



GREEN FUEL CATALYST

INSTALLATION MANUAL

FUEL CATALYST FHD-70 TO FHD-120
FOR MARINE SYSTEMS



Made in USA



Patented Fitch® fuel catalyst technology

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INTRODUCTION

Patented Fitch® catalyst technology consists of a Heterogeneous Metallic Alloy Composition (HMAC) which reduces activation energy of the chemical combustion reactions.

Catalyst reverses the naturally occurring hydrocarbon fuel biodegradation (Oxidation-Reduction) process by inducing selective hydrogen abstraction and redistribution (Hydrogenation) that promotes selective Oxidation (formation of Alcohols, Aldehydes). Catalyst cracks the aromatic (non-reactive) compounds forming oxygen containing molecules with greater energy yield and higher combustibility.

Catalyst provides at least 2% fuel consumption reduction along with improved fuel lubricity for various types of marine fuels, such as HFO, MDO, MGO etc.

Catalyst has no moving parts, no additives, no magnets, no electrical hook-ups, and does not require any special maintenance, lasting for 10,000 operating hours.

SAFETY

Catalyst installation into marine fuel system is simple. All that is required, is to have a few hand tools and close following to the instruction manual guide. However, it is essential to do the installation carefully and safely. We recommend that you read the next few lines with the greatest attention.

Fire protection

Every installation must conform to local and/or provincial and/or international piping and fire codes.

Safety equipment

Before installation (preparing jobs), during installation and after installation, be sure, that involved installation personnel are wearing PPE (personal protective equipment) such as, but not limited to, protective clothing, helmet, safety shoes, safety hand gloves, goggles, welding shield, safety gloves. Check your M.S.D.S for any instructions or suggestions.



Personnel

Catalyst may only be installed, commissioned, operated and maintained by properly trained and authorized personnel. This document is provided to help you establish operating conditions, which will permit safe and efficient use of this product.

Warning

Do not run catalyst in excess of the housing tank label. (See warning #1). Do not open a catalyst housing when system is under pressure; always relieve all pressure through housing before opening of housing lid.

Stop all flow of liquid before opening the lid. Bolt housing to floor, as tipping may occur when lid is open. The catalyst unit, if improperly used, can cause serious injury or death.

Ignoring safety rules risks creating a hazard to your health and to those around you!

GENERAL EQUIPMENT INFORMATION

Catalyst assemblies are designed to meet the toughest hydrocarbon treatment conditions and give maintenance personnel ease of maintenance.

The catalyst housing is manufactured with the highest quality materials and with greatest pride to offer you a superior in-line housing for marine applications

