

**ARCTIC FOX, INC.**  
**PHONE: 800-654-5382 FAX: 763-972-2873**

APPLICATION QUESTIONNAIRE  
FLUID WARMER - HYDRAULIC & MISC FLUID

Time Frame Required \_\_\_\_\_  
Customer Name \_\_\_\_\_  
Contact Name \_\_\_\_\_  
Phone \_\_\_\_\_ FAX \_\_\_\_\_

1. Tank assembly drawings and dimensions are required in addition to weldment drawings to give exact side, end and top view dimensions of all baffles, screens, and internal tank obstructions. Are these available?  
(Sketch or drawing or IGES CAD file required)
2. Note minimum and maximum fluid level in tank.
3. Note type of fluid to be heated.
4. Type of vehicle, machine, or accessory.
5. Is tank to be heated pressurized?  
To what pressure?
6. Maximum allowable temperature of fluid to be heated.
7. Does equipment utilize a fuel fired coolant Preheater?  
BTU capacity?
8. What ambient temperature will be experienced?
9. Does application require only maintaining existing reservoir temperature or will system be cold soaked and fluid temperature rise be required?  
Note original temperature of fluid.  
Note desired temperature after 1 hour of heating.
10. What is engine make and model?  
Single or multiple engines?
11. What is total coolant system capacity?
12. What access openings are available in tank? Need exact dimensions of opening, coverplate, and location of opening.
13. Does installer have fabrication ability? i.e. to weld mount flange to tank.
14. Note tank shell thickness and material made of. Ends, top, sides.

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15. Are there restrictions due to space constraints as to where the coolant inlet and outlet can be on the tank?

NOTE: Customers most desirable location as to where to insert heater into tank. For non-thermostats, parallel to bottom is generally best.

NOTE: Depending on heater complexity, a one time engineering charge may apply to first time designs. This can only be quoted after initial information is provided to engineering.

16. What are potential quantities?

NOTE: The minimum recommended 5/8" tube heat exchanger tube to liquid ratio is 1 lineal foot of submerged tube per 5 gallons of liquid at ambients down to -20°F. At -40°F, 1 ft. per 1 gallon is minimum recommendation. This may mean multiple heat exchangers in each tank.

17. Does customer have sketch of his perceived heat exchanger design complete with dimensions?

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APPLICATION QUESTIONNAIRE  
SYSTEMS

Time Frame Required \_\_\_\_\_  
Customer Name \_\_\_\_\_  
Contact Name \_\_\_\_\_  
Phone \_\_\_\_\_ FAX \_\_\_\_\_

1. Fill out Fuel, Fluid, Battery Questionnaires.
2. Need sketch or drawing with dimensions showing top and side view of equipment.
3. Need equipment Make,  
Model,  
year, and serial number.
4. List fluids & components to be heated with capacities of each.
5. List required temperature rise and time frame to heat items in #4.
6. Is vehicle or equipment electrical system 12 volt or 24 volt?

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APPLICATION QUESTIONNAIRE  
FUEL HEATER

Time Frame Required \_\_\_\_\_  
Customer Name \_\_\_\_\_  
Contact Name \_\_\_\_\_  
Phone \_\_\_\_\_ FAX \_\_\_\_\_

1. Record all fuel tank dimensions and baffle locations.  
Round tank or flat tank?
2. What engine make and model is fuel warmer used on?
3. Does engine have electronic fuel injection components?
4. What is engine manufacturers maximum recommended fuel temperature?
5. How many tanks are on vehicle?
6. Is system dual suction/dual return or does it have a crossover line?
7. Is a diesel fired heater in the system?  
Is an auxiliary standpipe required?
8. What is fuel tank made of?  
Note tank shell thickness.
9. Suction and return fuel line size.
10. Electronic engines require thermostats, if mechanical fuel injection does customer want a thermostat?
11. Existing top or bottom draw?
12. Is crossover conversion kit a consideration?
13. Does system have an existing fuel water separator?  
Is it heated?  
What brand?
14. What is ambient temperature range expected to be encountered?

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15. What ASTM fuel is expected to be used? i.e. #2D or #1D or JP-8

NOTE: It is Arctic Fox's recommendation that all fuel warmers utilize a fuel thermostat control to discontinue warming of fuel at approximately 100°F.

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APPLICATION QUESTIONNAIRE  
BATTERY WARMERS

Time Frame Required \_\_\_\_\_  
Customer Name \_\_\_\_\_  
Contact Name \_\_\_\_\_  
Phone \_\_\_\_\_ FAX \_\_\_\_\_

1. Length and width of batteries to be warmed.
2. BCI Group Size? i.e. Group 31, 4D, 8D, 24
3. Number of batteries on vehicle.
4. Describe in sketch the position of batteries to each other.  
i.e. side to side  
end to end
5. Is surface of battery box floor completely flat so more than one battery can be fitted on one warmer or are there partitions or obstacles between adjacent batteries?
6. Is there room above batteries to allow them to be raised 1" due to warmer height?
7. Are batteries inside a closed box--can insulation be added? i.e. styrofoam

NOTE: All battery warmers should be equipped with a thermostat control or the coolant supply be shut off at 40°F. and above.