

VacuFlush[®] HTS-VG series (with vacuum generators)

SeaLand[®] HTS-T series (with discharge pumps)

SeaLand[®] HTS-Basic series (with fittings only)



Caution!

This manual must be read and understood before installation, adjustment, service or maintenance is performed. Modification of this product can result in property damage.

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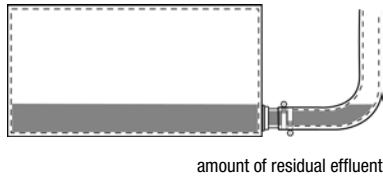
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HTS Benefits

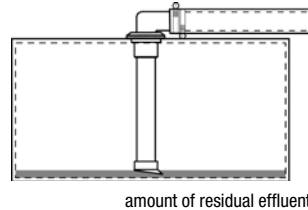
Superior Durability: SeaLand® holding tank systems (HTS) are molded from linear low density polyethylene (LLDP) resin. Polyethylene is best-suited for holding tank construction because of its resistance to corrosion and odor permeation, and it will last longer than the life of a typical fiberglass hull.

Leak-Proof Design: All hose connections in SeaLand holding tanks are on the top of the tank, eliminating possibility of leakage due to a faulty connection below the liquid level of the tank contents. Our unique diptube design reduces the risk of plugging while keeping the residual contents in the tank to a minimum.

Typical Discharge Outlet



SeaLand Diptube Discharge Outlet



ISO/USCG Compliant: SeaLand HTS models are fully compliant with the ISO 8099:2000(E) standard and applicable requirements of the United States Coast Guard for pleasure craft installation.

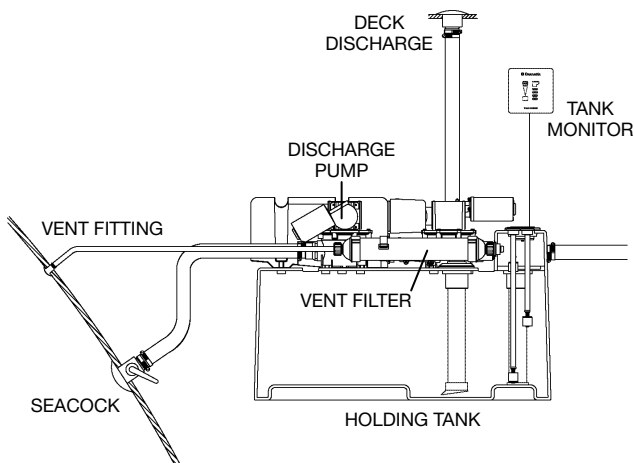
Odor-Free Design: SeaLand tanks have extra-heavy wall thickness to prevent odor permeation. Holding tank systems can be fitted with a SaniGard™ in-line vent filter that stops unpleasant odors from escaping through the holding tank vent.

Implosion Protection: SeaLand holding tanks are equipped with a TankSaver™ vacuum relief valve which prevents damage from dockside pumps that operate at very high levels of vacuum. The TankSaver valve opens automatically under vacuum conditions, but remains sealed regardless of shock-loading or vibration.

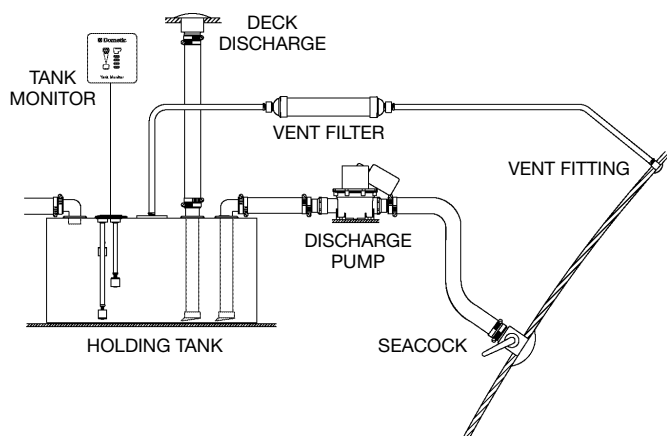
Multiple Tank Outlets: Most HTS models are equipped with two discharge outlets. One is for connection to a deck-mounted discharge fitting and one is for connection to an overboard discharge pump.

