ADVANTAGES of preheater modification

- Improved kiln operation efficiency.
- Reduced production costs.
- Environmental protection.

TARGETS of preheater modification

- Increase of production capacity.
- Reduction of specific heat consumption.
- Reduction of specific power consumption.
- Compliance with more stringent emission regulations.

PREHEATER POSSIBLE „BOTTLE NECKS“

**Cyclones:**
- Separation efficiency
- Pressure drop

**Riser ducts:**
- Meal distribution
- Retention time

**Calcinier:**
- Meal distribution
- Retention time
- Combustion ($O_2$)
- $NO_x$ levels

**Tertiary air duct:**
- Combustion efficiency
- Pressure drop

**Down comer duct and GCT:**
- Pressure drop

**ID fan:**
- Fan capacity
OPTIMIZATION CAN BE ACHIEVED BY:

- Replacing or modifying existing top stage cyclones (installing HURRICLON® or HURRIVANE®)
- Installing HURRIVANE® in 2nd stage cyclones
- Modifying existing cyclone geometry, mainly inlet portion and inlet spiral
- Modifying dip tubes in existing cyclones
- Modifying riser ducts
- Modifying or installation of new calciner
- Replacing dispersion/splash boxes
- Modifying flaps (double pendulum)
- Modifying down comer duct (hot gas duct)
- Modifying conditioning tower
- Modifying tertiary air duct
- Modifying kiln inlet chamber

(In most cases only some of above mentioned modifications are necessary to reach the target.)

EXAMPLE OF INSTALLATION

Alhandra plant (klin 7)

CIMPOR ALHANDRA - PORTUGAL

SITUATION BEFORE:
- 5 stages preheater with precalciner
- Clinker production: 2,900 t/d
- Pressure drop of top stage: 17 mbar
- Pressure drop of 2nd stage: 12 mbar

INSTALLED:
- 2 units HURRICLON® HU 3400 CT in top stage
- 2 units HURRIVANE® Ø2200 mm in 2nd stage

GUARANTEED:
- Top & 2nd stage pressure drop (each): 10 mbar
- Increase of production: +200 t/d

REALIZED:
- Pressure drop of top stage: 9.1 mbar
- Pressure drop of 2nd stage: 9.9 mbar
- Increase of production: +347 t/d
- Separation efficiency: 93%

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