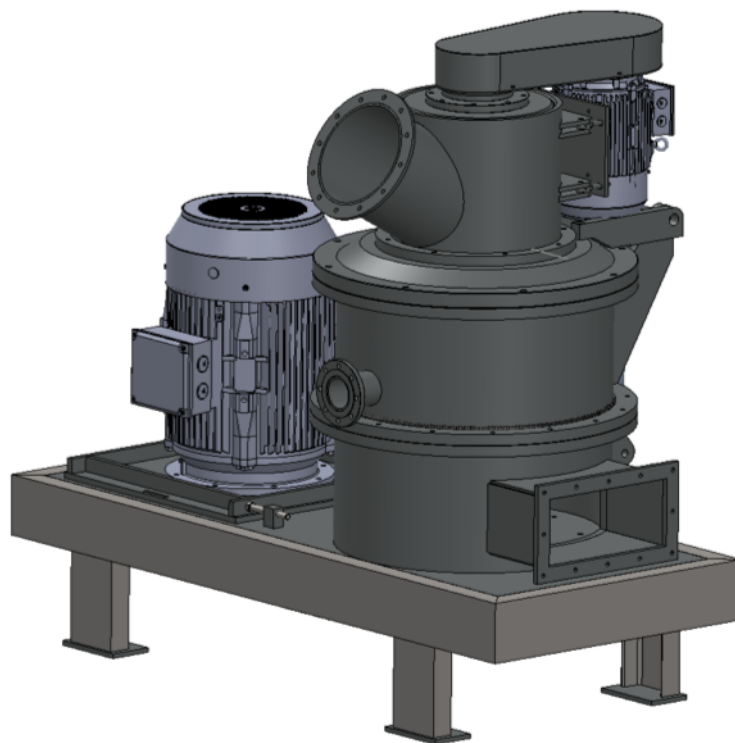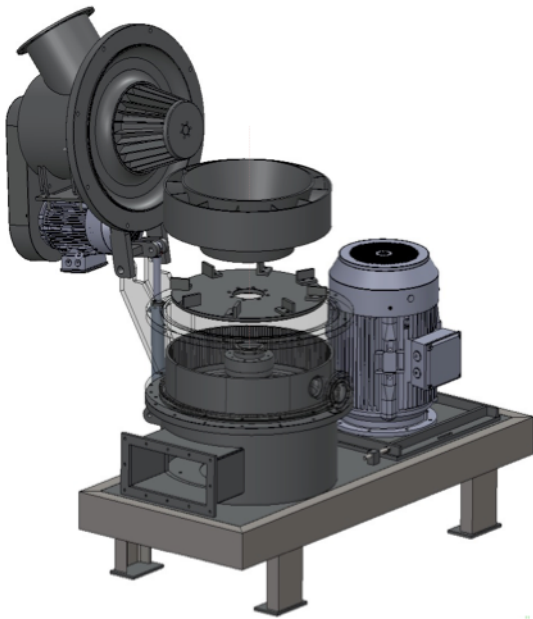# PPDS Turbo Classifier Mill (TCM)

- Air-swept high-speed impact mill
- Dynamic classifier for products within the d97 250 to 20 µm size range
- Ability to dry and grind in a single process step
- 3 models, each with a range of options on mill and classifier power and airflow specific to the application

The PPDS Turbo Classifier Mill (TCM) represents the refinement of a well-proven size reduction technology, improving both **efficiency** and **reliability**, while increasing **flexibility**.

Since PPDS was established in 2008, we have supplied many air classifier mill systems designed around second-hand refurbished mills. The TCM was born out of this; with the availability of quality used equipment becoming ever scarcer, and having identified a number of areas that could be improved.

Together, our design team have over **100 years combined experience** in milling, powder processing and machinery design. Having applied this expertise to the development of our own mill, we are delighted to now include the TCM as part of the PPDS range of equipment.
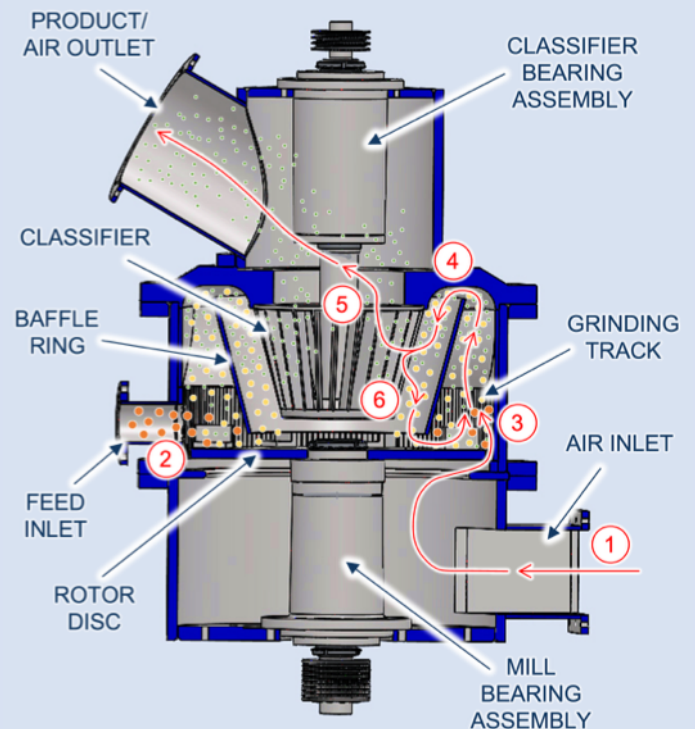
Operating Principle

