Cole-Parmer®

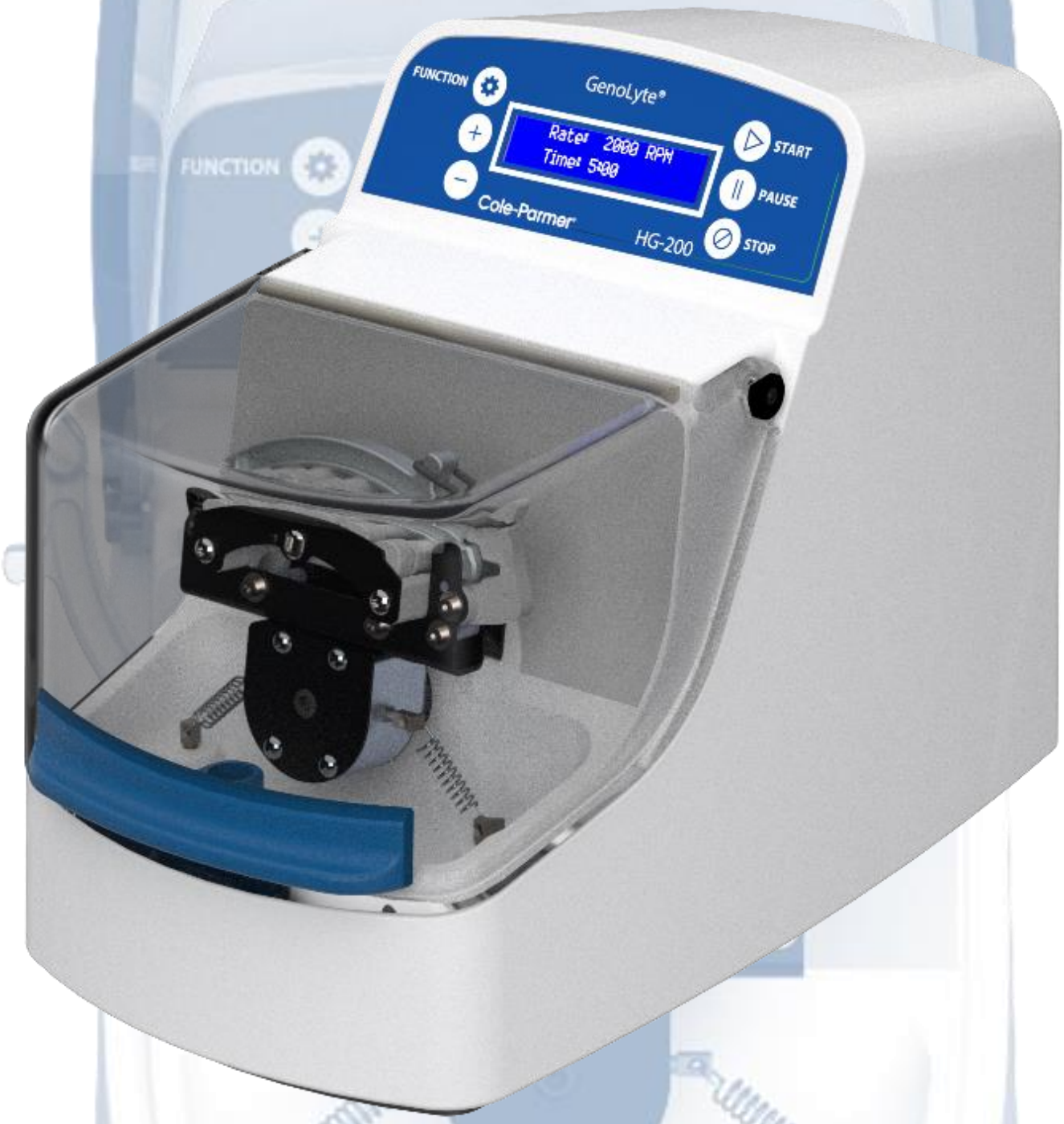
HG-200 GenoLyte®

Tissue and Cell Lyser for Biological Applications

Operation Manual

For 115V/230V (04500-05)

For Product Information



SPEX SamplePrep is now part of Cole-Parmer®.
The Cole-Parmer® HG-200 GenoLyte was formerly known as SPEX 1200 GenoLyte.

