

Installation Manual

5755000K

Ascent™ II

Macerating Toilet System

Models

Ascent II-ESW

Complete System with Elongated Toilet

Ascent II-RSW

Complete System with Round Front Toilet



 
Macerator CSA Certified and IAPMO
Listed to ASME A112.34 and CSA B45.9


Toilet complies with ADA
standard ICC/ANSI A117.1
and CSA B651


Toilet IAPMO Listed ASME
A112.19.2/CSA B45.1

Toilet EPA WaterSense
Listed for 1.28 gallon per
flush (gpf) requirements

NOTICE

Installer: Manual must remain with owner/operator.

Prior to installation, record information from pump nameplate for future reference:

7000 Apple Tree Avenue
Bergen, NY 14416
ph: 800-543-2550
fax: 585-494-1839
www.LibertyPumps.com

Keep this manual handy for future reference.
For replacement manual, visit LibertyPumps.com,
or contact Liberty Pumps at 800-543-2550.
Retain dated sales receipt for warranty.

Model: _____

Serial: _____

Mfg Date: _____

Install Date: _____

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Safety Guidelines

	This safety alert symbol is used in the manual and on the pump to alert of potential risk for serious injury or death.
	This safety alert symbol identifies risk of electric shock . It is accompanied with an instruction intended to minimize potential risk of electric shock.
	This safety alert symbol identifies risk of fire . It is accompanied with an instruction intended to minimize potential risk of fire.
	This safety alert symbol identifies risk of serious injury or death . It is accompanied with an instruction intended to minimize potential risk of injury or death.
⚠ DANGER	Warns of hazards which, if not avoided, will result in serious injury or death.
⚠ WARNING	Warns of hazards which, if not avoided, could result in serious injury or death.
⚠ CAUTION	Warns of hazards which, if not avoided, could result in minor or moderate injury.
NOTICE	Signals an important instruction related to the pump. Failure to follow these instructions could result in pump failure or property damage.

⚠ WARNING Read every supplied manual before using pump system. Follow all the safety instructions in manual(s) and on the pump. Failure to do so could result in serious injury or death.

Safety Precautions

⚠ WARNING **RISK OF ELECTRIC SHOCK**

- Accidental contact with electrically live parts, items, fluid, or water can cause serious injury or death.
- Always disconnect pump (macerator) from power source before handling or making any adjustments. Fatal electrical shock could occur.
- The pump shall be plugged into a properly fused electrical outlet with a ground fault circuit interrupter (GFCI) that conforms to current National Electric Code (NEC) and all applicable local codes. All wiring must be performed by qualified personnel.
- All electrical and safety practices shall be in accordance with the National Electrical Code[®], the Occupational Safety and Health Administration, or applicable local codes and ordinances.
- Pump shall be properly grounded using its supplied grounding conductor. Do not bypass grounding wires or remove ground prong from attachment plugs. Failure to properly ground the pump system can cause all metal portions of the pump and its surroundings to become energized.
- Do not handle or unplug pump with wet hands, when standing on a wet/damp surface, or in water. Fatal electrical shock could occur.
- Do not lift or carry the pump by its power cord. This will damage the power cord, and could expose the electrically live wires inside the power cord.
- The electrical power supply shall be located within the length limitations of the pump power cord, and for below grade installations it shall be at least 4 ft (1.22 m) above floor level.
- Do not submerge macerator or allow macerator to be exposed to water. Macerating toilet system is acceptable for indoor dry location use only. Serious injury or death could result.

⚠ WARNING **RISK OF FIRE**

- Do not use an extension cord to power the product. Extension cords can overload both the product and extension cord supply wires. Overloaded wires will get very hot and can catch on fire.
- Explosion hazard during installation. PVC cleaners, primers, and cements can release explosive vapors. These heavier-than-air vapors can accumulate in the tank. The heat of soldering or sweating copper or other metal pipe can ignite these vapors causing a violent explosion. If the unit is to be connected to copper discharge or vent piping, all solvent-welded PVC joints must be allowed to cure a **minimum** of 24 hours. The access cover must be removed to allow the tank to be thoroughly ventilated prior to sweating copper pipe near the unit.
- These pumps are not to be installed in locations classified as hazardous in accordance with the National Electric Code[®], ANSI/NFPA 70.