Features & Specs

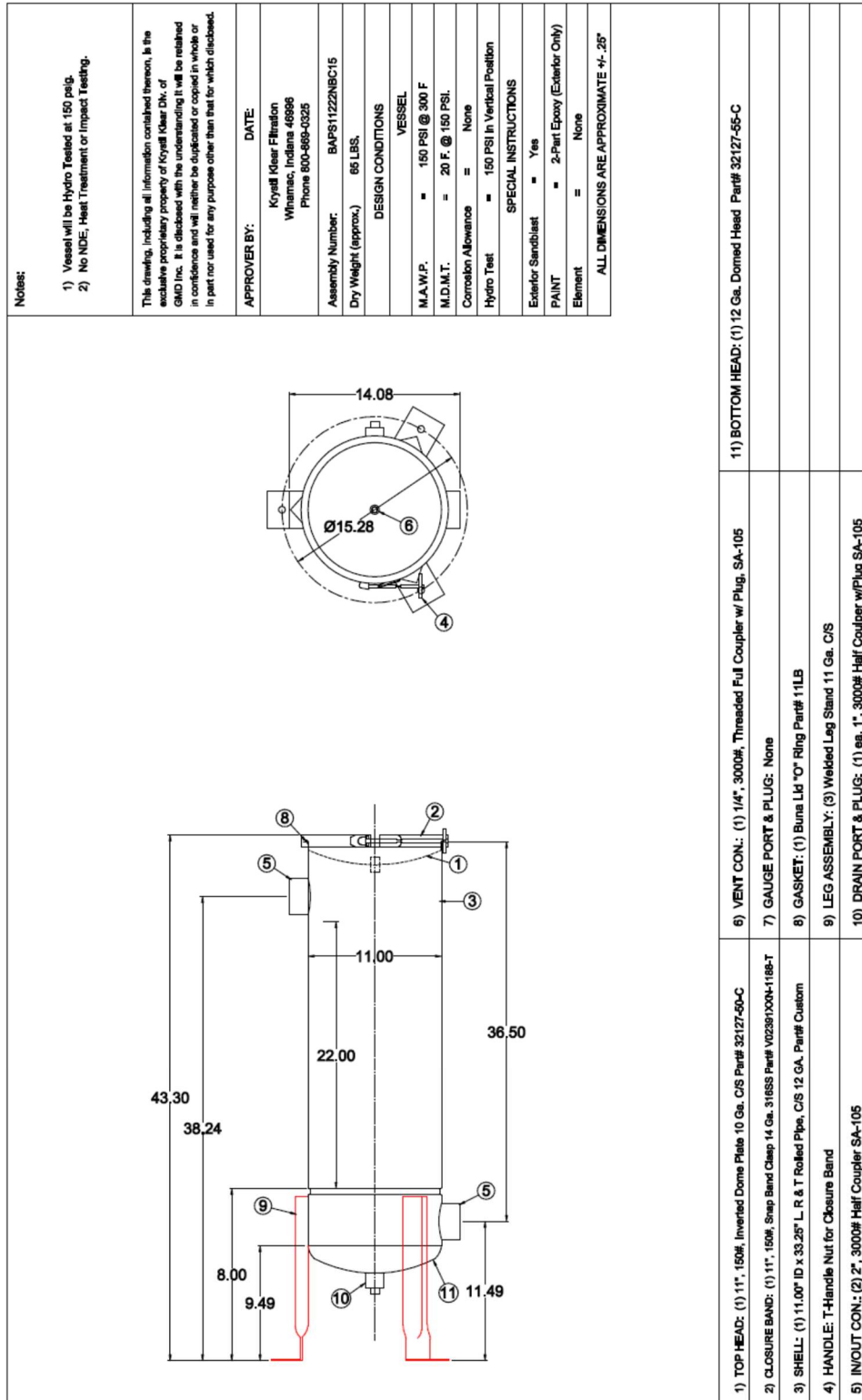
- 12 GA cold rolled steel
- Viton "O" ring seal
- 2 NPT Inlet and Outlet
- 2-Part Epoxy (exterior only)
- T-handle nut for Closure Band
- Designed to withstand 150 PSI (10 bar)
- Maximum temperature 300 °F (148 °C)
- Manual drain valve
- Manual vent valve
- Welded leg stand
- Low pressure drop



FHD-70 TO FHD-120 SERIES SAMPLE DRAWING

Models FHD-70 to FHD-120

Models FHD-70 to FHD-120 have the same dimensions (see the drawing below). The only difference between them is in their weight which is due to the actual catalyst amount within the canister.



INSTALLATION

Receiving instructions

Unpack the fuel catalyst and discard any shipping materials.

Place fuel catalyst in the desired location on a flat surface. Secure support legs to the base if applicable.

Installation

Identify a suitable location in the fuel supply line after fuel service tanks following the fuel filters.

Always install the catalyst unit with an optional bypass valve to allow smooth cleaning or exchange procedures.

Remove the housing protectors from the inlet and outlet connections. Make certain that connections are free of any debris.

Ensure that a fuel filter is always placed before the Catalyst unit. Be sure to correctly identify the inlet and outlet connections to avoid piping the unit backwards. The unit will not perform properly if connections are reversed.

Provide shut-off valves in the inlet and outlet piping as close to the unit as possible for isolating the unit from the system when cartridge replacement is necessary.

Tighten housing with proper tension to seal housing on existing pipe or flange. Note: housing has been factory pressure tested to assure a leak proof vessel. If leaking occurs, check for improper connections.

Remove lid from housing by turning T-handle until loosened and swing catch over. Remove the lid until full view of the inner housing area is gained. Check inner housing and pipe connections for foreign material and discard any items that have entered during shipping or unpacking.

Replace lid and tighten the T-handle until lid is fully seated onto the clamp catch and T-handle is tight.

Catalyst unit is now ready for start-up.

