ARCTIC FOX®

2016

Fuel & Fluid Heating Product Catalog

OIL & GAS

HEAVY DUTY

OFF-ROAD

MINING

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Online Catalog Available

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RETURN GOODS POLICY

1) Authorization must be obtained prior to any merchandise being returned.
2) On an annual basis, up to 10% of the previous 12 months purchases may be returned for credit towards future orders, transportation charges prepaid.
3) A 20% restocking charge will be assessed on all such transactions.
4) **All product must be returned in original carton and accompanied by the original invoice.**

PHILLIPS & TEMRO INDUSTRIES

A leading supplier of thermal management systems and controls. For more than 90 years, Phillips & Temro Industries has supplied thermal solutions to OEM manufactures and Aftermarket Distributors worldwide.

ARCTIC FOX

The Arctic Fox® brand expands Phillips & Temro Industries® presence into fuel and hydraulic systems, oil and gas & power sport end markets.

Today, Arctic Fox® is leading supplier of heating products, heating systems and contract manufacturing. Years of experience, our fluid heating systems and products make productivity possible and increase equipment efficiency in the most demanding environment conditions.

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HOT FOX™ IN-LINE/IN-TANK FUEL HEATERS

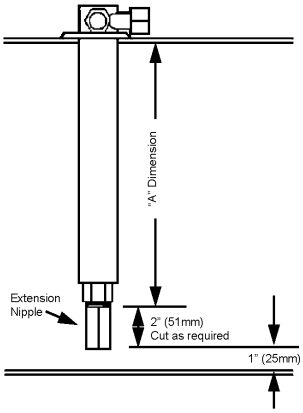
Get faster warming and cleaner installation with the HOT FOX™ fuel heater from Arctic Fox®. It is an in-line fuel heater that installs in the fuel tank. The simple 1-1/2 inch (38mm) diameter stainless steel tube inserts into the tank through a standard USA fuel gauge sending unit opening. Coolant passages inside the tube surround the fuel standpipe to provide heat rise. The internal fuel line features an exclusive spiral design to maximize heat exchange between warm coolant and cold fuel.

For most efficient heat transfer, choose the longest HOT FOX™ fuel warmer available for your tank diameter/depth. Each unit comes with a 2" (51mm) extension fitting: A-858. Special sizes are available upon request.

FEATURES AND BENEFITS:

- Lowest Profile 1-1/3" (34mm)
- Stainless Steel
- All Welded Construction
- Sizes for All Tanks Available
- Rotates for Easy Mounting
- Mounts in Vehicle Sending Gauge Opening

WARNING: Failure to use recommended reinforcement kits or providing additional structural support to heater may cause tank to crack, leading to fuel leakage.



SELECTION CHART		"A" DIMENSION		
Tank Depth/Diameter	Part Number	No Spacer	1/2" (13mm) Spacer KT-875	1" (25mm) Spacer KT-877
08-10" / 203-245mm	HFG 08-10	7" / 178mm	6-1/2" / 165mm	6" / 152mm
10-12" / 245-305mm	HFG 10-12	9" / 229mm	8-1/2" / 216mm	8" / 254mm
12-14" / 305-356mm	HFG 12-14	11" / 279mm	10-1/2" / 267mm	10" / 203mm
13-15" / 330-381mm	HFG 13-15	12" / 305mm	11-1/2" / 292mm	11" / 279mm
14-16" / 356-406mm	HFG 14-16	13" / 330mm	12-1/2" / 318mm	12" / 305mm
17-19" / 432-483mm	HFG 17-19	16" / 406mm	15-1/2" / 394mm	15" / 381mm
20-22" / 508-559mm	HFG 20-22	19" / 483mm	18-1/2" / 470mm	18" / 457mm
22-24" / 559-610mm	HFG 22-24	21" / 533mm	20-1/2" / 521mm	20"/ 508mm
24-26" / 610-660mm	HFG 24-26	23" / 584mm	22-1/2" / 572mm	22" / 559mm
26-28" / 660-711mm	HFG 26-28	25" / 635mm	24-1/2" / 622mm	24" / 610mm
27-29" / 686-737mm	HFG 27-29	26" / 660mm	25-1/2" / 648mm	25" / 635mm

Heat Rise Data **Coolant Temperature between 192°F / 89°C and 201°F / 94°C—Coolant flow at 5GPM/19LM**

HFG 13-15			HFG 20-22			HFG 27-29		
Fuel Flow GPM/LM	Temp In F/C	Temp Out F/C	Fuel Flow GPM/LM	Temp In F/C	Temp Out F/C	Fuel Flow GPM/LM	Temp In F/C	Temp Out F/C
0.17/0.6	+1.7/-17	69.5/21	0.19/0.7	-3.7/-20	84.3/29	0.21/0.8	0.0/-18	81.7/28
0.50/1.9	+2.6/-16	43.2/6	0.51/1.9	-3.7/-20	51.6/11	0.48/2.2	+1.8/-18	71.6/22
1.53/5.8	-0.7/-18	23.9/-5	1.44/5.5	-3.8/-20	34.2/1	1.57/6.0	2.2/-17	45.7/8
0.16/0.6	-20.9/-29	60.9/16	0.20/0.8	-19.2/-28	67.8/20	0.24/1.1	-22.0/-30	66.2/19
0.50/1.9	-20.4/-29	19.2/-7	0.56/2.5	-19.9/-29	34.2/1	0.49/1.9	-21.1/-30	55.5/13
1.50/5.7	-20.3/-29	5.4/-15	1.59/6.0	-20.5/-29	16.8/-8	1.51/6.9	-20.1/-29	26.1/-3
0.22/0.8	-34.7/-37	37.8/3	0.16/0.6	-36.1/-38	78.9/26	0.17/0.6	-31.8/-35	67.2/20
0.52/1.9	-34.8/-37	9.5/-13	0.50/1.9	-36.0/-38	18.6/-7	0.54/2.0	-32.9/-36	37.2/3
1.44/5.5	-34.8/-37	-7.5/-22	1.48/5.6	-35.9/-38	-1.4/-19	1.60/6.0	-33.4/-36	10.8/-12

Installation: The HFG, TWHF, & SHFT Series HOT FOX™ fuel heaters can mount into a standard USA fuel sending gauge opening.

- **Non-Reinforced Openings** in tanks manufactured of 14 gauge (0.075"/1.9mm) and lighter steel or 0.100"/2.5mm and lighter aluminum, the appropriate adapter kit KT-826F, KT-827C or KT-831CS is recommended for additional structural support.
- **Extreme Vibration or Horizontal Mounting,** the appropriate adapter kit A-1721 or A-2060 is recommended for additional structural support.

See page 7 for additional adapter kit information.

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HOT FOX™ FUEL HEATER WITH AUXILIARY STANDPIPE

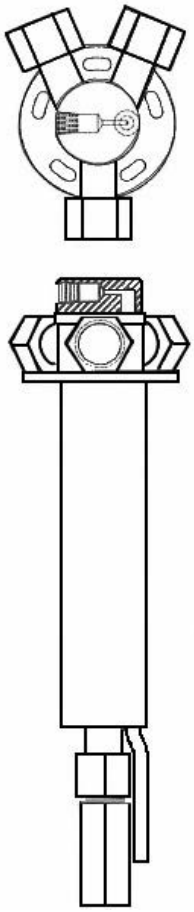
The Hot Fox™ fuel heater with Auxiliary Standpipe combines heated fuel standpipes for main fuel and accessory fuel supply with an in-tank fuel heater. The streamlined, stainless steel unit installs in the fuel tank through an unused, standard USA fuel gauge sending unit opening. Operators can now easily supply diesel fired coolant heaters, diesel fired cab heaters, and other auxiliary fuel requirements, as well as the main engine fuel supply, all in one package.

FEATURES AND BENEFITS:

- Supplies warm fuel for both main engine and fuel fired coolant pre-heaters, cab warmers, or other fuel dependent products.
- Available with 2mm or 4mm I.D. Auxiliary Fuel Tube to accommodate low or high fuel flow accessories.
- Stainless Steel Construction for durability and compatibility with all fuels and additives.
- Low Profile—2" (51mm) mounts on vehicles with reduced clearance between fuel tank and cab.

WARNING: Failure to use recommended reinforcement kits or providing additional structural support to heater may cause tank to crack, leading to fuel leakage.

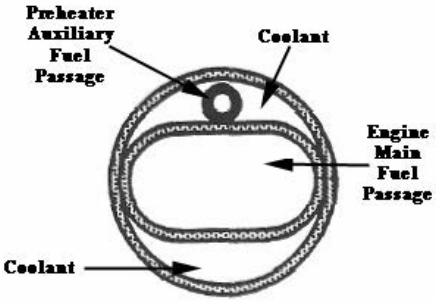
Part Number	Tank Depth	Coolant Port Size	Main Fuel Port Size	Aux Fuel Port Size	Aux Fuel Tube I.D.
TWHF 10-12 2mm	10-12" / 254-305mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 12-14 2mm	12-14" / 305-356mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 13-15 2mm	13-15" / 254-381mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 14-16 2mm	14-16" / 356-406mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 17-19 2mm	17-19" / 432-483mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 20-22 2mm	20-22" / 508-559mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 22-24 2mm	22-24" / 559-610mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 24-26 2mm	24-26" / 610-660mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 26-28 2mm	26-28" / 660-711mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 27-29 2mm	27-29" / 686-737mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 10-12 4mm	10-12" / 254-305mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 12-14 4mm	12-14" / 305-356mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 13-15 4mm	13-15" / 254-381mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 14-16 4mm	14-16" / 356-406mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 17-19 4mm	17-19" / 432-483mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 20-22 4mm	20-22" / 508-559mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 22-24 4mm	22-24" / 559-610mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 24-26 4mm	24-26" / 610-660mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 26-28 4mm	26-28" / 660-711mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 27-29 4mm	27-29" / 686-737mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm



Installation: The HFG, TWHF, & SHFT Series HOT FOX™ fuel heaters can mount into a standard USA fuel sending gauge opening.

- **Non-Reinforced Openings** in tanks manufactured of 14 gauge (0.075"/1.9mm) and lighter steel or 0.100"/2.5mm and lighter aluminum, the appropriate adapter kit KT-826F, KT-827C or KT-831CS is recommended for additional structural support.
- **Extreme Vibration or Horizontal Mounting,** the appropriate adapter kit A-1721 or A-2060 is recommended for additional structural support.

See page 7 for additional adapter kit information.



HOT FOX™ FUEL HEATER WITH SHUT-OFF THERMOSTAT

Get the fuel warming efficiency you desire and the thermostatic control you need in one factory assembled product. The Hot Fox™ Fuel heater with coolant Shut-Off Thermostat is the in-line fuel heater that installs in the fuel tank through a standard USA fuel sending gauge opening.

WARNING: Failure to use recommended reinforcement kits or providing additional structural support to heater may cause tank to crack, leading to fuel leakage.

Installation: The HFG, TWHF, & SHFT Series HOT FOX™ fuel heaters can mount into a standard USA fuel sending gauge opening.

- **Non-Reinforced Openings** in tanks manufactured of 14 gauge (0.075"/1.9mm) and lighter steel or 0.100"/2.5mm and lighter aluminum, the appropriate adapter kit KT-826F, KT-827C or KT-831CS is recommended for additional structural support.
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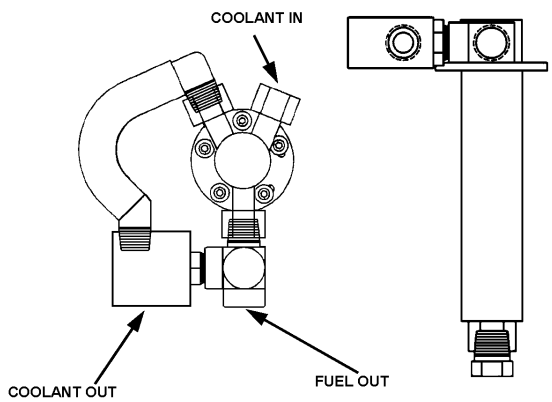
See page 7 for additional adapter kit information.



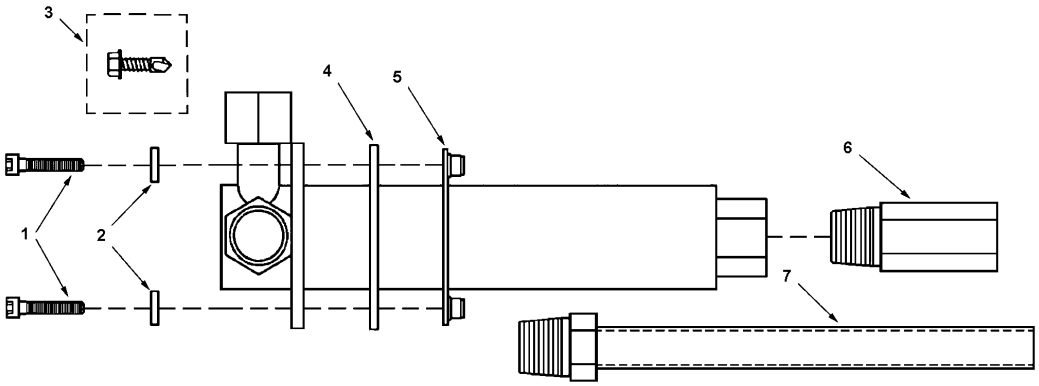
Part	Tank
SHFT-2512-10-12	10-12" / 254-305mm
SHFT-2512-12-14	12-14" / 305-356mm
SHFT-2512-13-15	13-15" / 330-381mm
SHFT-2512-14-16	14-16" / 356-406mm
SHFT-2512-17-19	17-19" / 432-483mm
SHFT-2512-20-22	20-22" / 508-559mm
SHFT-2512-22-24	22-24" / 559-610mm
SHFT-2512-24-26	24-26" / 610-660mm
SHFT-2512-26-28	26-28" / 610-711mm
SHFT-2512-27-29	27-29" / 686-737mm

CAUTION: THE HOT FOX™ WITH SHUT-OFF THERMOSTAT REQUIRES IT'S OWN COOLANT LOOP—DO NOT PLUMB IN SERIES WITH ANY OTHER COOLANT DEPENDENT DEVICES.

NOTE: When installing a HOT FOX™ with SHUT-OFF THERMOSTAT an appropriate adapter kit is required. See Page 7

HOT FOX™ FUEL HEATER REPLACEMENT PARTS

Item	Qty	Description	Part #
1	5	#10-32 UNF x 1.0 Cap Screw	A-857
2	5	Stainless Steel Washer	A-861
3	2	Self Drill / Tap Screw	A-608
4	1	HOT FOX™ Fuel Warmer Gasket	A-841
5	1	Back Up Plate / Template	A-834
6	1	1/2" NPT X 2.0 (51mm) Extension Nipple	A-858
7		HOT FOX™ Fuel heater Extension Nipple—1/2" NPT X 21" (533mm) Long	SP-1950
8		HOT FOX™ Fuel heater Hardware Kit (Includes items 1-6)	KT-834



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HOT FOX™ FUEL HEATER ADAPTER KITS

WARNING: Failure to use recommended reinforcement kits or providing additional structural support to heater may cause tank to crack, leading to fuel leakage.

STANDARD USA FUEL GAUGE OPENING ADAPTERS

Installation:

- Extreme Vibration
- Horizontal Installation
- Additional Structural Support

THREADED ADAPTER
Fits 1-1/2" & 2" NPT Couplings

A-1721
(To –40° F/C)
Parts Included
(1) A-1792 Gasket
(2) A-1726 O-Ring

A-1721F
(To –90°F/-67°/C)
Parts Included
(1) A-1792 Gasket
(2) A-2758 O-Ring

WELD-IN ADAPTER
For Fuel or Hydraulic Tanks

A-2060 (Steel)
A-2060-A (Alum.)
(To –40° F/C)
Parts Included
(1) A-1792 Gasket
(2) A-1726 O-Ring

A-2060F
A-2060-AF
(To –90° F/-67°C)
Parts Included
(1) A-1792 Gasket
(2) A-2758 O-Ring

NON-REINFORCED GAUGE OPENING ADAPTERS

Installation:

- Non-Reinforced Opening
- Manufactured Tanks
  Steel: 14 gauge (0.075"/1.9mm) and lighter
  Aluminum: 0.100"/2.5mm and lighter
- Additional Structural Support

FLAT TANKS
KT-826F

Applications:
Adapts standard Arctic Fox fuel heater mount to Hot Fox™ mount.

Kit Components

- Adapter Plate 6"/152mm Square
- (1) A-826
- Backing Plates (2) A-2025
- Clips (4) A-649
- Gasket (1)—A-611
- Mounting Bolts (12) – A-610
- Template (1)—A-708

ROUND TANKS
KT-827C for 22"-29"/559-737mm Dia.

KT-831CS for 14"-21"/356-533mm Dia.

Applications:
Adapts standard Arctic Fox fuel heater mount to Hot Fox™ mount.

Kit Components

- Adapter Plate 6"/152mm Square (1)
- A-827 for KT-827C
- A-831 for KT-831CS
- Backing Plates (2) A-1795
- Clips (4) A-649
- Gasket (1)—A-611
- Mounting Bolts (12) – A-610
- Template (1)—A-708

SPACER KITS

Installation:

- Raise Heater Flange
- Additional Structural Support

KT-875

Purpose: To raise HOT FOX™ fuel heater flange 1/2" (13mm) above tank.

