

Selecting Marine Hoses

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By Tom Burden, Last updated: 5/8/2018

Mind the hose!

Consider what can happen when a hose goes bust. If you are lucky, it could be a mere nuisance causing damage to electronics, engine or interior. If fate has it in for you, a defective hose can cause a stink if it's the discharge of the head, cause a fire if it's part of a gas line or even sink your boat if it's connected to a thru-hull fitting. That's why we recommend spending a little more on a high-quality hose that offers more durability and better performance in critical applications and why you should inspect your hoses frequently for signs of deterioration.

Selection questions

For what kind of fluid (application) do you need the hose?

Your application will determine what kind of hose to purchase. Our selection of hose encompasses most applications and is available in any length from a foot up. Maximum standard length is 50' but Special Orders can be made for greater lengths. The following is a guide to match hose and application:

Raw water hoses

Intake hoses ingest "raw" or outside water to cool the engine, flush the toilet, feed the AC and supply fresh water for the fish in the bait tank. Use only hose recommended for "below waterline" connections with a hard spiral that prevents kinking and collapsing under suction should the screen of the intake become clogged. We recommend two-ply pickup hose with heavy-wall rubber and helix reinforcements or extra heavy-duty smooth

vinyl hose with a hard PVC helix for non-heat sensitive applications. Series 135 Heavy Duty Water Hose (polyester yarn spiral reinforced), pressure resistant to 800psi.

Engine coolant and wet exhaust hoses circulate and discharge engine coolant water, and must resist kinking, engine heat, exhaust fumes, chemicals, antifreeze, ozone and seawater. For these reasons we like to use heavy wall, two-ply hoses or quality heater hoses. Wet exhaust hose consists of heavy-walled synthetic rubber and is covered with multiple plies of synthetic cord.

Drain hoses

Drainage hose for cockpit, sink or shower, needs to be flexible with strong walls and resistance against kinks and abrasions, but since they are under positive pressure, they may not have a helical wire.

Freshwater supply hoses

Potable water hoses must be made of FDA-approved, non-toxic materials so they won't cause bad taste in drinking water supplies. Pressurized systems must use reinforced hose to withstand pump pressure (approx. 40-60PSI). For fill and vent hoses in water tanks, extra-heavy-duty sanitation/water hose should be used, while reinforced rubber hose is the best choice for hot water up to 140°F.

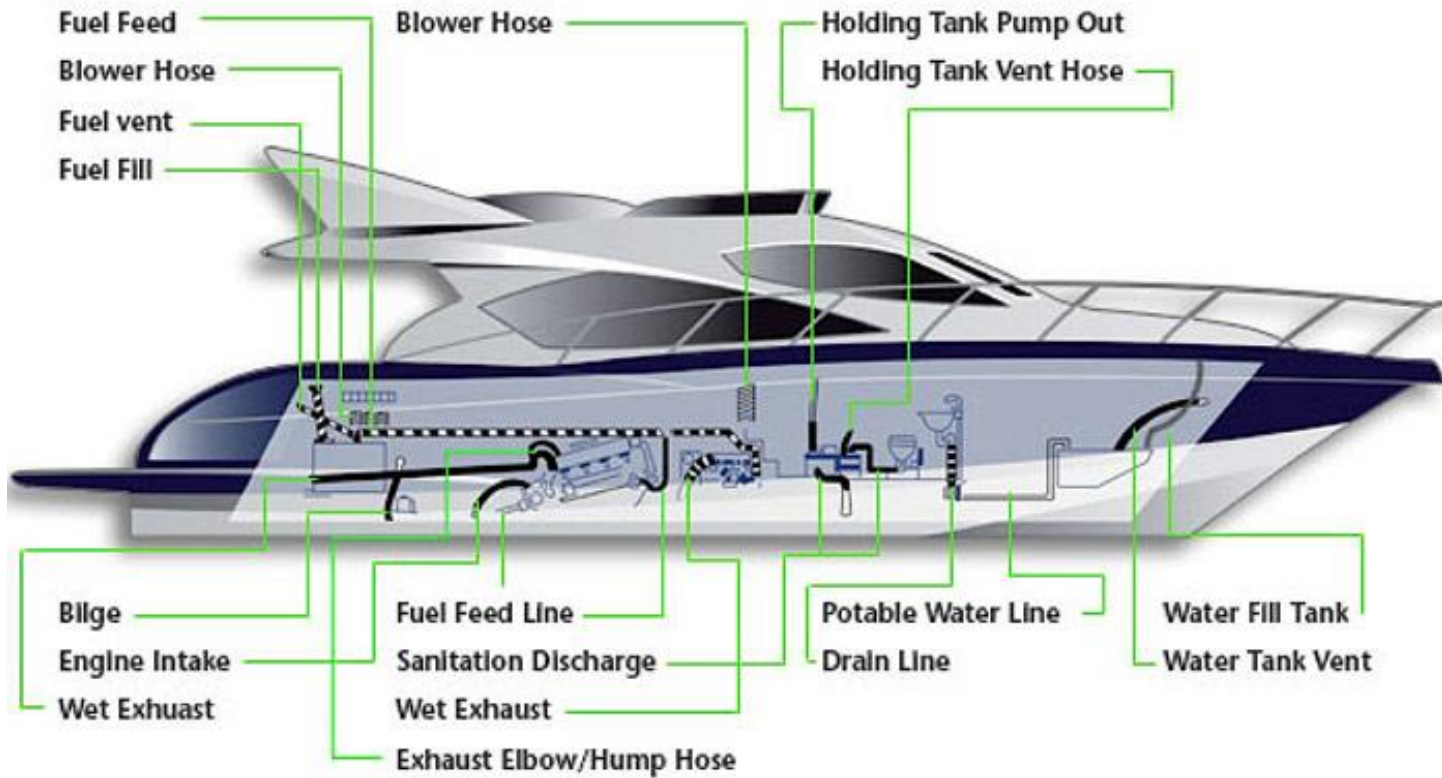
Alternatively, you may use a reinforced vinyl hose reinforced with nylon braid. Series 162 (polyester reinforced clear PVC hose), FDA approved; Series 140 VAC Standard (steel wire reinforced PVC hose); Series 148 Multi-Purpose (vinyl helix hose) FDA approved, ideal for critical drain and fill applications.

