UltraLife® Copper and Cast Iron Staves with Double Locking Refractory System

(Patent Pending)

SiC and Fused Alumina

Graphite

**Installation Savings**
- Utilize existing holes in the furnace
- Utilize existing water system (Circle pipes, pumps, cooling, etc.)
- Minimize installation time and outage days. (Have achieved 9 day reduction in outage when installing 5 rows of staves)
- Minimize new shell holes
- Eliminate sealing old shell holes.
- Engineering and installation support included in equipment supply

**Operation Benefits**
- Copper stave furnaces can achieve 15 to 30% increase in furnace volume as compared to a copper plate cooled furnace or a cast iron stave furnace
- Less heat loss to vessel walls resulting in a reduction in coke consumption
- Robust refractory system minimizes mechanical damage resulting in longer campaign life and consistent wall temperatures

**Design Benefits**
- Designs engineered to fit existing furnace
- The UltraLife® technology allows any shape stave to be produced
- Direct replacement of cast iron or copper staves and copper plate cooled furnaces
- Double compartment UltraLife® staves are designed and proven to operate if one cooling circuit is lost
- Elimination of flow voids
- Uniform flow, velocity, and pressure drop
- Elimination of plug welds and welded pipe attachments to staves
- The metallurgical bond created between the copper alloy pipe coil assembly and the copper casting results in superior heat transfer

**ADVANCED IRONMAKING TECHNOLOGY**

For more information on this and other technological innovations made available through our partnering agreements contact Berry Metal Company, Blast Furnace Product Manager - Todd Smith at 724-316-8949