

# HIGH TEMPERATURE FLUIDIZED BED



## PRINCIPLE

In complement to standard static or vibrating fluidized beds, suitable to work up to 400°C, COMESSA designs also high temperature fluid beds up to 950°C. This batch fluidized bed is constituted by a metallic cylindrical reactor heated through the wall, allowing an internal controlled atmosphere, independent from heating load. The retort can be externally heated by radiation with electrical coils or by hot gases.

The fluidization gas is homogeneously distributed by a special conical plate, allowing discharge of treated product through a central high temperature valve. Exhaust gases are cleaned by a filter made of sintered metal cartridges. Depending on the application and characteristics of the product, the filter can be externalized and an agitator can be added in the layer of product.

Fluidization will generate an important stirring between gas and product and therefore a very homogeneous treatment. Precise temperature and process cycle can be fully automated.

This kind of equipment is typically dedicated to the treatment of catalysts, even with particles below 30 microns. Direct heating or continuous processes can be alternatively proposed.

## ADVANTAGES OF THIS TECHNOLOGY

- Highly uniform product treatment
- Controlled atmosphere
- Accurate temperature control of reaction
- Possibility to add an agitator
- Possibility to have internal filtration



▼ Detail of electrical heating mantel



## MAIN APPLICATIONS

Catalyst activation or regeneration, metallic oxides reduction (Fe, Ni, Tu, Cr, Mo, Co), oxidation of metals, ore calcining.

## MAIN PROCESSES

Calcining, oxidation, reduction, gaz-solid reaction, roasting, pyrolysis, etc.

## PILOT TEST LABORATORY

For determination of high temperature fluidized bed parameters. Lab scale (1 l) or larger batch reactors (10 l to 50 l) are available.



# HIGH TEMPERATURE ROTARY TUBE



## PRINCIPLE

In complement to standard rotary tubes, Comessa designs also high temperature indirectly heated rotary tubes for thermal treatment up to 950°C. Typical design is constituted by a metallic shell heated through the wall, allowing an internal controlled atmosphere, independent from heating load.

Thermal exchange is achieved by an external mantle, heating the shell by means of electrical coils, hot gases or direct flames burners.

Rotating shell can be made of special heat resistant alloys. Design of internals allows a constant renewal of product in contact with the wall, insuring an optimal heat transfer.

Indirect heating reduces drastically stripping gas flow rate, allowing very low gas velocity suitable for treatment of finest products. Rotary shell can be fitted with high performance seals, dedicated to controlled atmosphere processes or hazardous products. Direct heated rotary tubes can be alternatively proposed.

## ADVANTAGES OF THIS TECHNOLOGY

- Accurate control of temperature profile by separated heating zones
- Highly uniform product treatment
- Gas or dust tight design available
- Suitable for very fine products
- Possibility of controlled atmosphere



Internal view ▲  
under operation



## MAIN APPLICATIONS

Catalyst activation or regeneration, treatment of zeolites and molecular sieves, ore calcining, oxidation of metals.

## MAIN PROCESSES

Calcining, oxidation, reduction, gaz-solid reaction, roasting, pyrolysis, etc.

## PILOT TEST LABORATORY

For determination of high temperature rotary tubes parameters. Batch lab scale (2 l) or continuous pilot (15 kg/h) are available.

