

Septemebr
2012

Customer Story

Efficiency improvement for air
pre-heaters





Metallic Ferrules worn-out badly exposing tube sheet welds & tube



~06
times higher
lifespan than
existing metal
alternative

SITUATION

Air Pre-heater (APH) is a heat recovery equipment, which improves the efficiency of the Fluidized Combustion boiler. In APH the combustion air is preheated before its entry into combustion zone. The APH tubes are subject to [vortex erosion](#) when flue gas passes through the tubes.

This happens only for the fuels containing ash e.g. coal. In the event of tube failure, the heat gain from APH is not available for furnace heat transfer. In order to compensate for this heat loss the fuel consumption goes up.

In most of the APH applications the tubes are replaced once they are worn out and thus leads to [costly repair works](#). In cases where metallic ferrules are being used, the material [lasts for only about 1-2 months](#) and thus leads to [frequent breakdown maintenance shutdowns](#).

CHALLENGE

There were two major challenges faced by our material and design experts:

The application demanded for a material to provide [wear protection in high temperature environment](#).

The design of the Ceramic Ferrule required to accommodate for the [thermal expansion of the joints](#) under the application condition.

SOLUTION

The [wear phenomenon](#) and [wear characteristics](#) were studied at the customer site to understand the exact nature and extent of wear. Metallic ferrules were replaced by specifically engineered [ceramic ferrules](#) having [excellent wear resistance in high temperature environment](#).

Our customised wear resistant material, [CUMITUFF 92](#) High alumina ceramic was used for making ceramic ferrules.

RESULTS

The metallic ferrule replacement with ceramic ferrule resulted in a progressive shift for our customer from frequent [breakdown maintenance to preventive maintenance](#).

The [Ceramic Ferrules](#) ensured the protection of APH tube and it remained intact even after Six months of continuous operation assuring a [minimum one year safe working lifespan](#). This is in contrast to the [metallic ferrules](#), which used to get completely [punctured within two months](#).

This resulted in [huge savings](#) in costs as well as effective operating time for our customer.

World's 2nd largest
metallized cylinder manufacturer

Solutions for more than
22 industries

International quality standards
ISO 9001
ISO 14001
OHSAS 18001

Selling in more than
43 countries

WHY CHOOSE US?

MAKING

We design, We produce, We service.
We are a one-stop solution provider.

MATERIALS

We customize material solutions for
your specific needs.

MATTER

We ensure highest standards of quality
& customer delight always.

CONTACT US

Address

Plot No. 47, 48
Sipcot Industrial Complex,
Hosur - 635126, Tamilnadu, India

Call US

+91-4344-304700, +91-4344-304745
+91-4344-304726, +91-4344-304714
+91-4344-304809 (Fax)

e-mail

customercareic@cumi.murugappa.com