Bilge pump hoses

Bilge pump hoses typically use corrugated polyethylene with molded cuffs because it is flexible, economical and resists oil, solvents and other waste that collects in the bilge. For better flow you should choose a hose with a smooth bore, abrasion-resistant cover and good anti-kink flexibility like Series 148 Multi-Purpose (smooth-walled vinyl helix hose) FDA approved, ideal for critical drain and fill applications, and Shields Multiflex Hose (Series 141). Of the corrugated hoses, the best is Shields VAC Standard (Series 140) and Bilgefex (Series 120).

Sanitation system hoses

Sanitation hose has to be tough, flexible and resistant to odors and toilet chemicals. Choose hose with a smooth bore, heavy wall and specifically labeled for sanitation use. There are two choices: white vinyl hose and sanitation hose. Both will eventually smell. We recommend only smooth interior wall hose because corrugated types trap waste and restrict flow. Rigid PVC does not pass odors but is stiffer and more difficult to route and does not connect directly to pumps and thru-hulls. Still, it's possible to plumb part of the system with rigid PVC, switching to hose where necessary.



What to look for

Reinforcement: many hoses have reinforcement in the walls for strength and rigidity, and to prevent collapse or expansion under pressure. The reinforcements can be wire, yard spiral or PVC/vinyl helix.

Burst strength: hose used for discharge lines has to resist pressure. This so-called burst strength, measured in pounds per square inch (PSI) depends on product design and diameter; small diameter hoses have greater burst strengths. Hose with multiple plies or helical reinforcement has greater pressure limits, which is important for pressure water or exhaust applications.

Vacuum rating: hose on the intake side has to withstand suction, a property that is measured with a so-called vacuum rating. Intake hose should have a vacuum rating of 20 or higher.

Temperature range: mostly critical for engine cooling hose, but might also be important for pressurized hot water systems.

FDA-approval: hose used in potable (drinking) water systems must be constructed from safe, non-toxic materials that are contamination- and corrosion-free.

Bend radius: for proper installation a hose should not be bent more than the minimum bend radius recommended by the manufacturer to avoid kinks and breakage. Especially important for sewage lines and bilge pump applications.



Sometimes a lubricant is needed to install a hose onto a fitting.

What's the right hose diameter?

Hoses are sized by their inside diameter (ID). Hose fittings are labeled based upon the ID of the hose they fit. In other words, the outside diameter of a 1/2" barbed elbow is liable to measure slightly greater than 1/2", but it will fit 1/2" ID hose just fine. Smooth bore hose is recommended for all applications, since corrugated hose can reduce flow by as much as 30%. Hose needs to be matched to the fittings on pump, through-hull, deck fill, tank, etc. See below for some sizing guidelines. Some popular diameters by application:

- Bilge pumps: 3/4", 1 1/8", 1 1/2", or 2"
- Deck fill/discharge: 1 1/2"
- Gasoline feed: 1/4" to 3/8" depending on engine size.

Clamp it, Jed

Hose clamps are stainless bands that compress hose around barbed fittings. They can be made from a variety of metals, but quality ones are all stainless steel, including the screw, band, and other parts. T-Bolt hose clamps are much stronger and have a 360° clamping surface. They are used in applications with high pressure, heat, vibration, or other severe requirements, like exhaust systems. Two clamps are recommended for below-waterline connections. Thru-hulls, hose lube & sealant, etc. may be necessary to make a hose fit and complete the plumbing system.

Installation tips

- Most boats use flexible vinyl or rubber hose and barbed fittings secured by hose clamps. You may find it easier to install hoses over barbed fittings if you place the hose in hot water first and use liquid soap as a lubricant.

