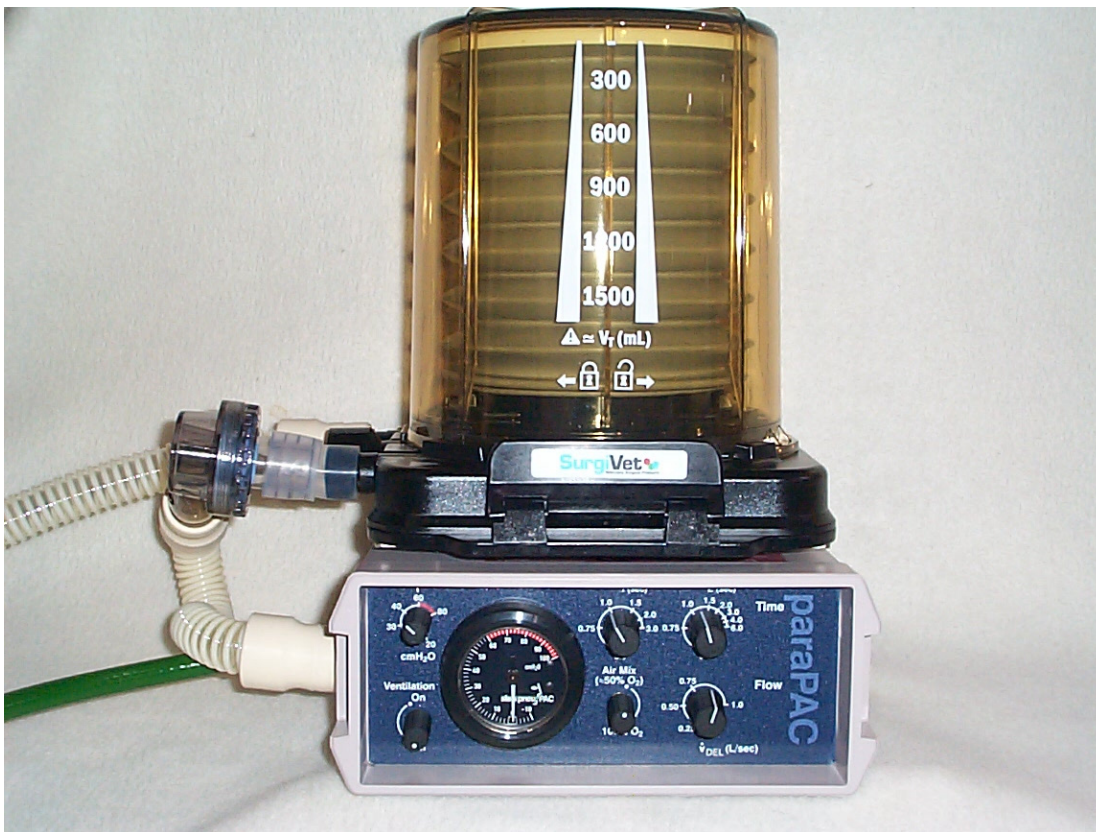


MRI 2550 OPERATIONS MANUAL



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PRODUCT PROFILE

Congratulations on your purchase of the SurgiVet MRI 2550 Anesthesia Ventilator! This ventilator is designed to be easy to use and extremely effective in the area of anesthesia ventilation in MRI facilities.

The ventilator includes a pressure relief control. The valve is designed to relieve pressure at ranges from 20 to 80 cm H₂O. This feature makes the MRI 2550 Anesthesia Ventilator one of the safest ventilators being manufactured today.

The ventilator is pneumatically powered and is specifically designed for use by qualified medical personnel. The unit uses state of the art pneumatics and patented technologies for superior design. The units are “user friendly”: they have clear calibrated controls; they are patient independent; and, the output is independent of changing operating conditions.

The unit consists of a control module and a bellows assembly. The physical dimensions for the control module are 3.5” X 9” X 6.5”. The unit weighs approximately 8 pounds.

If SurgiVet can be of any assistance with your ventilator or anesthesia needs, please call us TOLL FREE at (888) 745-6562 (U.S. Only).

