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Given article text here 1. Warranty Information and Ordering Requirements The autoclave warranties does not cover faulty components or assembly, with the exception of glassware, lamps, and heaters. The owner is responsible for paying all transportation charges both ways. It's also important to purchase the unit from an authorized Tuttnauer full-service dealer. 2. Safety Instructions and Precautions Read and understand the operation instructions before first using the autoclave. Certain issues may require guidance from the manufacturer, including operating the autoclave, door safety mechanisms, and sterilization programs. 3. Technical Data 3.1 Model Description The LABSCI 15L and LABSCI 15+L are table-top sterilizers designed for laboratory use, with computerized control units ensuring fully automatic sterilization cycles. A printer is available as an optional addition to the autoclave. 3.2 Key Specifications - Total Power: 3000W (LABSCI 15), 4500W (LABSCI 15+L) - Voltage: 400VAC, 3-phase - Amperage: Protection against electrical Class I shock, IP31 enclosure - Storage Conditions: Retain in indoor environments 3.3 Compliance and Maintenance - comply with EN ISO 13485:2012, 9001:2008, and 93/42/EEC (Device Directive) - Mineral-free water use recommended for better performance and longer autoclave life 1. Electrical and Other Utilities: LABSCI 15L Models LABSCI 15L models feature electrical utilities including: - 208/230VAC ±10%, 50Hz power supply with 400VAC ±10%, 50Hz option - Recommended circuit breaker for efficient use - Compressed air (C 1/2" 3 Bar or 44-58 psi) and tap water connections available - Mineral-free water reservoir for safe operation Given text here Only Icon Description Temperature 134°C Glass (273F) 121°C Plastic (250F) 121°C Liquid A (250F) Liquid B - 121°C Waste* (250F) Liquid A - 121°C √ Cooling* (250F) Liquid B 121°C √ Sterilization Programs Temp. models models models only Icon Description Bio Hazard √ Liquids* (250F) √ Vacuum test (PV only)* 80 °C Warm-Up* 176F) 80 °C Isothermal* 176F) 121C Air Mixture* (250F) 121C Glass Test* (250F) 121C Durham* (250F) *These programs are optional Page 35 During the process, stages of cycle will be displayed on screen: Start Pulse Low (PV models only) Pulse High (PV models only) Water Inlet Heating Sterilization Cooling (C models only) Exhaust Drying (PV model only) Ending Operations sequence: • Pulse low/Pulse high at one pulse it will build vacuum down to 25 kPa. • Water Inlet: water enters the chamber • Heating: chamber is heated by actuation of electrical heaters until sterilization temperature is reached. Nominal parameters default settings Sterilization temperature: 121C (250F) Sterilization time: 30 minutes Operations sequence: • Pulse low/Pulse high at one pulse it will build vacuum down to 25 kPa. • Water Inlet: water enters the chamber • Heating: chamber is heated by actuation of electrical heaters until sterilization temperature is reached. Cautions! Both PT100 temperature sensors must be inside bottles. Fill bottles with approximately same amount of liquid. Nominal parameters default settings Sterilization temperature: 121C (250F) Sterilization time: 15 minutes Operations sequence: • Pulse low/Pulse high at one pulse it will build vacuum down to 25 kPa. Page 40 Program 6: Liquid B - Waste Cooling (C - cooling models only) For liquids when manufacturer recommends autoclaving at 121°C (250F) for 30 minutes, such as liquid waste. Cautions! Both PT100 temperature sensors must be inside bottles. Fill bottles with approximately same amount of liquid. • Fast Exhaust: steam is exhausted out of chamber at fast rate until pressure decreases to ambient pressure. • Drying: N/A Ending Program 7: Bio Hazard 1 (BH, bio-hazard models only) All exhaust from chamber before completion of program. Page 43 The Bio Hazard cycle is designed to eliminate bacteria and other microorganisms from laboratory equipment and samples. If the cycle fails, it will automatically switch to fast exhaust through the bio-hazard filter to remove any remaining water in the chamber. To troubleshoot issues with the Bio Hazard cycle, refer to Program 8: Bio Hazard 2 (BH). For PV models only, drying is available but requires a specific sequence of operations. If the problem persists, contact technical support for assistance. In