



INTRODUCTION

Foam cleaning is recognized as an effective method for removing oil and heavy soils from all types of surfaces. It is used for cleaning throughout the food processing, dairy, transportation, industrial and agricultural industry. Due to its characteristics, cleaning with foam is safe and cost effective. Foam can adhere to irregular surfaces and provide better coverage than liquid cleaning chemicals. Foam stays in place longer to actively lift dirt and oil from surfaces until it is rinsed off.

Knight's Foam Guard system dispenses a rich lather of foam up to 65 GPM with a distance of up to 35 feet. With a built-in 3 GPM (11 ltr/min) or 4 GPM (15 ltr/min) air operated pump, you'll get consistent foaming quality for clean results. Simply turn a knob and you can adjust the dryness or wetness of the foam for different cleaning applications.

APPLICATIONS

Food Processing Plants: Process Food, Beverage, Dairy, Baking, Poultry, Smoke Houses, Seafood.

Transportation: Trucking, Aviation, Transit, Automotive, Military, Ships, Construction Equipment.

Industrial: General Cleaning, Machinery Degreasing, Paint Manufacturers, Paper Mills.

Agricultural: Dairy, Poultry, Farm Equipment, Hog.

SPECIFICATIONS

3 GPM Models

4 GPM Model

Foam Output	50 gal/min (190 ltr/min)	65 gal/min (246 ltr/min)
Foaming Distance	30 feet (9 meters)	35 feet (10 meters)
Chemical Compatibility	Santoprene: acids, alkalines, soaps, alcohols, ketones.	PTFE: All acids, corrosives, and petroleum products.
Air Operated Pump Materials	Polypropylene Body w/ Santoprene Seals and Diaphragm	Polypropylene Body w/ PTFE Seals and Diaphragm
Air Consumption	60-80 psi, 5-10 scfm	60-80 psi, 5-10 scfm
Hose	Wall-mount: 50 feet (15 meters) reinforced hose, 3/4" ID with wand Portable: 30 feet (9 meters) reinforced hose, 3/4" ID with wand	

REQUIREMENTS

- Minimum 60 PSI clean, dry air at 5 – 10 CFM during operation of the foamer.
- Chemical requirement: Most foam cleaning dilution rates operate at 3 to 5 oz/gal (24 to 39 ml/ltr) — consult your chemical supplier for the proper foaming product and mixing ratio to use.



CAUTION: Wear protective clothing and eyewear when dispensing chemicals or other materials. Observe safety handling instructions (MSDS) of chemical mfrs.

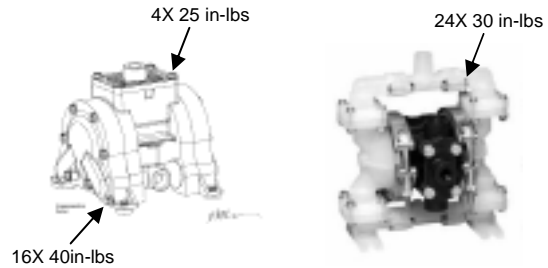


CAUTION: When installing any equipment, ensure that all national and local safety, electrical, and plumbing codes are met.



SAFETY PRECAUTIONS

- Before pump operation, inspect all gasketed fasteners for looseness caused by gasket creep. Re-torque all loose fasteners to recommended specs (shown to right) to prevent leakage. Failure of the sealing components creates the possibility of jetting or forceful discharge of pumped material at a potentially harmful velocity.
- Read and understand the MSDS sheets for the cleaning chemicals that will be used — consult your chemical supplier if you have any questions.
- Always wear safety goggles and protective gloves while operating the foam unit.
- Avoid contact of cleaning agents with skin and eyes. If contact occurs, rinse affected area with water for 15 minutes, and seek medical attention, if needed.
- Never point the Discharge Foam Wand at anyone.
- Be sure to flush unit with fresh water when switching from alkaline to acid, or acid to alkaline product.
- Never leave unit unattended while discharge hose is under pressure.
- Never foam directly into an uncovered electrical outlet or electrical panel.
- Stand far enough away from surface being foamed to prevent foam from splashing on you.