Parts Included:

- (5) A-863 #10-32 UNF socket head bolts
- (1) A-841 Gasket
- (1) A-875 1/2" (13mm) Spacer

KT-877

Purpose: To raise HOT FOX™ fuel heater flange 1" (25mm) above tank. For Kenworth recessed gauge opening & misc. others

Parts Included:

- (5) A-869 #10-32 UNF socket head bolts
- (1) A-841 Gasket
- (1) A-877 1" (25mm) Spacer

HOT FOX™ FUEL & FLUID HEATER ACCESSORIES

BLANK PLATE
Part No. A-870

Application

- Cover Standard USA Fuel Tank Opening

TAPPED PLATE
Part No. A-4607

Application

- Auxiliary Standpipe Installation into a Standard USA Fuel Tank Opening
- Center Tap for 1/2" NPT

120MM FLANGE
KT-829K

Application

- Adapts Kenworth OEM 104.5mm B.C. Flange to Hot Fox™ mount

Kit Components

- (1) Adapter Plate – A-829
- (1) Gasket – A-811
- (10) Mounting Bolts – A-856

SHUT-OFF THERMOSTATS

S-400T/S-440T
With A-289
Steel Tee

S-400ST/S-440ST
With A-284
Steel Street Tee

S-400HT/S-440HT
With A-289 Steel Tee
(2) 1/4x20 Mounting Holes

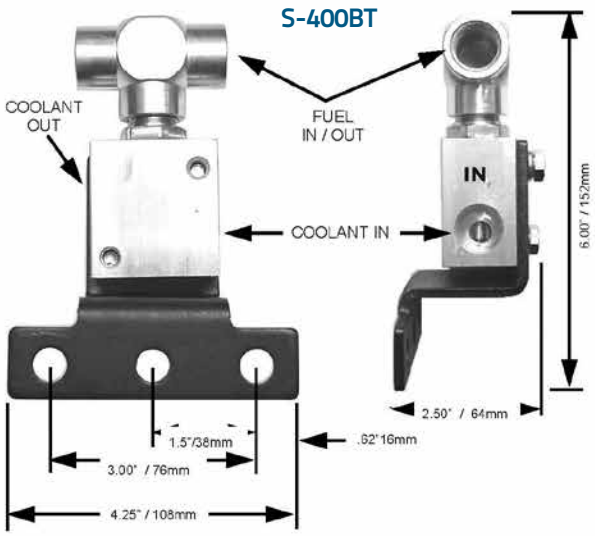
S-400BT/S-440BT
With A-289 Steel Tee
Mounting Bracket, (2) Bolts & Washers

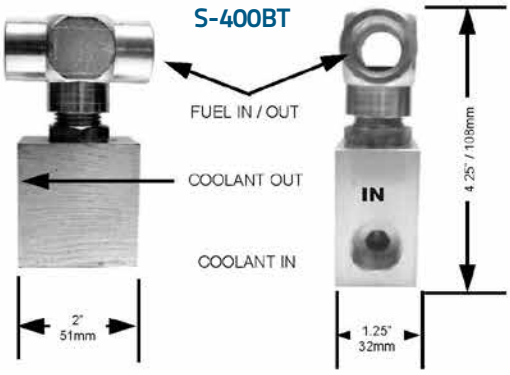
Used to control fuel temperature for any coolant type fuel warmer

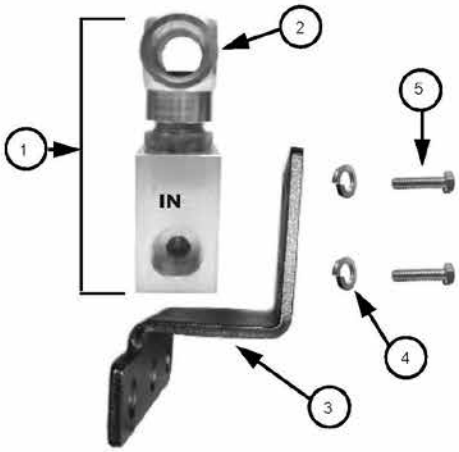
- Model 400 stops coolant flow when fuel temperature through the Tee is approximately 78° to 95° F / 25° to 35° C
- Model 440 stops coolant flow when fuel temperature through the Tee is approximately 104° to 125° F / 40° to 52° C
- All fluid connections are 1/2" NPT

NOTE: Any component or device connected in series with this product will NOT receive coolant once the fuel reaches the temperatures shown above.

DIMENSIONS







S-400BT REPLACEMENT PARTS

Item	Qty	Description	Part #
1	1	Shut-Off Thermostat Assembly	S-400HT
2	1	1/2" NPT Pipe	A-289
3	1	Mounting Bracket	A-315
4	2	5/16" Split Lock Washer	A-317
5	2	5/16" UNC x 1.25" (32mm) Bolt	A-316

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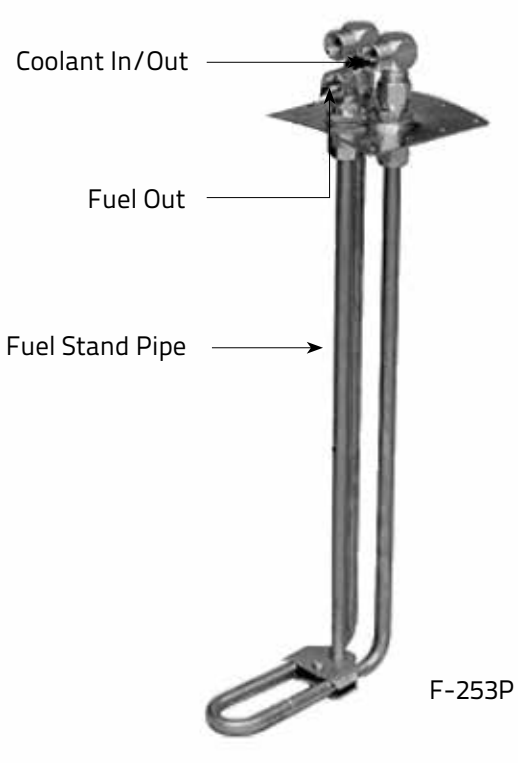
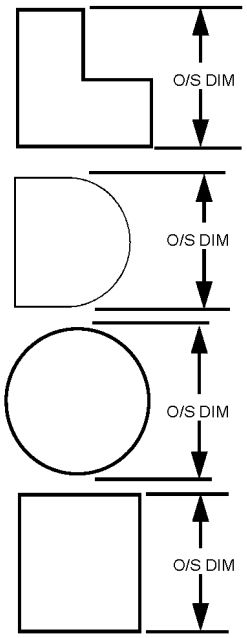
ARCTIC FOX® IN-TANK FUEL & FLUID HEATERS

The original Arctic Fox® fuel heater. The stainless steel loop fits flat or curved tanks. Heaters may be ordered factory assembled to fit any tank depth from 14" through 29" (356mm through 737mm). Custom built fluid heaters may be quoted for tanks under 14" (356mm) depth or over 29" (737mm) depth. 5 year or 600,000 mile (1,000,000 kilometer) warranty.

NOTE: For tanks less than 14" (356mm) or over 29" (737mm) in depth, a custom part number will be assigned.

ALL MODELS REQUIRE 2-3/4" (70mm) CLEARANCE ABOVE THE TANK



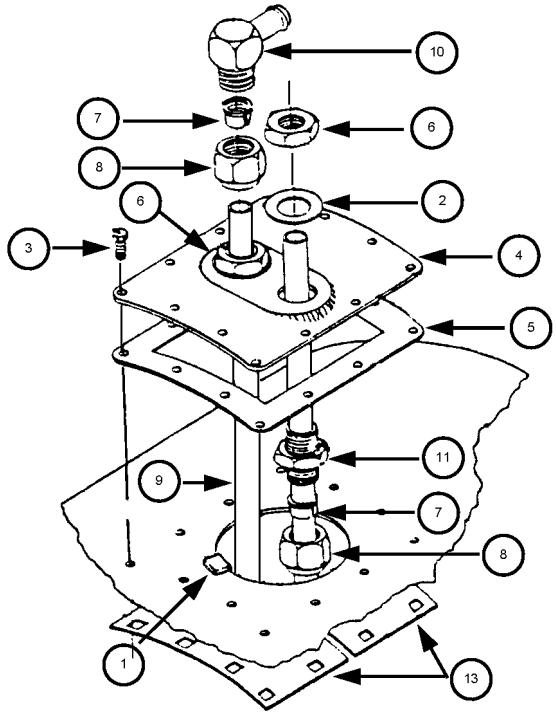


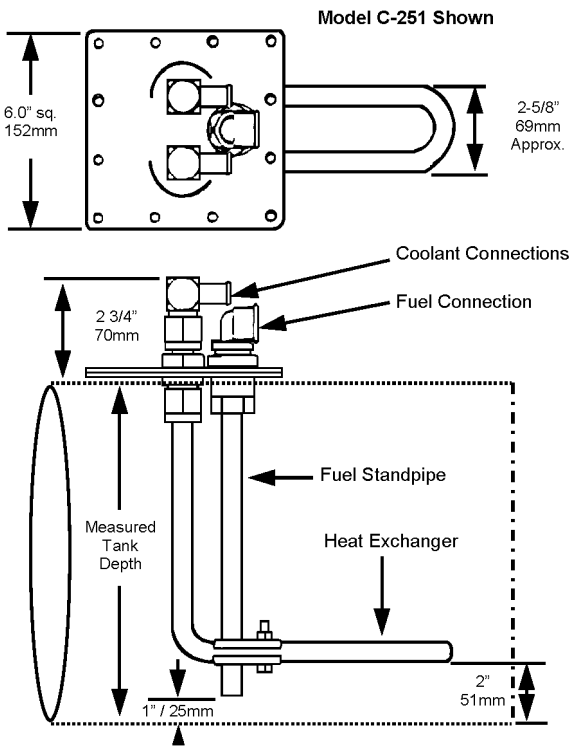
KIT WARMERS WITHOUT THERMOSTAT (FACTORY ASSEMBLY AVAILABLE)

Part	Tank Depth	Coolant Hose	Fuel
C-201	Round 22" through 29" (559mm through 737mm)	5/8" Hose Barb	No
C-201P	Round 22" through 29" (559mm through 737mm)	1/2" Female Pipe Thread	No
C-251	Round 22" through 29" (559mm through 737mm)	5/8" Hose Barb	Yes
C-251P	Round 22" through 29" (559mm through 737mm)	1/2" Female Pipe Thread	Yes
CS-201	Round 14" through 21" (356mm through 533mm)	5/8" Hose Barb	No
CS-201P	Round 14" through 21" (356mm through 533mm)	1/2" Female Pipe Thread	No
CS-251	Round 14" through 21" (356mm through 533mm)	5/8" Hose Barb	Yes
CS-251P	Round 14" through 21" (356mm through 533mm)	1/2" Female Pipe Thread	Yes
F-203	Flat 14" through 29" (356mm through 737mm)	5/8" Hose Barb	No
F-203P	Flat 14" through 29" (356mm through 737mm)	1/2" Female Pipe Thread	No
F-253	Flat 14" through 29" (356mm through 737mm)	5/8" Hose Barb	Yes
F-253P	Flat 14" through 29" (356mm through 737mm)	1/2" Female Pipe Thread	Yes

ARCTIC FOX® IN-TANK FUEL & FLUID HEATERS

DIMENSION AND REPLACEMENT PART INFORMATION





Item No.	Qty.	Description	Part No.
1	4	Retaining Clip – (Included in Installation Kit)	A-649
2	2	Copper Washer	A-616
3	12	Mounting Bolt – (Included in Installation Kit)	A-610
(a) 4	1	Curved 2-Hole Plate – See Option 4 Below for Flat Plate	A-415-2
5	1	Gasket – (Included in Installation Kit)	A-611
6	2	Locking Nut	A-628
7	4	Split Ring Ferrule	A-621
8	4	Compression Nut	A-639
9	1	Heat Exchanger Tube 28" / 711mm	A-600
(b) 10	2	5/8" Tube Fitting Elbow to 5/8" / 16mm Hose Barb (Includes 7 & 8) – See Option 10 Below for 1/2" NPT	A-613
11	2	Bushing (Includes 6, 7, & 8)	A-612
12	8	O-Ring Kit (Package Contains 4 Each White & Black O-Rings) – NOT SHOWN	A-617
(c) 13	2	Curved Back-Up Plate – See Option 13 Below for Flat Back-Up Plate	A-1795
(a) Option 4	1	Flat 2-Hole Plate	A-414-2
(b) Option 10	2	5/8" Tube Fitting Elbow to 1/2" Female NPT	A-619
(c) Option 13	2	Flat Back-Up Plate	A-2025
Misc.	N/A	Curved Cover Up Kit – 22" Through 29" / 559mm Through 737mm Tanks	KT-1909
Misc.	N/A	Curved Cover Plate – 22" Through 29" / 559mm Through 737mm Tanks	A-415-0
Misc.	N/A	Flat Cover Up Kit	KT-1911
Misc.	N/A	Flat Cover Up Plate	A-414-0
Misc.	N/A	Curved Cover Up Kit – Up To 22" / 559mm Tanks	KT-1910
Misc.	N/A	Curved Cover Up Plate – Up To 22" / 559mm Tanks	A-541-0

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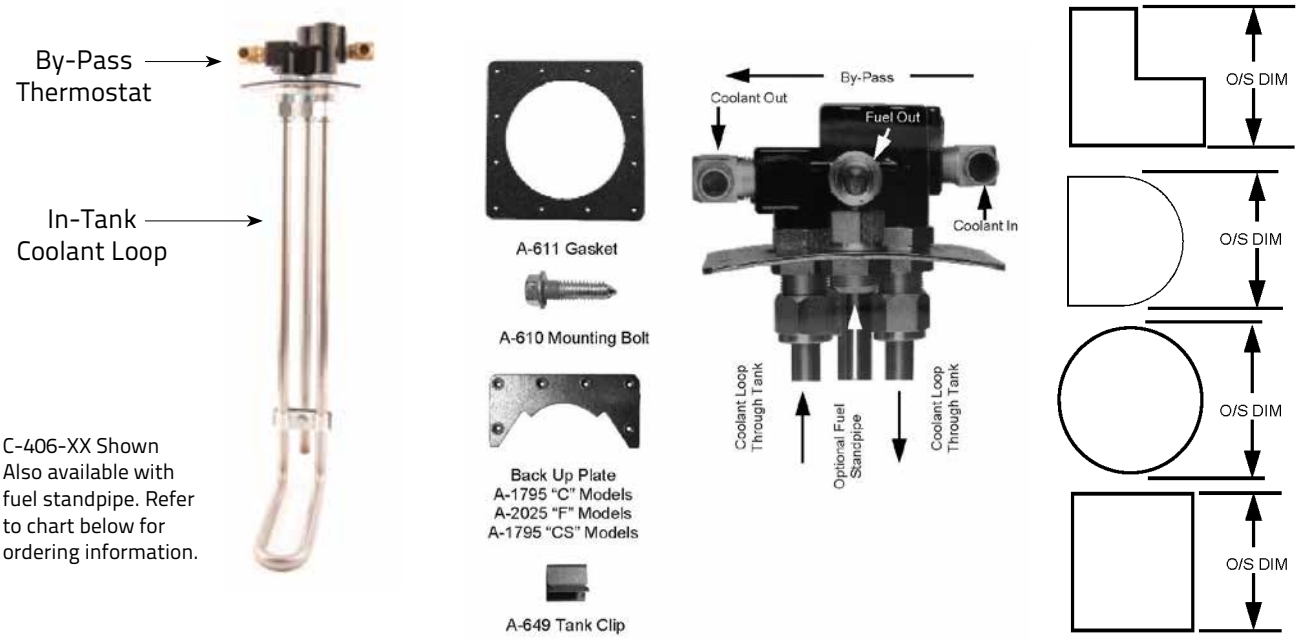
ARCTIC FOX® IN-TANK FUEL & FLUID HEATERS WITH BY-PASS THERMOSTAT

Fuel is warmed to the optimum operating temperature in cold weather with the proven Arctic Fox® fuel heater in-tank design. A fully mechanical thermostat integrated into the unit by-passes the fuel warming loop when fuel temperature reaches optimum operating temperature. This simple "hands off" design is the choice of trucking fleets who demand fool proof operation.

FEATURES AND BENEFITS

- By-passes coolant when fuel temperature reaches optimum operating temperature, allowing this fuel heater to be plumbed in series with other components such as preheaters, air compressors, and cab heater lines, with out affecting coolant flow.
- Integral design fits all fuel tanks, simplifies plumbing and reduces fittings.
- Fully mechanical. No electrical components to cause maintenance problems.
- Maintains temperature levels which are recommended by engine manufacturers and helps keep the in-tank fuel within the recommended temperature limits for maximum horsepower.
- Works with engine preheaters to maintain the "coolant loop".