Over the years, we've acquired many high-quality and reputable brands. After many years of continual growth, we realize our brands are all as brilliant as each other. Rather than have a portfolio of complementary brands, we felt consolidating them under one world-class brand name enabled us to offer a single and significant brand experience. Through one brand we can speak in one voice through our team of experts who provide support in product selection, usage and troubleshooting to empower laboratories to run efficiently throughout the world.

Same Great Quality!
One World-Class Brand Name!

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1.0 INTRODUCTION

The HG-200 GenoLyte® is an efficient, compact laboratory homogenizer designed to effectively disrupt cellular materials by horizontally oscillating 2 ml, 5 ml, 7 ml and 12 ml vials. Sample materials that can be prepared include seeds, stems, roots, leaves, and certain animal tissue.

This motion allows the mill to be used to prepare sample tissue for extractions of nucleic acid, proteins, and other constituents by agitating the tissue, steel balls or beads, and a lysis agent together in each vial.

The isolation of nucleic acids from intact samples requires mechanically disrupting the samples, followed by the extraction and subsequent purification of the nucleic acid. Mechanical tissue disruption is often performed manually with a mortar and pestle, an approach that is not practical for day-to-day screening since manual grinding of tissues is slow, and re-use of mortars and pestles may lead to cross-contamination. Alternatively, nucleic acids can be isolated in a vial using balls or beads that mechanically disrupt the sample. Conventional isolation methodologies can then be used to extract the nucleic acids from the homogenate.

As a multi-purpose mill, in addition to DNA/RNA and protein extraction, it is capable of pulverizing the toughest rocks, minerals, 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.

The features include: modern design, operating commands through a digital timer, large clear lid for visibility of sample loading area, safety interlock, interchangeable vial holders and the clamp orientation makes it easy to load/unload samples. A choice of steel, tungsten carbide, and plastic vials are available for purchase. Interchangeable vial holders for each vial type are sold separately.

Operation is simple: the vials are secured in a clamp, and the lid closed. The controls are checked for the proper running time, rate, and the START button pushed. When the run is complete, the lid is lifted and the vials are unclamped.

NOTE: PLEASE DO NOT OPERATE THE GENOLYTE® UNTIL YOU HAVE READ THESE INSTRUCTIONS AND ARE FAMILIAR WITH ITS CONTROLS AND CLAMP MECHANISM. THE GENOLYTE® IS INTENDED FOR USE ONLY BY QUALIFIED AND TRAINED PERSONNEL.

2.0 SPECIFICATIONS

Type of Mill:	Homogenizer, Bead Beater
Display:	Digital
Homogenizing Mechanism:	Grinding balls of stainless steel, silica or zirconia.
Dimensions	15 in. (38 cm) long x 8 in. (20.5 cm) wide x 11 in. (30 cm) high.
Weight:	23 lbs. (10.4 kg) with external power supply.
Capacity:	Six 2 ml vials, four 5 ml vials, two 7 ml vials, one 12 ml vial.
Clamp Speed:	Fixed Speeds (rpm): 750, 2000, 3000, 4000
Electrical Specifications:	CE approved. 115V/230V, 60/50Hz. CSA approved.
Circuit Breaker:	Same as ON/OFF Switch.
Power Cord:	115V/60Hz model: 3-prong grounded plug supplied. 230V/50Hz model: 2-prong European plug supplied. **Operator is responsible for supplying alternate line cord/plug.**
Safety Features:	Interlock prevents mill from running if lid is open.
Run Timer:	Maximum 5 minutes.
Motor:	1/7 HP. Maximum speed 4200 rpm.
Environment:	For indoor use only at a maximum altitude of 6600 ft. (2000 m). Operate at ambient conditions between 40°F (5°C) and 104°F (40°C), with maximum relative humidity 80% below 88°F (31°C) decreasing linearly to 50% at 104°F (40°C). Main supply voltage fluctuations up to 10% of nominal voltage (115 or 230 volts AC RMS). Pollution degree 1: none or only dry, conductive pollution occurs.

