



**BREIDING GmbH**  
Westfälische Verschleißtechnik

# Protective shells in cast iron

# Protective shells for protection of the tube systems in superheaters and economizers

- Proven in more than 30 years – a steadily enhanced product!
- Usage: superheaters/economizer
- Diameters standardized to mm: 31.8, 33.7, 38, 42.4, 44.5, 48.3, 51, 57, 60.3, 63.5, 73, 76.1
- Heat resistance up to 1.100° Celsius due to special chromium-nickel alloy quotas
- Cast iron shells have numerous advantages compared to common short-lived shells:
  - Lower assembly effort
  - No qualified professionals needed, no welding
  - Extended service life
  - Risk of standstills caused by tube leakages minimized
- By installing Breiding shells plant constructors (OEM) decrease the risk of damages within the initial warranty period.

# Protective shells

## Sizes and shapes

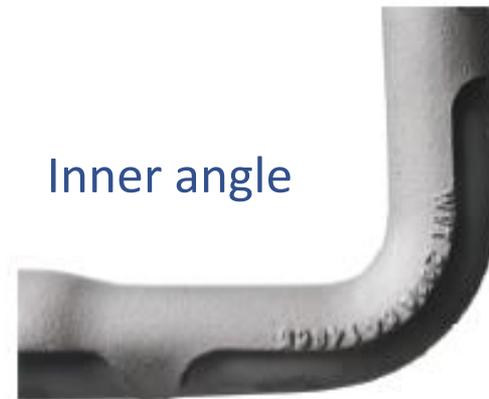
straight type in 300mm and 400mm length



Outer angle



180° arc



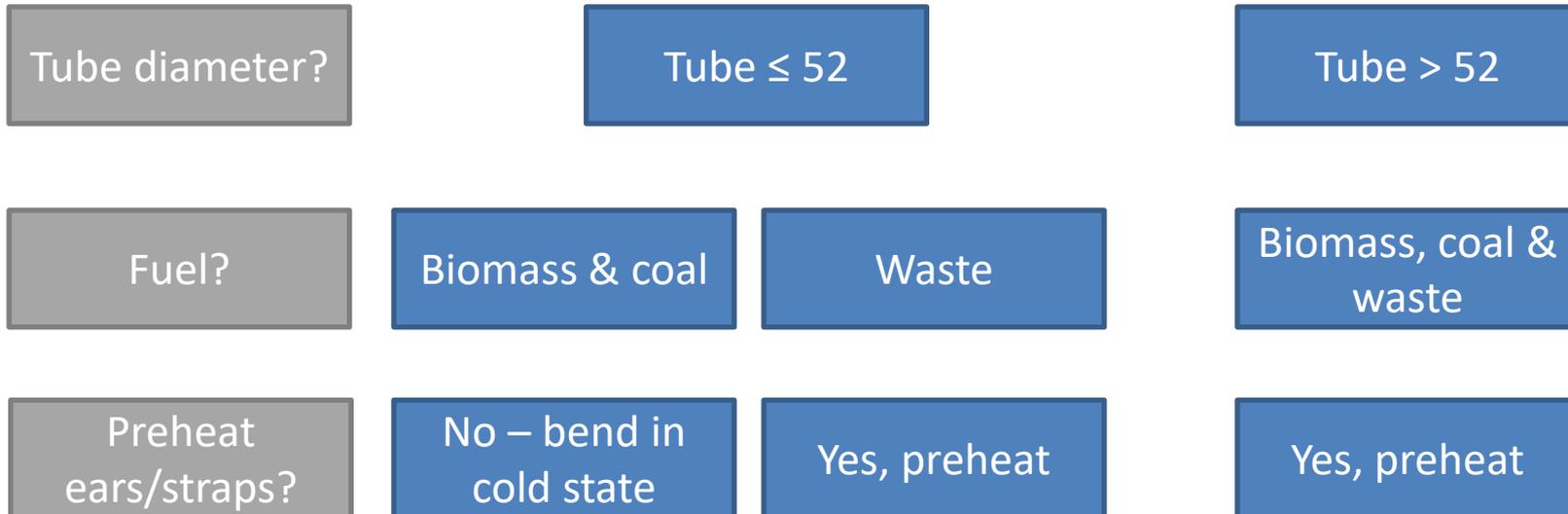
Inner angle

# Protective shells

## Materials and installation

- We adapt our shells to the fuel characteristics and the conditions in the boiler. Thus we have different materials in cast iron to produce our protective shells.
  - Biomass fuel, ears/straps can be bended in cold state to the tubes,
  - Waste and sewage sludge, ears /straps need to be heated to cherry red.
- Please be careful: Protective shells produced for waste fuel or sewage sludge cannot be mounted in cold state! A torch is necessary!
- Shells connect perfectly to each other by collar, tongue and groove system. The ears lead to a form lock fixing to the tubes.
- The easy assembly and thus reduced installation time result in enormous time savings.
- To fasten the installation even more we have developed a tool that enables the maintenance team to bend the ears easily to the tubes.
- Alternately, the bending of the ears can also be done by using a pipe wrench or by tapping with a hammer.

# Decision tree – how to mount protective shells with ears/straps



Mount with...



# How to preheat ears/straps



## Step 1

Fix protective shells to the tube system

# How to preheat ears/straps



## Step 2

Preheat the ears (or straps/brackets) from the front.

Take care that the ears /straps are completely cherry red as in the pictures above.

# How to preheat ears/straps



## Step 3

Clamp the ears to the tube system.





**Our wear parts are optimized to face  
the worst operating conditions –  
they literally face the fire.**