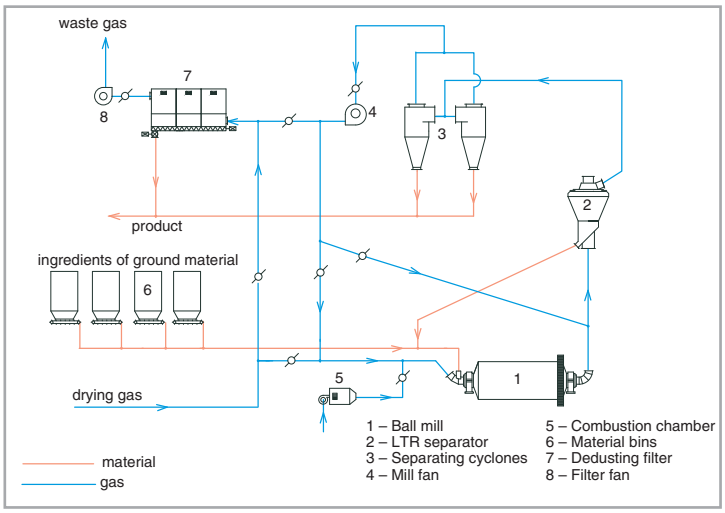
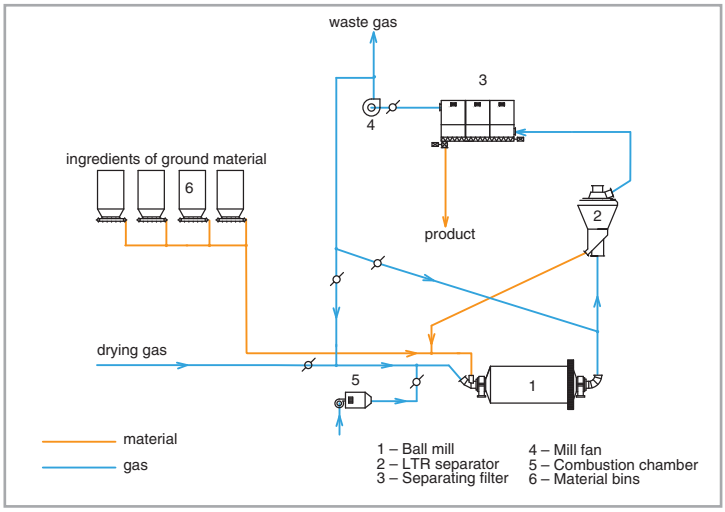
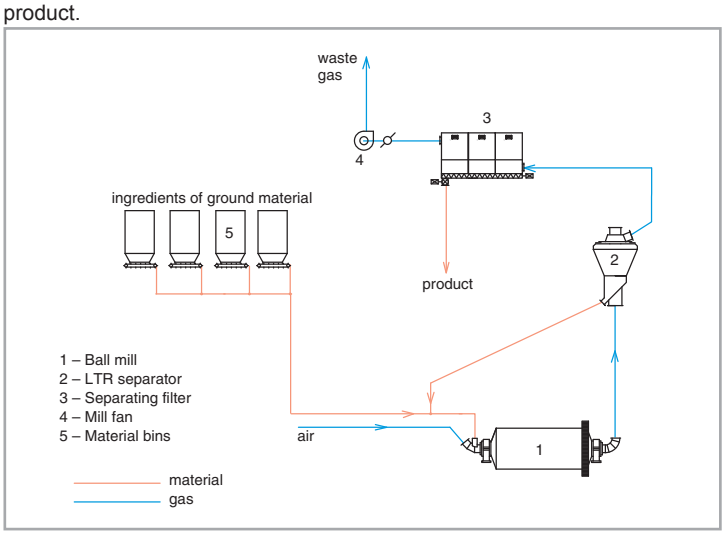
LTR separators are used in grinding plants with pneumatic circulation working in closed or open circuit. The product is collected in cyclones or filter. The closed circuit is mainly used when the material is simultaneously dried and the open circuit is used in grinding plants without drying.



Pneumatic grinding plant with drying closed circuit arrangement with cyclones: This arrangement is used for grinding materials of elevated moisture content and lower required fineness of the finish product.



Pneumatic grinding plant with drying in a closed circuit arrangement with filter: This arrangement is used for grinding materials of lower moisture content but higher required fineness of the finish product.



Pneumatic grinding plant without drying in an opened circuit arrangement with filter. This arrangement is used for grinding materials without drying.

Air separator LTR-R 2500 for 105 t/h at the cement raw material grinding plant – Rezola. Arrigoriaga, Spain

Air separator LTR-R 2500 at the cement raw material grinding plant with a capacity of 105 t/h – Rezola, Arrigoriaga, Spain

Air separator LTR-R 1250M at the TiO_2 slag grinding plant with a capacity of 4.5 t/h – Celje, Slovenia

Air separator LTR-R 1650 at a coke grinding plant with 12.5 t/h capacity – OKD Ostrava, Czech Republic

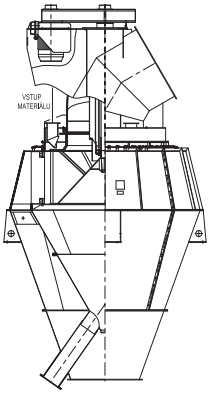
Separator application

The PRESEP air separator LTR designed by PSP Engineering is a dynamic air separator used in circulating pneumatic grinding plants in combination with a ball mill.

Characteristics of the PRESEP air separator LTR

- High efficiency and sharpness of separation
- The Tromps curve with a bypass lower than 10% and great steepness guarantees high output and efficiency of separation
- Energy savings of the grinding line with a fineness of separation up to 40%
- Compact structure means less weight and built up space
- Low cost of installation
- Wear parts are effectively protected against abrasion and can be easily replaced
- Negligible maintenance
- Suitable for abrasive material
- Sorted material can be effectively dried and cooled
- Separate a greater range of grain sizes from 20 – 300 µm
- Adjust grain size distribution during operation
- Improved grain size distribution of raw meal
- Favorable conditions for the burning process

Air separator LTR-R



Air separator LTR-M

Design of the LTR separator

The separator LTR is used in circulation pneumatic grinding plants, in which the ground material is discharged from the mill by air flow. The separator consists of an outside conical chamber, an inside conical chamber, an upper part connected to the discharge piping, distribution blades, and a rotor with seating and a drive.

The discharge method is a determining factor in the design of the LTR separator. The air separator discharges the product from the inner conical chamber or from the common discharge. The following models can be designed for either method of discharge:

- LTR-R – widest range of application
- LTR-U – for explosive materials
- LTR-M – with an additional upper material inlet

In the LTR-M a portion of the separated material can be directed to the upper inlets to the distribution plate. The material passes through the space between the conical chambers where the coarsest particles are separated as a result of a decrease in gas velocity. These particles are returned to the mill from the inner chamber.

The flow of air carries the material toward the upper part of the separator where the distribution blades and the rotor are positioned.

The angle of the stationary blades controls the speed of the air flow to the rotor and reduces turbulence at the inlet of the rotor.

The rotor consists of a cage consisting of blades. The speed of the rotor is regulated as a function of the properties or size of the desired product fineness. The fine portion of material is carried through the rotor by airflow to the discharge pipes and into cyclones or filters for final separation.

The coarse particles do not pass through the rotor blades and, as a result of the centrifugal force/ gravity, fall into the inner conical chamber from which they are discharged.

The rotor is fixed on the shaft, which is seated on antifriction bearings and mounted in the upper part of the separator. The rotor is either direct or V-belt driven.