

HIGH PRESSURE FOAMING MACHINE HYDRA 100



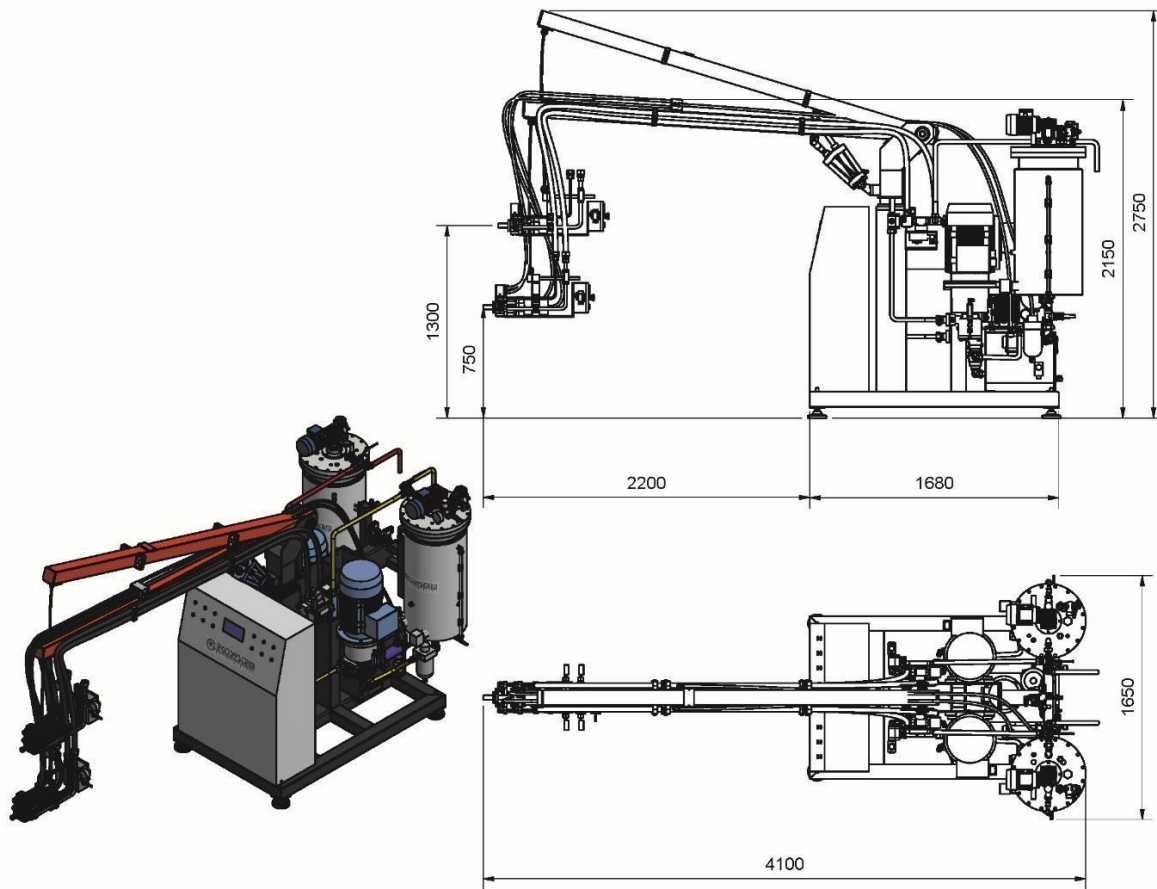
MACHINE DESCRIPTION :

Ekosystem High Pressure is a user-friendly solution for Mixing and Injection of polyurethane, this is a High-Pressure Injector designed with high quality parts for longer life. This assures best quality of the Foam mix and gives a firm bond.

WORKING PRINCIPLE:

The **Ekosystem High Pressure** is managed by an electrical cabinet with PLC software built in to ensure continuous control of the foaming cycles. The end-user can set flow rates, head cleaning cycle, daily tank filling from storage tanks, working temperatures and the pouring programs. Different ratios and flow-rates can be adjusted through the touchscreen HMI which also displays the machine alarms too.