The TCM is an air-swept mill with the air drawn through the mill via the air inlet (1) by a downstream fan. This airflow can be heated to facilitate simultaneous drying and grinding, enabled by a water-cooled bearing assembly (optional).

Incoming material is introduced to the mill feed inlet (2) at a controlled rate either by a screw feeder or pneumatic pick-up.

Size reduction is achieved as the hammers on the rotor disc strike the material against the grinding track (3). The ground material is then drawn around the baffle ring and presented to the classifier interface (4).

The integral dynamic classifier allows material of the required fineness to leave the mill (5), while over-sized particles are rejected (6) and travel back into the grinding zone for further size reduction before being presented to the classifier again.

The TCM has been designed with maximum flexibility in mind. The mill is modular in design; with the orientation of the air inlet, feed inlet and product/air outlet all being interchangeable. The lid is hinged with a hydraulic lift mechanism for rapid access for clean-down and maintenance. The segmented "double-life" grinding track is designed with increased height to enable it to be turned when worn, doubling its wear-life.

Cross-section arrangement of the PPDS Turbo Classifier Mill

The PPDS Turbo Classifier Mill can be used to process soft to medium-hard minerals, including:
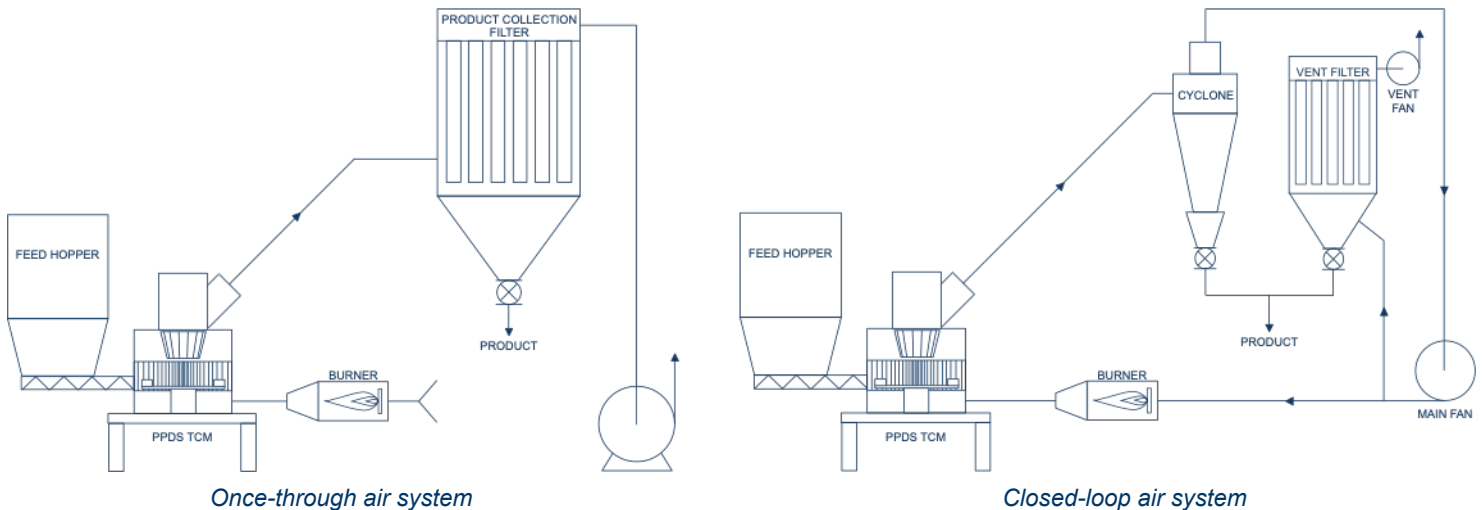
- Calcium Carbonate   - Dolomite   - Gypsum   - Barytes   - Bentonite   - Chalk

The mill can also be used for the processing of many other materials, such as; chemicals, pigments, food stuffs etc.

