FLOWSERVE GESTRA

GESTRA Steam Systems

BK 37
BK 28
BK 29

GB

Installation Instructions 818689-00

Steam Trap
BK 37, BK 28, BK 29
BK 37 ASME, BK 28 ASME, BK 29 ASME

Lloyd's Register
PRESSURE EQUIPMENT DIRECTIVE

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Important Notes

Usage for the intended purpose

Use steam traps BK 37..., BK 28... and BK 29... only for the discharge of condensed water or for air-venting in steam lines within the admissible pressure/temperature ratings. Check the corrosion resistance and chemical suitability of this pressure equipment for the application in question.

Safety note

The equipment must only be installed and commissioned by qualified staff.

Maintenance and service work must only be performed by adequately trained persons who have a recognised level of competence.

Danger

The steam trap is under pressure during operation.

When loosening flanged connections, sealing plugs or the regulator, hot water and/or steam may escape. This presents the risk of severe scalding.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar): isolate the trap from both upstream and downstream pressure.

The trap becomes hot during operation. This presents the danger of severe burns to hands and arms. Installation and maintenance work should only be carried out when the system is cold (20 °C).

Sharp edges on internal parts present a danger of cuts to hands. Always wear industrial gloves when replacing the regulator.

Attention

The name plate indicates the technical specification of the equipment.
Do not commission or operate a steam trap without name plate.

PED (Pressure Equipment Directive)

The equipment fulfills the requirements of the Pressure Equipment Directive PED 97/23/EC.
For applications with fluids of group 2. With CE marking (apart from equipment according to section 3.3).

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. The equipment can be used in potentially explosive areas 0, 1, 2, 20, 21, 22 (1999/92/EC). The equipment is not Ex marked.

Explanatory Notes

Scope of Supply

BK 37:
1 Steam trap type BK 37
1 Installation manual

BK 28:
1 Steam trap type BK 28
1 Installation manual

BK 29:
1 Steam trap type BK 29
1 Installation manual

Description

Thermostatic/thermodynamic steam trap with corrosion-resistant Thermovit Duo s.s. regulator unaffected by waterhammer. The trap features:

- Integral strainer
- Non-return valve action
- Asbestos-free cover gasket (graphite/CrNi)
- Installation in any position

The factory setting enables the steam trap to discharge condensate with virtually no banking-up.

Function

During start-up of the plant the Duo stainless steel plates are flat. The service pressure acts in the opening direction, the valve is completely open. As the condensate temperature rises, the plates deflect, drawing the stage nozzle towards the closed position. As the condensate temperature sinks, the deflection of the Duo stainless steel plates decreases and the steam trap opens at the adjusted opening temperature.

The thermostatic and spring characteristics of the stack of plates are balanced such that condensate is always discharged at a given undercooling temperature.

The trap provides automatic air-venting at start-up and during operation. BK 37..., BK 28... and BK 29... can also be used for thermal air-venting in steam systems.

Technical Data

Corrosion Resistance

If the steam trap is used for the intended purpose, its safety is not impaired by corrosion.

Sizing

The trap body must not be subjected to pulsating loads.
The dimensional allowances for corrosion reflect the latest state of technology.

Name Plate/Marking

The pressure/temperature ratings are indicated on the trap body/the name plate. For more information see GESTRA data sheets and Technical Information.

According to EN 19 the name plate and the valve body indicate the type and design:

- Name/logo of the manufacturer
- Type designation
- Pressure class PN or Class
- Material number
- Max. temperature
- Max. pressure
- Flow direction
- Stamp on valve body, e.g. $\frac{1}{06}$ specifies the quarter and the year of production (Example: 1st quarter 2006).

