

## WISCONSIN STEAM STERILISER OPERATING INSTRUCTIONS

To ensure years of trouble-free operation of your Wisconsin steriliser, we recommend carefully observing the following care routine:

### CLEANING

When you are done using your steriliser, empty the water from the unit, rinse thoroughly and dry completely. This procedure needs to be done daily. Do not leave water in the unit overnight. Rinse thoroughly between water changes. Store your steriliser in a dry area. On your next use, fill the steriliser with clean distilled water, which is the recommended water. If distilled water is not available, then you may use your local water, but if it contains lime or high levels of minerals, the unit will require periodic cleaning to remove and prevent the build-up of deposits (a white deposit forms on the steriliser bottom after many cycles). The deposit can be removed using commercial lime remover or standard white vinegar.

Make up a solution of the remover or vinegar and fill your steriliser above the standard operating level. Let the steriliser stand a few minutes then rinse thoroughly. You may have to repeat this procedure a few times to fully remove the lime and mineral deposits. **Never** heat the steriliser or turn it on when filled with a cleaning solution.

### *Elevation above sea level*

At altitudes greater than sea level, settings need to be adequately adjusted to compensate for the effect of altitude on the boiling point of water. We suggest you increase pressure by 0.5psi for every 305m of elevation above sea level.

City Altitude*	Steam Pressure Required
Sea level	15-17 psi
600m	16-18 psi
1200m	17-19 psi
1800m	18-20 psi
2400m	19-21 psi

\* Johannesburg: 1694m, Pretoria: 1350m, Bloemfontein: 1395m

### OPERATION

1. LUBRICATE METAL-TO-METAL SEAL. Apply lubrication to the point or edge where side wall and bevel meet on the inside of bottom. The bevel is not the seat; only the point or edge where bevel meets the wall. We recommend using a high temperature lubricant such as a high-vacuum grease or you may also use petroleum jelly or mineral oil. Only a thin film is required. Excess amounts may cause leakage or gumming.
2. Remove the cover from steriliser by loosening the bakelite wing nuts in a counter-clockwise motion. Always undo two opposite wing nuts at a time.
  - a. Next, remove inner container from the steriliser. Pour clean water (distilled is preferred) into the steriliser bottom (large outer pot) to a depth of not less than 5cm nor more than 7,5cm.
  - b. Place inner container rack into the bottom of the container with the lip or edge side downward. The purpose of the inner container rack is to provide an air space in the bottom of the container so that air may circulate freely. Place articles to be sterilised inside the container. (Be sure to arrange items so that the free circulation of steam can occur during sterilisation.) You may wish to place a towel or cloth on top of the items in the container to absorb any moisture which may drip down from the cover.
  - c. Then place packed container into the steriliser. Make certain that the air exhaust tube channel (located on the inside of the container) is in position on the right side of the container when it is placed in the unit. This is necessary so that when the cover is placed on the unit you can guide the air exhaust tube (Part No. 2155) into the channel.
3. Place steriliser cover on unit, making sure that the index alignment arrow on the cover aligns with index line/arrow on side of bottom. Make certain when placing the cover

on the unit that the flexible tube is inserted into the guide channel on the inside wall of the aluminium container. It is helpful to place the container in the unit with the guide channel on the right hand side as you face the unit.

- a. Tighten the wing nuts on the cover evenly, always tightening down two opposite wing nuts at one time. This will draw the cover down evenly and assure a proper seal. **NEVER USE A WRENCH OR ANY MECHANICAL DEVICE TO TIGHTEN WING NUTS. NEVER HAMMER OR STRIKE THE WING NUTS OR COVER WHILE OPENING OR CLOSING.**
4. Non-electric: Place unit on heat source. If the water you have placed in the unit is cold, it will require approximately 35 minutes before steam begins escaping from the control valve. You can reduce this time factor by using hot water in place of cold or pouring in cold water and then turning on the heat source so that the water is getting warmed prior to your beginning the sterilisation procedure.
- Electric: Turn the on/off toggle switch to “on” position, then the control knob (#4160) to setting “10”. The red pilot light will come on indicating that current is going into the unit and that the heating element is operating. The unit is designed to operate at a frequency of 50/60 Hz with a line voltage of 230 volts AC +/-5%.
5. Open CONTROL VALVE by placing valve lever in an upright position. The steam generated at the bottom of the steriliser will travel around the outside of the container and then down through the material in the container to the bottom and force the air from the bottom of container up through the flexible air exhaust tube and out of the control valve. It is important that the steam be permitted to escape vigorously from the unit for at least seven minutes, or until you see a continuous flow of steam, and then you may close the control valve. The process

removes the air trapped in the unit and is an essential step – the greatest cause of sterilisation failure is air being trapped in the material being sterilised. Trapped air cannot escape. With the control valve in the closed position, pressure rises and is indicated on the pressure gauge. At 17-19 PSI, reduce heat as necessary to maintain constant pressure of 17-19 PSI.

