

# Increase efficiency and accuracy with Cole-Parmer homogenizers, grinders, mills, and presses

Bead Mill Homogenizers

Cryogenic Grinders

High-Energy Ball Mills

Ring and Puck Mills

Pellet Presses

Since 1955, Cole-Parmer has been the leading sample preparation solutions provider to analytical scientists worldwide. Our range of high performance and easy-to-use bead beaters, homogenizers, cryogenic grinders, mills, and pellet presses are used for a wide range of analytical techniques including AA, ICP, GC/MS, PCR and XRF.

Our products include:

## **Geno/Grinder**<sup>®</sup>, **MiniG**<sup>®</sup> & **GenoLyte**<sup>®</sup>

Used for high-throughput cell disruption and tissue homogenization.

## **Freezer/Mill**<sup>®</sup>

Uniquely designed to cryogenically grind samples normally considered difficult or impossible to pulverize at ambient temperature.

## **Cryo-Blade**<sup>™</sup>

Ultra high-capacity cryogenic grinder for comminution and processing capability up to 1 kg.

## **Mixer/Mill**<sup>®</sup>

High-energy ball mills for pulverizing brittle materials, mixing powders and emulsions, mechanical alloying, and nanomilling.

## **ShatterBox**<sup>®</sup>

Ring and puck mill used for rapidly pulverizing brittle materials such as cement, slag, ores, ceramics, etc.

## **X-Press**<sup>®</sup> & **Manual Presses**

Automated and manual laboratory presses ideal for pressing sample disks for XRF, IR and OES.

# Bead Mill Homogenizers

## HG-600 Geno/Grinder® 2010

This high-throughput plant and animal tissue homogenizer and cell lyser is designed with a unique, vigorous, vertical pulverizing motion ideal for rapid cell disruption, lysis, DNA/RNA extraction, and pesticide extraction using the QuEChERS method. Its adjustable clamp accommodates sample formats ranging from deep-well titer plates to 50 mL centrifuge tubes.

**Typical samples:** plant and animal tissue, cannabis, cell cultures, seeds, yeast, fruit, and microorganisms.



## HG-400 MiniG®

This compact yet powerful tissue homogenizer is designed for applications such as DNA/RNA and protein extractions as well as pesticide residue extraction using the QuEChERS method. Its adjustable clamp accommodates a wide variety of titer plates and vials.

**Typical samples:** plant and animal tissues, cell cultures, seeds, yeast, fruit, and microorganisms.



## HG-200 GenoLyte®

The ideal solution for labs that want a small, powerful tissue homogenizer and cell lyser. Accommodates vials ranging from 2 mL to 12 mL. Specifically designed for rapid cell disruption and cell lysis enabling fast and efficient extraction of DNA/RNA, proteins, and other molecules. Available with cooling temperature control (HG-250) from 0 to 10 °C.

**Typical samples:** animal and plant tissue, cell cultures, soil, microorganisms, yeast, and stool.



## Ordering Information

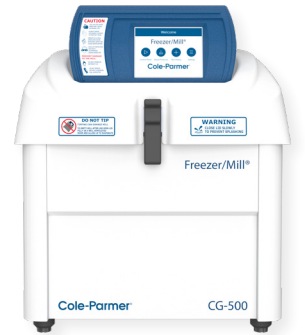
Description	Item Number
HG-600 Geno/Grinder 2010 Tissue Homogenizer and Cell Lyser, 115 VAC, 60 Hz	<b>76181-808</b>
HG-600 Geno/Grinder 2010 Tissue Homogenizer and Cell Lyser, 230 VAC, 50 Hz	<b>76181-810</b>
HG-400 MiniG Tissue Homogenizer and Cell Lyser, 115/230 VAC, 50/60 Hz	<b>76181-800</b>
HG-200 GenoLyte Compact Tissue Homogenizer and Cell Lyser, 115/230 VAC, 50/60 Hz	<b>76324-998</b>
HG-250 Temperature Controlled GenoLyte Compact Tissue Homogenizer and Cell Lyser, 115/230 VAC, 50/60 Hz	<b>76533-052</b>

# Cryogenic Grinders

## CG-500 High-Capacity Freezer/Mill®

The CG-500 Freezer/Mill is a high-throughput, dual-chamber cryogenic grinder with a self-contained liquid nitrogen tub and insulated case. It chills samples in liquid nitrogen then pulverizes them with a magnetically driven impactor. It accommodates samples in the 0.1 gram to 100 gram range per grinding chamber.

**Typical samples:** animal tissue, plant tissue, polymer, yeast, pharmaceuticals, food products, electronic components, textiles, hair, teeth, and bone.



## CG-400 – Large Freezer/Mill®

This high-throughput cryogenic grinder has a self-contained liquid nitrogen tub and insulated case. Optional auto-fill system (CG-450) is available to automatically fill the bath with liquid nitrogen. It grinds samples from 0.1 gram to 100 grams using one large vial, four small vials, or four microvial sets.

**Typical samples:** animal tissue, plant tissue, polymer, yeast, pharmaceuticals, food products, electronic components, textiles, hair, teeth, and bone.



## CG-200 – Compact Freezer/Mill®

This small cryogenic grinder has a self-contained liquid nitrogen tub and insulated case. Grinds samples from 0.1 gram to 5.0 grams using one standard vial or one microvial set.

**Typical samples:** animal tissue, plant tissue, polymer, yeast, pharmaceuticals, food products, electronic components, textiles, hair, teeth, and bone.