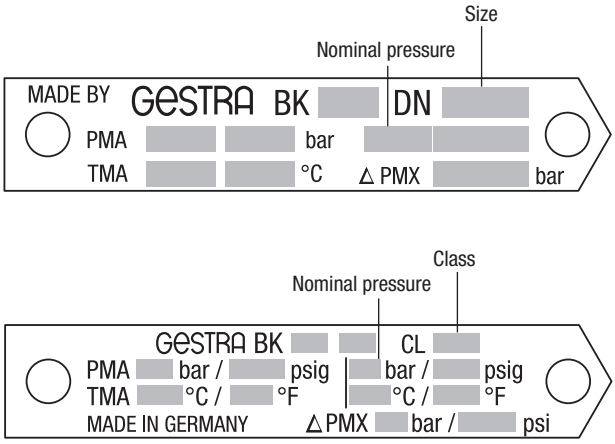

Fig. 1

Design

Component Parts BK 37, BK 37 ASME

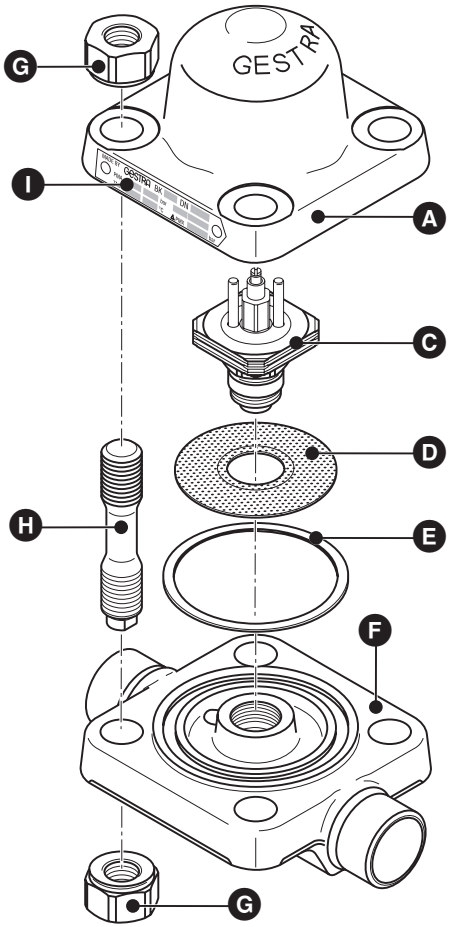

Fig. 2

Component Parts BK 28, BK 28 ASME, BK 29, BK 29 ASME

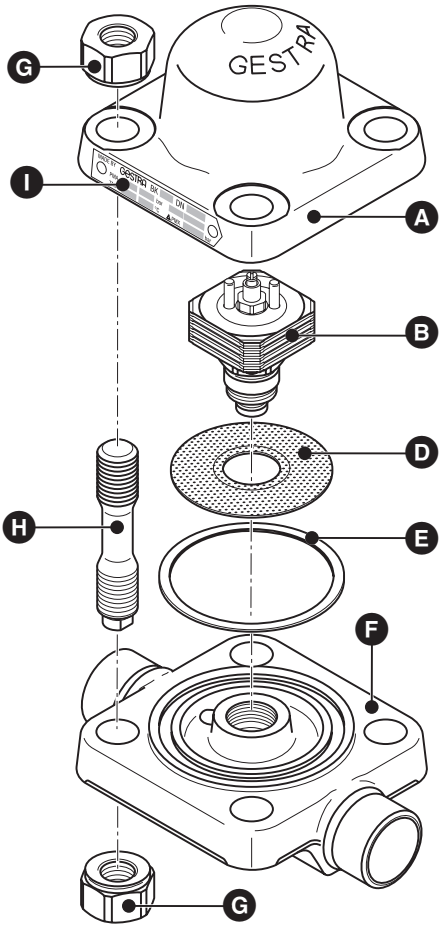

Fig. 3

Design – continued –

Key

- **A** Cover
- **B** Thermovit regulator BK 28, BK 28 ASME, BK 29, BK 29 ASME
- **C** Thermovit regulator BK 37, BK 37 ASME
- **D** Strainer
- **E** Gasket
- **F** Body
- **G** Hexagon nut (DIN 2510)
- **H** Expansion bolts (DIN 2510)
- **I** Name plate

Installation

BK 37, BK 37 ASME, BK 28, BK 28 ASME, BK 29, BK 29 ASME

Provided that the flow arrow (the arrow points towards the direction of flow) is taken into consideration, the trap can be installed in any position. In the case of a horizontal installation make sure that the cover is on top.

Flanged design

1. Take care of correct position of installation.
2. Take care of flow direction. The flow arrow is on the trap body.
3. Consider space required for opening trap. When the trap is installed a minimum space of **80 mm** is required for removing cover Ⓐ.
4. Remove plastic plugs. They are only used as transit protection.
5. Clean seating surfaces of both flanges.
6. Install steam trap.

Socket-weld design

1. Take care of correct position of installation.
2. Take care of flow direction. The flow arrow is on the trap body.
3. Consider space required for opening trap. When the trap is installed a minimum space of **80 mm** is required for removing the cover Ⓐ.
4. Remove plastic plugs. They are only used as transit protection.
5. Remove regulator as described under **Maintenance**.
6. Clean socket-weld ends.
7. Arc-weld trap (welding process 111 and 141 in accordance with ISO 4063).

Installation – continued –

Butt-weld design

1. Take care of correct position of installation.
2. Take care of flow direction. The flow arrow is on the trap body.
3. Consider space required for opening trap. When the trap is installed a minimum space of **80 mm** is required for removing the cover Ⓐ.
4. Remove plastic plugs. They are only used as transit protection.
5. Clean butt-weld ends.
6. Arc-weld trap (welding process 111 and 141 in accordance with ISO 4063) or use gas-welding process (welding process 3 in accordance with ISO 4063).