3.0 UNPACKING

Inspect the exterior of the packing box and report any visible damage to the carrier. Remove all packing documents from the exterior of the box, and save them for your records. Open the top of the shipping box. Remove the packing material and accessories, and gently lift out the HG-200 GenoLyte® Homogenizer. Visually check the mill for any damage that may have occurred during shipping. Open the lid, remove packing from around the clamp mechanism and cut the zip ties securing the clamp arm. **Tilt the cabinet, and remove the two shipping bolts on the bottom.** They hold the floating baseplate to the cabinet for shipping. Check the packing list to see that there are no parts missing, and inspect the accessories. We recommend storing the packaging materials in the event there is a need to return the unit for warranty service or repairs.

Vials and vial holders are necessary for processing samples but must be purchased separately. The full range of vials and accessories for the HG-200 GenoLyte® is described in our catalog, GenoLyte Accessories Manual or Cole-Parmer.com.

Figure 1 – Front View

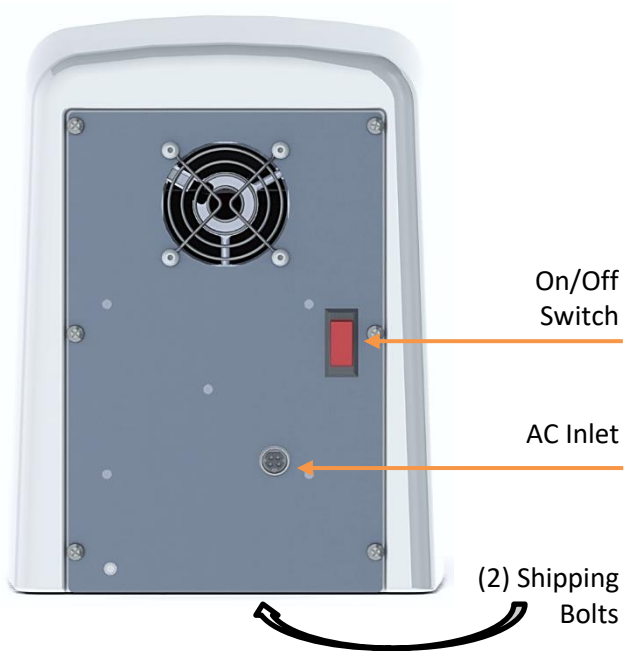


Figure 2 – Back View

NOTE: ***Before operating, remove the shipping bolt from the bottom of the GenoLyte; otherwise the mill may be damaged. The screws should be replaced if the unit is ever to be shipped or transported.***

4.0 SETTING UP

The HG-200 GenoLyte® weighs 23 pounds (10.4 Kg). The lid opens from the front with the handle in the center. The AC Inlet and On/Off switch are located on the back of the GenoLyte cabinet, as shown in Figure 2. The control panel is fixed to the front side of the unit (Figure 1).

4.1 Electrical Connection

The detachable power cord should be plugged firmly into its inlet, then into an electrical outlet. Make sure that the electrical outlet is easily accessible in case it becomes necessary to unplug the unit. For 115V/60HZ use, a 3-prong outlet. The 230V/50HZ GenoLyte power cord has a standard European 2-prong plug, but modification by the user may be necessary to meet local electrical codes.

4.2 Cabinet Set-Up

To open the lid, grasp the white handle and raise the lid to its full upright position. Allow the lid to rest against the cabinet in its open position. To close, grasp the white handle and lower the lid until it is fully closed.

