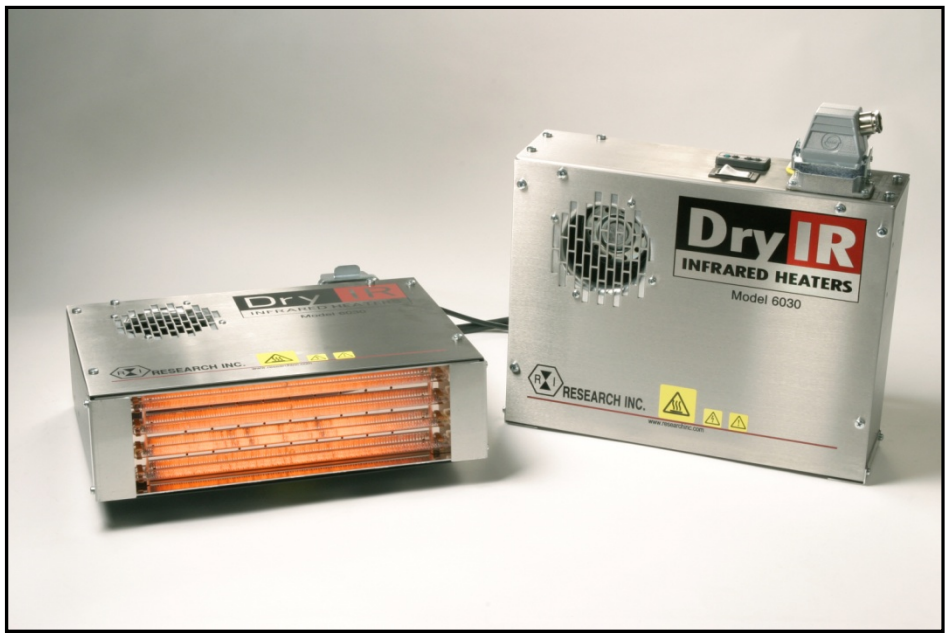
Infrared Heaters For Controlled Concentrated Curing

Model 6030



Infrared Heat. Instantaneous Results.

The Model 6030 DryIR infrared heater is designed for drying applications that require a clean, responsive, non-contact heat source on target areas up to four inches (102 mm) wide. The Model 6030 DryIR makes it simple to add extra capability enabling increased line speeds. Designed for easy installation, low operation cost, and minimal maintenance, the system is an economical solution. Typical applications for the Model 6030 include:

- Water-based drying
- Solvent-based drying
- Adhesive curing

FAST. FOCUSED. CONTROLLED.

Features and Benefits

- The fast responding, medium-wave quartz lamps heat up and cool down instantly in response to power control signals.
- The lamps provide infrared heat directly to the desired area, resulting in immediate evaporation.
- The aluminum construction of the Model 6030 combined with the air-cooling, allows the heater to withstand continuous high-temperature operation.
- The modular design of the heater allows units to be installed in a variety of configurations suitable for many applications.
- Electric heat source is clean and efficient and does not come in contact with product being heated.
- An integrated fan blows air past the lighted lamps resulting in heated air impingement on the target product surface, combined with quartz lamps for extremely fast drying rates.
- Localized energy generated by unit heats desired target area without heating surrounding areas.
- Digital display power controller comes integrated in the Model 6030.

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PROVIDING CONTROLLED ENERGY
DRYING ▲ CURING ▲ HEATING

Description

The Model 6030 includes the following major components:

Heater Module

The heater module uses medium-wave quartz halogen lamps backed by an aluminum reflector to provide heat. It is available in the heated width of 4.0 inches (102 mm).

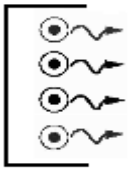


Figure 1: The reflectors are used to concentrate radiation down onto a 4.0-inch width.

Air Cooling

An integrated fan blows air past the lighted lamps resulting in a heated air impingement on the target product surface. When combined with quartz lamps, the result is immediate evaporation and fast drying rates.