INSTALLATION

To avoid potential problems, read all instructions before installing the system. Carefully remove all contents from the shipping carton to make sure all parts are included.

NOTE: The following installation steps apply to wall-mount versions only. Mobile versions are built complete (no installation necessary) and only require air connection at the time of use.

- (1) Select the desired location to mount the control box — not more than 6 ft (2 meters) from the floor.
- (2) Mount the Control Box using the hardware provided.
- (3) Mount the Hose Bracket in a convenient location using the remaining hardware.
- (4) Attach the Wand to the Discharge Hose.
- (5) Attach the Discharge Hose to the Hose Barb and secure with the Hose Clamp provided.
- (6) Route the pickup tube through the small hole in the top of the container — then slide the tube weight [a] over the tube, thread the barb [b] into the strainer [c] and insert the barb into the tube.
- (7) Connect a clean, dry, air supply to the 1/4" FNPT fitting on the right side of the unit.



OPERATION

- (1) This step is for wall-mount version only: Position the container so that the strainer on the pickup tube can reach the bottom of the container.

[a] The optional Aquaminder automatic level control proportioning system (shown as an example) can be used to maintain water/chemical solution. See Aquaminder manual for installation and operation.

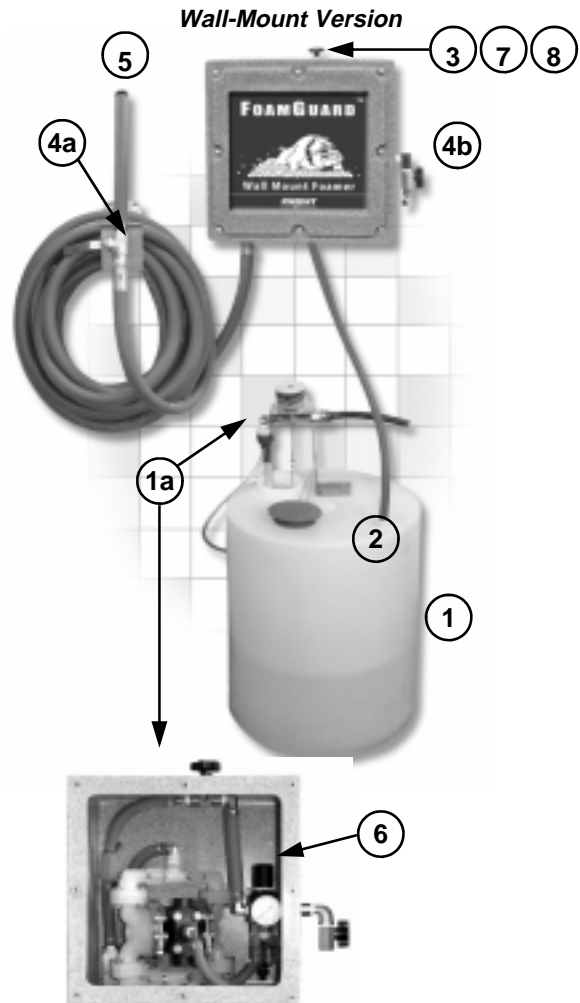
- (2) Fill the container with a combination of water and foaming chemical — consult your chemical supplier for proper dilutions.
- (3) Close Wet Foam/Dry Foam Valve completely — turn clockwise until it stops.

- (4) [a] All versions: **Make sure the ball valve on the discharge hose is closed!**

[b] Wall-mount: **slowly open the air inlet valve.**

[c] Mobile: **Connect a clean, dry, air supply to the quick connect fitting on the right side of unit.**
Note: Unit will operate when air supply is on.