ORDERING INFORMATION: ALL heaters are factory pre-assembled. Order heaters based upon outside tank dimension.
Example C-406-XX—if tank outside dimension is 27" / 686mm, order C-406-27
NOTE: Warranty is void if disassembled

Part	Tank Depth	Coolant Connection	Fuel Standpipe
C-406-XX	Round 22" through 29" (559mm through 737mm)	5/8" Hose Barb	No
C-407-XX	Round 22" through 29" (559mm through 737mm)	3/4" Hose Barb	No
C-456-XX	Round 22" through 29" (559mm through 737mm)	5/8" Hose Barb	Yes
C-457-XX	Round 22" through 29" (559mm through 737mm)	3/4" Hose Barb	Yes
CS-406-XX	Round 14" through 21" (356mm through 533mm)	5/8" Hose Barb	No
CS-407-XX	Round 14" through 21" (356mm through 533mm)	3/4" Hose Barb	No
CS-456-XX	Round 14" through 21" (356mm through 533mm)	5/8" Hose Barb	Yes
CS-457-XX	Round 14" through 21" (356mm through 533mm)	3/4" Hose Barb	Yes
F-406-XX	Flat 14" through 29" / 356 through 737mm	5/8" Hose Barb	No
F-407-XX	Flat 14" through 29" / 356 through 737mm	3/4" Hose Barb	No
F-456-XX	Flat 14" through 29" / 356 through 737mm	5/8" Hose Barb	Yes
F-457-XX	Flat 14" through 29" / 356 through 737mm	3/4" Hose Barb	Yes

IN-LINE FUEL HEATERS

- A Model for Every Application
- Easy Installation
- Maintenance Free
- No Moving Parts
- 100% Stainless Steel Construction
- Optional Coolant Shut-Off Thermostat

Midranger™

Linehauler™

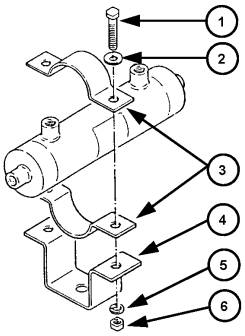
In-line fuel heating is a proven, cost effective method of providing protection against stall-outs due to fuel gelling. Obtain the margin of safety you need in moderate cold weather. In extremely cold weather operation, in-line heaters may be combined with in-tank heaters to provide additional protection.

An advantage of in-line fuel warming is the flexibility of mounting locations. Installation is accomplished by simply routing fuel and coolant lines to the unit. Positioning the unit close to the fuel filter, assures maximum fuel warming efficiency and prevention of costly fuel freezing and clogging at the filter.

Part No.	Fuel Flow GPM/LPM	Mounting Hardware	Check Valve See (1) Below	Shut-off Thermostat See (2) Below	Duel Fuel Inlet See (3) Below	Electric Preheat See (4) Below	Fuel Port	Coolant Port
I-702	0.1-0.5 / 0.4-1.9	No	No	No	No	No	3/8" NPT	3/8" NPT
I-702B	0.1-0.5 / 0.4-1.9	Yes	No	No	No	No	3/8" NPT	3/8" NPT
I-703	0.1-1.5 / 0.4-5.7	No	No	No	No	No	3/8" NPT	1/2" NPT
I-703B	0.1-1.5 / 0.4-5.7	Yes	No	No	No	No	3/8" NPT	
I-703BT	0.1-1.5 / 0.4-5.7	Yes	Yes	78°-95°F 25°-35°C	No	No	3/8" NPT	1/2" NPT
I-703BTEH	0.1-1.5 / 0.4-5.7	Yes	Yes	78°-95°F 25°-35°C	No	120 VAC	1/2" NPT	1/2" NPT
I-704B	0.1-1.5 / 0.4-5.7	Yes	No	No	No	No	1/2" NPT	1/2" NPT
I-704BT	0.1-1.5 / 0.4-5.7	Yes	No	78°-95°F 25°-35°C	No	No	1/2" NPT	1/2" NPT
I-704BTEH	0.1-1.5 / 0.4-5.7	Yes	No	78°-95°F 25°-35°C	No	120 VAC	1/2" NPT	1/2" NPT
I-705B	0.1-1.5 / 0.4-5.7	Yes	Yes	No	Yes	No	1/2" NPT	1/2" NPT
I-705BT	0.1-1.5 / 0.4-5.7	Yes	Yes	78°-95°F 25°-35°C	Yes	No	1/2" NPT	1/2" NPT
I-706B	0.1-1.5 / 0.4-5.7	Yes	No	No	Yes	No	1/2" NPT	1/2" NPT
I-706BT	0.1-1.5 / 0.4-5.7	Yes	No	78°-95°F 25°-35°C	Yes	No	1/2" NPT	1/2" NPT
I-714BT	0.1-1.5 / 0.4-5.7	Yes	No	104°-125°F 40°-51°C	No	No	1/2" NPT	1/2" NPT
I-714BTEH-2	0.1-1.5 / 0.4-5.7	Yes	No	104°-125°F 40°-51°C	No	220/240 VAC	1/2" NPT	1/2" NPT
I-724BT	0.1-1.5 / 0.4-5.7	Yes	No	104°-125°F 40°-51°C	*No	No	1/2" NPT	1/2" NPT

*Has provision to add 120 VAC pre-heat element

1. Check valve required when mounting heater above top of fuel tank.
2. Allows automatic fuel temperature sensing and control, required for most electronic engines.
3. Allows for simplified dual draw plumbing when retrofitting single draw to dual draw systems.
4. Includes electric coolant pre-heat. 120 VAC cord set not included. See page 14 to order, 220 VAC includes cord set.



BRACKET REPLACEMENT PARTS

Item	Qty.	Description	Part No.
1	4	3/8" UNC x 1.0" Long Bolt	A-321
2	4	3/8" SAE Flat Washer	A-311
3	4	Half Moon Bracket	A-307
4	2	U-Bracket	A-308
5	4	3/8" Split Lock Washer	A-310
6	4	3/8" UNC Hex Nut	A-309

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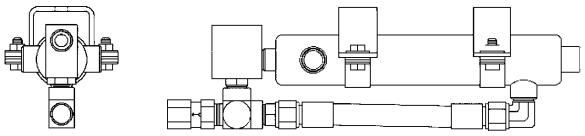
IN-LINE FUEL HEATERS

LINEHAULER™ – WITH ELECTRIC PRE-HEAT I-704BTEH SHOWN

LINEHAULER™ – WITH DUAL FUEL INLETS I-705BT SHOWN



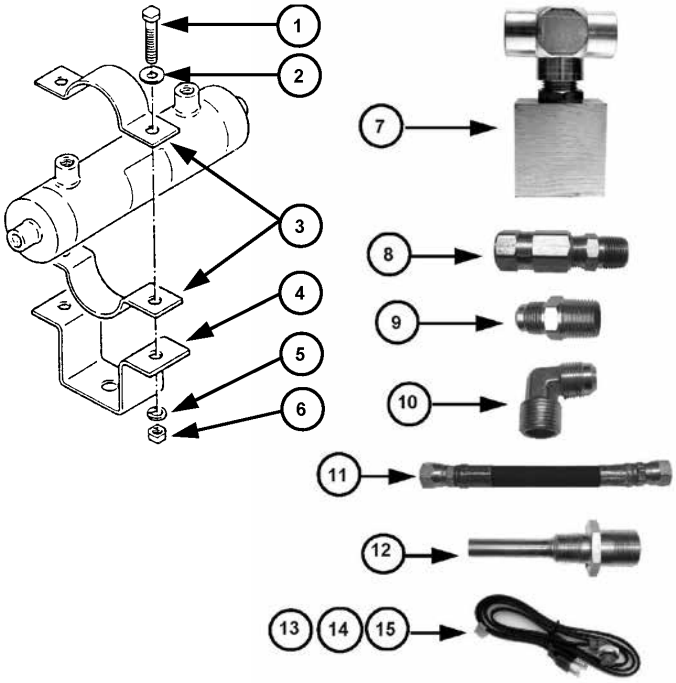
Part No.	Thermostat*	Check Value	Single or Dual Inlets
I-703BTEH**	Yes	Yes	Single
I-704BTEH**	Yes	No	Single
I-705B	No	Yes	Dual
I-705B	No	No	Dual
I-705BT	Yes	Yes	Dual
I-706BT	Yes	No	Dual

* Thermostat controls fuel temperature by stopping coolant flow when fuel temperature through the Tee is 78° to 95°F / 25° to 35°C

** 120 Volt electric preheat, maximum current draw is 1/2 amp.

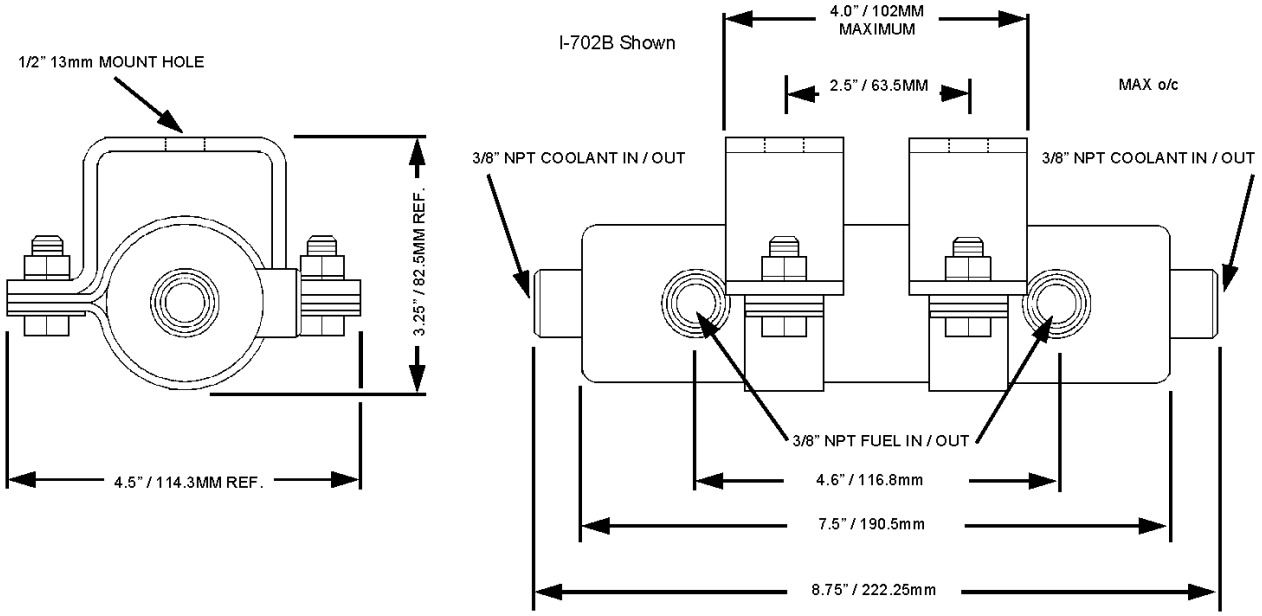
IN-LINE FUEL HEATERS REPLACEMENT PARTS

Item	Qty.	Description	Part No.
1	4	3/8" UNC x 1.0 Long Bolt	A-321
2	4	3/8" SAE Flat Washer	A-311
3	4	Half Moon Bracket	A-307
4	2	U-Bracket	A-308
5	4	3/8" Split Lock Washer	A-310
6	4	3/8" UNC Hex Nut	A-309
7	1	Thermostat with Tee	S-400T
8	1	Check Valve 1/2" NPT	A-335
9	1	Male Connector #8 x 1/2" NPT	A-287
10	1	Elbow #8 x 1/2" NPT	A-281
11	1	#8 Single Wire Braided Hose	A-703H-8
12	1	63W 120V Heat Element	A-120EK-1
13	1	Power Cord 10' Threaded	EH10
14	1	Power Cord 10' "Y"	EH10Y
15	1	Power Cord 14' "Y"	EH14YK



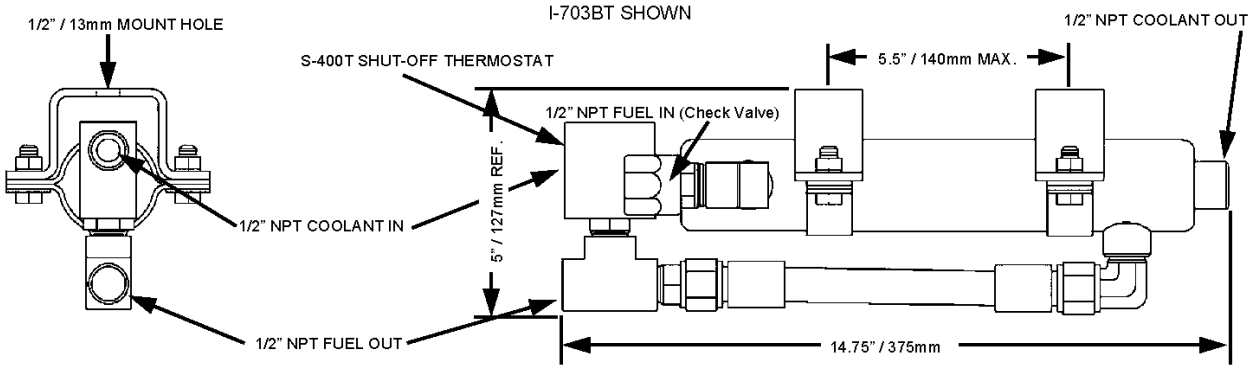
IN-LINE FUEL HEATERS

MIDRANGER™
DIMENSIONS AND HEAT RISE DATA



FUEL FLOW GPM/LPM	0.1/0.4	0.2/0.8	0.3/1.1	0.5/1.9	1.5/5.7	2.5/9.5
Fuel Temp. In °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C
+10 / -12	+99 / +37	+85 / +29	+75 / +24	+63 / +17	+38 / +3	+33 / +1
-20 / -29	+81 / +27	+66 / +19	+57 / +14	+35 / +2	+13 / -11	+5 / -15
-40 / -40	+71 / +22	+55 / +13	+42 / +6	+19 / -7	-7 / -22	-17 / -27

LINEHAULER™
DIMENSIONS AND HEAT RISE DATA



FUEL FLOW GPM/LPM	0.1/0.4	0.2/0.8	0.3/1.1	0.5/1.9	1.5/5.7	2.5/9.5
Fuel Temp In. °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C	Fuel Temp. Out °F / °C
+10 / -12	+112 / +45	+100 / +38	+90 / +32	+72 / +22	+48 / +9	+39 / +4
-20 / -29	+95 / +35	+86 / +30	+78 +26	+59 / +15	+20 / -6	+10 / -12
-40 / -40	+86 / +30	+74 / +23	+61 / +16	+34 / +1	+2 / -17	-4 / -20

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IN-LINE FUEL & FLUID—BIODIESEL

I-909BT-B100

I-1518BT-B100

I-1530BT-B100

BENEFITS:

- Improves efficiency by providing trouble-free operation in cold climates.
- Stainless steel components eliminate corrosion and contamination of the fuel.
- Electric pre-heat option available (120V AC)
- Simple – In-line installation

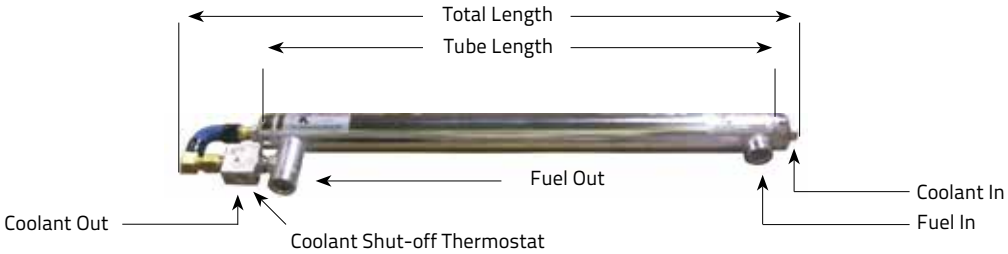
WHERE TO USE:

- Locomotives
- Heavy Duty trucks
- Oil and mining equipment
- Off-road vehicles

ELECTRIC PRE-HEAT OPTION:

- Allows you to plug in the block heater and fuel heater simultaneously while the engine is off when used with the ZeroStart Y-Cord
- Block heater warms the engine coolant for better start and less warm-up time
- Plugging in fuel heaters ensures warm fuel gets directly to the fuel filter at start up

I-909BTEH-B100



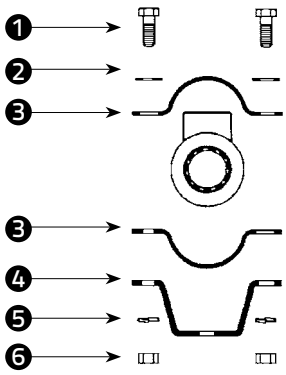
Part Number	Coolant Port	Fuel Port	Tube Length	Tube O.D.	Total Length	Surface Area	Pre Heat Option
I-909BT-B100	1/2" NPT	1/2" NPT	9.75"/248mm	2.0"/51mm	15.5"/394mm	100"²/645.2cm²	No
I-909BTEH-B100*	1/2" NPT	1/2" NPT	9.75"/248mm	2.0"/51mm	18.5"/470mm	100"²/645.2cm²	120 VAC
I-1518BT-B100	1/2" NPT	1" NPT	18.0"/457mm	2.375"/60mm	25.5"/648mm	320"²/2064.5cm²	No
I-1530BT-B100	1/2" NPT	1" NPT	30.0"/762mm	2.375"/60mm	37.0"/940mm	532"²/3432.3cm²	No

NOTE: All models made of 304 stainless Steel – maximum Coolant Operating Pressure 25 psi (172.4kPa).

* Pre-heat option does NOT include power cord. Contact Arctic Fox for proper cord to match your application.

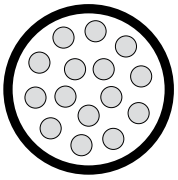
BRACKET REPLACEMENT PARTS INFORMATION

Item	Qty.	Part #	Description
1	All	A-321	3/8" UNC X 1.0" Long Bolt
2	All	A-311	3/8" SAE Flat Washer
3	I-909 I-1518/ I-1530	A-307 A-1356	Half Moon Bracket
4	I-909 I-1518/ I-1530	A-308 A-1361	U-Bracket
5	All	A-310	3/8" Split Lock Washer
6	All	A-309	3/8" UNC Nut



NOTE: Bracket components listed above are included with each unit in the proper quantity to support the heat exchanger.

