

TDS Blowdown Conductivity Probe

BID 5600-T

Installation and Operating Instructions

EN

English

CONTENT

| | |
|---|-----------|
| 1.SAFETY INFORMATIONS | II |
| 2.GENERAL INFORMATIONS | 1 |
| 2.1 Description | 1 |
| 3.TECHNICAL SPESIFICATIONS | 2 |
| 4.INSTALLATION and WIRING | 3 |
| 4.1 Installation..... | 3 |
| 4.2 Wiring..... | 4 |
| 5.COMMISSIONING | 5 |
| 6.MAINTANANCE | 6 |

1. SAFETY INFORMATION

Installation, commissioning and maintenance of this device must be done by a qualified personnel in compliance with the operating instructions. Otherwise device and related equipments may be damaged and personnel may be injured. General installation and safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

National and local regulations must be taken into consideration.



Warning!

Please make sure to remove the main supply before installation. Otherwise this may cause damage to the product, personal injuries or even death

1.1 Tools

Before starting work, make sure that you have suitable tools and consumables available.

1.2 Temperature

Let the temperature to cool down after isolation to avoid danger of burns.

1.3 Freezing

Required precautions must be taken at the places where they may be exposed to temperatures below freezing point.

1.4 Lighting

Make sure there is enough lighting, particularly where detailed or tough work is required.

1.5 Pressure

Make sure that any pressure is isolated and safely vented to atmospheric pressure. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

1.6 Access

Before attempting to work on the product, safe Access must be ensured. If necessary, lifting gear should be used.

1.7 Residual hazards

The external surface of the product may be very hot. If used at the maximum operating conditions according to the specs, the surface temperature of some products may reach temperatures of 239°C.

1.8 Hazardous environment

Plant rooms are usually explosion risk areas. There may be lack of oxygen, dangerous gases extremes of temperature, hot surfaces, fire hazard excessive noise, moving machinery.

1.9 Suitable protective clothing

In order to be protected against the hazards of chemicals, high temperature, radiation, noise, falling objects, and dangers to eyes and face, anyone around requires protective clothing suitable in the plant room.

1.10 Hazardous liquids or gases

Be aware of that it cannot be known what may have been in the pipeline at previous usage. Consider: flammable materials, substances hazardous to health, extremes of temperature.

1.11 Supervision

All work must be carried out or be supervised by a suitably competent person. Installation and operating personnel should be trained in the correct use of the product according to the Installation and Operation Instructions.

1.12 Disposal

Unless otherwise stated in the Installation and Operation Instructions, this product is recyclable and no ecological hazard.

1.13 Returning products

When returning products to Vira Isı ve Endüstriyel Ürünler A.Ş the customers must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk.

2. GENERAL INFORMATIONS

2.1 Description

As a boiler generates steam, any impurities which are in the boiler feedwater and which do not boil off with the steam will concentrate in the boiler water.

As the time passes and dissolved solids become more and more concentrated, the steam bubbles on the surface tend to become more stable. Eventually, a substantial part of the steam space in the boiler becomes filled with bubbles, and foam is carried over into the main steam.

This is obviously an undesirable situation. Both, the steam leaves the boiler wet and boiler water contains a high level of dissolved and suspended solids. These solids will contaminate control valves, heat exchangers, and steam traps as well as the whole installation.

The TDS (Total Dissolved Solids) level in steam boilers is controlled using TDS Blowdown Control System more accurately. The conductivity controller BK 5000-T measures the electrical conductivity and temperature of the boiler water with the help of the conductivity probe BD5600-T and the integrated temperature sensor. The conductivity values are automatically compensated to the reference temperature of 25 ° C. The BK 5000-T can also be used with the BD 5400 and BD 5300-T conductivity probe. When it is used with BD 5400 conductivity probe, the BK 5000-T does not receive temperature information and therefore does not compensate for temperature.

The conductivity controller BK5000-T and the conductivity probe are used as limit switches. For example, in a boiler or feed water tank, the conductivity controller BK 5000-T instantly measures and displays the conductivity value. When the conductivity value reaches the set value, the blowdown valve opens. If the water drops below the set value, the blowdown valve is closed. The conductivity setpoint can be set to the desired value.

