



FCB TSV™ Classifier

The high-efficiency dynamic classifier



FCB TSV[™] Classifier offers the highest efficient separation, thus enabling enhanced finished product quality and improved grinding plant performances

- Sharp control of product fineness
- Minimal bypass
- Reduced imperfection on Tromp curve
- Very low pressure drop
- Very low power consumption

FCB TSV™ Classifier has been widely selected by major players in Cement and Minerals industries for its decisive advantages

Capacity

Thanks to its patented turbine design, the highest efficiency of FCB TSV[™] Classifier allows for the maximal mill grinding efficiency, resulting from a minimal bypass, plus an extremely steep slope of the Tromp curve. An additional increase of cement mill capacity is obtained from a strong reduction of coarse particles in the product and the optimization of the target values of fineness.

Product quality

The high-efficient separation reduces the amount of coarse particles in the fine products and the amount of fines in the oversize product (defillerization), thus enabling:

- A maximal compressive strength with the minimal Blaine set point
- A higher reactivity of solid fuels in cement kilns and precalciners, and the consequent reduction of fuel consumption
- A better burnability of raw meal in the cement kilns
- An enhanced cement-to-clinker ratio
- A better mass yield versus sifting machines



Energy savings

The patented vortex breaking system leads to classifier energy savings while the low pressure drop of the separator induces a lower energy consumption of the classifier fan.

The enhancement of the milling system efficiency involves additional and significant specific energy savings too.



More than 260 references worldwide

-Special applications

Dry beneficiation

- Dry processing to concentrate a product when two fractions show a difference of density
- Applicable to phosphate, magnesite, silica fumes, pyroxenite, etc.
- Also applicable in cement industry

Filler control

- An easy and efficient way to control or remove the ultrafine fraction of a powder
- Applied to limestone, silicon metal, ilmenite slag and other aggregates

Flexibility in installation

FCB TSV[™] Classifier can be combined with different types of mills: FCB Horomill[®], ball mill and vertical mill (E-mill, Raymond mill, roller mill). The different types of feed system and corresponding wear liners allow the installation of FCB TSV[™] Classifier in a wide range of process configurations.

In a ball mill plant, FCB TSV™ Classifier can be either:

- Integrated into the mill venting system for total or semi-airswept mills
- Installed in a separate air circuit with axial or tangential air inlet duct
- Associated with two mills operating in parallel

With ball mill or FCB Horomill[®] plant, when relevant, FCB TSV[™] Classifier can be installed above FCB Flash dryer or FCB Aerodecantor.

Adaptability

The versatile design of FCB TSV[™] Classifier enables its adaptation to a large range of industrial applications:

- Available from 800 to 8,000 mm diameter (up to 500 t/h finish product).
- With axial or tangential air inlet, dusty or not, top or bottom feeding, even both.
- Product fineness from 5 µm to 500 µm.
- From OPC cement to blended cements, slag, limestone, minerals powders, ores and solid fuels.



Each application has its own FCB TSV™ Classifier



Reliability

- Bearings calculated for more than 100,000 h lifetime
- Wear protection scheme and material based on application and classified products
- Dust-free air sealing technology
- Sturdy construction and dynamic balancing
- Optional automatic lubrication system for minimal maintenance

Turbine with patented rotor blades and anti-vortex plates Smart sealing system for top cut size steadiness Circular damper with swivelling counter-blades simultaneously controlled

A well-proven technology adapted to a wide range of industrial products: cement raw mix, cement, solid fuels, minerals, etc.

Product	Cut size	Comments / Highlights
Raw cement meal	≈ 60 µm	Very low power consumption. Possible combination of pneumatic dryer (FCB Aerodecantor or FCB Flash dryer)
Solid fuels	60-80 µm	Reliability on fineness control. Combustion and burning lines optimization. Adaptability to vertical mills (E-mill or others)
Cement	15-45 μm	Cement performance enhancement. Accurate quality control. Possible combination with dryer (FCB Aerodecantor or FCB Flash dryer) for wet additives
Mineral sands & fillers (carbonates, silica)	15-250 µm	Coarse products optimal defillerization (rejects of separator) Fine products homogeneity
Calcium Carbonate	5-300 µm	Flexibility and top cut size sharp control
Phosphate, ilmenite, MnO2		Ore dry beneficiation
GBFS, steel slag	10-30 µm	Fineness down to $d50 = 5\mu m$



FCB TSV[™] Classifier's versatility offers an endless field of applications to the cement and minerals industries and is a key element in Fives grinding solutions portfolio.

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