ANESTHESIA VENTILATOR PARTS LIST

The MRI 2550 Anesthesia Ventilator includes all parts as follows:

- 12” Ventilator Hose & Valve
- Bellows Assembly
- Test Lung
- 48” Supply Hose
- 22 mm x 15 mm Adapter (already attached to valve)
- 30 mm to 19 mm Purple Adapter
- 4’ Oxygen Hose with DISS Female Ends

CAUTIONS AND WARNINGS

PLEASE READ AND UNDERSTAND THIS MANUAL BEFORE OPERATING YOUR ANESTHESIA VENTILATOR.

A TEST LUNG HAS BEEN PROVIDED TO ALLOW THE USER THE OPPORTUNITY TO BECOME FAMILIAR WITH ALL CONTROLS AND FUNCTIONS OF THIS VENTILATOR.

- Incorrect use of this equipment can cause serious patient injury. It is the responsibility of the user to understand all functions and the need to maintain this equipment to manufacturer's specifications and directions.
- SurgiVet shall not be responsible for any unauthorized repair or modifications to the equipment or accessories or damages caused by unauthorized opening of the ventilator.
- Anesthesia machines used with ventilators must be checked regularly and be **LEAK FREE**. A leaking machine can cause the ventilator to not perform to specifications and possible patient injury.
- The ventilator is designed to be powered with medical grade oxygen or medical grade air.
- The ventilator is for **VETERINARY USE ONLY**.

IF COMPRESSED AIR IS GOING TO BE USED, PLEASE CONTACT SURGIVET PRIOR TO USE AT (888) 745-6562 (US Only)

BECOMING FAMILIAR WITH THE VENTILATOR CONTROLS:

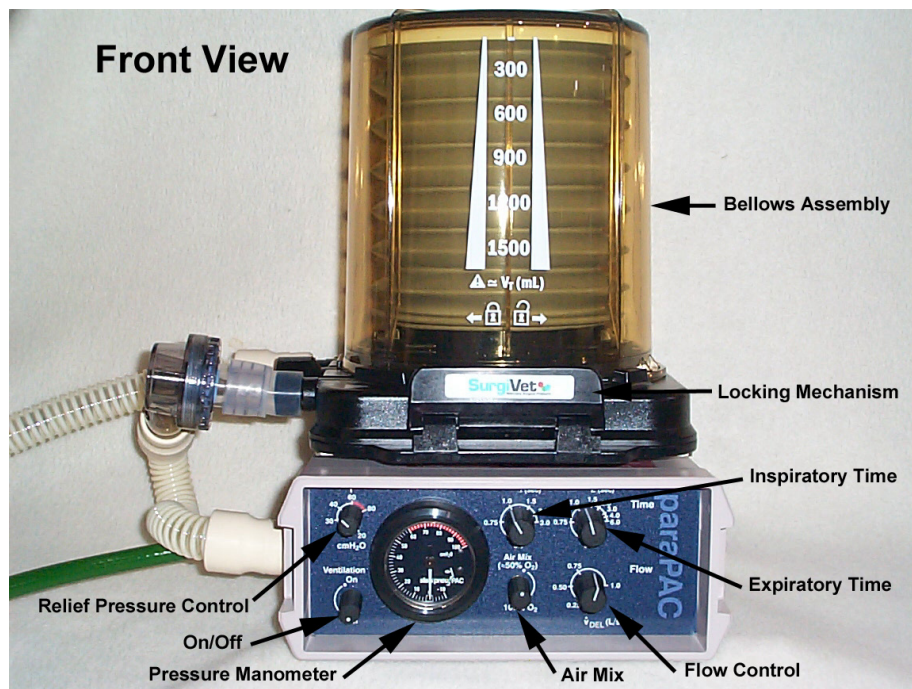
Important Features You Should Know

On/Off Switch - The On/Off switch starts and stops the ventilator, once it is connected to a suitable gas supply.

Inspiratory Time - This calibrated rotary knob labeled T_{INS} will give continuous adjustments of time over a range of .5 to 3 seconds.

Expiratory Time - This calibrated rotary knob labeled T_{EX} will give continuous adjustments of time over a range of .5 to 6 seconds.

