



***GESTRA***

***Steam System Solutions***

*Steam Traps and Valves for Energy Industries · Electronic Controls · Automation  
Special Equipment and Vessels for Heat Recovery*



***Experience In Motion***



## GESTRA History

### Saving Energy for Over 100 Years

The GESTRA product line offers single source steam system solutions product line offering:

- ▶ Steam Traps
- ▶ Steam Trap Monitoring Equipment
- ▶ Steam Trap Testing Equipment
- ▶ Condensate Return Pumps
- ▶ Condensate Return Check Valves
- ▶ Condensate Turbidity Monitoring Instrumentation
- ▶ Boiler Intermittent Blowdown Valves
- ▶ Boiler Continuous Boiler Blowdown Valves
- ▶ Boiler Level Instrumentation
- ▶ Severe Service Boiler Feedwater Recirculation Valves
- ▶ Severe Service Attemperator Spray Valves
- ▶ Severe Service Soot Blower Pressure Regulating Valves
- ▶ Flash Vessels
- ▶ Condensate lifting pots
- ▶ Steam Driers
- ▶ Attemperators
- ▶ Waterbath Desuperheaters

Founded in 1902 by Gustav Friedrich Gerdt in Bremen, Germany, GESTRA holds 213 national and international patents for safety and energy conservation of steam related products and systems. GESTRA's vision was to develop a complete range of innovative products based on the following core principles:

- ▶ Energy Conservation by minimizing steam usage
- ▶ Boiler Safety and Maximizing Efficiencies
- ▶ Increased Service Life and Operational Reliability





## GESTRA Steam traps, Trap monitoring

### Steam traps

For all your steam trap applications. GESTRA provides you with built-in energy savings, proven quality and excellent performance.

#### Membrane traps MK – Class 300



Up to 465 psi differential pressure depending on version

The capsule of these traps enables precision control in discharging condensate. These traps are used in various applications such as drip, tracing and air venting. Zero steam loss should make them your choice.

#### Bimetallic traps BK – Class 300–2500



Up to 3625 psi differential pressure depending on version

The bimetallic regulator is extremely versatile and robust. It can withstand water hammer and is unaffected by superheated steam. Sub-cooling approximately 18 °F over the complete pressure range makes it the right choice for numerous applications.

#### Thermodynamic traps DK – Class 300–600



Up to 609 psi differential pressure depending on version

From the standard trap DK 57 and DK 47, the new thermodynamic DK 45, which comes in any end connection you might need, to the DK 36A/7 for your universal connector.

#### Float traps UNA – Class 150–1500



Up to 2030 psi differential pressure depending on version

Float traps used as liquid drainers or for constant drain of hot condensate are a large part of the product line. They vary depending on pressure, condensate flow rate and differential pressure. The ideal product if you cannot afford any backing up of condensate, or if you have to cope with sudden fluctuations of pressure and condensate flow rate.

#### Universal connectors and traps



- ▶ Compact stainless steel construction
- ▶ Membrane, bimetallic, and thermodynamic technologies
- ▶ Above technologies are not position or orientation sensitive
- ▶ Inherent thermodynamic weather jacket

#### Trap station



- ▶ All welded stainless steel construction
- ▶ Upstream bypass and downstream test ports
- ▶ Low profile design
- ▶ Suitable for pressure up to 465 psi



## GESTRA Steam traps, Trap monitoring

### Trap monitoring

Evaluating whether a trap works properly is an important theme when you think of site availability and energy savings.

GESTRA offers equipment for continuous monitoring of critical applications, as well as intermittent monitoring for general service.

#### Sight glass VK 16 – Class 150



Applicable up to 147psi at 572 °F depending on version

The built-in deflector makes the flow in the pipeline visible. Steam loss or blocked traps become obvious if you take a look at this sight glass. The mica disc allows a visual control even if your condensate has a ph-value, up to 10.