HTS Components: Every HTS is built with high-quality SeaLand sanitation system components. See page 6 for details.

HTS with Vacuum Generator, Discharge Pump



HTS with Basic Fittings



Dometic Corporation reserves the right to change specifications without notice.

Installation

CHOOSING A LOCATION FOR THE HTS

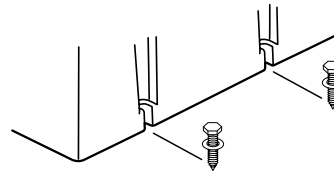
As a general rule, the HTS should be positioned as low in the hull as possible with all interconnecting hoses or pipes sloped to permit gravity drainage and prevent potential hose odor permeation.

The holding tank must not be exposed to temperatures above 120°F (45°C). Do not place near heat sources such as engine manifolds, water heaters, generators, etc.

Be certain to estimate holding tank weight when filled (typical effluent weighs about 9 lbs. per 1 gallon or 1.08 Kg per liter). Make certain to allow for total filled weight when selecting materials for mounting the tank. Also consider impact of full tank on vessel trim.

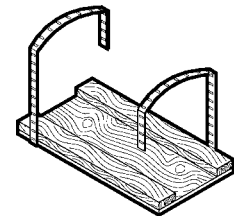
Preparing a Mounting Surface

1. Mount tank to surface that supports the entire area of the tank.
2. If required, fabricate mounting surface and toe blocks from 13 mm or 19 mm (1/2-inch or 3/4-inch) plywood.
3. Do not mount tank on projections such as screw or bolt heads, which could puncture the tank.
4. Do not allow holding tank to block free flow of bilge water.



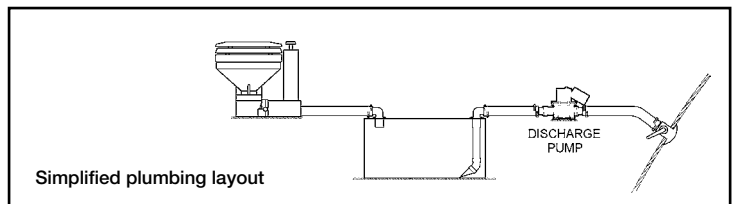
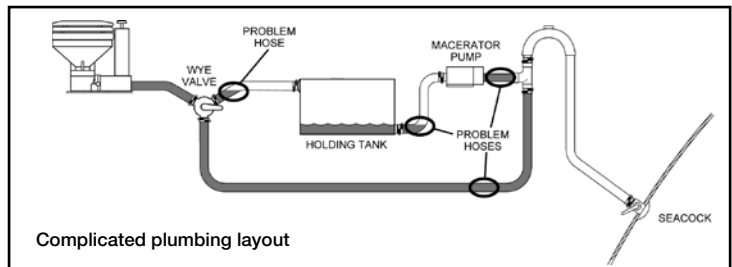
Integrated mounting feet in holding tank simplify installation.

Mounting surface can be made from plywood and securing straps.

