FCB TSV™ Classifier
The high-efficiency dynamic classifier

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

<table>
<thead>
<tr>
<th>Applications</th>
<th>Cut size</th>
<th>Comments / Highlights</th>
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</thead>
<tbody>
<tr>
<td>Raw cement meal</td>
<td>≈ 60 µm</td>
<td>Very low power consumption. Possible combination of pneumatic dryer (FCB Aerodecantor or FCB Flash dryer)</td>
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<tr>
<td>Solid fuels</td>
<td>60-80 µm</td>
<td>Reliability on fineness control. Combustion and burning lines optimization. Adaptable to vertical mills (E-mill or others)</td>
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<tr>
<td>Cement</td>
<td>15-45 µm</td>
<td>Cement performance enhancement. Accurate quality control. Possible combination with dryer (FCB Aerodecantor or FCB Flash dryer) for wet additives</td>
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<tr>
<td>Mineral sands &amp; fillers</td>
<td>15-250 µm</td>
<td>Coarse products optimal defillerization (rejects of separator). Fine products homogeneity</td>
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<tr>
<td>Calcium Carbonate</td>
<td>5-300 µm</td>
<td>Flexibility and top cut size sharp control</td>
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<tr>
<td>Phosphate, ilmenite, MnO₂...</td>
<td></td>
<td>Ore dry beneficiation</td>
</tr>
<tr>
<td>GBFS, steel slag</td>
<td>10-30 µm</td>
<td>Fineness down to d50 = 5µm</td>
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FCB TSV™ Classifier offers the highest efficient separation, thus enabling enhanced finished product quality and improved grinding plant performances

- Minimal by-pass
- Reduced imperfection on Tromp curve
- Very low pressure drop
- Very low power consumption
- Sharp control of product fineness
FCB TSV™ Classifier has been widely selected by major players in Cement and Minerals industries for its decisive advantages.

**CAPACITY**
Thanks to its patented blade design, the highest efficiency of FCB TSV™ Classifier results in:
- A minimal bypass, allowing the maximal mill grinding efficiency
- An extremely steep slope of the Tromp curve with a strong reduction of coarse particles in the product, enabling the optimization of the target values of fineness and the consequential increase of capacity

**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
- An enhanced cement/clinker ratio
- 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
- A better mass yield versus sifting machines

**ENERGY SAVINGS**
Energy savings thanks to the patented vortex breaking system:
- Low pressure drop of the separator
- Very low power consumption
The enhancement of the mill system efficiency leads to additional specific energy savings

**RELIABILITY**
- Automatic lubrication system for minimal maintenance
- Bearings calculated for more than 100,000 h lifetime
- Adapted wear protection based on experience

**FLEXIBILITY**
FCB TSV™ Classifier can be combined with different types of mills: ball mill, FCB Horomill®, 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-air-swept 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, if necessary, 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 and ores

**DRY BENEFICIATION**
- Dry processing to concentrate a product when two fractions show a difference of density
- Applicable to phosphate, magnesite, silica fumes, pyroxenite, etc

**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

**KEY COMPONENTS**
- Circular damper with swiveling counter-blades simultaneously controlled
- Turbine with patented rotor blades and anti-vortex plates
- Drive system with speed variation
- Smart sealing system for top cut size steadiness