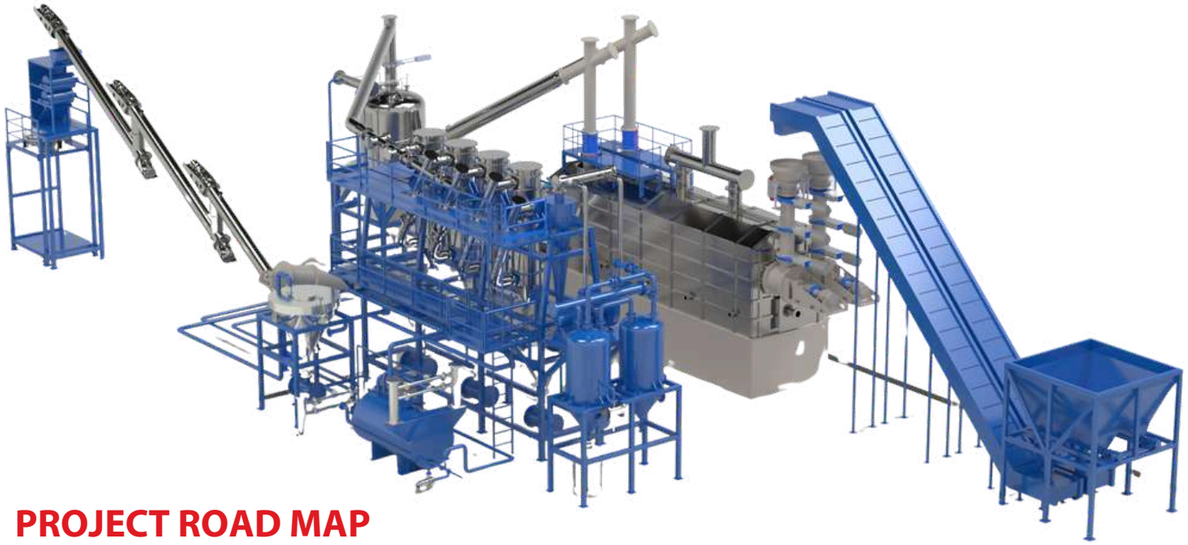
ELT - TPO Plant



PROJECT ROAD MAP

Layout & Design:

- An expert team will visit the project site to determine the plant layout based on local conditions and raw material availability
- Equipment selection and investment feasibility study will be determined based on the desired capacity and automation level.

Production & Logistics:

- A production plan will be established to meet delivery deadlines
- Packaging and logistics options will be offered to suit the project's needs
- Key equipment will be factory commissioned to guarantee quality.

On-Site Installation & Commissioning:

- A seasoned project service team will be dispatched to the site to work with the construction team to ensure smooth project progress
- The team will provide support for plant planning, equipment installation, electrical commissioning, and process solutions
- 24/7 remote online service will also be available.

Post-Sales Service and Training:

- Customers will receive training and consultation throughout the project life cycle, covering equipment operation, safety, maintenance, and process FAQs
- Powerol Service Teamwill be responsible for after-sales support and spare parts to meet customers' needs.

POWEROL®
Advanced Materials

RECOVERED CARBON BLACK PLANT

POWEROL®

HO - TS-70, Industrial Estate, Ekkattuthangal, Chennai – 600 032
Unit 1 - Survey No 38/2 & 38/3, Keelapattu Village, IIDC Nagari, AP - 517590
Unit 2 - Survey No 354, Kaverirajapuram Village, Tiruvallur District, TN - 631210

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India's Leading manufacturer of **Make in India** superb quality Reovered Carbon Black Plant & TPO Plant established in Chennai

