

C.A. LITZLER CO., INC.

**PSC**

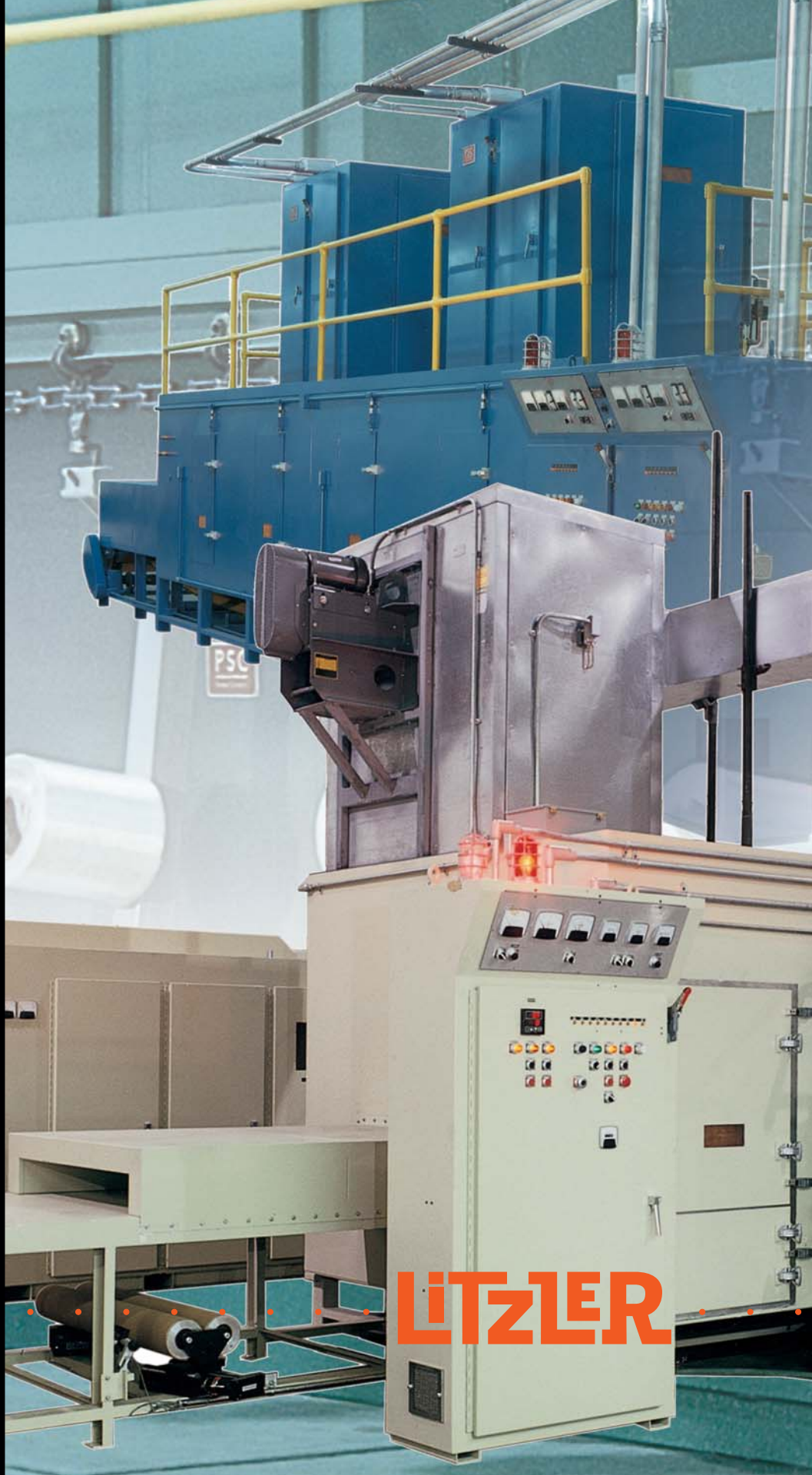
**RADIO  
FREQUENCY  
DRYERS**

**Radio**

**Frequency**

**By**

**Litzler**



**LITZLER**

# PROCESS HEATING SOLUTIONS

## RADIO FREQUENCY/DIELECTRIC/MICROWAVE

PSC has the resources to design and build RF Heating Systems for existing as well as new and unusual applications.

