

# HTCS K=1

## High Temperature Conductivity Sensor

### Description

Forbes Marshall High Temperature Conductivity Sensor (HTCS) is designed for Total Dissolved Solids (TDS) measurement in Forbes Marshall TDS control systems.

The sensor is specifically developed for high temperature applications (>100°C) and can be directly exposed to high temperature/pressure saturated boiler water without need to cool the sample.

This sensor is used with Forbes Marshall BBCS 485 controller.

### Features

- Chemically Resistant SS316L Body & Sensor
- Glass Filled PEEK Insulator for high temperature
- Built-in Temperature Sensor (PT100)
- Integral Junction Box (IP65) allows easy access to field wiring

### Application

Boiler Blowdown Water

### Limiting Conditions

Max Operating Pressure: 31 barg at 238°C

Cold Hydraulic Test Pressure: 47 barg

Minimum Operating Temperature: 0°C

### Specifications

Cell constant value : K = 1 (±1%)

Sensor connection : 3/4" BSP

### Sensor Cable

4-Core PTFE Isolated/SPC Shielded/PTFE Jacketed Cable

Length: 5 meter (default)

10 meter (optional extra)

30 meter (optional extra for Effimax)

(Pls specify cable length in order)

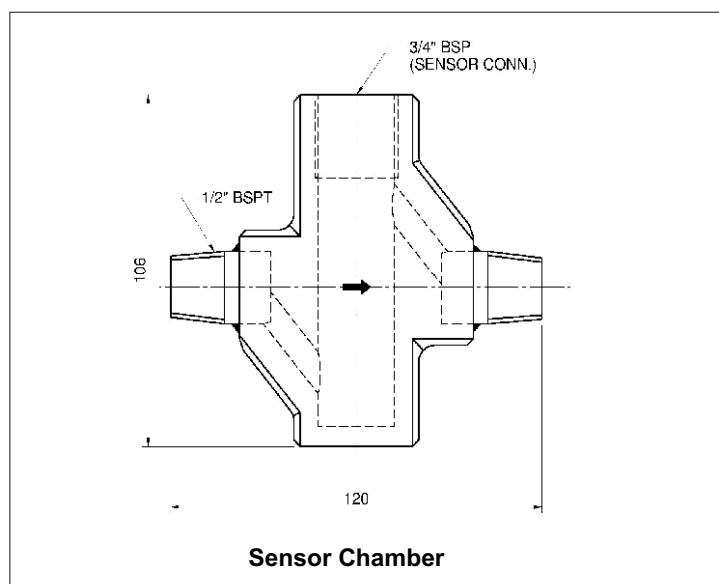
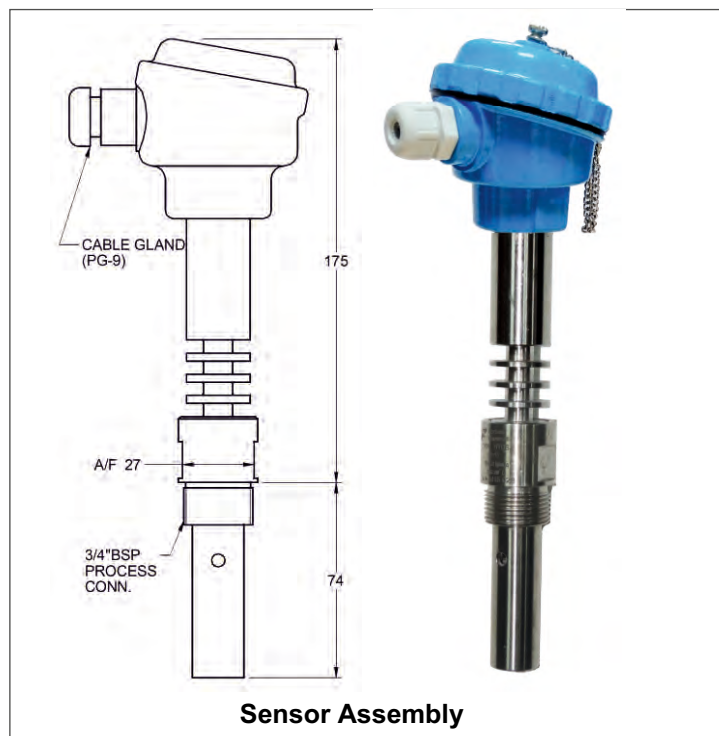
### Sensor Chamber

