



INSTRUCTION MANUAL

GILLMORE APPARATUS – Product Code CE135

IMPORTANT:

Do not operate this equipment before thoroughly reading and understanding all sections of this manual.

Chapter 1 – GENERAL INFORMATION

1.1 GENERAL FEATURES

- This manual is intended for the transporter, installer, operator, maintenance personnel, and those responsible for disposal.
- Please read this manual carefully, as it contains essential safety and operational instructions.
- This manual is considered an integral part of the product and applies only to the machine with which it is supplied.
- Keep the manual accessible throughout the entire lifespan of the equipment for reference.
- If the machine is sold, the manual and any accompanying documents must be transferred with it.
- The manufacturer is not responsible for damage resulting from improper use.
- The manufacturer reserves the right to make changes to the equipment and this manual without prior notice.

Warning Labels:

- **ATTENTION:** Highlights procedures that could cause serious damage to the machine if not followed correctly.
 - **DANGER:** Indicates procedures that could result in harm to the operator if not followed carefully.
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Chapter 2 – SAFETY INFORMATION

2.1 GENERAL SAFETY STANDARDS

- Only qualified personnel are allowed to use, lift, install, maintain, or dispose of the machine. "Qualified" refers to individuals trained and authorized due to their knowledge and experience with the equipment and safety regulations.
- Users must be thoroughly trained in the machine's operation and any installed safety devices. These safety systems must remain in place and be checked daily.
- The manufacturer provides training but accepts no liability for damages caused by untrained personnel.
- Always follow the instructions in this manual along with applicable safety standards.
- Ensure the machine complies with the regulations of the country in which it is being installed.
- This manual should be read and understood by safety officers, operators, and maintenance staff and must remain close to the machine.
- Any unauthorized modifications (electrical, mechanical, etc.) without the manufacturer's written consent are prohibited. The manufacturer disclaims responsibility for resulting damage.
- Removing or tampering with safety devices is a violation of EU Safety Regulations. The manufacturer assumes no liability for such actions.
- The machine must be installed in areas free from fire and explosion hazards.
- Only original spare parts and accessories should be used. Using non-original parts voids any manufacturer liability.
- Immediately stop the machine if it malfunctions, and contact the manufacturer or authorized service personnel.

The manufacturer accepts no responsibility for injury or damage if general safety instructions or manual guidelines are ignored.

2.2 SAFETY SYSTEMS

Definition: Safety systems are designed to protect operators from hazards that could not be eliminated during machine design.

- **DANGER:** Removing or tampering with safety devices may pose a serious risk. The manufacturer is not liable for any resulting injuries or damages.



Types of Safety Devices:

- **Passive Safety Devices:** These reduce risk without requiring user intervention (e.g. fixed guards).
- **Active Safety Devices:** These require the operator's active participation to function correctly.

2.3 HAZARDOUS AREAS AND RESIDUAL RISKS

Hazardous areas refer to zones within or around the machine where the operator may be injured.

- Risks can be minimized by strictly following procedures outlined in this manual and using the appropriate safety devices.

If the manufacturer is not performing the installation, ensure only skilled personnel trained in handling heavy machinery perform the task.

GENERAL PRECAUTIONS

- Before use, ensure all components are in good working condition. Repair or replace any damaged parts.
- Be aware of the risk of electric shock from direct or indirect contact due to potential electrical system failures.
- Avoid exposing the equipment to strong impacts, fire, extreme temperatures, or welding sparks.
- Keep the device away from corrosive substances.
- Do not clean the equipment using water sprays.

DURING OPERATION

- Do not touch any moving parts during operation; always use proper safety measures.
- Be cautious of pinching, crushing, or cutting hazards caused by moving parts.
- Tested materials may be harmful; avoid inhalation of fumes or contact with eyes and skin.
- Do not wear loose clothing, ties, watches, or jewellery that may become entangled in moving parts.



LIFTING PROCEDURES

- Ensure the machine is securely fastened and stable before lifting.
- Never stand in the line of applied force or underneath suspended loads.

