# High Pressure Machines





The OMS ECOMASTER 2 Series of High Pressure Metering Unit has been created to introduce the benefits of high pressure metering and mixing within a modular range of machinery which can be tailored to precisely match particular production or technical requirements. The up-to-date design is particularly suited to the use of non-CFC formulations utilising alternative blowing agents such as 141b, cyclopentane, water, etc.

The ECOMASTER 2 Series consists of three specific model groups, each of which has been designed to meet the particular performance and budget targets most commonly required by urethanes processors.

# **ECOMASTER 2**

#### **Metering Group**

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High precision axial piston variable output type, metering pumps with special ceramic bush and double seal arrangement for improved leakage resistance.

Horizontally mounted individually driven pump motor groups with high performance 2-speed flange coupled electric motors for better balance and reduced noise.

#### **Component Storage and Temperature Conditioning**



250 litres (each) capacity pressurised and jacketed component tanks with nylon visual level tube.

Slow speed scraper blade type agitators to ensure even temperature distribution.

Integral electrical resistance heaters and cooling water solenoid valves for components temperature conditioning.

Optional capacitive level probes, electronic level controllers and pneumatic refilling valves to facilitate fully automatic, reliable component loading.

# Series

Special design monocomponent flow valves for fast reliable control between recycle and pouring phases.

Discreet compartmented design reduces leakage risk, simplifies maintenance.



Electrical contact type, fluid filled pressure gauges for constant monitoring of recycle and pouring pressure. Minimum and maximum pressure safety contacts.

Group

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**ECOMASTER 2** represents the starting point for the range with a combination of a high basic specification, the capability to run up to 2 no. mixing heads and a purchase price offering an excellent cost/benefit ratio.

ECOMASTER 2 PLUS expands on the base model by incorporating an electronic control system capable of operating in multi-head installations.

**ECOMASTER 2 DATA** is the ultimate choice for processors requiring, as standard, complete process monitoring facilities and data capture.

This modular approach to machine specification and performance includes an intelligently considered range of optional or additional equipment to enable machines of relatively simple specification to be upgraded should requirements change during the working life of the machine.

#### Mixing Heads

ECOMIX DF precision manufactured impingement type high pressure mixing head for open or closed mould injection.

Self cleaning mixing and dispense chambers by means of hydraulically controlled high precision fit plungers.

Facility to introduce a third component, such as colour, directly into the mixing chamber.



Double hydraulic solenoid valve control with interlock to ensure correct sequential operation.

10h.p. hydraulic unit with pre-charged accumulator, pressure regulator and integral heat exchanger for reliable operation.



All the benefits of High Pressure metering technology are available whichever version is selected and, when used in conjunction with the ECOMIX DF range of high pressure selfcleaning mixing heads, the following benefits can be expected:

smooth and consistent pouring into open or closed moulds

reduction in costs from the elimination of cleaning solvents and waste

better product quality from improved mixing efficiency and consistent filling of moulds

capabality to use fast reacting formulations to reduce production cycle times.

#### Electrical Control System

Full electronic sequential control and operation of all machine functions by means of Siemens Simatic programmable logic controller with standard capability to operate up to no.2 mixing heads.

Siemens Coros operator interface panel for simple, user friendly setting of machine parameters, status displays, pouring times etc.

12no. pouring programs as standard with digital electronic control.

Diagnostic alarm facility with combined acoustic warning and two line text message display.Electronic proportional band temperature controllers for accurate, responsive component temperature control.

#### Ancillaries

High pressure colour dosing unit

Programmable pouring module - 99 programs

Low pressure feeding pump group for high viscosity materials.

Self-cleaning component filters.

Index variation system.

Chiller unit.

Automatic level controls.

#### Services Required

Electrical Power: 380v, 3ph, 50Hz (other voltages and frequencies available).



Automatic loading valves and pneumatic transfer pumps.

Air nucleation system.

I.O.V. Process monitoring system.

Mixing head boom.

Compressed air: 8-10 Bar pressure, must be dry air having a dew point min. -20°.

#### Process Control Equipment (Optional)

I.O.V. Process Control System fitted with flow meters able to monitor component outputs and ratio.

Higher level I.O.V. Process Control System can be fitted to provide, in addition, monitoring of component temperatures and pressures.

Upgraded Coros operator interface to include ratio and output displays and facility to enter alarm set point values.

Printer and Interface



### **ECOMASTER 2 PLUS**

The standard ECOMASTER 2 metering unit, suitably specified for output range, can be used for virtually all types of polyurethanes production and will generally be used in a stand alone production situation.