4.3 Standard Safety Features

Clamp Locking Tab: The clamp arm is fastened down to firmly fit against the vials in the vial holder. The locking tab is pressed inwardly by user until it clasps the clamp arm. Stretch the ring around the clamp arm knob to secure vials in the holder, as shown in Figure 3. Vial holders are available for each vial type (2 ml, 5 ml, 7 ml, 12 ml). Do not use vials that are not made for a specific vial holder. When removing the vials, first unclasp the locking tab from the clamp arm.

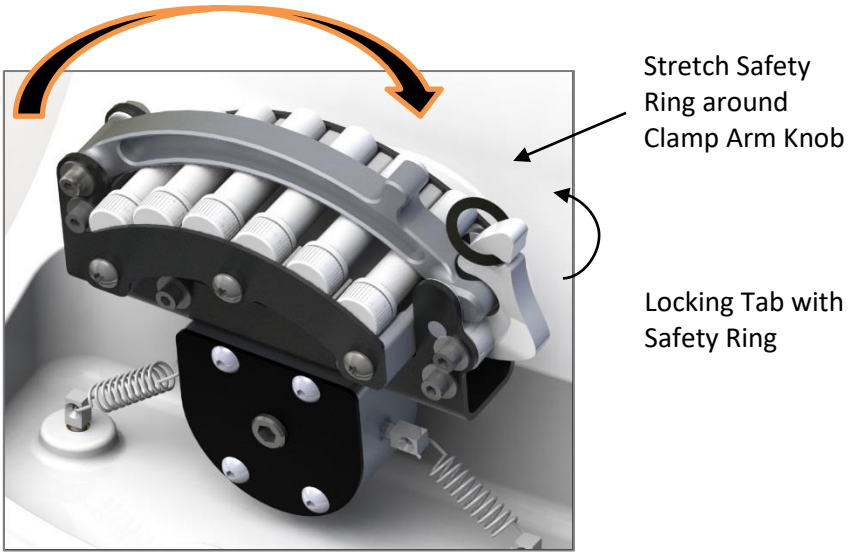


Figure 3 – The Clamp Locking Tab

4.4 CE Safety Features

CE directives require that electricity to the motor and timer be interrupted whenever the lid is open, and that the clamp must stop completely before the lid is opened.

Safety Interlock: If the RUN button is pressed while the lid is open, the GenoLyte will not start. During operation, if the lid is opened, the motor will immediately stop, and movement of the clamp mechanism will cease.

4.5 General Safety

Caution: Every effort has been made to ensure the GenoLyte operates at a moderate noise level. The intensity of noise is directly impacted by the type of grinding vial, type of balls, run speed (e.g. 4000 rpm) and sample hardness. Ear protection is recommended.

5.0 Changing the Vial Holder

The clamp mechanism is the most critical component of the GenoLyte. Sample vial holders must be held securely in the clamp during operation to prevent damage and leakage.

Only use a vial holder that is designed for the appropriate vials. See Table A. below for a list of the vial holders and suitable vial types.

Figure 4 – 5 ml Vial Holder

Table A.

Holder VPN	# Vials and Vial Size	Vial Set VPN	Grinding Balls or Beads
1210	Holds six standard 2 ml vials	---	---
1211	Holds four 5 ml vials	2241R-PEF	6.35 mm Steel or 6 mm Zirconia
1212	Holds two 7 ml vials	2142, 2142-PE	Glass, Silica
1218	Holds one 12 ml vials	6133PC-T	11 mm Stainless Steel or smaller

5.0 Changing the Vial Holder (Cont'd)

The vial holder can be placed or removed from the clamp mechanism with or without sample loaded vials, as shown in displayed in Figure 5.

