

Shoe Systems Plus, Inc.

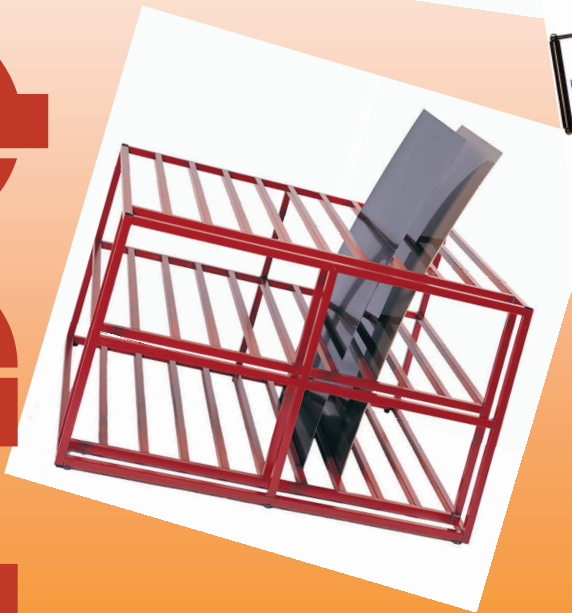
249 West Main St.

Goshen, NY 10924

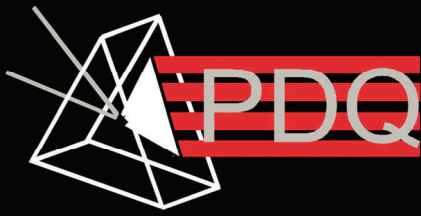
800-354-6278

www.shoesystemsplus.com

PDQ Ovens



PDQ Quartz Infrared Ovens



Understanding Infrared

First, it is important to understand that hot objects do not radiate heat. They radiate electromagnetic waves, that when absorbed by a surface, result in it heating up. Example: On a cold day you step out and face the sun. Your face heats up, but your back stays cool. If the sun were radiating heat, it would have heated up the air before you stepped into it. Electromagnetic radiation can pass through space without heating it. That is why outer space is so cold even though it is actually closer to the sun. It is only when electromagnetic waves hit an object and are absorbed that they transform into the heat that we can feel. We can't feel the electromagnetic waves, but we can feel the heat that they produce.

What are electromagnetic waves?

All materials are made up of atoms that are constantly in motion. As energy is absorbed by an object the motion of its atoms is increased. The temperature of an object is directly proportional to the vibration of its atoms*. The more they vibrate, the hotter they get. Atoms contain protons and electrons which are electrically charged particles. These particles create an electric field around themselves, and when they move it creates a magnetic field. The atoms of a hot object vibrate frantically. As these atoms move, the electric and magnetic fields that are created by the charged particles are disrupted. This disruption is called an electromagnetic wave (not unlike the waves in a pond). Objects that are hot are radiating electromagnetic waves. When these waves reach a cool object, the electric and magnetic fields of the electromagnetic wave will pull on the charged particles of the cool objects atoms and cause them to vibrate. The more they vibrate, the hotter they will get. The atoms of the cool object absorb the energy of the electromagnetic wave created by a hot object some distance away.

The Electromagnetic Spectrum

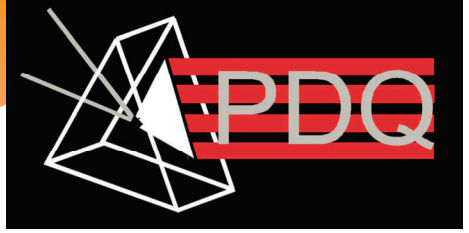
Electromagnetic waves are like other waves in that they are described by their velocity, frequency and wavelength but are different in that they don't need a medium in which to travel. Ocean waves need water & sound waves need atmosphere, but electromagnetic waves can travel through the vacuum of space. Visible light, microwaves, radio waves, X-rays and infrared are all different types of electromagnetic waves. They all travel at the same velocity commonly referred to the "speed of light". The only way in which they differ from each other is in the length and frequency of their waves. The electromagnetic spectrum is divided up into many different frequencies with many different wavelengths. The infrared band is bordered on one side by visible light and on the other by microwaves and is defined as the area between .72 and 1000 microns. There are three parts to the infrared band. Near IR is defined as the area between .72 and 1.5 microns, middle IR is between 1.5 and 5.6 microns and far IR is 5.6 to 1000 microns. A micron is the measurement used gauge wave lengths and is equivalent to 1/1,000,000 of a meter or about 0.00004 inches (the average human hair is about 50 microns in diameter).

Absorption Curves

All energy is either absorbed, transmitted or radiated when it hits an object and all materials have absorption curves which show what wavelengths the material will best absorb. To find out what frequency and wavelength of infrared radiation we want our heater to output, we need to establish the absorption curve of the material we want to heat. In orthotics and prosthetics we require our heater to cook Poly-olefin type plastics. The absorption curve indicates that the carbon/hydrogen bond of most plastics breaks in the middle IR range (at about 3.5 microns). Ideally, we would like our heater to output most of its energy in this area so it's important to select an infrared emitter that does this. The wavelength can also be fine tuned with the proper controller. A digital controller can regulate the wavelength so well that it's accurate within +/- 2° of the set temperature.