THERMAL LINER 15 FLUID WARMER



END VIEW – 15 TUBE BUNDLE

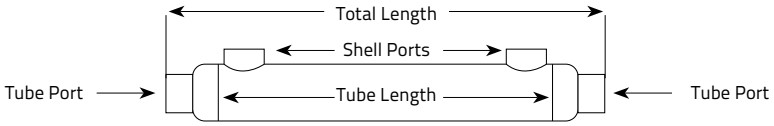
Engine coolant or other warm fluid is routed through 15 tubes welded inside the housing to provide heat. Fluid being heated is routed through the baffled shell side. All stainless steel construction eliminates corrosion and contamination of your fuel or fluid.

ALTERNATIVE FUELS

- Converts natural gas fuels to combustible energy sources.
- The 15 tube bundle raises the ultra cold natural gas to a useable temperature and raises the fuel pressure through the heating process.
- See SF-2587 series Thermal Liners on page 17 for maximum operating pressures up to 350 psi (2,413kPa).

DIESEL FUEL

- Prevents fuel gelling
- Efficient and lowers emmissions for low-grade fuel
- Multiple sizes to handle large diesel equipment such as Heavy Duty Trucks, Off-Road and Locomotives



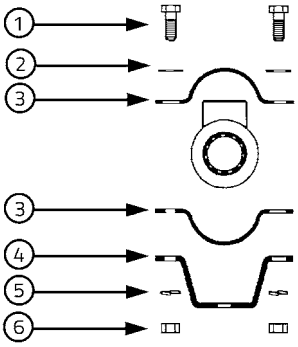
Part Number	Tube Port	Shell Port	Tube Length	Total Length	Surface Area
SF-1542-18	1/2" NPT	1/2" NPT	18.0" / 457mm	22.0" / 559mm	320"^{2} / 2064.5cm^2
SF-1542-24	1/2" NPT	1/2" NPT	24.0" / 610mm	28.0" / 711mm	426"^{2} / 2748.4cm^2
SF-1542-30	1/2" NPT	1/2" NPT	30.0" / 762mm	34.0" / 864mm	532"^{2} / 3432.3cm^2
SF-1562-18	1" NPT	1" NPT	18.0" / 457mm	22.0" / 559mm	320"^{2} / 2064.5cm^2
SF-1562-24	1" NPT	1" NPT	24.0"/ 610mm	28.0" / 711mm	426"^{2} / 2748.4cm^2
SF-1562-30	1" NPT	1" NPT	30.0" / 762mm	34.0" / 864mm	532"^{2} / 3432.3cm^2
SF-5139-40	1-1/2" NPT	1" NPT	40.0" / 1016mm	45.0" / 1143mm	710"^{2} / 4580.6cm^2
SF-5139-45	1-1/2" NPT	1" NPT	45.0" / 1143mm	50.0" / 1270mm	800"^{2} / 5161.3cm^2
SF-5139-50	1-1/2" NPT	1" NPT	50.0" / 1270mm	55.0" / 1397mm	885"^{2} / 5709.7cm^2
STT-2537*	1/2" NPT	1" NPT	30.0" / 762mm	34.0" / 864mm	532"^{2} / 3432.3cm^2
STT-2537-78-95**	1/2" NPT	1" NPT	30.0" / 762mm	34.0" / 864mm	532"^{2} /3432.3cm^2

*STT-2537 Has integral coolant shutoff thermostat (104° – 125°F / 40°-52° C)
**STT-2537-78-95 Has integral coolant shutoff thermostat (78° – 95°F / 25° – 35°C)

NOTE: All models made of 304 Stainless Steel—Maximum Operating Pressure 25 psi (172.4kPa) – OD 2.375" (60mm)

BRACKET REPLACEMENT PARTS

Item	Qty	Description	Part #
1	4	3/8" UNC x 1.0" Long Bolt	A-321
2	4	3/8" SAE Flat Washer	A-311
3	4	Half Moon Bracket	A-1356
4	2	U-Bracket	A-1361
5	4	3/8" Split Lock Washer	A-310
6	4	3/8" UNC Nut	A-309



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ALTERNATIVE FUEL HEAT EXCHANGERS—CNG

THE PROBLEM:

Natural gas is stored in tanks on board the vehicle at "tank pressures" ranging from 250 to 3600 psi (1720.7 to 24821.1kPa). A regulator is used to regulate this pressure to a value typically around 115psi (792.9kPa). As a result of the pressure drop through the regulator, the natural gas reaches temperatures nearing –200°F (-128°C). The Arctic Fox heater is utilized to prevent the natural gas from dropping below an acceptable temperature based on engine temperature and load. At low fuel rates, a thermostat may be required to prevent heating of the gas above an acceptable temperature.

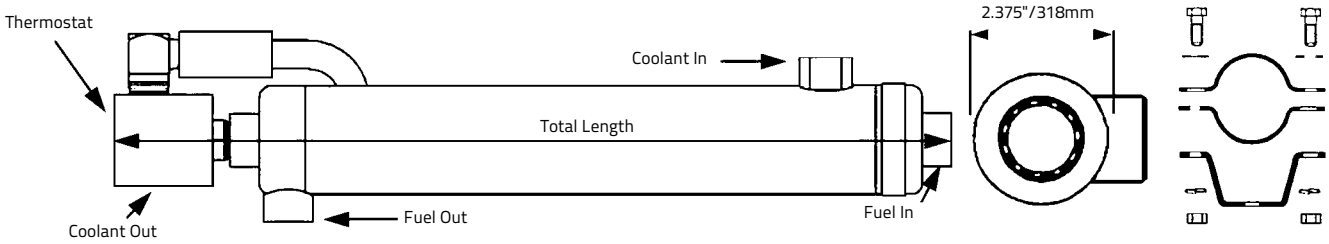
THE SOLUTION:

The high quality, **100% stainless steel in-line heaters.**

- Simple, compact design fits in areas with limited space
- 350psi (2413kPa) working pressure, 100% independent lab certified
- Minimum burst pressure (destructive test) 6000psi (41369kPa)
- 15 tube heat exchanger maximizes heat transfer surface
- Integral thermostat option available (SFT models)
- Fuel ports can be:
  - NPTF
  - Swagelok (add 1 inch / 25.4mm to fuel port protrusion for Swagelok fittings) or custom

Part Number	Gas Port Size	Coolant Port Size	Tube Length	Total Length	Surface Area	Integral Thermostat
SF-2587-6	1/2" NPT	1/2" NPT	6.0"/152mm	10.0"/245mm	108"²/697cm²	NO
SF-2587-8	1/2" NPT	1/2" NPT	8.0"/203mm	12.0"/305mm	143"²/923cm²	NO
SF-2587-10	1/2" NPT	1/2" NPT	10.0"/254mm	14.0"/356mm	179"²/1155cm²	NO
SF-2587-12	1/2" NPT	1/2" NPT	12.0"/305mm	16.0"/406mm	214"²/1381cm²	NO
SFT-2587-1/2NPT-6	1/2" NPTF	1/2" NPT	6.0"/152mm	12.5"/318mm	108"²/697cm²	YES
SFT-2587-1/2NPT-8	1/2" NPTF	1/2" NPT	8.0"/203mm	14.5"/368mm	143"²/923cm²	YES
SFT-2587-1/2NPT-10	1/2" NPTF	1/2" NPT	10.0"/254mm	16.5"/419mm	179"²/1155cm²	YES
SFT-2587-1/2NPT-12	1/2" NPTF	1/2" NPT	12.0"/305mm	18.5"/469mm	214"²/1381cm²	YES
SFT-2587-6-SWGLK-X/XCP	1/2" Swagelok	See Note	6.0"/152mm	13.0"/330mm	108"²/697cm²	YES
SFT-2587-8-SWGLK-X/XCP	1/2" Swagelok	See Note	8.0"/203mm	15.0"/381mm	143"²/923cm²	YES
SFT-2587-10-SWGLK-X/XCP	1/2" Swagelok	See Note	10.0"/254mm	17.0"/432mm	179"²/1155cm²	YES
SFT-2587-12-SWGLK-X/XCP	1/2" Swagelok	See Note	12.0"/305mm	19.0"/483mm	214"²/1381cm²	YES

NOTE: For SFT-2587 with Swagelok fuel ports, coolant ports can be 1/2", 5/8", or 3/4" hose barb—substitute desired hose barb size for the X/X designation in the part number—Example: SFT-2587-SWGLK-3/4CP will have 3/4" hose barbs included in the hardware package.



WARNING: Maximum recommended service life for SF-2587 and SFT-2587 models is 6 years from the date of manufacture as labeled on the device. Replace with new unit when the device has reached 6 years of service.

HOTLINE® ELECTRIC IN-LINE FUEL HEATER

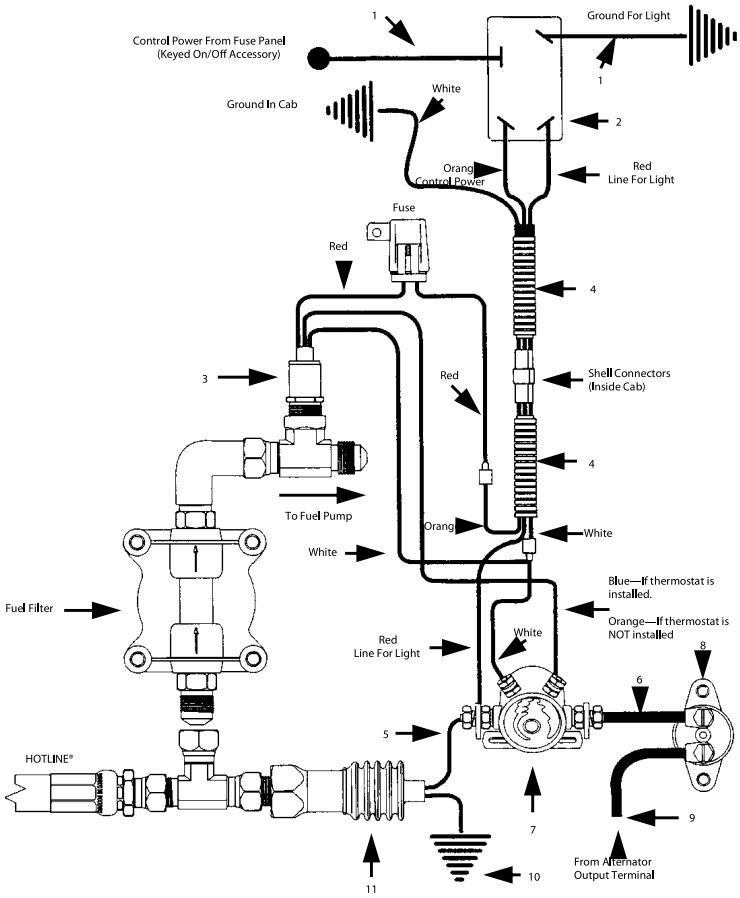
- Before starting, the HOTLINE® can thaw frozen diesel fuel in just 3 to 4 minutes, using only 2% of available battery capacity.
- On the road simply flip a switch, and within 60 seconds, HOTLINE® will begin eliminating fuel waxing which causes power loss.
- Modular design allows for easy installation and service.
- Works in conjunction with coolant heaters for complete fuel system protection.
- All kits are complete with all electrical components and wiring harness.
- Optional thermostatic shut-off available.

POWER	600 WATT		450 WATT		300 WATT		150 WATT	
Length	12 Volt	24 Volt	12 Volt	24 Volt	12 Volt	24 Volt	12 Volt	24 Volt
12' / 3.7m	D3085-1180	D3085-2180	D3085-1152	D3085-2152	D3085-1138	D3085-2138	N/A	N/A
8.5' / 2.6m	D3085-1168	D3085-2168	D3085-1146	D3085-2146	D3085-1133	D3085-2133	N/A	N/A
6.0' / 1.8m	N/A	N/A	D3085-1141	N/A	D3085-1130	D3085-2130	D3085-1126	D3085-2126
4.5' / 1.4m	N/A	N/A	N/A	N/A	D3085-1128	D3085-2128	D3085-1122	D3085-2122
2.0' / 0.6m	N/A	N/A	N/A	N/A	N/A	N/A	D3085-1118	D3085-2118
Max Current Draw* (1)	45	23	31	16	21	11	10	5
Min Alternator Capacity* (2)	130	87	105	70	85	55	75	45

Optional Thermostatic Shut-Off Kit 12 & 24 Volt	Part Number	Off Temp	On Temp	Amp Draw
	D3065-2338	80°F / 27°C	55°F / 13°C	Negligible

(1) Current draw shown is maximum sustained amperage.

(2) 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 for advisement whenever adding any aftermarket auxiliary current load.



Item	Description	Part Number
1	Black Jumper 14 Gauge	D3061-1677
2	12V Lighted Toggle Switch 24V Lighted Toggle Switch	D3061-1582 D3061-1584
3	Optional Thermostat Kit	D3065-2338
4	3-Wire Harness Kit	D3061-1735
5	Wire Jumper Magnetic Switch	D3065-2360
6	#10 Jumper Main Power	D3061-1664
7	12V Magnetic Switch 24V Magnetic Switch	D3061-1573 D3061-1575
8	12V 60 Amp Circuit Breaker 24V 60 Amp Circuit Breaker	D3061-1560 D3061-1565
9	#4 Jumper Main Power–47"	D3061-1638
10	Wire Jumper Mod. Ground–96"	D3065-2357
11	Insulating Boot	D3065-2284

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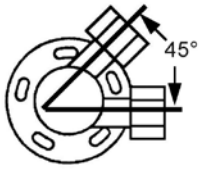
HOT FOX™ HYDRAULIC FLUID HEATER

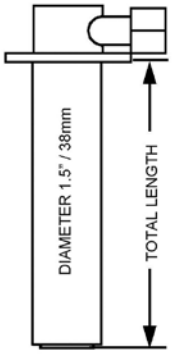
Used on applications which require maximum heat exchangers in a concentrated area.

NOTE: For extreme cold weather applications, multiple hydraulic HOT FOX™ fluid heaters may be desired.

Part Number	Total Length (Inch/mm)	Maximum Tank Capacity (usg/L)
SHH-1844-09	8-1/4 / 210	8 / 30
SHH-1844-11	10-1/4 / 260	10 / 38
SHH-1844-12	11-1/4 / 286	12 / 45
SHH-1844-13	12-1/4 / 311	14 / 53
SHH-1844-16	15-1/4 / 387	17 / 64
SHH-1844-19	18-1/4 / 464	20 / 76
SHH-1844-21	20-1/4 / 514	22 / 83
SHH-1844-23	22-1/4 / 565	25 / 95
SHH-1844-25	24-1/4 / 616	28 / 106
SHH-1844-26	25-1/4 / 641	32 / 121

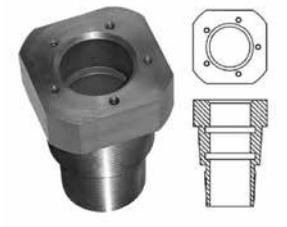
WARNING: Failure to use recommended reinforcement kits or providing additional structural support to heater may cause tank to crack, leading to fluid leakage.

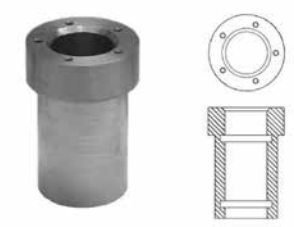




Installation: The SHH Series HOT FOX™ hydraulic fluid heater can mount into a standard USA fuel sending gauge opening.

- **Non-Reinforced Openings** in tanks manufactured of 14 gauge (0.075"/1.9mm) and lighter steel or 0.100"/2.5mm and lighter aluminum, the appropriate adapter kit KT-826F, KT-827C or KT-831CS is recommended for additional structural support.
- **Extreme Vibration** or Horizontal Mounting, the appropriate adapter kit A-1721 or A-2060 is recommended for additional structural support.





ROUND TANK

KT-827C for 22"-29"/559-737mm Dia.
KT-831CS for 14"-21"/356-533mm Dia.
Adapts standard Arctic Fox® fuel heaters mount to Hot Fox™ mount. Reinforces tank opening.

KIT COMPONENTS
Adapter Plate 6"/152mm Square (1)
A-827 for KT-827C
A-831 for KT-831CS
Backing Plates (2) A-1795
Clips (4) A-649
Gasket (1)—A-611
Mounting Bolts (12) – A-610
Template (1)—A-708

FLAT TANKS

KT-826F
Adapts standard Arctic Fox® fuel heater mount to Hot Fox™ mount. Reinforces tank opening.