## Ordering Information

Description	Item Number
CG-500 Freezer/Mill, Dual Chamber Cryogenic Grinder, 115 VAC, 60 Hz	76182-012
CG-500 Freezer/Mill, Dual Chamber Cryogenic Grinder, 230 VAC, 50 Hz	76182-014
CG-450 Freezer/Mill, High Capacity Cryogenic Grinder with Auto-Fill, 115 VAC, 60 Hz	76182-008
CG-450 Freezer/Mill, High Capacity Cryogenic Grinder with Auto-Fill, 230 VAC, 50 Hz	76182-010
CG-400 Freezer/Mill, High-Capacity Cryogenic Grinder, 115 VAC, 60 Hz	76182-004
CG-400 Freezer/Mill, High-Capacity Cryogenic Grinder, 230 VAC, 50 Hz	76182-006
CG-200 Freezer/Mill, Compact Cryogenic Grinder, 115 VAC, 60 Hz	76181-976
CG-200 Freezer/Mill, Compact Cryogenic Grinder, 230 VAC, 50 Hz	76181-978

# High-Energy Ball Mills

## BM-450 Dual-Clamp Mixer/Mill®

The BM-450 Mixer/Mill is a powerful, high-energy ball mill that pulverizes hard or brittle samples to analytical fineness. The sample is placed in a grinding vial with one or more balls, then shaken vigorously. The motion of the clamp produces strong g-forces on the vial which pulverize the toughest rocks, slag and ceramics. Features dual clamps.

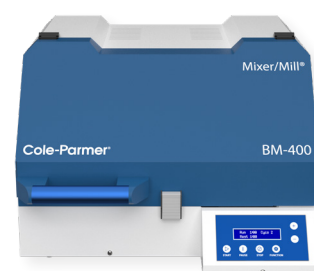
**Typical samples:** rocks, minerals, sand, cement, slag, ceramics, glass, pharmaceuticals, plant tissue, animal tissue, and seeds.



## BM-400 – Single-Clamp Mixer/Mill®

The BM-400 Mixer/Mill is a high-energy ball mill that grinds up to 0.2 grams to 10 grams of dry, brittle samples. The vial, which contains a sample and one or more balls, is shaken in a complex motion that combines back-and-forth swings with short lateral movements, each end of the vial describing a figure-8. The clamp's motion develops strong g-forces in the vial to pulverize the toughest rocks, slags and ceramics. Features a single clamp.

**Typical samples:** rocks, minerals, sand, cement, slag, ceramics, glass, pharmaceuticals, plant tissue, animal tissue, and seeds.



## BM-200 – Mini Mixer/Mill®

This compact mill is ideal for pulverizing the toughest rocks, mineral, cement, and ceramics; rapidly reducing samples to analytical fineness; blending powders; and making emulsions. Finely grinding the sample increases the surface area to improve acid dissolution for ICP, and pellet pressing or fusion bead for XRF.

**Typical samples:** rocks, minerals, ceramics, and glass.



## Ordering Information

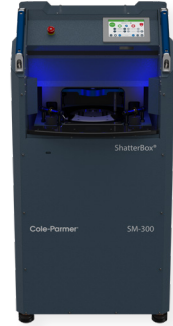
Description	Item Number
BM-450 Mixer/Mill, Dual Clamp, 115 VAC, 60 Hz	76182-462
BM-450 Mixer/Mill, Dual Clamp, 230 VAC, 50 Hz	76182-242
BM-400 Mixer/Mill, Single Clamp, 115 VAC, 60 Hz	76182-244
BM-400 Mixer/Mill, Single Clamp, 230 VAC, 50 Hz	76182-066
BM-200 Mini Mixer/Mill, Compact Ball Mill	76533-056

# Ring and Puck Mills

## SM-300 ShatterBox® Ring and Puck Mill

A versatile ring and puck mill that can crush and grind samples with minimal sample loss and increased safety. Our 8550 ShatterBox features an automated dish positioning system and locking system for ease of use and greater flexibility. The versatility of sample containers allows for grinding a wide range of sample amounts (5 grams up to 150 grams).

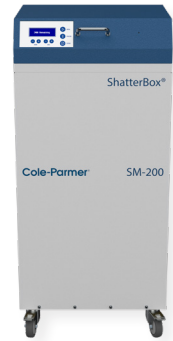
**Typical samples:** rocks, minerals, sand, cement, slag, ceramics, glass, pharmaceuticals, and seeds.



## SM-200 – ShatterBox® Ring and Puck Mill

The 8530 ShatterBox is a powerful ring and puck mill, with sound-proof enclosure, that accommodates sample sizes ranging from 2 grams to 150 grams. Ideal for pulverizing dry, brittle samples and slurry grinding.

**Typical samples:** rocks, minerals, sand, cement, slag, ceramics, glass, pharmaceuticals, and seeds.



## Ordering Information

Description	Item Number
SM-300 ShatterBox, Ring and Puck Mill, 115 VAC, 60 Hz	<b>76533-058</b>
SM-300 ShatterBox, Ring and Puck Mill, 230 VAC, 50/60 Hz	<b>76533-060</b>
SM-200 ShatterBox, Ring and Puck Mill, 115 VAC, 60 Hz	<b>76182-116</b>

# Laboratory Pellet Press

## XP-400 X-Press® Laboratory Pellet Press

This hydraulic laboratory pellet press is fully programmable and ideal for automated, repetitive pressing of sample pellets for XRF, IR, and other analytical techniques. It accepts all standard pellet die sets (13 mm to 40 mm).

**Typical samples:** cement, rocks, minerals, soil, slag, ceramics, and pharmaceuticals.



## Ordering Information

Description	Item Number
XP-400 X-Press. 35-Ton Laboratory Pellet Press, 115 VAC, 60 Hz	<b>76181-930</b>
XP-400 X-Press. 35-Ton Laboratory Pellet Press, 230 VAC, 50 Hz	<b>76182-406</b>