⚠️ WARNING ⚠️ **RISK OF SERIOUS INJURY OR DEATH**

- Do not modify the pump/pump system in any way. Modifications may affect seals, change the electrical loading of the pump, or damage the pump and its components.
- All pump/pump system installations shall be in compliance with all applicable Federal, State, and Local codes and ordinances.
- Do not remove any tags or labels from the pump or its cord.
- Keep clear of suction and discharge openings. To prevent injury, never insert fingers into pump while it is connected to a power source.
- The macerator has a large opening to accept the discharge hub of a rear discharge toilet. Do not place hand or other objects into this opening even if unit is unplugged. The macerator has razor sharp cutters within this opening.
- Decorative covers must be installed for operation as a safety device is integrated into the covers to prevent unintended operation. The unit may start when energized the first time.
- This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. www.p65warnings.ca.gov.

⚠️ CAUTION

- ◆ This pump has been evaluated for use with water only.
- ◆ Wear Protective Personal Equipment to protect hands as exposed cutter blades have sharp edges.

NOTICE

- ◆ Do not use pumps with fluid over 104°F (40°C). Operating the pump in fluid above this temperature can overheat the pump, resulting in pump failure.
- ◆ Do not use an air admittance valve or a mechanical spring-loaded venting device, as these devices are one-way valves. The air pressure in and outside the macerating pump unit must be equal and a “cheater” vent will obstruct the airflow in one direction and prevent proper toilet function.
- ◆ The Ascent II macerating unit includes electronic controls and must be protected from direct water exposure during installation and use.
- ◆ Sanitary fixtures connected to the macerating system must be located on the same floor level.

Introduction

Before installation, read the following instructions carefully. Each Liberty Pumps product is individually factory tested to ensure proper performance. Closely following these instructions will eliminate potential operating problems, assuring years of trouble-free service.

No repair work should be carried out during the warranty period without prior factory approval. Any unauthorized repairs void warranty. Contact Liberty Pumps at 1-800-543-2550.

Inspection and Storage

Initial Inspection

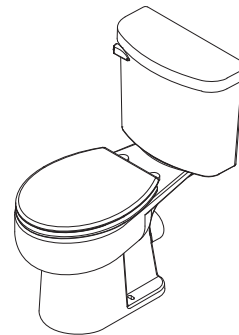
The Ascent II Macerating Toilet System is shipped in three separate packages: the toilet tank, toilet bowl, and macerating unit. The shipping containers should be immediately inspected for damage that may have occurred in shipment.

1. Visually check the macerating unit and any spare parts for damage.
2. Check for damaged electrical wires, especially where they exit the macerating tank.
3. Check all packaging for spare parts before discarding.

Contact Liberty Pumps customer service to report any damage or shortage of parts.

List of included parts:

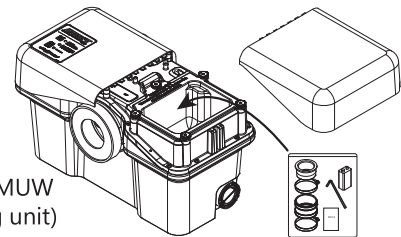
- Toilet Tank (model: Ascent II - TW)
- Toilet Bowl (model: Ascent II - RW or EW)
- Macerator (model: Ascent II - MUW)
 - Macerator tank
 - Rubber couplings with clamps
 - Reducing bushings
 - 9V battery
 - 3/16" Allen wrench
 - Grease packet



Ascent II - EW
(elongated toilet)



Ascent II - RW
(round front toilet)



Ascent II - MUW
(macerating unit)

Storage Before Use

Liberty Pumps products are shipped from the factory ready for installation and use. If storage is necessary, the pump should remain in its shipping container. It should be stored in a warehouse or other area that is clean, dry and temperature-stable. The pump and packaging should be covered to protect it from water, dirt and dust.

General Information

The macerator is designed to accept wastewater from a rear discharge toilet but can also simultaneously receive wastewater from several sanitary fixtures such as a sink, shower, bathtub, or urinal (a single bathroom group). However, only one water closet (toilet) per unit may be connected.

Usage

The macerating system is designed for the disposal of human waste, toilet paper, and water. It is not intended for kitchen waste, nor is it intended to be used for the disposal of wastewater from such pumped appliances as dishwashers and clothes washers. This product is not designed for emptying large pools or spas.

The macerating system starts automatically once the toilet is flushed or liquid from other fixtures enters the unit. It automatically shuts off once the contents have been pumped away. Run times will vary depending on inflow and source.