6. **STERILISATION PERIOD:** Begins when the gauge needle registers in the green sterilisation band. The sterilisation pressure range is 17-21 PSI. **NOW BEGIN TIMING THE STERILISATION CYCLE AND CONTINUE TIMING FOR NOT LESS THAN 35 MINUTES.**

Electric: The 50X and 75X electric sterilisers have a mechanical timer located on the left side of the electrical control unit. This is a MECHANICAL timer and is NOT connected in any way to the electric circuits on the unit. It will not turn the unit on or off. After the pressure range 17-21 PSI has been reached, set the timer for the desired time by turning the knob clockwise to the desired time. The timer is marked in 0, 20, 40 and 60 minute positions in five minute increments. At the set time the bell will ring for 3 to 5 seconds and sterilisation is complete. **YOU MUST MANUALLY TURN OFF THE UNIT. THE TIMER WILL NOT TURN OFF THE UNIT**

7. When the heat source is turned off, move the lever on the control valve to an upright (vertical) position so that the steam is permitted to escape. To avoid touching the hot lever you may use any object such as a pencil or hot pad, etc, to move the lever from the closed to the open (vertical) position. When the pressure gauge indicates zero loosen the wing nuts evenly by turning two opposite wing nuts counter-clockwise at one time. The wing nuts, side handles and top handle will be hot. Always use hot pads when handling. Having removed all wing nuts from the slots in the cover, you may lift the cover slightly and turn the cover counter-clockwise for easy removal. When removing the cover,

always tilt and angle the cover away from yourself or any other people in the area to prevent injury from hot steam.

If the cover sticks use a large standard screwdriver to pry the top loose. Place the end of the screwdriver at an angle between the cover and bottom near a wing nut assembly. Do not go straight in with the screwdriver or you will damage the metal-to-metal seal. Gently pry upward using the screwdriver as a lever. Continue to pry upward at each wing nut assembly area uniformly so that the cover is raised evenly. In most cases, the cover should come off rather quickly. If you need further assistance, please read the metal-to-metal seal maintenance instructions below.

If the steriliser is not immediately going to be used again, empty all water from the unit and dry the inside thoroughly. Pour the water poured out of the unit while the bottom is still warm - this will help dry the unit if you leave the cover off for 15 minutes before placing the cover on the unit for storage. For storage purposes, it is only necessary to slightly tighten the wing nuts enough to hold the cover on the bottom. When storing, it is recommended that the control valve be left in a vertical position to permit air to circulate into the bottom.

### MAINTENANCE

1. **METAL-TO-METAL SEAL:** Periodically check your seal. The metal-to-metal seal must be lubricated periodically to prevent the cover from sticking. Using the steriliser without lubricant could result in severe damage to the metal-to-metal seal, making it very difficult to remove the cover. The unit may also lose its steam-tight seal.  
  
