

► DESCRIPTION

Injection unit with vacuum pump and programmed interface for use with high temperature two-component resins. The system consists of a metering units with tanks and peripherals.



The constituent parts are as follows:

- the tanks and options
- the metering pumps
- the electronic measurement apparatus (measurement of injected weights)
- the vacuum pump (degassing of the resins and/or the mould)
- the electronic data processor and supervision of the machine (direct management by the PC of the injection machine, if connected with a PLC. PLC is used for a complete automation of different process phases.)



Standard models:

Reference for order	Possible processes	Description
SK1INJ2K15L5L	2K RTM	Tank for component A – 15l Tank for component B – 5l
SK1INJ2K5L5L	2K RTM	Tank for component A – 5l Tank for component B – 5l
SK1INJ2K5L2L	2K RTM	Tank for component A – 5l Tank for component B – 2l

► UNIT ELEMENTS

1. Tanks

Tank characteristics: Material: stainless steel.

- Possible applied pressure 3 bars
- Max. pressure: 5 bars (testing pressure)
- Degassing up to 5 mbars
- Equipped with with a relief valve for safety device
- Heated and regulated with external heat belt

2. Flexible heated connection between tank and mould

In order to avoid loss of heat, the flexible connection between the tank and the mould has isolated heating system and electric power supply. On a display the information about pre-set temperature of heated line and measured temperature is showed. The flexible connection is equipped with a disposable inner lining tube in silicone SK2RIM260-1 which can be changed after each application. Standard line length - 2,5 m.
Inner line diameter: 15 mm

3. Mixing head and Dispense timer

Static mixing head with 20 static mixers included

Mix head in fixed position and heated. Static plastic mixer inside with metallic jacquet for 20 bars max pressure injection. The injection line is furnished with inner tube 7x13 mm max size 2 meter length with heating and regulation



4. Metering Unit

For resin and hardener the 2 tanks are heated and with stirring . Size can be adapted to volume to be in operation . The tanks are connected to metering pumps to ensure the feeding of each pump. max pressure in tanks = 3 bars , Max temperature = 120°C .Resin and hardener can be degassed in this tanks (5 mbars) and a probe inside gives indication of temperature of components

The metering unit is based on 2 pumps with flow meters (optional) installed on a frame the pumps are in movement with a motor.

Flow meters measure the flow in the line and the software collect information from flowmeters to control the injection during the process.

Pumps and lines are heated (lines to the mix head and lines from tanks).On each pump a pressure gauge will give safety control on line for the injection (motor stops if any trouble in the lines).Flow is 50 to 400 cc/min

Possible mixing ratio of component A : B -> 100:10 till 100:60 (limit to 100/10 if possible)

Temperature 120°C for all elements

The motors and pumps are mounted on a frame with Plexiglas doors and walls

5. Vacuum pump

Capacity depending on packing up set: 16 or 25 m³/hour, maximum vacuum level 1mbar (no vacuum control).Vacuum gauge measurement and display for the gauge. Value in mbars.

6. Pirani gauge

Compact and durable vacuum gauge for vacuum level measurement – is a key point of the unit, as it is important to use measuring equipment resistant for volatile resins, and pollution resistant. The signal has a high quality and can be easily detected by control system PLC Schneider;

7. Full automated system, including PLC on different languages (French/Russian/English)

- heating the resin/ hardener
- degassing the resin / hardener during a certain time and with control of level of temperature
- ratio control
- pressure control in pumps and in mixing head
- injection of the resin mixed with an applied pressure and up to a set point volume or duration
- compaction after injection with a pressure level (can be different from the injection pressure)

It is possible to memorize cycles in the PLC and this is possible with adjunction of a display. There is possibility of message during the process and the operator knows exactly the phasis in progress and set points for the phasis.

The PLC is a SCHNEIDER/TELEMECANIQUE system. Software is available in 3 languages: French, English and Russian is included in price.



8. Data processor (can be added only with PLC) it is possible to work with PC if PLC is present.

Description: The system consists of a means of continuous measurement of the different parameters of the injection process

- Pressure conditions (Vacuum and pressurisation of the tank)
- Conditions and temperature (temperature of resin/ hardener / lines / pumps and mould)
- Estimated volume injected into the mould

These data are managed by an IBM compatible personal computer. WIN 7/ WIN 10. The machine is equipped with Touchscreen monitor 19 inches. USB ports and integration are in control box.

- Vacuum level and pressure levels
- Pressure on mould (additional sensors not furnished 6 pressure 4/20 mamps).
- Temperatures of resin/ hardener within the tanks
- Temperatures in the mould (4 T/C)

All incoming data are treated by the hard-disk loaded program, which can be set using the parameters in use by the operator. This provides the advantage of having available at all times a usable record of all parameters used in each application.

A software is included in the packages based on VIJEO CITECT (SCHNEIDER) . The application records curves for the different inputs and reports with automatic printing of the reports after injection. Storage of the data of the parts (resin reference, batch numbers, tool references, operator's name). All data are also automatically stored on Hard disk each second and a saving of CSV file is on the disk. It is possible to work with EXCEL software.