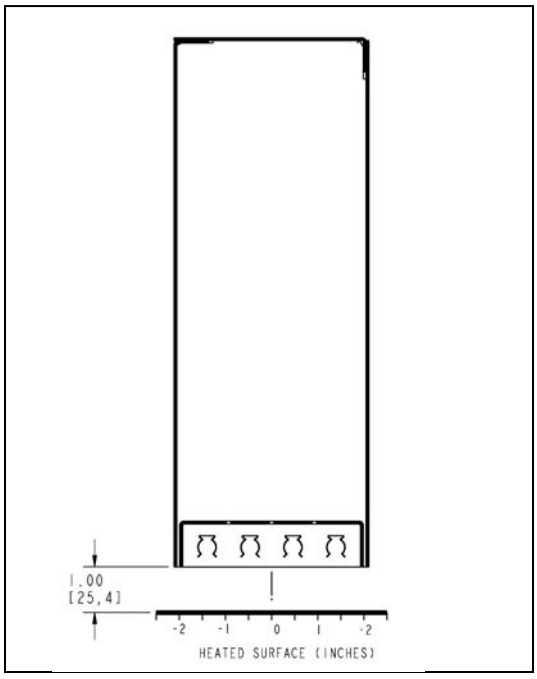
Power Cord

Each unit is supplied with an 8-foot (2.4 m) electrical cord. The cord is supplied with a connector plug.

Product Sizes

The Model 6030 generates radiant energy and directs it into a band approximately 10 inches (254 mm) long and 4.0 inches (102 mm) wide. Two units can be mounted side-by-side to increase effective drying width to 8-inches (203 mm). See Figure 2 and 3.

Figure 2: Heated Surface



Heat Flux Density

Heat flux densities up to approximately 100 watts per square-inch (645 watts per square-cm) can be achieved with the Model 6030 operating at the lamp's rated voltage. See Figure 3. Heat flux density is a product of the lamp type, applied voltage, and distance between the lamp and the target surface.

Lamps

Each unit is supplied with four 240-volt lamps. Additional lamps can be ordered separately for the heater.

Power Controller

A digital display power controller comes integrated with the DryIR Model 6030. It displays process and set point variable and has a thermal couple input and a 0 to 10-volt input. See Figure 4.