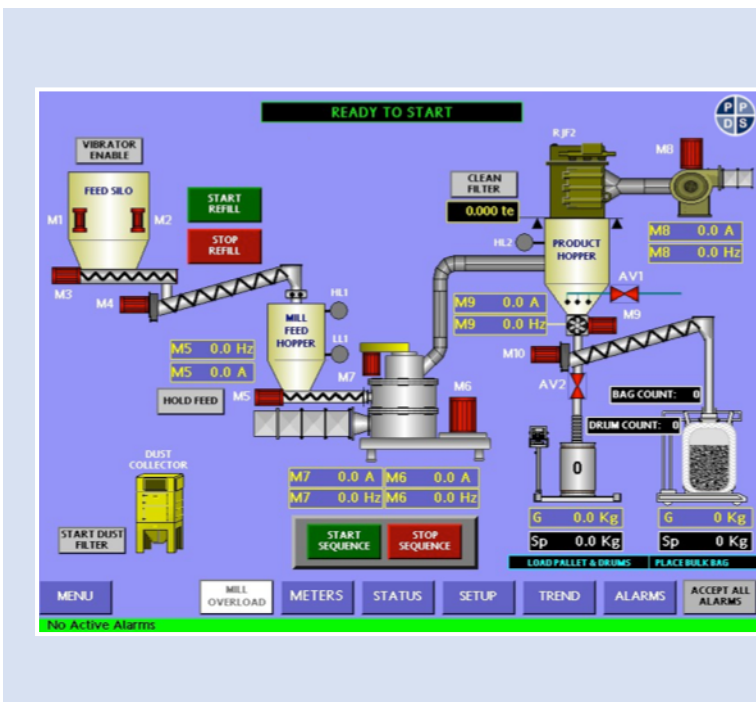The PPDS Turbo Classifier Mill is available in a **range of sizes** to match your throughput requirements:

Model	Rotor Power (kW)	Classifier Power (kW)	Airflow (m³/hr)
TCM.1	22 - 45	4 - 7.5	2500 - 4000
TCM.2	55 - 110	11 - 15	4000 - 10000
TCM.3	132 - 200	22 - 45	10000 - 20000

The PPDS TCM can be operated either in a 'once-through' or 'closed-loop' air system, allowing for highly efficient **simultaneous drying and grinding** using a gas, oil or electric heater.

Once-through air system

Closed-loop air system

Both the feed arrangement and air system are selected to best suit the characteristics of the material being processed (i.e. feed size, moisture content).

As with any high-speed impact mill, it is essential that tramp material is prevented from entering the system. A magnet/metal detector must therefore be incorporated into the feed arrangement.

The TCM can be supplied with a custom-built PLC/HMI or SCADA based control system designed by our in-house process control division.
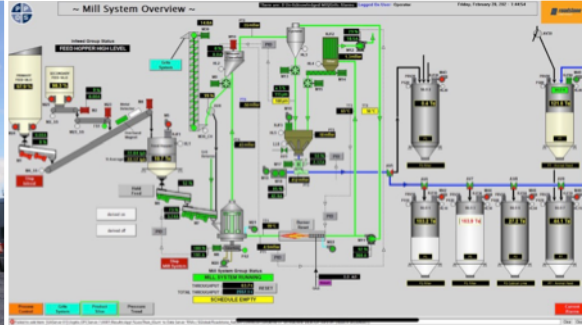
Optional features include:

- PID loops to ensure optimum performance in both drying and grinding

- Energy efficiency meters

- Recipe/parameter saving and loading for the production of multiple products

- Logging of operational data

- Dial-in facility both for remote support by PPDS and monitoring by the customer

- Automatic production scheduling

- Maintenance prompts

- SMS alerts to operators' phones during unmanned production

About Powder Process Design Services Ltd

Specialising in the design, supply and installation of powder processing solutions using a combination of new and second-hand refurbished equipment, PPDS has supplied systems worldwide for the following sectors:

- Industrial Minerals   - Chemicals   - Ceramics   - Recycling   - Food

State of the art milling, classifying and screening plant for the simultaneous production of limestone filler and grits, supplied with a fully automated control system enabling 24/7 unmanned production
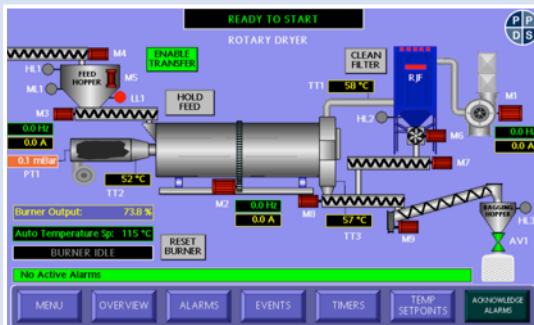
Milling and secondary classification system for protein shifting in legume flours

Drying, ball milling & classifying system for the processing of cement additives

Twin ACM75 air classifier mill systems supplied by PPDS to a customer processing calcified seaweed

Rotary dryer designed and fabricated by PPDS as part of a system for processing glass cullet with a self-optimising remotely operated control system

Above are just a few examples of the many systems PPDS has supplied in recent years. For more information on what we do, or to learn how we can support your business, do not hesitate to contact us.

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