Features

- Improved cutter design with RazorCut™ system. The cutter blades are designed and rigorously tested to last indefinitely without need for service or replacement in ordinary applications.
- The CleanConnect™ Seal allows the macerator to sit closer to the toilet.
- QuickFlip™ discharge and vent connectors allow for horizontal or vertical pipe connections.

Bath Layout

NOTICE

- ♦ Sanitary fixtures connected to the macerating system must be located on the same floor level.

The toilet works as a conventional flushing toilet and needs no special maintenance with normal use.

Any regular bathtub (up to 100 gallons) or shower can be used. When installing these fixtures, build a 6 inch high platform for the fixture to be placed. This provides enough space for a p-trap and slope toward the macerator auxiliary inlets. When installing a shower, manufacturers sometimes offer a prefabricated raised shower base. Note: The actual distance between the p-trap of the additional fixture and macerator determines the necessary clearance to install the p-trap and elevation required to ensure a minimum pitch of 1/4" per foot drop.

Normal Operating Cycle

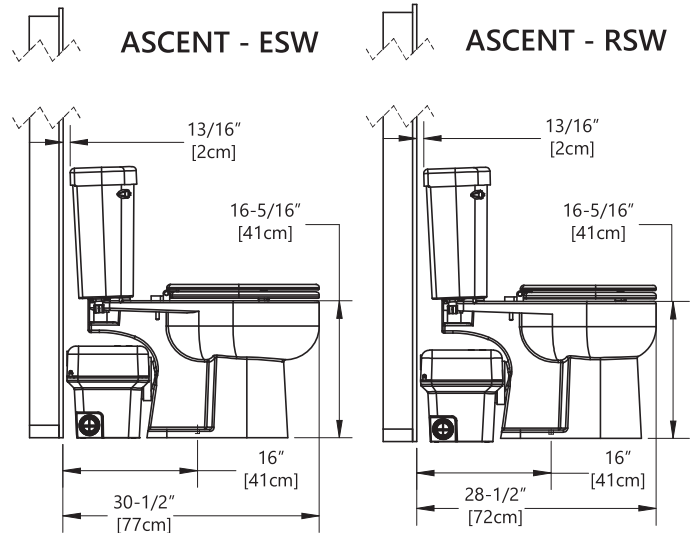
The macerator controls are capable of distinguishing between different modes of operation and optimizes the run time accordingly.

Advanced run detection will energize the cutters once the unit detects a flush. In doing so, the cutters are spinning at maximum speed (rpm) prior to fluid and debris reaching the cutting system. The unit may pulse during a shower or draining a bathtub because the macerator can pump at a higher rate than the incoming flow.

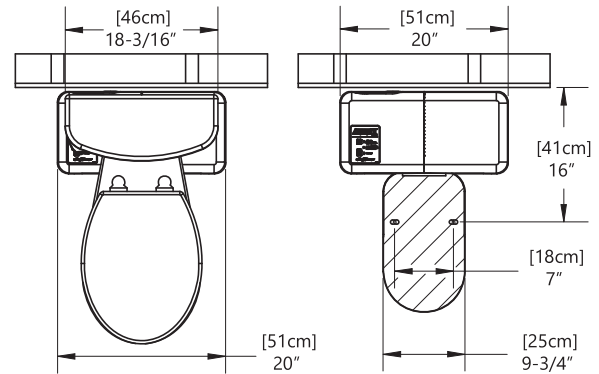
Use and Care

All standard cleaners can be used just as with a standard conventional toilet. The exterior of the macerating unit may be cleaned with a damp cloth and normal household cleaners. Never spray or dump water or chemicals directly on the unit.

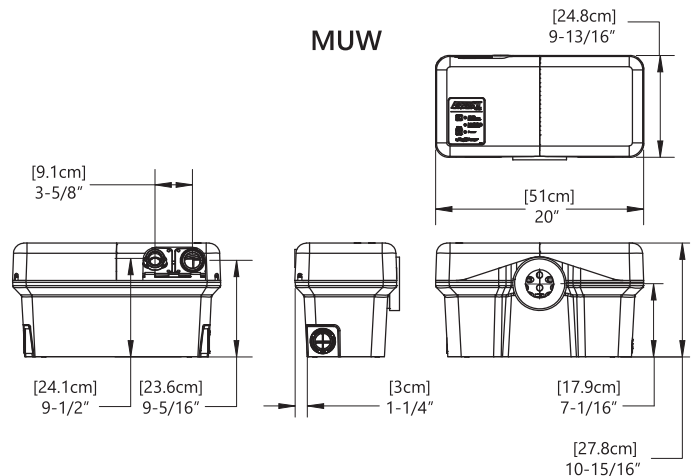
Dimensional Data



ASCENT - ESW / RSW



MUW



Macerating Unit

User Interface

The macerator has a user interface (touchpad with LEDs) located on the top left side of the unit.