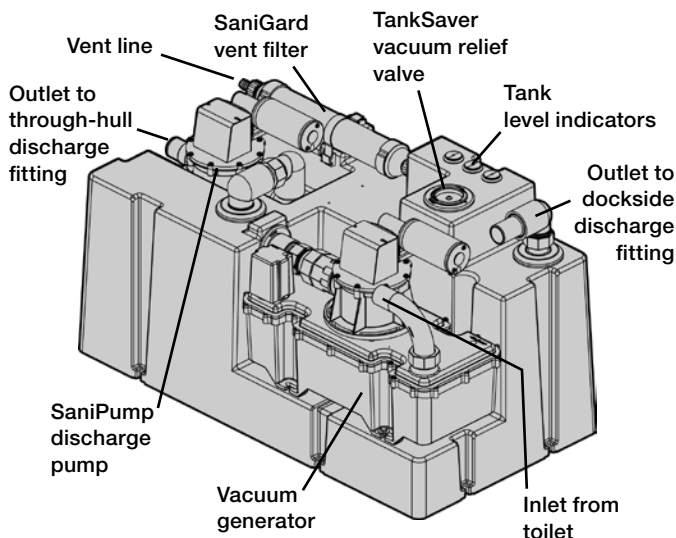


AVOIDING HOSE ODOR PERMEATION

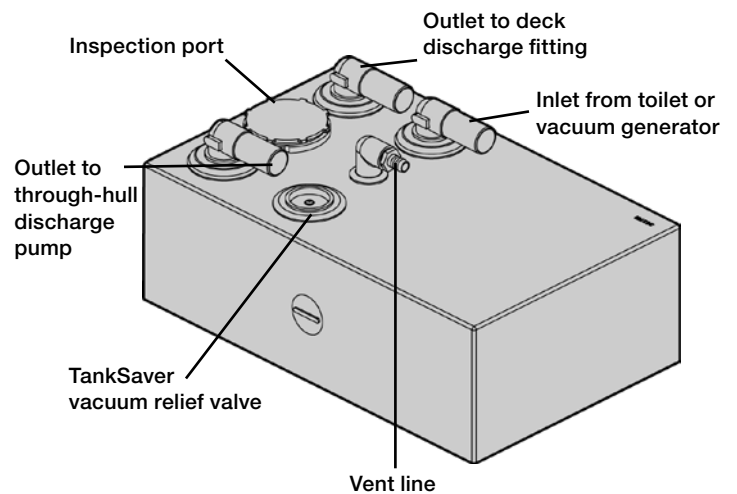
- Hose failure due to odor permeation almost always occurs in hose runs which retain sewage when the system is not in use.
- Eliminate all unnecessary runs which retain trapped liquids, if possible.
- Where possible, use rigid PVC pipe in sections that cannot be arranged to drain.
- Simplify hose layout by removing unnecessary valves. [For specific installations, some regulations and standards may require the installation of a vented loop (anti-siphon valve), one-way valve or seacock in sewage discharge piping.]



HTS / VACUUM GENERATOR CONNECTIONS



BASIC HTS CONNECTIONS

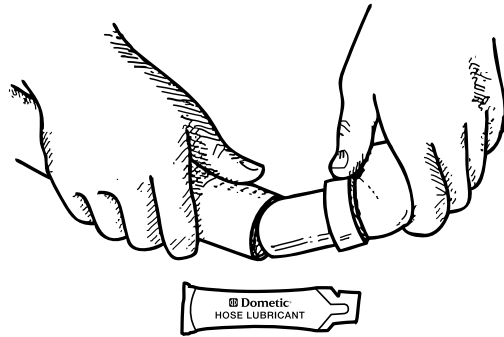


Installation (cont'd)

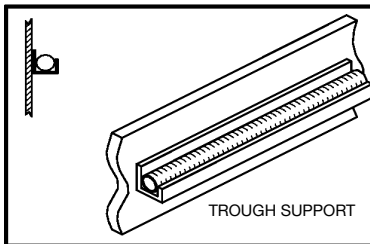
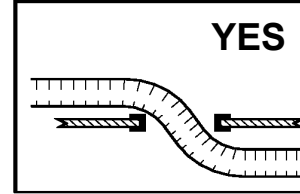
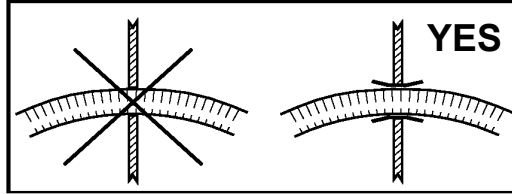
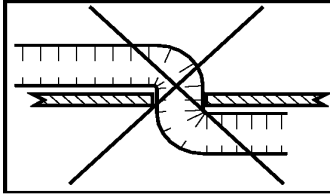
PLUMBING CONNECTIONS AND HOSE LAYOUTS

When connecting flexible hose to plastic fittings, use Dometic Hose Lubricant or silicone grease on end of fitting and inside hose end to make connection easier.

Do not use any other lubricants, sealants or adhesives when connecting sanitation hoses and plastic fittings.

