- SIMPLE AND EXTREMELY EFFICIENT
- LITTLE MAINTENANCE & LOW OPERATING COSTS
- PROCESS ALWAYS UNDER CONTROL
- HIGH QUALITY RECLAIMED SAND
- NO NOXIOUS EMISSIONS
THE DRAWINGS (Cap. 500 Kg/h)
THE CONCEPT: ONLY A PART OF THE SAND IS THERMALLY RECLAIMED

- NEW SAND
  - 0.3%
  - 14.7%
  - 6%
- GAS THERMAL RECLAMATION
  - 15%
- POURING AND MOULDING
  - 80%
- MECHANICAL RECLAMATION
  - 4%
- COOLING LINE
  - 2%
- SPILL SAND
  - 98%
  - 97%
  - 1%
  - 1%
  - 2%
  - 1%
  - 2%
THE GAS FIRED RECLAMATION SYSTEM

SAND TO BE RECLAIMED SILO

WATER COOLING UNIT

VIBRATING SAND FEEDER

GAS FIRED FLUIDIZING BED

HOT FUME DUCTING

DUST COLLECTOR & FAN

RECLAIMED SAND SILO

ELECTRICAL PANEL

FLUIDIZED BED SANDCOOLER

WATER COOLING UNIT
AVAILABLE DELIVERIES FOR GAS FIRED THERMAL RECLAIMERS:

0,3 tph
0,75 tph
1,5 tph
2-2,5 tph
4 tph
5-6 tph
**THE INSTALLATION**

- **RECLAIMED SAND DISCHARGE HOPPER**
  (Temperature approx. 25-30°C*)

- **DUST COLLECTOR**
  (Working temperature of air: approx. 180°C)

- **COLD AIR INTAKE**

- **FUME TEMP. 850°C**

- **SAND TEMP. 750°C**

- **CALCINING FLUIDIZED BED**

- **FLUIDIZED BED COOLER**

* = with evaporating tower: 7°C above the wet bulb temperature
FLUIDIZED BED

AIR+GAS  AIR

SAND

AIR

GAS
SUMMARY OF FEATURES

- DELIVERIES FROM 250 TO 5000 Kg/h
- PROVED RELIABILITY
- TECHNOLOGY BASED ON THE DIRECT COMBUSTION GAS FLUID BED TYPE
- POSSIBLE PRE-HEATING OF THE FLUIDISING AIR WITH HEAT EXCHANGER INSTALLED ON THE EXHAUST SYSTEM OF THE FURNACE FOR ENERGY SAVING
WORKING TEMPERATURE OF SAND 650 - 850 °C

L.O.I. ALWAYS BETWEEN 0,01 AND 0,05

NORMALLY BETTER THAN NEW SAND
FINENESS NUMBER

NORMALLY NO SIGNIFICANT VARIATION BECAUSE THE FLUIDIZED BED DOES NOT « STRESS » THE SAND GRAINS

EXAMPLE: T.S. FUNDICIONES FOUNDRY

AFS 38,11 BEFORE
AFS 38,47 AFTER
ACID DEMAND

IT DOES NOT DEPEND ON THE THERMAL PROCESS.

A VARIATION IS NORMALLY DUE TO INОРGANIC COMPOUNDS IN THE RESIN COMPOSITION.

EXAMPLE: WITH SOME PHENOLIC-FURAN RESINS IT IS NECESSARY TO USE STRONGER CATALYSTS IN THERMALLY RECLAIMED SAND.
ADVANTAGES

• THE SIMPLICITY OF TECHNOLOGY AND OF THE CONTROLS;

• LOW MAINTENANCE COSTS;

• LARGE RANGE OF SIZES;

• AFTERBURNER NOT REQUIRED;

• TOTAL MILD STEEL CONSTRUCTION;

• FOR ALL KINDS OF FOUNDRIES USING NO-BAKE SAND MOULDING OR COLD-BOX, SHELL AND HOT-BOX CORES;
EMISSIONS INTO ATMOSPHERE NORMALLY BELOW THE PRESENT LIMITS OF THE EUROPEAN LEGISLATION.

**EXAMPLE:** SCACCHETTI FOUNDRY  
(ALUMINIUM - PHENOLIC - URETHANE RESINS)

<table>
<thead>
<tr>
<th>Component</th>
<th>Delivery at Bag Filter</th>
<th>Comparison limit - CEE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DUST</strong></td>
<td>2,5 mg/Nm³</td>
<td>20</td>
</tr>
<tr>
<td><strong>V.O.C. (total organic C)</strong></td>
<td>3,06 mg/Nm³</td>
<td>90</td>
</tr>
<tr>
<td><strong>PHENOL</strong></td>
<td>0,12 mg/Nm³</td>
<td>3 - 5</td>
</tr>
<tr>
<td><strong>FORMALDEHYDE</strong></td>
<td>0,7 mg/Nm³</td>
<td>1,2 - 1,5</td>
</tr>
<tr>
<td><strong>POLY-ISOCYANATES</strong></td>
<td>0,01 mg/Nm³</td>
<td>3 - 5</td>
</tr>
<tr>
<td><strong>AMMONIA (as NH₃)</strong></td>
<td>3,84 mg/Nm³</td>
<td>9</td>
</tr>
</tbody>
</table>
THE HEAT RECOVERY SYSTEM

TO PRE-HEAT
THE FLUIDIZING AIR
## FIRING SYSTEM TYPE "DIRECT INJECTION WITHOUT PREMIX TO INJECTOR MATRIX FROM MULTIPLE PLENUM CHAMBERS."

### ADVANTAGES
- Patented nozzles with gas/air injection directly into bed.
- High preheat allowed (600°C).
- Nozzle mix eliminates any pre-combustion.
- Only clean air is used, maintenance eliminated.

### CONTAINMENT
- Pressure seal on bed perimeter eliminates gas leakage into thermal insulation.
- Ceramic fibre block insulation is multi directional and eliminates laminar gas paths and improves gas velocity properties.
- Fixed width and modular length design for ease of shipping.
- Oval/round bed shape eliminates all corners and stressed areas.
- Sand flow through bed improved by lack of dead corners.
- Current technology (you saw it here first) others will copy the trends.

### SAND COOLING
- Individual stand alone cooler unit system.
- Easy maintenance on conventional technology.
IMF GAS FIRED RECLAIMER

NO CORNERS OR DEAD SPOTS

(CORNER)

MULTI DIRECTION
INSULATION

LOW TEMPERATURE
PRESSURE SEAL

MULTI PLENUM - NO PREMIX OF GAS AIR

AIR  GAS
Reference customers:
Yingliu (China)
Sanmar (India)
Lucio Garay - GAP (Spain)
Impro Wuxi (China)
5 ton/h gas fired thermal reclamation
(120 ton/day of possible effective production)
Working temperature up to 850°C
Furnace fluidized bed surface 8m²
Cooler fluidized bed surface 6m²
Dedusting plant 55,000m³/h
WATER SUSPENSION

75% POWDER
25% WATER

- ABRASIVE
- DECANTING
- DENSITY ~ 1,3 ÷ 1,5 Kg/dm³

USED
0,2 ÷ 0,6 %
ON THE SAND
(CAVERAGHI)

NEED OF A STIRRER IN THE TANK AND RECIRCULATION IN THE CIRCUIT

TYPE OF PUMP USED:
- PERISTALTIC
- MEMBRANE TYPE
END PRESENTATION