TORONTECH

LABORATORY GRINDER - LABORATORY MILL

Laboratory Grinder - Laboratory Mill ToronGrind™ 100

ToronGrind™ 100 laboratory grinder gives R&D teams, color matchers, and QC labs a fast way to turn small samples of plastic, rubber, and other materials into fine, uniform powder. A dual-mode design lets the operator switch between a disc mill for coarse and medium grinding and a hammer mill for ultrafine powder, so one benchtop unit covers a wide range of size-reduction tasks. The system handles multi-category and multi-color materials, which makes it well suited to masterbatch color matching and short-run sampling where quick changeovers matter.

Doubling as a laboratory mill and a laboratory grinding mill, the ToronGrind™ 100 processes batches from 5 to 500 grams, the right scale for multi-sample experimentation without committing production-size material. A patented water-cooling system holds the grinding chamber at low temperature, so heat-sensitive resins, pharmaceuticals, and food materials keep their properties through the grind. Screw feeding with adjustable dosing delivers repeatable results, giving labs powder with uniform particle size distribution and predictable D50 values run after run.

APPLICATIONS

Laboratory Grinder - Laboratory Mill ToronGrind™ 100 Applications

The ToronGrind™ 100 laboratory grinder serves research, formulation, and quality-inspection work across several industries that depend on consistent sample powder.

- Masterbatch and Color Matching: grinds PP, PE, ABS, and other resins into fine powder for fast color development and blend-uniformity checks, with D50 control in the 0.1 to 2 mm range
- Engineering Plastics R&D: prepares uniform powder for testing while preventing thermal degradation that would skew mechanical-property data
- Pharmaceutical and Nutraceutical R&D: GMP-grade, food-grade stainless contact parts and cryogenic grinding suit herbal extracts and tablet materials while preserving active ingredients

- Food Technology and Additives: contamination-free grinding of sugars and flavors, with an optional inert-gas option for oxidation-sensitive products
- Rubber and Adhesives: a dedicated elastomer blade with anti-caking treatment handles vulcanized rubber and high-viscosity samples for rapid preparation
- Quality Inspection Institutions: a standard sieve module with selectable mesh sizes supports particle-size testing to recognized methods in routine lab work


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FEATURES

Laboratory Grinder - Laboratory Mill ToronGrind™ 100 Key Features

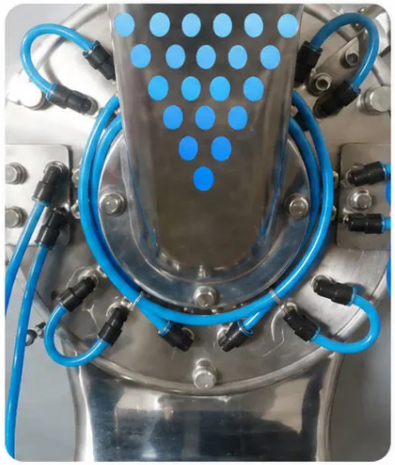
Core Advantages

Dual-Mode Design

Freely switch between disc milling and hammer milling to handle different material forms, from coarse particles to ultra-fine powder.

Intelligent Control

Single-screw feeding with adjustable dosing speed helps support steady operation and consistent processing performance.



Low-Temperature Protection

A patented low-cooling system helps reduce heat buildup and protect temperature-sensitive materials during processing.

The ToronGrind™ 100 combines mode flexibility, temperature control, and repeatable feeding in a compact benchtop format.

- Dual-Mode Disc and Hammer Mill: a single unit switches between coarse-to-medium disc grinding and ultrafine hammer-mill grinding by swapping modules, covering varied material requirements
- Screw Feeding with Adjustable Dosing: controlled, even feed delivers ±1% repeatability for consistent sample-to-sample results
- Patented Water-Cooling System: keeps the grinding zone at low temperature to protect heat-sensitive resins, pharmaceuticals, and food materials from thermal degradation
- Ultrafine Powder Capability: produces powder down to roughly 100 micrometers (up to 140 mesh) with uniform particle size distribution
- D50 Particle Size Control: tunes output to a target median size from 0.1 to 2 mm for predictable downstream behavior
- Multi-Category and Multi-Color Handling: fast changeover supports color matching and mixed-material sampling
- Cryogenic Grinding Ready: chills brittle and heat-sensitive feedstock for clean reduction of herbal extracts, elastomers, and tablet materials
- GMP and Food-Grade Contact Parts: stainless steel construction suits pharmaceutical, nutraceutical, and food applications
- Dedicated Elastomer Blade: anti-caking treatment handles vulcanized rubber and high-viscosity samples
- Optional Inert-Gas Protection: shields oxidation-sensitive food and additive samples during grinding
- Standard Sieve Module: optional mesh sizes from 10 to 200 support particle-size classification to ASTM and IEC requirements
- Small-Batch Capacity: processes 5 to 500 grams per run for multi-sample experimentation

THEORY & METHOD

Theory and Method

The ToronGrind™ 100 reduces particle size through two distinct mechanisms, selected by switching grinding modules. In disc-mill mode, a screw feeder meters material into the chamber, where a toothed rotating disc works against a fixed disc. The narrow gap between the discs shears and abrades the feed by attrition, producing coarse to medium powder at a moderate 3,200 rpm. This mode favors controlled D50 output and generates less heat, which protects the structure of softer thermoplastics.

In hammer-mill mode, high-speed rotating blades spinning at 5,000 rpm strike the material repeatedly and throw it against the chamber wall and a screen. Impact and the screen aperture together govern fineness, letting the mill reach ultrafine powder down to roughly 100 micrometers and 140 mesh. Because impact grinding is more aggressive, this mode pairs naturally with the cooling system to keep fine work from overheating the sample.

Heat control is what allows the mill to process sensitive materials. Friction and impact generate heat that can soften thermoplastics, cake elastomers, or degrade pharmaceutical and food compounds. A water-cooled jacket draws this heat away so grinding stays near low temperature, preserving material properties and keeping powder free-flowing. Adjustable screw dosing holds the feed rate steady, which stabilizes residence time in the chamber and delivers the ±1% repeatability labs need for comparable results.

TECHNICAL SPECIFICATIONS

Laboratory Grinder - Laboratory Mill ToronGrind™ 100 Technical Specifications

Parameter	Disc Mill Mode	Hammer Mill Mode
Grinding Chamber Diameter	180 mm	200 mm
Voltage	220 V, 1-phase, 50 Hz (110V is also available)	220 V, 1-phase, 50 Hz (110V is also available)
Grinding Motor Power	4 kW	4 kW

Parameter	Disc Mill Mode	Hammer Mill Mode
Screw Feeding Motor Power	60 W	60 W
Water-Cooling Pump Power	25 W	25 W
Grinding Motor Speed	3,200 rpm	5,000 rpm
Input Material Size	< 4 mm	< 4 mm
Fineness	5 to 80 mesh	5 to 140 mesh
Production Capacity	1 to 20 kg/h	1 to 50 kg/h
Weight	85 kg	83 kg
Dimensions (L × W × H)	65 × 31 × 85 cm	65 × 31 × 85 cm

Optional Accessories

Accessory	Description
Standard sieve module	Selectable mesh sizes from 10 to 200 for particle-size classification
Cryogenic grinding kit	Chills feedstock for heat-sensitive and elastomeric materials
Inert-gas protection	Blankets the chamber to protect oxidation-sensitive food and additives
Dedicated elastomer blade	Anti-caking blade design for rubber and high-viscosity samples

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