The system also manages injection cycles of the injection pressure pot:

- name of the file;
- name of the part;
- reference resin and fabrics;
- name of saving files;
- injection flow or injection pressure selection;
- cycle data (pressure, flow , injected quantity, mould temperature for starting injection , resin temperature for starting injection, degassing duration, degassing resin temperature)

All production files are stored on the system and can be called back, renamed. The system stores automatically data s and it is possible to manage directly the machine by the PLC.



TECHNICAL DATA SHEET

SK1INJ2K Injection Unit

9. Installation works, customer training

Installation works and training are accomplished by qualified staff of our company and an engineer of ISOJET. Start up and customer training is in French, English or Russian language.



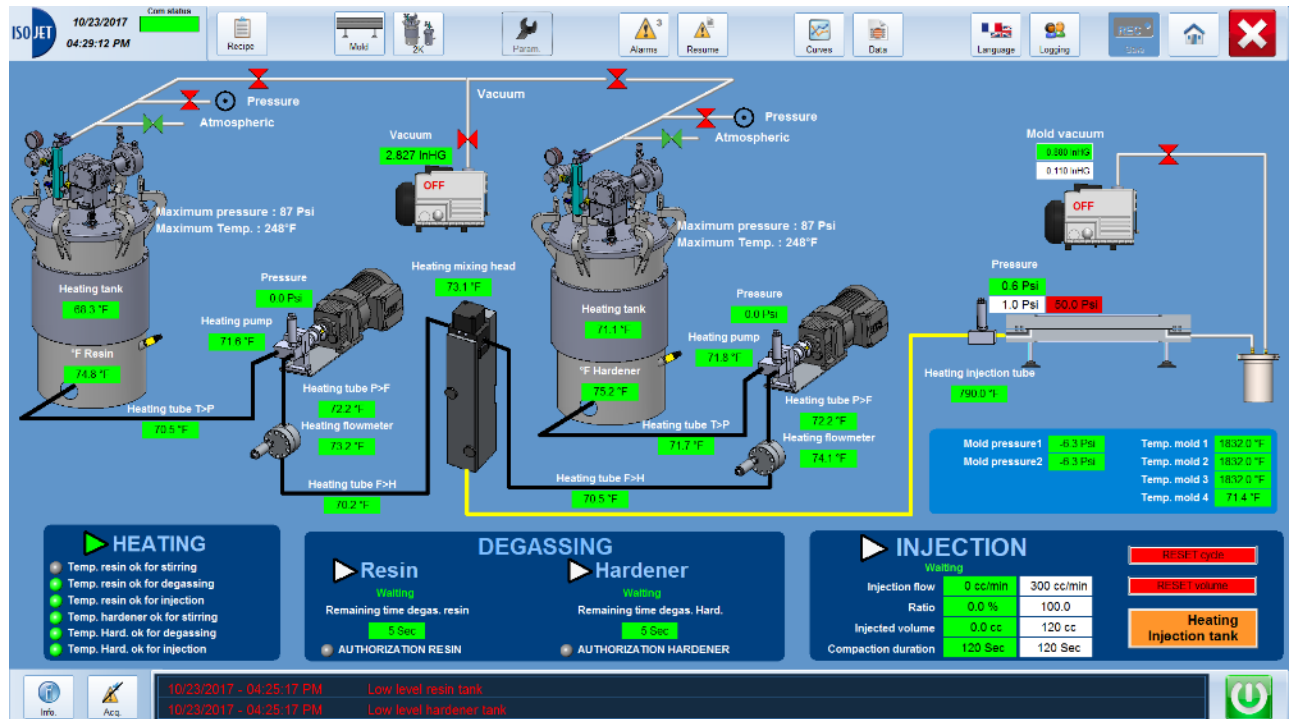
Photo 1: Heating system



Photo 2: tank lid



► INFORMATION PAGE OF PROCESS





TECHNICAL DATA SHEET

SK1INJ2K Injection Unit

ISOJET 10/23/2017 Com status 04:28:08 PM

Recipe Mold 2K Param Alarms Resume Curves Data Language Logging Save Home

RECIPE 2K

Create a new recipe Save recipe

Delete recipe

4re2k
injection2k 5 oct
nb2k
pu3423

Recipe error
Valid recipe

Exit

SETPOINT RESIN TANK		SETPOINT HARDENER TANK		SETPOINT MOLD	
Temperature minimum for stirring	120.0 °F	Temperature minimum for stirring	5.0 °F	Test duration	40 Sec
Temperature minimum for degassing	2.0 °F	Temperature minimum for degassing	4.0 °F	Vacuum leak acceptable	4,000 InHG
Temperature minimum for inject	3.0 °F	Temperature minimum for inject	4.0 °F	Vacuum level target	4,000 InHG
Degassing duration	5 Sec	Degassing duration	5 Sec	Maximum test duration	40 Sec
Temperature exothermal safety	125.0 °F	Temperature exothermal safety	110.0 °F		