This interface has three LEDs:

ALARM: unit is unable to evacuate the holding tank or cannot keep up with the incoming flow. Audible alarm also activates.

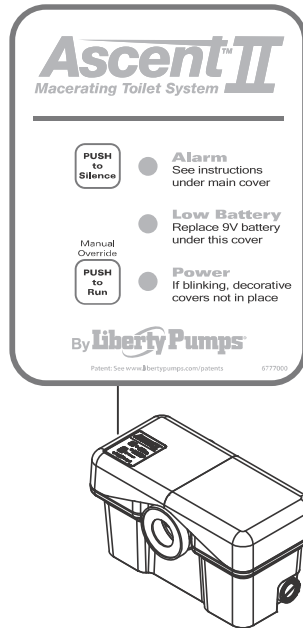
LOW BATTERY: 9V battery needs to be replaced.

POWER: unit has power.

The interface also has two pushbuttons:

PUSH to Silence: silences the audible alarm.

PUSH to Run: overrides the internal switch to manually run the macerator and pump.



Alarm

The macerator has an integral alarm that will sound if the unit cannot remove liquid or keep up with incoming water. If the alarm sounds, a number of conditions could exist. Refer to the **Troubleshooting** section to determine the cause and solution.

A silence button located on the user interface touchpad stops the audible alarm. The red alarm LED will continue to illuminate.

Discontinue using the product until the problem has been identified and resolved.

IMPORTANT: In the event of a power outage, a 9V battery will power the alarm, and if necessary, the macerator will accept two flushes prior to alarm activation. After that, **the unit should not be used again until the power is restored.** The alarm automatically resets once a normal cycle is performed.

Low Battery

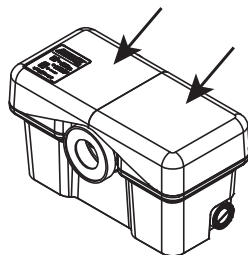
If the yellow LED is illuminated, the 9V battery needs to be replaced. The expected life of the supplied battery is 5 to 7 years.

Power

The LED will be green when power is applied, but LED must be steady to operate. Both decorative covers must be properly in place to engage safety switch.

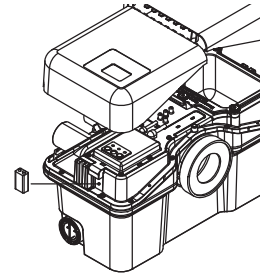
Decorative Covers

The decorative covers are shipped from the factory assembled on the unit. However, during the installation both covers must be removed from the macerator.



Battery Access

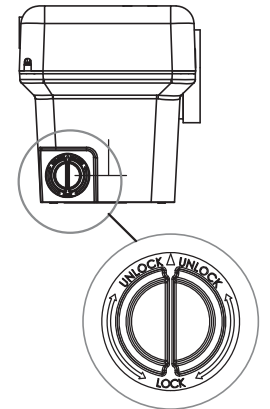
The battery receptacle is accessible under the left decorative cover. Do not install battery until the unit has been installed, connected, and ready for operation.



Auxiliary Inlets

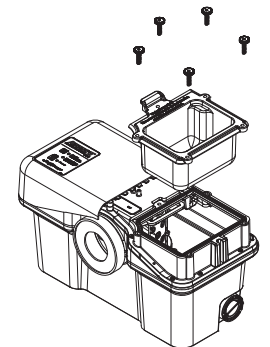
The macerator unit is equipped with two inlet ports, one on each side. These ports are designed for standard PVC pipe. Included with the system are two 2" flexible PVC couplers and 1-1/2" reducing bushings. These inlets, which incorporate an internal check valve, are used to connect the drainpipe of other sanitary fixtures to the macerating pump unit.

Typically, the 2" drain is used with shower stalls only. A tub, shower/tub combo, or sink would use a 1-1/2" drain line. From the factory, the auxiliary inlets are plugged; if the port is to be used, the plug must be removed by rotating until the rib is vertical and then pulling outward. If the unit has been stored for some time, pliers may be needed to assist in removal.