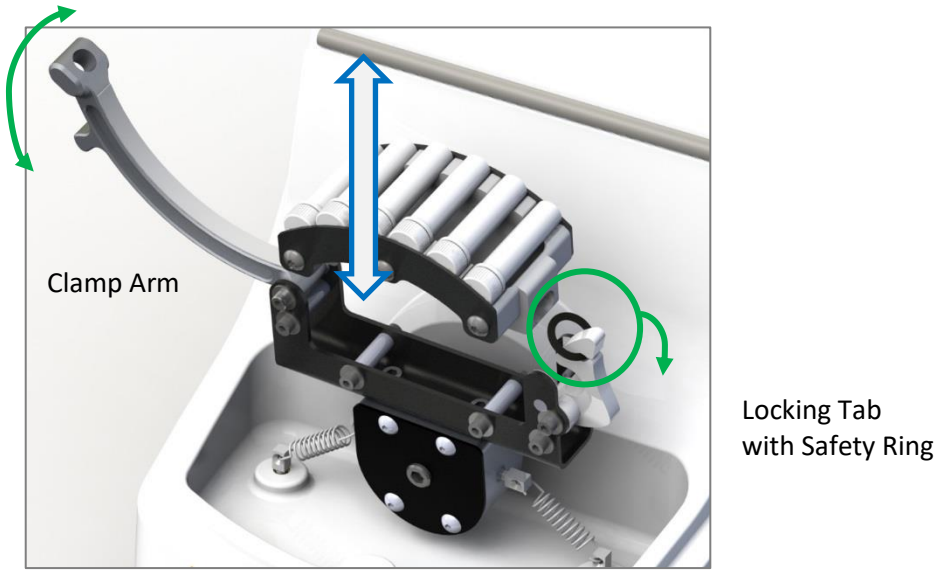


Figure 5 – Inserting the Vial Holder

1) Unclasp the safety ring and locking tab from the clamp arm.
2) Fully extend the clamp arm to the open position.
3) Insert the vial holder into the clamp and carefully press down until it fits snug in the cradle.
4) Place the vials into the holder. It is critical that the clamp arm be supported by at least two vials, one at each end. An empty vial can be used as a place holder if only one sample is run.
5) Close the clamp arm, pushing it down then pressing the locking tab inwards until it clasps the arm.
6) Stretch the safety ring around the clamp arm knob to secure the vials in holder.
7) Program a run as described in section 6.1.

6.0 OPERATION

NOTE: Never run the GenoLyte Homogenizer with the clamp arm unfastened or not properly secured. Damage and leakage will result. It is critical that the clamp arm be supported by at least two vials, space them evenly, one at each end of the holder. An empty vial can be used as a place holder if only one sample is run.

6.1 Control Panel

6.1.1 Run Parameter

- Time - Can be set in 5-second increments. Maximum runtime is 5.00 min.
- Rate - Run speeds are fixed at 750 rpm, 2000 rpm, 3000 rpm, 4000 rpm.
- Rest - Runtime is inactive between cycles and can be set in 15 second increments up to 5 minutes.
- Cycles - 1 to 5 (the number of runtimes).

6.2 Changing Settings

Step 1. To set a programmed run push the FUNCTION button to select the Runtime, Rate, Rest, and Cycles**.** Press the plus button (**+**) to increase the selected parameter or press the minus button (**-**) to decrease the parameter.

Step 2. To exit the Function programming screen push the STOP button.

Step 3. Push the START button to begin a programmed run. The timer counts down in 1-second increments, showing the time left in the run. When the timer reaches zero and the motor shuts off, the timer will display RUN COMPLETE. The safety interlock switch prevents the unit from running if lid is open.

Step 4. To have the mill pause during a run and retain the timer setting, push the PAUSE button. The motor will shut off and PAUSED will appear on the display. To resume the run, close lid and push START; the timer will briefly display the exact number of seconds left in the run and then continue to count down in 1-second increments. To abort the run, push STOP; RUN COMPLETE will be displayed.