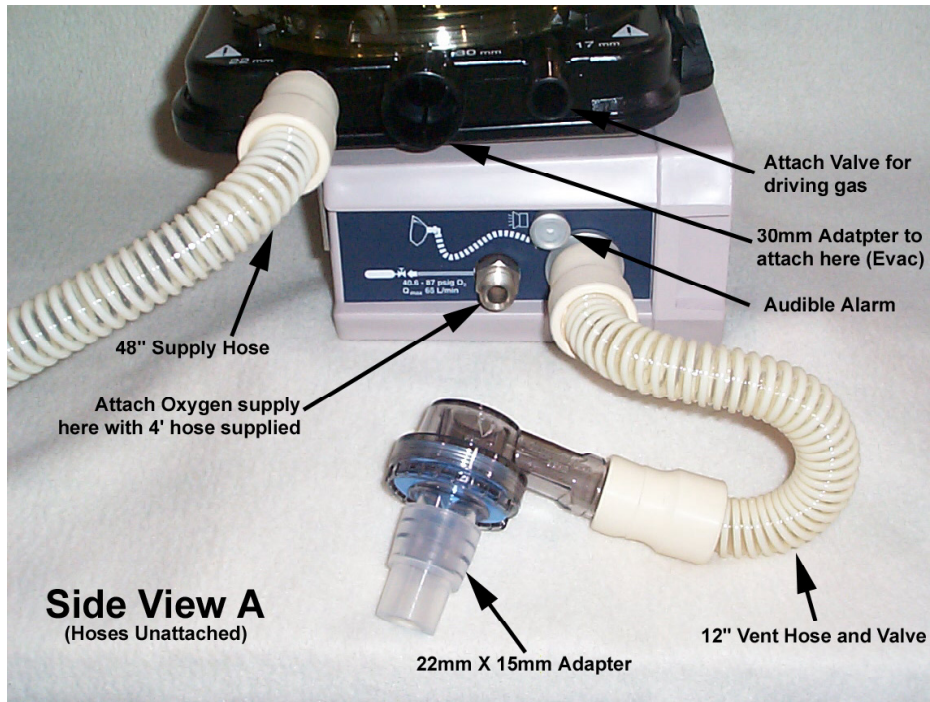
Flow Control - This calibrated rotary knob allows adjustments of the flow to drive the bellows to your desired volume.



Relief Pressure Control - This knob limits the maximum inflation pressure to the set value.
NOTE: The purpose of the calibrations on the Relief Pressure Control is to guide the user in determining the initial setting. The final setting should be done by using the actual readings from the pressure manometer on the anesthesia machine.

Pressure Manometer - This pressure manometer displays the patient inflation pressure as measured at the ventilator outlet. It will give an approximate indication of the patient pressure under normal settings. However, you should **ALWAYS** use the Patient Pressure Manometer on your anesthesia machine to get the most accurate pressure of the patient.

Ventilator Hose and Valve - The ventilator hose and valve is connected to the bellows drive port marked 17mm. It directs the inspiratory flow from the ventilator into the chamber during the inspiratory phase and forces the gas in the bellows into the lungs of the patient.



Used as a Respirator/Demand Valve

Advanced Users Only - For advanced users the vent hose and valve can be pulled from the port marked 17mm and used as a demand valve to ventilate the patient with 100% oxygen (If 100% oxygen is what you are powering the ventilator with).

SETTING UP THE VENTILATOR

Verify that all hoses and adapters are present. Locate the bellows assembly on the ventilator. Refer to the Ohmeda Bellows Assembly Manual to familiarize yourself with the connections and operation of the bellows assembly.

WHEN USING WITH SURGIVET MACHINES:

Remove the machine head from the pole. Locate the optional V7265 ventilator-mounting arm and slide over the pole locating the arm approximately 5-6 inches from the top of the pole. Follow mounting instructions supplied with mounting arm.

Locate and remove the breathing bag from the anesthesia machine.

Take one end of the 48" supply hose and attach it to the bag port of the anesthesia machine.

Connect the other end of the 48" supply hose to the back port on the ventilator bellows labeled 22mm.