Attention

- Only qualified welders certified e. g. according to DIN EN 287 may weld the steam trap into pressurized lines.
- Do **not** insulate the steam trap.

Heat Treatment of Welds

After welding the steam trap in place a heat treatment of the welds is required (stress-relief annealing to DIN EN 100529). The heat treatment must be restricted to the immediate area of the welds. Remove the regulator as described under **Maintenance** before carrying out the heat treatment.

Tools

- Spanner A. F. 24 mm, DIN 3113, form B

Commissioning

BK 37, BK 37 ASME, BK 28, BK 28 ASME, BK 29, BK 29 ASME

Make sure that the flanged connections of the BK 37..., BK 28... or BK 29... are permanently bolted and tight.

Attention

The steam trap is under pressure at start-up and during the operation.

The steam trap becomes hot during operation. This presents the risk of severe burns to hands and arms.

Always wear industrial gloves when setting the regulator.

Installation and maintenance work may only be carried out when the system is depressurised (zero bar).

Make sure that the lines upstream and downstream of the trap are **not** under pressure!

Operation

BK 37, BK 37 ASME, BK 28, BK 28 ASME, BK 29, BK 29 ASME

Please note that maintenance may be required for certain operating modes (see **Maintenance**).

Thermovit regulator

The factory setting of the Thermovit regulator enables the regulator to be steam-tight when closed and to open just before the pressure-dependent boiling temperature is reached.

Maintenance

GESTRA steam traps type BK 37... BK 28... and BK 29... do not require any special maintenance. However, if used in new installations which have not been rinsed it may be necessary to check and clean the trap.

Replacing Regulator

1. Remove cover Ⓐ from body Ⓕ, **Fig. 2, Fig. 3**
2. Remove regulator Ⓑ or Ⓒ using a spanner.
3. Unscrew regulator Ⓑ or Ⓒ and take off strainer Ⓓ.
4. Clean body, regulator, cover and strainer.
5. Clean gasket seating surfaces and insert new gasket Ⓔ.
6. Clean sealing surfaces of regulator Ⓑ or Ⓒ and body Ⓕ.
7. Replace strainer Ⓓ.
8. Screw in regulator Ⓑ or Ⓒ and tighten with a torque of **100 Nm**.
9. Apply heat-resistant lubricant to threads of the expansion bolts Ⓗ (use for instance MOLYKOTE HSC+®)
10. Replace cover Ⓐ. Insert expansion bolts Ⓗ and tighten hexagon nuts Ⓖ at room temperature in diagonally opposite pairs with a torque of **225 Nm**.

Tools

- Spanner A.F. 24 mm, DIN 3113, form B
- Torque spanner 20-100 Nm, ISO 6789
- Torque spanner 80-400 Nm, ISO 6789

Torques required for tightening

Item	Designation	Torque [Nm]
Ⓑ / Ⓒ	Thermovit regulator	100
Ⓖ	Hexagon nut	60

All torques are based at 20 °C room temperature.

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Spare Parts

BK 37, BK 37 ASME, BK 28, BK 28 ASME, BK 29, BK 29 ASME

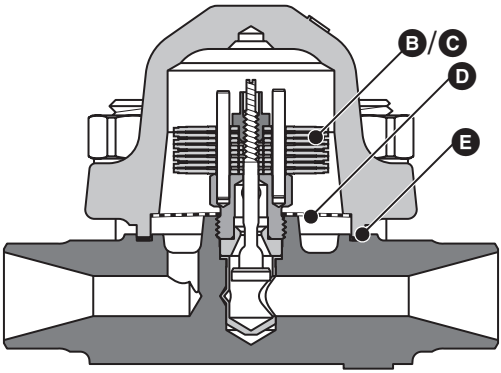

Fig. 4

Spare parts list

Item	Designation	Stock code
B	Regulator for BK 28..., BK 29..., complete including cover gasket E	370281
C	Regulator for BK 37..., complete including cover gasket E	377722
E	Gasket (graphite/CrNi)	372095
D	Strainer	096701

Decommissioning

Danger

Risk of severe burns and scalds to the whole body!
Before loosening flanged connections or sealing plugs, make sure that all connected lines are depressurized (zero bar) and cooled down to room temperature (20 °C).

Disposal

Dismantle the trap and separate the waste materials, using the specifications in the table “Materials” on page 9 as a reference.
For the disposal of the trap observe the pertinent legal regulations concerning waste disposal.

For your notes

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