Risk/Danger	Recommended Safety Measure
Finger/Hand Pinching	Reinforced Gloves
Abrasions and Cuts	Reinforced Gloves
Steam Emissions	Protective Clothing and Gloves

The manufacturer is not liable for injury or damage resulting from failure to follow safety instructions or use protective equipment. (Refer to local safety regulations.)

Chapter 3 – INSTALLATION

DANGER: Review “Hazardous Areas and Residual Risks” before starting.

3.1 LIFTING

Follow these guidelines during handling:

- Lifting and storing
- Initial installation
- Subsequent relocations

The machine is typically shipped in a wooden crate or carton designed for safe transport. Use a forklift rated for the weight shown on the machine’s nameplate.

Avoid impacts and tipping.

Protect the machine from exposure to the elements—water and humidity may cause rust and damage.

3.2 UNPACKING

After unpacking, inspect all components for damage. If damage is suspected, do not use the machine and contact the manufacturer/supplier.

DANGER: Keep packaging materials (plastic, polystyrene, nails, etc.) away from children and dispose of them properly.

Before discarding the packaging, ensure no parts, documents, or accessories remain inside.

3.3 INSTALLATION

- The machine must be installed in a controlled environment suitable for laboratory use, protected from weather.
- Installation must be performed by qualified personnel.

Operating Conditions:

- Temperature: +5°C to +40°C
- Humidity: 30% to 95% (non-condensing)
- Max Altitude: 1000 m

General Recommendations:

- Ensure access to all sides of the machine for maintenance.
- Keep unauthorized persons and hazardous objects away from the installation area.
- Position the machine on a stable, level surface at a comfortable working height.

Chapter 4 – MACHINE FEATURES

4.1 DIMENSIONS AND WEIGHT

Dimensions may vary by model.

Chapter 5 – PURPOSE

This apparatus is used to determine the setting time of hydraulic cement paste using Gillmore needles.

This manual does not address all potential safety concerns. Users are responsible for implementing appropriate safety practices and verifying compliance with applicable regulations.

Chapter 6 – TEST METHOD OVERVIEW

Prepare a normal consistency cement paste using the appropriate amount of water. Mold the specimen and test it using the Gillmore initial and final needles.

- Initial Set: Time taken for the cement paste to support the initial needle without significant indentation.

- Final Set: Time taken to support the final needle without significant indentation.
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Chapter 7 – SIGNIFICANCE AND APPLICATION

This method determines whether cement meets the specified setting time requirements. The result is affected by:

- Water quantity and temperature
 - Mixing duration
 - Ambient temperature and humidity
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Chapter 8 – CONDITIONING

- Maintain room temperature, materials, tools, and plates between 20–27.5°C (68–81.5°F).
 - Mixing water must remain within $\pm 1.7^{\circ}\text{C}$ ($\pm 3^{\circ}\text{F}$) of 23°C (73.4°F).
 - Laboratory relative humidity must be at least 50%.
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Chapter 9 – PROCEDURE

9.1 PREPARING THE CEMENT PASTE

- Mix 650g of cement with the required water for normal consistency as per the standard procedure.

Molding the Specimen:

- Form a pat on a non-absorbent plate with a flat top and tapered sides.
- Place the pat in a moist cabinet or room until setting time tests are performed.

Setting Time Testing:

- Hold the needle vertically and gently apply it to the pat.
- Initial Set: The time from mixing to when the paste resists the initial needle without indentation.
- Final Set: The time from mixing to when the paste resists the final needle without indentation.

Chapter 10 – REPORTING RESULTS

The test report must include:

- Initial Setting Time (Gillmore): ___ min
 - Final Setting Time (Gillmore): ___ min
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Chapter 11 – MAINTENANCE

DANGER: Use only original spare parts. The manufacturer assumes no responsibility for issues arising from the use of non-original parts.

11.1 ROUTINE MAINTENANCE

- Regularly clean all components and lubricate unpainted parts.
 - Do not use solvents that may damage painted
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