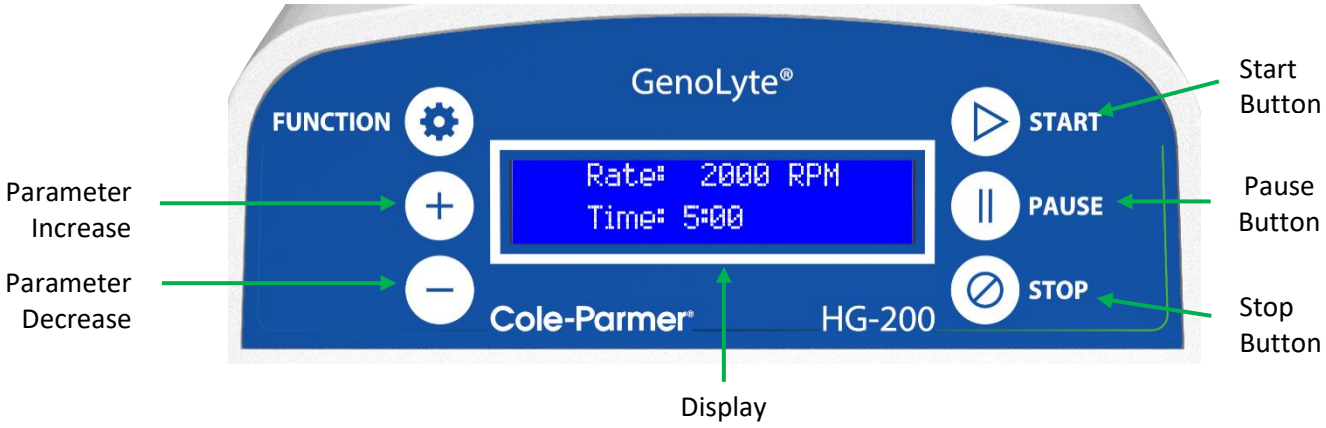


Figure 6 - Control Panel

7.0 HOMOGENIZATION AND PULVERIZATION

7.1 Homogenizing

Homogenizing is commonly done in a 2 ml plastic vial using a variety of media from stainless steel to a combination of ceramic and glass. Depending on the sample (e.g. plant, tissue) and amount of material used for the extraction process, vials with one large or several smaller balls may be more efficient.

For large volume samples, such as soil or stool, a 5 ml or 7 ml vial is ideal for the homogenization process. Hard samples including corn, or seeds will require the 6133PC-T vial with one 11 mm stainless steel ball. In the GenoLyte Accessories Manual, 2 ml vials preloaded with grinding media are listed with a brief description for suggested sample types. The samples can be ground dry or with the addition of a lysis buffer.

8.0 ERROR MESSAGES

8.1 Lid Error

If the lid interlock fails while the GenoLyte is running, the unit will stop running and the screen will display a “LID OPEN” message. The timer will maintain the time remaining in the run. To restart, close the lid and press the START button to finish the run. To end the run and reset the timer, press the STOP button. The “LID OPEN” message will disappear once the lid is closed.

8.2 Run Fault

If a “RUN FAULT” message appears on the display screen, this indicates the GenoLyte is not operating within an acceptable range of the set rate. Press the STOP button to discontinue operation and contact Cole-Parmer service technician at (732-623-0465) for assistance.

9.0 MAINTENANCE

NOTE: Always unplug the GenoLyte before any cleanup or maintenance work.

The HG-200 GenoLyte® has been designed to provide trouble-free operation over a long period of time. To assure proper performance, the most important factor is cleanliness. Any spills should be wiped up immediately.

The cabinet is made primarily of painted plastic. The lid is a clear formed polycarbonate. The interior as well as the exterior surfaces of the unit are designed to be easily cleaned in case of a sample spill. To maintain the overall appearance of the unit, periodically wipe the exterior and interior of the GenoLyte with a mild window cleaner or similar product (use a soft non-abrasive cotton cloth).