- (5) **Slowly open the ball valve on the discharge hose while holding foam wand away from you.** Closing the ball valve will turn pump off.
- (6) Adjust air pressure regulator to achieve desired pump flow rate (between 45—60 PSI for optimum results).
- (7) Open Wet Foam/Dry Foam Valve in the counter-clockwise direction four complete turns.
- (8) Continue to open the Wet Foam-Dry Foam Valve in ¼ turn increments, allowing a few seconds between adjustments, until the proper consistency (dryness) of foam is achieved.



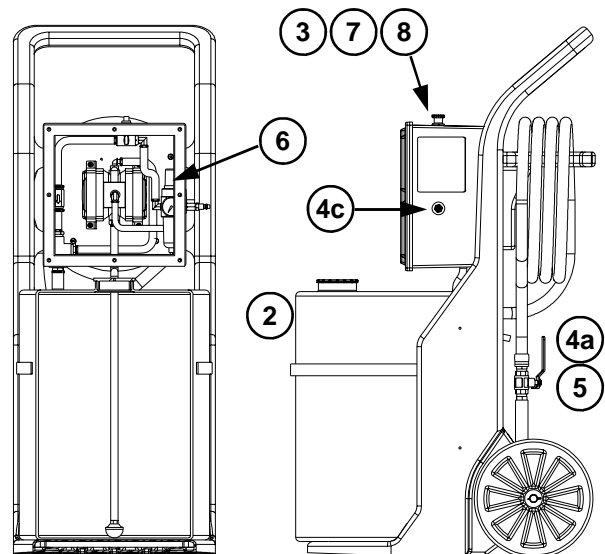
AFTER-USE

- (9) Fill the container with fresh water and rinse thoroughly. With discharge valve “open”, allow pump to run until all chemical has been pumped through discharge hose, and air has been purged.
- (10) Close the Air Inlet Valve and relieve all remaining pressure on the unit by opening the valve on the discharge hose and leave in the “open” position.

MAINTENANCE

- Periodically drain the bowl on the air regulator/filter by pushing up the barbed stem on the bottom of the bowl till the water runs out.
- The bowl can be removed (by turning counter-clockwise) to clean the filter element.
- Periodically check pickup tube foot strainer for blockage. Remove foot strainer and flush to clean.

Mobile Version



TROUBLESHOOTING

<u>PROBLEM</u>	<u>SOLUTION</u>
(1) Unit will not operate.	<input type="checkbox"/> Check for proper air pressure (60 PSI or more into unit). 60 PSI on Air Gauge. <input type="checkbox"/> Check Air Regulator Filter for obstruction such as water, oil, or debris. <input type="checkbox"/> Check for plugged strainer and replace Air Regulator Filter Assembly, if necessary.
(2) Unit will not make foam.	<input type="checkbox"/> Make sure the correct foaming chemicals and concentrations are being used. <input type="checkbox"/> Checkvalve is installed backwards. <input type="checkbox"/> Packing is contaminated or degraded. See item #8 for details on how to service the packing.
(3) Wet Foam-Dry Foam Valve is opened too far pump will not cycle properly due to lack of air pressure.	<input type="checkbox"/> If this occurs, close valve and follow the instruction in Steps 7 and 8 under "Operation" (page 3).
(4) Air passes through the pump without cycling.	<input type="checkbox"/> Repair or replace the pump.
(5) Foam Solution backs up into the air filter.	<input type="checkbox"/> Checkvalve needs replacing.
(6) Pump cycles but no liquid is discharged.	<input type="checkbox"/> Check to see if pump is primed. <input type="checkbox"/> Check foot strainer for blockage – 3 GPM model. <input type="checkbox"/> Check footvalve/strainer orientation – 4 GPM model. Arrow must point toward pump suction port. <input type="checkbox"/> Suction line leak. <input type="checkbox"/> Pump fittings loose or broken. <input type="checkbox"/> Suction line not submerged down into liquid.
If all of the above check out okay.	<input type="checkbox"/> Repair or replace the pump.

PROBLEM

SOLUTION

(7) Foam comes out wet regardless of where the Wet Foam-Dry Foam is set.