INDIA'S ADVANCED MATERIALS MACHINERY MANUFACTURER

sales@powerol.com www.poweroladvancedmaterials.com +91 97907 85958

ABOUT POWEROL

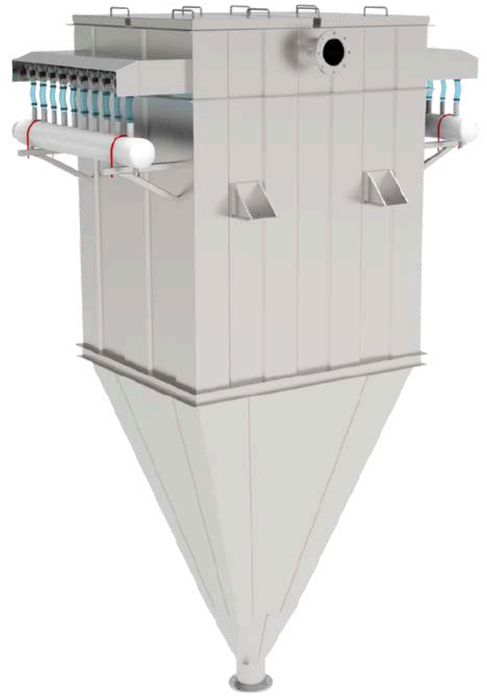
POWEROL has evolved as one of the preferred advanced materials machinery manufacturing company in India. For past few years, we have developed specialized technologies and efficient processes for industrial components and equipment's for Carbon Black & Rare Earths Processing industry . With state-of the art technology and highly experienced team we ensure to deliver our commitment of excellence on time and beyond expectations. To ensure customer satisfaction we comply with various international standards as preferred by them and strive to deliver best value. Our team consists of a strong working force with experience ranging across construction industry.

Our units are situated strategically in Tiruvallur & Nagari Industrial Estate, Andhra Pradesh. It has a closed area of 1,35,000 sqft and an open area of 24 acres. The factory production is state of the art with all modern amenities for the staff and also equipped with the latest manufacturing tools. This enables us to deliver products of the highest standards. We are establishing our brand across India which will be synonymous with Innovation in the Construction Industry. This growth has been happening because of the support from our Customers.

Powerol has engineered the world's most efficient recovered carbon black (rCB) upgrading system, setting the global benchmark for purity and consistency. We achieve this by seamlessly integrating advanced separation, grinding, thermal treatment, and pelletization technologies. Here's how our process delivers unparalleled quality:

Contaminant Removal: Our process begins with meticulous contaminant removal. We utilize magnetic separation to extract iron wires and metallic residues, followed by gravity separation to eliminate fibers and lighter impurities. This rigorous initial stage ensures only the cleanest carbon black moves forward.
Micronization: Our optimized grinding system achieves maximum output and an exceptionally fine particle size. This critical step significantly enhances separation efficiency and product uniformity, preparing the rCB for further purification and boosting its industrial value.
Thermal Treatment: The micronized rCB undergoes precise thermal treatment, heated up to approximately 500°C. This process effectively removes residual volatile substances and moisture, resulting in a further purified material with dramatically improved performance characteristics.
Pelletization: Finally, the purified rCB is dried and granulated (pelletized). This crucial step makes the rCB dust-free, easier to handle, and perfectly suited for a wide range of demanding industrial applications.
Our fully integrated system ensures high-purity, consistent, and easy-to-use recovered carbon black, establishing new global benchmarks for efficiency and quality in the industry.

ADVANCED FILTRATION FOR SUPERIOR rCB



VBC Filter: The Vapour Bag Collector (VBC) is engineered to handle high-temperature, moisture-laden off-gases from the rotary dryer, ensuring effective particulate capture and emission control. The housing is constructed from stainless steel, offering excellent resistance to corrosion from acidic vapors and fine carbon black particulates. The pulse jet filter is fitted with special coated filter bags, selected for their superior chemical resistance, high filtration efficiency, and ability to withstand elevated temperatures typical of dryer exhaust streams.