certain situations, such as when using liquid samples, specialized cycles like Isothermal (Program 12) or Durham (Program 15) may be required. These programs involve heating liquids to specific temperatures and maintaining them at that temperature for a set period to ensure proper sterilization. Cycle Completed and Maintenance Instructions Cycle Ended message 6.1 Screens following a completely successful cycle Cycle Ended 1. System Ready 2. Pulse Low 3. Pulse High (ELPV model only) 4. Heating 5. Sterilization 6. Exhaust 7. Drying (ELPV) 8. Ending 6.2 Screens following aborted cycles after complete sterilization stage 6.2.2 Pressure Time Error Failure occurrence after complete sterilization stage The cycle ended successfully, the reason of failure is displayed. 6.3 Screens following a fail cycle: Cycle Failed message Reason of failure When "Cycle Failed" appears on the screen, the user shall press START/STOP key in order to delete the "Cycle Failed" message 7. Printer 7.1 Printer Output The printing is on thermal paper with 24 characters per line and contains the following information: • Date • Time • Ser. Num • Model • Version • Cycle Num • Cycle • Ster Temp Page 58 Printer output Description Operator: To be filled in manually by operator Time: 12:14:47 Time sterilization cycle ended Status: Cycle Ended 00:24:43 101.3 099.7 Cycle finished time D 00:31:23 101.9 023.4 The time, temperature and pressure during drying D 00:28:23 106.2 109.7 The time, temperature and pressure during exhaust Page 59 Model information 1.0.00.00 C: Total number of Input/Output functionality that are not as default = 00 D: Total number of parameters values that are not as default = 00 Model: LABSCI 15L Model name Ser. Num: 000000000001 Time: 11:50:05 Legend Insert Water Sterilization stage Steam Flush CLK 1 Real Time Clock Air removal stage CLK 2 Software clock Heating stage Exhaust stage Keep Heat (Optional) Drying Stage (ELPV Model only) 7.2 Printer Handling 7.2.1 Maintenance Wipe off the soiling on the printer surface with a dry soft cloth with a weak neutral detergent. Page 61 Open the printer's cover door (1) by pulling it up (see Fig. 2). Fig. 2 Press the OPEN key to open the printer cover as shown (see Fig. 3/1). Handle the paper cutter carefully not to cut your hand. Place the paper roll making sure it unrolls in the proper direction as shown (see Fig. 7.2.3) Treating the thermal papers: • Store the papers in a dry, cool and dark place. • Do not rub the papers with hard substance. • Keep the papers away from organic solvent. Cautions! Never disassemble the printer. Failure to follow this instruction may cause overheating or burning of the printer or the AC adapter. Page 61 1. Preparation Before Autoclaving The purpose of packaging and wrapping items for sterilization is to create an effective barrier against contamination sources, maintaining sterility during aseptic removal. Packaging materials should allow air removal, penetration of sterilizing water vapor, and vapor removal. 2. Installation - Caution: Do not move the autoclave as it's a fixed device. - Ensure the stand can support the load of the device and loaded material. - Countertops must be able to hold at least 105 kg (231.5 lb). 3. Lifting and Carrying - Before moving the autoclave, disconnect the electric cord from power. - Verify there's no pressure in the chamber or generator. - Lift with at least two persons or using a fork-lift. 4. Pre-Sterilization Preparation The purpose of packaging is to maintain sterility and allow for aseptic removal. Packaging materials should permit air removal, vapor penetration, and vapor removal. Wrapped instruments should be dried material like autoclave bags or muslin towels. 5. Packing - Place packs upright on the tray, side by side. - Ensure tubing ends are open without sharp bends or twists. 6. Liquids Use heat-proof glass filled 2/3 full, but not sealed to prevent pressure build-up. 7. Operating Instructions - To start the autoclave, turn on the main switch under the printer cover. - The door should be opened and closed automatically by the electrical cylinder. 