



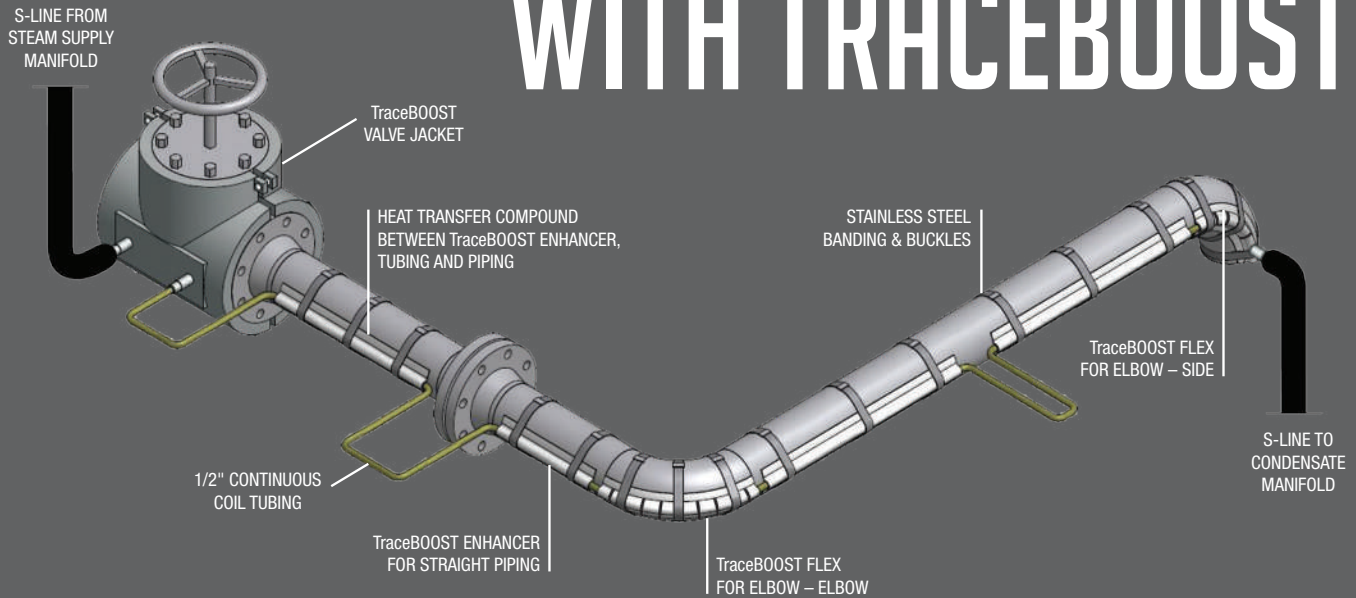
# TRACEBOOST



**Enhanced Tube Tracing to Maximize Heat Transfer**

ENHANCERS / TUBING / VALVE JACKETS / FLEX FOR ELBOW

# MAXIMIZE OUTPUT WITH TRACEBOOST



**A recent case study on bare tube vs TraceBOOST tracing delivered the following savings for our customer:**

**Reduced number of tracing circuits by**

**58%**

768 conventional vs. 322 TraceBOOST

**CapEX Cost Savings of**

**46.3%**

\$2.59M conventional estimate vs. \$1.39M TraceBOOST system

**OpEX 25 Year Cost Savings of**

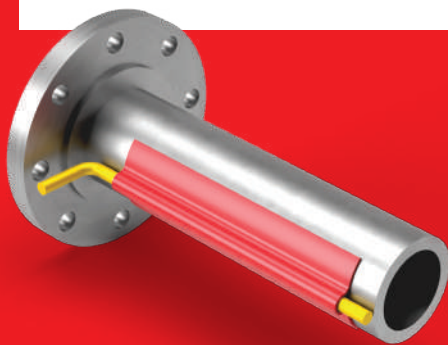
**45%**

\$5.01M conventional estimate vs. \$2.78M TraceBOOST system

**Steam Consumption Savings of**

**45%**

4,162 Kg/hr conventional estimate vs. 2,312 kg/hr TraceBOOST system



## TraceBOOST system includes:

- Straight pipe enhancers
- Flexible fitting enhancers
- Heat transfer compound
- Installation banding & tools
- Continuous coiled tubing
- Pre-insulated tubing for steam supply & condensate return
- Bolt-on heating jackets for valves & equipment
- Purpose built equipment for safe handling & straightening coiled tubing

