

The Right Solutions to Tube Wear Problems

Tube Shields for Boilers and Condensers

Metso condenser and boiler tube shields are designed to minimize tube failure in highly abrasive or corrosive areas. Our many styles insure that you'll be able to choose the most appropriate design for your application, providing an inexpensive way to prolong tube life.

Advanced Manufacturing Facilities Mean Fast Response

Tube shields from Metso are manufactured to exacting standards. Advanced equipment and material handling capabilities permit us to offer the fastest turnaround times anywhere.

Prompt Service— We'll Supply What You Need, When You Need It

Metso is no newcomer to the field of industrial and utility boilers. Our understanding of and commitment to the steam and power generation business enables us to solve your boiler tube erosion or corrosion problems efficiently. Our technical staff can quickly recommend the proper material type and configuration to meet your needs...and can quote your outage delivery requirements on a same day basis. Over 50% of orders can be shipped within 24 hours.



Tube Shields

Material Selection Guidelines

304 SS

Benefits
(1) Heat Resistant Qualities Up To 1400°F.
(2) General Corrosion Resistance

309 SS

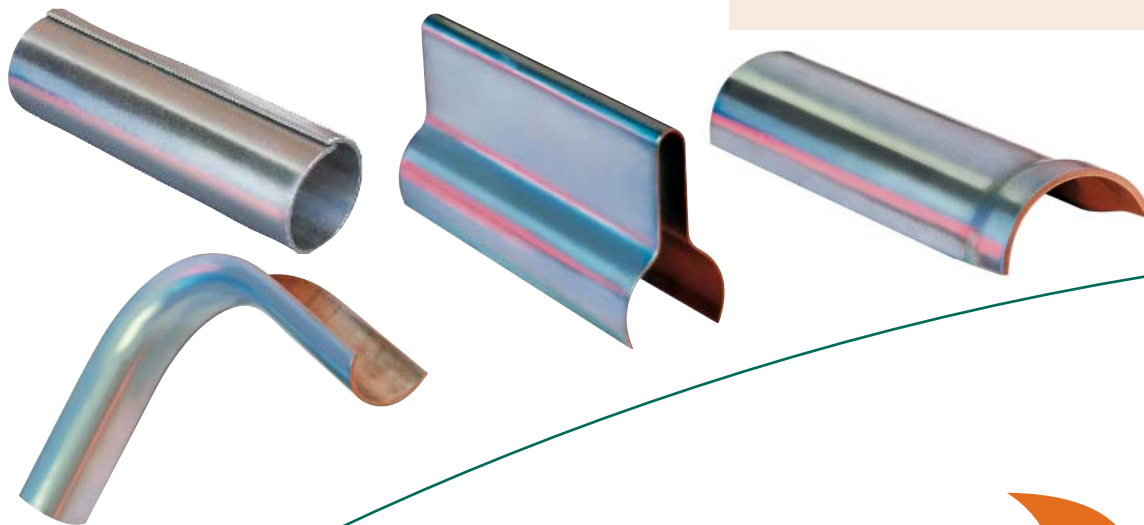
Benefits
(1) High Heat Resistant Qualities Up To 1800°F.
(2) General Corrosion Resistance

310 SS

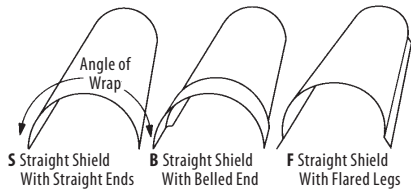
Benefits
(1) Very High Heat Resistant Qualities Up To 1900°F
(2) Lower Rate of Thermal Expansion Versus 309
(3) Under Cyclic Condition, Improved Spalling Resistance Versus 309

253-MA®

Benefits
(1) Good in High Temperature Zones (1800°F)
(2) Resists attacks by Sulfur and Chlorine



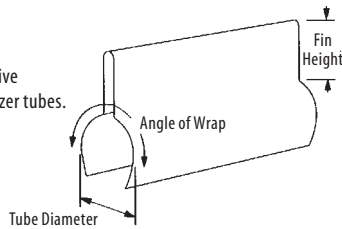
Straight Shields



Tube Style	Tube Diameter	Angle of Wrap	Gauge	Material	Length
Indicate S = Straight tube with straight ends	Indicate diameter between 0.500" and 5.000". (Tube O.D. is Shield I.D.)	Indicate angle between 90° and 240°.	Recommend 10 to 24.	Indicate 304 316 309 310 430 or Inconel	Indicate up to 120".
B = Straight tube with belled end					
F = Straight tube with flared legs					
Example					
Shape	S				
Diameter	2.000				
Wrap	180				
Gauge	10				
Material	304 SS				
Length	48.00				

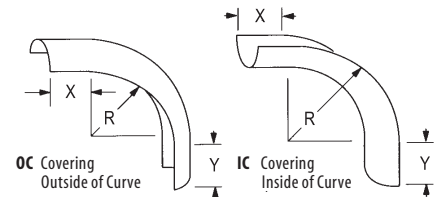
Economizer Shields

Special design provides effective protection for finned economizer tubes.



Tube Style	Tube Diameter	Angle of Wrap	Gauge	Material	Length	Fin Height
E = Economizer Style	Indicate tube O.D. from 1.500" to 3.000". (Tube O.D. is shield I.D.)	Indicate 60° to 240°	Indicate 14 to 24	Indicate 304 316 309 310 430 or Inconel	Indicate up to 48"	Indicate 1.50" to 2.25"
Example						
Shape						
Diameter	2.000					
Wrap	90					
Gauge	12					
Material	316 SS					
Length	40.00					
Fin	2.000					

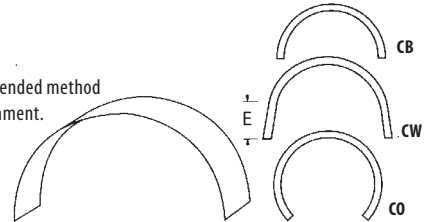
Curved Shields



Tube Style	Tube Diameter	Angle of Wrap	Gauge	Material	Degree of Bend	Bend Radius	Extensions X/Y
Indicate OC = Covering outside of curve or IC = Covering inside of curve	Indicate diameter between .5 and 5.0". (Tube O.D. is Shield I.D.)	Always 180°	Recommend 10 to 24	Indicate 304 316 309 310 430 or Inconel	180° Maximum	Measured to centerline of tube	Indicate for both X & Y. (3" is standard.)
Example							
Shape							
Diameter	2.000						
Wrap	180						
Gauge	14						
Material	316 SS						
Bend	90						
Radius	6.000						
X Extension	3.000						
Y Extension	3.000						

Clips

Clips are the recommended method for tube shield attachment.



Clip Style	Tube Diameter	Angle of Wrap	Gauge	Material	Length	Extension E
CB = Bull style clip	Indicate 0.500" to 5.000" (Tube O.D. is shield I.D.)	Maximum is 240°	Indicate 7 to 24	Indicate 304 316 309 310 430 or Inconel	Indicate (Standard is 1")	0" Standard for CB 1/2" Standard for CW 0" Standard for CO
CW = Wrap style clip						
CO = Overlap style clip						
Example						
Shape	CB					
Diameter	1.000					
Wrap	180					
Gauge	12					
Material	304 SS					
Length	1.00					
Fin	0					