DRY, HEAT AND PROCESS  
NON-CONDUCTING MATERIALS  
MORE EFFECTIVELY THAN  
CONVENTIONAL HEATING UNITS

With Dielectric heating systems - RF and Microwave - only parts or materials are heated which brings exceptionally fast and efficient performance when processing textiles, paper, plastics, ceramics, rubber, wood, food and other non-conducting materials.

Unlike conventional conduction, convection, and radiant methods that depend on heat transfer from a surface to the interior of the material, dielectric heating transfers energy instantly into the interior. Heating is more effective since it doesn't depend upon a temperature gradient.



200 KW FOAM DRYER

## WHAT IS DIELECTRIC HEATING?

Most non-conductors of electricity such as wood, paper, textiles and plastics show electrical losses when placed in a high-voltage, high-frequency electric field. These losses appear as heat developed in the material. Some materials (wet sand, wet paper, vinyl plastics, etc.,) have relatively high "loss factors" and heat readily. Other materials such as dry sand, dry paper, glass

and polypropylene heat reluctantly or not at all. Most dielectric heating is done at Radio-Frequencies of 10 to 100MHZ. The material to be heated is placed in this high-frequency field, often between two parallel plates or electrodes where it becomes the dielectric of a capacitor. High Frequency, Radio Frequency and Microwave Heating are similar terms used to describe the Dielectric Heating process. Other applicator configurations are used such as stray-field electrodes and resonant cavities or wave guides at higher frequencies. Electrodes may also form the platens of a press in pressure applications.

Since the heat is developed directly in the material, excellent uniformity and remarkable speed of heating are possible. In drying applications energy is absorbed in relation to the amount of moisture present and often becomes self-limiting. Practical efficiencies of 55 to 70% (line power to heat in the work) are readily attained.



100 KW RF DRYER FOR YARN PACKAGES

### SYSTEM BENEFITS

- Increased heating and processing speed
- Improved product quality and yields because drying action is more uniform and often self-limiting
- Uses only 1/3 the floor space of conventional heating units
- Instant on/off and temperature change
- Amenable to automation and process control
- High energy efficiency - 55 to 70% compared with 10 to 30% for conventional units
- Often combined with convection systems for increased productivity



200 KW HYBRID/CONVECTION DRYER

### DETERMINING FEASIBILITY

Increased processing speeds and improved product can result in cost advantages compared to conventional processing. A thorough analysis is needed to determine economic feasibility.

Our Application Engineers can help make those evaluations. A complete test facility is in place to process your samples.

### EQUIPMENT CAPABILITIES

PSC is particularly proficient with stray-field systems for webs, strands and films for drying and curing or heating coatings on thin materials. Our personnel pioneered this type of heating for the paper and textile industries.

PSC manufactures conveyerized RF Heaters up to six feet wide for bulk materials at power levels to several hundred kilowatts. These are generally parallel plate electrode types.

Smaller units for laboratory or batch operation are also available.

Imaginative engineering coupled with broad experience in many industries makes PSC the first choice when considering Radio Frequency Heating.

### PSC

PSC is part of C. A. Litzler Co., Inc., a world leader in convection and infrared drying and processing systems. PSC, founded in 1969, has experienced people, equipment, software, and instrumentation to design and build RF Systems for existing and new applications.

PSC laboratories are available for testing and feasibility research on new applications and include RF, convection, and infrared equipment. We can test both web materials and bulk materials on our equipment.

We welcome inquiries and can assist in all your drying needs.



DIELECTRIC DRYER FOR YARNS, STRANDS & COATINGS

## TYPICAL DIELECTRIC HEATING APPLICATIONS

### Textiles/Nonwovens

- Dry yarn packages, strands, webs and nonwovens
- Dry carpet backing
- Set dyes

### Paper & Paper Converting

- Dry and profile
- Set adhesives
- Dry coatings

### Ceramics/Refractories

- Dry powders, filters, catalytic converters, insulating boards and fiber shapes

### Foam

- Dry and cure latex and polyurethane foam

### Environmental

- Waste sterilization
- Soil remediation

### Foods

- Precook
- Sterilize
- Temper
- Baking

### Forest Products

- Veneer dry, redry
- Preheat for MDF, OSB and fiberboard
- Dimensional lumber drying

### Foundries

- Cure cores and core washes
- Lost foam process
- Investment casting

### Medical

- Medical waste sterilization treatment

### Plastics

- Preheat
- Cure thermosets
- Pultrusion

### Rubber

- Preheating, drying and expansion

# LITZLER

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