terms of business.

Dimensions



Key

- | | |
|------------------------------|--------------------------------|
| 1 High-pressure needle valve | 5 Sample OUT |
| 2 Fixing strap | 6 Name plate |
| 3 Housing PK 40 | 7 Ball valve |
| 4 Cooling water OUT to drain | 8 Thermometer for water sample |

GESTRA AG

Münchener Straße 77, 28215 Bremen, Germany
Telefon +49 421 3503-0, Telefax +49 421 3503-393
E-mail info@de.gestra.com, Web www.gestra.de