Dense Bag Collector: The Bag Collector unit, integral to the recovered carbon black pelletizing process, will be constructed using stainless steel to ensure superior corrosion resistance against the fine, abrasive, and chemically active rCB particulates. It will incorporate high-efficiency filter bags designed with an optimized air-to-cloth ratio to handle the fine particle load typical of post-pyrolysis carbon black dust. Each filter bag will be supported by a rigid cage and paired with a precision-machined Venturi nozzle to enhance pulse-jet cleaning efficiency.
Additionally, the system will be integrated downstream of the pelletizing unit to capture overspray and entrained fines, thereby improving product recovery and minimizing environmental emissions.

ELT TYRE PYROLYSIS PLANT

The Powerol Continious Tyre Pyrolysis Plant has been running successfully across India and is specially engineered for superior recovered carbon black (RCB) by utilizing a highly controlled automation system, by the oxygen-free process to produce a clean, high-purity char. This char after multiple stages of pre treatment is then processed through the integrated Powerol Pin Mixer and rotary drum dryer to create a consistent, high-quality final product.

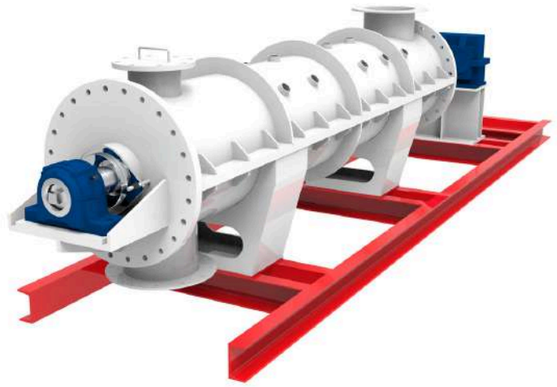
In addition to rCB, the plant efficiently recovers other valuable outputs:

Pyrolysis Oil: A high-calorific fuel oil substitute which is used across various industries.
Pyrolysis Gas: A clean, combustible gas used to power the plant itself.
Steel Wire: The steel reinforcing wires are recovered as a valuable recyclable byproduct.

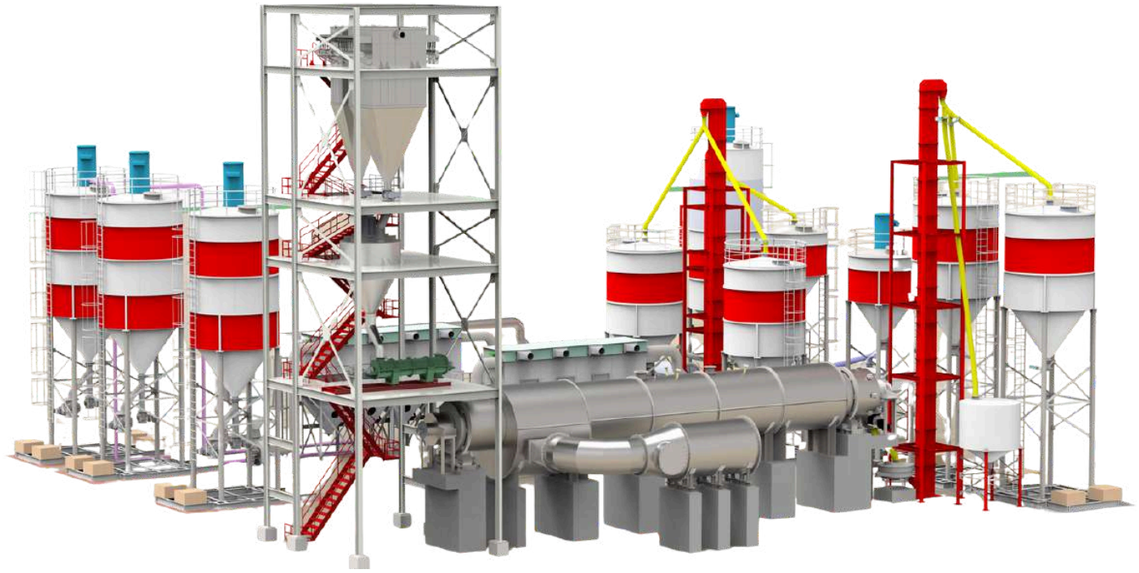
POWEROL - PIN MIXER

The Powerol Pin Mixer is a high-intensity pin mixer that uses a high-speed rotor with pins to create intense agitation and shear forces. This process generates a homogeneous and uniform mixture by evenly distributing and coating particles with a binder, typically water.