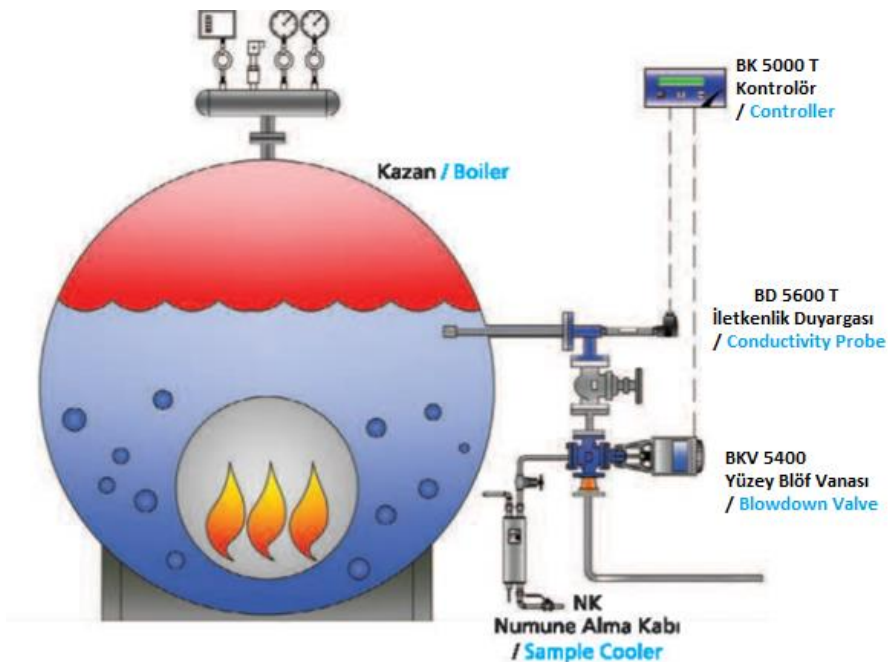


Figure 1: Connection of TDS Blowdown System BS4-T to a steam boiler

3. TECHNICAL SPECIFICATIONS

Conductivity Probe BD 5600-T is a probe that works according to the conductivity measurement principle. Its standard length is 500 mm. If the length will be a custom size, it must be stated in the order.

| | |
|-------------------------------------|--------------------------------------|
| Max. operating pressure | : 32 bar g |
| Nominal pressure | : PN40 |
| Max. operating temperature | : 239 °C |
| Conductivity measuring range | : 10 - 10000 μ S/cm |
| Connection | : 1/2" BSP Screwed |
| Wiring | : 5x1 mm ² shielded cable |
| Lengths (L) | : 500 mm Standard |

Note: It can be produced in desired length.

Materials:

| | |
|-------------------|-------------------|
| Socket | : Polyamid |
| Probe Body | : Stainless Steel |
| Electrode | : Stainless Steel |
| Insulation | : PTFE |

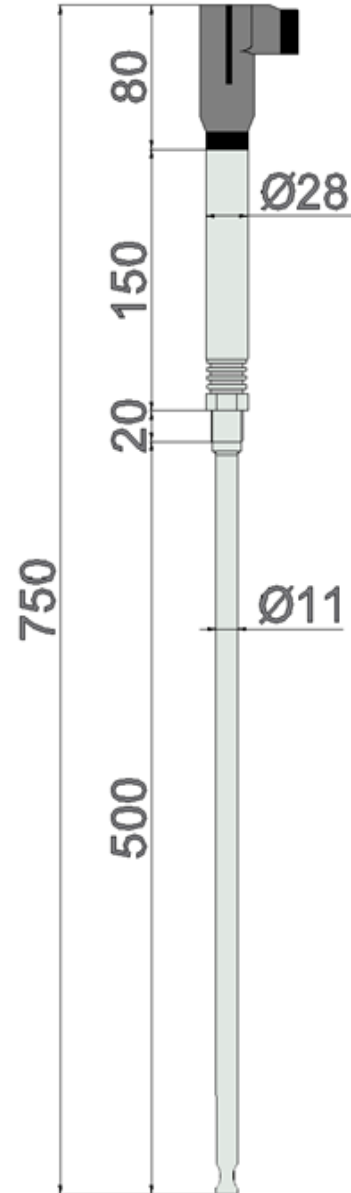


Figure 2: BD 5600-T Conductivity Probe

4. INSTALLATION and WIRING

4.1 Installation

The Conductivity Probe BD 5600-T should be placed horizontally in the boiler, with the tip of the probe bar at least 20 mm between the fire tubes as shown in the figure below. There must be minimum 150 mm distance between probe direction and low water level.