TraceBOOST maximizes heat transfer from conventional tube tracing. TraceBOOST is an ideal application anywhere multiple tube tracers are used. TraceBOOST makes tube tracing work with maximum efficiency—at a much lower cost. Improve thermal performance while reducing circuit count!

## Applications

- Any pipe heating application where more than one tube tracer is required
- Single traced process lines exhibiting poor performance

## Process Examples

- Heavy Oil
- SDS & FCC Units
- Acrylic Acid
- Asphalt
- Caprolactam
- Delayed Cokers
- Visbrakers
- Chocolate and other Food



# SUPERIOR ADVANTAGES

Maximizes heat transfer from conventional tube tracing, transforming it from convective to conductive heat transfer and increasing the heat transfer by 4 times.

CSI can provide modeling of new or existing systems to determine the most optimized technology selection that meets thermal performance goals.

TraceBOOST provides heating for freeze protection of liquid process and temperature maintenance of process gas. TraceBOOST results in fewer required tracing circuits to maintain process temperature, fewer steam traps and fewer supply/condensate return manifolds.

The TraceBOOST system with coiled tubing also reduces capital maintenance cost by eliminating potential leak points at frequent tube unions.

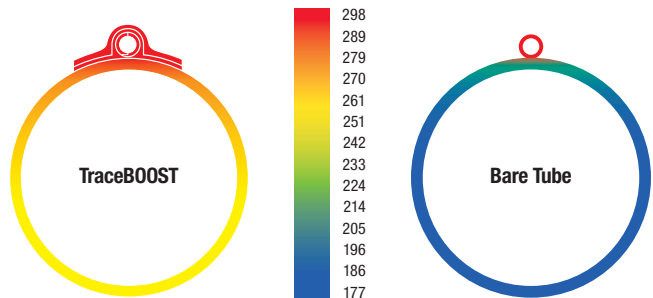
TraceBOOST tracing is typically suited for pipe heating applications with a minimum temperature difference of 70° F (40° C) between the heating medium (steam) & the process.

Consult factory for other requirements.

## TraceBOOST Advantages

- Reduced Capital Cost (Typically 30-70%)
- Reduced Installation Time
- Increased Energy Efficiency
- Reduced Annual Operating Cost
- Increased System Reliability

## TraceBOOST & Bare Tube Temperature Contour Comparison



# TRACEBOOST SELECTION & SIZING FOR STEAM SERVICE

Determine the number of tracers from existing plant specifications or tracer schedules and look up the corresponding number of TraceBOOST tracers using Table 1 below. If no plant standard exists, consult the factory.

Specified Conventional Tube Tracers		Suggested TraceBOOST Tracers	Infrastructure Savings
Carbon Steel Process Pipe	Stainless Steel Process Pipe		
2-3	2	1	50-65%
4-7	3-5	2	50-65%
8-10	6-8	3	50-80%
11-14	9-11	4	50-80%

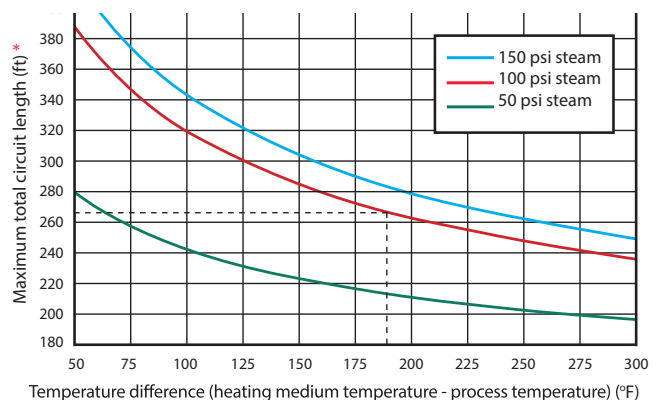
## Circuit Length Determination

Subtract the process maintain temperature from the steam temperature. Find the result along the bottom. Follow it up to the intersection with the appropriate steam pressure. The maximum total circuit length is found on the left to determine the maximum circuit length with a 10% pressure drop.

