



Section: L Heaters

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ENGINEERING YOUR SUCCESS.

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Fuel Heaters

From the very beginning Racor delivered high quality products. Extreme conditions call for extreme protection and performance. Racor delivers the goods.

Application

The diesel fuel heaters apply heat to the fuel incoming from the fuel tank to enable it to flow more freely on its way to the primary fuel filter/water separator.

Heating Fuel

Heating the fuel dissolves paraffin wax crystals (and ice) that form when diesel fuel is chilled thus enabling water separators to work more efficiently and to prevent fuel filters from plugging with wax and/or ice crystals.

Biodiesel Information

Biodiesel is a diesel fuel produced by the chemical refining of vegetable oils into “fatty acid methyl esters”, or FAME. Glycerin is removed in the refining process, lowering the oil viscosity to match diesel fuel. Pure biodiesel is most often added to diesel fuel in a 2, 5, or 20% blend, and is referred to as B2, B5, or B20 respectively.

Other renewable “biofuels” available are raw oils or recycled greases that have not been transformed into biodiesel. These products require extra heat, filtration, and other vehicle modifications to burn in diesel engines.

Two Types Available

Electric Heated: The electrical heaters use vehicle electrical power to operate the heating elements.

Coolant Heated: The coolant heaters use hot engine coolant as a heat source and transfer that heat to the fuel.



Nomad™ Coolant Heater



Thermoline™ Heater



Nomad™ Electric Heater

Nomad™ Electric Heaters

Nomad™ Electric Heaters Overview

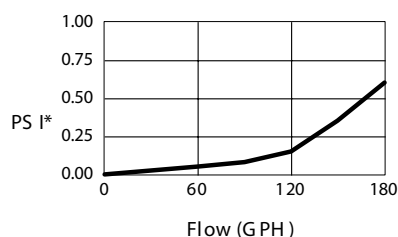
Specifications	14278	14279	14257	14261
Engine HP.	up to 200	up to 200	200 - 300	200 - 300
Power Output	300 watts	300 watts	500 watts	500 watts
Voltage	12 vdc	24 vdc	12 vdc	24 vdc
Amperes Draw	21.4	10.7	35.7	17.9
Alternator Rating ¹	65	40	75	45
Internal Thermostat	Yes	Yes	In-cab control	In-cab control
Fuel Port Size	7/8"-14 SAE	7/8"-14 SAE	7/8"-14 SAE	7/8"-14 SAE
Coolant Port Size	N/A	N/A	N/A	N/A
Height	2.6 in. (6.6 cm)	2.6 in. (6.6 cm)	2.6 in. (6.6 cm)	2.6 in. (6.6 cm)
Width	5.8 in. (14.7 cm)	5.8 in. (14.7 cm)	5.8 in. (14.7 cm)	5.8 in. (14.7 cm)
Depth	5.4 in. (13.7 cm)	5.4 in. (13.7 cm)	5.4 in. (13.7 cm)	5.4 in. (13.7 cm)
Weight (dry)	1.7 lbs (0.8 kg)	1.7 lbs (0.8 kg)	1.7 lbs (0.8 kg)	1.7 lbs (0.8 kg)

For operating temperatures, refer to the specific unit page that follows.

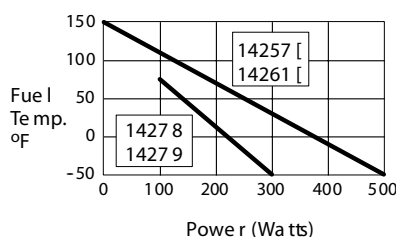
¹ For on-highway trucks, assuming all tractor lights and blowers are on. Use of more accessories will require a higher rating.

Test Data

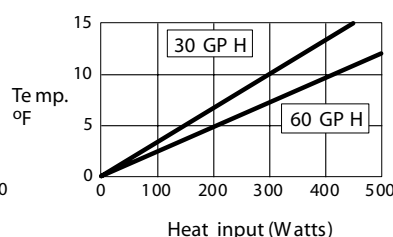
These results are from controlled laboratory test. Field results may vary



SAE J905 Fuel Flow Restriction
Given: Fuel temperature 70°F
($LF - 32 \times .555 = \text{€}$)



Typical Power Consumption
[In-cab control units.
Not thermostatically controlled.



