



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 solid 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: Tee piece type F-3220 for boiler and blowdown valve connection

USE: Superheated boiler water and condensate

SIZES: DN 1/2"

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

ELECTRICAL CONNECTIONS: Plug connection with screw terminals, traction relief

INSTALLATION: Horizontal or vertical installation



THECNICAL DATA

TYPE	SPS-33
Component mark	TUV ID: 0000006175
Protection as per DIN VDE 0470	IP65

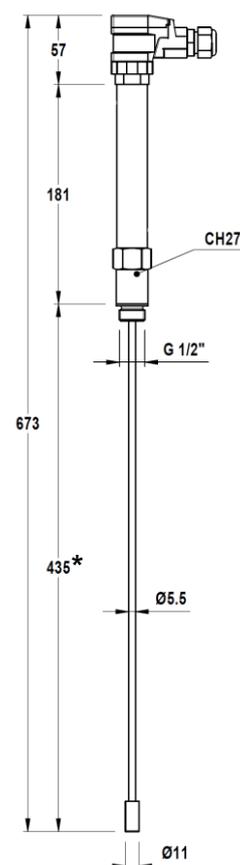
LIMITING CONDITIONS

Maximum allow able pressure	32 bar
Maximum temperature	239 °C
Allow able temperature on plug	100 °C
Minimum distance from boiler tubes	40 mm
Maximum cable length	100 m
Cable gland	M16x1,5
Minimum conductivity *	1 uS/cm
Protection as per DIN VDE 0470	IP65

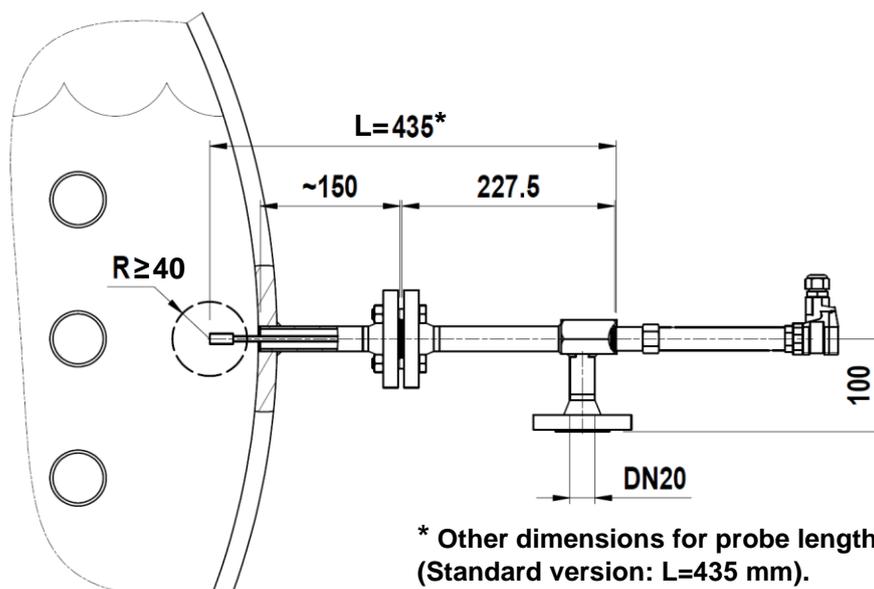
* Low er range available upon request

MATERIALS

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

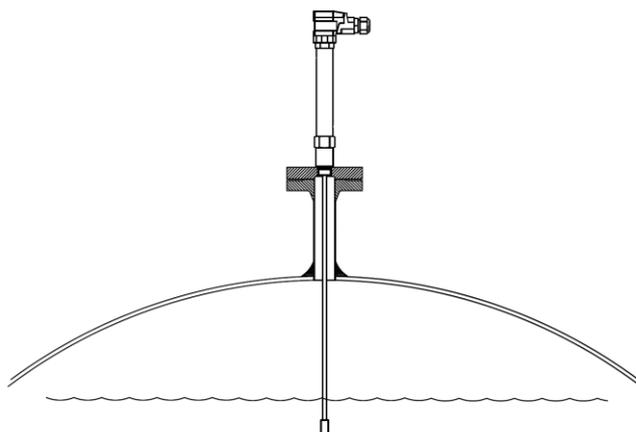

INSTALLATION EXAMPLES

Note: 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 where 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 upon request (Standard version: L=435 mm).

Vertical installation on a boiler standpipe with a probe flange



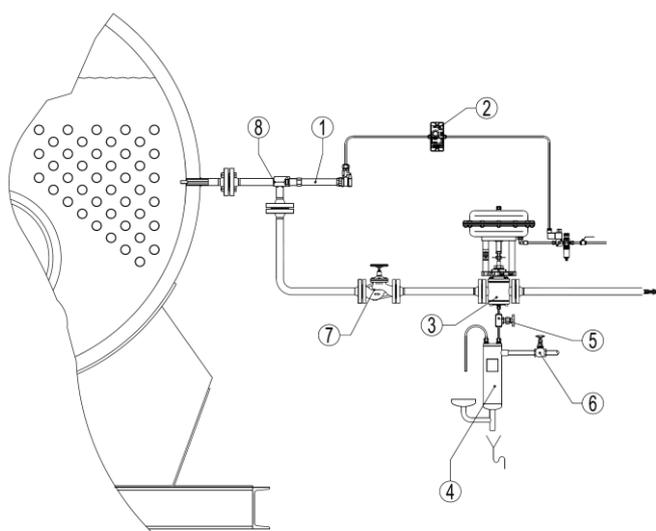
TYPICAL INSTALLATION

FIRETUBE BOILER AND PNEUMATIC ACTUATED VALVE

OPERATION

The BCS controller (2) is programmed to continuously measure the electrical conductivity (1) of boiler water (closed related to the TDS) and compare it with the set point selected in the controller. It will open the blowdown valve (3) 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.



POS.	DESIGNATION
1	Adcatrol SPS-33 TDS probe
2	Adcatrol BSC-211 TDS controller
3	Adcatrol VPC-32 Blowdown valve
4	Adca SC32SS Sample cooler
5	Adca NV-400 Needle valve
6	GV32B Bronze globe valve
7	Adca VF Bellow sealed globe valve
8	Tee piece type F-3220