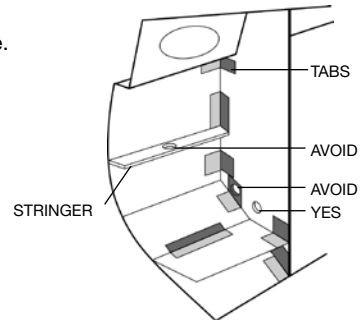


Do not restrict the ability to pull the hose or pipe.



EXCELLENT

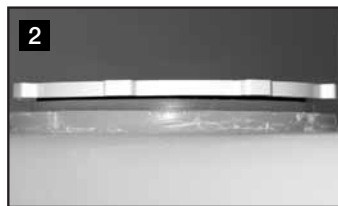
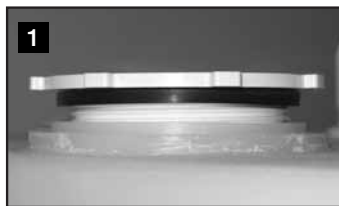
Avoid binding corners and sharp bends.
Do not use wire ties to secure the hose or pipe.
Support flexible hose every 12 inches (.3 m), and support rigid pipe every 5 feet (1.5 m).
When creating new holes, avoid reinforcement stringers and tabs.



IF SEALAND HTS-BASIC TANK FITTINGS ARE NOT ASSEMBLED TO TANK, FOLLOW THESE STEPS.

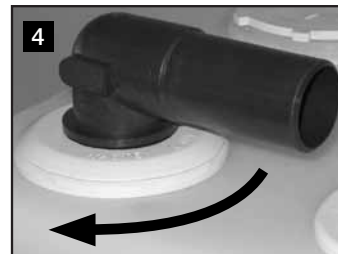
3-inch cap – inspection port

1. Place cap into 3-inch (76 mm) threaded hole (fig. **1**) and tighten until hand-tight.
2. Using spanner wrench or large channel locks, tighten cap until very little or no black seal is visible above inlet port (fig. **2**).
3. To remove cap for tank inspection, use spanner wrench or large channel locks.



Inlet and discharge elbow fittings

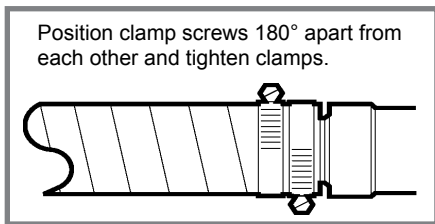
1. Apply threaded plastic pipe sealant around threads of elbow (fig. **3**).
2. Tighten elbow into desired fitting on tank (fig. **4**).
3. To properly position elbow to receive sanitation hose, turn elbow only in clockwise direction (fig. **4**). (Turning the elbow in opposite direction may loosen connection and cause leakage.)
4. Make sure to connect waste discharge hose(s) to fitting(s) marked as "Waste Only."
5. When connecting sanitation hose to plastic elbows, use silicone grease on end of fitting and inside hose end to help make connection easier and leakproof. Be sure to use two hose clamps to secure each connection.



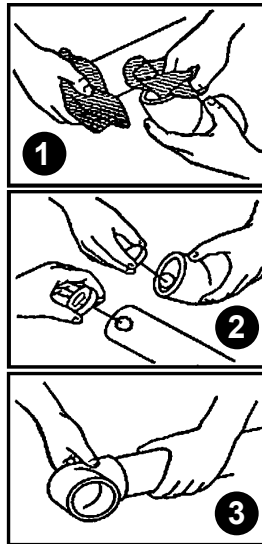
Installation (cont'd)

CLAMP CONNECTIONS FOR FLEXIBLE HOSE AND FITTINGS

Dometic recommends that each hose connection be secured with two hose clamps to prevent any leaks.