Typical Heat Rise
Given: Heat input (based on fuel temperature in the line) and Flow Rate (of the fuel based on engine speed & type).

* $\text{PSI} \times 2.036 = \text{inHg.} / \text{PSI} \times 6.895 = \text{kPa}$

Nomad™ Electric Heaters

How to Order

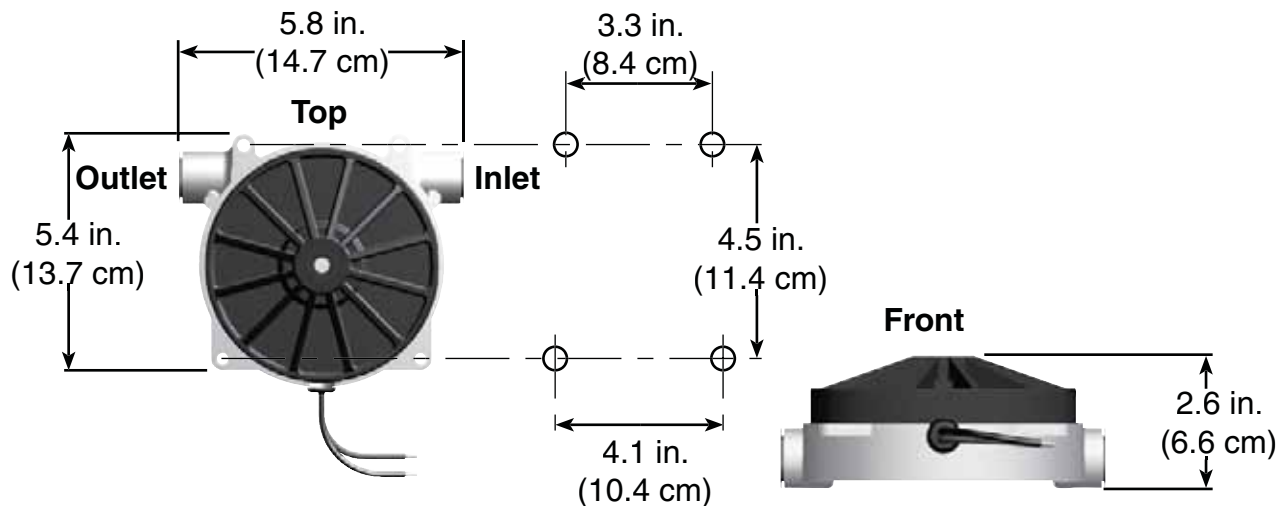
(The numbers below show how part numbers are constructed).

14278 ¹ 14279 ¹	14257 ² 14261 ²
Up to 200 HP, 300 Watts Aluminum die-cast body and high impact glass-filled nylon cover. Internal automatic thermostat controlled. Fittings and mounting hardware included.	200 to 300HP, 500 Watts Aluminum die-cast body and high impact glass-filled nylon cover. Fittings and mounting hardware included.

¹ Optional relay kit RK11861 (12vdc) or RK11862 (24vdc) may be required, not included.

² Controlled by provided In-cab controller / relay RK14280-12 (12vdc) or RK14280-24 (24vdc).

Mounting Information



All mounting holes are 0.25 inches

CAUTION! Never apply power to heater without fuel in it!

TO TEST: With or without fuel in system at ambient temperature, measure ohm resistance between the two power hook-up wires. The exact reading will vary and any reading means the unit is functional. If there is an 'OL' (Open Line) reading on the ohm meter, the unit is defective.

