

Overview

The Boiler Tube Block (BTB) is a specifically designed and patented temperature sensor for measuring tube metal temperature inside boilers, furnaces and industrial process equipment.

Features:

- Robust design that is very simple to install
- Unmatched reliability
- Third party proven - the most accurate tube metal temperature sensor when compared to traditional surface mount sensors

Application:

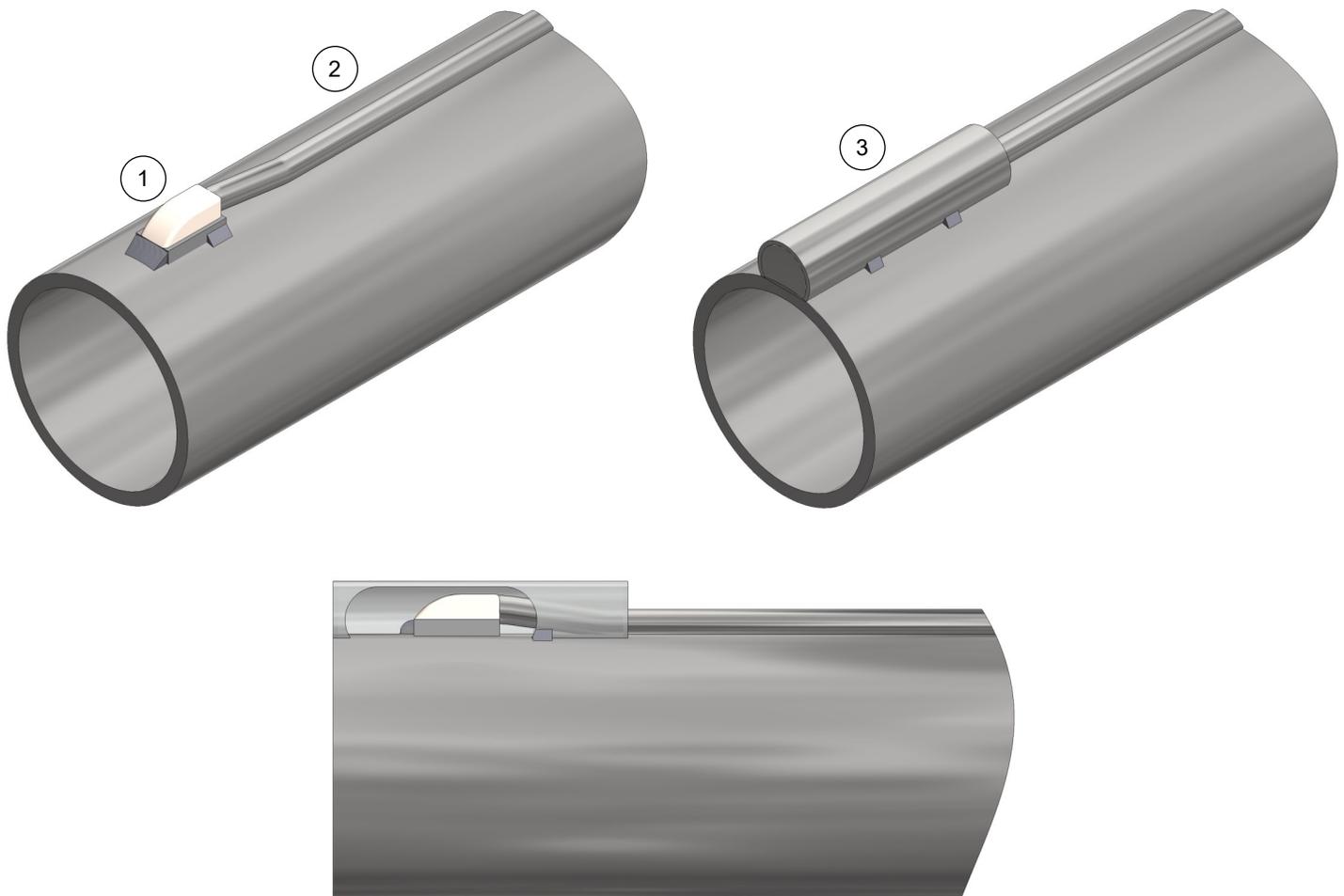
BTB's are commonly used inside OSTG's, HRSG's, Coker Furnaces, Industrial boilers and furnaces.

BTB

1. **BTB Block** is where the thermocouple junction is welded to the boiler tube metal surface. The block is attached with three simple fillet welds.

2. **Mineral Insulated (MI) cable** extends from the BTB block to the outside of the boiler where it will transition to soft lead wires for termination into the electrical control equipment.

3. **Shroud** or heat shield will isolate and insulate for accurate tube metal inner wall temperature. The shroud is insulated with a high temperature fibrous material. It can be attached to the boiler tube with 4 fillet welds or 1 continuous fillet weld depending on end user preference.



