Stage 3 Horizontal Fixture

2023

HGI LAB, LLC.

154 East Brook Lane | Butler, PA 16002

WWW.HGILAB.COM | TEL: 724.283.1212

REVISED AUGUST 2023

Information in this document is subject to change without notice and does not represent a commitment on the part of:

HGI LAB, LLC.

154 East Brook Lane

Butler, PA 16002

USA

Telephone: 724.283.1212

For assistance with set-up or operation of the equipment, contact the HGI LAB service department. Please have this manual and product serial number available when you call.

Table of Contents

1.0 Important Notices

The purpose of this manual is to supplement, BUT NOT TO REPLACE the services of qualified personnel to start up and adjust this equipment. Individuals without previous experience with this piece of equipment should NOT attempt the initial adjustment and check-out procedures. The services of a trained installer should be used until this installation is considered ready for operation.

Only trained and qualified operators should use or operate this equipment. HGI LAB can provide on-site training for your employees at the time and day(s) of your choice. Please contact us directly at 724.283.1212 for pricing and scheduling, for on-site training.

Each cabinet carries an individual serial number located on the nameplate mounted on the cabinet. Please refer to this number when you are ordering replacement parts or when any additional information is requested.

Safety Precautions

This manual contains important information that ALL users should know and completely understand prior to use of the equipment.

This information relates to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS. To help recognize this information, we use the following terms to draw your attention to certain equipment labels and information within this manual. Please pay special attention to any label and/or information that is highlighted by one of the below terms:

CAUTION

This important information tells how to prevent damage to equipment and / or how to avoid a situation that may cause injury.

NOTE

This is information that should receive special attention when operating or using this equipment.

2.0 Installation

2.1 Remove the shipping crate and packing material carefully from the Stage 3 Horizontal Fixture cabinet. Do not discard the packing material until all the items on the packing list have been accounted for.

2.2 Use a properly rated fork lift to remove the Stage 3 Horizontal Fixture cabinet from the shipping pallet and position the cabinet in the desired location. Make sure the cabinet is level after placement and to allow adequate floor space directly around the cabinet for maintenance.

NOTE

When transferring the Fixture cabinet from the shipping pallet or from different locations in general, use moving blankets between the cabinet and the moving machinery. Follow accepted practices to avoid any damage to the equipment.

THE TESTING AREA REQUIRES FLOOR DRAINS

2.3 Connect the High-Pressure water supply line to the High-Pressure inlet port on the side of the Fixture cabinet, from the Burst Supply Cabinet. Use only suitable high-pressure hose, tubing, and fittings; 3000 PSI rated.

2.4 Connect the air lines (150 PSI max), water (100 PSI max) and electrical plug on Burst cabinet.

2.5 Attach the electrical power and air line between Burst cabinet and Fixture, and the electrical line from the customer’s power outlet or box to the Fixture electrical terminal block located at the rear of the test Fixture.

2.6 The electrical requirement for this Stage 3 Fixture is 230 Volt, 60 Hertz, 3 Phase, and 20 amp.

3.0 Description

3.1 The Stage 3 Fixture is primarily designed for the BURST TESTING (with WATER) of plastic pipe with a low expansion rate. Other uses could cause injury to personal and damage to the test fixture and connected equipment.

3.2 The Stage 3 Fixture is used with a WATER Burst Supply System that provides up to 3000 PSI of WATER pressure and the volume capacity necessary for bursting the plastic pipe test specimens. Check with the factory first if you want to use this test fixture at pressures that are not rated.

3.3 The Stage 3 Fixture has a moving beam that is positioned according to the size that the specimen is to be tested at and the fixed beam. Attached to the beams are customer supplied endcaps from 6” through 16”. There are also adapters for using smaller caps for sizes of 1/2 through 5”.

3.4 The moving beam of the Stage 3 Fixture is moved in and out by an AC motor. The fixed beam is attached to the base of the unit. The user should refer to the proper ASTM or ISO Specifications for the required length of each specimen that is to be tested.

3.5 This Stage 3 Fixture will handle up to 16” diameter plastic pipe.

3.6 A high strength steel tubular frame work and stainless steel cabinet surround the Stage 3 Fixture. The lid of the fixture incorporates 2 clear polycarbonate windows with lights to enhance viewing of the test specimen.

WARNING

KEEP HANDS CLEAR FROM TANK WHEN CLOSING LID

4.0 Controls

4.1 Main Power Circuit Breaker – The main circuit breaker is located inside of the lower electric box on the front right of the Fixture and controls all of the electrical power to the Stage 3 Fixture controller and motor.