KIT COMPONENTS
Adapter Plate 6"/152mm Square (1) A-826
Backing Plates (2) A-2025
Clips (4) A-649
Gasket (1)—A-611
Mounting Bolts (12) – A-610
Template (1)—A-708

THREADED ADAPTER

Fits 1-1/2" & 2" NPT Couplings

A-1721
(To –40°F/C)
Parts Included
(1) A-1792 Gasket
(2) A-1726 O-Ring

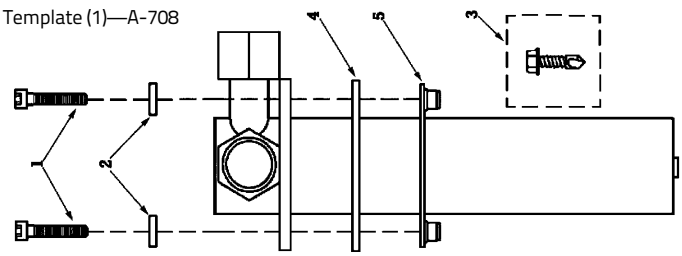
A-1721F
(To –90°F/-67°C)
Parts Included
(1) A-1792 Gasket
(2) A-2758 O-Ring

WELD-IN ADAPTER

For Fuel or Hydraulic Tanks

A-2060 (Steel)
A-2060-A (Alum.)
(To –40° F/C)
Parts Included
(1) A-1792 Gasket
(2) A-1726 O-Ring

A-2060F
A-2060-AF
(To –90° F/-67°C)
Parts Included
(1) A-1792 Gasket
(2) A-2758 O-Ring



Item	Qty	Description	Part No.
1	5	#10-32 UNF x 1.0 Cap Screw	A-857
2	5	Stainless Steel Washer	A-861
3	2	Self Drill / Tap Screw	A-608
4	1	HOT FOX™ Fuel Warmer Gasket	A-841
5	1	Back Up Plate / Template	A-834

HYDRAULIC FLUID HEATERS & ACCESSORIES

Heats hydraulic fluid, water and other fluids to improve productivity

BENEFITS

- Reduces cold weather viscosity
- Increases productivity – reduces idle equipment and workers waiting for hydraulic to warm up
- Reduces pump cavitation and resulting damage
- Versatile design for use on various equipment
- Ample coolant flow due to large (3/4" NPT) connectors

SPECIFICATIONS

- All stainless steel construction
- Large surface area exposed to fluid to maximize heat rise
- Threads into standard 2" NPT female pipe thread or standard 2" Straight Thread-O-Ring (STOR) coupling
- 3/4" NPT coolant connections
- 5-year-600,000 mile (965,000km) warranty
- Ability to install multiple units for larger tanks or faster heat rise
- Install horizontally at bottom of tank

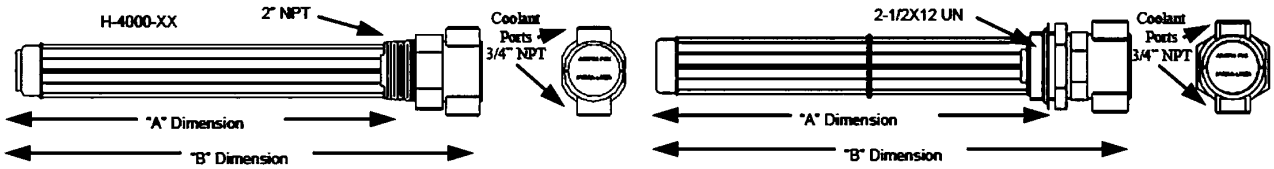
VERSATILE

- Logging
- Construction
- Mining
- Utility and Maintenance vehicles

Part Number	"A" Dimension Nominal	"B" Dimension Nominal	Surface Area Nominal	BTU/hr Nominal (1)	Typical Application (ambient air temp) to -20°F / -29°C (2)**	Typical Application (ambient air temp) to -40°F / -40°C (2)**
H-4000-8 H-4000-8-STOR	7 inches 178 mm	10 inches 254 mm	105 in^2 8 dm^2	Water 4,200 Oil 2,100	Up to 20 US gallons 76 Liters	Up to 8 US gallons 30 Liters
H-4000-12 H-4000-12-STOR	11 inches 280 mm	14 inches 356 mm	180 in^2 12 dm^2	Water 7,200 Oil 3,600	Up to 35 US gallons 133 Liters	Up to 14 US gallons 53 Liters
H-4000-16 H-4000-16-STOR	15 inches 381 mm	18 inches 457 mm	250 in^2 16 dm^2	Water 10,000 Oil 5,000	Up to 50 US gallons 190 Liters	Up to 19 US gallons 72 Liters
H-4000-20 H-4000-20-STOR	19 inches 483 mm	22 inches 559 mm	315 in^2 20 dm^2	Water 13,000 Oil 6,500	Up to 63 US gallons 239 Liters	Up to 25 US gallons 90 Liters
H-4000-24 H-4000-24-STOR	23 inches 584 mm	26 inches 660 mm	385 in^2 24 dm^2	Water 16,000 Oil 8,000	Up to 77 US gallons 292 Liters	Up to 30 US gallons 113 Liters

(1) Nominal BTU/hr based upon 180°F / 82°C Coolant flowing at 5 US Gallons / 19 Liters per minute.
Water—beginning temperature at +35°F / +2°C
Oil—ISO 32 Hydraulic Oil beginning temperature -20°F / 29°C

(2) Actual temperature rise will be affected by factors such as coolant temperatures and flow rate, specific heat capacity of fluids and air movement around reservoir.
Contact Arctic Fox Application Engineering for estimated temperature rise for your specific application.



WELD ON TANK ADAPTERS

Part Number	Description	Application
A-3228HD	Steel—Schedule 80 2" NPT Female Coupling	Preferred for most installations on steel tanks
A-3228AHD	Aluminum T-6061—Schedule 80 2" NPT Female Coupling	Preferred for most installations of aluminum tanks
A-3228HD-STOR	Steel—Combination 32 STOR & 2" NPT	May be used to install either style of Hydra Liner
V6216	Steel—Half Coupling—32 STOR	Used when external tank clearance is limited
A-5878SSHD	Stainless Steel—Half Coupling—32 STOR	Used when external tank clearance is limited
IS43THCK	Stainless Steel—2" NPT Half Coupling 300#	Preferred for most installations on Stainless Steel Tanks
TWF-32	Steel—Flange 32 STOR	Used when external clearance is limited
TWF-32N	Steel—Flange 2" NPT	Used when external clearance is limited

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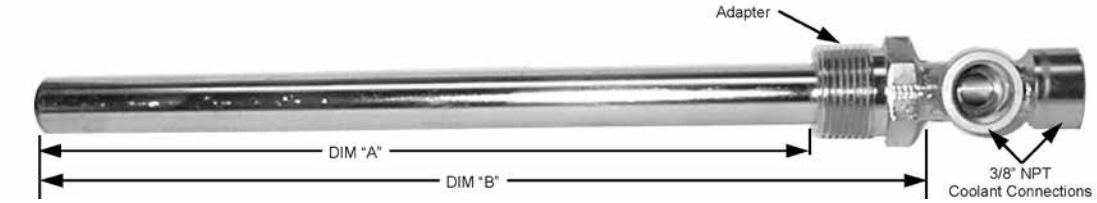
HYDRAULIC FLUID HEATER & ACCESSORIES

MINI HEAT EXCHANGER

Utilizes engine coolant to heat engine oil pans and small hydraulic reservoirs 1-5 gallons/4-19 Liters

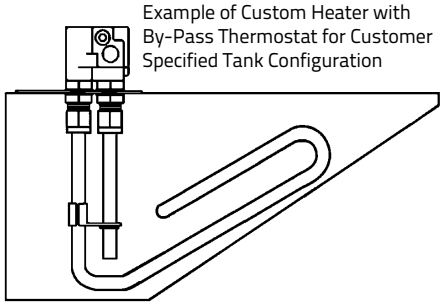
Part Number	Adapter Type	Tube Diameter	Material	DIM "A"	DIM "B"
H-2697-6SS	3/4" NPT	7/8" / 22mm	Stainless Steel	6 / 152mm	7 / 178mm
H-2697-8SS	3/4" NPT	7/8" / 22mm	Stainless Steel	8 / 203mm	9 / 229mm
H-2697-10SS	3/4" NPT	7/8" / 22mm	Stainless Steel	10 / 254mm	11 / 279mm



CUSTOM HEAT EXCHANGERS

1. Provide the following information to receive a quote
   a. Exact dimensions and tank clearance (I.e. sketch, blueprint, IGES CAD file? Tank and system capacity)
   b. Type of vehicle or machine
   c. Type of fluid to be heated
   d. Maximum allowable temperature of fluid to be heated. Is thermostat required?
   e. Total coolant capacity
   f. Does equipment have a fuel fired coolant pre-heater? What is the BTU size capacity?
   g. Does the application only require maintaining existing reservoir heat or will system be "cold soaked" and fluid temperature rise be required? Please note original fluid temperature and desired temperature after one hour of heating.
   h. Is tank pressurized or used on aerial man lift?
2. Fax or call Arctic Fox with above information
   Phone: (800) 654-5382 or (763) 972-2758—Fax: (763) 972-2873.
3. Arctic Fox will design and quote for this specific reservoir.
4. A design print and customer authorization will be sent to customer. If approved, customer will indicate so by returning signed customer authorization form to Arctic Fox. After receipt of signed authorization, orders for the custom heat exchanger will be filled. Allow 4 to 6 weeks after receipt of signed authorization.

Example of Custom Heater with By-Pass Thermostat for Customer Specified Tank Configuration



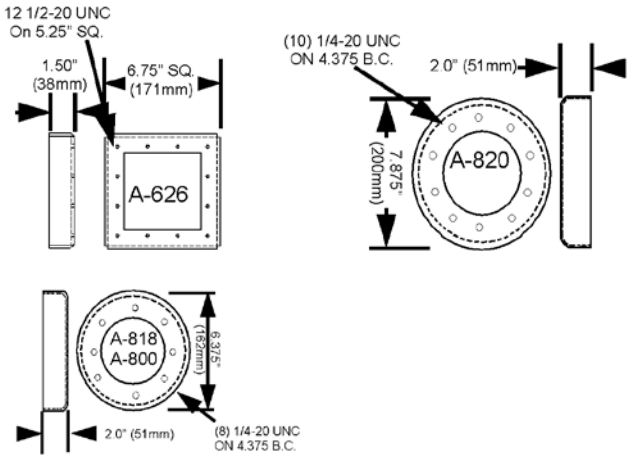
A-1714 MOUNTING PLATE BUSHING WITH O-RING

Used on applications where a reservoir is pressurized or when a heater is mounted below the fluid level. May be used instead of standard A-612 bushing to achieve seal under pressure.

Part No.	Description
A-639	Compression Nut
A-621	Split Ring Ferrule—Package of 4
A-628	Locking Nut
A-617	O-Ring kit—Package contains 4 White & 4 Black
A-616	Copper Washer
A-1714	Hydraulic Bushing
A-1725	O-Ring

FUEL & HYDRAULIC TANK WELD-ON ADAPTERS

Part No.	Material	Cover Plate	Gasket	Mounting Bolt
A-626	Steel	A-414-0	A-611	A-610
A-800	Aluminum	A-802	A-801	A-610
A-818	Steel		A-801	A-610
A-820	Steel	A-822-0	A-821	A-610



ELECTRIC PAD HEATERS

- Easy Peel-And-Stick application with pressure sensitive adhesive.
- May be installed in sub-zero temperatures.
- Mounts to any smooth, metal surface.
- No need to cut hoses, remove plugs, or lose anti-freeze or oil.
- Aluminum backing provides even heat distribution.
- Reduces pump cavitation, blown seals and burst hydraulic components.
- Reduces engine wear by improving the flow of engine oil.
- Models available in 120 and 220 VAC as well as 12 & 24 VDC.

DESCRIPTION				APPLICATION				
PART NUMBER	WATTS VOLTS	AMP. DRAW	INCHES MM	ENGINE OIL	DIESEL FUEL	WATER	HYDRAULIC OIL	POWER PLUG
EH-2801	125 120 AC	1	2.25 X 4 57 X 102	1.5-4 qt. 1.3-3.8 L	N/A	5-20 gal. 18.9-75.7 L	1-10 gal. 3.8-37.9 L	3-Prong NEMA 5-15P
EH-2802	250 120 AC	2.1	3.5 X 4.5 89 X 114	4.5-12 qt. 4.3-11.4 L	N/A	24-45 gal. 90.9-170.3 L	10-30 gal. 37.9-113.6 L	3-Prong NEMA 5-15P
EH-2805	500 120 AC	4.2	5 X 7 127 X 178	3-6 gal. 11.4-22.7 L	40-60 gal. 151.4-227.1 L	50-100 gal. 189.2-378.5 L	20-50 gal. 75.7-189.3 L	3-Prong NEMA 5-15P
EH-2810	1000 120 AC	8.3	6 X 10.75 152 X 273	6.5-12 gal. 24.6-45.4 L	50-100 gal. 189.3-378.5 L	100-200 gal. 378.5-757 L	50-100 gal. 189.3-378.5 L	3-Prong NEMA 5-15P
EH-3201	125 220 AC	0.1	2.25 X 4 57 X 102	1.5-4 qt. 1.3-3.8 L	N/A	5-20 gal. 18.9-75.7 L	1-10 gal. 3.8-37.9 L	NONE
EH-3202	250 220 AC	1.1	3.5 X 4.5 89 X 114	4.5-12 qt. 4.3-11.4 L	N/A	24-45 gal. 90.9-170.3 L	10-30 gal. 37.9-113.6 L	NONE
EH-3205	500 220 AC	2.3	5 X 7 127 X 178	3-6 gal. 11.4-22.7 L	40-60 gal. 151.4-227.1 L	50-100 gal. 189.2-378.5 L	20-50 gal. 75.7-189.3 L	NONE
EH-3210	1000 220 AC	4.5	6 X 10.75 152 X 273	6.5-12 gal. 24.6-45.4 L	50-100 gal. 189.3-378.5 L	100-200 gal. 378.5-757 L	50-100 gal. 189.3-378.5 L	NONE
EH-2874	80 12 DC	6.7	1.5 X 8 38 X 203	N/A	N/A	3-12 gal. 11.4-45.4 L	0.5-6 qt. 0.5-5.7 L	NONE
EH-3659	250 12 DC	20.8	5 X 5 127 X 127	N/A	N/A	24-45 gal. 90.9-170.3 L	10-30 gal. 37.9-113.6 L	NONE
EH-3660	350 12 DC	30.8	7 X 5 178 X 127	N/A	N/A	35-65 gal. 132.5-246.1 L	15-45 gal. 56.8-170.3 L	NONE
EH-4111	80 24 DC	3.4	4 X 1.5 101 X 38	N/A	N/A	3-12 gal. 11.4-45.4 L	0.5-6 qt. 0.5-5.7 L	NONE
EH-4608	80 12 DC	6.7	3.25 X 1.75 83 X 45	N/A	N/A	3-12 gal. 132.5-246.1 L	0.5-6 qt. 0.5-5.7 L	NONE
EH-6282	7 12 DC	0.6	1 X 2 25 X 51	Typical Application: spot heating for small valves or fittings				NONE

NOTE:

- When properly installed, heaters may be operated continuously if necessary.
- Typical operation time is three to five hours.
- Heaters may be used with a timer of the proper capacity to control operation time.
- Actual temperature of the fluid being heated cannot be calculated, and will vary with the fluid type, fluid volume, tank material and size, protection from heat loss, as well as climate conditions.

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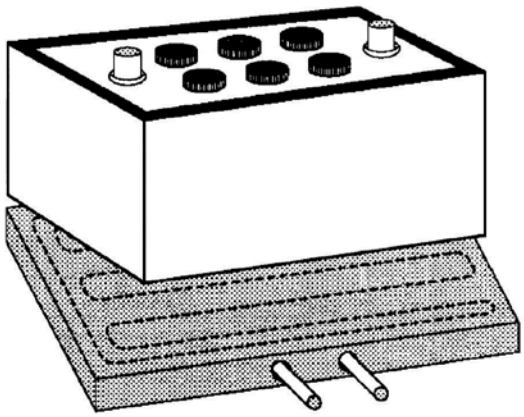
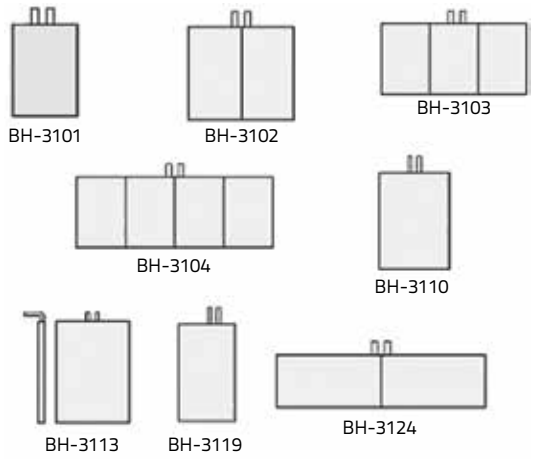
BATTERY HEATERS—BH-3100 SERIES

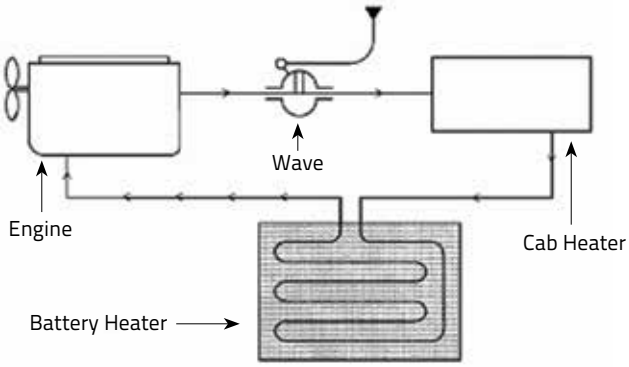


NOTE: All models require minimum 1" / 25.4mm clearance above the batteries.



NOTE: Schematic below, battery warming is discontinued when cab heater temperature switch is off.