- Threaded fittings should be wrapped with thin plastic Teflon tape or some other sealing liquid prior to assembly, to seal tiny gaps in the threaded connection.
- In household applications, plastic pipe and fittings are solvent welded with PVC pipe cement. This technique is not recommended on boats because pounding and vibration might cause fatigue and failure of these connections.
- Use double hose clamps on hose to pipe connections below the waterline for extra security. Make sure to use hose barbs long enough to give both clamps some gripping surface.
- Connect fittings of the same material within a system because thread styles and inter-thread distances will match. In addition, rigid bronze fittings have been known to split weaker plastic fittings when they are being tightened.
- Normal green color is not a problem on an aging bronze fitting. A pink or red color, on the other hand, is an indication of galvanic corrosion.

Marine Hose Application Guide

••• Excellent
•• Good service in normal applications
• Good service with proper installation. May not be suitable in all applications
NR - Not recommended
NA - Not available in size range
1 - Can easily be bent into tight radius
2 - Can be bent into gradual radius
3 - May kink in applications requiring bend radius

Fresh Water System

Series	Name	Non-Pressurized Supply	Pressurized Hot	Pressurized Cold	Water Tank Fill	Drain Line Below Waterline	Drain Line to Sump or Above Waterline	Water Tank Vent	
Series 162	Polyester Reinforced / Clear PVC Tubing	•••	•••	•••	••	•••	•••	•••	2
Series 150	Clear PVC Tubing	••	NR	NR	•	NR	••	••	2

Series 148	Multi-Purpose Vinyl Hose	NA	NR	NR	•••	•••	•••	•••	2
Series 141	Multiflex Hose	•	NR	NR	•••	NR	•••	•	1

Sanitation System

Series	Name	Toilet To Holding Tank	Holding Tank Pumpout	Holding Tank To Overboard Discharge	Toilet Water Inlet	Holding Tank Vent	Flexibi
Series 105	Poly X Sanitation Hose	•••	•••	•••	NA	NA	1
Series 101	No-Odor Super Head Hose	•••	•••	•••	NA	NA	1
OdorSafe +	OdorSafe™ Plus Hose	•••	•••	•••	NA	NA	1
Series 148	Multi-Purpose Vinyl Hose	•• / •••	•••	•••	•••	•••	2
Series 162	Polyester Reinforced Clear PVC Tubing	NA	NA	NA	•••	NA	2

Engine Hose

Series	Name	Engine Intake	Generator Intake	Exhaust Coolant Hose/Limited Bend	Exhaust Coolant Hose/Severe Bend	Exhaust Water Injection	Flexibi
Series 262	Corrugated Nautaflex Silicone Exhaust Hose	•••	•••	•••	•••	•••	1
Series 202V	Hi-Temp Silicone Exhaust & Water Hose	NR	NR	•••	NR	•	3
Series 250	Shieldsflex II Marine Water/Exhaust Hose	•••	•••	•••	•••	•••	1
Series 200	Exhaust/Water Hose	NR	•	•••	NR	••	3
Series 130	Heater Hose	NR	NR	••	NR	NR	3

Series 135	Heavy-Duty Water Hose	NR	•	••	NR	••	3
Series 160	Water Hose	NR	••	•••	NR	••	2

Wet Exhaust System

Series	Name	Straight Pipe Connector less than 4 x hose ID	Straight Pipe Connector more than 4 x hose ID	Moderate Bend	Severe Bend	Flexibi
Series 262	Corrugated Nautaflex Silicone Exhaust Hose	•••	•••	•••	•••	1
Series 202V	Hi-Temp Silicone Exhaust & Water Hose	•••	•	NR	NR	3
Series 200	Exhaust/Water Hose	•••	•	NR	NR	3
Series 250	Shieldsflex II Marine Water/Exhaust Hose	•••	•••	•••	•	2
Series 252	Shieldsaust—C	•••	•••	•••	•••	1

Fuel System

Series	Name	Oil Tank Fill	Fuel Tank Fill	Fuel Feed Inboard/IO	Fuel Feed Outboard	Fuel Tank Vent Inboard	Fuel Tank Vent Outboard	Flexibi
Series 331	Silverado 3000	N/A	N/A	N/R	•••	N/A	N/A	2
Series 350	Type A2 Fuel Fill Hose	•••	•••	N/A	N/A	N/A	N/A	1
Series 355	Type A2 Fuel Fill Hose	•••	•••	N/A	N/A	N/A	N/A	1
Series 315	Silverado 2000 Outboard Fuel Hose	N/A	N/A	N/R	•••	•	•••	2
Series 368	Low Permeation Marine Fuel Hose	N/A	N/A	•••	•••	N/A	N/A	1
Series 369	Type A2 Fuel Vent Hose	N/A	N/A	N/R	N/R	•••	•••	1

Bilge/Livewell

Series	Name	Submersible Bilge Pump	Remote Bilge Pump	Hand Bilge Pump	Livewell Inlet	Livewell Drain Above Waterline	Livewell Drain Below Waterline	Flexibi
Series 148	Multi-Purpose Vinyl Hose	•••	•••	•••	•••	•••	•••	2
Series 141	Multiflex Hose	•••	••	•••	N/R	••	N/R	1
Series 140	VAC Standard	•••	•••	•••	••	••	•	1
Series 120	Bilgflex Hose	••	N/R	•	N/R	N/R	N/R	1