The result is a consistent, high-quality output that produces strong, dense, and spherical pellets. This method also acts as a de-duster by wetting fine powders to reduce airborne dust and ensures process efficiency by providing a consistent feed for the next stage.



POWEROL - DRYING SYSTEM



The drying stage is critical for producing high-quality recovered carbon black pellets with the desired properties and moisture content. The process uses a rotary drum dryer, which is specifically designed to handle the pellets effectively.

After mixing, the wet carbon black pellets are fed into the upper end of a long, slightly inclined, rotating cylindrical drum. As the drum rotates, internal flights & specially designed lifters scoop up the pellets and gently lift them, causing them to cascade through a counter-current flow of hot air. This cascading action ensures maximum surface area exposure to the hot air, leading to efficient and uniform moisture removal from the pellets.

Pellet Integrity: The gentle tumbling action of the rotary drum dryer is crucial for maintaining the pellet integrity. Unlike more aggressive drying methods, this process minimizes breakage and attrition, ensuring the final product retains its spherical shape and strength. This is vital for the recovered carbon black's subsequent handling, storage, and application.

Once dried, the pellets move to the final section of the rotary drum. Here, the pellets are graded, preparing them for packaging and storage. We also prevent the pellets from sticking together and ensures they are stable for transport.

RECOVERED CARBON BLACK PLANT

Recovered Carbon Black (rCB) plants and expertise for the manufacturing of rCB are developed and manufactured by Powerol Advanced Materilas, a renowned leader in this field. We design and manufacture state of the art rCB plants & automation systems owing to our highly experienced team's decades of experience and operations all over India.

The comprehensive, core technology, plant services, and industry solutions are a few of our services. We serve as your long-term technological partner and walk you through every stage of designing, construction, and operation of your rCB factory.

- Greenfield Projects
- Upgradation & Modernization
- AMC. Repair & Maintenance
- Expertise Consultation

NATIONAL AWARD

Powerol has been honored with multiple prestigious awards, recognizing our commitment to innovation, reliability, and excellence in the process plant Machinery industry. These accolades reaffirm our dedication to delivering high-performance products and exceptional service, making Powerol a trusted name across the nation.


COSIDICI NATIONAL AWARDS
FOR OUTSTANDING ENTREPRENEURS 2022

Certificate

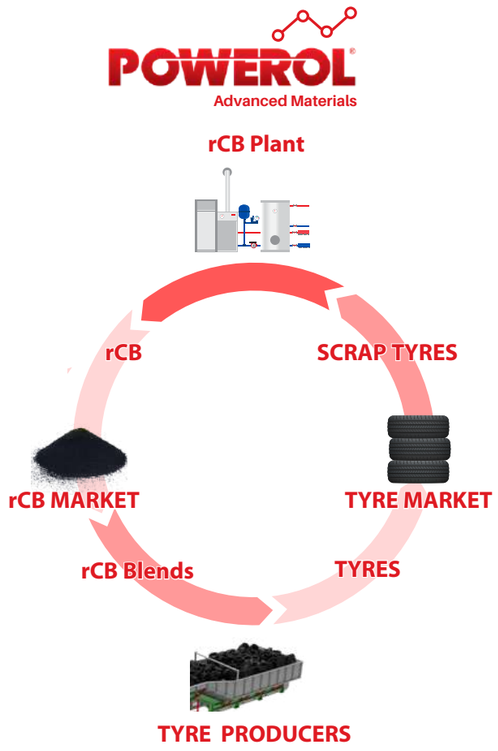
This is to certify that Shri K. Balaji, Shri N.B. Sarvanan were presented with COSIDICI National Award for 'Outstanding Entrepreneur' for their unit Powerol Energy Systems assisted by Andhra Pradesh State Financial Corporation at the COSIDICI National Awards function held at Jodhpur (Rajasthan) on 17th November, 2022.