Don't permit the metal-to-metal seal to become dry - use a small amount of high temperature lubricant, such as high vacuum grease, applied every third or fourth use. It is also important to wipe off the metal-to-metal seal by using a clean towel to remove any build-up of foreign material or particles trapped in the lubricant. To remove any build-up of hardened lubricant on the seal, use fine grade steel wool in a circular motion around the metal-to-metal seal.
2. **PRESSURE GAUGE (PART No. 72S):** Do not immerse the pressure gauge in water when cleaning the unit. The pressure gauge normally does not require any maintenance: just check that the opening into the gauge on the underside of the cover is open and free of any foreign matter. If the gauge is ever dropped, don't use the unit until the gauge has been checked to make sure that it is functioning properly. If your gauge needs to be checked, contact Kyron.
3. **CONTROL VALVE (PART No. 65):** To ensure long life and proper operation of the control valve, periodic cleaning is recommended. To clean, unscrew the knurled top portion and clean thoroughly in hot soapy water. If any foreign material has built up inside the unit, clean the ball and seat using a solvent such as acetone, and clean again in hot soapy water after using any solvent. If you are unable to properly clean your control valve, then the control valve should be discarded and replaced with a new control valve.
4. **AIR EXHAUST TUBE (PART NO. 2155):** It is essential that you frequently check the air exhaust tube to make sure that air passes freely through it: blow air through the air exhaust tube at least once a month to make certain it is not blocked. If it is blocked, it can be removed separately from the cover and cleaned by using a small diameter wire, running it through the entire length of the tube several times. If there is a build-up of foreign material or corrosion on the inside of the air passage, you should discard this tube and replace it with a new air exhaust tube.
5. **EXCESS PRESSURE RELIEF VALVE (PART No. 2050CS):** This excess pressure relief valve is designed for long, maintenance-free service; however, we do recommend that the valve be replaced every three years in normal service. The valve is designed to release

pressure at 26 PSI (plus/minus 1 PSI). It has a deflector cap which directs steam released in a downward direction. Also it is possible to manually release steam and pressure by simply grasping the deflector cap and pulling upwards slightly (the deflector cap will be hot - use a protective hot pad). The valve will reseal on release.

6. **OVERPRESSURE PLUG (PART No. 1010):** An additional safety device offering an extra margin of safety is the Overpressure Plug, designed to release pressure in the range of 30-50 PSI. Made from silicone and red in colour, it is found on the top surface of the steriliser cover. For the most efficient results and best possible performance, you should replace the overpressure plug every 6 months. It should always be replaced if it becomes hard or deformed. At least every month during period of use check the opening in the cover where the overpressure plug fits to determine that no foreign material, residue, or build-up of grease is present, and clean the opening with hot soapy water (a toothbrush is helpful). This cleaning/inspection is in addition, of course, to normal daily cleaning performed after using the unit. The overpressure plug can be removed for cleaning using fingers to pull it out of its opening from the underside of the cover. Before you re-install the overpressure plug, check the opening in the cover for absence of foreign material or grease/residue build-up. After cleaning, reinsert the overpressure plug by pushing the round top side into the opening from the underside of the cover. When the over pressure plug is correctly in position, the indented portion will be visible from the underside of the cover. Be certain to check after inserting plug that the round top of plug and top lip are fully through the opening and that the top lip is not folded under.

### IMPORTANT STERILISATION FACTS

- ✓ Steam is an ideal sterilising agent since it kills microbes quickly, and steam has the additional important property of self-caused forced

penetration. A large volume of steam condenses to a very small volume of water and more steam is drawn in to replace it. This causes excellent penetration of fabrics and some papers and plastic films. Hot air or sterilising gases do not approach steam in their ability to penetrate. The greatest cause of sterilisation failure is the trapping of air in the material being sterilised so that it cannot escape. When this happens, the air forms a cool air pocket which has a lower temperature than the surrounding steam. It can also form an air-steam mixture which has a lower temperature than the pure steam. The most frequent causes for this failure are dressing packs wrapped too tightly, made too large, failure to turn basins and other metal or glass containers onto their sides, and failure to properly follow the directions as to current steriliser operation and maintenance

- ✓ It is essential that all sterilisers be regularly checked for proper steam penetration to the centre of the load. Since the first sign of sterilisation failure is a drop in the temperature at the centre of the dressing pack or steriliser load, it is recommended that a temperature measuring device be used at the centre of each pack or load of instruments e.g. indicating tape or strips. The pressure gauge on the steriliser indicates the approximate temperature at the exhaust line, not at the centre of the packs. The gauge cannot indicate the presence of trapped air and centre-of-pack controls are recommended. Sterilisation indicators are available from Kyron.
- ✓ **PRESSURE GAUGE ACCURACY:** The gauges have an accuracy of 3%-2%-3%. This designates plus or minus 3% of the full span for the first and last quarter of the dial, and 2% for the middle 50% of the dial. More specifically, this gauge rating comes from the pressure gauge standard ANSI B40-1-1980, entitled "Gauges-Pressure, Indicating Dial Type-Elastic Element," and covers every aspect of pressure gauge manufacture and use. The gauge is considered "Accuracy Grade B" in accordance with this specification.