SOLVENT BONDING FOR RIGID PIPE AND FITTINGS



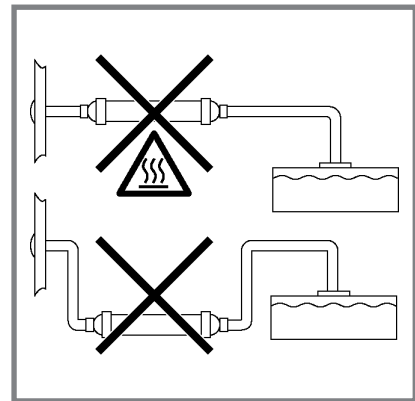
1. Use PVC cleaner on both bonding surfaces.
2. Use PVC cement (must contain tetrahydrofuran) on both bonding surfaces.
3. Connect parts using a twist and hold motion until the cement is set.
4. Let the joint cure for at least four hours or according to instructions on PVC cement container. (Cold temperatures require longer cure times.)

Vent Line and Filter Installation

- Holding tank vent lines must be free of low points which can trap liquid and prevent the free flow of gases from or air into the holding tanks.
- Do not use non-reinforced hose for vent lines. Over time, it will tend to kink and effectively block the vent.
- A holding tank vent filter will absorb heavier-than-air gases associated with sewage and eliminate a source of malodor from the exterior of the boat. See vent filter details in this manual (page 6).

When installing vent filters that are not mounted directly on an HTS unit:

- Avoid areas near excessive heat sources such as engine manifolds or lights.
- Do not install the filter below top of holding tank.
- The filter can be mounted in any position. Installations near the through-hull vent reduce the chance of filter damage from overfilling of the holding tank.



Service access

Because SeaLand holding tanks may require minimal service in normal operation, the tank must be installed so that there is easy access to the tank inspection port, discharge pump and vent filter (if installed).

An in-line maintenance valve must be installed in any piping runs which retain liquid and are connected to components that may require periodic servicing (such as discharge pumps).

Cleaning

A small amount of water remains in all marine holding tanks. It is good practice to rinse the tank after the contents have been discharged. This can be accomplished by adding water to the toilet bowl. Add 8 ounces (237 ml) of SeaLand® Holding Tank Deodorant to the bowl. Flush the entire contents into the holding tank and continue flushing until the discharge from the holding tank is clear.

Do not use chlorine-based cleaners, caustic cleaners or chemicals, such as drain-opening products, as they may damage the system's seals and hose.

Winterizing

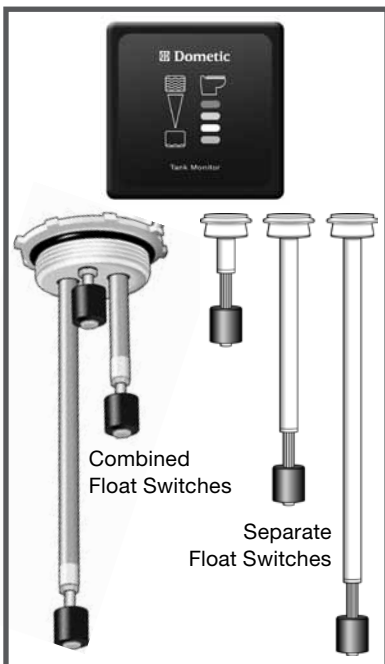
If using the HTS with SeaLand's VacuFlush® components, refer to VacuFlush toilet owner's manual for winterization instructions. If using antifreeze to winterize the HTS, use only propylene glycol freshwater antifreeze that does not contain alcohol. Antifreeze that contains alcohol will result in damage to your sanitation system.

1. Pump out holding tank.
2. Thoroughly flush the system with fresh water before adding propylene glycol freshwater antifreeze to the HTS.

HTS Components

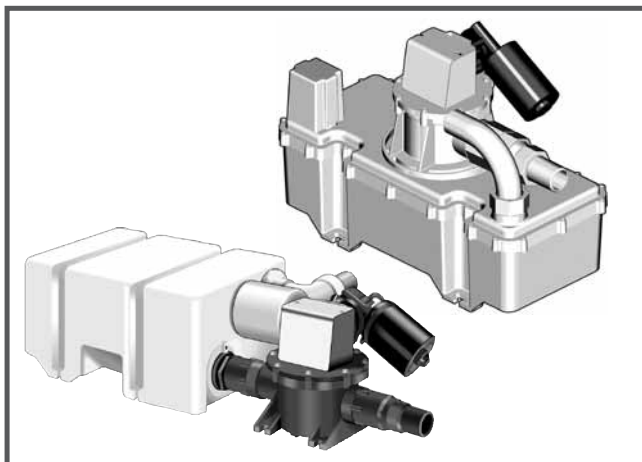
DTM04 Level Monitor and Micro-Float Switches*

Includes four tank levels – Empty, Low, Mid and Full. Micro-float switches are installed in holding tank. No electrical components contact waste or water. Operates on 12 or 24-volt DC. Uses only .008 amps at 12 V DC. Micro-float switches are installed either as a unit (with a 3-inch cap) or as separate indicators.