Dimension :



MODEL	Ratio	Output		Consumption	Weight
	P/I	g/sec (min)	g/sec (max)	Kw	K
HYDRA 100	1:1	500	1700	43	1600

A. POLYOL/ISOCYANATE METERING MODULE :

The new concept high pressure metering module has been projected and carried out to meet easy maintenance and reliability needs.

Each unit comprises:

- ✚ Axial pistons high pressure pumps having high accuracy, and 250 bar max working pressure, Automatic system for outputs adjustment by means of flow meter for each metering line.
- ✚ This system always keeps the outputs constant according to any change of working conditions (pressures, temperatures, etc.). All the parameters are checked and modified through PLC process controller, 3-phase asynchronous single speed drive motor (B5 400V/50HZ), driven by frequency converter to ensure a wide range of working outputs,
- ✚ Motor/pump coupling through mechanical coupling by means of nylon star system,
- ✚ Pressure gauge for direct read of recycle and pouring pressures, c/w two-digit independent display, and setting of min/max working pressures,
- ✚ Tandem flow-valve to recycle the component inside the tank (short recycle) and to recycle the component in the head directly through nozzles (high pressure recycle).



B. TANKS GROUP

POLYOL and ISOCYANATE storage tanks module (100l capacity each) pressure working certified, insulated from external temperatures, with thermoregulation jacket complete with 1500 Watts heating resistors, cooling solenoid valves and PT 100 temperature sensor connected into the tanks.

Moreover, the tanks are equipped with:

- ✚ Low revolution number stirrers with blades that have a wide working surface to ensure homogeneity while spreading the liquid inside the tank at a constant temperature, Capacitance levels,
- ✚ Visual levels, Manometers,
- ✚ 2 ways manual valves to separate the tanks from the dosing units,
- ✚ 3 ways valves to discharge all the waste material,
- ✚ Solenoid valves for automatic filling from the storage tanks,
- ✚ Pressure safety valves,
- ✚ Strong frame for the support of the tanks,
- ✚ Pressurization systems complete with: pressure regulator, manometer, quick discharge valve for compensate the pressures variations during the filling phases



C. HEAD CONTROL MODULE

It is a hydraulic unit having a 35L capacity oil tank and complete with:

- ✚ 16 l/min delivery gear pump with 200 bar max working pressure;
- ✚ 3-phase motor (4 poles – 5,5 kw) coupled to the pump by elastic coupling;
- ✚ Visual level;
- ✚ Thermometer to visualize the working temperature of hydraulic oil;
- ✚ Oil loading mouth and pertaining anti-contamination filter;
- ✚ Heat exchanger to thermo regulate the oil;
- ✚ 2.8l capacity hydraulic accumulator with 100 bar pre-load to ensure the proper working of the pouring head;
- ✚ Oil filter at the pump suction port;
- ✚ Thermostat to check the temperature for cooling solenoid valve control;
- ✚ Cooling solenoid valve;
- ✚ Rapid relief manual valve for pressure in line to permit any service action;
- ✚ Manometer to visualize the pressure inside the circuit with relevant excluding device;
- ✚ Solenoid valve for oil dispensing in pressure to the line;
- ✚ Valve for manual adjustment of the working pressure;
- ✚ Manual valve for empty the unit.



D. HIGH PRESSURE MIXING HEAD TYPE EKS

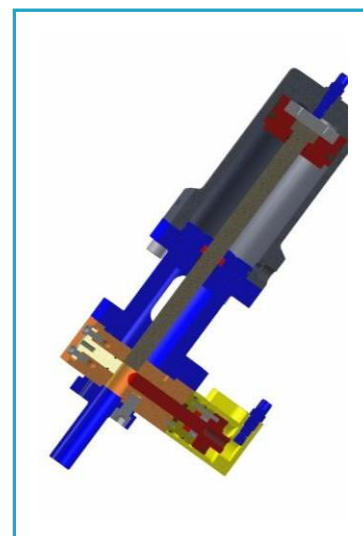
HEAD TABLE

TYPE	ALLOWABLE FLOWRATE		DAMPENED FLOWRATE		WEIGHT	END CAP
	MIX gr/sec.	MAX gr/sec.	MIN gr/sec.	MAX gr/sec.	Kg.	DIAMETER
EKS 16/24	500	2000	500	1000	20,0	30

The new concept EKS mixing head keeps unchanged all the main features of compactness and operations

The head is complete with:

- ✚ Hydraulic system for head opening/closing;
- ✚ Adjustable pressure nozzles group for the components;
- ✚ Proximity sensors to keep the pistons position controlled;
- ✚ Flexible hoses at 475 bar pressure, type FLEX R7;
- ✚ Independent adjustment of pouring and recycle pressures carried out on each nozzle (type static of spring-operated modulating) of components directly;
- ✚ Possibility of having the control of flow rates in head directly.