Provide room for the housing to clear the cartridge during change-out. 2-inch (50 mm) base clearance required.

Start-up of catalyst

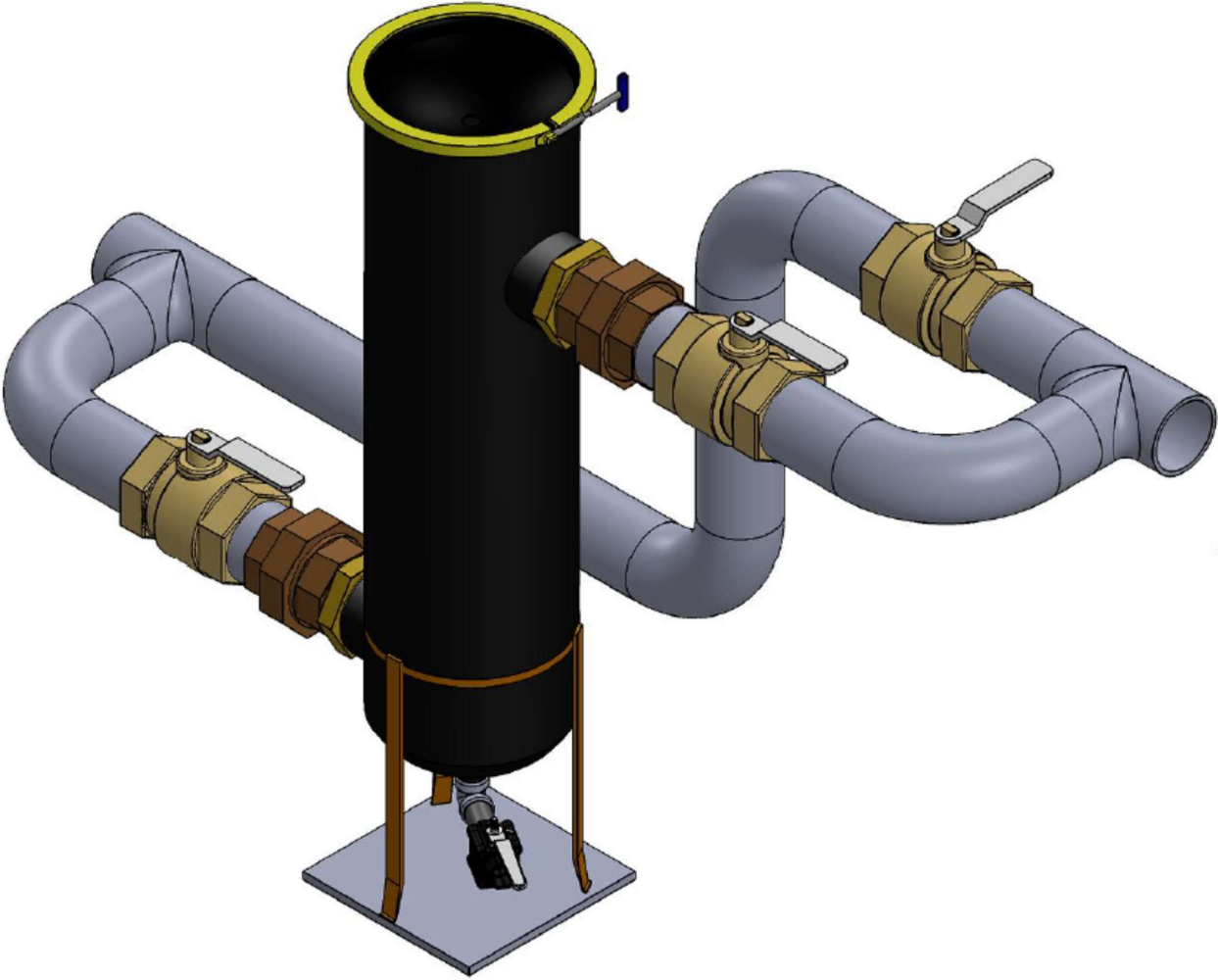
Loosen vent plug to allow air to escape from housing. Slowly open the inlet to gradually fill the housing body.

When housing body is full (liquid escapes from top vent), close the vent.

Open the outlet connection and fully open the inlet connection. Catalyst unit is now operating properly.

