The specialised design of this equipment offers large interior drying surfaces and optimal heat transfer rates between the thermal fluid and the product.

In comparison with conventional rotary drums, the great advantage of the tube bundle dryer consists in the fact that no heating gas comes in direct contact with the product. Nearly all the steam expelled from the dryer consists of water evaporated from the product. This greatly reduces the flow of exhaust fumes and therefore investment in gas purifying equipment. This aspect is even more relevant when dealing with particularly odorous or harmful components for which an expensive wet gas washing/treatment is necessary.
**Working principle:**
The tube bundle dryer is a rotary drum internally equipped with steam or thermal oil heated tubes, so hot gas circulation is not required. This results in a very high thermal efficiency and a minimal flow of exhaust steam needing to be treated. It is especially suitable for large flows of products which require medium to long residence times. Highly flexible, the tube bundle dryer easily adapts to changes in operation and is of very robust construction. Excellent product treatment, uniform drying without lumps.

**Optimal heat transfer factor between thermal fluid and product. Minimal treatment of exhaust vapors. Engineered to prevent condensation, adherence, lumps and shearing of the product.**

**Product treatment:**
- **Product homogeneity:** thanks to its proper distribution and mixture of the product, to the plug flow fashion conveying, as well as to the absence of dead zones, the residence time is the same for all particles.
- **Good product quality:** no lumps are formed thanks to the careful treatment inside the cooler. Tubes and shell move synchronous and the product turns under gravity, avoiding shear forces between paddles and stator which usually occur in other types of tube bundle dryers, affecting the final product quality.
- **Optimised design:** these equipments are designed and engineered to prevent condensation and adherence of the product to the walls.

**Reduction of operating costs:**
- **Adjusted thermal consumption:** easy recovery of most of the steaming energy from condensation and solvents.
- **Reduced exhaust vapors treatment costs:** its design reduces significantly the exhaust vapors treatment costs.
- **Robustness and long service life:** engineered to reduce tension within the equipment
- **Adaptability:** the design of each tube bundle dryer is customised to fit the product and customer’s needs.
- **Easy to maintain:** the voluminous steam chamber is fully accessible, making maintenance or repairs easier.

**Typical applications:**
Powdery to fibrous bulk products, sludge, special minerals, filter cakes, etc.

**Food Industry**
Products derived from corn, wheat, rice, soybeans and cereals

**Basic layout of a tube bundle dryer drum:**

1. Product feeding station
2. Dryer
3. Tubes
4. Product outlet
5. Steam outlet
6. Condenser
7. Exhaust ventilator
8. Recovery of condensate
9. Heat transfer medium inlet and outlet

**Tube bundle dryer:**

**Frequent combinations:**
Flash-Cooler, Fluidised Bed Cooler, Multi-Chamber Cooler, etc.