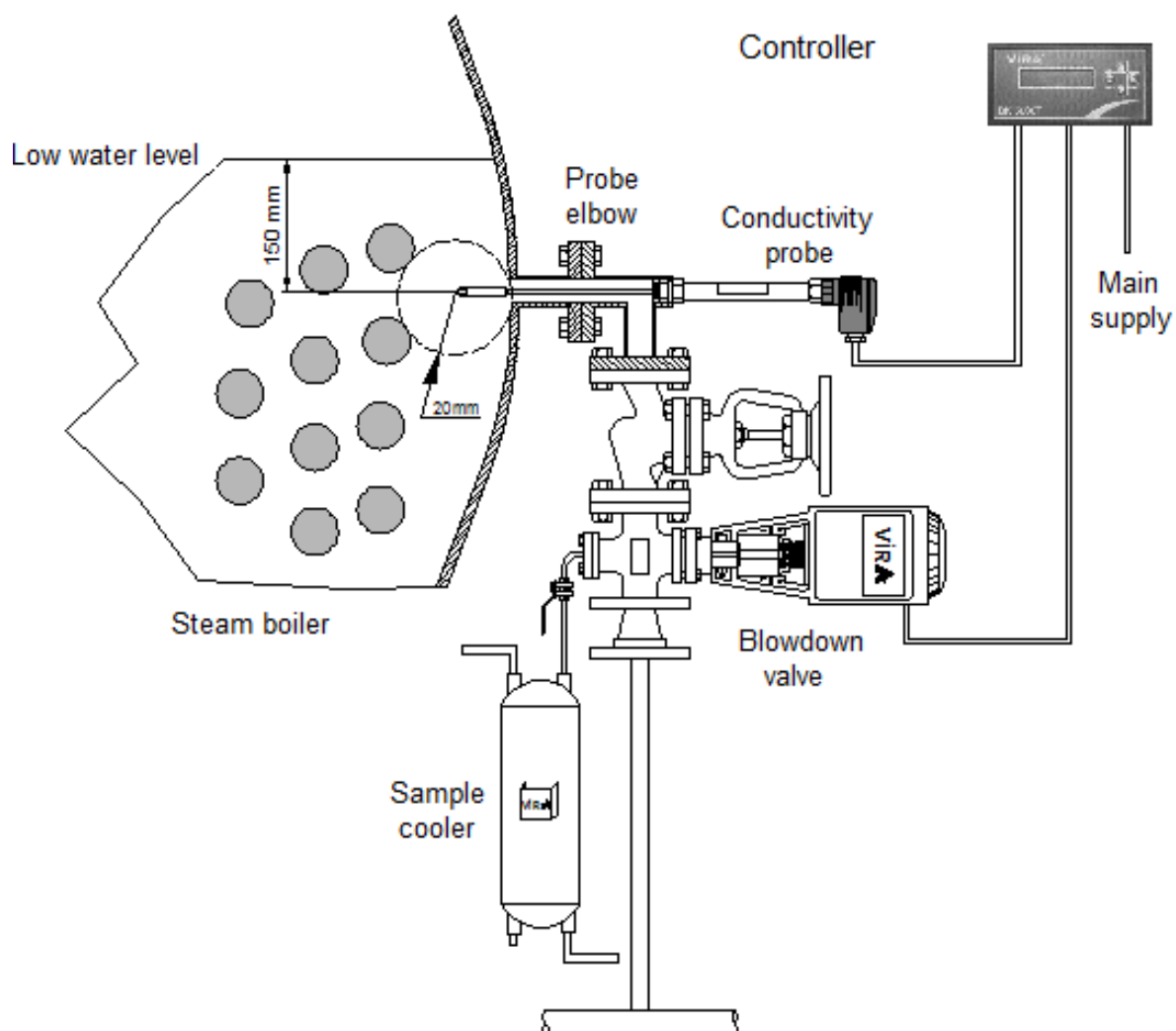


Figure 3: Horizontal installation of BD 5600-T Conductivity Probe

4.2 Wiring

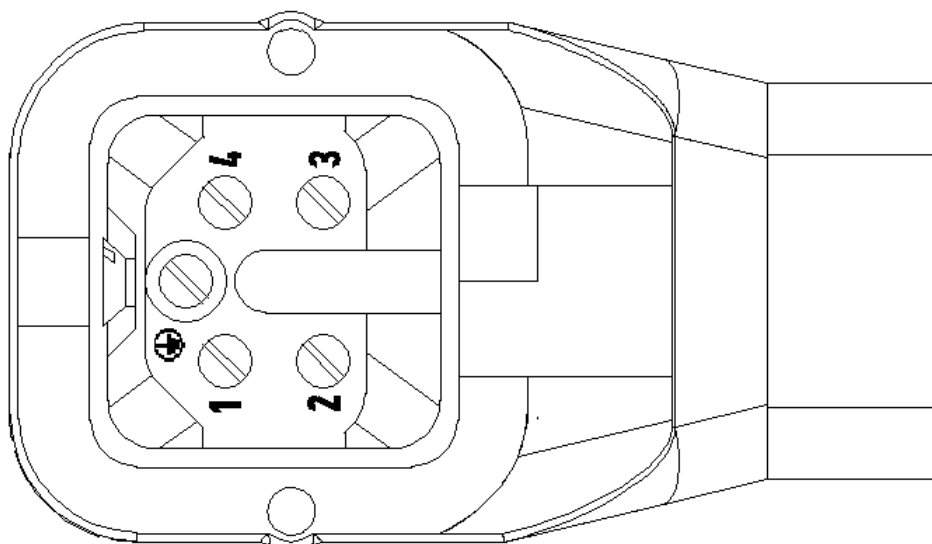


Figure 4: Cable connector of conductivity probe

Remove two screws on the cable connector and remove the male socket. Make the cable connections between BK 5000-T and BD 5600-T cable connector with 5x1 mm² screened cable like in Figure 4.

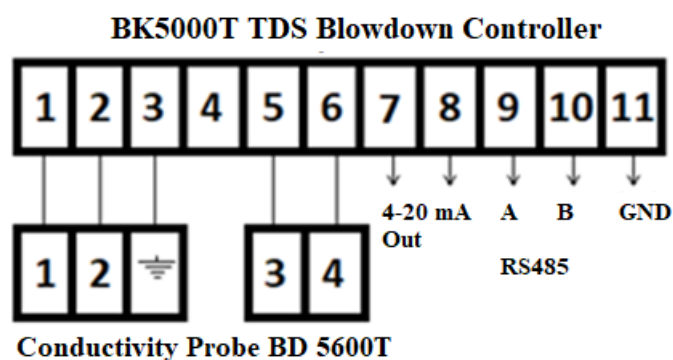


Figure 5: Wiring between controller and probe

Not: Connect cable screen (shield) to only probe side using \oplus terminal. **Left the controller side of screen unconnected.**

5. COMMISSIONING



Warning!

Probe cable must be screened type cable and an external ground shall not be connected in the 3rd terminal input of the controller ,

- Once the system has reached the rated pressure and temperature, take a water sample from the boiler as appropriate and perform conductivity calibration of the BK 5000-T.
- To obtain a proper water sample, VIRA NK-20 sample cooler is advised.
- For more information on calibration, please refer to the BK 5000-T TDS Blowdown Controller Installation and Operation Manual.

6. MAINTANANCE



Warning!

Before unmount the probe, boiler pressure must be reduced to atmospheric pressure (0 bar g) and boiler temperature must be at a safe level.

Do not unmount the probe before disconnect the cables. Otherwise cables may be damaged.

Conductivity probe must be unmounted approximately 6 month periods and probe tip must be checked. If necessary tip must be cleaned gently without damage the tip insulation sleeving.

It is recommended to make function tests regularly.

When any fault situation occurs or maintenance is necessary, please contact with “**Vira Isı Service Department**”.

Vira Isı ve Endüstriyel Ürünler A.Ş.

Metal İş Sanayi Sitesi 11. Blok No: 37-39

İkitelli / İSTANBUL

Tel : 0 212 549 57 70

Fax : 0 212 549 48 58

E-mail : info@viraisi.com

: servis@viraisi.com

Web : www.viraisi.com