- Checkvalve may be plugged and needs replacing.
- Ball valve may not be open all the way on foam wand. This may happen if the operator is standing too close to a wall and closing the ball valve slightly to reduce splash of foam.

(8) Unit foams at reduced pressure.

- Check the air supply into the unit. If air pressure is low, turn unit off until air supply can bring pressure back up.
- If you know the air supply is 60 PSI or higher, check the internal air gauge which should read near 60 PSI or higher. Adjust Pressure Regulator to required minimum 60 PSI.

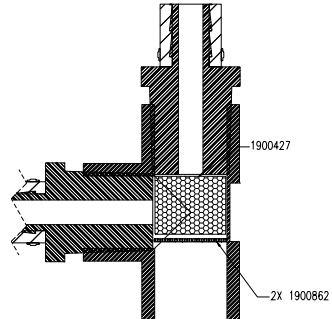
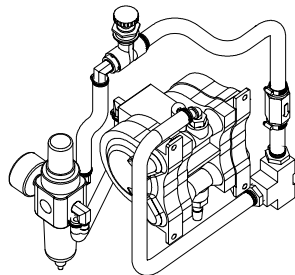
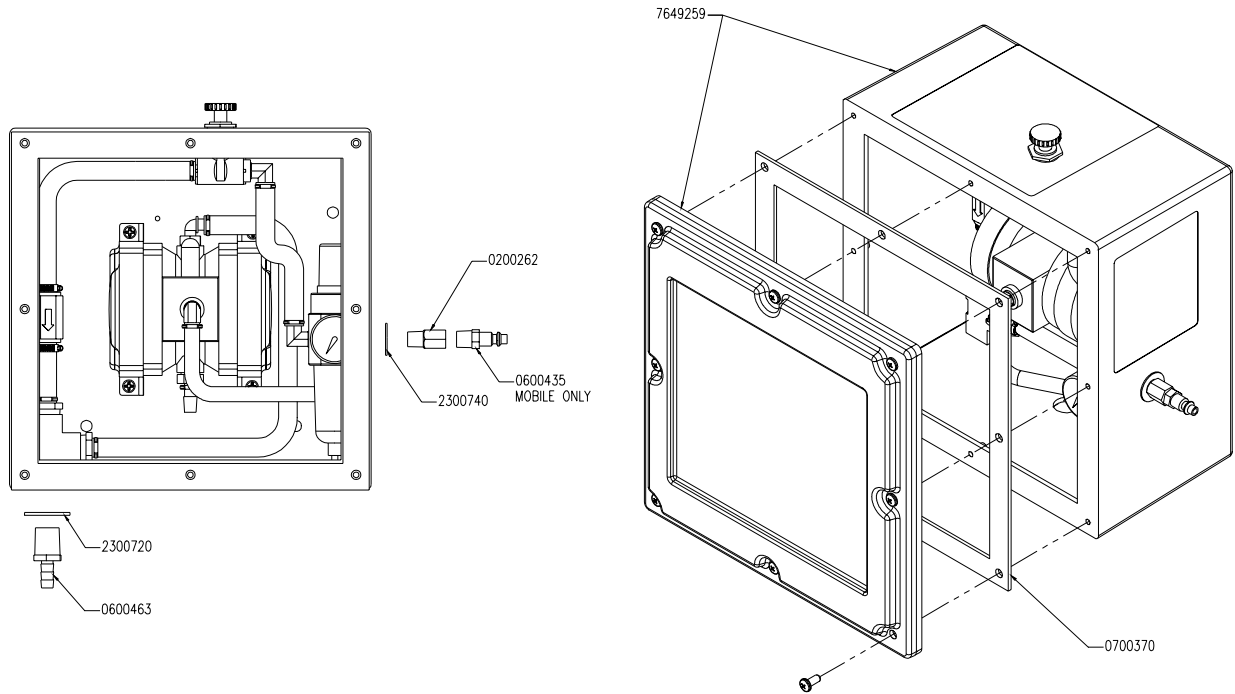
If both of the above check out okay, the S.S. packing could be plugged. Remove and clean it per the instructions to the right:

- (i) Be sure to turn off air to unit and open the cut-off valve on the discharge hose to remove back-pressure on the unit.
- (ii) Remove the hose barb from the Discharge Tee.
- (iii) Remove the screen retainer and packing from inside the tee.
- (iv) Clean any particles from the packing and the screen retainer.
- (v) Replace the packing and screen retainer into the tee and replace the hose barb fitting. Use a pipe thread sealant to prevent leaks.