Nomad™ Coolant Heaters

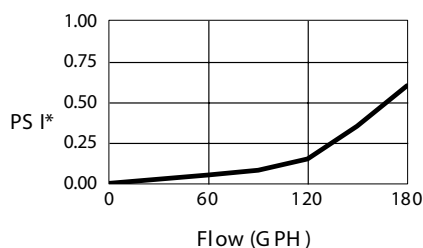
Nomad™ Coolant Heaters Overview

Specifications	320HTR4	320HTR4T
Engine HP.	up to 300	up to 200
Power Output	N/A	N/A
Voltage	N/A	N/A
Amperes Draw	N/A	N/A
Alternator Rating	N/A	N/A
Internal Thermostat	No	Yes
Fuel Port Size	7/8-14	3/8 NPT
Coolant Port Size	5/8" ID Hose	5/8" ID Hose
Height	3.8 in. (9.7 cm)	3.8 in. (9.7 cm)
Width	3.9 in. (9.9 cm)	3.9 in. (9.9 cm)
Depth	4.7 in. (11.9 cm)	4.7 in. (11.9 cm)
Weight (dry)	2.1 lbs (1.2 kg)	3.0 lbs (1.4 kg)

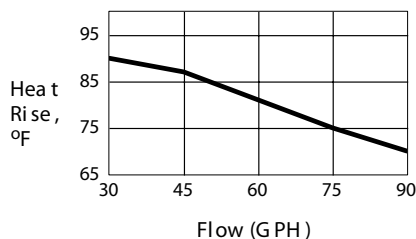
For operating temperatures, refer to the specific unit page that follows.

Test Data

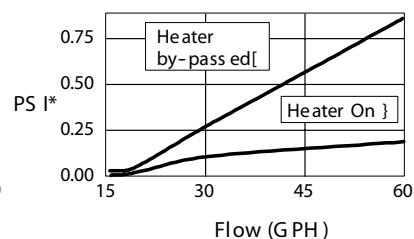
These results are from controlled laboratory test. Field results may vary



SA E J 905 Fuel Flow Restriction
Given: Fuel inlet temperature 70°F.
($F - 32 \times .555 = C$)



Typical Flow vs Heat Rise
Given: Fuel inlet temperature, 70°F.
Coolant inlet temperature, +180°F.



Typical Differential Pressure vs Flow
[Given: Fuel inlet temperature is +85°F (320HTR4 T.)
} Given: Fuel inlet temperature is +40°F, Heater on.