A remote push buttons panel manages the recycle-pouring operations and the choice of times.

Its main functions are:

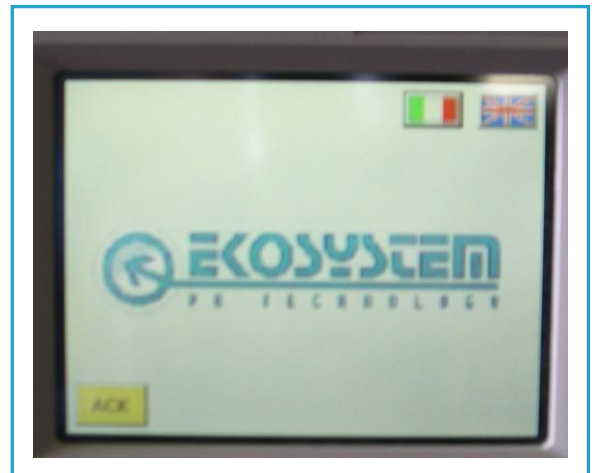
- ✚ Choice of pouring programs by 2-digit display and increase/decrease buttons;
- ✚ Visualizations of 99 pouring programs and chosen working program;
- ✚ Luminous button for cycle start;
- ✚ Button for cycle stop;
- ✚ 2-pos. key selector to select machine either recycle or pouring;
- ✚ Emergency push-button;
- ✚ Handle;
- ✚ Head holder boom (160° rotation angle, 2800mm length).



E. CONTROL PANEL

The electrical panel with IP55 protection is sited over the basement of metering unit and comprises:

- ✚ Power switch with fuses protection, 3-phase;
- ✚ PLC to check functions, timers, counters and process analogical functions;
- ✚ Vectorial inverters to control and manage the motors coupled to the metering pumps and interfaced to PLC;
- ✚ Graphic operator board with keyboard and integrated displays, coloured touch-screen to set and control all the parameters regarding pouring and to manage the alarms;
- ✚ Automatic thermoregulation of components with setting of working values and pertaining alarms; Tanks levels control;
- ✚ Automatic enabling of metering pumps and hydraulic unit during the working phases;
- ✚ Automatic safety control on components pressures;
- ✚ Setting and visualization of 99 working programs;
- ✚ Visualization of any possible alarm that may occur during the working cycle on operator board; Automatic self-adjustment system of outputs handled by PLC and inverter.





ALARMS LIST

- Polyol minimum level
- Isocyanate minimum level
- Polyol maximum level
- Isocyanate maximum level
- Minimum polyol temperature
- Minimum isocyanate temperature
- Maximum polyol temperature
- Maximum isocyanate temperature
- Emergency pressed
- Hydraulic power pack pump thermal protection
- Fault inverter polyol pump
- Fault inverter isocyanate pump
- Polyol stirrer thermal protection
- Isocyanate stirrer thermal protection
- Polyol minimum pressure
- Polyol minimum pressure during pouring
- Isocyanate minimum pressure
- Isocyanate minimum pressure during pouring
- Polyol maximum pressure
- Isocyanate maximum pressure
- Mixer piston not opened
- Mixer piston not closed
- Self cleaning piston not opened
- Self cleaning piston not closed
- Polyol minimum flow rate
- Polyol maximum flow rate
- Isocyanate minimum flow rate
- Isocyanate maximum flow rate

NECESSARY UTILITIES:

Working power: 400 V – 50 Hz; 3 phase + neutral + earth

Compressed air: Industrial dry air at 8 bar 100 l/min

Room Temperature: +10 to +40°C;