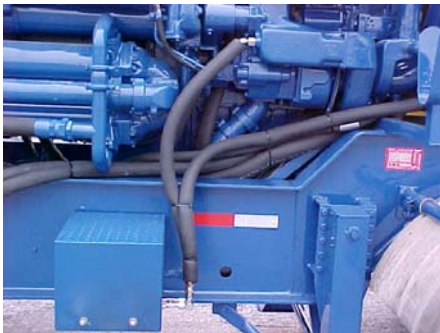




HEATING SOLUTIONS

For

Biodiesel Applications



Arctic Fox LLC—570 South 7th Street—Delano Minnesota 55328 USA
Phone (800) 654-5382 or (763) 972-2758—Fax (763) 972-2873—www.arctic-fox.com



HEATING SOLUTIONS

For

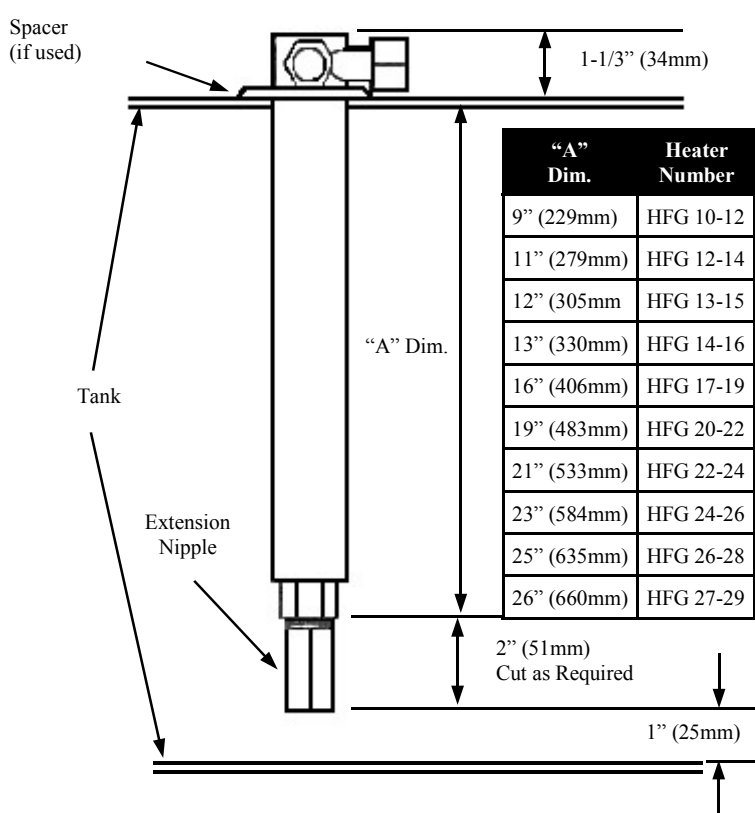
Biodiesel Applications



HOT FOX™

The In-Tank/In-Line Fuel Warmer

- ▶ **100% Stainless Steel Construction**
- ▶ **No Moving Parts—Maintenance Free**
- ▶ **Simple Installation**
- ▶ **Tank Adapters Available (If Required)**
- ▶ **Utilizes Heated Flowing Engine Coolant**
- ▶ **Provides Heat in The Fuel Tank**
- ▶ **Heats Fuel As It Leaves The Tank**
- ▶ **Thermostatic Control Available**
- ▶ **5 Year—600,000 Mile Warranty**



Temperature Rise Data

Fuel Flow GPM/LM	Temp IN F/C	Temp Out F/C
HFG 13-15		
0.17/0.6	+1.7/-17	69.5/21
0.50/1.9	+2.6/-16	43.2/6
1.53/5.8	-0.7/-18	23.9/-5
HFG 20-22		
0.19/0.7	-3.7/-20	84.3/29
0.51/1.9	-3.7/-20	51.6/11
1.44/5.5	-3.8/-20	34.2/1
HFG 27-29		
0.21/0.8	0.0/-18	81.7/28
0.48/2.2	+1.8/-18	71.6/22
1.57/6	2.2/-17	45.7/8

The data above is representative only, based upon an average coolant temperature of + 196° F (91°C) at a flow rate of 5 GPM (19LM)

Arctic Fox also offers a wide variety of fittings and connection hardware to simplify installation.