R. Seth
Secretary COSIDICI

Hans Raj Verma, IAS
President COSIDICI

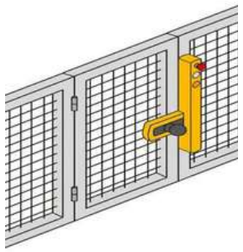
Council of State Industrial Development & Investment Corporations of India
An apex body of all SLFIs in the country

ADVANTAGES OF rCB

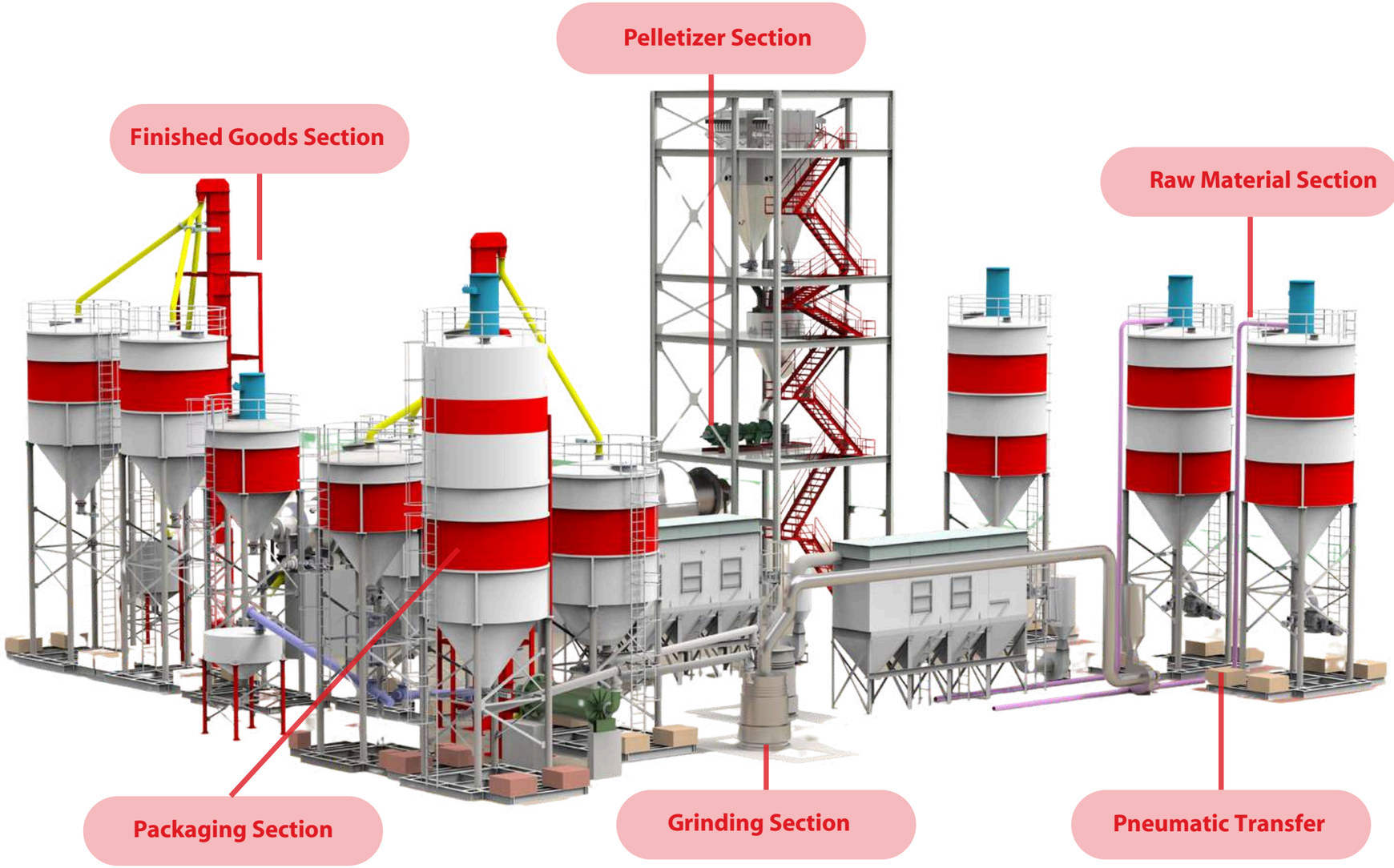


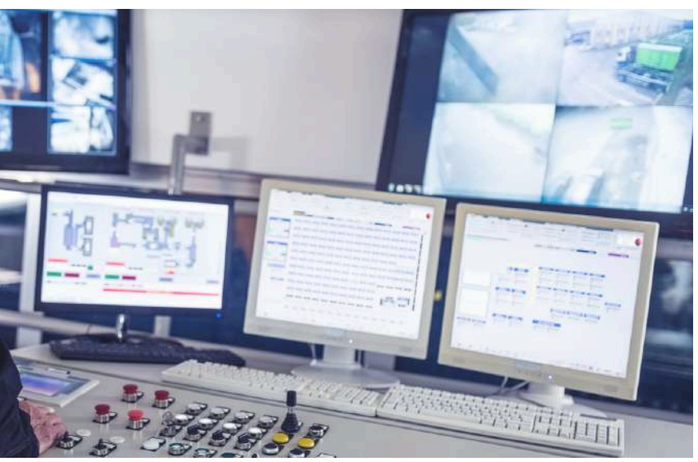
- rCB is a cost-effective alternative to virgin CB & allows companies to reduce their costs without sacrificing performance in many applications
- Reduction in Greenhouse gases Footprint: rCB production generates significantly fewer emissions
- Primary focus is to reduce the carbon footprint in India by promoting rCB.