Typical battery heater coolant schematic for applications which utilize positive cab heater coolant flow shut-off valves as a means of temperature control.



BENEFITS

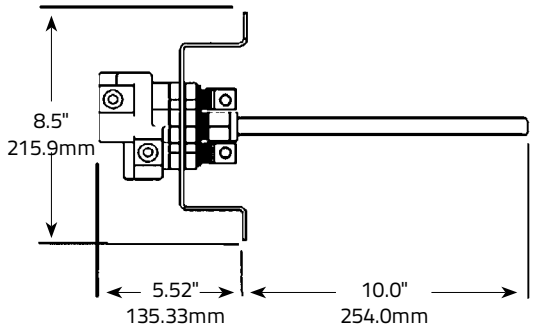
- Increases available cold cranking amps.
- Reduces required battery charge time.
- Extends battery life.
- Simplified installation for most applications.

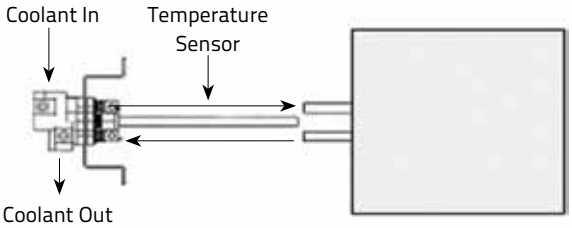
SPECIFICATIONS

- Available for all group 31 battery configurations.
- Custom sizes quoted upon request.
- Utilizes heat energy from engine cooling system or diesel fired coolant heater.
- Durable stainless steel coolant tubes.
- Light weight aluminum heating plate.
- 1/2" NPT coolant connections.

Part Number	Length Inches/mm	Width Inches/mm
BH-3101	12-7/8 / 327	6-5/8 / 168
BH-3102	13 / 330	13 / 330
NOTE: BH-3102—Both batteries may be placed parallel or perpendicular to the coolant ports.		
BH-3103	21 / 533	14 / 356
BH-3104	27 / 686	14 / 356
NOTE: BH-3104—All 4 batteries may be placed parallel or perpendicular to the coolant ports, or 2 either way.		
BH-3110	21-1/2 / 546	11 / 279
BH-3113	21-1/2 / 546	11 / 279
BH-3119	21 / 526	8-1/2 / 216
BH-3124	25-1/4 / 641	6-1/4 / 159

BPT – 2800 BATTERY HEATER BY-PASS THERMOSTAT





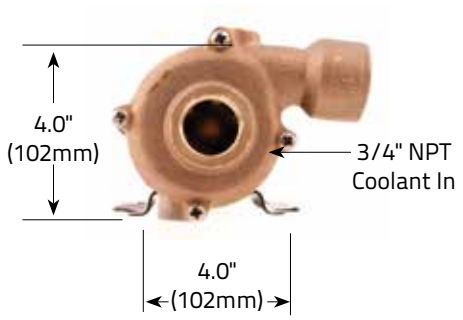
Schematic for Battery Warmer with Optional By-Pass Thermostat

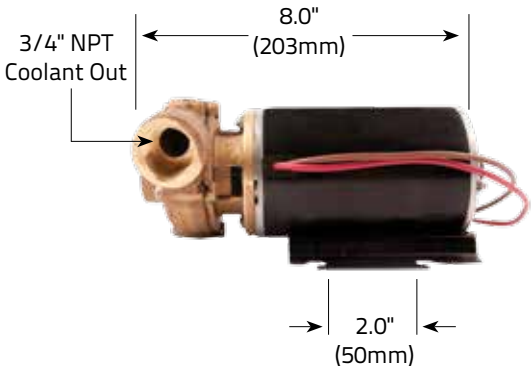
COOLANT CIRCULATION PUMP

Used to "boost" coolant flow in Arctic Fox® Fuel & Fluid Temperature Management Systems, when multiple heat exchangers are installed or for remote tank installations that require long lengths of plumbing.

Part Number	Description	Amp Draw	Recommended Temp Range	GPM/LPM	Pressure PSI/Bar
A-1600-12V	12V DC Pump	8.5	to +20˚F / -7˚C	8/30	4/.28
A-1600-24V	24V DC Pump	4.3	to +20˚F / -7˚C	8/30	4/.28
A-1600-115V*	115V AC Pump	1.0	to +20˚F / -7˚C	8/30	4/.28
A-4350-12V	12V DC Pump	10.1	to -40˚F / -40˚C	10/38	8/.55
A-4350-24V	24V DC Pump	5.1	to -40˚F / -40˚C	10/38	8/.55

*Dimensions shown do not pertain to the A-1600-115V



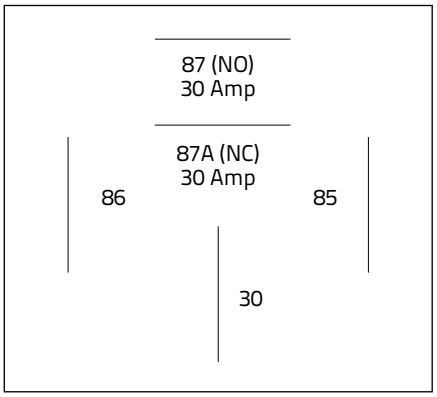


DC 12V & 24V RELAY & CONNECTOR BRACKET

Allows 12 and 24 volt DC pumps to be operated with minimal current draw through a switch or other triggering mechanism.

Part Number	Description
KT-1904	Relay & Connector Bracket for 12V DC System
KT-1941	Relay & Connector Bracket for 24V DC System

Terminal	Connection
30	Battery + for negative ground systems Battery – for negative ground systems
85	Switch or triggering mechanism
86	Ground
87 (NO)	Brown pump wire on negative ground or insulated systems. Black pump wire for positive ground systems
87a (NC)	Normally closed contact—not used



Terminal Connection

PHILLIPS & TEMRO industries®
U.S/CAN: 1-800-654-5382 fax: 763-972-2873
The Netherlands: +31 165 55 9245 fax: +31 165 54 9640

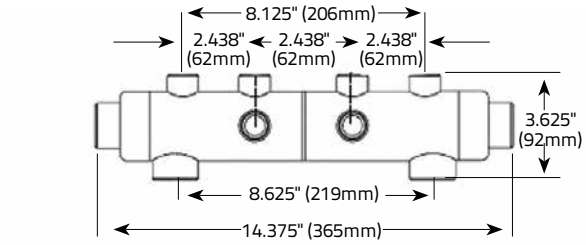
COOLANT MANIFOLDS

Used in Arctic Fox® Fuel & Fluid Temperature Management Systems to help distribution of coolant through multiple heat exchangers. May also be used to eliminate the use of multiple wye and tee fittings and to reduce the number of connections.

ST-1596 — Dual chamber, typically used on systems with up to a 50,000 BTU coolant preheater.

INPUT CONNECTIONS:
- One 1" NPT inlet
- One 1" NPT outlet
- Three ½" NPT outlets

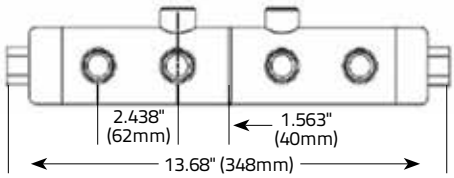
OUTPUT CONNECTIONS:
- One 1" NPT inlet
- Three ½" NPT inlets
- One 1" NPT outlet



ST-1596SC — Dual chamber, typically used on Scania vehicles.

INPUT CONNECTIONS:
- One ½" NPT inlet
- Three ½" NPT outlets

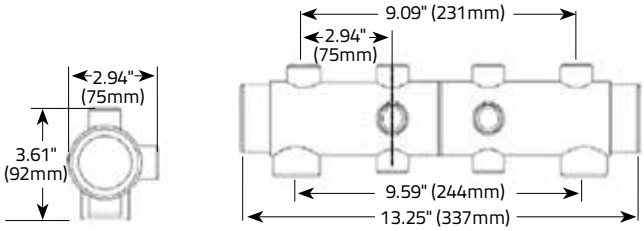
OUTPUT CONNECTIONS:
- Three ½" NPT inlets
- One ½" NPT outlet



ST-2520 — Dual chamber, typically used on systems with a 80,000-100,000 BTU coolant preheater.

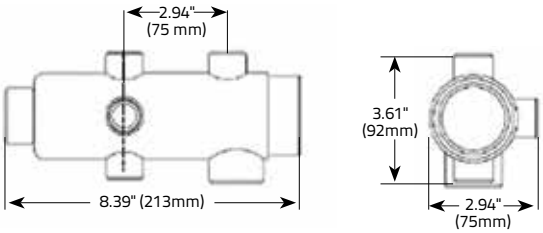
INPUT CONNECTIONS:
- One 1½" NPT inlet
- One 1" NPT outlet
- Four ½" NPT outlets

OUTPUT CONNECTIONS:
- One 1" NPT inlet
- Four ½" NPT inlets
- One 1½" NPT outlet



ST-2580 — Single chamber, typically used in place of multiple Tee's.

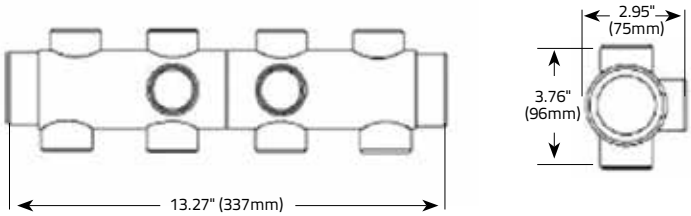
CONNECTIONS:
- One 1½" NPT
- Two 1" NPT
- Four ½" NPT ports



ST-5136 — Dual chamber, typically used on systems with a 80,000-100,000 BTU coolant preheater.

INPUT CONNECTIONS:
- One 1½" NPT inlet
- Five 1" NPT outlets

OUTPUT CONNECTIONS:
- Five 1" NPT inlets
- One 1½" NPT outlet



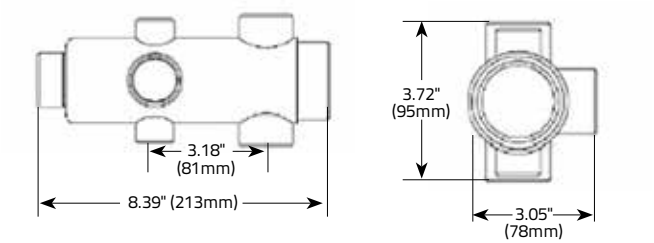
COOLANT MANIFOLDS

Used in Arctic Fox® Fuel & Fluid Temperature Management Systems to help distribution of coolant through multiple heat exchangers. May also be used to eliminate the use of multiple wye and tee fittings and to reduce the number of connections.

ST-5809 — Single chamber, typically used in place of multiple Tee's.

Connections:

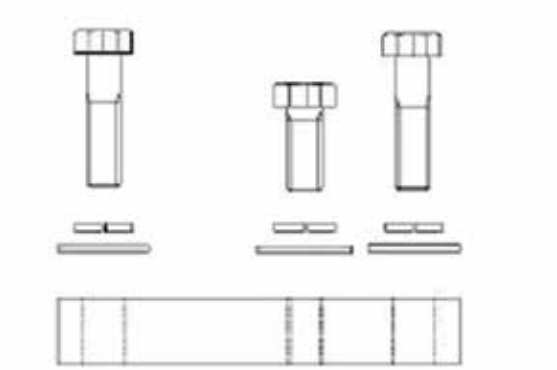
- One 1½" NPT
- Four 1" NPT
- Two ½" NPT ports



KT-5812 — Used to mount ST-5809 manifold to 3500 series Caterpillar engines

Kit Contents:

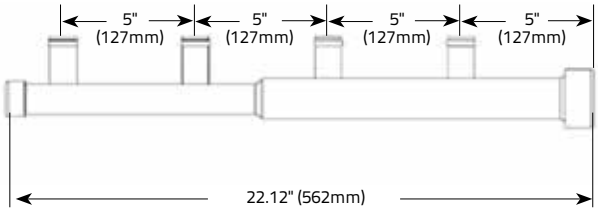
- One Manifold Spacer Plate
- Two M12 x 1.75 x 50 Bolts
- Two ½ x 13 x 2 Bolts
- One ½ x 1.5 Bolt
- Three ½ SAE Flat Washers
- Three ½ SAE Spring Lock Washers
- Two ½ UNC Nuts



A-5562 — Single chamber, vertical mount, typically used when multiple SF-5139 heater exchangers are used in parallel, or as an extension.

Connections:

- One 1½" NPT inlet
- Four 1" O.D. Hose barb outlets
- One ¾" NPT outlet



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The Netherlands: +31 165 55 9245 fax: +31 165 54 9640

FUEL STANDPIPES—DUAL & SINGLE DRAW

The Fuel Standpipe transfers diesel fuel from the fuel tank to the diesel-fired heater. It is available dual or single draw. Dual draw includes a suction standpipe and a return fuel provision. Single draw can serve as either a suction standpipe or as a return fuel provision.

BENEFITS

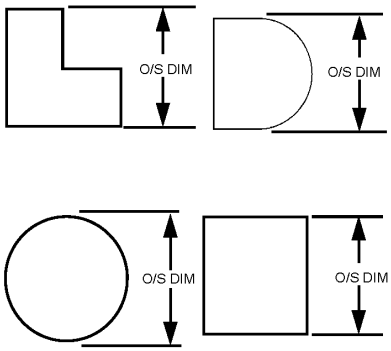
- Allow easy retrofitting to dual suction/dual return
- Avoid costly road hazards by converting bottom draw to top draw
- Complete systems available including tank standpipes, fuel tee brackets and hose assemblies

Measure tank as shown. Model Number SP-1662 is a standpipe with Return Provision—specify curved or flat tank, refer to part number example and sizing chart to define the part number required for your application.

Part Number	Measured Outside Tank Dimension
SP-1662-13	13"–13-7/8" (330mm–353mm)
SP-1662-14	14"–14-7/8" (356mm–379mm)
SP-1662-15	15"–15-7/8" (381mm–404mm)
SP-1662-16	16"–16-7/8" (406mm–429mm)
SP-1662-17	17"–17-7/8" (432mm–455mm)
SP-1662-18	18"–18-7/8" (457mm–480mm)
SP-1662-19	19"–19-7/8" (483mm–506mm)
SP-1662-20	20"–20-7/8" (508mm–531mm)
SP-1662-21	21"–21-7/8" (533mm–556mm)
SP-1662-22	22"–22-7/8" (559mm–582mm)
SP-1662-23	23"–23-7/8" (584mm–607mm)
SP-1662-24	24"–24-7/8" (610mm–633mm)
SP-1662-25	25"–25-7/8" (635mm–658mm)
SP-1662-26	26"–26-7/8" (660mm–683mm)
SP-1662-27	27"–27-7/8" (686mm–709mm)
SP-1662-28	28"–28-7/8" (711mm–734mm)
SP-1662-29	29"–29-7/8" (737mm–760mm)
SP-1662-30	30"–30-7/8" (762mm–785mm)

Specify curved (c) tank or flat (f) tank

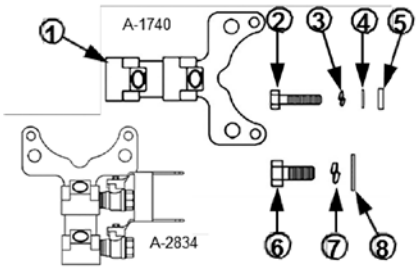
WHERE TO MEASURE TANK



TRANSMISSION MOUNTED DUAL TEE BRACKET ASSEMBLY

Ref #	Part Number	Description
1	A-1740 A-2834	Bracket kit includes reference numbers 1 through 8 Bracket with dual Tee & Shut-Off valves include reference numbers 1 through 8
2	A-1744	7/16" / 11mm UNC x 2" / 512mm long Grade 8 bolt (2)
3	A-1745	7/16" / 11mm Split Ring Lock Washer (2)
4	A-1746	7/16" / 11mm SAE Flat Washer (2)
5	A-1747	7/16" / 11mm I.D. x 1/4" / 6mm Thick Spacer (2)
6	A-1742	5/8" / 16mm UNC x 1-1/2" / 38mm Long Grade 8 Bolt (2)
7	A-1743	5/8" / 16mm Split Ring Lockwasher (2)
8	A-1648	5/8" / 16mm SAE Flat Washer (2)

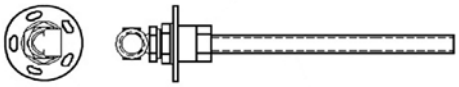
CAUTION: It is extremely important suction and return hoses to left and right fuel tanks be identical in I.D., length and installation elevation.



SINGLE DRAW STANDPIPE KIT

PART NUMBER SP-1069

A non-heated standpipe which can be used as a suction standpipe or as a return fuel provision. Fits any size tank up to 29" / 737mm, can be cut to required length by installer. This assembly bolts into a standard USA fuel gauge sending unit size opening if available. Kit includes template and hardware to easily make additional tank opening when required. For those systems that require special applications we'll design a standpipe with mounting hardware to supply diesel fuel to your fuel fired coolant or cab heater or refrigeration unit from your main fuel supply.