HEATING SOLUTIONS

For

Biodiesel Applications

In-Line Fuel Warmers



- ▶ **Stainless Steel Heat Exchanger**
- ▶ **3/8" or 1/2" NPT Connection Ports**
- ▶ **Maintenance Free**
- ▶ **Easy Installation**
- ▶ **5 Year– 600,000 Mile Warranty**

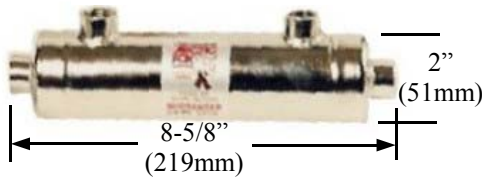
- ▶ **Integral Thermostat Available**
- ▶ **Check Valve Available**
(Linehauler™ Only)



- ▶ **120 VAC Preheat Available**
- ▶ **Check Valve Available**
(Linehauler™ Only)

Midranger™

3/8" NPT Ports (4)



Linehauler™ With Thermostat

1/2" NPT Ports (4)



Temperature Rise Data

Fuel Flow GPM/LM	Temp In F/C	Temp Out F/C
Midranger™		
0.10/0.4	-20/-29	+81/+27
0.50/1.9	-20/-29	+35/+2
1.5/5.7	-20/-29	+13/-11
Linehauler™		
0.10/0.4	-20/-29	+95/+35
0.50/1.9	-20/-29	+59/+15
1.5/5.7	-20/-29	+20/-6

The data above is representative only, based upon an average coolant temperature of + 185° F (85°C) at a flow rate of 7 GPM (27LM)

All In-Line models are available with or without mounting brackets.



HEATING SOLUTIONS

For

Biodiesel Applications

FWS-777



Heated Fuel/Water Separator

- ▶ **Fuel Filter**
Uses common filter cartridge
- ▶ **Water Separator**
Multi stage for maximum performance
Self venting drain valve
See-Through inspection bowl
- ▶ **Multi-Pass Fuel Heater**
Utilizes hot engine coolant
Up to 60° F (33°C) temperature rise ■
- ▶ **Automatic coolant by-pass thermostat**
Monitors fuel outlet temperature
By-passes coolant at +80°F (+27°C)
- ▶ **Optional Equipment**
120 VAC Powered fuel preheater
Water level indicator kit

SPECIFICATIONS

Height	18.8" (478mm)
Depth	6.8" (173mm)
Width	8.1" (206mm)
Weight (dry)	12.0 lbs. (5.4kg)
Max fuel flow rate	150 USG/Ph (568 l/Ph)
Fuel Inlet/Outlet Size	1/2" NPTF
Coolant Inlet/Outlet Size	1/2" NPTF
Maximum Temperatures	-40° - +255°F (-40° - +124°C)

■ Actual fuel temperature rise will vary due to ambient conditions, and specific heat value of fuel blend.

US Patents 4,624,779—4,995,992—Canadian Patent 1,335,775 & other patents pending

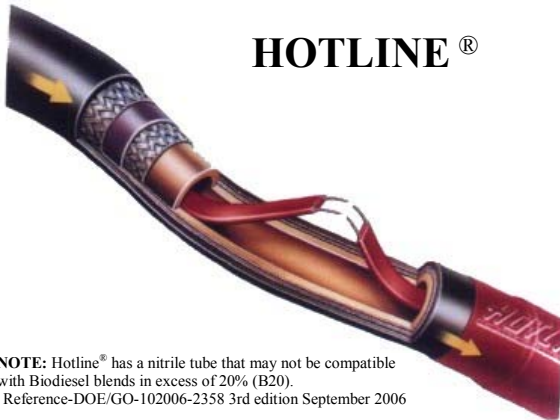
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HEATING SOLUTIONS

For

Biodiesel Applications



HOTLINE®

- ▶ 12 or 24 VDC Heated Fuel Line
- ▶ Replaces Existing Fuel Line
- ▶ Self Regulating
- ▶ Liquefies Gelled fuel for Start Up
- ▶ Prevents Gelling During Operation
- ▶ Operates in Conjunction With
 - Engine Preheater
 - In-Tank Fuel Warmer
 - Fuel Water Separators
- ▶ Optional Thermostat Shutoff

NOTE: Hotline® has a nitrile tube that may not be compatible with Biodiesel blends in excess of 20% (B20).
Reference-DOE/GO-102006-2358 3rd edition September 2006

