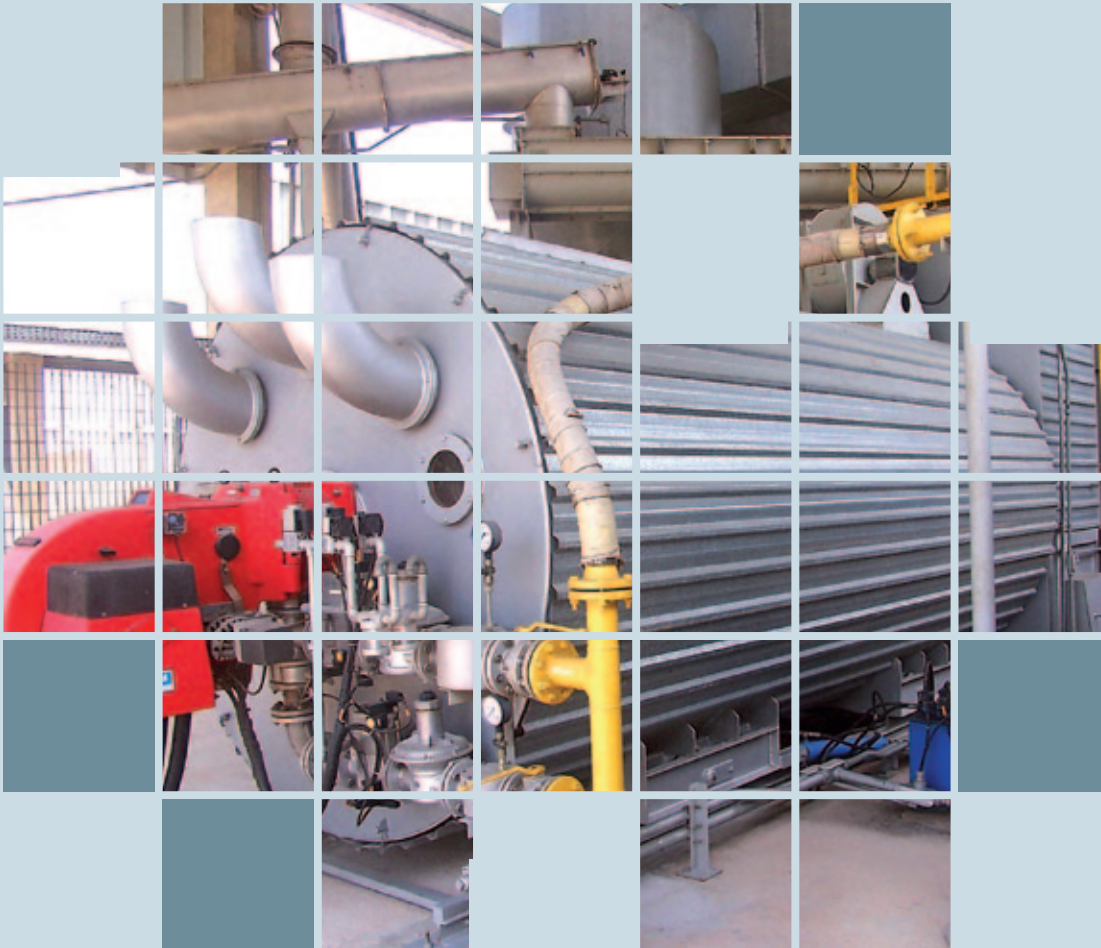


DIVISION



SEPARATION
SOLUTIONS

SLUDGE THERMAL DRYER IN STAINLESS STEEL 316 L



GRUPPO

PIERALISI

PIERALISI OFFERS A COMPLETE SYSTEM FOR SLUDGE DRYING

Pieralisi is one of the biggest manufacturers of thermal dryers in the world. The dryer is totally automated and of easy operation. They have been produced for over 20 years in Spain and being successfully marketed in the following countries: Italy, Spain, USA, Turkey, Portugal, Morocco, Greece, Brazil and Argentine. In Brazil the dryers are used for drying dewatered sludge from the WWTP.