8. Safety - Follow local and national regulations for protective equipment and safety instructions. - Do not overload the chamber with only autoclavable products. - Verify you chose the required cycle and have a paper roll in the printer (if equipped). Close the door and follow these steps: When the door is open, you'll see the screen below displayed.... When the door is locked properly, the "System Ready" message will appear as shown. To start a cycle, press the START/STOP key. If your autoclave supports CFR 21 part 11 standard, perform the following procedure: The SELECT USER screen will appear, and you'll need to enter your username... You can increase or decrease digits by pressing UP or DOWN keys. Set your password, then move the cursor to Set by pressing START/STOP key. When Set is blinking, press UP or DOWN keys to return to the program screen. Remember: Avoid severe injuries from hot steam when opening the door! It's forbidden to lean on the autoclave, place hands or body parts over the door, and so on. Wear heat-resistant gloves or use the tray handle to remove loads safely. To avoid severe injuries... Warnings!: Lean not, nor place hand or part of body over door. Wear gloves or tray handle when removing loads. The Bacssoft control panel allows you to change cycle parameters, export data, import from USB device or printer, and more. Custom programs are the only ones that allow changing temperature sensors, displayed inputs, and dry time. To exit any screen and return to previous one: move cursor to Exit, press START/STOP key - or - press UP and DOWN keys simultaneously. In the next chapter, you'll see how to change desired parameter as needed. Note maximum and minimum values shown on screen for this parameter. Below is example of changing Dry time parameter: To exit any screen and return to previous one: move cursor to Exit, press START/STOP key - or - press UP and DOWN keys simultaneously. Given text here: software versions. Page 82 On the Start cycle by clock screen, the time is displayed in the form "HH:MM". The hour range is 24 hours (i.e. from "0" to "24"). Setting the time to start the cycle Move the cursor to the Time field. Set the required time. Page 83 Disabling the START CYCLE BY CLOCK On the Start Cycle by Clock screen, move the cursor to Disabled. Press UP or Down key to disable Starting cycle by clock. Exit the Enabling the Start Cycle by Clock. 11.3.3 Set date and time This subdirectory enables the operator to set date and time. Caution! After setting time and date, turn the autoclave off and then on again. 11.4 Logging in and entering the Main menu Below you can find instructions how to login and enter the Main menu. Section 7.1 above explains how to browse through the menus, section 7.2 explains how to change a parameter. Choose User, then press the Start/Stop key to enter. The following screen will appear: 0000 is displayed on the screen with the cursor flashing on the right digit. • Set the code to 0001. You will get to the Main menu. Below is the list and the explanation of some options available to user on the Main Menu. Below is the typical parameter changing screen: 11.6 System Parameters This menu is listing the system parameters that are the same for all cycles. Browse to the following folder: Main menu/System parameters You will see the following screen: 11.6.1 Screen Saver In this menu you can define the screensaver delay time, 1. 11.7 Maintenance Maintenance procedures provided by Bacssoft software allow you additional tests and USB input/output options. Browse to the following folder: Main menu/Maintenance You will see the following screen listing the maintenance options: Below is the instruction for autoclave's maintenance menu. 11.7.1 Reset atmospheric pressure In this menu you can reset the atmospheric pressure value. Note: Please reset the atmospheric pressure when you install the autoclave for the first time, and each time you relocate or calibrate the autoclave. 11.7.2 Printer test In this menu you can check the normal function of the printer. The printer will print the list of errors. Page 89 Note: For all the standard sterilization cycles, and for Bowie and Dick test, the only changeable cycle parameter is dry time (you will not see other parameters on your screen). For the custom cycles created by duplication and for the Warm Up cycle, more options are changeable. Operator is not allowed to create custom cycles... 