It is a good laboratory practice to clean up any spills immediately. Or sample contamination and equipment damage can be the outcome.

10.0 GenoLyte Vial Reference Table

Table B.

VPN	Vial Size	Description	Grinding Media	Number of Balls	General Purpose	Holder	# of Vials	Speed
2310	2 ml	Reinforced Tube (Polypropylene)	Steel, Zirconia	Five 2151, One 2186	Plant, Tissue, Seeds	1210	6	Up to 4000 rpm
2241R-PEF	5 ml	Frosted Polyethylene	Steel, Zirconia	One to two 2154 or 2186	Plant, Tissue, Seeds, Hair	1211	4	Up to 4000 rpm
2142-PE	7 ml	Polyethylene	Ceramic, Glass	1.7 mm or smaller	Soil, Stool, Bacteria, Fungi, Yeast	1212	2	Up to 3000 rpm
6133PC-T	12 ml	Polycarbonate with reinforced bottom	Steel	One 2156	Soil, Seeds	1218	1	Up to 4000 rpm

11.0 WARRANTY

Cole-Parmer® guarantees its products against defects in materials or workmanship for three years from the date of original shipment. Repairs, replacements, or parts are guaranteed for 30 days or for the remaining original warranty period (whichever is greater) for the item that was repaired or replaced. Items not produced by Cole-Parmer® carry the manufacturer's warranty only.

The warranty excludes wear parts. These are parts that wear out through use and must be replaced periodically for proper operation. HG-200 GenoLyte wear parts include the following which can be changed by the user.

21609 Spadebolt
52160 Spring
50157 Vibration Mount
51702 Clamp Arm Safety O-ring

In the event that these or other parts require service, please contact Cole-Parmer to arrange a return shipment.

The customer pays return freight for warranty claims. If the warranty claim is valid, Cole-Parmer® will pay return freight to the customer. However, Cole-Parmer® reserves the right to judge whether a malfunction during the warranty period is due to defects in materials or workmanship, or to wear, negligence, or misuse.

11.1 Product Specifications

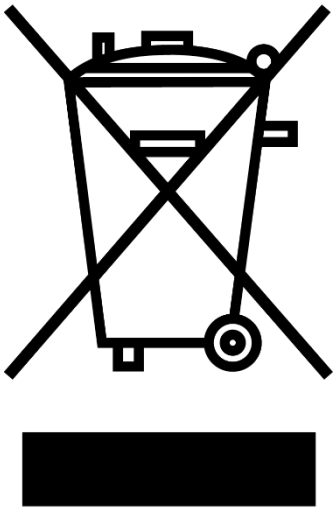
Every effort has been made to provide complete and accurate product operation and information in this manual. However, since specifications are subject to change without notice, changes may be made from time to time to improve the performance of the product.

11.2 To Arrange A Return Shipment

We want you to be satisfied with your purchase from Cole-Parmer®. Please bring any problem to our attention, but please DO NOT RETURN any item before contacting us for a Return Authorization Number and instructions. Unauthorized returns will be refused. The cost for all return transportation is the responsibility of the customer. Credit for returned merchandise will be issued only after goods have been received and inspected. Returned goods are subject to a 25% restocking charge.

12.0 INSTRUMENT DISPOSAL

In accordance to the EU Directive 2012/19/EU covering Waste Electrical and Electronic Equipment, all equipment with the disposal symbol must not be disposed of with general waste. (See Figure 7)



Disposal Label is located on the back of unit.

Figure 7 – Disposal Symbol

Throughout the European Community, guidelines regarding disposal regulations may vary from territory to territory. Please contact the national legislation or local authority for more information on proper disposal of all equipment with this symbol.

13.0 CONTACT US

Repair Service
Phone: 1.732.623.0465

Cole-Parmer
65 Liberty St
Metuchen, NJ 08840
US

Attn: Service and Repair
Please include RA Number on the shipping label.

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