12 Volt	600 Watt	450 Watt	300 Watt	150 Watt
12' / 3.7 m	D3085-1180	D3085-1152	D3085-1138	
8.5' / 2.6 m	D3085-1168	D3085-1146	D3085-1133	
6.0' / 1.8 m		D3085-1141	D3085-1130	D3085-1126
4.5' / 1.4 m			D3085-1128	D3085-1122
2.5' / .6m				D3085-1118
Maximum Sustained AMP Draw	45	31	21	10
Minimum Alternator Capacity	130	105	85	75
24 Volt	600 Watt	450 Watt	300 Watt	150 Watt
12' / 3.7 m	D3085-2180	D3085-2152	D3085-2138	
8.5' / 2.6 m	D3085-2168	D3085-2146	D3085-2133	
6.0' / 1.8 m			D3085-2130	D3085-2126
4.5' / 1.4 m			D3085-2128	D3085-2122
2.5' / .6m				D3085-2118
Maximum Sustained AMP Draw	23	16	11	5
Minimum Alternator Capacity	80	70	55	45

NOTE: Minimum alternator capacity is only a guideline. Total system load analysis is required for accurate battery/charging system specification. Refer to maximum sustained current draw and consult your vehicle manufacturer whenever adding any aftermarket auxiliary current load.



HEATING SOLUTIONS

For

Biodiesel Applications

Coolant Manifolds



- ▶ Simplify Multiple Coolant Connections
- ▶ Eliminate Excessive T & Y Fittings
- ▶ Centralize Coolant Access
- ▶ Expand Coolant Port Availability
- ▶ Minimize Coolant Leak Potential

ST-1596

Dual Chamber

Input Connections: One 1" NPT inlet, One 1" NPT outlet, Three 1/2" NPT outlets.

Output Connections: One 1" NPT inlet, Three 1/2" NPT inlets, One 1" NPT outlet.

ST-2520

Dual chamber

Input Connections: One 1/2" NPT Inlet, One 1" NPT outlet, Four 1/2" NPT outlets.

Output Connections: One 1" NPT inlet, Four 1/2" NPT Inlets, One 1/2" NPT outlet.

ST-2580

Single chamber

Connections: One 1/2" NPT, Two 1" NPT, Four 1/2" NPT ports.

ST-5136

Dual Chamber

Input Connections: One 1/2" NPT Inlet, Five 1" NPT outlets.

Output Connections: Five 1" NPT inlets, One 1/2" NPT outlet

ST-5809

Single Chamber

Connections: One 1/2" NPT, Three 1" NPT, Two 1/2" NPT ports.

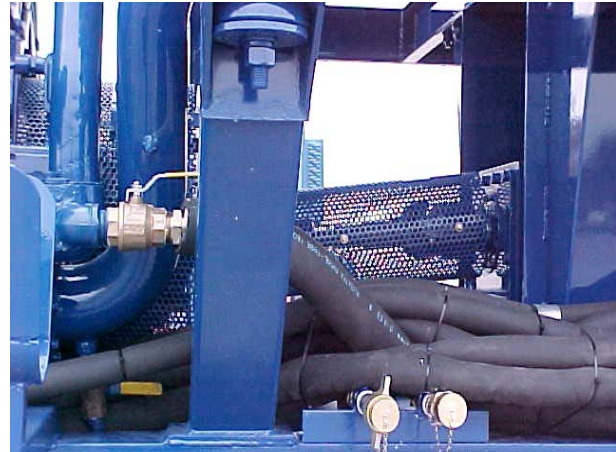
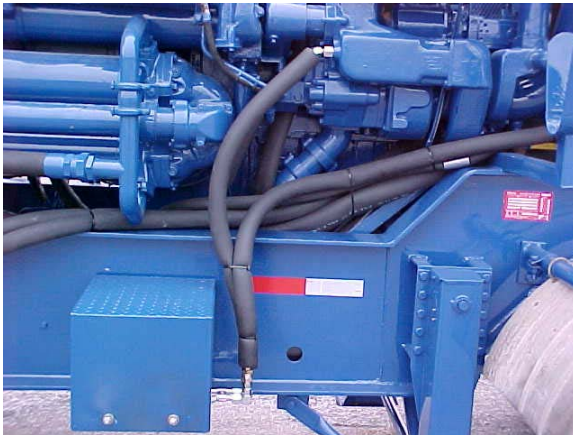