Take the 12" ventilator hose with valve and connect one end to the outlet connector and the other end to the back of bellows port labeled 17mm.



Attach the 4' green oxygen supply hose to the port labeled O₂ supply on the side of the ventilator. Connect the other end of the oxygen hose to the anesthesia machine oxygen port or oxygen supply that delivers 50-55 PSI.

Attach any standard rebreathing circuit (minus the breathing bag) on the anesthesia machine. Attach Test Lung to the patient end of the breathing circuit.

Turn the pop-off valve on the anesthesia machine to the closed position.

SLOWLY turn the oxygen supply on.

SurgiVet suggests performing a leak test of the anesthesia machine before attempting to use the ventilator.

If there are any questions on performing a leak test, call SurgiVet technical support at (888)745-6562(US Only)

THE ANESTHESIA VENTILATOR IS NOW READY FOR TESTING.

TESTING THE VENTILATOR

When all hoses are attached, oxygen is on, and test lung connected, you are now ready to familiarize yourself with the ventilator and simulate having a patient attached to the anesthesia machine.

TO BEGIN TESTING:

1. Close the pop-off valve on the anesthesia machine.
2. Slightly press the flush valve on the anesthesia machine until the bellows reach the top of the bellows housing. (When using ascending bellows, it is necessary to first raise the bellows before turning on the ventilator).
3. Set your Inspiratory Time T_{INS} to the desired time.
4. Set your Inspiratory Time T_{INS} to the desired time.
5. Turn the **ON/OFF** switch **ON**.
6. The ventilator will now start cycling. Slowly open the flow control valve until the test lung starts to inflate resembling an actual lung. This flow should resemble a natural inhalation cycle from a healthy patient.
7. Most users recommend ventilating to pressure or CO_2 and not to volume. If you choose to ventilate to volume, you must remember that a certain amount of volume is lost to circuit compliance. If the bellows show a volume of 400 ml being delivered, you must realize that you may only be delivering 300 to 320 ml.

Should you decide to ventilate to pressure, most Doctors recommend a pressure of 15 to 18 cmH_2O as read from the patient pressure manometer located on the anesthesia machine

NOTE: You can adjust volume by time or by flow.

8. Practice adjusting the ventilator flow rate and time until you gain the confidence and knowledge of general operation.

CAUTION:

If the flow rate is too high, or the inspiratory cycle is too long, you may create a high circuit pressure. Watch the Patient Pressure Manometer on your anesthesia machine and be prepared to adjust these controls accordingly so dangerous pressures will not be obtained.

Remember, you want the mechanical breath as close to the patient's natural breath as possible. This is always the goal of ventilation.

When you have the ventilator set where you feel comfortable and the settings in the start-up positions, begin adjusting the Inspiratory Time control to the left and then to the right. Notice how the length of the inspiratory cycle is increased or decreased.

NOTE: Again, always monitor the Patient Pressure Manometer on your anesthesia machine and be prepared to adjust the settings on the ventilator controls.

Practice with the ventilator using the Test Lung until you feel confident, the more you understand about the ventilator, the more you will be able to do with this system.

Always make sure your anesthesia machine is pressure tested and leak free. A leaking machine will alter the performance of the ventilator.

CLEANING AND STERILIZATION

The ventilator supply hose does come in contact with the breathing gases and should be cleaned on a regular basis. USE A MILD SOAP ONLY WHEN CLEANING.

The bellows housing and bellows will need to be disassembled and cleaned on a regular basis.

Please refer to the Ohmeda Bellows Assembly Manual for cleaning and sterilization of bellows for the ventilator.

DO NOT USE ALCOHOL.

DO NOT USE STEAM STERILIZATION.

DO NOT USE ETO.

IF THERE ARE ANY PROBLEMS OR CONCERNS WITH THE EQUIPMENT OR ACCESSORIES PLEASE CALL SURGIVET TOLL FREE AT (888) 745-6562(US Only)

MAINTENANCE OF DIAPHRAGM

The diaphragm located under the bellows should be checked on a routine basis to make sure it seals properly. A small black rubber gasket on the bottom side of the diaphragm should be inspected and replaced if needed.