Item	Qty.	Description	Part #
1	5	#10-32 Allen head cap screw (Not Shown)	A-857
2	5	St. Steel Washer (Not Shown)	A-861
3	1	5/8" / 16mm x 1/2" NPT Elbow	A-609
4	2	Self-Drill-Tap Screw (Not Shown)	A-608
5	1	Standpipe Fitting	A-622B
6	1	Copper Washer	A-816
7	1	2.75" / 70mm O.D Standpipe Plate	A-1364
8	1	Gasket (Not Shown)	A-841
9	1	Backup Plate/Template (Not Shown)	A-834
10	1	Inverted Flare Gasket (Not Shown)	A-635
11	1	Standpipe 29"/737mm	A-624-29

COOLANT DAM® PRESSURE TESTER

DRAINING THE BLOCK FOR SIMPLE REPAIRS IS NO LONGER NECESSARY

- Changing Heater Hoses
- Changing Fan Sensors
- Changing Temperature Sensors
- Installing Shut-off Valves for Fuel Warmers & Separators
- Replacing Cab Heater Cores
- Replacing Heater Control Valves

MODEL T-1000
KIT INCLUDES:

- T-1000 Assembly
- T-1025 Adapter
- A-462-2 Extension Hose
- A-536 Discharge Hose
- A-483 Hanger
- A-467 Storage Case

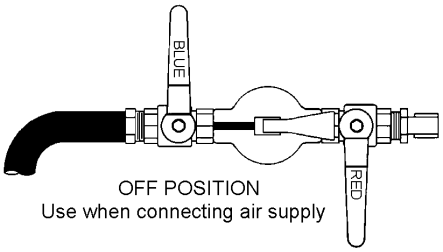
BENEFITS

- Eliminates Tedious Hand Pumping
- Provides Continuous Pressure for Diagnostics
- No need to drain the block for simple repairs

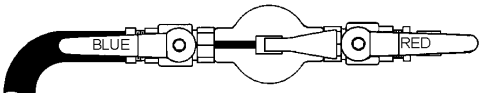
HERE'S HOW IT WORKS

Using shop air, this ingenious, simple, new time-saving tool holds engine coolant inside the engine, with little or no coolant loss, even when pipe plugs, sensors, valves and other components are removed for replacement or repair.

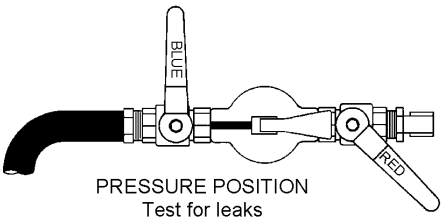
First, the Coolant Dam® Pressure Tester creates a vacuum, holding coolant inside the engine. The unit quickly converts from vacuum to a pressure tester, up to the maximum pressure limit of the included pressure cap so repairs can be tested without tedious hand pumping or running the engine. The Coolant Dam® Pressure Tester attaches to the coolant filler neck, a standard size adapter is included, and many other adapters are available for specific applications. Air Requirements for Continuous Operation: 30 CFM at 120-150 PSI
(0.85 Cubic Meters at 8-10 Bar)



OFF POSITION
Use when connecting air supply



VACUUM POSITION
To retain coolant



PRESSURE POSITION
Test for leaks

SIMPLE TO USE

Install a male quick coupler fitting into the 1/4" NPT inlet port on the RED flow control valve. Attach the 3/4" / 19mm I.D. discharge hose to the exhaust port, barbed fitting on the blue valve. The Coolant Dam® is now ready for use.

TO RETAIN COOLANT IN THE ENGINE

1. Remove radiator cap.
2. Install Coolant Dam® on radiator neck using the appropriate adapter.
3. Route discharge hose into an open container to collect any minor amount of coolant expelled.
   IMPORTANT: Secure hose to container or fixed object with the attached spring clip. Be sure the self-locking radiator cap provided is securely in place and locked onto the top of the Coolant Dam®.
4. Close RED flow valve (position handle perpendicular to valve body)
5. Open BLUE flow control valve (position handle parallel to valve body)
6. Attach shop air hose to quick coupler on RED flow control valve. Slowly open the RED control valve until the maximum negative pressure reading is attained. You are now able to proceed with the repair. Once the repair is completed, close the RED flow control valve (position handle perpendicular to valve body).

TO PRESSURE TEST

1. Close both the RED and BLUE flow control valves (position handles perpendicular to valve body).
2. Slowly open the RED control valve until a positive pressure reading, equal to normal system pressure is attained.
3. Check for leaks.

NOTE: The instructions above are provided as general guidelines only. Before using the Coolant Dam®, please read the full instructions packaged with the product for additional operation instructions, cautionary and warning statements, product use tips and air flow requirements

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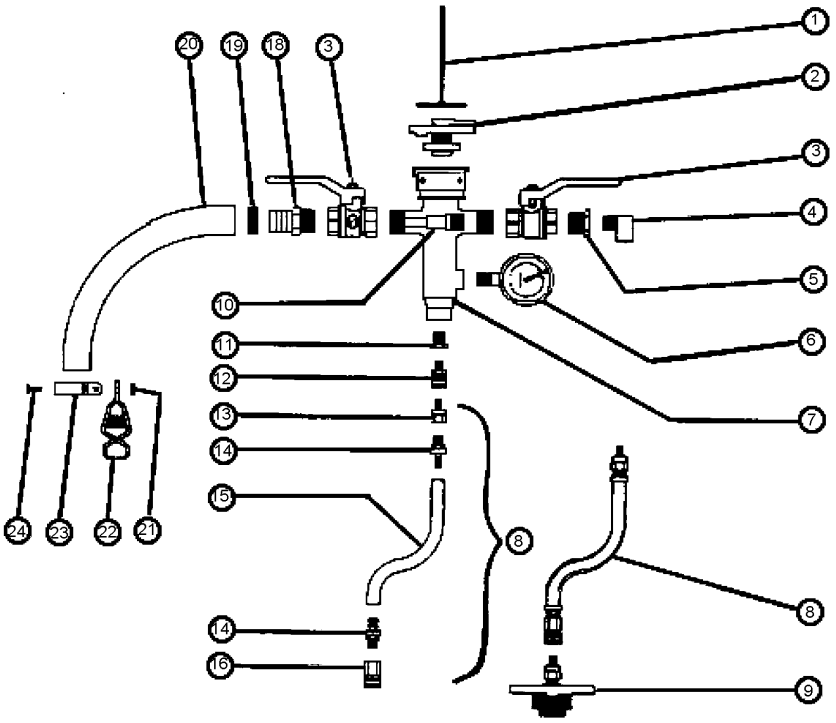
COOLANT DAM® PRESSURE TESTER—SERVICE PARTS



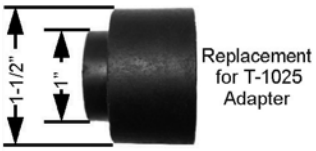
ADAPTER SERVICE PARTS

A-480—FEMALE COUPLER

A-480—MALE COUPLER

A-481—FEMALE NIPPLE

A-512—MALE NIPPLE



A-498-CAR RUBBER BUSHING

A-489-TRUCK RUBBER BUSHING

Item	Qty.	Description	Part #
1	1	Hanger Wire	A-483
2	1	Radiator Cap-Locking, 13 Pound	A-463
	1	Radiator Cap-Locking, 20 Pound	A-6336
3	1	1/2" Ball Valve (Blue Handle) 1/2" Ball Valve (Red Handle)	A-461-B A-461-R
4	1	1/4" 90 Degree Street Elbow	A-242
5	1	1/2" x 1/4 Steel Pipe Bushing	A-470
6	1	Pressure / Vacuum Gauge	A-460
7	1	COOLANT DAM Pressure Tester Housing	A-450
8	1	1/4" Extension hose (Includes 13, 14, 15, 16)	A-462-2
9	1	Head Kit	T-1025
10	1	Nozzle	A-477
11	1	1/4" x 1/8" Steel Pipe Bushing	A-472
12	1	1/8" BST Male Coupler	A-482
13	2	1/8" BST Female Nipple	A-481
14	2	1/4" x 1/8" Push on Hose End	A-462-3
15	1	1/2" O.D. x 14" (356mm) Long Hose	A-462-4
16	1	1/8" BST Female Coupler	A-480
18	1	3/4" Hose barb to 1/2" Male Pipe	A-652
19	1	Uni-Clamp	A-476
20	1	3/4" I.D. x 7' (2m) Long Discharge Hose	A-536
21	1	#8-32 KEPS Shake proof Nut	A-486
22	1	Spring Clip	A-485
23	1	Hose Band	A-484
24	1	#8-32 x 1/2" (13mm) Long Machine Screw	A-487

COOLANT DAM® ADAPTERS & PLUGS

T–1025
Standard Automotive Size. Reversible seal fits 1" or 3/4" deep filler necks. Also fits late model Mercedes 1319.

T–1020
Volvo. Fits vehicles using Volvo part number 1542591 radiator cap. (46x33mm Thread).

T–1024
Truck "B" Size

T–12027
To be used with T–1025 to test 32mm I.D. 16mm deep cooling system filler necks.

T–1029
GMC – Freightliner – Western Star Threaded, Non-Vented, Western Star cap part number 20009-0002.

T-1030
Transit Bus Adapter. Fits many Flexible, Crown, MCI, New Flyer, GM, MAN, SAAB filler necks.

T–1034
Pop Off Pressure Adapter. Mounts to top of Coolant Dam® to test pop off pressure of truck "B" size cap.

T–1040
Volvo. Fits vehicles using Volvo part number 6794968 radiator cap. (63 x 3mm Thread).

T–1223
Volvo VN Series. Fits vehicles using Volvo part number 1674922.

T–1228
Ford E-350. International 7.3L. Fits vehicles using Cap # RS-103, F6DZ-8100A, 12R-16#, or 31406.

T–1229
Kenworth Vehicles using cap #N5349001.

T–1230
Volvo VN Series. 2006 and newer Fits vehicles using Volvo part number 20519046.

T–1233
Freightliner Columbia/ Cascadia. 2008 & newer Vehicles using cap # N9685001 or BHTN9685001 or BHTW3678001.

T–3000
Navistar (1996 & Newer). Fits vehicles using Navistar part number 2039390C1 radiator cap.

T–3064
Freightliner Columbia Fits vehicles using Freightliner part number 05-20763-000 radiator cap.

T–3030X
Caterpillar Adapter. Call for information – Cat. #s 7N918, 7N5565, 6N1981, 1N3599.

Rubber Expansion Plugs – Used to temporarily plug coolant lines during component replacement

A-440 – 3/8"	A-444 – 5/8"	A-448 – 7/8"	A-449 Kit (1) ea 3/8" to 7/8"
A-441 – 7/16"	A-445 – 11/16"	A-451 – 1"	
A-442 – 1/2"	A-446 – 3/4"	A-452 – 1-1/8"	A-467 – Case
A-443 – 9/16"	A-447 – 13/16"	A-453 – 1-1/4"	A-466 – Foam Insert

FOR SERVICING CUMMINS ISX AFTER-TREATMENT INJECTOR (ATI) UNITS

KT-T1000-CUMISXATI

Kit includes:

- 3089567 Coolant Block Plug
- 4918690 Coolant Line Plugs qty 2
- A-6622 36" Extension Hose
- B-702 Work Instruction Sheet

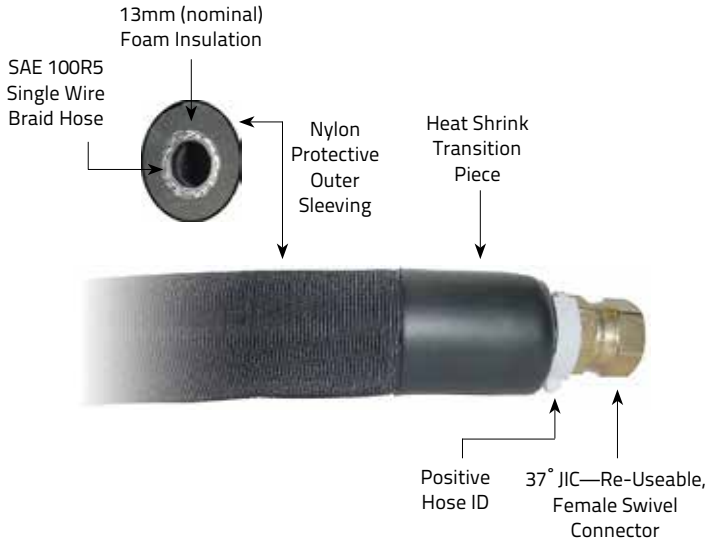
Using the Coolant Dam® in servicing the ATI is a labor and shop time saving tool. The coolant will not have to be drained and refilled as is happening now when the Coolant Dam® is not used. Arctic Fox recommends that after complete service of the ATI, that you follow the Cummins ISX engine procedures for purging air from the coolant system before putting the engine under load.

PHILLIPS & TEMRO industries®
U.S/CAN: 1-800-654-5382 fax: 763-972-2873
The Netherlands: +31 165 55 9245 fax: +31 165 54 9640

PRE-ASSEMBLED INSULATED, SLEEVED, COOLANT HOSES

Insulated, sleeved coolant hoses maintain heat to maximize coolant heating system.

Wrapped in rugged nylon sleeve, with shrink wrapped ends and reusable fittings these insulated, sleeved coolant hoses outlast standard hoses under the toughest in-field conditions.



BENEFITS

- Minimize wasted energy, save up to 15% over non insulated hoses
- Pre-assembled to save shop time
- Leak proof, JIC connectors on SAE 100R5 hose
- Flexible, bulk hose can be cut to length / finished with additional fittings
- Handles high pressure cooling systems

FEATURES

- Pre-assembled 50' length with reusable JIC fittings installed (4 additional fittings included)
- Wrapped in Insultube seamless insulated foam tubing
- Environmentally protected by a dependable rugged nylon sleeve
- Hose ends are finished with heat shrink tubing for durability
- Additional heat shrink wrap shipped with hose assembly
- Temperature rated –40° to 220°F

PRE-ASSEMBLED INSULATED, SLEEVED, COOLANT HOSE

Part Number	Hose Type	Hose Size	Fitting Size	Hose Length	Protective/ Insulated Sleeve
A-10-600-PS	SAE 100R5	#10	A-1752-10	50ft. (600")	Yes
A-12-600-PS	SAE 100R5	#12	A-1753-12	50ft. (600")	Yes
A-16-600-PS	SAE 100R5	#16	A-1753-16	50ft. (600")	Yes
A-20-600-PS	SAE 100R5	#20	A-1753-20	50ft. (600")	Yes
A-24-600-PS	SAE 100R5	#24	A-1753-24	50ft. (600")	Yes

NOTE: 50' bulk hose is terminated on each end with reusable straight female JIC connectors. Includes hose identification labels, 4 extra loose fittings, and 4 ft. of heat shrink tube to cover installation of fittings on additional hose ends. Order additional fittings appropriate for the correct size hose to make additional finished hose sections. See the Reusable Swivel Fitting chart below.

REUSEABLE SWIVEL FITTINGS (FOR SAE 100R5 HOSE)

Part Number	Hose Size	Thread Size	Tube Size	Seat
A-1752-10	#10	7/8"-14	5/8"	Dual (SAE 45° & JIC 37°)
A-1753-12	#12	1-1/16"-14	3/4"	JIC 37°
A-1753-16	#16	1 5/16"-12	1"	JIC 37°
A-1753-20	#20	1 5/8"-12	1 1/4"	JIC 37°
A-1753-24	#24	1 7/8"-12	1 1/2"	JIC 37°

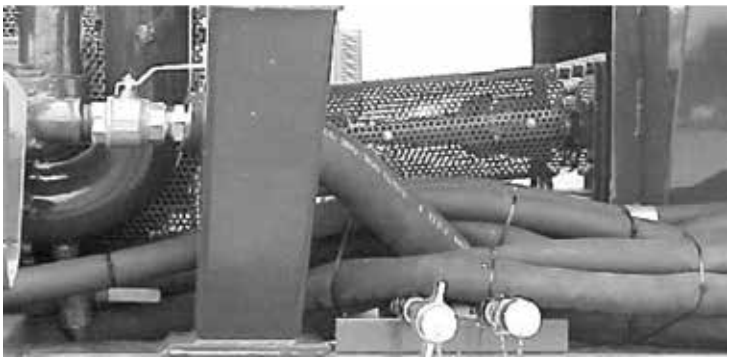
PRE-ASSEMBLED INSULATED, SLEEVED, SILICONE COOLANT HOSES

(Fittings are not included with Insulated, Sleeved, Silicone Coolant Hoses)

Part Number	Hose Type	Hose Size	Hose Length	Protective/Insulated Sleeve
A-525-600-PS	SAE 20R3	5/8"	50ft. (600")	Yes
A-530-600-PS	SAE 20R3	3/4"	50ft. (600")	Yes
A-3231-600-PS	SAE 20R3	1"	50ft. (600")	Yes

FUEL & COOLANT LINE INSULATION, HOSE & FITTINGS

- Prevent fuel from cooling off before reaching the engine
- Add to the efficiency of Arctic Fox® fuel heaters
- Help prevent hose chafing
- Improve performance of preheaters by maintaining heat in the system
- Effectively insulate cross-over lines
- Use with temperatures ranging from –40° F/C to + 220°F / 104°C
- 1/2" (13mm) wall thickness for easy installation



Arctic Fox® insultube is the perfect companion product for Arctic Fox® fuel and fluid heaters. While the fuel heater keeps your fuel warm and prevents gelling or waxing, insultube insulates the fuel and coolant line to help maintain the optimum temperature. Protect that critical area between the fuel tank and engine with Arctic Fox insultube.

