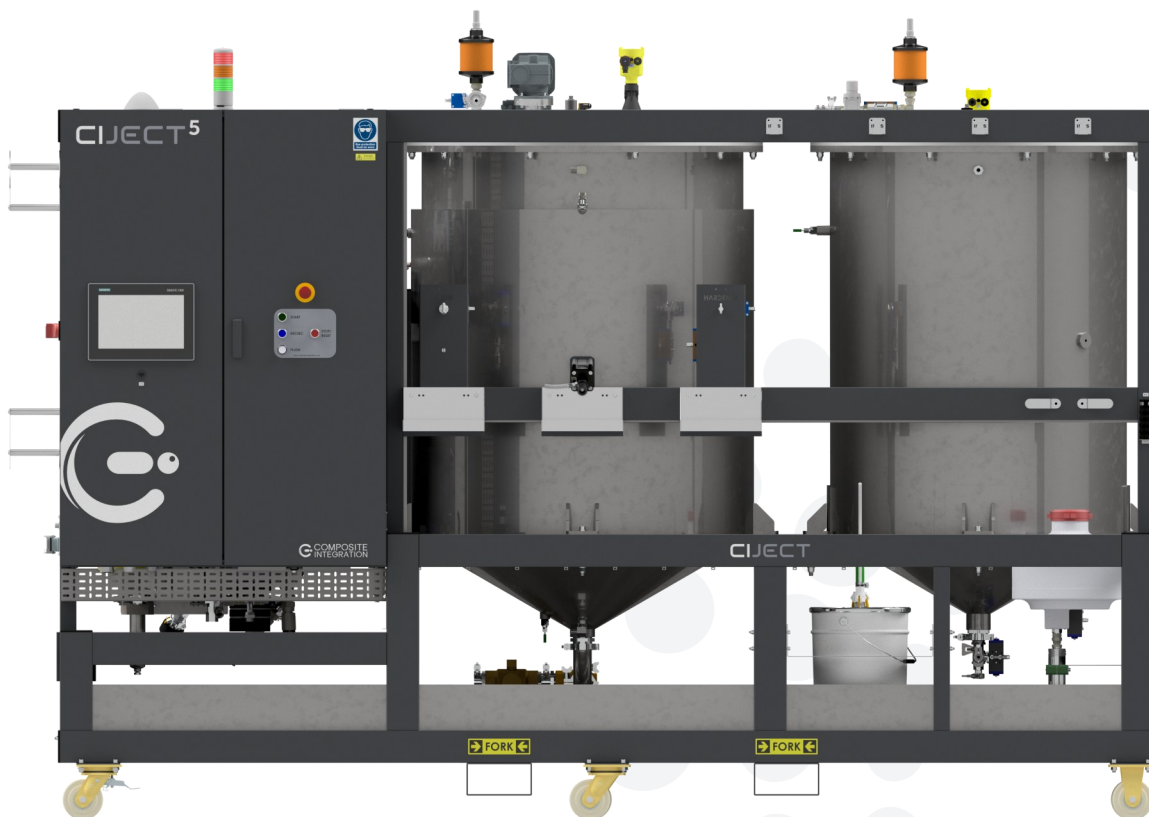


DATASHEET

CIJECT 5



KEY FEATURES

- Designed for use with Resin Infusion processes, dispensing mixed resin directly into the infusion process.
- Suitable for large production infusions, for example, turbine blades etc.
- Automatically pumps and mixes resin/hardener and maintains ratio accuracy over the entire output range.
- Accurate temperature control of stored material.
- Ability to infuse and recirculate resin with intelligent, variable vacuum in material tanks.
- Automated control of the injection rate based on pressure feedback from mould.
- Operator has full control of the process with relevant checks, interlocks/alarms and feedback before and during the process.
- Ability to record real time process data and measurement of degas levels of resin.
- Can be operated as a standalone machine or integrated into an 'Infusion System', consisting of tank modules and manifolds.

MACHINE RESIN SYSTEMS

Standard Options	Description	Product Number
Polyester Version	0.75% - 2.25% ratio range. Typical for 2 — 20 litre/min output. Machine spares kit sold separately.	XE-5000-01
Epoxy Version	100:20 — 100:40 ratio range. Other ratio ranges are available upon request. Machine spares kit sold separately.	XE-5000-02

MACHINE INCLUDED FEATURES

Standard Options	Description
High Precision Gear Pumps	Ratio 100:20 to 100:40. High accuracy mixed ratios.
Pressure Control	4 x IMPS inputs with MIL-Spec connectors. Ultimate control over the infusion process with individual or multi-sensor control.
Mix-Head with Recirculation System	Robust, high flow mix-head with static mixer. Includes actuated recirculation valve with bypass safety system.
A Component Pumping System: 0.8 — 24 kg/min	Precision steel gear pump driven by AC motor with advanced Inverter control. The pump is fitted with magnetic drive coupling to ensure reliable operation and prevent leakage of material in the even of seal failure.
B Component Pumping System: 0.2 — 10 kg/min	Epoxy Hardener: Same as above. Polyester Catalyst: Precision stainless steel gear pump driven by a Siemens Servo motor and drive system, this allows rapid change in speed to maintain accurate ratio during the injection process. The pump is fitted with magnetic drive coupling to ensure reliable operation and prevent leakage of material in the even of seal failure.
Flushing System	20 litre flush waste tank with non-contact level sensing (single input), using non-flammable solvents. All downstream pipework from the outlet valve to the mould should be disposable.
Flow Measurement	To suit range. Helical gear type flow meter with alarm +/- 2% of set ratio.
Pressure Monitoring and Overpressure Relief	Ensures the pump is running correctly and there are no blockages in the system, by monitoring the pressure. The overpressure valve provides a secondary backup to prevent over pressurisation of the system.
Temperature Measurement	High level monitoring, all temperature measurements can be data logged for production review: - A Component: measured at pump. - B Component: measured at pump. - Mixed material: measured at mix-head output.
Automated Ratio Calibration System	Enables simple calibration of pumps and flow meters with minimal waste.
Pump Cavitation Monitoring	Monitors and alerts the operator to any cavitation within the pumps.
Pump Wear Monitoring	Continuous monitoring and will accommodate for any 'slip' during use to keep ratio on target.
Data Logging	Data logging from machine to internal SD/USB (if connected). Used for monitoring for production processes: all key parameters, alarms and sensors measured, logged and time stamped.
Intelligent Process Set Points	The machine will set itself based on atmosphere pressure (measured by the machine) and initial configuration.