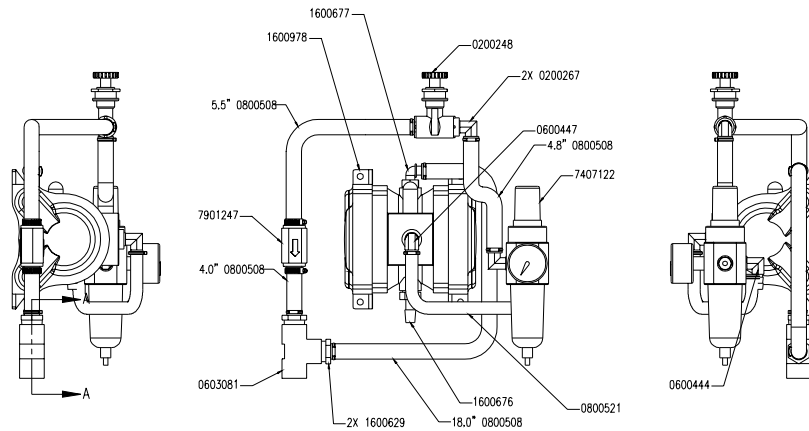
(9) Pump does not stop with ball valve (wand) turned off.

- Chemical lines not primed and/or air leaks in the pump tubing.