4.2 Remote Push Button “IN” Activates the motor starter control which powers the drive motor, causing the moving beam to move left toward the fixed beam and push the endcaps on the test specimen.

4.3 Remote Push Button “OUT” Activates the motor starter control which in turn powers the drive motor causing the moving beam to move right away from the fixed beam.

4.4 Top Limit End Switch – (Located inside the Stage 3 Fixture) Stops the moving beam from moving past the maximum length of beam operation.

WARNING

DO NOT OPEN THE FIXTURE LID UNTIL THE TEST PRESSURE HAS BEEN RELEASED.

4.5 Emergency Stop Push Button Stops the Burst Test.

4.6 Refer to the manual that was supplied with the Burst Supply System for the proper and correct operation when combined with the Stage 3 Fixture System.

5.0 Operation

5.1 Procedure For Using The Stage 3 Fixture

A. First prepare the test specimens according to ASTM or ISO test procedures. Test length per standards is the length between the caps (depth of caps must be added). **Be sure to bevel the edges of the test specimens as this is critical to the installation of the specimen into the end closures. The bevel must be great enough to allow the specimen to slip by the edge of the seal and prevent damage to the seals.**

B. Mark each pipe sample the depth of the endcap (usually 4-8 inches). Measure each cap for each sample size. **THIS MEASUREMENT IS CRITICAL.**

CAUTION

EXTREME CAUTION MUST BE USED WHEN THE LID IS OPEN AND THE ELECTRICAL POWER IS "ON". KEEP HANDS AND ARMS AWAY FROM THE MOVING BEAM AND HEAD OUTSIDE OF THE STAGE 3 FIXTURE CABINET WHEN MOVING THE MOVING BEAM "OPEN" OR "CLOSE".

C. Open the lid.

1. Turn knob to UNLOCK (You will hear the cylinder brakes unlock)
2. Turn knob to OPEN (Lid will start to rise)
3. When lid is fully open, turn knob to LOCK

WARNING

LOCK MUST BE ON WHEN LID IS OPEN TO PREVENT CLOSING WHEN LOADING, UNLOADING SPECIMEN OR PERFORMING MAINTENANCE.

IF THERE IS A SUDDEN LOSS OF AIR OR ELECTRICAL POWER, THE LOCKS WILL ENGAGE AND KEEP THE LID WHERE IT IS WHEN LOSS OCCURRED.

WHEN AIR IS RESTORED, BE SURE THE LID SWITCH IS OPEN AND PRESSURIZED BEFORE UNLOCKING.

D. Install the correct endcaps for the specimen size to be tested on the moving and fixed beam for 6” through 16” or install correct endcaps on the small mounts. (5” and under)

1. Carefully lift the endcap assembly by top eyebolts and slide into place on the beam.

1.1 Be sure to use FILL enclosure assembly on fixed beam and VENT endcap assembly on moving beam.

2. Screw the top 2 socket head cap screws through endcap platen.

E. Install pipe guide blocks for the corresponding pipe size in front of the large endcaps (6” through 16”).

F. Use the pendant to close or open the moving beam to the length required to allow the test specimen to fit between the two endcaps. Lay test specimen on the guides.

1. Care must be taken to keep the Seal Savers from getting caught in the threads (springs will keep the Seal Savers pulled back). Check the moving beam every few inches and pull the Seal Savers back towards the fixed beam if needed.

G. Use the pendant to close the moving beam allowing the specimen to slowly move into the endcaps, to the inscribed marks. When the moving beam endcaps has been closed to within 1/2” - 1” of the inscribed marks, stop the beam.

CAUTION

CAUTION: DO NOT CLOSE THE BEAMS PAST THE INSCRIBED MARKS ON PIPE SAMPLE OR THE PIPE SAMPLE WILL BEGIN TO COMPRESS AND VOID THE TEST

H. Make sure the fill hose is connected to the fill base.

I. Connect vent hose to correct vent port.

J. Connect plug to other vent port.

K. Follow the Burst Tester instructions to Purge air out of test specimen. Water will continuously flow from drain port in tank once air is purged from specimen.

WARNING

ALL AIR MUST BE REMOVED FROM SPECIMEN BEFORE STARTING TEST. A VIOLENT SPECIMEN FAILURE COULD RESULT IF AIR IS LEFT IN SAMPLE DURING TEST.

L. Close the lid by turning knob to “UNLOCK”, then turning knob to “CLOSE”. Once lid is closed turn knob to “LOCK”.

M. Follow Burst Tester instructions for testing the pipe.

5.2 The following is required if the specimen has burst, or has not burst but has completed the required test:

WARNING

BE SURE TEST PRESSURE IS ZERO BEFORE OPENING LID

A. Open Lid – 5.1C above.

B. Open moving beam until the specimen can be removed. Remove the specimen. Sometimes the rings of the 6” through 16” end closures need to be removed to clean the end closures of pieces of the specimen. Be careful with the O-rings and seals whenever you remove or reinstall them.