A Component Tank	Description
Onboard tank with 1,200 litre capacity. *the capacity can be adjusted to suit additional requirements.	
Thermocouples	2 x K-type thermocouples for monitoring resin temperature (high and low) during conditioning.
Radar Level Sensing	Non-contact level sensing suitable for use in a vacuum.
Variable Speed Agitator	Electrical variable speed stirrer for resin material (1 — 60 rpm) to support even and thorough heating.
Heating	Water jacked to maintain temperature up to maximum 50°C. Includes water level and over-temperature alarms.
Tank Loading	Auto-fill loading ports for IBC loading by either vacuum or a diaphragm pump. The diaphragm pump can be used to top material tanks during infusion.
Vacuum Degassing	Suitable for vacuum to 1 mbar (ABS).
Outlet Porting	Outlet porting with filtration and isolation. Filterball outlet used for simple use and easy cleaning.
Site Glass	Viewing access inside the tank, providing a clear, visual indication of the material level, allowing for easy monitoring and maintenance.

B Component Tank	Description
Onboard tank with 500 litre capacity. *the capacity can be adjusted to suit additional requirements.	
Thermocouples	2 x K-type thermocouples for monitoring resin temperature (high and low) during conditioning.
Microwave Guided Level Sensing	Enhanced precision level sensing, using microwave signals to accurately measure material levels in a tank.
Tank Loading	Auto-fill loading ports for IBC loading by diaphragm pump integrated into machine.
Outlet Porting	Outlet porting with extremely good filtration to protect pump and flow meter at high flow rates, Used with a micron filter for easy cleaning/ replacement.

MACHINE UPGRADES

Standard Options	Description	Product Number
A Component Tank Degassing Level Measurement	Ensures the material has been suitably degassed prior to injection.	XE-5000-OPT-DLM
B Component Tank Degassing	Prevents aeration of B component material prior to injection.	XE-5000-OPT-HTD
UL Power Supply	Enhanced safety, reliability, and compliance with UL standards for stable machine performance.	XE-5000-OPT-ULPS
Tank Viewing Camera System	For both tanks.	XE-5000-OPT-TCS

MACHINE SPARES KITS

Spares Kit Options	Description	Product Number
Full Spares Kit	Comprehensive kit including all the essential components and parts needed for regular maintenance, repairs, and troubleshooting.	Custom made to machine specification
Fast Moving Spares Kit	Includes commonly used components experiencing frequent wear and tear, designed for quick replacement in machines.	Custom made to machine specification
Recommended Spares Kit	Includes a selection of essential replacement parts that are important for preventative maintenance or future repairs for the machine.	Custom made to machine specification

TECHNICAL SPECIFICATION

General	
Product Dimensions	L: 3.1 m x W: 1.3 m x H: 2.5 m
Product Weight	1,400 kg *empty tanks
Maximum Shipping Weight	Dependent on shipment options
Nominal Service Period	1 calendar year
Design Life	10 years

Mechanical	
Injection Pressure Setting Range	≈ 0 — 1.2 bar (absolute)
Flow Range	1 — 30 kg/min
Maximum Tank Capacity	A Component: 1,200 litres B Component: 500 litres *other tank sizes available on request
Maximum Solvent Tank Capacity	25 litres
Maximum Pressure	20 bar (gauge)
Material Viscosity Range	Up to 2,500 cPs *for material viscosity above 2,500 cPs contact Composite Integration
Ratio Range	Epoxy: 100:20 — 100:40 Polyester: 0.75% - 2.25%

Control	
Control System	Siemens PLC with 10" HMI and PLC UPS which provides back up and control
Pressure Sensor Type	0 — 4 bar (ABS) with MIL-Spec connectors
Connectivity	Via ethernet with industrial Harting connectors
Programmable Settings	Via HMI — mix ratio, quantity, pressure, IMPS selection, recipes etc.
Data Recording	SCADA: all system parameters can be data logged locally or via wider infusion control system

TECHNICAL SPECIFICATION (continued)

Safety & Monitoring	
B Component Monitoring	Detects low pressure
Stall Alarm	Audible alarm
Gel Alarm	Settable alarm to alert when flushing is required

Power Requirements	
Power Connection	3 x 415V 50 Hz TN-S with 10 m power cable
Electrical Supply	110 — 230V AC, 50/60 Hz, 1A
Supply Fusing Required	3A (BS1362, IEC 269-3A)
Internal Fuses	3.15A, 20 mm cartridges
Air Supply Standard	8 bar @ max 40 cfm
Air Supply Limits	6 — 8 bar

Operating Conditions	
Maximum Material Temperature	50°C
Operating Temperature	0 — 45°C
Storage Temperature	0 — 60°C
Humidity	20 — 75% non-condensing
Noise Output	< 70 dB