ADVANTAGES

- Reduction in 75% of the volume to find a new destine;
- Aggregates value to the residue
- It diminishes the necessity of using landfills
- It generates "A" class sludge that can be used in agriculture;
- Automatic system and easy to operate;
- Self-sustainable in WWTP with biodigesters;
- Low cost for operation and maintenance
- Low cost for assembling and electromechanical installations;
- Sludge temperature in the output around 40°C with no necessity of post-cooling;
- Lower operational complexity;
- Operation with negative pressure in the whole system, avoiding the emission of gases or dust;
- Clean plant, odor free and with low particle emission.



ETE - Alegria - Aerial View



ETE - Alegria - Sludge Reception



ETE - Alegria - Dryer



Gases washer (scrubber)



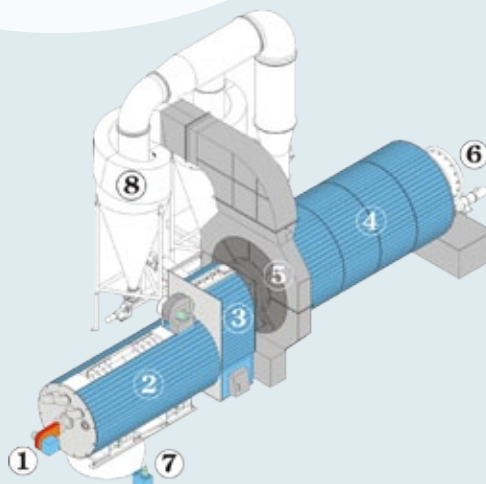
Command and power panel



ETE - Pavuna - 4.000 l/h

EASY OPERATION

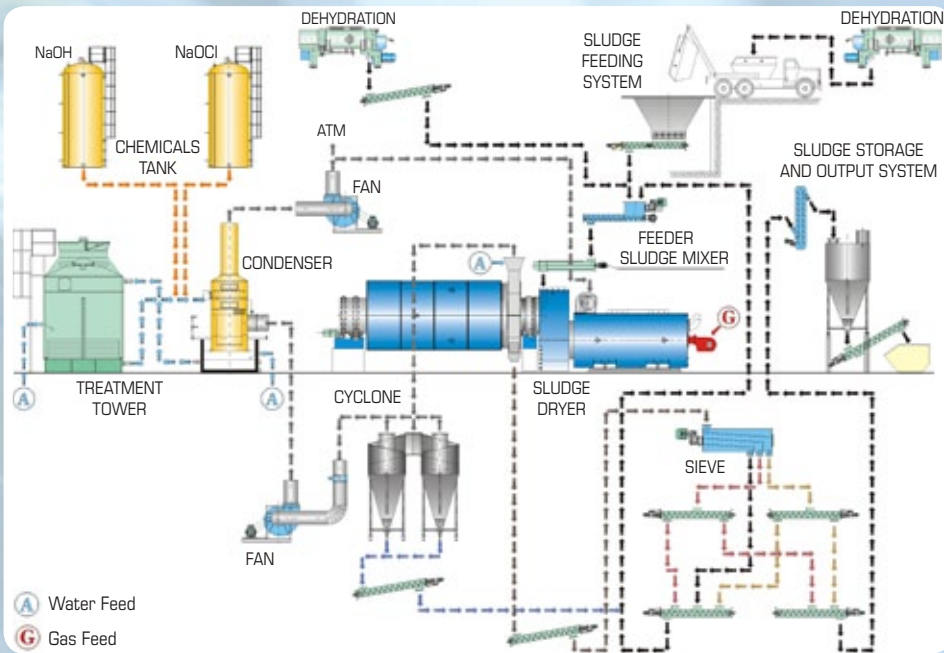
- Low cost for assembling and electromechanical installations;
- Sludge temperature in the output around 40°C with no necessity of post-cooling.
- Lower operational complexity.
- Operational flexibility and security, with dislocation of the combustion chamber.
- Operation with negative pressure in the whole system, avoiding the emission of gases or dust.
- Clean plant, odor free and with no particle emission.