VacuFlush Shutdown Relay*

To prevent overfilling a holding tank, a shutdown relay is supplied with HTS-VG models. When the tank reaches "Full", the relay shuts off the vacuum generator, preventing further flushing of the toilet.



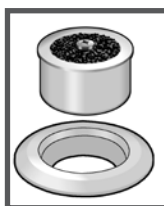
VacuFlush® Vacuum Generators*

On HTS-VG models, VacuFlush vacuum generators combine the vacuum tank and vacuum pump in one unit. All models eliminate hose runs between the vacuum tank and pump of previous VacuFlush systems. HTS vacuum generators feature high-performance vacuum pumps, offering quieter operation and faster vacuum generation than previous models.

Other HTS Features

TankSaver™ Vacuum Relief Valve

Prevents damage due to tank implosion from dockside pumps that generate very high vacuum. TankSaver valve opens automatically under vacuum, but remains sealed regardless of shock-loading or vibrations.



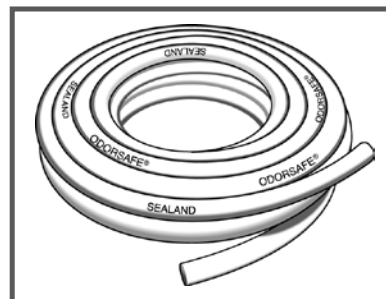
SaniGard™ Holding Tank Vent Filter*

With odor-removing filter media, the vent filter stops odors from escaping the holding tank vent. Keeps boats smelling clean and pleasant. Each cartridge is good for an entire season and is easily replaced.



OdorSafe® Plus Sanitation Hose

OdorSafe Plus hose provides the best odor barrier of any marine hose available. It delivers up to 19 times greater resistance to sulfurous malodors than other "no-odor" marine hoses. On HTS models, it's used for all 1.5-inch (38mm) hose connections. It's also best for connecting the discharge pump to the through-hull and deck waste fittings.



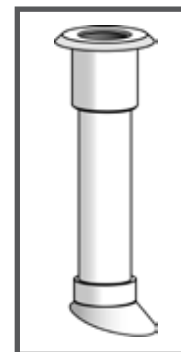
SaniPump™ Overboard Discharge Pump*

Runs dry without harm. Draws 6 amps at 12 VDC. Delivers flow rate of 3.9 gallons per minute (14.7 liters per minute). Connects to through-hull fitting. Check Marine Sanitation Regulations for information on areas where discharge is allowed.



Diptube Discharge

Our diptube discharge design allows for removal of waste from the top of the holding tank rather than near the bottom of the tank. This feature greatly reduces the opportunities for stagnant sewage to sit in tank discharge lines – a main cause of odor permeation and hose failure.



* Not available on all HTS models.

Dometic, OdorSafe, SeaLand, and VacuFlush are registered trademarks of Dometic Corporation.
SaniGard, SaniPump and TankSaver are trademarks of Dometic Corporation.

Plumbing, Electrical Specifications

Plumbing Connection	Dimensions	
Inlet Fitting Size:	1-1/2 inch	38.1 mm
Outlet Fitting Size:	1-1/2 inch	38.1 mm
Vent Inlet/Outlet Size:	5/8 inch	15.9 mm

Electrical Requirements	12 VDC	24 VDC
† Vacuum Generator:	10 amp	5 amp
Level Indicator:	3 amp	3 amp
† Discharge Pump:	10 amp	5 amp

† Requires separate circuit breaker.