Access Cover

The macerator has an access cover that can be removed to gain access to the pumping and macerating cartridge to remove debris or perform service. The auxiliary inlet couplers, Allen wrench, grease packet, clamps, and 9V battery are shipped in the access cover beneath the right access cover.



Preparation

⚠ WARNING ⚡ RISK OF ELECTRIC SHOCK

- The pump shall be plugged into a properly fused electrical outlet with a ground fault circuit interrupter (GFCI) that conforms to current National Electric Code (NEC) and all applicable local codes. All wiring must be performed by qualified personnel.
- Pump shall be properly grounded using its supplied grounding conductor. Do not bypass grounding wires or remove ground prong from attachment plugs. Failure to properly ground the pump system can cause all metal portions of the pump and its surroundings to become energized.
- The electrical power supply shall be located within the length limitations of the pump power cord, and for below grade installations it shall be at least 4 ft (1.22 m) above floor level.

⚠️ WARNING **⚡ RISK OF FIRE**

- Do not use an extension cord to power the product. Extension cords can overload both the product and extension cord supply wires. Overloaded wires will get very hot and can catch on fire.
- Explosion hazard during installation. PVC cleaners, primers, and cements can release explosive vapors. These heavier-than-air vapors can accumulate in the tank. The heat of soldering or sweating copper or other metal pipe can ignite these vapors causing a violent explosion. If the unit is to be connected to copper discharge or vent piping, all solvent-welded PVC joints must be allowed to cure a **minimum** of 24 hours. The access cover must be removed to allow the tank to be thoroughly ventilated prior to sweating copper pipe near the unit.

⚠️ WARNING **⚡ RISK OF SERIOUS INJURY OR DEATH**

- Do not modify the pump/pump system in any way. Modifications may affect seals, change the electrical loading of the pump, or damage the pump and its components.
- All pump/pump system installations shall be in compliance with all applicable Federal, State, and Local codes and ordinances.

NOTICE

- ◆ Macerating unit must be located on same floor as connecting fixtures.

Layout: The bathroom layout should be designed prior to installation. Make certain the power source (GFCI receptacle) is within range of the macerator's 8 ft power cord. The GFCI receptacle shall be 40 inches away (in a straight line) from a shower or bathtub. For basement installation, the receptacle shall be 48 inches from the floor.

Power Cord: The power cord can be configured to exit the unit on either the left or right side. If the power cord will exit the left side of the macerator, the vent flange must be removed so the cord can be routed between the positioning clips. Reinstall vent flange after routing the cord. Do not use an extension cord. If the electrical power receptacle (outlet) is in close proximity to the macerator, any extra power cord can be coiled and tucked away in the access cover located under the right decorative cover.

Easy Access: The unit should be accessible and removable in the event of required maintenance. During installation, a full port ball valve should be installed near the discharge flange to allow easy service of the unit. If possible, the right side of the macerator should remain unobstructed. The access cover allows access to the internal mechanisms. In the event of a jam, the decorative cover as well as the access cover will need to be removed from the macerator and working room to do so would be beneficial.

Water Supply: The water supply line for the toilet tank is located on the left side. When roughing in, allow for the macerator.

Discharge: Never discharge directly into an open drain, fixture, manhole or rainwater drainpipe. It is illegal, as it constitutes a health hazard. Only direct connections into sanitary waste systems shall be acceptable.

Auxiliary Ports: Auxiliary inlet ports are located on either side toward the back of the macerator tank. These ports can accept waste from sink or tub/shower. A sink should be plumbed into one of the auxiliary inlets and not the discharge line of the macerator even if elevations would allow such an installation. The discharge line is pressurized and the plumbing system needs to accommodate this.

Freezing: Ensure all pipework susceptible to freezing is adequately insulated or heated. In unheated buildings, the toilet, piping, and macerating unit must be properly winterized. Use plumbing antifreeze or drain completely. The battery should also be disconnected.

Discharge Extension: An optional discharge extension [P/N K001184 sold separately] allows the macerator to be positioned behind a wall. For example, the macerator could be positioned on the floor of a linen closet or utility room. Do not fully frame unit into a wall as access to macerator must be maintained.

Toilet Placement: The toilet hold down fasteners should be located 16 inches from the wall and spaced 7 inches apart. This assumes a typical baseboard of 3/4" x 5-1/2" with 3/4" quarter round. Actual baseboard dimensions must be taken into account during the installation and thus rough-in dimensions may change.

