Chapter 1

1 Introduction

1.1 Introduction

Welcome to the world of **infrared furnace thermal processing**. FurnacePros specializes in near **infrared** (0.5-5.5 µm) wavelength continuous belt dryers, ovens and furnaces worldwide. We are committed to your success. Our goal is to provide the **highest quality** thermal processing equipment, parts and service available **anywhere.** Should you have a furnace operating question, do not hesitate to contact FurnacePros Technical Support. We stand ready to help. We want **you to be successful** with the use of your IR Furnace equipment.

This "how to" manual explains the theory, operating features and techniques to assist you in achieving highly repeatable and reliable thermal processes. **Please** study this manual carefully. Experience has shown that clients who thoughtfully **study** and **master** the contents of this manual **become expert** in understanding the process system capabilities of our furnaces. In doing so, many are able to push the initial process performance envelope and thus achieve higher degrees in both process reliability and throughput than previously anticipated. Achieving **high** performance and high **yields** usually elicits congratulations from your company and always from FurnacePros. Please share your successes with us. We will appreciate it.

Infrared furnaces are highly responsive to critical temperature settings. With lamps as the primary heat source, the equipment is literally heating with the speed of light. The unique gas management system provides an extremely even distribution and well regulated flow of gas throughout the process chambers. Understanding and **learning** how **to control** both the **heat and gas flow is essential** to the effective operation of the furnace. When the interaction and performance of the control elements are well understood, putting them all together to make the tool achieve its potential is a most satisfying experience. For many, our furnaces become regarded more than just an effective tool; they are viewed as a fine instrument that can produce wonderful results over a variety of thermal processing situations.

There are many features in your equipment to help assure your success in achieving your goals. Many **"firsts"** involving the application of near infrared heating include: the first high temperature furnace capable of operating at 1000^{o}C with extremely tight temperature control; the first thick film furnace; the first controlled atmosphere furnace capable of <5 ppm O_2; and the first hydrogen furnace.

We endeavor to improve our equipment in performance and design. To this end, FurnacePros encourages clients to suggest methods of improving designs and service. Additionally, we are always more than happy to discuss, in confidence, new thermal processing requirements, however difficult or mundane they may be. When needed, FurnacePros stands ready to design new equipment to meet the special and challenging needs our partners require.

1.2 Format

This manual uses the following formatting conventions.

DANGER: This signifies a potential threat to human safety.

Warning: This signifies a potential threat to equipment damage or product loss.

Note: This signifies an important fact that could affect process control.

Examples are shown in italic text.

Bold text words or phrases embedded in this document, are terms with definitions in the glossary.

Bold Underlined text will be used for text in pop-up windows, button descriptions or selector button/box choices.

Cross-references to “Section Titles” are bound with quotes.

(Optional ❒) accessories will be shown in parenthesis with a checkbox. If supplied, please check the box as appropriate.

1.3 Where to Get Help

1.3.1 General

Address: 675 North Eckhoff Street, Bldg. D
Orange, California 92868

Phone: +1 (714) 935-0302

Fax: +1 (714) 935-9809

e-mail: tmacias@furnacepros.com

1.3.2 Technical Support

Department: Technical Support

e-mail: service@furnacepros.com

Phone: +1 (714) 935-0302 x220

1.3.3 Service Parts Ordering

Department: Technical Support

e-mail: parts@furnacepros.com

Phone: +1 (714) 935-0302 x220

1.3.4 Upgrades & Factory Refurbishing

Department: Aftermarket

e-mail: tmacias@furnacepros.com

Phone: +1 (714) 935-0302 x220

1.3.5 Equipment Sales

Department: Sales & Marketing

e-mail: sbarber@furnacepros.com

Phone: +1 (714) 935-0302 x210

1.3.6 Website

Web: www.furnacepros.com

Notes: