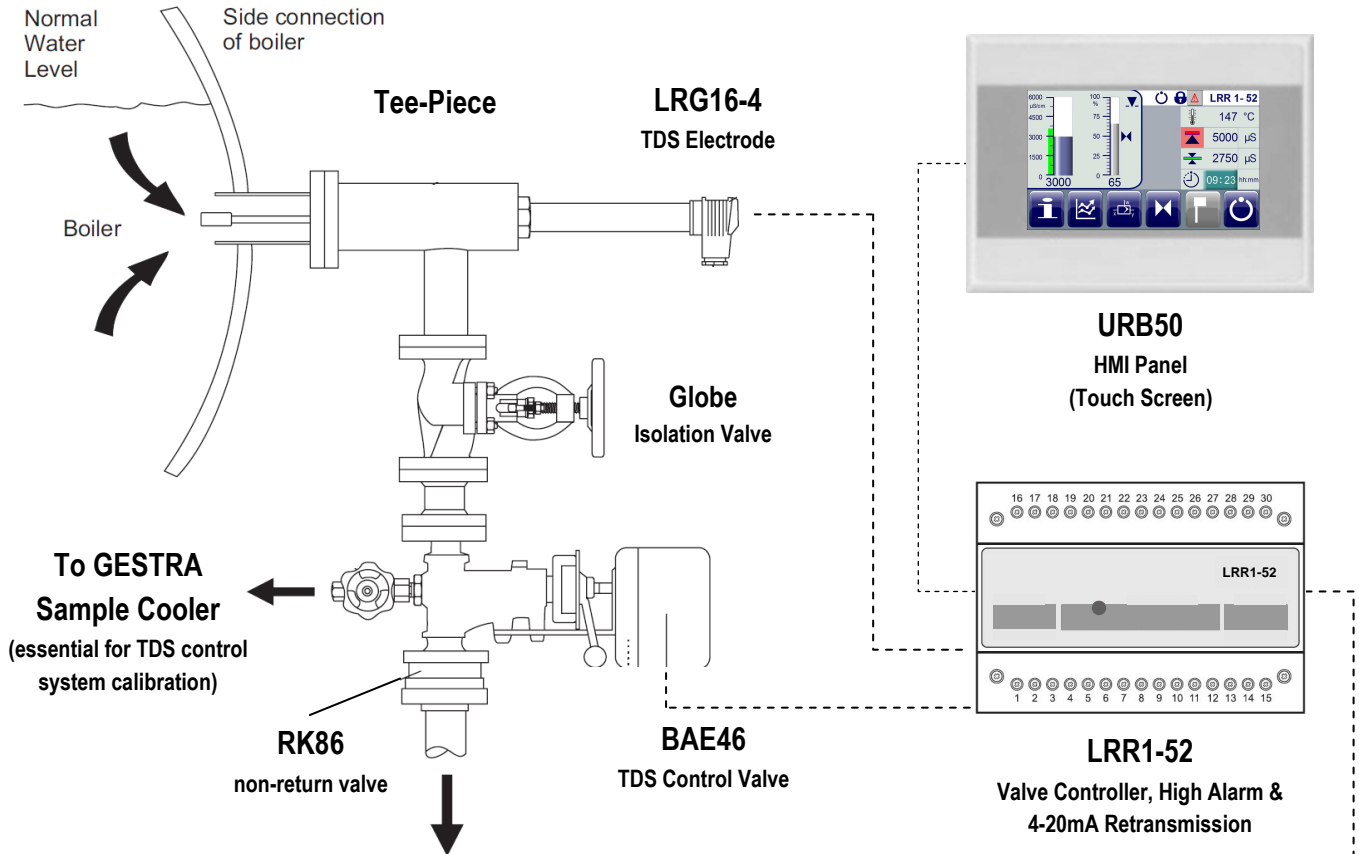


## GESTRA Steam Solutions

### T3 TDS Blowdown System - A New Generation of Advanced TDS Control System with Touch Screen Control

The *GESTRA* SpectorMODUL 'TOUCH' T3 TDS system incorporates the very latest in touch screen and control technology to provide a boiler water conductivity control system (in line with the latest SAFed BG01 boiler operation guidelines issued in October 2011). The system is suitable for applications to a maximum of 32 bar g.



- Fully automatic TDS control
- Intuitive colour touch screen interface
- Clear graphical and digital TDS display with easy access to control parameters
- Temperature compensation feature
- In-built intermittent blowdown timer with 'multiple-burst' mode
- Alarm history and 'trend' information.
- Password protection
- Easy to install, commission and operate
- Single boiler connection for TDS sensor and blowdown
- Reduces water consumption and effluent disposal charges
- Accurate TDS control and no sampling losses saves energy and chemical costs.

**Optional: MPA46**  
Intermittent Blowdown Valve  
(not included)

For Illustration Only:  
Please refer to IOM  
documents for  
recommended  
installation guidance.

## SYSTEM CONCEPT

The SpectorMODUL TOUCH 'T3' TDS control system uses a single electrode mounted directly into the boiler shell via a 'tee-piece' arrangement. This allows the use of a single connection to measure and draw out TDS contaminated water from the boiler.