BTB Boiler Tube Block Model Code

BTB - T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8

BTB Boiler Tube Block Sensor

T1 Connection Head

2AL	Aluminum, 3/4" conduit, Bakelite terminal block
2ALT	Aluminum epoxy, 3/4" conduit, Bakelite terminal block
2SS	Stainless steel, 3/4" conduit, Bakelite terminal block
Other	Refer to page 4 for details, styles and options
X	Not required

T2 Sensor "A" Length (inches)²

"inches"	Specify length in inches
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T3 Sensor Extension Style

CF	Compression Fitting
GS	Gas Seal Union
AF	Flex armour over fiberglass (482°C)
TE	Teflon (260°C)
ST	Teflon with SS overbraid (260°C)
AT	Flex armour over Teflon (260°C)
SP	Special (specify)

T4 Process Fitting

12	1/2" NPT
34	3/4" NPT
10	1" NPT
X	Not applicable
Other	Consult factory

T5 Sensor Type

K	Type K Thermocouple
Other	Consult factory

T5 Sensor Sheath & BTB Block Material

316	316/L stainless steel
310	310 stainless steel
600	Inconel 600
Other	Consult factory

T7 Probe Diameter

14	1/4"
38	3/8"

T8 Sensor "L" Length (inches)²

"inches"	Specify length in inches
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Sensor Shroud (heat shield) & MI Cable Clamp

Each BTB is supplied with one shroud and three MI cable clamps in the same material as BTB sensor

NOTES:

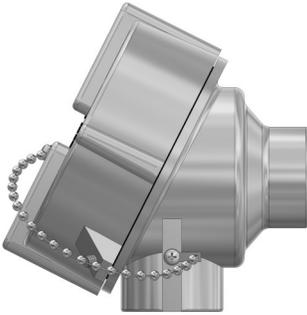
1. Part number example: BTB-X-12-TE-X-K-316-14-120 or BTB-2SS-GS-6.5-34-K-600-14-160
2. Reference page 3 for part outline and page 4 for dimensions
3. BTB's are supplied with MTR's and welding - install instructions
4. Bold text indicates most common part selections