INSULTUBE

Part No.	Insultube I.D.	Nominal Length
A-1710	1/2" / 13mm	6 feet / 2 meters
A-1711	5/8" / 16mm	6 feet / 2 meters
A-1712	3/4" / 19mm	6 feet / 2 meters
A-706	1-1/8" / 32mm	6 feet / 2 meters
A-720	1-1/8" / 32mm	125' Roll or 25' Increments
A-705	1-1/8" / 32mm	4 Pieces 6' each / 2 meters w/ tie straps
A-712	1-3/8" / 35mm	6 feet / 2 meters
A-721	1-3/8" / 35mm	125' Roll or 25' Increments
A-713	2-1/8" / 54mm	6 feet / 2 meters
A-1791	2-1/2" / 64mm	6 feet / 2 meters
A-714	3" / 76mm	6 feet / 2 meters

INSTALLATION AIDS

A-711	Heavy Duty Weather Resistant Tie Strap	14" / 356MM

SAE 100R5 HOSE

Single wire braid—sold by the foot

Part No.	Hose Size	Hose I.D.
A-1750-4	#4	0.19" / 4.8mm
A-1750-10	#10	0.50" / 12.7mm
A-1750-12	#12	0.62" / 15.7mm

COOLANT HOSE

Part No.	Hose I.D.	Quantity	Material	Notes
A-532	5/8" / 16mm	Bulk (1)	Insulated Silicone	Includes A-720 Insultube
A-525	5/8" / 16mm	Bulk (1)	Silicone	
A-530	3/4" / 19mm	Bulk (1)	Silicone	
A-534	3/4" / 19mm	Bulk (1)	Insulated Silicone	Includes A-721 Insultube
A-3231	1" / 25mm	Bulk (1)	Silicone	

PUSH-LOK HOSE-SOLD BY THE FOOT

A-2766	1/4" / 6.35mm
A-1660	3/8" / 9.53mm

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FUEL & COOLANT LINE INSULATION, HOSE & FITTINGS

HOSE CLAMPS		EFFECTIVE DIAMETER		
Part No.	Size	Min.	Max.	Style
A-2020	4	7/32" / 5.6mm	5/8" / 15.8mm	Standard
A-520	10	9/16" / 14.3mm	1-1/16" / 26.9mm	Shielded
A-2869	10	9/16" / 14.3mm	1-1/16" / 26.9mm	Constant Torque
A-279	12	11/16" / 17.5mm	1-1/4" / 31.7mm	Shielded
A-3950	12	11/16" / 17.5mm	1-1/4" / 31.7mm	Constant Torque
A-3267-16	16	13/16" / 20.6mm	1-1/2" / 38.1mm	Shielded
A-3950-16	16	13/16" / 20.65mm	1-1/2" / 38.1mm	Constant Torque
A-3950-20	20	15/16" / 23.8mm	1-3/4" / 44.4mm	Constant Torque
A-3267-24	24	1-1/16" / 26.9mm	2" / 50.8mm	Shielded
A-3950-24	24	1-1/16" / 26.9mm	2" / 50.8mm	Constant Torque

VALVES

Ball Valve

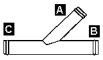
Part No.	NPT Thread 1	NPT Thread 2	Notes
A-461	1/2"	1/2"	
A-2838	1/2"	1/2"	Male/Female
A-3696-12	3/4"	3/4"	
A-3696-16	1"	1"	
A-3696-24	1-1/2"	1-1/2"	

Truck Valve—Brass

Part No.	I.D. Hose Size 1	I.D. Thread Size 1	Thread Size 2	Handle
A-526	5/8" / 16mm	N/A	3/8" NPT	Tee
A-275	3/4" / 19mm	N/A	1/2" NPT	Round

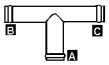
WYES AND TEES

Beaded Wye—Steel



Part No.	DIM A	DIM B	DIM C
A-457	5/8"	5/8"	5/8"
A-459	3/4"	3/4"	3/4"

Beaded Tee—Steel



Part No.	DIM A	DIM B	DIM C
A-2321	5/8"	5/8"	5/8"
A-2323	5/8"	7/8"	7/8"
A-3600	3/4"	3/4"	3/4"
A-2322	3/4"	7/8"	7/8"

WARRANTY AND RETURNS—DOMESTIC SALES ONLY

FUEL AND FLUID HEATER WARRANTY (COOLANT)

All Arctic Fox® heaters (other than engine oil pan heat exchangers and alternative fuel heat exchangers) using coolant are warranted against defects in materials and workmanship for a period of 5 years or 600,000 miles from the date of purchase by the user. This warranty does not cover heaters which are altered or used for a purpose other than that for which it was intended or used in a manner inconsistent with any instructions regarding its use. The exclusive remedy for any unit found to be defective under this warranty is limited to the repair or replacement of the defective unit without charge, and Arctic Fox® shall **NOT** be liable for any consequential or incidental damages, including labor.

ELECTRICAL COMPONENTS WARRANTY HOTLINE®, ELECTRIC RESERVOIR HEATERS AND CAL RODS

All Arctic Fox® Electrical components are warranted for one year from date of sale to the original consumer against defects in workmanship and materials. The manufacturer's only obligation shall be to repair or replace at the manufacturer's option provided is the product is returned transportation prepaid to the factory within one year from date of sale to original consumer. Defects or failures due to incorrect installation, improper voltage, improper usage or handling, or by any other conditions beyond our control, as to any and all of which the manufacturer will be sole judge, are specifically excluded from this warranty. This warranty gives you specific legal rights. You may also have implied warranty rights which vary from state to state, or province to province, depending upon the location of your residence. No other liability of any kind, arising from the use of the product, whether defective or not, is assumed.

NON-HEATED STANDPIPE WARRANTY

All Arctic Fox® non-heated standpipes are warranted against defects in workmanship for a period of 5 years or 600,000 miles from the date of purchase by user. Tank flange mounting gaskets and installation accessories are warranted against defects for a period of 90 days. This warranty does not cover standpipes which are altered, installed or used in a manner inconsistent with any Arctic Fox® instructions regarding use or installation. The exclusive remedy for any unit found to be defective under this warranty is limited to the repair or replacement of the defective unit without charge, and Arctic Fox® shall NOT be liable for any consequential or incidental damages, including labor charges.

COOLANT DAM® PRESSURE TESTER WARRANTY

The Arctic Fox® COOLANT DAM® PRESSURE TESTER is warranted against defects in materials and workmanship for a period of one year from date of purchase by the user. This warranty does not cover tools which are altered or used for a purpose other than that for which it was intended or used in a manner inconsistent with any instructions regarding its use. The exclusive remedy for any unit found to be defective under this warranty is limited to the repair or replacement of the defective unit without charge, and Arctic Fox® shall NOT be liable for any consequential or incidental damages, including labor charges.

HOTLINE® WARRANTY

Arctic Fox® warrants the purchaser that the product shall be free from defects in materials and workmanship appearing under normal use and service. The product shall be warranted for a period of one year from the date of its sale to you. Your sole and exclusive remedy for any unit found to be defective under this warranty is limited to the repair or replacement of the defective unit without charge, and Arctic Fox® shall NOT be liable for any consequential or incidental damages, including labor.

ENGINE OIL PAN HEAT EXCHANGER WARRANTY

Arctic Fox® Oil pan heat exchangers using coolant as a heat source are warranted against defects in material and workmanship for a period of one year from the date of purchase. This warranty does not cover components which are altered, or used for a purpose other than that for which it was intended or used in a manner inconsistent with any instructions regarding its use. The exclusive remedy for any unit found to be defective under this warranty is limited to the repair or replacement of the defective unit without charge, and Arctic Fox® shall NOT be liable for any consequential or incidental damages, including labor charges. Any warranty exposure to Arctic Fox® will not exceed the amount of the original purchase of the component from the manufacturer.

ALTERNATIVE FUELS HEAT EXCHANGER WITH AND WITHOUT THERMOSTAT WARRANTY

Limited warranty on heat exchanger (stainless steel weldment only) of 5 years or 600,000 miles (whichever comes first) from date of purchase. Limited warranty on thermostat of 2 years, or 200,000 miles (whichever comes first) from date of purchase.

WARRANTY RETURN PROCEDURE

In order to qualify for stated warranties, a Return Goods Authorization (RGA) number must be obtained from Arctic Fox® by calling (in USA) 1-800-654-5382 or 763-972-2758. The alleged defective unit must be returned to Arctic Fox® intact, postage or freight prepaid and Arctic Fox® will return the repaired or replaced unit postage or freight prepaid. Final determination of defects shall be made by Arctic Fox® in accordance with procedures established by Arctic Fox®. No agent, employee or representative of Arctic Fox® has any authority to bind any affirmation representation or warranty concerning Arctic Fox® products except as stated herein. There are no warranties that extend beyond the description of the express non-customer product warranty as stated. The warranty is in lieu of any other warranty, express or implied, and expressly excludes any warranty of merchantability or fitness for a particular purpose. To obtain performance of this limited warranty, the alleged defective product must be returned, together with reasonable proof of purchase, postage or freight prepaid, directly to:

(IN USA):

Warranty Department
Arctic Fox, LLC
570 South 7th Street
Delano, MN 55328

PHILLIPS & TEMRO industries®
U.S/CAN: 1-800-654-5382 fax: 763-972-2873
The Netherlands: +31 165 55 9245 fax: +31 165 54 9640

WARRANTY AND RETURNS—INTERNATIONAL SALES

FUEL AND FLUID HEATER WARRANTY (COOLANT)

All Arctic Fox® heaters (other than engine oil pan heat exchangers and alternative fuel heat exchangers) using coolant are warranted against defects in materials and workmanship for a period of 5 years or 1,000,000 kilometers from the date of purchase by the user. This warranty does not cover heaters which are altered or used for a purpose other than that for which it was intended or used in a manner inconsistent with any instructions regarding its use. The exclusive remedy for any unit found to be defective under this warranty is limited to the repair or replacement of the defective unit without charge, and Arctic Fox® shall **NOT** be liable for any consequential or incidental damages, including labor.

ELECTRICAL COMPONENTS WARRANTY HOTLINE®, ELECTRIC RESERVOIR HEATERS AND CAL RODS

All Arctic Fox® Electrical components are warranted for one year from date of sale to the original consumer against defects in workmanship and materials. The manufacturer's only obligation shall be to repair or replace at the manufacturer's option provided the product is returned transportation prepaid to the factory within one year from date of sale to original consumer. Defects or failures due to incorrect installation, improper voltage, improper usage or handling, or by any other conditions beyond our control, as to any and all of which the manufacturer will be sole judge, are specifically excluded from this warranty. This warranty gives you specific legal rights. You may also have implied warranty rights which vary from state to state, or province to province, depending upon the location of your residence. No other liability of any kind, arising from the use of the product, whether defective or not, is assumed.

NON-HEATED STANDPIPE WARRANTY

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WARRANTY RETURN PROCEDURE

In order to qualify for stated warranties, a Return Goods Authorization (RGA) number must be obtained from Arctic Fox® by calling (in Europe) +31 165 55 9245 or (in USA) 1-800-654-5382 or 763-972-2758. The alleged defective unit must be returned to Arctic Fox® intact, postage or freight prepaid and Arctic Fox® will return the repaired or replaced unit postage or freight prepaid. Final determination of defects shall be made by Arctic Fox® in accordance with procedures established by Arctic Fox®. No agent, employee or representative of Arctic Fox® has any authority to bind any affirmation representation or warranty concerning Arctic Fox® products except as stated herein. There are no warranties that extend beyond the description of the express non-customer product warranty as stated. The warranty is in lieu of any other warranty, express or implied, and expressly excludes any warranty of merchantability or fitness for a particular purpose. To obtain performance of this limited warranty, the alleged defective product must be returned, together with reasonable proof of purchase, postage or freight prepaid, directly to:

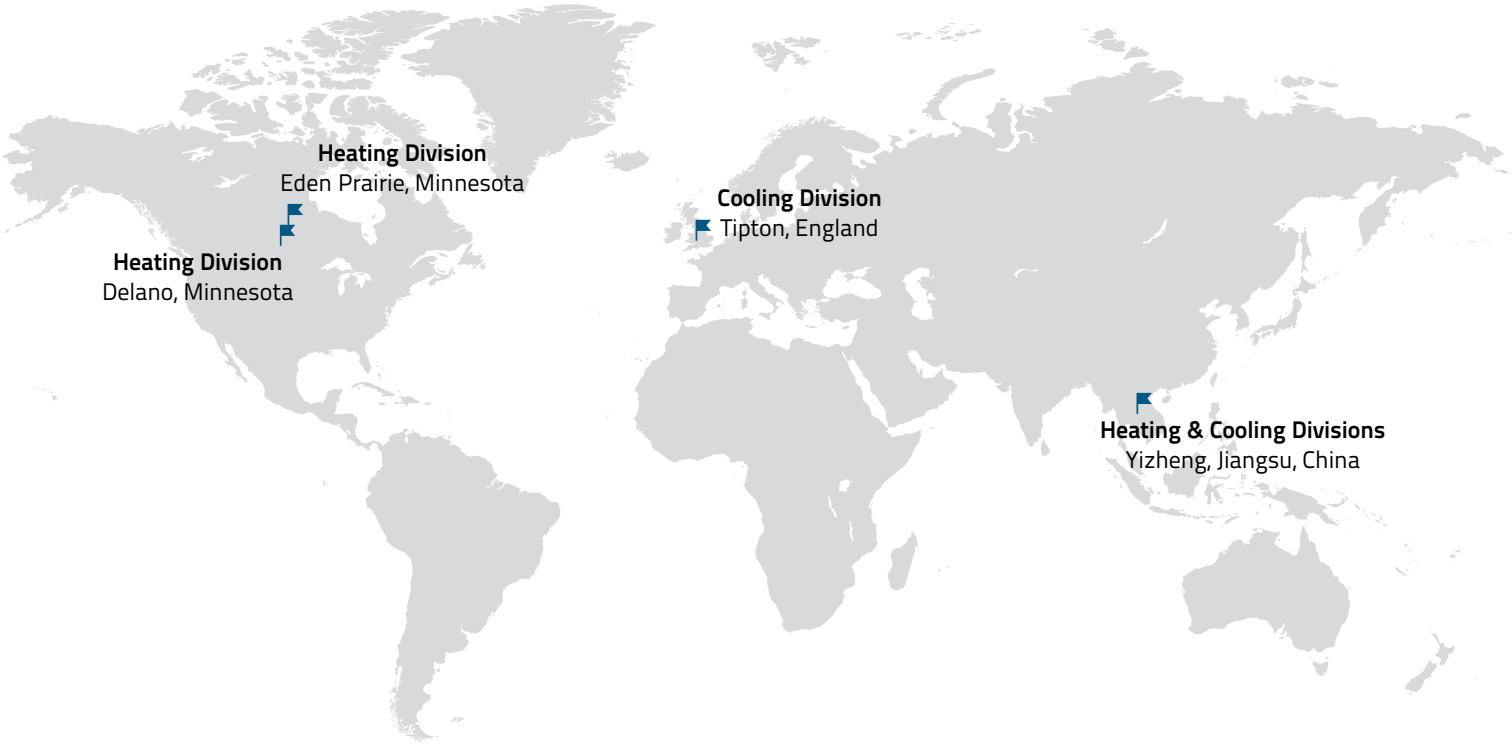
(IN USA) WARRANTY DEPARTMENT

Arctic Fox
570 South 7th Street
Delano, MN 55328

(IN EUROPE) WARRANTY DEPARTMENT

Arctic Fox BV
De Stok 24 (indoor Skydive Tower, Level 2)
4703 SZ
Roosendaal
The Netherlands

MANUFACTURING FACILITIES



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VISIT OUR WEBSITE TO DOWNLOAD ELECTRONIC VERSIONS OF THE FOLLOWING DATA SHEETS

WWW.PHILLIPSANDTEMRO.COM

Part No.	Description
LIT0003A	Coolant Dam® Pressure Tester
LIT0004PA	Cold Weather Fuel Gelling Solutions
LIT0005A	Electric Pad Heaters
LIT0007A	Hydraulic Fluid Warmers
LIT0008A	Fuel and Fluid Heating Solutions
LIT0009A	In-Line Fluid Heaters
LIT0010A	Hotline® In-Line Fuel Heater
LIT0032A	Heating Systems by Design
LIT0034A	BH-3100 Series Battery Heater
LIT0035A	Insulated Coolant Hoses
LIT0036A	In-Line Fuel Heaters for Compressed Natural Gas (CNG)
LIT0037A	Coolant Circulation Pump
LIT0038A	Fuel Standpipes
LIT0039A	In-Tank Fuel and Fluid Heaters
LIT0041A	Coolant Manifolds
LIT0042A	Thermal Liner

GLOBAL EXPERTISE FOR EQUIPMENT HEATING SYSTEMS

Arctic Fox® fluid heating systems and products make productivity possible and increase equipment efficiency under extreme cold weather conditions around the globe.

CUSTOM DESIGN SOLUTIONS

In addition to standard product and system solutions, Arctic Fox® provides individualized service to custom design heating systems to meet unique needs.

INSTALLATION AND OPERATING TRAINING

Arctic Fox® offers on-site training for installation and operation. Years of global experience in the most demanding environment conditions, proven product quality and focus on customer support will ensure that your equipment will be up and running when needed.

INDUSTRIES WE SERVE:

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- Oil & Gas
- Mining
- Construction
- Ice Road Trucking
- Public Sanitation
- Public Works
- Public Utilities
- Military
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website: arctic-fox.eu

PHILLIPS & TEMRO *industries®*

THERMAL MANAGEMENT SYSTEMS & CONTROLS

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