This installation arrangement allows continuous conductivity monitoring of the water within steam boilers and ensures good control of boiler blowdown in order to minimise un-necessary sampling & purging, excessive blowdown and carry-over into the process resulting in poor quality steam.

Boiler TDS is controlled by the well proven LRG16-4 electrode together with a dedicated digital valve controller comprised of the DIN rail mounted LRR1-52 and panel mounted URB50 HMI panel. All parameters are entered via this colour screen. The control valve is the robust BAE46 unit with a forged steel body and multi-stage internal parts for longevity.

This icon based system is intended to be easy to understand and simple to use. All set points and TDS levels are shown clearly and concisely on the 'Home' screen.

TDS, Control Valve Position and Alarm Set point(s) are also displayed on a clear and easy to read colour graph.

The controller also has the following features:

- Accurate TDS regulation using 'PI' control loop.
- PT100 input for temperature compensated TDS control.
- Built-in intermittent blowdown timer with an innovative 'multi-burst' feature which operates the blowdown valve a number of times in quick succession to improve the effectiveness of the process.
- 4-20mA output of the actual TDS is standard.
- Display in microS/cm or PPM

- 4 digit password protection.
- Alarm history and 'trend' display for Set point, Alarms, TDS readings and Valve position.

## OPERATION

The electrode tip is positioned in the boiler (usually at approximately centreline of the shell) so that it is sufficiently submerged under the water surface so as not to be exposed even at low water levels.

The tip continuously senses the boiler water condition and sends the measurement back to the LRR controller. The controller will then open or close the valve to any position necessary in order to control the conductivity level to the desired set point.

The electrode and valves are suitable for boiler pressures of up to 32 barg (465 psig). The control system can cope with boiler operating conditions from standby to full load and with varying feed water qualities with the measured conductivity range from 1 to 10,000 microS/cm.

## EQUIPMENT SPECIFICATION

The T3 system comprises of:

### 1 off M2380 Electrode Tee-Piece

Carbon steel fabricated construction.

Boiler connection: DN15-40.

Branch Connection: DN15-40

PN40 flanged connections.

### 1 off LRG16-4 TDS Electrode

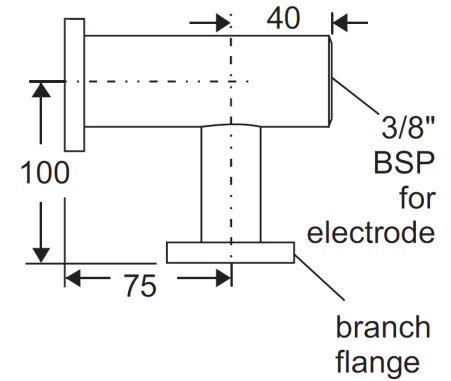
Stainless steel construction with PTFE outer sheath.

300mm tip length as standard (non-adjustable). For other lengths, please contact us.

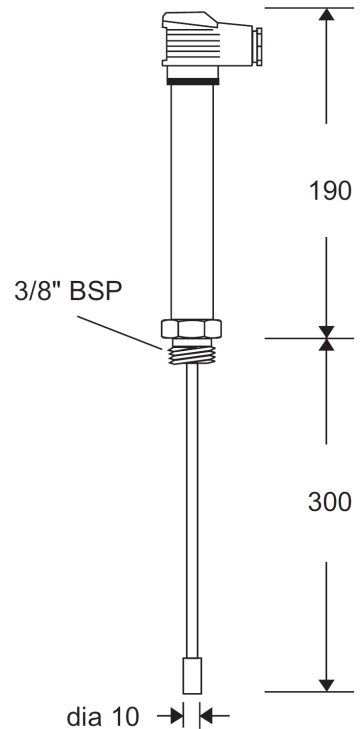
3/8" BSP process connection to suit the M2380 tee-piece.

Max. boiler pressure and temperature: 32 barg, 238 degC.

## Tee-piece

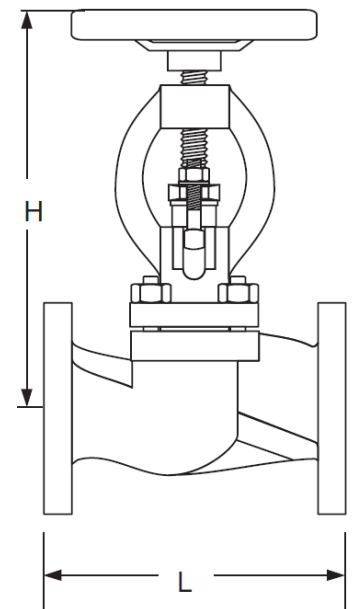


## LRG16-4



## 1 off Globe Isolation Valve

Cast steel construction, PN40 flanged connections. Stainless steel internals and graphite packing.