* PSI X 2.036 = inHg. / PSI X 6.895 = kPa

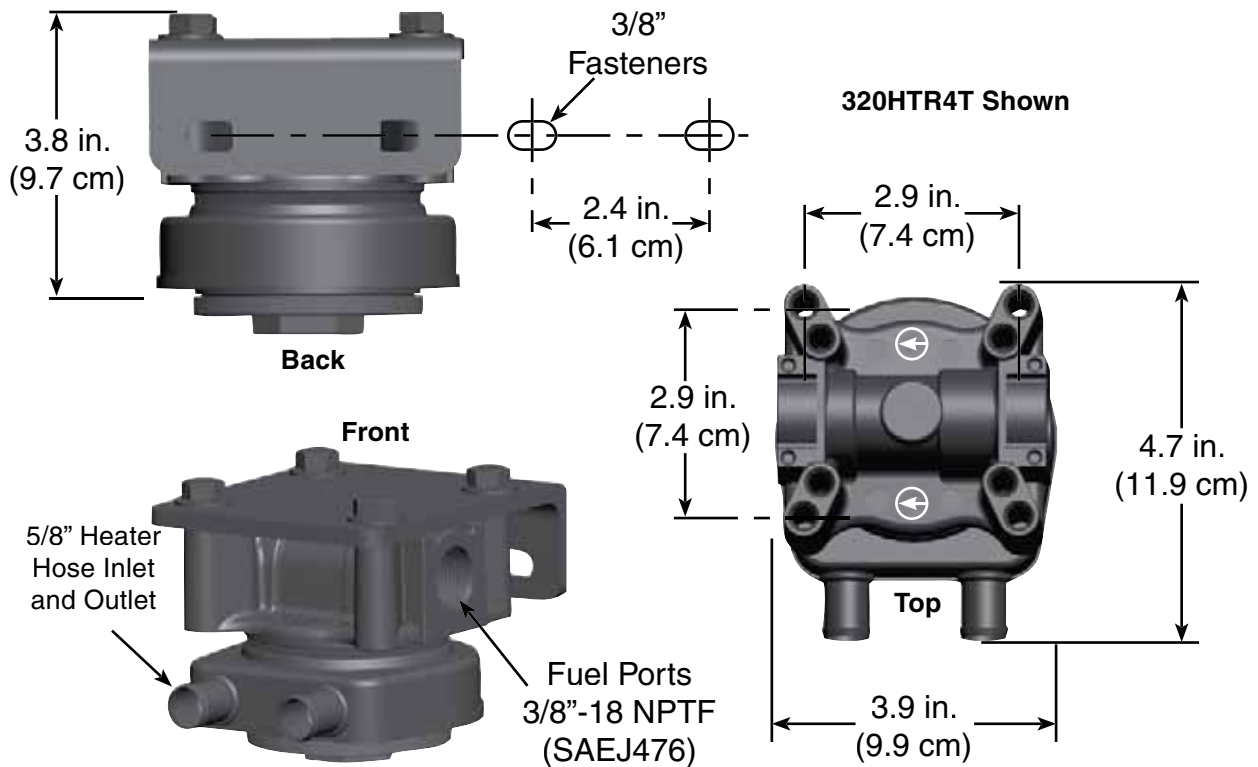
Nomad™ Coolant Heaters

How to Order

(The numbers below show how part numbers are constructed).

320HTR4	T
<p>Basic Model: Coolant heat exchanger type unit. Use with engines up to 300 horsepower. Aluminum die-cast body and plated steel coolant heat exchanger.</p> <p>Accepts 5/8" I.D. coolant hoses. Mounting bracket and hardware included.</p>	<p>Optional Automatic Thermostat: Specify T for this option, only. Installed by the factory, when the fuel temperature is below 60° F, the thermostat is open to heat fuel. As the fuel temperature approaches 80° F the thermostat closes, allowing the fuel to by-pass the heat exchanger.</p>

Mounting Information



Thermoline™ Electric heaters

Thermoline™ Electric heaters Overview

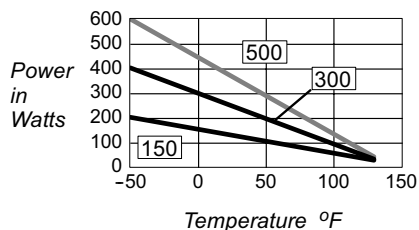
Specifications	HEATER300	HEATER500
Engine HP.	100-200	Over 200
Power Output	300	500
Voltage	12-24	12-24
Amperes Draw	21.4/10.7	35.7/17.9
Alternator Rating ¹	65/40	75/45
Internal Thermostat	In-cab	In-cab
Fuel Port Size ²	7/8"-14 SEA	7/8"-14 SEA
Coolant Port Size	N/A	N/A
Height	N/A	N/A
Width	7.0 ft (2.1 m)	10.5 ft (3.2 m)
Depth	N/A	N/A
Weight (dry)	6.3 lbs (2.9 kg)	8.4 lbs (3.8 kg)

¹ For on-highway trucks, assuming all tractor lights and blowers are on. More accessories will require a higher rating.

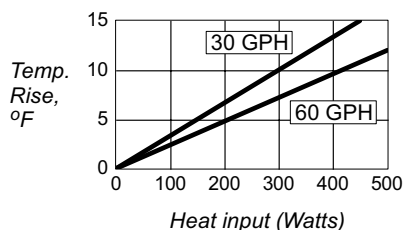
² Thermoline™ fittings are 45° female swivel (SAEJ512). Do not adapt to JIC 37° fittings (SAEJ514).

Test Data

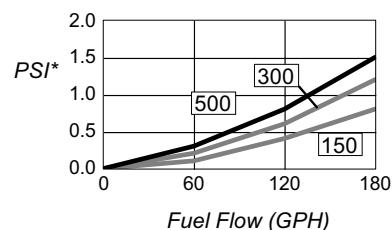
These results are from controlled laboratory test. Field results may vary



Typical Power Consumption
(Power output decreases as fuel temperature rises)
($_F - 32 \times .555 = _C$)



Typical Heat Rise
-All models.
Given: Heat input (based on fuel temp.in the line) and Flow Rate (of the fuel based on engine speed & type).