Tub/Shower: Water height will be 4½ inches in the macerator tank before the unit starts pumping. A shower stall floor must be well above this level. Liberty Pumps recommends at least 6–8 inches to ensure proper shower drainage and prevent any backflow.

All fixtures must be properly vented per applicable local plumbing code.

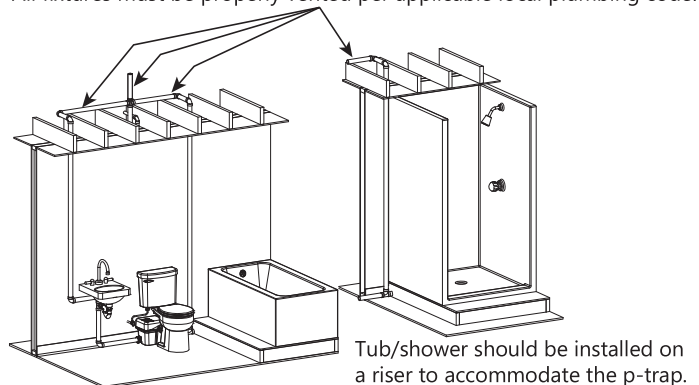


Figure 1. Typical Applications

Pipework: All pipework should be copper, PVC, or CPVC. Do not use flexible piping. Support hangers should not be less than 4 ft apart to prevent pipe rattling.

Pipe Supports: All sanitary pipework must be supported in accordance with the pipe manufacturer's recommendations. Avoid dipping or trapping, which may cause the buildup of residual solids and subsequent blockage.

Bends: Wherever possible, long sweeping bends should be used. Do not use short elbows. If sweeping 90° elbows are not available, use two 45° elbows to make a 90° turn.

Shut-off Head: The macerator has a shut-off head of 36 ft. All frictional losses from horizontal runs and elbows need to be accounted for. The minimum flow rate for 1" PVC Schedule 40 pipe is 5 gal/min compared to 3 gal/min for 3/4" PVC pipe.

Gravity Fall: The unit accepts wastewater by gravity; it does not vacuum in water. All inlet pipework must have a positive gravity fall (1/4 inch per foot drop minimum).

Vertical Lift: If vertical lift is required, this must precede the horizontal pipe run. All vertical lifts should rise as close to the macerator as possible, allowing only for the need to clear the toilet tank. The initial horizontal run should not exceed 12 inches. Once the horizontal run is started, do not change directions in a vertical manner.

Discharge: All discharge piping from the unit should run either directly vertical or in a horizontal plane (with a minimum 1/4 inch per foot drop) to the point of discharge. Pipework must not be installed with a diagonal upward slope from the unit to the point of discharge. Long downward pitched runs of discharge piping, or piping where the point of discharge is at a lower elevation than the macerator unit, should be designed to prevent siphoning from the macerator tank.

Friction: Friction losses from horizontal runs without 1/4 inch per foot pitch will reduce the amount of vertical lift the system is capable of handling. Refer to Figure 3. Consult factory for proper sizing if there are long runs or multiple elbows.

Lift Calculations: To pump vertically and horizontally, calculate 3 ft of vertical lift as equivalent to 30 ft of horizontal run. Each bend or change of direction gives a pressure drop, which must be calculated into the total head of the unit. As an estimate, reduce discharge height by 3 ft for each 90° bend.

For example: 1" Schedule 40 PVC pipe is used for the discharge and runs horizontally for 1 ft, then turns 90°, and rises 5 ft vertical. Then it travels horizontal with another 90° turn (3 turns in total) and connects with the soil-stack. Refer to Figure 2.

Calculations:

[A] Total vertical lift 5 ft = 5 ft vertical

[C+D+E] Total horizontal run 43 ft = 4.3 ft vertical

[B] Total of three 90° elbows = 9 ft vertical

Add the three calculation totals together to get 18.3 ft of vertical head (lift). Referring to Figure 3, the application would result in a flow rate of 23 gal/min (60 Hz).

