



FOUNDRY
MACHINERY AND
SPARES LIMITED

HOT POT

Thermal

Reclamation



Standard sizes

MODEL	OVERALL HEIGHT (mm)	OVERALL LENGTH (mm)	OVERALL WIDTH (mm)	POWER REQUIREMENT KW	GAS REQUIREMENT M3/HOUR
HPG 250	3900	4650	1700	21	10
HPG 500	3900	5650	1900	31	20
HPG 1000	3900	7850	1900	41	40
HPG 2000	3900	9250	1900	51	80

Notes:

- 1) Gas consumption will depend on the L.O.I (loss of ignition) of feed sand.
A typical consumption at 3.7% L.O.I has been recorded at 15.8m³/tonne of feed sand
- 2) Electricity consumption will vary with the size of plant between 25 and 60 Kwh/tonne of feed sand
A recorded value for the HPG 500 unit was 48 Kwh/tonne.
- 3) Gas details are based on natural gas (Propane systems are available)

General

The range of gas fired thermal sand reclamation units are designed to provide the foundry man with a compact system to operate at maximum economy. The heat recuperation system and the PLC control provide a reliable and cost effective operation that will process most types of chemically bonded sand

MODEL	THROUGHPUT RANGE (Kgs/Hour)
HPG 250	250 - 350
HPG 500	500 - 750
HPG 1000	1000 – 1250
HPG 2000	2000 - 2400

Specification

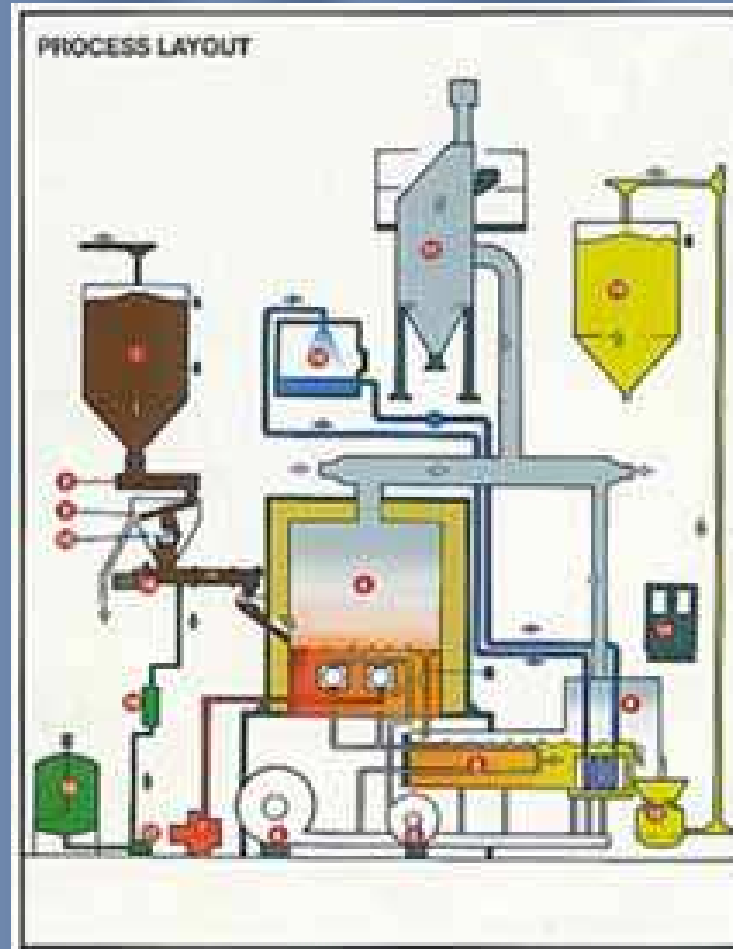
- Sand feed silo, receiving sand from mechanical sand reclamation plant (Customer supply)
- Screw feeder with variable speed drive
- Vibrating screen to remove oversize materials
- Furnace unit, fully insulated, with nozzle mix burners and all gas control valves
- High pressure fan for combustion air
- Fluidising fan for furnace, primary heat exchanger and cooler classifier
- Booster fan for gas supply (If required)
- Primary heat exchanger, stainless steel construction to pre-heat furnace fluidising air
- Fluid bed cooler classifier to cool reclaimed sand and remove unwanted fines
- Water cooling system with evaporative cooling tower, circulating pump, valves and pipework
- Dust collection system with ducting, control valves, high temperature filter unit, fan and exhaust stack
- Pneumatic sand transport system
- Storage silo for processed sand (Customer supply)
- Control panel with PLC for fully automatic 24 hour/day operation

OPTIONS

(For processing of alkaline phenolic sand)

- Holding tank with stirrer for additive
- Dosing pump for additive
- Mass flow meter to ensure continuous accurate flow
- Continuous mixer for additive and sand

Typical Process Layout



Control system

Electrical/pneumatic control panel with Mitsubishi PLC (or equivalent). Full logic control for automatic operation in either continuous unsupervised 24 hour running or batch process and providing all the appropriate interlocks and alarms.

Display on a mimic panel will show:-

- A. State of plant operation
- B. Operating temperature of thermal fluid bed, air exhaust, outlet sand and cooling water
- C. Hours operating on a total basis and on each of the pre-calibrated flow rates operated by a unique modulating system
- D. Quality of sand processed

Separate mimic panel for the gas burner system to indicate its state of operation

Gas Burner system

Fully accessible for inspection during operation and maintenance

Gas/air nozzle burners of simple design are controlled by the monitoring thermocouples which allow full use of the latent energy content of the feed sand.

The residence time within the fluid bed at a pre-set temperature of normally 700-750 degrees C produces a clean sand with L.O.I of less than 0.1%

Dust Collection system

All the exhaust air from the plant with an additional intake of cooling air is passed through a high efficiency cartridge filter (with reverse jet cleaning)

A constant monitor of the pressure drop across the filtration media is provided to indicate the condition

The exhaust stack is provided with monitoring points for the discharged air

The retained dust is discharged in to heavy duty easily disposable plastic sacks which are mounted beneath the collecting hopper(s)

Recuperative system

To obtain the minimum heat losses, the insulated primary heat exchanger receives the sand from the fluid bed furnace and with a unique design, cools the sand and transfers the heat via the fluidising air back in to the furnace

Previous Thermal Reclamation



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