Typical Fuel Flow Restriction
Given: Fuel temperature 70_F
* PSI X 2.036 = inHg.
PSI X 6.895 = kPa

* PSI X 2.036 = inHg. PSI X 6.895 = kPa

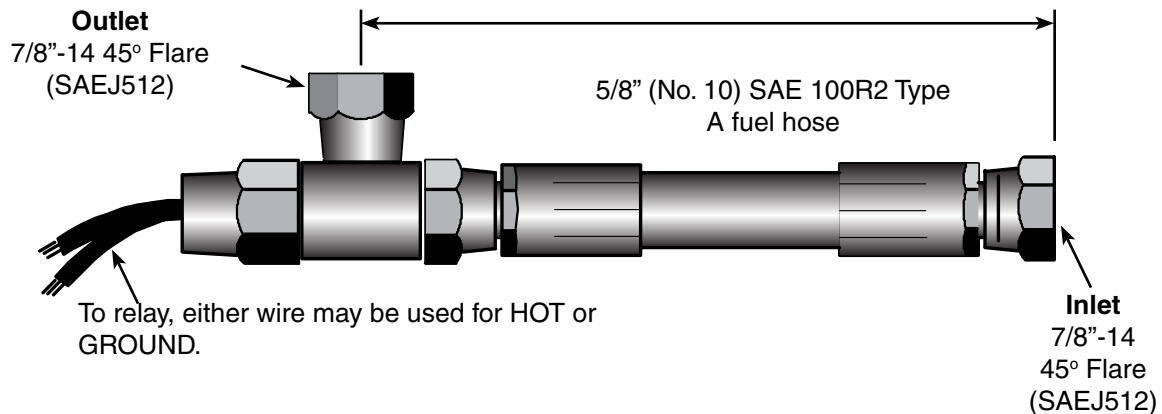
Thermoline™ Electric heaters

How to Order

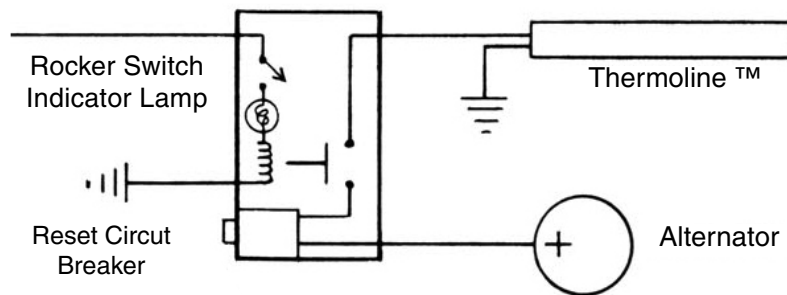
(The numbers below show how part numbers are constructed).

Heater	300	12V
<p>Basic Thermoline™ designation The unit uses 'oversize' No.10 high quality fuel hose with an internal heating element. The heater element is a conductive polymeric core extruded between two parallel copper bus wires and is infinitely temperature self-regulating. In-cab under-dash controller/relay (RK 14280-12 or -24) is included.</p>	<p>300: Recommended for engines 100 to 200 horsepower. 500: Recommended for engines over 200 horsepower.</p>	<p>Specify Voltage: 12V for 12 volts. 24V for 24 volts.</p>

Wiring Diagram



300/500 Models
Fuse Block Accessory (AC)
DC Voltage
Power Supplied By
Ignition Switch ON



CAUTION! Never apply power to heater without fuel in it!

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Heater Relay

Heater Relay Kits

A Relay kit may be necessary when installing a Racor heater due to power demand. Standard OE fuses, wiring and alternators may be unable to carry the load without overheating or potential shorting, creating a serious condition.



RK11861 & RK11862
Heater Relay



RK14280-12 & RK14280-24
Heater Relay

Relay Information

<i>Specifications</i>	RK11861	RK11862	RK14280-12	RK14280-24
Application	DC	DC	DC	DC
Volts	12	24	12	24
Remote Mount	Yes	Yes	No	No
Max Watts/amps	300 or 25 amps	360 or 15 amps	N/A	N/A

Part Number Index

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R

PRODUCT	PAGE#
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RK11862	L8
RK14280-12	L8
RK14280-24	L8

L