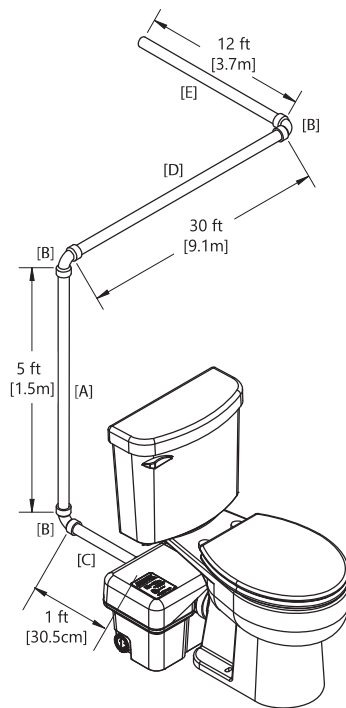


Figure 2. Example Calculations

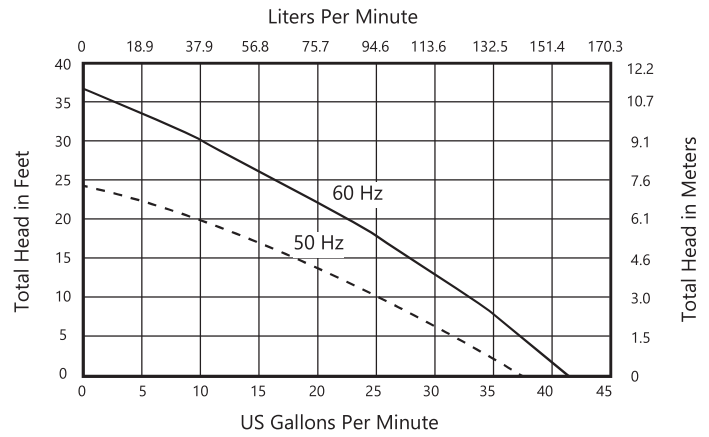
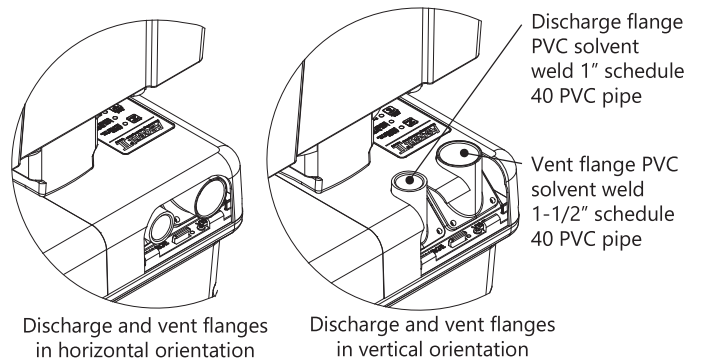


Figure 3. Performance Curve

Macerating Unit Preparation

Auxiliary inlets should be plumbed using the supplied auxiliary inlet couplings and/or reducing bushing when connecting to either 2" or 1-1/2" standard Schedule 40 PVC pipe. A plug must be removed by turning until the rib is vertical and pulling outward. Pliers may be required if unit has been stored.

Both the discharge and vent flanges are shipped from the factory in the horizontal orientation. If the installation allows for a vertical orientation, the four screws must be removed from each in order to flip the flange. The decorative cover will need to be modified with the use of a hole saw and cutters to remove material. A template is provided on the underside of the decorative cover.



Installation

⚠️ WARNING ⚡ **RISK OF ELECTRIC SHOCK**

- The pump shall be plugged into a properly fused electrical outlet with a ground fault circuit interrupter (GFCI) that conforms to current National Electric Code (NEC) and all applicable local codes. All wiring must be performed by qualified personnel.
- All electrical and safety practices shall be in accordance with the National Electrical Code®, the Occupational Safety and Health Administration, or applicable local codes and ordinances.
- Pump shall be properly grounded using its supplied grounding conductor. Do not bypass grounding wires or remove ground prong from attachment plugs. Failure to properly ground the pump system can cause all metal portions of the pump and its surroundings to become energized.

Note to Installer: During installation, it is best to cover the macerating unit with plastic to protect it from potential leaks at the toilet fill connection or tank to bowl gasket.

Refer to Figure 1 Typical Applications as needed during the installation process. Installations may vary per local plumbing and electrical codes. Also, discharge and vent pipe routing can vary per installation.

1. Place the macerator in the desired location and connect all inlet and outlet waste piping to the unit. The inlet side should be facing the toilet to ensure proper placement. Refer to Figure 4 and Figure 5.
2. Assemble the toilet in accordance with the installation manual(s) provided with it. Be careful when tightening fasteners as to not crack the porcelain.