Forbes Marshall Stainless Steel Sensor Chamber

Process Connection: 1/2" BSPT(M)

### Materials

Item	Material
Body	ASTM A479 Type 316L
Electrode	ASTM A479 Type 316L
Insulator	Glass Filled PEEK
Junction Box	Cast Aluminum (IP 65)



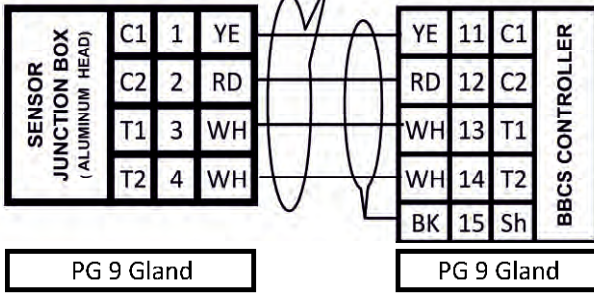
### How to Order

Forbes Marshall High Temperature Conductivity Sensor (HTCS K=1) with Sensor chamber & 5 meter Sensor cable.

## Electrical Installation

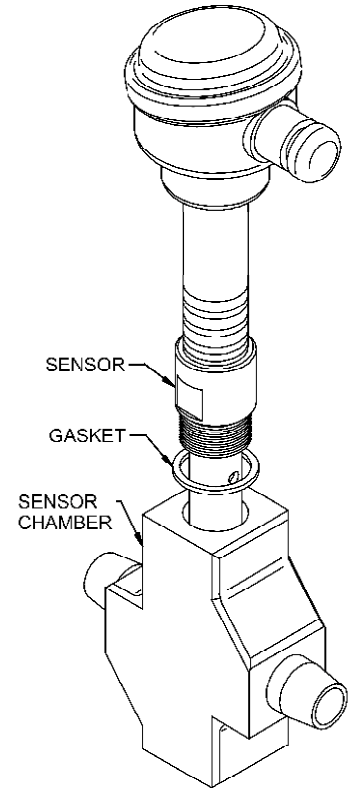
### BBCS Sensor & BBCS 485 Controller Wiring Diagram

Forbes Marshall 4-Core Shielded Cable



### Colour Codes

YE: Yellow  
RD: Red  
WH: White  
BK: Black  
Sh: Shield



## Installation

Fit the sensor in a horizontal pipeline with suitable isolation valves to facilitate inspection/cleaning of the sensor. Process flow must be in the direction of arrow marked on sensor chamber. **The sensor must be fitted in vertical direction with sensor head upwards.** The sensor is supplied with a gasket for sealing between sensor & sensor chamber.



### Caution

- Do not install the sensor outdoors without additional weather protection
- Do not install the sensor in inverted/horizontal position
- Fit the sensor to the sensor chamber by gripping it across flat provided on sensor for spanner only. Do not apply torque to sensor aluminium head extension piece with cooling fins to fit sensor to sensor chamber
- Ensure that sensor cable is not exposed to a temperature greater than 120°C

## Safety Information

Pressure: Before attempting any maintenance, ensure the pressure is isolated & safely vented to atmosphere. Do not assume that the system is depressurized even when a pressure gauge indicates zero.

## Maintenance

We recommend that the sensor is removed for cleaning & inspection at least once in three months, though the frequency of maintenance will depend on the quality of boiler water.

## Available Spares

Item	Qty
Sensor	1
Sensor Chamber	1
Sensor Cable, Length: 5 meter	1
Sensor Cable, Length: 10 meter	1
Sensor Gasket	1



**Ensure that strainer fitted before sensor chamber in blowdown control system top piping is cleaned at least once in a week**

- Isolate & depressurize the system, ensure that blowdown water is cooled before you remove the sensor.
- Inspect male & female threads for signs of damage, which may have occurred due to over tightening, leading to torn threads or even localized cold welding (galling). If damage is seen, replace the sensor.
- If there is no damage to the threads, proceed to clean the sensor tip with fine wet-or-dry emery paper.
- Inspect the sensor tip, sensor body & insulator for erosion, damage or pitting and refit or replace it.
- Retighten the Sensor to Sensor Chamber. Always fit a new gasket



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