WARNING

WEAR CUT PROOF GLOVES WHEN REMOVING BROKEN PIECES OF PIPE. EDGES CAN BE EXTREMELY SHARP.

C. Move the moving beam to a position that can be used to easily service the unit.

WARNING

LOCK MUST BE ON WHEN LID IS OPEN TO PREVENT CLOSING WHEN LOADING, UNLOADING SPECIMEN OR PERFORMING MAINTENANCE.

IF THERE IS A SUDDEN LOSE OF AIR OR ELECTRICAL POWER, THE LOCKS WILL ENGAGE AND KEEP THE LID WHERE IT IS WHEN THE LOSS OCCURRED.

D. Remove the remaining pieces of the specimen that are either still in the cabinet or in the end closures.

CAUTION

CARE MUST BE USED IN REMOVING THE PIECES THAT ARE STILL IN THE END CLOSURES TO PREVENT DAMAGING THE SEALS.

E. Stop and turn off the power if testing has completed. Reference section 5.1 (Procedure for using the Fixture) and proceed to test the next specimen.

F. To remove end closures

1. Unscrew the 2 large socket head cap screws holding the End Closures on the beams.

2. Lift the End Closure assembly out by top eyebolts with hoist and carefully place in storage.

3. Be sure the End Closure is clean and dry when placed in storage to assure longevity of the equipment.

6.0 Maintenance

6.1 Chain and Chain Guard – Remove the screws that hold the Electrical conduit on the Stainless Guard on the moving beam, then remove the screws that hold the chain guards in position starting with the front guard. Raise the front guard up and out of the way, then repeat with the rear guard. This is required to service the chain or to adjust the chain tension. Keep the chain lubricated with a quality grease and check annually.

6.2 Service of the remaining components – per the manufacturer's instructions.

6.3 Lubricate the ACME screws every month with grease. Remove the SEAL SAVERS, brush an ample amount of grease on the screw and run the moving beam "close" then "open" to spread the grease out over the screws in uniform manner. Then replace the SEAL SAVERS.

6.4 Keep the end closure's seals well lubricated with silicon lubricant or go-jo Hand Cleaner Original Formula type 1115 or equivalent lubricant.

6.5 Smear grease on the Aluminum parts if the coating gets chipped to prevent corrosion.

6.6 Clean and repaint steel surfaces promptly if they become scratched.

6.7 When cleaning the Lexan windows on the lid of the Stage 3 Fixture, check for any signs of cracking or stress and replace immediately if cracks are found or excess stress is suspected.

CAUTIONS

6.8 Check the thrust capacity of the Stage 3 Fixture, specimen and the end closures before pressurizing your specimen. Do not attempt to test specimens outside the test parameters the Fixture is designed to test.

6.9 Do not pressurize specimens without adequate shielding to prevent the flying debris causing injury or damage to other equipment should the specimen fail and burst as a result.

WARNING

BE SURE ALL TRAPPED AIR IS BLED FROM THE TEST SPECIMEN AND FROM THE STAGE 3 FIXTURE BEFORE STARTING THE TEST.

6.10 Turn off the electrical power to the Stage 3 Fixture before servicing or making any adjustments inside the cabinet or electrical box.

6.11 Do not store system where it may be subjected to below freezing temperatures without completely draining the water from the system.

6.12 DO NOT OPEN THE BURST LID IF THE SPECIMEN DOES NOT BURST UNDER TEST CONDITIONS UNTIL THE TEST PRESSURE HAS BEEN RELEASED. This unit is equipped with a stop switch if the lid is opened during a test that will shut off the flow and open the drain.

6.13 CAUTION MUST BE USED WHEN THE LID IS OPEN AND THE ELECTRICAL POWER IS “ON” OR WHENEVER THE BEAM IS MOVING.

6.14 Keep hands, arms, and head away from the moving beam when the beam is in motion “OPEN” or “CLOSE”.

6.15 Check the polycarbonate window for any signs of cracking. Replace immediately if any cracking is found or suspected.

6.16 USE COMMON SENSE AND CAUTION WHEN OPERATING THE STAGE 3 FIXTURE SYSTEM AND ANY ATTACHED EQUIPMENT.

For More Information or Support:

Please contact HGI LAB directly.

HGI LAB, LLC.

154 East Brook Lane

Butler, PA 16002

WWW.HGILAB.COM

TEL: 724.283.1212

mark@hgilab.com