NOTE: Be sure not to pinch the diaphragm when placing the rim back on the housing.

Technical Data

Inspiratory Time Range:	.5 to 3 seconds
Expiratory Time Range:	.5 to 6 seconds
Flow range:	6 to 60 L/min if used as respirator
Volume:	Standard Bellows 300 to 1500 ML (Other Bellows available)
Frequency:	7 to 60 b/min
I:E Ratio:	Infinitely adjustable
Relief pressure range: Alarm	20 to 80 chH ₂ O
Pressure Manometer:	-10 to +120 cmH ₂ O
Gas consumption:	@ No Air Mix setting - V _{DEL} plus 20 ml/cycle @ Air Mix - 30% V _{DEL} plus 20 ml/cycle
Dimensions:	3.5"H x 9"W x 6.5" D

TERMS AND CONDITIONS OF SALE

1. TERMS OF SALE

These terms and conditions of sale ("Agreement") exclusively govern the sale of all products, parts, accessories and/or services ("Products") sold by SurgiVet, Inc. ("Seller") to its customer ("Purchaser") unless previously agreed to in writing and signed by an authorized representative of Seller and Purchaser. Whether this form is deemed an offer, an acceptance or a confirmation, Seller expressly conditions its sale of Products on Purchaser's assent to these terms, notwithstanding any differences, additions or conflicting terms contained in the terms proposed by Purchaser. No modifications or additions to the terms set forth in this Agreement shall be valid unless in writing and signed by an authorized representative of Seller and Purchaser.

2. ACCEPTANCE OF TERMS AND CONDITIONS OF SALE

Purchaser unconditionally accepts this Agreement and its terms and conditions by: (i) acknowledging this form; (ii) opening a line of credit or other facility to pay for such Products; (iii) payment or partial payment for Products; or (iv) by acceptance of any Products. Any shipment of Products to Purchaser in whole or partial fulfillment of Purchaser's purchase order will not constitute Seller's acceptance of any terms or conditions of such purchase order, except as to identification and quantity of Products.

3. QUOTATIONS

All prices quoted by Seller are subject to change without notice.

4. ERRORS

Clerical errors are subject to correction by Seller.

5. TAXES

Prices do not include sales, use, excise, or other taxes imposed by any governmental authority.

6. CANCELLATION AND DEFERMENT

An order placed with and accepted by Seller may not be canceled, in whole or in part, unless agreed to in writing by Seller's authorized representative. If Seller accepts Purchaser's request for a deferment, in whole or in part, beyond the shipping date specified in the original purchase order or quotation, Seller reserves the right to immediately invoice Purchaser for such unshipped portion and for expenses incurred for storage, it being understood that such unshipped materials become Purchaser's property and Seller's liability is only that of warehousing.

7. CREDIT

Seller reserves the right to suspend credit at any time when, in its sole discretion, Purchaser's financial condition or failure to pay warrants such action.

8. PAYMENT

Unless otherwise agreed to in writing by Seller, full payment shall be made net thirty (30) days from the date of invoice. If Purchaser fails to pay the full amount when due, and without in any manner excusing such violation, Purchaser agrees to pay Seller interest at a rate equal to the greater of: (i) the highest rate legally permissible by law; or (ii) 1.5% per month from the date the payment is due. Purchaser also agrees to pay all collection costs, expenses and reasonable attorneys fees for collection of any amount due and unpaid. Without prejudice to any other of its rights, Seller may withhold shipments of Products if Purchaser has not paid an invoice when due.

9. PRODUCT MODIFICATION AND DISCONTINUANCE

Seller reserves the right at any time to make changes in, or discontinue the manufacture of, any Product.

10. DELIVERY

Unless otherwise specified in this Agreement, delivery will be F.O.B. point of shipment from Seller. Purchaser will bear all costs, insurance premiums, freight and other expenses incurred after Seller has placed Products in custody of carrier. "Delivery" shall occur, and title and risk of loss shall pass to Purchaser upon Seller's placement of Products with carrier for shipment to Purchaser.