Plumbing Fittings, Hose and Pipe

SeaLand® valves and fittings are designed for use with 1-1/2-inch (38 mm) ID OdorSafe® Plus sanitation hose and 1.5-inch (38 mm) ID PVC pipe.

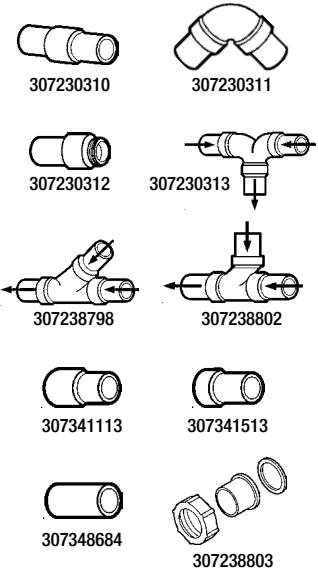
Hose Ball Valve

PART NO.	DESCRIPTION
307346087	Ball Valve Non-corrosive PVC with Teflon® seals.



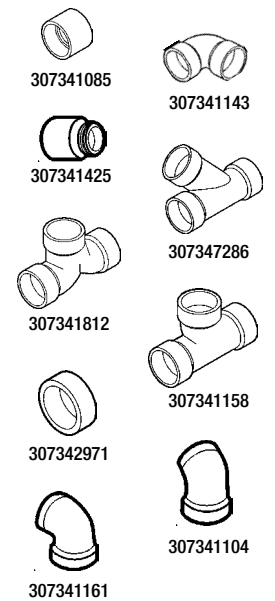
Hose Fittings

PART NO.	DESCRIPTION
307230310	Hose Mender Kit Connects 1½" (38mm) for maintenance purposes.
307230311	90° Bend Kit Provides smooth sweep bend. Eliminates hose kinking in sharp bends.
307230312	Hose Adapter Kit Connects 1½" (38mm) hose to 1½" (38mm) NPT thread.
307230313	Double Bend Kit Connects intersecting 1½" (38mm) hose segments per indicated flow.
307238798	Wye Kit Connects intersecting 1½" (38mm) hose segments per indicated flow.
307238802	Tee Kit Connects intersecting 1½" (38mm) hose segments per indicated flow.
307341113	Reducing Adapter Connects 1½" (38mm) hose to 1" (25mm) hose.
307341513	Custom Hose Adapter Can be used with all 1½" (38mm) PVC fittings with socket connection. Lubricated hose or cuff slides on easily.
307348684	Flexible Vinyl Couplings 3" (76mm) length of soft vinyl to couple 1 ½" (38mm) hose adapter fittings.
307238803	Hose Tail Piece Connects hose to 1½" (38mm) MPT with swivel nut and sealing ring included.



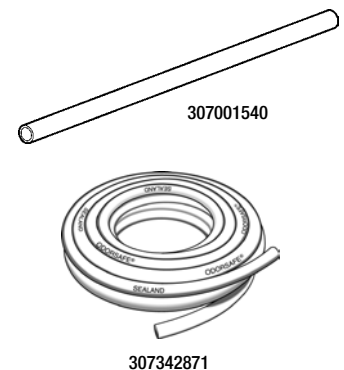
Pipe Fittings

PART NO.	DESCRIPTION
307341085	Pipe Coupling Connects 1½" (38mm) PVC pipe sections.
307341143	90° Bend 90° Ell for connecting 1½" (38mm) PVC pipe sections.
307341425	Threaded Male Adapter Adapts 1½" (38mm) PVC pipe to 1½" (38mm) NPT thread.
307347286	45° Wye Makes three way connection to 1½" (38mm) PVC pipe.
307341812	Double Bend Makes three way connection of 1½" (38mm) PVC pipe.
307341158	Sanitary Tee Makes three way connection of 1½" (38mm) PVC pipe.
307342971	Special Adapter for Toilet Outlet Adapts VacuFlush toilet outlet to other PVC pipe connections.
307341104	PVC 45° Street Ell For custom fitting design. Adapts to all 1½" (38mm) PVC fittings shown here.
307341161	PVC 90° Street Ell For tight bends. Can be used with other PVC fittings shown. 1½" (38mm) Hub.



