Core Products / Technical Principle

Natural Circulation Boiler - Type iNook
“CLOSED CIRCUITS”

INTEC Sales Meeting  June 26th- 28th  2013
Natural Circulation Boiler – Type iNook

“CLOSED CIRCUITS”
TECHNICAL PRINCIPLE

- generation of high pressure steam
- boiler & consumer in closed circuit driven by natural circulation
- no condensate loss – no feed water
- condensate return into the boiler by gravity difference
- no contact of steam with the product
- only heat transfer into the product
UNIQUE DESIGN

Advantages / Design Features

- over-flow tubes with minimized flow resistance
- unimpeded steam flow
- gas tight membrane walls
- central bottom flue gas box
UNIQUE DESIGN

Advantages / Design Features (SKB)

over-flow tubes with minimized flow resistance

High Water Circulation Ratio

- resulting in excellent heat transfer
- resulting in excellent cooling of heated surfaces
UNIQUE DESIGN

Disadvantages / Other Design

Hindered flow

- Unbalanced steam flow in the evaporator tubes
- Overheating in areas with low cooling
- Danger of steam and water separation
UNIQUE DESIGN

Advantages / Design Features (SKB)

- undisturbed steam flow
- no tube reductions
- no pressure drop
- no over overheating
- excellent water circulation ratio
Comparison

Design Features

SCHNEIDER iNook Design (Membrane Tube Wall)

Other Design (Tube-to-Tube)
Comparison

Disadvantages / Design Features (Others)

Disadvantages of Tube Reduction

- interruption of water circulation during peak load
- overheating of surfaces
- tube cracks

![Image of cracks occurring in this areas]
UNIQUE DESIGN

Advantages / Design Features (SKB)

- completely gas tight welded membrane tube walls
- no flue gas leaking into adjoining passes
- heating surfaces 100% impinged
- boiler efficiency maximized
Comparison

Disadvantages / Design Features (Others)

- Disadvantages of Tube-to-Tube Design (others)
  - flue gas leaking into adjoining pass
  - efficiency loss

not gas tight – welded!
UNIQUE DESIGN

Advantages / Design Features (SKB)

- heating surfaces 100% impinged
- boiler efficiency maximized

centralized flue gas box
Thank you very much!