

TEST DRUM:

System for testing IMT technology application in disposal of solids and liquids

SYSTEM DESCRIPTION

The TEST DRUM system is based on the TEST-SU reactor, a compact version of the SU reactor. It is used to carry out thermal processing of feedstock material in a concentrated microwave field.

The device's metal body, made of stainless steel, houses a rotating drum made of a special type of ceramic transparent to the microwave field. This allows microwave energy to reach the feedstock directly, demonstrating high heat transfer efficiency. The device's metal body houses 4-8 microwave waveguides, to which microwave field generators (each with a power of 3kW) are mounted. The device is equipped with a feedstock loading system in the form of a screw or piston conveyor, allowing for the introduction of materials with a maximum fraction of up to 30 mm. Discharge of post-process material is customized, depending on the type of process. Also, the flue gas evacuation system is tailored directly to the user's needs and can be equipped with additional gas purification systems, including microwave or absorption systems.

The device set includes a water chiller for cooling microwave generators and a control cabinet containing microwave head power supplies, a control system, and a power supply system.

THERMAL PROCESS IN THE SYSTEM

The thermal process is carried out by putting the feedstock inside a rotating ceramic drum. The feedstock is subjected to a microwave field, and, as a result, it is heated to the process temperature (as required) of no more than 1150 °C.

Depending on the type of process carried out (aerobic, anaerobic), the components of the feedstock undergo gasification/combustion in a concentrated microwave field, creating process flue gases / high-temperature synthesis gas.

The TEST DRUM system provides multiple options for testing all process parameters on different feedstock materials to check the influence of the microwave field on a given feedstock during its thermal processing.

TEST-SU REACTOR PARAMETERS USED IN THE TEST DRUM SYSTEM

TEST-SU	value	unit
Maximum efficiency	10	kg/h
Maximum process temperature	1150	°C
Number of microwave generators	4 - 6	units
Installed microwave power	12 - 24	kWc
Electric power consumption from the grid	30 - 55	kWe
Maximum feedstock fraction	30	mm
BASE PRICE	90,000	[EUR]