### Example:

If your plant standard is to maintain a 150°F process line with 100 psig steam with five ½" tube tracers then:

- From Table 1 use two TraceBOOST tracers.
- Knowing 100 psi steam has a saturation temperature of 338°F, use Chart 1 to find the delta between the steam and process (338°-150° F = 188°F) on bottom axis. Therefore, the total circuit length is 265'.
- In this example, the supply and return lines were 80' each, so the tracing would be 105'. (265' minus 80' steam supply line minus 80' condensate return line equals 105' TraceBOOST.)



\* Maximum circuit length includes: supply, tracing and return.

# TRACER TUBING

Tracer tubing is provided in long continuous coils to eliminate potential leak points from intermediate fittings between stick tubes. Purpose-built equipment safely handles and straightens tubing for installation.

Part Number	Description
BCA4	½" OD x 0.035 wall welded 316SS
BCE4	½" OD x 0.049 wall welded 316SS
BCF4	½" OD x 0.035 wall seamless 316SS
BCB4	½" OD x 0.049 wall seamless 316SS
BCD4	½" OD x 0.035 wall copper
BCM4	½" OD x 0.049 wall copper



## S-LINE PRE-INSULATED TUBING

S-LINE® is the ideal complement to complete the TraceBOOST system. It is used for steam supply lines from the supply manifold to the TraceBOOST tracer and for removing condensate from the TraceBOOST tracer to the condensate manifold.

### Applications

- Steam supply lines
- Condensate return lines

### Advantages

- Personal protection
- Energy conservation
- Non-hygroscopic insulation
- UV resistant weatherproof
- SV47 jacket
- Less expensive than fabricated pipe

### Tubing Data

(for bare coiled tubing and S-Line pre-insulated tubing)

Tube	Description	Max Pressure*	Max Cont Length
A4	½" OD x 0.035 wall welded 316SS	2,080 psig	2,000 ft
E4	½" OD x 0.049 wall welded 316SS	2,975 psig	1,000 ft
F4	½" OD x 0.035 wall seamless 316SS	2,600 psig	1,000 ft
B4	½" OD x 0.049 wall seamless 316SS	3,700 psig	750 ft
D4	½" OD x 0.035 wall copper	800 psig	1,000 ft
M4	½" OD x 0.049 wall copper	1,100 psig	1,000 ft

\* Maximum pressure at 72°F, calculated using S values specified in ANSI B31.3

### Temperature Correction Factors

Process Temp	316SS	Copper
200°F	1.00	0.80
300°F	1.00	0.78
400°F	0.97	0.49



Part Number	Description
<b>Tubing</b>	
SA4	½" OD X 0.035 wall welded 316SS
SE4	½" OD X 0.049 wall welded 316SS
SF4	½" OD X 0.035 wall seamless 316SS
SB4	½" OD X 0.049 wall seamless 316SS
SD4	½" OD X 0.035 wall copper
SM4	½" OD X 0.049 wall copper

### Accessories

TPKHS-E1	Heat shrink end seal
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# TOOLS & INSTALLATION

Part Number	Description
BAND-SS-05-100	0.50" Stainless Steel Banding (for NPS 12" and smaller) Note 1
BAND-SS-07-100	0.75" Stainless Steel Banding (for NPS 14" and smaller) Note 1
BUCKLE-SS-05-100	Buckles for BAND-SS-05-100 (100 pcs) Note 2
BUCKLE-SS-07-100	Buckles for BAND-SS-07-100 (100 pcs) Note 2
BANDTOOL	Banding Installation Tool (each) Note 3
HTC-C-GAL	Heat Transfer Compound (Gallon) Note 4
TB-PTYKNIFE	Heat Transfer Compound Applicator Note 5
CSS-UNN-316-05TBX05TB	316 Stainless Steel Tube Union: ½" tube x ½" tube Note 6
TPMJST4614	Combination coiled tubing payout and straightener. It accommodates tracer tubing spools up to 14" in width. The five roll tube straightener can also be used hand held. Features no-lift loading and backlash brake.
TPMJST6036	Spool stand and straightener for S-Line bundle. It accommodates bulk spools up to 36" in width. Features no-lift loading and backlash brake.
TPKHS-E1	Heat shrink end seal boots for S-Line pre-insulated bundle. Must be used at every fitting.