SETPOINT RESIN TEMP.		SETPOINT HARDENER TEMP.	
Tank	119.9 °F	Tank	120.5 °F
Tank to pump tube	120.0 °F	Tank to pump tube	120.6 °F
Pump	120.1 °F	Pump	120.7 °F
Pump to flowmeter tube	120.2 °F	Pump to flowmeter tube	120.8 °F
Flowmeter	120.3 °F	Flowmeter	120.9 °F
Flowmeter to head tube	120.4 °F	Flowmeter to head tube	130.0 °F

SETPOINT TEMP.	
Injection heated tube	130.1 °F
Mix head	130.2 °F

SETPOINT COMPACTION	
Compaction pressure	15.0 Psi
Compaction duration	120 Sec

SETPOINT PRODUCTION	
Ratio (by volume)	100.0
Pot life	120 Sec

INJECTION PROFILE

Volume Flow Pressure

STEP 5 120 cc 200 cc/mn 1.0 Psi

Info Acq 10/23/2017 - 04:25:17 PM Low level resin tank
10/23/2017 - 04:25:17 PM Low level hardener tank

Info



TECHNICAL DATA SHEET

SK1INJ2K Injection Unit

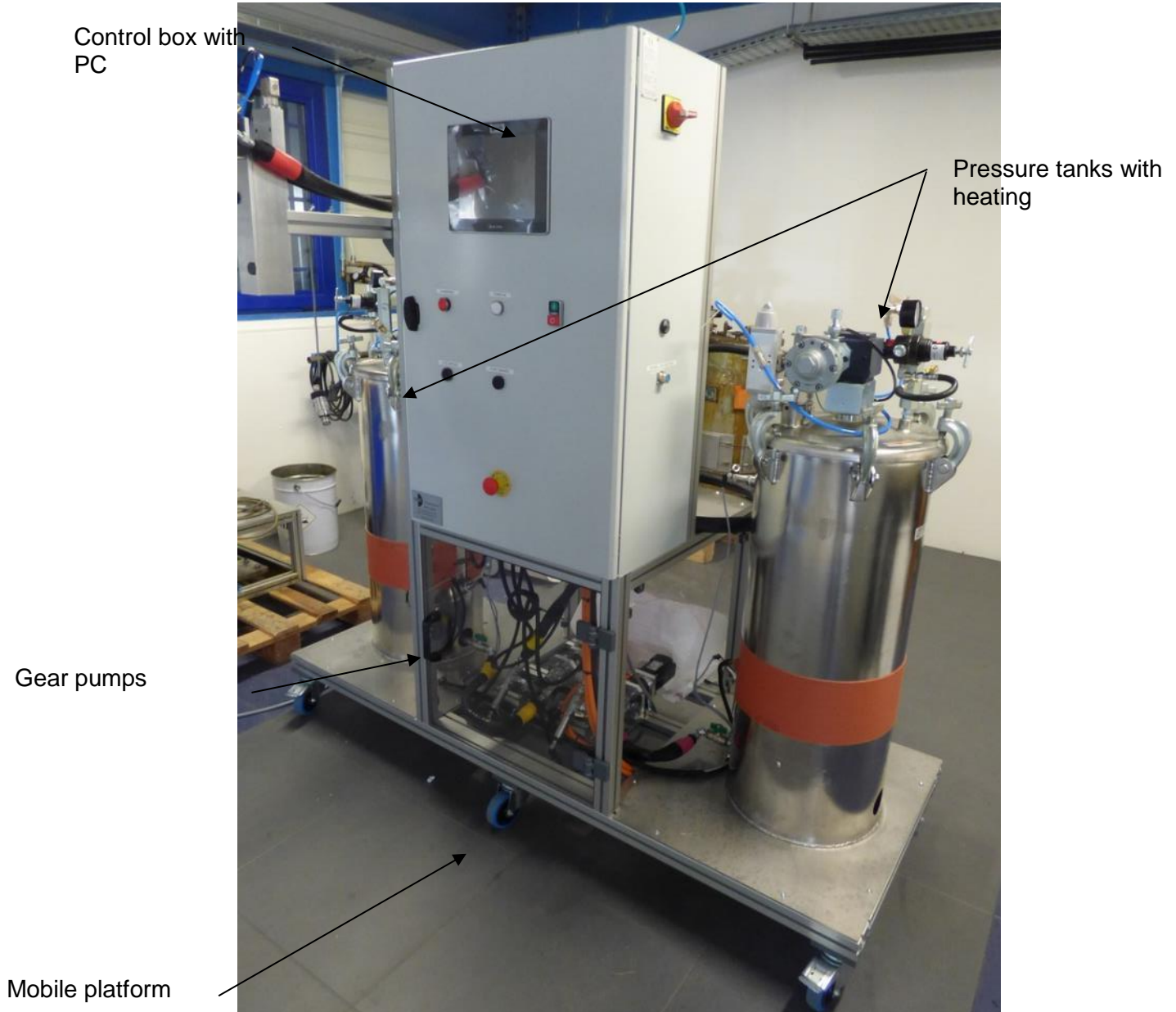


Photo 3: Unit with PLC



Static mixinghead

► **NOTE**

Please contact us to get further information, as well as to make an equipment design according to your technical specification.
Standard warranty period: 12 months.