HEATING SOLUTIONS

For

Biodiesel Applications

Insultube



- ▶ **10 Feet of 3/4" (19mm) ID Hose has a Surface Area of 3² (.28m²)**
- ▶ **Up to 50% of Potential Heat Loss can be Saved by Insulating**
- ▶ **Prevent Fuel From Cooling Off Before Reaching the Engine**
- ▶ **Add to the Efficiency of Accessories Utilizing Engine Coolant**
- ▶ **Helps Prevent Hose Chafing**
- ▶ **Suitable for Temperatures from -40° F/C to + 220° F / 104° C**

Part Number	Tube ID	Length
A-1710	1/2" / 13mm	6 Feet (1.83m)
A-1711	5/8" / 16mm	6 Feet (1.83m)
A-1712	3/4" / 19mm	6 Feet (1.83m)
A-706	1-1/8" / 32mm	6 Feet (1.83m)
A-720	1-1/8" / 32mm	125 Ft (38.1m) Roll—Available by the foot—25 Ft (7.62m) Minimum
A-705	1-1/8" / 32mm	4 Pieces 6 Feet (1.83m) - Includes Tie Straps
A-712	1-3/8" / 35mm	6 Feet (1.83m)
A-721	1-3/8" / 35mm	125 Ft (38.1m) Roll—Available by the foot—25 Ft (7.62m) Minimum
A-713	2-1/8" / 54mm	6 Feet (1.83m)
A-1791	2-1/2" / 64mm	6 Feet (1.83m)
A-714	3" / 76mm	6 Feet (1.83m)



HEATING SOLUTIONS

For

Biodiesel Applications

Electric Fluid Heaters



- ▶ Self Adhesive
- ▶ Installs in minutes
- ▶ Mounts to any smooth metal surface
- ▶ 12 or 24 vdc & 120 or 240 vac
- ▶ Wide range of sizes
- ▶ Aluminum heat transfer surface
- ▶ Liquefy gelled fuel
- ▶ Maintain fuel in a liquid state

Part #	Watts / Volts	Amps	Dimensions	Capacity
EH-2801	125 / 120	1	2.25" x 4" (57 x 102mm)	1-10 gal (3.8-37.9l)
EH-2802	250 / 120	2.1	3.5" x 4.5" (89 x 114mm)	10-30 gal (37.9-113.6l)
EH-2805	500 / 120	4.2	5" x 7" (127 x 178mm)	20-50 gal (75.7-189.3l)
EH-2810	1,000 / 120	8.3	6" x 10.75" (152 x 273mm)	50-100 gal (189.3-378.5l)
EH-3201	125 / 220	0.1	2.25" x 4" (57 x 102mm)	1-10 gal (3.8-37.9l)
EH-3202	250 / 220	1.1	3.5" x 4.5" (89 x 114mm)	10-30 gal (37.9-113.6l)
EH-3205	500 / 220	2.3	5" x 7" (127 x 178mm)	20-50 gal (75.7-189.3l)
EH-3210	1,000 / 220	4.5	6" x 10.75" (152 x 273mm)	50-100 gal (189.3-378.5l)
EH-2874	80 / 12	6.7	1.5" x 8" (38.1 x 203mm)	0.125-1.5 gal (.5-5.7l)
EH-4608	80 / 12	6.7	3.25" x 1.75" (83 x 44mm)	0.125-1.5 gal (.5-5.7l)
EH-3659	250 / 12	20.8	5" x 5" (127 x 127mm)	10-30 gal (37.9-113.6l)
EH-3660	370 / 12	30.8	7" x 5" (178 x 127mm)	15-45 gal (56.8-170.3l)
EH-4111	80 / 24	3.4	4" x 1.5" (101 x 38mm)	0.125-1.5 gal (.5-5.7l)

NOTE: Capacities are to be used as a reference only and are not intended to be used as a defined application. Due to variables such as reservoir material, fuel blend characteristics (specific heat), presence of pour point depressants chemicals, and naturally occurring conditions such as wind speed, relative humidity, and temperature variance, it is not possible to specify an exact match of product to capacity. Some trial by the end user may be necessary to achieve desired individual results.

For 12 & 24 volt products, a total system load analysis may be required for accurate battery/charging system specification. Refer to Amps column and consult your vehicle manufacturer whenever adding any aftermarket auxiliary current load.

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