Figure 4: Model 6030 Top View with Digital Power Controller

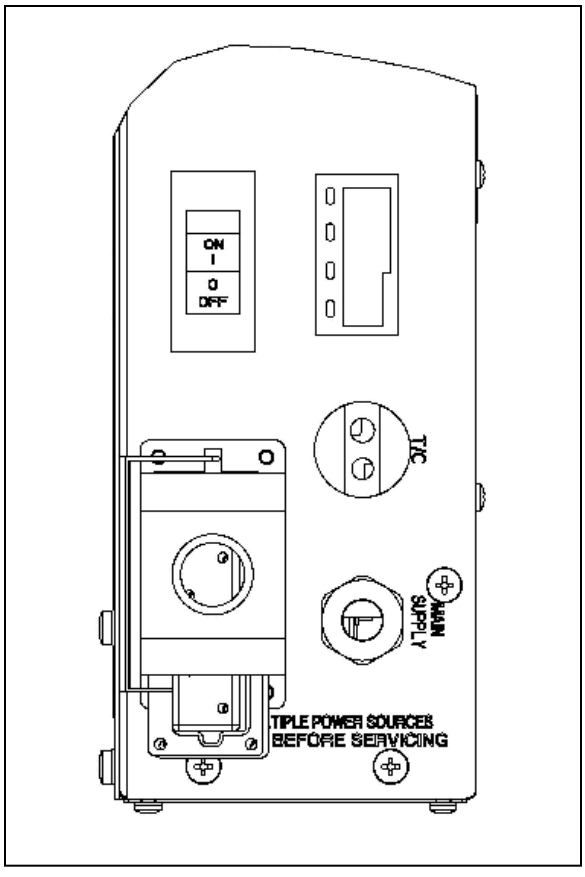
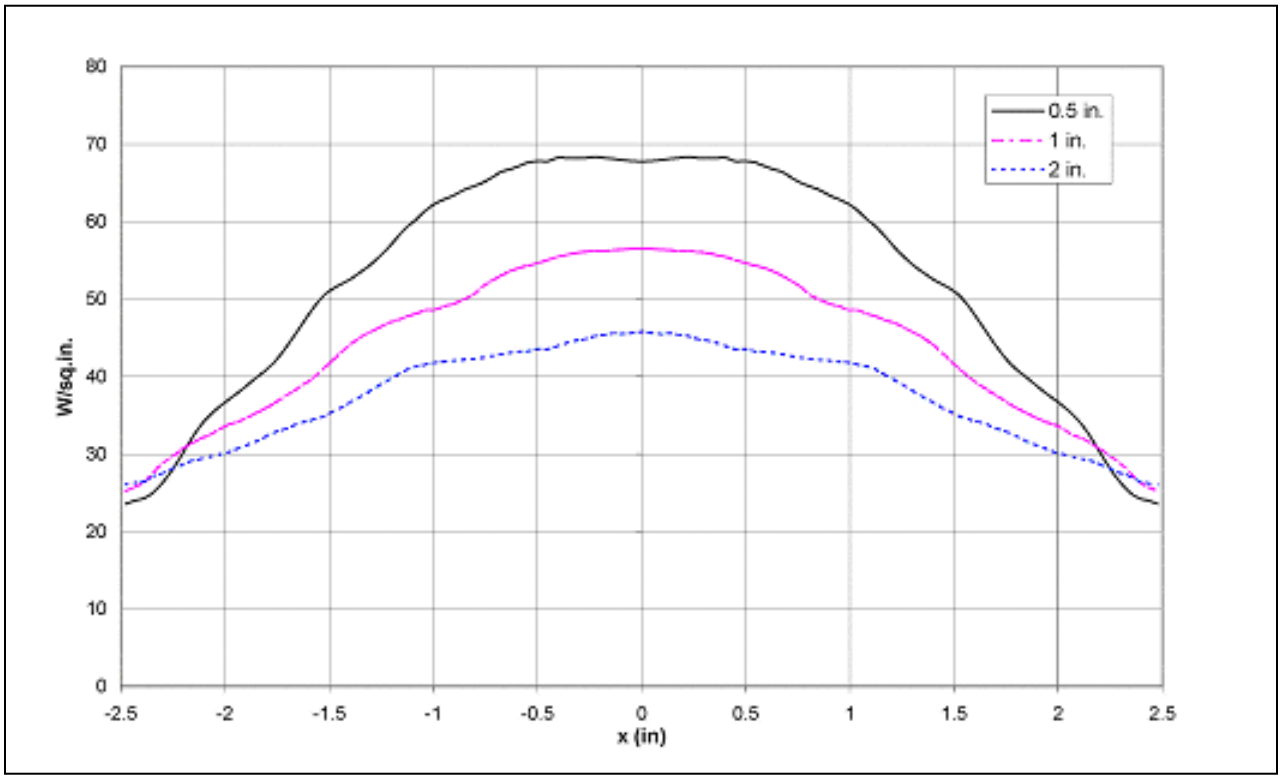


Figure 3: Model 6030 Heat Flux Plot



Optional Mounting Kit

The Model 6030 can be ordered with an optional mounting kit. The 6030 comes with tapped 5 mm holes for easy mounting.

Optional Mounting Base

The mounting base is designed for heater module height and position adjustments. The mounting base will come fully assembled and attached to the DryIR. See Figure 5.

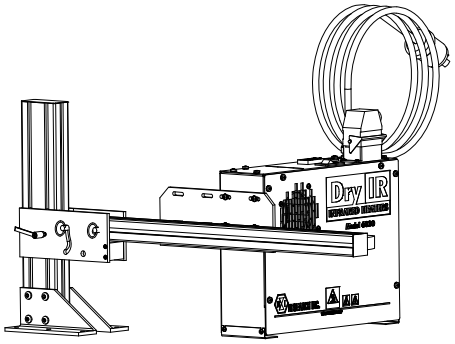
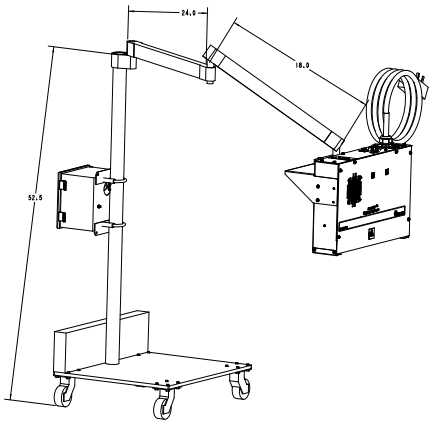


