

Degree^o Thermo Pride[®]

April 2002

Volume 03 • Issue 01

Built Tough for *Lifetime* Comfort: Thermo Pride Gas Furnace Tubular Heat Exchanger

Thermo Pride products are handcrafted to provide years of comfort and reliability. The confidence we have in the durability of our products is the direct result of extensive internal and agency testing as well as widespread studies in the field. To demonstrate the durability of the Thermo Pride gas furnace tubular heat exchanger, we share the following experience we had with a test furnace.

The American National Standards Institute (ANSI) standards require that any new gas heat exchanger design must be subjected to an accelerated life cycle test. This test is designed to simulate years of field use in an abbreviated amount of time. Each cycle of the test consists of a timed burner on cycle with no blower operation to

achieve rapid heat up to the maximum temperatures, followed by a timed blower cycle with no burner operation to achieve a rapid cooling of the heat exchanger. The purpose of the rapid heating and



cooling is to place maximum stress on the material.

To comply with the standard, 10,000 cycles must be completed without a failure. However, Thermo Pride

design requirements require a minimum of 30,000 cycles to meet our own internal Quality of Design Standard. By comparison, 1,000 cycles of operation under these extreme conditions would represent one year of normal operation.

After the unit (with its 16-gauge 409-stainless steel primary heat exchanger and 26 gauge 29-4C stainless steel secondary heat exchanger) underwent over 30,000 failure-free cycles in the Thermo Pride engineering laboratory, the unit was shipped to the American Gas Association (AGA) for their official cycle testing.

Shortly thereafter a call was received from an AGA engineer who explained that while preparing the unit for testing he had inadvertently disconnected the blower

Built Tough	1
ISO 9000	2
Thermo Pride Offer	3
Tech Tips	3
Points of Interest	4

from the system on Friday afternoon. The test cycles were started on the furnace over the weekend and because the blower was disconnected, it cycled on the burner operation only for the entire weekend—never going through the cooling (blower only) cycle. These are conditions far beyond what the test requires.

After an AGA examination of the heat exchanger it was reported that no breeches of integrity or any other failures were observed. The only negative condition noted was that the putty gasket used to seal the collector box had hardened. It had not, however, lost its sealing integrity. The decision was made to replace the putty gasket and continue the testing with this same furnace. This same heat exchanger survived and passed the ANSI cyclic test requirements with flying colors and was returned to Thermo Pride.



Once returned, the furnace was examined by our engineers and subjected to further testing which included an extreme test where the tubes of the heat exchanger were bound to each other with wire to provide a worse case scenario of tube touching tube. The blower was removed from the furnace to prove the absence of circulating air. The furnace was then fired at an elevated rate and was allowed to burn all day with no interruption of the burner. And still, no failure occurred!

As a result of this extreme testing, complete confidence in the durability of this unit (and heat exchanger) was earned. Because of this total trust in its capabilities, the Thermo Pride non-prorated lifetime warranty on the heat exchanger was established and we have yet to encounter a failure on these heat exchangers internally or in the field.

ISO 9001 - 2000

Denton Plant Certified

Thermo Products is proud to announce that our plant in Denton, NC has been certified to the 9001-2000 standard. The certification process began in February of 2001 with the creation of a new quality manual. This took about five months and involved the efforts and cooperation of all departments at both plants. After the manual was reviewed by our registrar, TUV Rhineland, some minor revisions were made and the certification was issued as of September 14th, 2001.

Requirements that must be met to obtain this certification include:

- Having a system that focuses on continual improvement
- Improving efficiency in the workplace
- Placing greater focus on customer satisfaction
- Increasing quality in products and service
- Obtaining a better understanding of manufacturing processes
- Ensuring repeatability and consistency in manufacturing



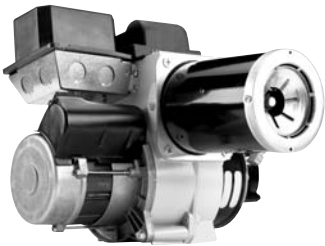
The Denton plant was started in the late 1950's as a warehouse for the east coast region. Assembly work was started there in the early 1960's. In the mid 60's fabrication as well as assembly work was being completed in Denton. This plant now fabricates all Thermo Pride oil units with the exception of the 200,000 BTU models and larger. They also manufacture both gas and oil ThermoPacks.