Sample installation drawing with bypass line

FHD-70 to FHD-120



OPERATION AND SERVICE

It is recommended that the vent and drain valves be opened on a scheduled basis to permit the escape of entrapped air and accumulated water.

Since there are no moving parts, maintenance is limited to an occasional rinsing of the cartridge using light fuel oil or detergent. This should be done in accordance with filter changes especially in heavy fuel oil.

The head gasket should be carefully inspected for signs of damage or deterioration each time the housing is opened. We recommend the gasket to be lubricated with petroleum jelly prior to installation.

Catalyst unit has no moving parts, no additives, no magnets, no electrical hook-ups, and is maintenance free whenever used in applications for light fuel oil lasting for 10,000 operating hours.

NOTE:

Whenever there is an application for Heavy Fuel Oil (HFO) or any other similar fuel type, please go to page 10 for catalyst maintenance instructions as per section 'Core Cleaning Procedures', and follow to page 11, section 'Core Cleaning Plan'.

CORE CLEANING PROCEDURES

Catalyst unit must be cleaned when used with 4 or 6 oil (HFO or similar) every 1,000 operating hours or 3 months whichever comes first to maximize the usage lifetime.

Caution: Use only non-sparking tools when performing any maintenance or service work on this equipment.

1. Close the inlet and outlet isolation valves to isolate the unit from the system.
2. Open the drain valve on the housing bottom and allow all fluid to drain from the unit.
3. Open the vent valve on the cover of the housing and allow the unit to thoroughly vent before opening the cover.
4. Loosen T-handle on housing and, remove the lid to gain full access to the core.
5. Flush the interior of the housing with clean, processed, filtered product or a suitable solvent. A nonmetallic bristle brush will help to remove caked-on debris. Rinse the housing and unit cover with a clean solvent and dry with soft, lint free wiping cloths.
6. Lightly lubricate the head gasket with vaseline or petroleum jelly and position it on the head. If vaseline is not available, lubricate the gasket with the fuel or oil it will be used in.
7. Insert the cleaned or a new core into the housing.
8. Replace lid and tighten the T-handle until lid is fully seated onto the clamp catch and T-handle is tight.
9. Close the drain plug or valve.
10. SLOWLY open the inlet and outlet valves; allow the unit to fill completely.
11. Leave the vent valve open; to allow entrapped air to escape while filling.
12. When a small amount of fluid flows from the vent, close it tightly.
13. During the initial filling and after the above maintenance, and while unit is in operation, examine housing and all connections for leaks (including head/flange junction.)
14. Assure any and all leaks are identified and repaired before allowing fuel to flow through housing.

Core cleaning plan

Catalyst unit must be cleaned when used with 4 or 6 oil (HFO or similar) every 1,000 operating hours or 3 months whichever comes first to maximize the usage lifetime.

Please use provided core cleaning plan as outlined below in order to control catalyst core cleaning schedule.

Core Cleaning Plan

Activity	Catalyst model	Engine operating hour figures	Date	Initials	Signature
Installation					
Core cleaning					
Core cleaning					
Core cleaning					
Core cleaning					
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Core cleaning					
Core cleaning					

Core cleaning must be done accordingly to core cleaning procedures. *See page 10 of GFC installation manual!*

ROUTINE SAFETY CHECKS

Daily basis

Catalyst shall be visually checked daily, and any irregularities or deficiencies shall be followed-up and be reported to the responsible engineer.

The checks shall be performed visually with due consideration of the following indicators:

- ✓ Leakages
- ✓ Other as applicable

Quarterly

Catalyst shall be visually checked quarterly, and any irregularities or deficiencies shall be followed-up and be reported to the responsible engineer.

The checks shall be performed visually, and if applicable also mechanically with due consideration of the following indicators:

- ✓ Leakages
- ✓ Core cleaning plan
- ✓ Fittings
- ✓ Bolts
- ✓ Valves
- ✓ Gaskets
- ✓ Housing
- ✓ Other as applicable

Other

It is recommended to check the catalyst for any irregularities or deficiencies 30 minutes after the main engine has been started.

IMPORTANT NOTES

For any questions, please contact your local distributor.

Any variations from these instructions should also be pre-approved by manufacturer.

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