Figure 5: Optional Mounting Base



Model 6030 DryIR Specifications		
	Medium-Wave	**Short-Wave**
Maximum Drying Width	4 inches (102 mm)	4 inches (102 mm)
Overall Length	15 inches (381 mm)	15 inches (381 mm)
Heated Length	10 inches (254mm)	10 inches (254mm)
Lamps (4 Total)	1000W each	1000W each
Lamp Orientation	Horizontal Only	Horizontal or Vertical
Lamp Rated Voltage	240 Vac	240 Vac
Amps at Rated Voltage	16.7 Amps	
Power at Rated Voltage	4.0 kW	
Blower Air Volume	75 CFM (2.1m³/min)	
Interlock Relays	120 VAC, 24 VAC, 24 VDC, 12 VDC, 240 VAC (customer-specified)	
Mounting Hardware	Extruded Aluminum with a 5 mm threaded mounting screw (Mounting Kit available)	
Control Signal Connection	6 Pin Industrial Connector (screw termination, removable)	
Operation Controls	On/Off switch	
	Heat Adjustment	

Specifications – Model 6030

	Automatic Heat Adjustment via Tachometer Input Circuitry and External Tachometer Kit *(Tachometer Kit Option – ordered separately from Drying System)*
Operation Interrupts	When the interlock connections are made, the heater module will not function unless the Run signal is present
Site Requirements	An electrician to install a 240VAC/30 amp IEC power cord, and connect the wiring between the power control and the transport.
	Plug NEMA 6-30P

Ordering Information – Model 6030

Model	**Product Description**
6030	DryIR Infrared Drying Module (10-inch length, Includes all electrical cords)
Code	Lamp Type
MW	4.0 kW Medium-Wave
SW	4.0 kW Short-Wave
Code	**Interlock Relay Type**
0	None
1	24-Volts, AC
2	24-Volts, DC
3	120-Volts, AC
4	12-Volts, DC
5	240-Volts, AC
Code	**Options**
MB	Mobile Base (comes with 30ft. power cord)
00	None

Ordering Example – Model 6030

	Model	Lamp Type	Interlock Relay Type	Additional Options
Typical Model Number	**6030**	**MW**	**1**	**00**

Accessories, Spare & Replacement Parts – Model 6030

Model	Description
085131-002	Tachometer Kit
106674-001	Mounting Kit
106754-001	Replacement Electrical Power Cord (10-foot (3 m) length)
106764-001	Field Replacement Unit (FRU), 240VAC, Medium-wave (includes 4 lamps and reflectors)
106764-003	Field Replaceable Unit (FRU), 240VAC, Short-wave (includes 4 lamps and reflectors)
106656-001	Medium-Wave Infrared Lamp (1000 watts, 240 volts)
103390-003	Short-Wave Infrared Lamp (1000 watts, 240 volts)
085143-002	Interlock Relay, 24 VAC
080821-001	Interlock Relay, 24 VDC
085143-001	Interlock Relay, 120 VAC
080821-002	Interlock Relay, 12 VDC
096521-006	Interlock Relay, 240 VAC
105776-002	Circuit Breaker
106630-001	Reflector Assembly
107131-001	Control Module
M6030	Additional Model 6030 Operation Manual (one supplied with each heating module)
106806-001	FAB – End Air Deflector

Infrared Heaters For Controlled Concentrated Curing.

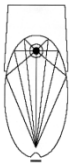
Heater's Available from Research, Inc.

Research, Inc. is the industry leader in the design, development and manufacture of electric infrared heating components and integrated heating systems. Our products are designed to meet a wide variety of process requirements including the drying, heating, curing, soldering, bonding and annealing of many different materials.

Whether it's one of our standard products or a custom heating system, we are committed to providing solutions to meet our customer's most demanding heating needs. The following types of heaters are available:

SpotIR

A single lamp and reflector heating system that focuses energy on a small (.25") target. Instant on/instant off capability makes it ideal for applications such as soldering, localized heat treating, and stress relieving.