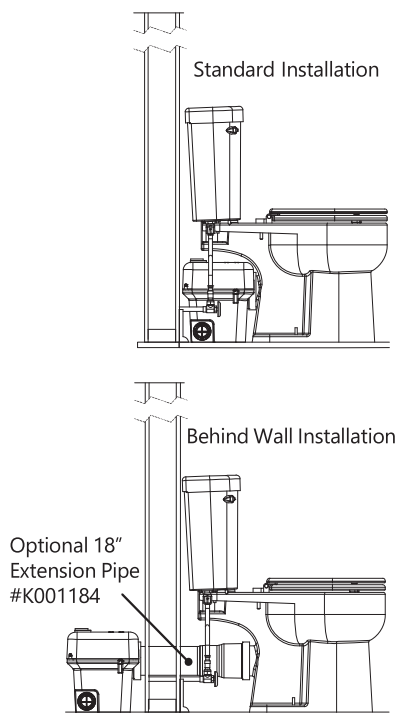


Figure 4. Placement Options

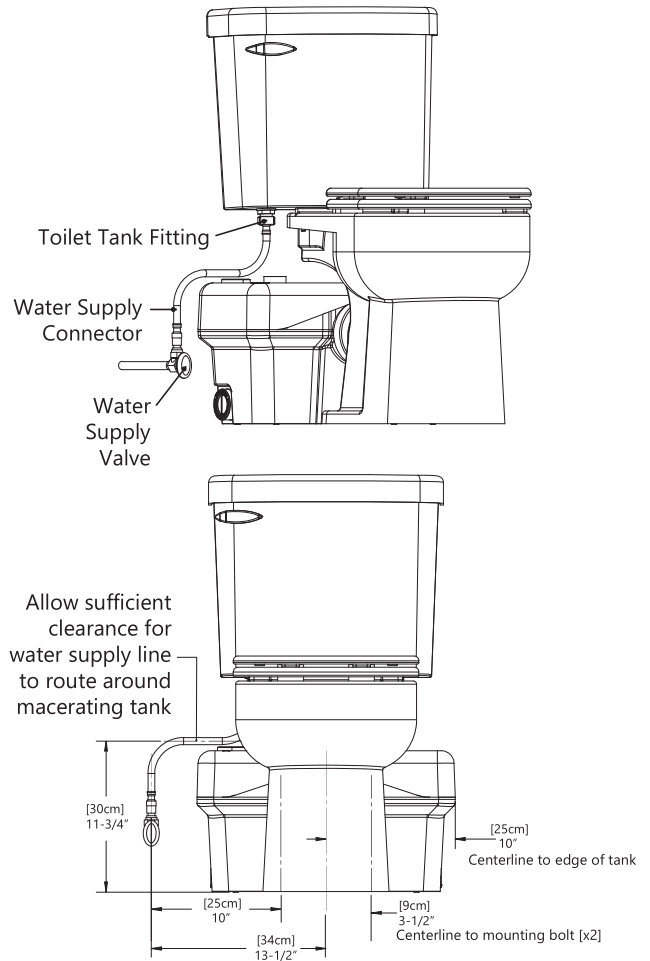


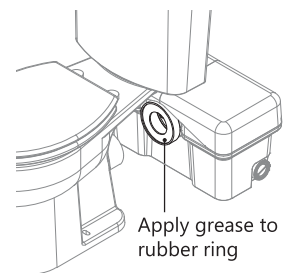
Figure 5. Toilet Connections

1. To mount the toilet to a concrete floor, drill two holes approximately 2-1/4" deep with a 5/16" masonry drill bit. Insert plastic plugs into holes. If the floor is wood, bore a pilot hole with a 1/4" drill bit. Fasteners not included.

2. Toilet to macerator connection:

a. Standard Installation:

Place the toilet in front of the macerating tank and apply silicone grease (supplied) to the rubber sealing lip of macerator. Then slide the discharge hub of the toilet into the rubber sealing ring of the macerator.



b. Behind Wall Installation:

To install the macerator behind a wall, an Extension Pipe Kit (K001184, sold separately) is needed. Included in the kit are an 18-3/4" long extension pipe, a decorative trim ring, and a grease packet. Rubber rings seal both ends of the extension pipe.

To prevent tearing, always grease both seals prior to installing the pipe. Slip the decorative trim ring onto the pipe. To install the pipe, no fasteners are required. Slip the extension pipe over the toilet discharge, and then insert the pipe into the macerator.

Liberty Pumps recommends using only one extension pipe.