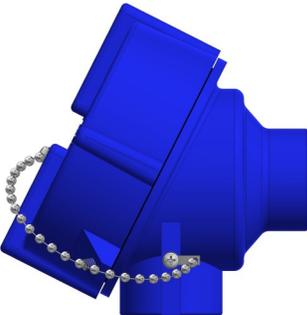
BTB Boiler Tube Block Outline

Connection Head

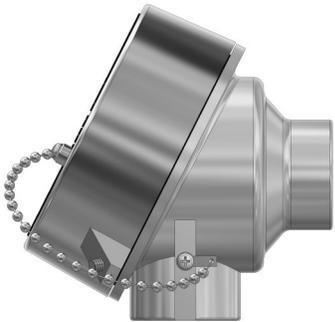
2AL



2ALT



2SS



Refer to page 5 for further connection head styles, options and details

Connection Extension

CF



GS



TE



ST



AT



Sensor

Shroud



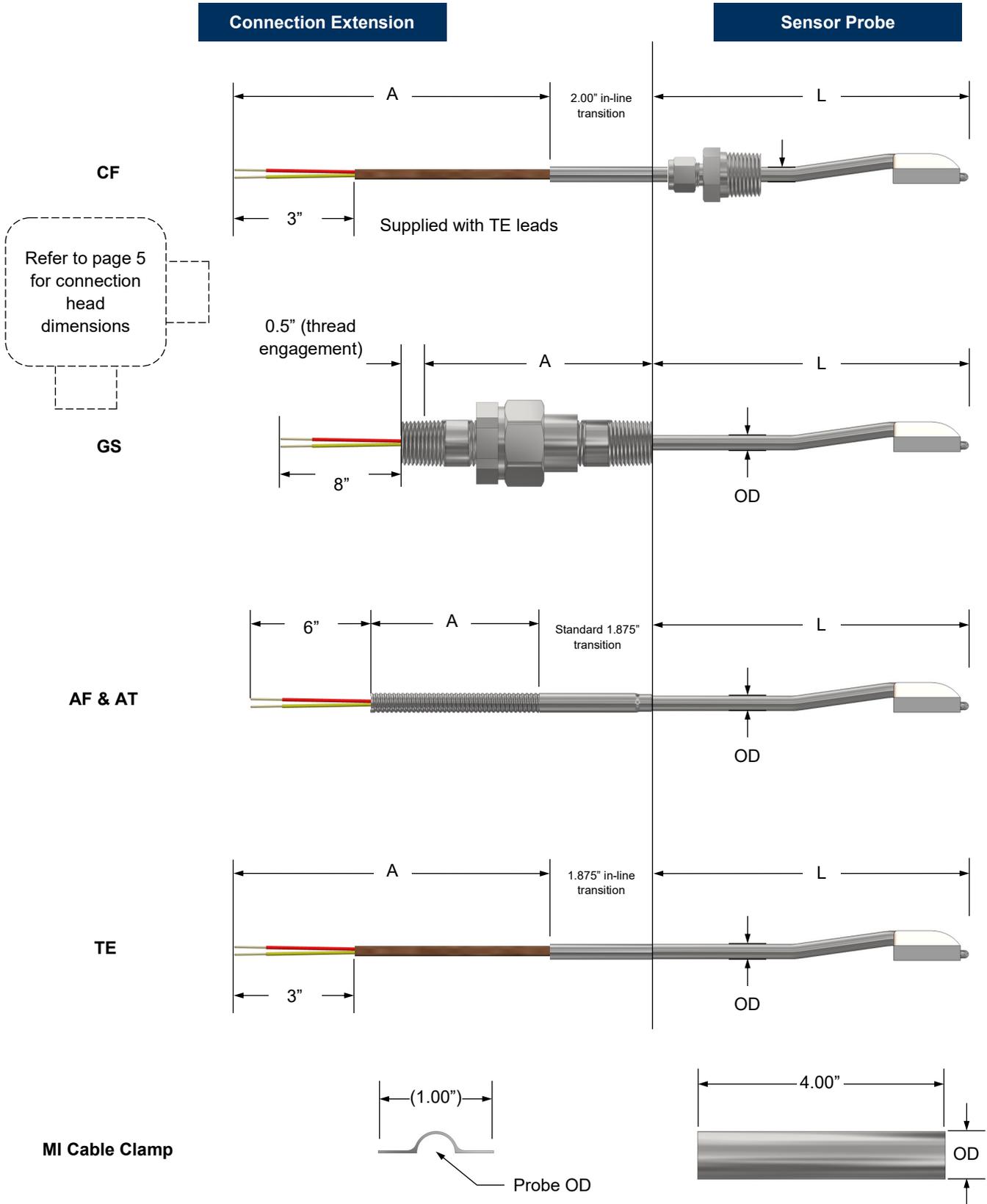
Sensor



MI Cable Clamps



BTB Boiler Tube Block Dimensions



BTB Connection Heads

Model, Outline, and Dimensions

Outline & Dimensions	Model	Connection (NPT)		Terminal Block Options	Material	Connection Head Electrical Approval ¹
		Instrument	Conduit			
	1ALT	1/2"	1x 1/2" ²	<p>Bakelite - <u>standard</u></p> <p>Screw terminals to suit sensor</p>	Cast aluminum epoxy coated Buna O-ring	Class I Groups B,C,D Class II Groups E,F,G Class III Enclosure Type 4X
	2ALT	1/2"	1x 3/4"			
	3ALT	3/4"	1x 3/4"			
	1SS	1/2"	1x 1/2" ²	Ceramic - optional Screw terminals to suit sensor configuration Add: "C" to connection head	316 stainless steel Buna O-ring	Class I Groups B,C,D Class II Groups E,F,G Class III Enclosure Type 4
	2SS	1/2"	1x 3/4"			
	3SS	3/4"	1x 3/4"			
	1AL	1/2"	1x 1/2" ²		Cast aluminum Buna O-ring	Class I Groups B,C,D Class II Groups E,F,G Class III Enclosure Type 4
	2AL	1/2"	1x 3/4"			
	3AL	3/4"	1x 3/4"			
	1CAL ³	1/2" ²	1x 1/2" ²	Clamp technology - optional DIN mounted clamp technology terminals to suit sensor configuration Add: "D" to connection head	Iron alloy Buna O-ring	Class I Groups A,B,C,D Class II Groups E,F,G Class III
	2CAL ³	3/4"	1x 3/4"			
	1CCI ³	1/2" ²	1x 1/2" ²			
	2CCI ³	3/4"	1x 3/4"			
	4CAL ³	1/2"	2x 1/2"		Cast aluminum Buna O-ring	Class I Groups B,C,D Class II Groups E,F,G Class III; Enclosure
	3CAL ³	3/4"	2x 3/4"			
	4CCI ³	1/2" ²	2x 1/2" ²			
	3CCI ³	3/4"	2x 3/4"			
	4AL	1/2"	1x 1/2" ²	Ceramic - oval terminal block Screw terminals to suit sensor	Iron alloy Buna O-ring	General purpose
	0AL	1/2"	1x 3/4"			
	1CI	1/2"	1x 1/2" ²	Terminal block integral to connection head Screw terminals to suit sensor	Polypropylene	
	2CI	1/2"	1x 3/4"			
	3CI	3/4"	1x 3/4"			
	0PY	1/2"	1x 3/4"			

NOTES:

1. Connection head approval rating is that of the enclosure ONLY and not the BTB sensor assembly
2. May be supplied with an approved reducer bushing