- Environmental Sustainability: It provides a crucial solution for tire waste, diverting a massive waste stream from landfills and reducing reliance on fossil fuels.
- Cost-Effectiveness: R-CB is a more affordable and stable alternative to virgin carbon black, helping manufacturers lower production costs.
- Circular Economy: By turning end-of-life tires into a valuable raw material, it actively promotes a closed-loop system, minimizing waste and maximizing resource utilization.

POWEROL rCB 4.0 - Project Management Expertise

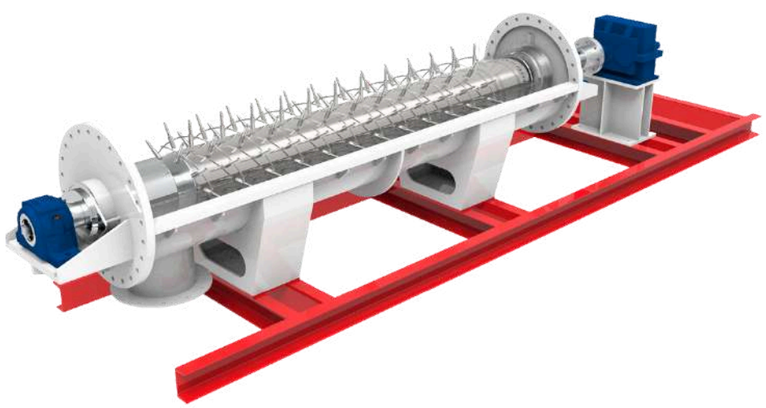


Safety Systems

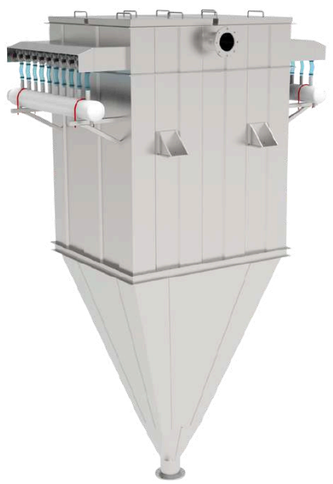




POWEROL rCB 4.0 - Control Systems



Pin Mixer



Filter Systems

Raw Material Section