11. LOSS, DAMAGE OR DELAY

Dates for delivery are estimates only. Seller assumes no liability for loss, damage or delay resulting directly or indirectly from causes beyond its reasonable control, including, but not limited to, acts of God or the public enemy, riots, accidents, strikes or labor disputes, labor shortage, inability to obtain material, equipment or transportation, governmental or court regulation, directive or order of any government, fires, floods, epidemics, or unusually severe weather. In the event of delay resulting from such causes, the date of delivery shall be extended for a period equal to the time lost by reason of the delay. IN NO EVENT SHALL SELLER BE LIABLE FOR CONSEQUENTIAL, INDIRECT, OR INCIDENTAL DAMAGES OR ANY KIND OR NATURE WHATSOEVER, WHETHER FOR INJURIES TO PERSON, PROPERTY OR OTHERWISE.

12. WARRANTY

Limited Warranty

Seller warrants to the original purchaser that the Products, not including accessories, shall be free from defects in materials and workmanship under normal use, if maintained by Seller and in accordance with Seller's guidelines, and used in accordance with its labeling, for the period specified in the Operator's Manual, the package inserts or other documentation packaged with the Product.

MRI 2550 Warranty Period is 1 Year.

Disclaimer of Warranties

THE FOREGOING EXPRESS WARRANTY, AS CONDITIONED AND LIMITED, IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Seller disclaims responsibility for the suitability of the Product for any particular medical treatment or for any medical complications resulting from the use of the Product. This disclaimer is dictated by the many elements, which are beyond Seller's control, such as diagnosis of patient, conditions under which the Seller Product may be used, handling of the Product after it leaves Seller's possession, execution of recommended instructions for use and others.

Conditions of Warranty

This warranty is void if the Product has been altered, misused, damaged by neglect or accident, tampered with, not properly maintained, not installed in strict compliance with applicable codes and ordinances, or repaired by persons not authorized by Seller. Misuse includes, but is not limited to, use not in compliance with the labeling, removal of the product serial number and use with accessories not manufactured by Seller. This warranty does not cover normal wear and tear and maintenance items and specifically excludes accessory items and any other equipment used with the Products.

Limitation of Remedies

The original purchaser's exclusive remedy shall be, at Seller's sole option, the repair or replacement of the Product. **THIS IS THE EXCLUSIVE REMEDY. IN NO EVENT WILL SELLER'S LIABILITY ARISING OUT OF ANY CAUSE WHATSOEVER (WHETHER SUCH CAUSE IS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, TORT OR OTHERWISE) EXCEED THE PRICE OF THE PRODUCT AND IN NO EVENT SHALL SELLER BE RESPONSIBLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO, LOST BUSINESS, REVENUES AND PROFITS.**

Warranty Procedure

To obtain warranty service in the USA, you must request a Customer Service Report (CSR) number from Customer Service. Reference the CSR number when returning the Product, freight and insurance prepaid, to: SurgiVet, Inc., N7 W22025 Johnson Road, Suite A, Waukesha, Wisconsin 53186. Telephone: 1.888.745.6562 (U.S. only). Facsimile: 262.513.9069. Seller will not be responsible for unauthorized returns or for loss or damage to the Product during the return shipment. The repaired or replaced Product will be shipped, freight prepaid, to the original purchaser.

13. PRODUCT RETURNS

General Instructions

All product returns must be authorized by Seller in advance. Any authorized product returns are contingent upon Seller receiving the products in good, unused, undamaged and unworn condition. The original purchaser must have a Customer Service Report (CSR) number from Seller prior to returning any product. CSR numbers can be obtained from Customer Service at 1.888.745.6562 (U.S. only). Reference the CSR number when returning the Product, freight and insurance prepaid, to: SurgiVet, Inc., N7 W22025 Johnson Road, Suite A, Waukesha, Wisconsin 53186. Telephone: 1.888.745.6562 (U.S. only). Facsimile: 262.513.9069. Seller will not be responsible for unauthorized returns or for loss or damage to the product during the return shipment.