12. Service and Maintenance Instructions 12.1 Preventive and Scheduled Maintenance The maintenance operations described in this chapter have to be fulfilled periodically to keep the device in good condition and to reduce the breakdown time to a minimum. The user can easily execute these operations in accordance with further instructions. Page 91 Caution! Do not use steel wool or steel brush as this can damage the chamber! Clean the outer parts of the autoclave with a soft cloth. Replace mineral free water in the reservoir. Autoclaves without recycling of mineral free water If the autoclave was not used, drain the water from the mineral free water 1. Every week, and refill with fresh mineral-free water or distilled water 2. Checking the water reservoir, piping, plastic parts and electric wires 3. Checking and tightening the piping joints to avoid leakage 4. Checking and tightening all screw connections in the control box, heaters and valves and instrumentation 5 years 6. Checking the door device for excessive wear 12.3 Draining the Reservoir Caution! 7. Before starting, Make sure that the electric cord is disconnected and there is no pressure in the autoclave. 8. The drain valve is located on the front left side of the autoclave after the door is opened. 9. The function of the drain valve is to drain the water reservoir 12.4 Cleaning water strainer Caution! 10. Before proceeding, Make sure that the electric cord is disconnected and there is no pressure in the autoclave. 11. Open the strainer cover (see the rear view). 12. Remove the strainer element. 13. Rinse the strainer with water. 14. Use a brush if necessary. 15. Reinstall the strainer element. 16. Strainer Strainer Gasket element Housing 17. Checking the Safety Valve (Located in the water reservoir, see the front view) 18. In order to prevent the safety valve from becoming blocked, it is necessary to allow the steam pressure to escape through it (every month). 19. PED-approved type safety valve 20. Operate the sterilization cycle according to the manual. 21. Allow a pressure of approx. 200 kPa (29-psi) to build up in the chamber. 22. Remove the water reservoir cover. 23. Turn the pressure relief nut counterclockwise for 2 seconds. 24. Verify steam escapes from the valve. 25. Moving the Autoclave 26. Disconnect the power supply cord. 27. Disconnect the water and drain hoses. 28. Disconnect the compressed air hoses (if applicable). 29. Drain the water from the chamber. 30. To avoid injuries, moving the autoclave should be done by using a forklift. 31. Caution! Before moving the autoclave, verify that the electrical, air and water connections have been disconnected, and there is no 32. Troubleshooting This troubleshooting chart enables the user to solve minor malfunctions, prior to contacting our service department. 33. Only technical personnel having proper qualifications and holding technical documentation (including a technician manual) and adequate information are authorized to service the apparatus. 34. Page 99 Message / Symbol / Failure Description Corrective Action Problem level of 25kPa is not reached during 20 minutes after the cycle is started. The door gasket is Clean the door dirty. 35. gasket. (see sec. 12.1.1, daily machine is maintenance) maintenance). Page 100 Message / Symbol / Failure Description Corrective Action Problem than 1 second below the sterilization temperature during sterilization cycle. 36. This message is displayed if the temperature raises 7°F (4°C) above sterilization High Temp temperature during the Perform a new cycle. 37. sterilization stage for 2 seconds during sterilization cycle. Page 101 Message / Symbol / Failure Description Corrective Action Problem during the ending stage. This message is displayed if High the system cannot reach Pressure preset pressure within 10 Perform a new cycle. (Exhaust) minutes from The exhaust system has reached the end of its cycle. The message indicates that pressure system operation has been interrupted due to a prolonged period without maintenance. It is recommended to contact service for assistance. Regular cleaning and maintenance are necessary to ensure proper function. Specifically, all containers should be emptied and cleaned regularly to prevent waste accumulation. Regular checkups can help prevent damage to the machine. The following spare parts are required for replacement: - Strainer element (FIL175-0046) - Cap for ¼" strainer (FIL175-0027) Additional accessories include: - Pouch rack - Printer paper - Tray TY304-0001

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