

**TDS CONDUCTIVITY PROBE
DIRECT BOILER CONDUCTIVITY MEASUREMENT
SPS-33**

DESCRIPTION

The ADCATROL SPS-33 conductivity probe is used to measure the conductivity (TDS) of the superheated water of boilers or condensate.

The probe is used in conjunction with an ADCATROL BCS-211 controller and VPC series blowdown valve.

The water contains impurities in form of dissolved solids and solids in suspension, whose concentration increases when it's vaporized. Water treatment can reduce impurities to a certain level, but it does not eliminate them completely and, in certain conditions, it might even increase them. As steam production starts, the concentration of total dissolved solids (TDS) increases in the boiler's water. If the concentration is too high, contamination of steam may occur, resulting in system damage further ahead, such as corrosion and salt incrustations on thermal transference surfaces (among other problems).

This high concentration is harmful and is not acceptable in applications where steam is used for treatment of food, drinks and sterilization processes.

In order to limit the concentration of TDS to a suitable level, a certain amount of boiler water must be periodically eliminated (purge action) and replaced by treated water.



OPTIONS: "T" piece type F-3220 for boiler and blowdown valve connection.

USE: Superheated boiler water and condensate.

SIZES: 1/2.

PIPE CONNECTIONS: Screwed ISO 7/1 RP (BS21).

ELECTRICAL CONNECTIONS: Plug connection with screw terminals, traction relief.

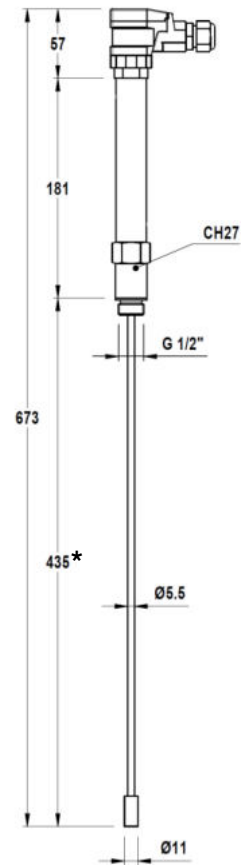
INSTALLATION: Horizontal installation.
Vertical installation possible, under special request.

TECHNICAL DATA	
TYPE	SPS-33
Component mark	TUV ID: 0000006175
Protection as per DIN VDE 0470	IP 65

LIMITING CONDITIONS	
Maximum allowable pressure	32 bar
Maximum temperature	239 °C
Allowable temperature on plug	100 °C
Min. distance from boiler tubes	40 mm
Maximum cable length	100 m
Cable gland	M16 x 1,5
Minimum conductivity *	1 µS/cm

* Lower ranges available on request.

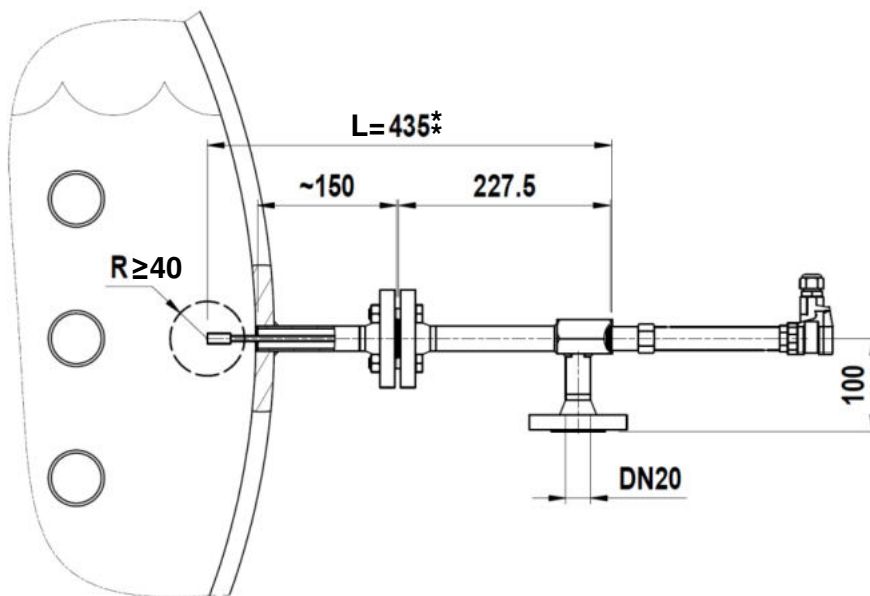
MATERIALS	
DESIGNATION	MATERIAL
Probe housing	Stainless steel
Probe rod	Stainless steel
Insulation	PTFE
Socket	Polyamid
Sealing ring	Soft iron
Measuring flange	1.046



TYPICAL INSTALLATIONS

Remarks: Provide a spacing of $R \geq 40$ mm between the central end pole of the probe and any metallic parts such as the boiler wall, tubes and fittings. The probe must be installed in a way that it is always in contact with the water (immersed at least 100 mm), away from the steam bubbles, and as far from the feedwater inlet as possible.

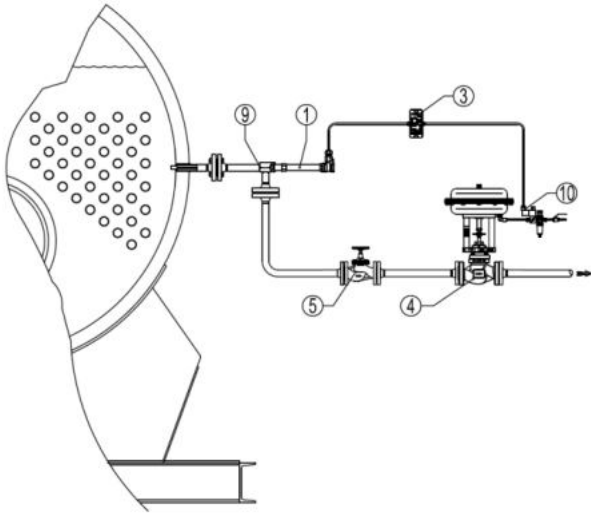
Horizontal installation with a Tee piece type F-3220



* Other dimensions for probe length L are available, on request.

TYPICAL INSTALLATION

FIRETUBE BOILER AND PNEUMATIC ACTUATED VALVE



OPERATION

The BCS controller (3) is programmed to continuously measure the electrical conductivity (1) of boiler water (closely related to the TDS) and compare it with the set point selected in the controller. It will open the blowdown valve (4) if the measured value is higher, or keep the valve closed until the measured value exceeds the set point.

It is recommended to install a heat recovery system (flash vessel, heat exchanger, etc) before connecting the wasted water to the BEX.

MATERIALS

POS. N°	DESIGNATION
1	Adcatrol SPS-33 TDS probe
3	Adcatrol BCS-211 TDS controller
4	Adcatrol VPC series blowdown valve
5	Adca VF bellows sealed globe valve
9	Tee piece type F-3220
10	SV32C direct solenoid valve