Policy

Product returns are subject to the following provisions:

- Authorized returns will be credited at 75% of the original purchase price.
- Unauthorized returns will be returned to the original purchaser freight collect or, at Seller's option, may be retained and credited at a maximum of 60% of the original purchase price.
- **NO CREDIT WILL BE GIVEN ON EXPIRED PRODUCTS.**
- Products **SHIPPED IN ERROR** must be returned, accompanied by a copy of Seller's packing slip, or any pertinent information within 15 days of shipment to receive full credit.
- Products **ORDERED IN ERROR** must be returned within 15 days of shipment accompanied by a copy of Seller's packing slip to receive credit.
- One CSR is valid only for a single shipment. Subsequent shipments require a new CSR.
- If Products are shipped in error, or ordered in error, are not returned within 15 days of shipment, they will be considered **EXCESS STOCK** and are subject to the **EXCESS STOCK** restrictions listed below.

Excess Stock

Products that are not eligible for return as Excess Stock are:

- Sell-off products or products sold on a no return basis.
- Promotional sales products.
- Products which are not in their unopened original carton.
- Products which are in an unsalable condition through no fault of Seller.
- Products which are currently not in production or which do not appear in the catalog.
- Products whose expiration date has passed.
- Products whose packaging has been altered by the addition of the original purchaser's identification numbers and/or labels.

14. PATENTS

Seller shall indemnify and hold Purchaser harmless against all claims or actions brought against Purchaser in a territory where Seller sells the Products on the grounds that Purchaser has infringed the patent rights of others by using, reselling, or promoting the sales of Seller's Products, provided that Seller will not be obligated to indemnify Purchaser if:

- (a) Purchaser fails to give Seller prompt notice of any such claim or actions, or
- (b) Such claim or action against Purchaser is based wholly or in part on any design, specifications, drawings or manufacturing process information furnished to Seller by Purchaser or on the existence or operation of any complete installation or apparatus incorporating Seller's Products as components and which is designed or manufactured by Purchaser or its customers.

Purchaser shall indemnify, defend and hold Seller harmless from and against all liability and claims brought against Seller with respect to Products manufactured wholly or partially with information furnished by Purchaser.

15. ASSIGNMENT

Purchaser may not assign or transfer any of its rights or obligations under this Agreement without prior written approval by an authorized representative of Seller.

16. SECURITY INTEREST

Seller reserves a security interest in all Products sold by it to Purchaser under this Agreement to secure payment and performance of all Purchaser's obligations under this Agreement. Purchaser hereby grants Seller a power of attorney to execute and file on behalf of Purchaser all necessary financing statements, and any other similar documents necessary to protect such security interest. Reservation of title is for security purposes only and shall not affect any provision in this Agreement regarding risk of loss.

17. LIMITATION OF DAMAGES

In the event of breach of this Agreement by Seller, damages of any kind or nature whatsoever are limited to the actual amount paid to Seller by Purchaser for the Product(s) with respect to which such claim is made. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DAMAGES OF ANY KIND OR NATURE WHATSOEVER WHETHER FOR INJURIES TO PERSON, PROPERTY OR OTHERWISE.

18. DEFAULT

If Purchaser defaults in performing any of its obligations under this Agreement, Seller may, as its option and without incurring any liability thereby, elect to terminate this Agreement. Seller shall have a right to all damages for work performed and for loss of profits, materials and Products delivered.

19. INSOLVENCY

If Purchaser shall become insolvent, cease doing business or become the subject of any proceedings under any bankruptcy, insolvency, reorganization or arrangement statute or law, such act shall be deemed a default under this Agreement, and Seller may elect to cease performing and cancel this Agreement with respect to any Product not delivered or received prior to this election.

20. GOVERNING LAW

This Agreement shall be governed by and interpreted in accordance with the laws of the State of Wisconsin (USA).

21. COMPLETE AGREEMENT; MODIFICATION; EFFECT OF INVALIDITY

These terms and conditions set forth the entire understanding and agreement of the parties and supersede all prior or contemporaneous agreements, representations, and obligations, whether oral or written, express or implied. No provision of this Agreement shall be waived, changed, terminated, or modified, except by a writing signed by both authorized representatives of Seller and Purchaser. The invalidity in whole or in part of any provision of this Agreement shall not affect the validity of any other provision.