#### MK 45-1, NRG 16-27, NRA 1-3, VKE + NRG 16-19 and UNA with Flanges

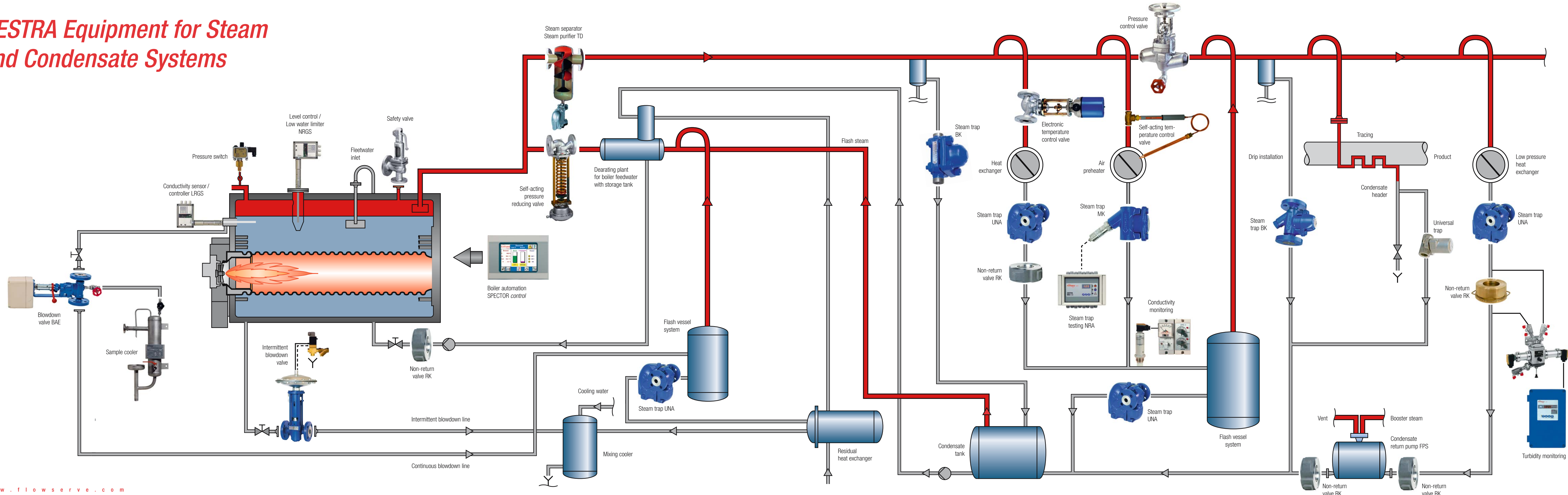
- ▶ Continuous remote monitoring for critical or inaccessible applications
- ▶ Conductivity electrode signals loss of live steam or backing up of condensate
- ▶ Up to 16 traps can be monitored per controller

#### VKP 40 / -40 Ex

- ▶ Handheld five key terminal for diagnosing steam trap performance
- ▶ Intrinsically safe for hazardous locations
- ▶ Provides real time graphical representation of ultrasonic signature
- ▶ Database can be easily exported to a spreadsheet format for trap program management



# GESTRA Equipment for Steam and Condensate Systems





## GESTRA Condensate Return Equipment

### Check valves and condensate pumping systems

Preventing valves, pumps and complete piping systems from damage that results from backflow of liquids is insured by the use of non return valves. Experience led the way to lightweight wafer type products with excellent flow rates and low pressure drops.

#### Non return valves in wafer design RK 1/2" to 8"



Applicable up to 348 psi at 1022 °F depending on version

Manufactured in several different materials, these valves are appropriate to prevent backflow of many different fluids or gases. The wafer design reduces size and weight.

#### Swing check valves in wafer design CB 2" to 12"



Applicable up to 348 psi at 1022 °F depending on version

Short overall length and full opening with low pressure drop, makes these valves an excellent choice. Various materials for both body and seats make them real alternatives to classic flange swing check valves.

#### Dual plate check valves BB 4" to 48"



Applicable up to 1090 psi at 1000 °F depending on version

The perfect solution when you require low pressure drop. The split disc design of these valves and different springs result in low pressure drop, no matter what gas or liquid we are talking about. For severe service where hydraulic water hammer might destroy your complete piping system, an additional dampening system on these valves could be your solution.

#### Oil & Turbidity Detection

With an optical device we are able to detect 2 ppm oil in the boiler feed water. This is important where oil can contaminate the condensate through heat exchangers. The oil must be discarded in order to protect the steam boiler to serious damage. This unit can be used on ships as a bilge oil monitor as well.



OR 52-5

#### FPS14



- ▶ All pumps are ASME code stamped vessels
- ▶ The mechanical mechanism is a single, compression spring design offering a lifetime spring warranty, in addition to a two year overall warranty
- ▶ Mechanical version is intrinsically safe & suitable for submerged applications
- ▶ The FPS has the ability to pump condensate at temperatures up to 300° F
- ▶ Skid mounted systems available in simplex, duplex, or triplex versions, complete with the receiver tank, all interconnecting piping and isolation valves
- ▶ Competitor retrofit models available



## GESTRA Blowdown and Control Valves

### Boiler safety and control

#### BA Series (Continuous Blowdown Valves)



Multistage trim provides precise boiler blowdown controllability and extended valve service life. Available in three ANSI classes for applications up to 3,280 PSIG. Designed for extended service life with flashing flow conditions and high pressure drops. Rotary 0-100 degree manual scale provides optimum settings. Available with automation, conductivity probe, and controller for precise TDS control. Two year warranty.