You can be assured that all products manufactured at both Thermo Pride plants are of the highest quality—we have the certification to prove it!

A New Thermo Pride Offering:

Beckett Burners with Two-Stage Pumps

In addition to the standard line of Beckett burners with single-stage pumps, select Beckett burner models are now being stocked with the two-stage oil pump configuration.



The two-stage models offered are TP2101 for the 3, 5 & 11 series, TP2102 for the 16 series and TP2401 for the 2 series furnaces. The burners have an added cost of \$39.00 when sold with the unit and will sell at \$330.00 for straight burner sales.

If a request for two-stage burner is made for an L20 through L39 furnace, it will be necessary to purchase a two-stage pump and a delta kit (consisting of an in-line solenoid valve, connector tube, cord set and couplings) and make the conversion in the field. You can retain the single-stage pump for stock or may return it for a credit.

TECH

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S** In the December issue of *Degree* there was an article about the new Silicon Nitride ignition system used in the Thermo Pride condensing gas furnaces. This ignition system utilizes a White Rodgers Silicon Nitride igniter with a 50A65 White Rodgers ignition control. It is touted to be the most reliable and robust ignition system on the market today. The control's learning routine adjusts the voltage supplied to the igniter to optimize ignition temperatures, which in turn maximizes igniter life.

The leading causes of igniter failures are poor ground connections. A poor ground will cause the igniter to overheat due to the increased voltage supplied to the igniter by the control.

1. Why should troubleshooting of the Silicon Nitride igniter be done with an ohmmeter instead of a voltmeter?
2. What is the best way to check for poor ground connections?

Answers to these questions can be found at www.thermopride.com. We will also include the answers in the next Degree Newsletter.

Answers to December 2001 Tech Tip Questions

1. **The Two-Stage Condensing Gas Furnace I & O Manual lists the ten diagnostic flash-pause sequences of the LED light on the 50V61-143 control. What are they?**

1 flash, then pause	system lockout (retries or recycles exceeded)
2 flashes, then pause	low pressure switch stuck closed
3 flashes, then pause	low pressure switch stuck open
4 flashes, then pause	open high temperature limit switch
5 flashes, then pause	not used
6 flashes, then pause	115 V AC power reversed
7 flashes, then pause	low flame sense signal
8 flashes, then pause	check igniter or improper ground
9 flashes, then pause	high pressure switch stuck open
continuous flash	flame sensed with gas valve de-energized

2. **The I & O manual for the Thermo Pride Oil Fired Furnace states the temperature rise for this unit should be 70°F. What are the consequences of a slightly higher temperature rise? Lower rise?**

A slightly higher temperature rise would lower the efficiency. A lower temperature rise may cause condensing.

Points of Interest

Trade Shows

Look for Thermo Pride at these upcoming shows:

AREE (Atlantic City, NJ) – April 23-25 – Booths 101 & 102

NAOHSM (Hartford, CT) – May 16-17 – Booths 286, 287 & outdoor space

Comfortech (Baltimore, MD) – September 11-14 – Booth 1128

A New Look

The new gas literature is now available. One piece encompasses the 80%+, 90%+ and two-stage gas furnaces. Look for new air conditioning literature to be available shortly.

Accessory Program

Purchase any 10 Thermo Pride accessories at one time and receive a 10% discount on each, PLUS free freight! Accessories include: Humidifiers, Electronic Air Cleaners, UV Lights Media Filters and Programmable Thermostats. See your Thermo Pride salesperson for complete details.