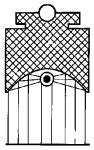


LineIR

A lamp and formed reflector that concentrates heat precisely on a .25" wide line. Excellent for forming plastic, local heat treating and drying ink.

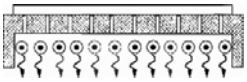
StripIR

A lamp and formed reflector that provides even heat distribution across a 1.7" wide strip. Can be used for curing, drying and precise heating.



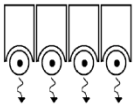
PanelIR

Designed with either ceramic or aluminum reflectors, the heater can provide consistent heat over a large area. Used for most drying and curing applications.



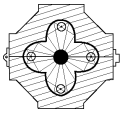
ModuleIR

Offers the capability to create a custom area heater design to match the application's area heating needs. Multiple modules are housed together in a sheet metal enclosure to provide the desired heating effect.



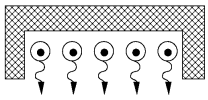
ChamberIR

A cylindrical chamber with controlled, concentrated infrared energy for curing extrusions, drying ink in a moving line or heating a stationary test specimen.



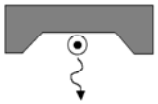
Hi-TempIR

Designed to provide high-intensity infrared heat onto localized areas with a high concentration of infrared heat. Excellent for annealing, heat treating, or providing controlled heat for high temperature controlled testing.



Lo-TempIR

Designed with aluminum reflectors, the heater provides a low, uniform heat flux. Ideal for drying or curing adhesives, curing rubber/silicone and plastics processing.

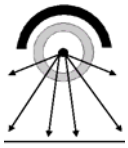


DryIR

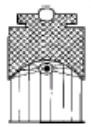
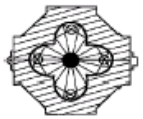
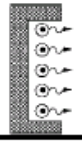
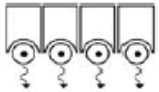
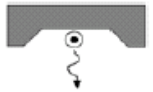
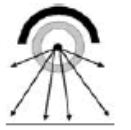
An aluminum reflector and either medium or short-wave lamps provide a band of heat from .5" - 4" wide. Can be used for water-based drying, solvent-based drying and adhesive curing.

SimulateIR

Used for efficient irradiation of test vehicle surfaces to simulate the infrared energy generated by the sun, planet reflection, and planet radiation inside a space chamber.



Application Chart

Family / Heat Profile		Spot IR	Line IR	Strip IR	Panel IR	Chamber IR	Hi-Temp IR	Module IR	Lo-Temp IR	Dry IR	Simulate IR
											
Coatings	Cure and Melt Powders				√					√	
	Dry and Cure Paints			√	√				√	√	
	Dry Inks		√	√	√					√	
	Dry Adhesives			√	√				√	√	
	Preheating	√	√	√	√	√	√	√	√	√	
	Resin Curing			√	√				√	√	
Composites	Curing		√		√	√					
	Filament Winding	√	√								
	Laminating			√	√				√		
Electronics	Ceramic Processing				√						
	Shrink Insulation			√		√					
	Soldering/ Desoldering	√	√		√						
	Thick Film Drying				√						
	Wafer Processing						√				
Material Testing	Aerodynamic Heating Simulation						√				√
	Coupon Tests					√	√				
	Structural Tests				√		√				
	Thermal Stress Test						√				
Metal Processing	Annealing	√	√				√				
	Brazing		√				√				
	Preheating	√	√	√	√	√	√	√	√		
	Soldering	√	√		√						
	Spring Stress Relief					√	√				
	Weld Stress Relief			√	√		√				
Plastics	Activating Thermo Transfer	√	√	√	√				√	√	
	Bending		√						√		
	Bonding	√	√								
	Preheating	√	√	√	√	√	√	√	√		
	Thermoforming	√	√	√	√				√		
	Welding	√	√								
Reglossing	Chocolates			√				√			
	Cosmetics			√				√			
	Plastic Tubing					√					
	Soap		√								
Rubber/ Silicone	Curing			√	√	√			√		
	Pre-Cure			√	√	√			√		
	Preheating	√	√	√	√	√	√	√	√		
	Vulcanizing			√	√	√			√		

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