## Estimating Notes

- Number of Boxes for straight enhancer =  $\text{pipe length (ft)} \times [(\text{pipe OD (in)} \times 0.16) + 1.2] \div 100$   
Number of Boxes for elbow enhancer =  $\text{qty elbows} \times [(\text{pipe OD (in)} \times 0.2) + 1.17] \div 100$
- One box per 170 ft of straight enhancer  
One box per 30 elbows.
- One per five boxes of banding
- One gallon per 75 linear feet of straight enhancer  
One gallon per 15 elbows
- One per five boxes of banding
- One per expansion loop & two per circuit

# ORDERING INSTRUCTIONS

## Easy Steps

- Determine TraceBOOST coverage needed (see page 3)
- Estimate bill of material needed (TraceBOOST, bare tubing, install materials and tools, pre-insulated supply/condensate return tubing, unions)
- Contact the factory or your local representative for pricing and ordering

Part Number	Description
<b>TraceBOOST Straight Tracers</b>	
TB-010-L	Straight Tracer for 0.75" - 1.25" Pipe. (100/Box)
TB-020-L	Straight Tracer for 1.5" - 2.5" Pipe. (100/Box)
TB-040-L	Straight Tracer for 3" - 5" Pipe. (100/Box)
TB-080-L	Straight Tracer for 6" and Larger Pipe. (100/Box)
<b>TraceBOOST Elbow Tracers</b>	
TB-X09-YY-Z	Elbow Tracers for 1" Pipe
TB-X15-YY-Z	Elbow Tracers for 1.5" Pipe
TB-X20-YY-Z	Elbow Tracers for 2" Pipe
TB-X25-YY-Z	Elbow Tracers for 2.5" Pipe
TB-X30-YY-Z	Elbow Tracers for 3" Pipe
TB-X40-YY-Z	Elbow Tracers for 4" Pipe
TB-X60-YY-Z	Elbow Tracers for 6" Pipe
TB-X80-YY-Z	Elbow Tracers for 8" Pipe
TB-100-YY-Z	Elbow Tracers for 10" Pipe
TB-120-YY-Z	Elbow Tracers for 12" Pipe

YY = Type of Fitting (45 = 45°, 90 = 90°) | Z = Orientation on Fitting (S = Side, H = Heel, T = Throat)

## Tracer Tubing (feet)

BCA4	½" OD X 0.035" wall welded	316SS	Bare Tracer Tubing
BCE4	½" OD X 0.049" wall welded	316SS	Bare Tracer Tubing
BCF4	½" OD X 0.035" wall seamless	316SS	Bare Tracer Tubing
BCB4	½" OD X 0.049" wall seamless	316SS	Bare Tracer Tubing
BCD4	½" OD X 0.035" wall copper bare		Bare Tracer Tubing
BCM4	½" OD X 0.035" wall copper bare		Bare Tracer Tubing

## S-Line Pre-insulated Tubing

SA4	½" OD X 0.035" wall welded	316SS	S-Line Insulated Tubing
SE4	½" OD X 0.049" wall welded	316SS	S-Line Insulated Tubing
SF4	½" OD X 0.035" wall seamless	316SS	S-Line Insulated Tubing
SB4	½" OD X 0.049" wall seamless	316SS	S-Line Insulated Tubing
SD4	½" OD X 0.035" wall copper		S-Line Insulated Tubing
SM4	½" OD X 0.049" wall copper		S-Line Insulated Tubing

Larger sizes available upon request

[Request a Quote](#)



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