FRONTIER LAB **Powerful, Quick, Simple, and Benchtop**

NEW

# Cryogenic Mill "IQ MILL-2075"

~ Intelligent Quick-Mill ~

## Perfect for pretreatment of hard-to-grind polymers

**- Specifically designed for grinding, agitating, and dispersing various samples -**

In instrumental analysis of trace samples, fine grinding and thorough homogenization are critical to achieving high measurement reproducibility. Conventional grinding methods, however, often require long processing times of 10 minutes or longer, consume a large amount of liquid nitrogen, and generate substantial operating noise. The Cryogenic Mill "IQ MILL-2075" addresses these challenges with a compact, benchtop design that combines high speed, quiet operation and ease of use. In addition, its unique rapid reciprocating torsional motion* - enabled by a highly durable, high elasticity belt - delivers fast, quiet, and highly efficient grinding performance.

Compared with its predecessor, the "IQ MILL-2075" features a snap-lock mechanism for quick mounting and removal of sample containers, significantly enhancing workflow efficiency. *Japanese Patent No. 7064786

IQ MILL-2075

## Features of IQ MILL-2075

### 1. Easy to use and simple to operate

- **Snap-lock operation**
  Tool-free, snap-lock operation allows for smooth mounting and removal of sample containers, significantly improving workflow efficiency.

**Sample grinding section**

- **Easy setup with rotary knob and touch panel**
  Required settings are only: grinding speed, grinding time, number of cycles, and waiting time. The settings can be easily done with the rotary knob and touch panel.

Maximum 10 sets of settings can be saved simply by entering in "FILE LIST".

### 2. Fast and efficient grinding

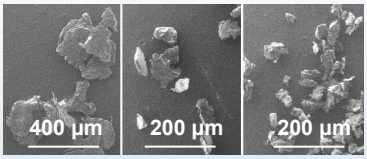
- **Powerful impact and shear crushing capabilities bring significant reduction in grinding time**
  Rapid reciprocating torsional motion* enables sample grinding in a short period of time.
- **Milling up to three samples at a time in the same program**
  Equipped with a holder that holds up to three sample containers for efficient grinding.
- **Liquid nitrogen cooling kit for cryo-milling**
  The minimum liquid nitrogen consumption is only about 300 mL for energy saving. Room-temperature grinding without the use of refrigerants is also supported.

**Polystyrene** (20 pellets)

2000 rpm x 60 sec x 1 cycle

Pretreatment temperature

| 25 ºC | 0 ºC | -196 ºC |
|---|---|---|




### 3. Titanium sample containers are standard

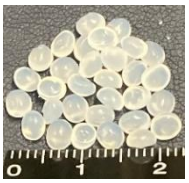
- **Titanium sample containers offering high chemical inertness are now standard**

# Synthetic/biopolymer grinding applications

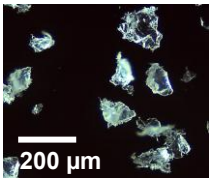
Some of the grinding applications and a list of application examples are shown below.

**Polyethylene (LDPE)**
**0.48 g**

A hard-to-grind sample



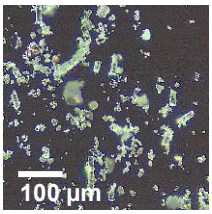
3000 rpm x 30 sec
**Cryogenic grinding**
x 2 cycles




**Electronic circuit board**
**2.1 g**

A sample that can be ground at room temperature

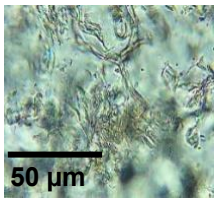
2500 rpm x 30 sec
**Room temp. grinding**
x 10 cycles




**Bark of moso bamboo**

Hard-to-grind sample

2000 rpm x 10 sec
**Room temp. wet* grinding**
x 2 cycles
* Buffer solution used




For more information, visit our website here or scan the QR.

## Specifications

| | | |
|---|---|---|
| Grinding method | Cryogenic grinding, Room temperature dry grinding, Room temperature wet grinding | |
| Parameter settings | Rotation speed (rpm) | 50 to 3000 (stepless) |
| | Rotation time (sec) | 10 to 60 (10 sec steps) |
| | Inter-cycle pause time (sec) | 0 to 600 (10 sec steps) |
| | Cycle count (number of repetitions) | 1 to 20 (1 cycle step) |
| | Programmable parameters | Up to 10 sets of rotation time, inter-cycle pause time, and cycle count (number of repetitions) can be stored. |
| Safety function | Hazardous operation prevention by magnetic microswitch. | |
| Main unit dimensions and weight | Width 270 x Depth 340 x Height 300 (mm), 12 kg | |
| Power (50/60 Hz) | 100/120 VAC or 200/240 VAC (450 VA) | |
| Standard accessories | Sample container, Insulation container, Cooling container, Tongs, Cooling holder, Sieve set, Grinding balls (Tungsten carbide and Zirconia), etc. | |

* Noise level during grinding (a reference) : 55 dB (when grinding PS pellets with a 12 mm diameter zirconia grinding ball at a rotation speed of 3,000 rpm)