#### PA Series (Intermittent Blow Off Valves)



Large annular orifice and rapid action provide effective sludge removal for blow-Off applications. Minimal treated water loss. Available in three ANSI classes for applications up to 3,280 PSIG.

ANSI B31.1 approved with upstream block valve. Designed for high pressure drop applications. Available with actuator and controller for timed actuation. Two year warranty.

#### Boiler Safety

For the highest boiler safety, GESTRA developed the self monitoring low level alarm system. This system consists of a self monitoring single electrode and a redundant, self checking low level switch. This system is world wide proven and accepted.



NRG 16-40 and NRS 1-40

#### Level Control

Even the highest steam demand in critical boiler applications is under control with our modulating level control system consisting of a capacitance level sensor combined with a specially designed controller and display module.



NRG 26-40 and NRR 2-40 and URB 2

For smaller boilers in a non demanding environment an intermittent level control with integrated low and high level alarm can be used. This device combines all signals a modern boiler control must have in a single housing.



NRGS 15-1

#### Conductivity control

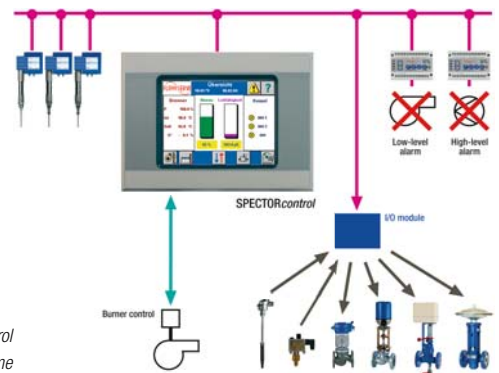
To maintain a good water quality it is essential to discharge a certain amount of water from the boiler. The GESTRA TDS system (Total Dissolved Solids) automatically controls the water quality in combination with a continuous blowdown valve BAE 46.



LRGT 16-1 and BAE 46 and KS 90

#### Automation

With our latest digital technology it is possible to transfer all boiler house related data, including the burner control data, to a higher ranking control system. With a simple Internet Browser you can have online access to your boiler plant without additional software expenses. The touch panel contains a 5 loop controller for the various control purposes in a boiler house.



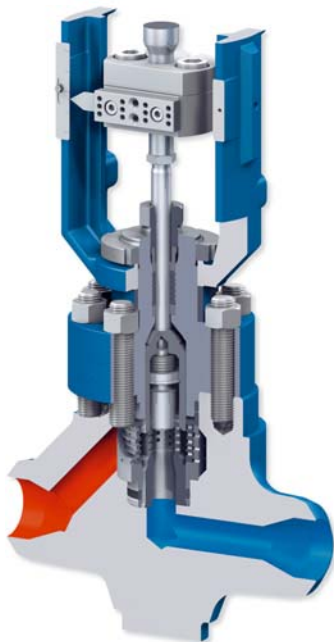
SPECTORcontrol scheme



## More safety and service

### ZK 313

- ▶ 2500+ class up to 12" with pressure drops up to 4000+ psi
- ▶ Configureable CV with linear or equal percentage characteristics
- ▶ Two year Class V shutoff guarantee
- ▶ Startup, recirculation, feedwater, soot blower, and desuperheater applications



Whoever thinks about valves and control technology immediately thinks GESTRA. We are not only one of the largest manufacturers of such products, but also one of the international leaders. Four golden rules are followed by GESTRA:

- ▶ **Develop products that meet the wide-ranging needs of the customer.**
- ▶ **Always give the client a complete solution to the problem.**
- ▶ **Always offer components with the highest reliability.**
- ▶ **Always keep control. Especially where liquid and gaseous media flow.**

And so GESTRA products are used wherever steam or hot water is generated, distributed or used. Wherever the highest level of safety is demanded. Wherever energy has to be saved and wherever environmental protection plays an important role.

Authorized representatives in over 70 countries ensure that the world is supplied with GESTRA products. They are there to answer questions and offer advice and service many, many thousands of miles away from Bremen. So that we can be justified in saying: Not only are we always there for you, we're everywhere for you.





GESTRA



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