* Absolute zero (-460° F & -273° C) is the temperature when all atomic vibration stops.

PDQ Rollabout Models



A Rollabout model is an excellent solution for heating large sheets of plastic for hip spicas, AFOs, or check sockets. There are 4 different sizes to meet every thermoforming need, and each features a hydraulic assisted height adjustable tray for easy operation.

The tray includes a fitted Teflon cover, is mounted on casters, and can be rolled to your vacuum area. No more burnt arms or trying to find a place to set down your hot plastic.

Standard Features:

- ◆ Stainless Steel Construction
- ◆ 650 watt infrared emitters (1000 watt on 8E)
- ◆ Interior light
- ◆ Double pane viewing window
- ◆ Programmable digital temperature controller
- ◆ Tray includes a fitted Teflon cover
- ◆ Full 1 year warranty

Interior Dimensions:

5/A - 38" wide x 31" deep x 18" high

6/B - 36" wide x 51" deep x 18" high

7/C - 48" wide x 51" deep x 18" high

8/E - 60" wide x 48" deep x 18" high

Exterior Dimensions:

5/A - 49" wide x 35" deep x 48" high

6/B - 47" wide x 55" deep x 48" high

7/C - 59" wide x 55" deep x 48" high

8/E - 70" wide x 52" deep x 48" high

Electrical Requirements:

220 volt, single phase

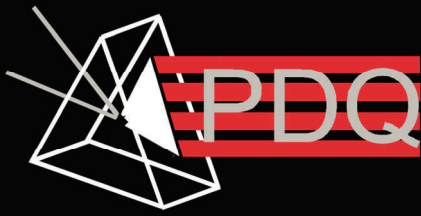
30 amp for models 5/A, 6/B, 7/C

50 amp for model 8/E



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PDQ Model BT-1

The BT-1 PDQ Oven incorporates all the infrared efficiency of our full size ovens without the full size cost. Their smaller size also makes them more versatile for smaller labs.

If you need an oven for a branch office or if you're thinking of buying a used oven not intended for O&P, one of the BT ovens may be right for you. The smaller interior dimensions of the BT-1 is intended for flat plastic only.



Standard Features:

- ◆ Stainless Steel Construction
- ◆ Four 650 watt infrared emitters
- ◆ Interior light
- ◆ Double pane viewing window
- ◆ Programmable digital temperature controller
- ◆ Tray with a fitted Teflon cover
- ◆ Weight (uncrated) 150 lbs.
- ◆ Full 1 year warranty

Interior Dimensions:

38" wide x 30" deep x 6" high

Exterior Dimensions:

42" wide x 43" deep x 20" high
(44" high with legs)

Electrical Requirements:

220 volt, 20 amp, single phase

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PDQ Model BT-3

OTS has developed a new oven capable of bubble forming and heating sheet plastic while taking up a minimal amount of floor space. The BT-3 Infrared Oven is big enough to heat most of your KAFO sheet plastic and has enough drop for even the biggest check socket, but it only takes up a corner of space in your lab.

It features a bank of lights on the top as well as on the bottom providing efficient and even heating of bubble forming plastics. The BT-3 is truly the best of both worlds with its small size and large capacity.

Standard Features:

- ◆ Stainless Steel Construction
- ◆ Four 650 watt emitters on top and four 650 watt emitters on bottom
- ◆ Interior light
- ◆ Two double pane viewing windows
- ◆ Programmable digital temperature controller
- ◆ Fitted Teflon sheet for tray
- ◆ Full 1 year warranty

Interior Dimensions:

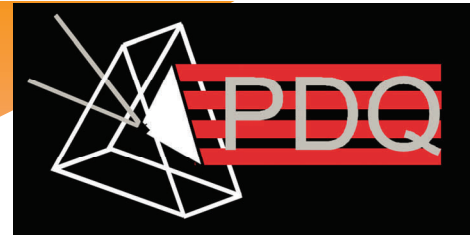
28" wide x 40" deep x 24" high
(18" clearance for bubble forming)

Exterior Dimensions:

32" wide x 49" deep x 61" high

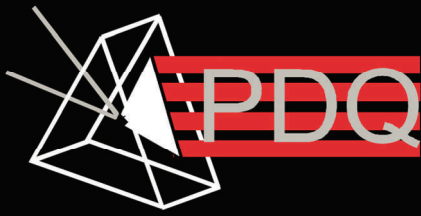
Electrical Requirements:

220 volt, 30 amp, single phase



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PDQ Model PO-2

Our premier oven, the PO-2 is designed to out perform every other oven. It features banks of lights above and below for the quickest and most even heating of either sheet plastic or thick bubble forming plastic.

It's also easy to use. No need to raise or lower the tray height to switch between sheet plastic and bubble plastic and it rolls out to where ever your vacuum pump is. Buy the best; Buy a PO-2.



