

Aluminum Series 90+

Efficient Gas Fired Boiler Installation Guidelines, Water Treatment and Antifreeze Protection

P/N 240006888 Rev 1.0 [10/07]

IMPORTANT: These instructions are in addition to any existing Antifreeze and Water Treatment information in the boiler installation manual, the boilers user's manual or any other existing supplemental instruction or addendum. Antifreeze may be used in most applications. Water alone may also be used in most applications. Consult with your heating professional for recommendations.

The information in this Supplemental Instruction is to be used in place of that in the following manuals: 14683301 rev 3.4, 240004826D rev 1.3, 240006103D rev 1.1, 14683604 rev 3.4, 240004826K rev 1.3, 14683450 rev 3.5, 1305016 rev 2.1, 1305016 rev 2.1, 240004826B rev 1.3, 240004826BF rev 1.3, 240006103B rev 1.1, 240006103BF rev 1.0, 1305011 rev 3.4, 240004826U rev 1.3, 240006103U rev 1.1.

Piping Recommendations

- System leaks may not always be visible. An unseen system leak will become obvious if boiler pressure decreases when make up valve is closed.
- All system leaks must be repaired immediately. Constant introduction of make up water will introduce dissolved oxygen, resulting in accelerated boiler corrosion.

Water Chemistry:

- This boiler is designed for a closed loop hydronic heat system ONLY! This boiler is not suitable for natural gravity type installations, or any other open type system.
- System fluid pH must be maintained between 7.0 and 8.0.
- Maintain water hardness below 7 grains hardness.
- Filling with chlorinated fresh water should be acceptable since drinking water chlorine levels are typically less than 5 ppm. Do not fill boiler with water containing chlorine in excess of 100 ppm.

ADDENDUM

Aluminum Series 90+ Efficient Gas Fired Boiler

Water Treatment and Antifreeze Protection Guidelines

- Do not use inhibitors or other additives that are not specifically approved for this product.
- Consult a local water treatment specialist for recommendations if any of the above are outside the stated ranges.

Cleaning the Hydronic System:

IMPORTANT: Do not mix different manufacturers' products. Doing so will void the warranty of the boiler.

Consideration should be given to cleaning the heating system, particularly in retrofit situations where a new boiler with an aluminum heat exchanger is being installed in an existing piping system. Systems that have antifreeze that is not approved by the boiler manufacturer must be completely flushed to ensure no unapproved antifreeze remains

In older systems obviously discolored, murky or dirty water; or a pH reading outside the boiler manufacturer's stated acceptable range are indications that the system should be cleaned or treated.

1. Measure total capacity of the system including the piping, tanks, boiler, collector plates, etc. The most accurate method of measuring fluid capacity is to fill the system and then completely drain it, volumetrically measuring the fluid drained.

2. Thoroughly flush the system with clean water to remove any sediment or contaminants. Sludge and iron oxide deposits can cause rapid breakdown of inhibitors.
3. Cleaning fluid – **Flushing with clean water is preferred. If cleaning fluid is used, only use cleaner specifically approved for use with aluminum boilers.** Utilize the cleaner in accordance with manufacturer's instructions.

Freeze Protection

Aluminum Safe Antifreeze, Treatments and Additive Guidelines:

Antifreeze, if needed, must be of a type specifically designed for use in closed hydronic heating systems and be compatible with type 356 T6 aluminum at operating temperatures between 20°F (-6.7°C) and 250°F (121°C). See the "Approved Aluminum Antifreeze & Inhibitor Suppliers" section of this manual for a list of boiler manufacturer approved products.

- **Always clean system prior to using antifreeze**, refer to the **Cleaning the Hydronic System** section of this manual for details.
- **Only use the antifreeze manufacturers' products outlined in this document.**
- Use of antifreeze must be in accordance with local plumbing codes.

Aluminum Series 90+ Efficient Gas Fired Boiler Water Treatment and Antifreeze Protection Guidelines

- Antifreeze will raise the pH of the hydronic solution in a heating system above the recommended level due to the corrosion inhibitors in the antifreeze. The solution must be treated to maintain a pH within the boiler manufacturer's recommended level to avoid damage to the heat exchanger. Follow antifreeze manufacturer's instructions for details on how to adjust the pH.
- If the system has leaked for some reason, the water and antifreeze chemistry will need to be adjusted. To avoid damage to the boiler, check the pH and chemistry of the boiler solution and consult the antifreeze manufacturer for recommendations.
- It is recommended that a pH reading is taken annually, and adjusted as necessary. Follow antifreeze / inhibitor manufacturer's instructions for details on how to adjust the pH.

NOTICE: Antifreeze solutions can breakdown over time. Failure to check antifreeze chemistry, including inhibitors, periodically may result in accelerated corrosion of boiler and other system components. Consult with the antifreeze manufacturer for recommendations.

- Use of antifreeze in any boiler will reduce heating capacity as much as 10-20%. This must be taken into consideration when sizing the heating system, pumps and expansion tank. Consult antifreeze manufacturer's literature for specific information on reduced capacity.
- Using the antifreeze manufacturer's instructions determine the freezing temperature needed and use the correct amount of antifreeze. Never exceed 50% antifreeze by volume.
- The boiler operating pressure must remain below 15 psi for antifreeze solutions that specify a maximum of 250°F (121°C).

Approved Aluminum Antifreeze & Inhibitor Suppliers:

Approved Product(s):

Intercool NFP-30,40,50 AA
Intercool RPH-15*

* *This product may be used to adjust the pH level of the hydronic system, but on occasion may not resolve the pH issue. In these cases it is recommended to flush the system and refill with untreated water and new boiler manufacturer approved antifreeze suitable for Aluminum heat exchangers.*

Interstate Chemical

2797 Freedland Road
P.O. Box 1600

Hermitage, PA 16148-0600

www.interstatechemical.com

Tel: 800-422-2436

Fax: 724-981-8383

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(Continued) **Approved Aluminum Antifreeze & Inhibitor Suppliers:**

Approved Product(s):

Noburst AL Antifreeze

Noble Company

PO Box 350

Grand Haven, MI 49417

www.noblecompany.com

Tel: 800-878-5788

Fax: 800-272-1519

Approved Product(s):

Rhogard Antifreeze

Pro-Tek 922 Inhibitor*

** This product may be used to adjust the pH level of the hydronic system, but on occasion may not resolve the pH issue. In these cases it is recommended to flush the system and refill with untreated water and new boiler manufacturer approved antifreeze suitable for Aluminum heat exchangers.*

Rhomar Water Management, Inc.

PO Box 229

Springfield, MO 65801

www.rhomarwater.com

Tel: 800-543-5975

Fax: 417-862-6410

Approved Product(s):

Alphi-11

Hydronic Agencies Ltd.

(Ferox North America Distributor)

15363 117 Avenue

Edmonton, AB T5M 3X4

Canada

www.hydronicagencies.com

Tel: 780-452-8661

Fax: 780-488-2304

Ferox

www.ferox.com

Tel: 870-601-5000

Fax: 870-601-5005

Ferox Technical Service

Tel: 870-870-0362

IMPORTANT: Regardless of antifreeze or inhibitors used, be sure to follow the antifreeze manufacturer's instructions for use, safe handling and storage of their products.

Refer to the MSDS (Material Safety Data Sheets) provided by the antifreeze manufacturer for potential hazards and first aid procedures for exposure or ingestion.