Plumbing Pipe and Hose

PART NO.	DESCRIPTION
307001540	PVC Rigid Pipe 1½" (38mm) ID x 5-ft. (1.5m) length.
307342871	OdorSafe® Plus Sanitation Hose 1½" (38mm) ID x 50-ft. (15.2m) roll.
307345650	Vent Hose 5/8" (16mm) ID x 50-ft. (15.2m) roll. Use for holding tank vent line. Connects to SaniGard vent filter.



Customer Service

There is a strong, worldwide network to assist in servicing and maintaining your toilet system. For the Authorized Service Center near you, please call from 8:00 a.m. to 5:00 p.m. (ET) Monday through Friday.

You may also contact or have your local dealer contact the Parts Distributor nearest you for quick response to your replacement parts needs. They carry a complete inventory for the SeaLand product line.

Telephone:	1 800-321-9886	U.S.A. and Canada	Fax:	330-496-3097	U.S.A. and Canada
	330-439-5550	International		330-439-5567	International
			Web site:	http://www.Dometic.com	

Warranty and Product Liability

North America and Rest of the World: Manufacturer's One-Year Limited Warranty

Dometic Corporation, Sanitation Division warrants to the original purchaser only that this product, if used for personal, family or household purposes, is free from defects in material and workmanship for a period of one year from the date of purchase.

If this SeaLand product is placed in commercial or business use, it will be warranted to the original purchaser only to be free of defects in material and workmanship for a period of ninety (90) days from the date of purchase.

Dometic reserves the right to replace or repair any part of this product that proves, upon inspection by Dometic, to be defective in material or workmanship. All labor and transportation costs or charges incidental to warranty service are to be borne by the purchaser-user.

EXCLUSIONS

IN NO EVENT SHALL DOMETIC BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, FOR DAMAGES RESULTING FROM IMPROPER INSTALLATION, OR FOR DAMAGES CAUSED BY NEGLIGENCE, ABUSE, ALTERATION OR USE OF UNAUTHORIZED COMPONENTS. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ARE LIMITED TO A PERIOD OF ONE YEAR FROM DATE OF PURCHASE.

IMPLIED WARRANTIES

No person is authorized to change, add to, or create any warranty or obligation other than that set forth herein. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one (1) year from the date of purchase for products used for personal, family or household purposes, and ninety (90) days from the date of purchase for products placed in commercial or business use.

OTHER RIGHTS

Some states do not allow limitations on the duration of an implied warranty and some states do not allow exclusions or limitations regarding incidental or consequential damages; so, the above limitations may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

To obtain warranty service, first contact your local dealer from whom you purchased this product or go to <http://www.dometic.com/enus/Americas/USA/Customer-Support/> for a dealer near you.

Europe: Warranty and Customer Service

Warranty arrangements are in accordance with EC Directive 44/1999/CE and the normal conditions applicable for the country concerned. For warranty or other service, please contact our SeaLand Customer Service department. Any damage due to improper use is not covered by the warranty.

The warranty does not cover any modifications to the product or the use of non-original SeaLand parts; the warranty does not apply if the installation and operating instructions are not adhered to and no liability shall be entertained.

Product Liability

Product liability of Dometic Group and its subsidiary companies does not include damages which may arise from: faulty operation; improper alterations or intervention in the equipment; adverse effects from the environment which may impact the equipment itself or the direct vicinity of the equipment or persons in the area.

To obtain warranty service, first contact your local dealer from whom you purchased this product or go to <http://www.dometic.com> to locate a dealer near you.

Dometic Group is a customer-driven, world-leading provider of leisure products for the RV, automotive, truck and marine markets. We supply the industry and aftermarket with a complete range of air conditioners, refrigerators, awnings, cookers, sanitation systems, lighting, mobile power equipment, comfort and safety solutions, windows, doors and other equipment that make life more comfortable away from home.

Dometic Group supplies a wide range of workshop equipment for service and maintenance of built-in air conditioners. Dometic Group also provides specially designed refrigerators for hotel rooms, offices, wine storage and transport and storage of medicinal products.

Our products are sold in almost 100 countries and are produced mainly in wholly-owned production facilities around the world.