Standard Features:

- ◆ Stainless Steel Construction
- ◆ Four 1000 watt infrared emitters on top and four 1000 watt emitters on bottom
- ◆ Interior light
- ◆ Two double pane viewing windows
- ◆ Programmable digital temperature controller
- ◆ Fitted Teflon sheet for tray
- ◆ Rollabout tray/rack
- ◆ Full 1 year warranty

Interior Dimensions:

50" wide x 36" deep x 20" high

Exterior Dimensions:

60" wide x 40" deep x 53" high

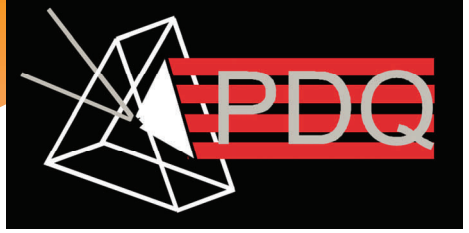
Electrical Requirements:

220 volt, 50 amp, single phase

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PDQ Mini-Mobile Oven



The new portable mini-mobile oven is the answer to all of your off-site visits for low temperature thermoforming. The mini mobile comes with wheels and extending handle to make transporting easy. Simply plug into any standard 110V outlet and thermoform up to 170° right on site!

Standard Features:

- ◆ Light; weighing less than 30lbs
- ◆ Heats up to 170° F
- ◆ Exterior dimensions 29" X 31.5" X 5"
- ◆ Interior Dimensions 26" X 26"
- ◆ Easy to transport with wheels and handle.



(Shown with optional accessory bag)

PDQ Maxi-Mobile Oven

Need more room for larger plastics; the Maxi-Mobile is your answer. Still portable but with more room than the Mini-Mobile oven the Maxi-Mobile can tackle your largest off-site low temperature thermoforming needs.

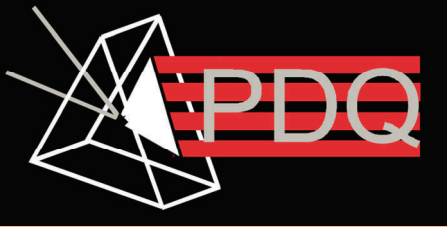
Standard Features:

- ◆ Larger interior dimensions 26" X 38"
- ◆ Exterior Dimensions 40" X 31.5" X 5"
- ◆ Portable with wheels and handle
- ◆ Plugs into standard 110V outlets
- ◆ Heats up to 170° F
- ◆ Weighs less than 40lbs



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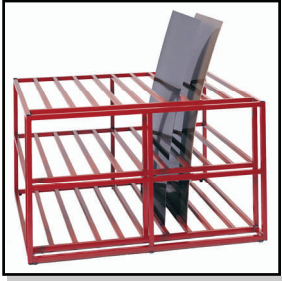
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PDQ Accessories

PDQ Plastic Rack

Do you have sheet plastic stacked in corners and against the wall? Can't find the right color or size because all of your plastic is in piles? Is it getting damaged in this environment? The PDQ Plastic Rack stores all of your sheet plastic in an orderly manner while protecting it from harm. Available in two sizes. **SMALL RACK** 30"h x 52"w x 32"d
LARGE RACK 30"h x 52"w x 44"d



PDQ Mold Library

Get your casts up off the floor and into the PDQ Mold Library! Whether it's a child's AFO cast or a behemoth body jacket, our specially made rack will protect it from the harm that can come from it sitting on the floor. Keep your molds neat and orderly. Store them in a PDQ Mold Library. 84"h x 36"w x 16"d.



PDQ Oven Gloves

These terry cloth gloves are the ultimate Thermoforming gloves! They're thick enough to protect your hands from the heat of the plastic and long enough to protect your forearms too. Don't burn you hands and arms! Use our gloves and beat the heat!

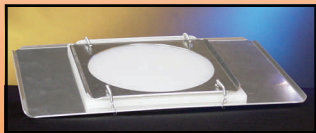
PDQ Powdercoating System

We call it "Paint with an Attitude"! The PDQ Powdercoating System is the ultimate coating system. Not only does it add color, it also provides chemical and corrosion protection to the surface to which it's applied. Available in every color in the rainbow, and some that aren't, including textured coatings. It's also easy to use! Simply clean and degrease the part, spray it with powder and bake it for ten minutes. It's that simple. With hundreds of uses, you'll find it an invaluable tool in your lab. Comes with Gloss Black powder to get you coating immediately. All you need is an air compressor with a regulator and an oven.



PDQ Bubble Forming Frame

The PDQ Bubble Forming Frame was designed by four prominent prosthetists and manufactured to work best in the PDQ Infrared Ovens. The round hole was chosen to reduce plastic stretch at the corners and increase platen contact. Four easy to use spring clips hold the plastic in place and will accommodate any thickness of plastic. The bottom of the frame is made wider to facilitate handling and supports the frame inside PDQ Benchtop ovens.



Available in five sizes. **(Order BFF {9",12",16",18",24"})**
BT-3 ovens require special frames; please add BT-3 to end of part number.

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