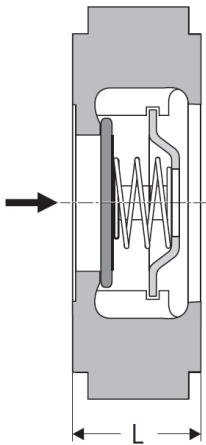


SIZE,	15	20	25	40
L, mm	130	150	160	200
H, mm	195	195	220	250

**Isolation Valve Dimensions:**

**1 off RK86 Non-return Valve**

Chrome steel construction, wafer pattern body to suit PN40 flanges. Stainless steel internals .



**RK86**

SIZE,	15	20	25	40
L, mm	16	19	22	31.5

**Non-return Valve Dimensions:**

**1 off BAE46-1 TDS Control Valve**

Forged steel body with multi-stage stainless steel internals. PN40 end connections.

Supplied complete with sample valve.

Manual over-ride handle.

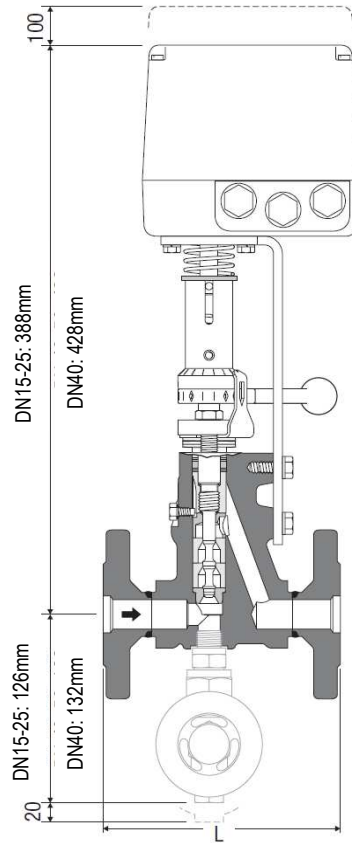
Fitted with EF1 type electric actuator. Supply voltage: 115Vac or 230Vac.

Internal potentiometer for valve position feed back

All metal housing with IP65 rating.

Max. boiler pressure and temperature: 32 barg, 238 degC.

For capacities, please refer to datasheet 818604.



**BAE46**

SIZE,	15	20	25	40
L, mm	150	150	160	200

**TDS Valve Dimensions:**

**1 off LRR1-52 Controller and URB50 HMI Interface**

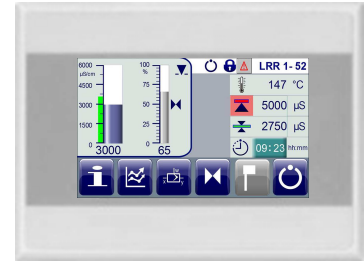
Digital conductivity controller for use with LRG16-4 electrode. Additional relay outputs configurable as conventional High and Low alarm functions. (NOTE: Low alarm relay is not available when blowdown timer is configured for use).

Intuitive operation and easy commissioning by colour touch screen interface. Large, clear display of water level (bar graph & '%'), together with alarm and pump set points.

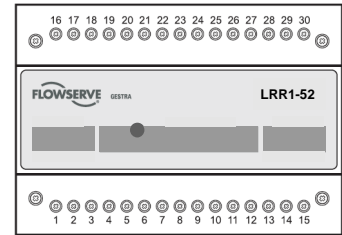
Alarm & relay test feature and local 'trend' plot display. 4-20mA level re-transmission is standard.

Password protection feature is also included.

Manual TDS valve control mode.



**URB50  
HMI Panel  
(Touch Screen)**



**LRR1-52  
Valve Controller, High Alarm &  
4-20mA Retransmission**

**OPTIONAL EQUIPMENT:**

We can provide a metal enclosure for wall mounting. The controller and HMI panel are ready installed and pre-wired to a terminal strip complete with power isolator, breakers, & relays. Just connect electrode, valve, power and alarm/safety circuits.

Our engineers will be pleased to quote for specific requirements you may have.

**Information required when ordering**

- 1) Boiler maximum working pressure;
- 2) Boiler blowdown rate;
- 3) Electrode length required;
- 4) Boiler connection and TDS line size
- 5) Control system voltage: (24VDC, 115Vac or 230Vac).

**NOTE:** GESTRA controllers and switches require a 24VDC supply. Depending on your requirements, a voltage transformer can be supplied to reduce the 115/230Vac incoming supply accordingly.

**Installation & Service**

GESTRA can provide full product support, installation, commissioning and servicing nationwide. Please refer to our Service Brochure for further details.

Think **GESTRA** for your steam, condensate and boiler house products

**Boiler Level Controls & TDS Blowdown Systems**

**Feed Water Tanks & Systems**

**Heat Recovery Systems**

**Pressurised Deaerator Systems**

**Condensate Pump Sets**

**Steam Traps**

**Manifolds**

**Trap Testing & Monitoring Systems**

**Non-Return Valves**

**Control Valves, Actuators & Controls**

**Pressure Reducing Stations**

**Separators**

**Stop Valves**

**Strainers**

**Safety Valves**

**Pressure & Temperature Gauges**

**Sight Glasses**

**Contamination Detection Systems**

**Flow Metering**