

RADIUS ENGINEERING, INC.

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Radius 10000cc RTM Injector with Data Acquisition

The Radius 10000cc RTM injector is a flow controlled system, designed to inject single component or pre mixed multi-component resin systems. The injector's resin cylinder, which holds heated resin, contains an internal piston. The piston assembly actuates through a screw jack, driven by an electric stepper motor. Heated material is transferred through an injection line connected to a tool. All surfaces that come in contact with resin system are made of aluminum, which is plated for durability.

The 10000cc RTM Injector can function in either a "Stand Alone" mode, eliminating the need for computer interface, or integrated with Radius Floware™ software to provide computer menu driven control of the injection system. Radius Floware™ software also provides data acquisition for processing and recording injection parameters. Injector is mounted on roll-around stand with swivel castors.



Radius control circuitry includes:

Resin flow control: rate of injection (up to 500cc/min) can be controlled by the operator.

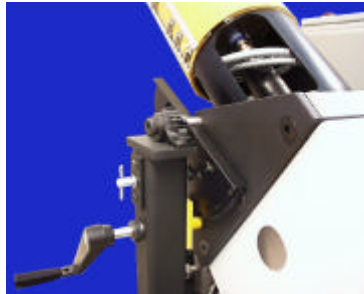
Resin pressure control: resin injection pressure (up to 400psi) can be controlled by the operator.

Data acquisition: Radius Floware™ data acquisition software for monitoring and recording process parameters

RADIUS ENGINEERING, INC 10000cc RTM INJECTOR



Enclosure control panel for operator interface in "Stand Alone" mode



Ring gear actuation for pivoting of injector at various angles for injection



In piston pressure transducer and over-temperature thermocouple for monitoring injection process

System Features:

- ‡ Positive-displacement piston driven by a DC stepper motor through a gear reducer
- ‡ Screw Jack actuation to piston
- ‡ Aluminum piston with two polyseals for vacuum and pressure integrity
- ‡ Controls for "emergency stop", "power on/off" and "heat" indication
- ‡ Type "J" thermocouples for temperature control
- ‡ Operator defined monitoring and display of tool temperatures
- ‡ Operator defined monitoring and display of tool pressure (pressure transducer not provided)
- ‡ Recording of injection data to computer hard drive
- ‡ Pressure control processing to set and control injection and hydrostatic pressure
- ‡ Flow control processing to set and control resin flow rate during injection

- ‡ Pivot action for different angles of injection
- ‡ Ease in cleaning of resin cylinder
- ‡ Locking swivel casters on easy roll-around stand
- ‡ Display of resin volume remaining
- ‡ Display of process temperatures and pressure
- ‡ Resin cylinder heater jacket, piston heater and line heater sleeving
- ‡ In piston thermocouple for monitoring resin melt temperature
- ‡ Communications input for interfacing with other compatible equipment

Optional Features:

- ‡ Vacuum transducer for monitoring tool vacuum
- ‡ Vacuum pumping system for applying vacuum to tool
- ‡ Independent degassing system for initial degas and heating of resin system
- ‡ In-Cylinder agitation for initial degas and heating of resin system

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Specifications:

Application:

High resin volume
High pressure

Capacity:

10000cc with additional
20% volume for degassing

Pressure:

400psi maximum injection
and hydrostatic

Flow Rate:

500cc/min maximum

Temperature:

350°F maximum

Heating:

Resin cylinder – Insulated

silicone pad heater

Injection Line – 48" heated

hose sleeving

Piston – Tubular heater

Process Control:

PID temperature control

Motor and temperature

control via RS232 ports

Pressure transducer closed

loop control

Over temperature Alarm

Automatic over pressure

retraction

Dimensions:

Horizontal – 36"x77"x 50"

Vertical – 36"x54"x 69"

Power Requirements:

480 VAC, 20 Amp max