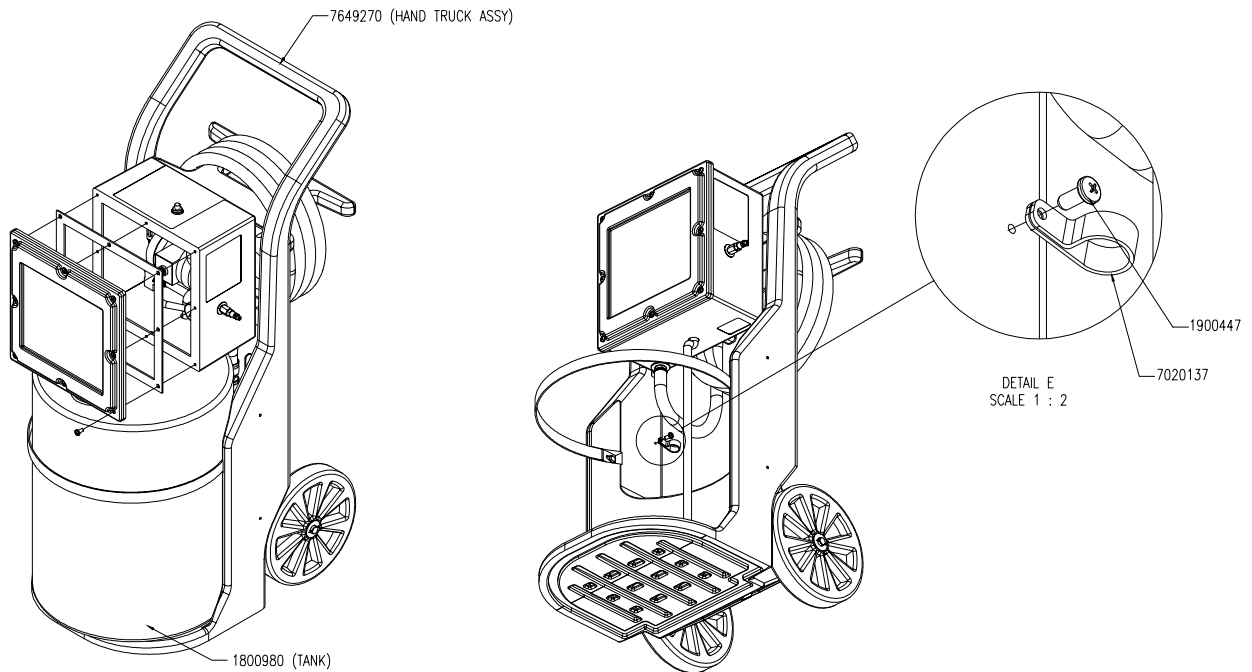
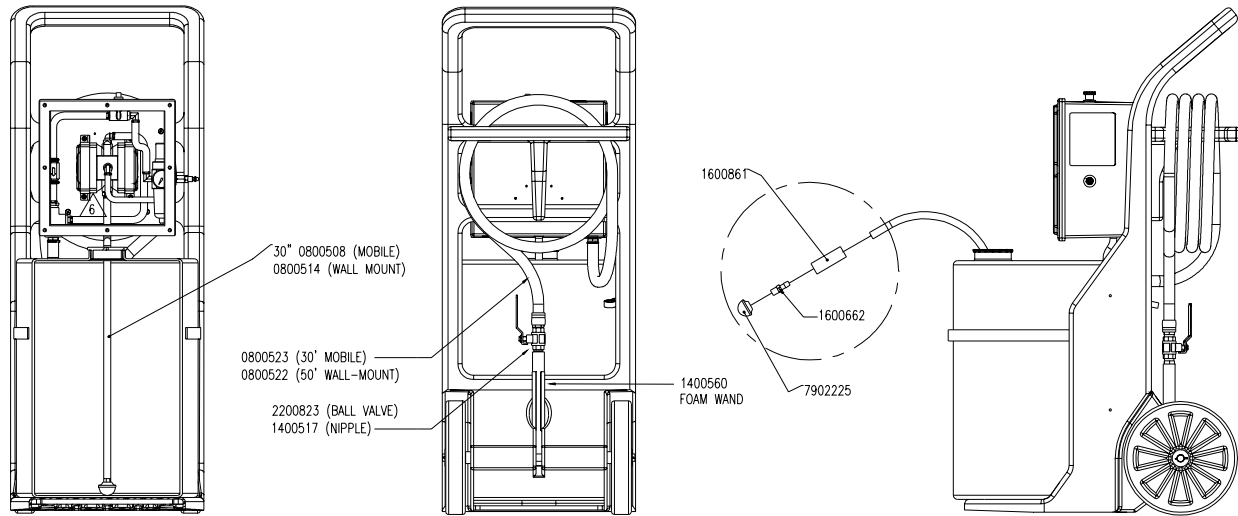
CONTROL BOX & PLUMBING



SECTION A-A
SCALE 1 : 1



MOBILE CART & CONTAINER



DISCLAIMER

Knight LLC does not accept responsibility for the mishandling, misuse, or non-performance of the described items when used for purposes other than those specified in the instructions. For hazardous materials information consult label, MSDS, or Knight LLC. Knight products are not for use in potentially explosive environments. Any use of our equipment in such an environment is at the risk of the user, Knight does not accept any liability in such circumstances.

WARRANTY

All Knight controls and pump systems are warranted against defects in material and workmanship for a period of ONE year. All electronic control boards have a TWO year warranty. Warranty applies only to the replacement or repair of such parts when returned to factory with a Knight Return Authorization (KRA) number, freight prepaid, and found to be defective upon factory authorized inspection. Bearings and pump seals or rubber and synthetic rubber parts such as "O" rings, diaphragms, squeeze tubing, and gaskets are considered expendable and are not covered under warranty. Warranty does not cover liability resulting from performance of this equipment nor the labor to replace this equipment. Product abuse or misuse voids warranty.

FOOTNOTE

The information and specifications included in this publication were in effect at the time of approval for printing. Knight, LLC reserves the right, however, to discontinue or change specifications or design at any time without notice and without incurring any obligation whatsoever.

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