LABELS

- ① Gas burner
- ② Combustion Chamber
- ③ Pre-chamber
- ④ Drying Chamber
- ⑤ Solid output chamber
- ⑥ Starting
- ⑦ Hydraulic starting
- ⑧ Cyclone

SLUDGE THERMAL DRYER



- Processing sludge from WWTP, physical-chemical treatment, and agricultural residue;
- Smaller area for the implementation of the dryer;
- Totally horizontal construction;
- Low cost of investment and maintenance;
- Combustion chamber for multiple fuels (solid, liquid and gas);
- Use of energy from the waste gas turbine;
- Due to its cylindrical building and to the rotational movement, the dried sludge has a shape similar to spheres with 2 to 4 mm of dimension;
- Due to the outflow of gases in a parallel stream it is possible to dry thermal sensitive material - Retractable system of the combustion chamber.



Internal view of the drying chamber



Dried Sludge



Extracting screw - Silo



ETE - Barra da Tijuca



ETE - Sarapuí



Detail of the dryer

DATE DRYERS

| Model | Water evaporated capacity (kg/h) | Wet cake drying capacity (ton/h) | Power installed (Kw) | Electrical consumption (Kw/h) | Specific consumption Kwh/m ³ of sludge | Biogas consumption Nm ³ /kg of sludge |
|---------|----------------------------------|----------------------------------|----------------------|-------------------------------|---|--|
| S-1000 | 1,000 | 1,4 | 70 | 45,5 | 32,5 | 0,123 |
| S-2000 | 2,000 | 2,8 | 120 | 78 | 27,9 | 0,123 |
| S-4000 | 4,000 | 5,6 | 205 | 133,25 | 23,8 | 0,123 |
| S-6000 | 6,000 | 8,4 | 328 | 213,2 | 25,4 | 0,123 |
| S-8000 | 8,000 | 11,1 | 492 | 319,8 | 28,8 | 0,124 |
| S-12000 | 12,000 | 16,6 | 688 | 447,2 | 26,9 | 0,125 |



Division Separation Solutions

INSTALLATIONS



CEDAE – Effluent Treatment Station (ETE) Ilha do Governador (Rio de Janeiro): view of the combustion chamber of the sludge dryer. Plant of sludge dehydration and drying (digested anaerobic) with evaporation capacity of 1.000 L/h. The pie that comes out of the dryer is analyzed by the Agronomical Institute of Campinas and is approved to be directly used as a fertilizer.



JAEN (Spain): It is in operation a drying system of Pieralisi, processing agricultural residue and it is considered one of the biggest in the world. There are eight dryers installed with an evaporation capacity of 12.000 L/h totalizing 96.000 L/h of evaporation capacity. The obtained biosolid with 90% of dried solid and calorific power of 4.230 Kcal/Kg is used as fuel to a thermoelectric of 25 MWH.



CEDAE ETE Sarapu (RJ) – Sludge dehydration and drying plant (primary and biological) with an evaporation capacity of 4.000 L/h.



CEDAE ETE Pavuna (RJ) - Sludge dehydration and drying plant (primary and biological) with an evaporation capacity of 4.000 L/h.



CEDAE ETE São Gonçalo (RJ) - Sludge dehydration and drying plant (anaerobically digested) with an evaporation capacity of 2.000 L/h.



CEDAE ETE Barra da Tijuca (RJ) - Sludge dehydration and drying plant (primary and biological) with an evaporation capacity of 2.000 L/h.

THE PIERALISI GROUP

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