Where circumstances require, the central component tank and metering group can also be used to service a multiple mixing head/piping installation.

In these situations the cost benefits in providing separate dispense points from a single unit are very well illustrated and a properly designed and installed multi-head installation will give excellent, reliable service.

Building on the very comprehensive specification of ECOMASTER 2 the Ecomaster 2 Plus range incorporates an expanded electronic control system to handle the increased input-output signalling required in a multi-head installation, providing the means to control up to 12no. mixing heads.

The upgraded Siemens Coros programmable operator interface panel enables the operator to set the pouring parameters and dispense times from a central position and the control system can easily be interfaced with other equipment such as moulding presses or robots to facilitate automatic remote pourings to further reduce production cycle times.

## **ECOMASTER 2 DATA**

The modular approach to the design of the OMS ECOMASTER 2 Series of high pressure metering unit reaches its logical peak in the Ecomaster 2 Data version.

Fitted as standard are low loss type component flow meters, temperature and pressure transducers, providing data to the central electronic control system which in turn displays the data in a simple, easily legible way to the operator.

In addition to this display capability, the <u>Ecomaster 2 Data</u> can produce hard copy printout of all pourings giving further production data such as date, time, mixing head identification etc.

A diagnostic facility built into the operating system alerts the operator to irregular operation and a text displays identifies the problem.

The alarm function operates on a two-tier system whereby any alarm which may have a direct effect on the safe operation of the machine will also automatically shut down the cycle, and where the alarm may be discretionary (for example temperature or flow alarms), the cycle may allowed to continue and a decision made later as to the acceptability of the poured component.

The electronic control system is based on Siemens components for reliability and world wide service and parts availability.

The LCD graphic display and programmable operator interface unit features a colour monitor as standard.



The ultimate version, <u>Ecomaster 2 Auto-Data</u>, incorporates electronic index variation by servo control of pump output components with hydraulic modulating component nozzles to enable a variety of different working outputs and/or ratios to be used whilst maintaining accurate recycle and pouring pressures.

The system is self monitoring and adjusting in real time to give full closed loop control.

Ecomaster 2 Auto-Data is thus a perfect choice for applications such as cold cure flexible foam moulding where index change produces different physical foam characteristics.

<u>The Ecomaster 2 Data</u> is simple to use and to understand, all machine variables and parameter settings are set through the operator interface panel through step by step menu pages:

> Working page with display of all machine parameters

> Help page with principal commands for machine operation

Password page for security

Temperature conditioning and component level parameters

Pressure and temperature alarm parameters

Machine cycle setting parameters

Pouring programs

Process control systems parameters

Pouring data printout.

# High Pressure Mixing Head ECOMIX Y2K

As a result of **OMS Group** long-lasting endeavour in design and technology in the development and research in the polyurethane field, a new **ECOMIX Y2K** series of high pressure heads has been launched in the market.

Our **ECOMIX Y2K** series of mixing head combines compact external dimensions for easier handling with a Vee angle orientation of the pouring nozzles for better mixing performance combined with a smooth dampened flow at the pouring nozzle outlet.



Moreover, this ECOMIX Y2K series is pre-arranged for colour injection.

The **ECOMIX Y2K** series is therefore ideal for both open and closed mould foaming operation and offers the following important benefits:

Ecology:	self cleaning impingement mixing reduces waste, eliminates
	solvents.

- EcoQuality: assured by continuous R & D and investment in hi-tech manufacturing plant.
- **EcoEfficiency:** optimisation of mixing chamber geometry guarantees best possible product quality.
- EcoDurability: special materials and surface treatments give long, trouble free life.

HEADS MODELS	OUTPUTS (gr/sec)				
HEADO MODELO	Ratio 1:1	Ratio 21:1			
ECOMIX Y2K 4/6	15 - 100	20 - 80			
ECOMIX Y2K 6/10	50 - 300	60 - 250			
ECOMIX Y2K 10/14	100 - 600	120 - 500			
ECOMIX Y2K 12/18	200 - 1100	250 - 800			
ECOMIX Y2K 16/24	500 - 3000	600 - 2500			

Economy: saves materials and time and reduces disposal costs.



OUTPUTS											
	RATIO 1:1				2:1 or 1:2						
	gr/sec (low speed)				gr/sec		Power Consumption	Nett Weight			
	MIN	MAX	MIN	MAX	MIN	MAX	Kw	Kg			
ECOMASTER 2 40/20	60	300	120	600	90	450	27	1650			
ECOMASTER 2 100/50	150	750	300	1500	225	1100	32	1720			
ECOMASTER 2 200/100	300	1500	600	3000	450	2250	45	1800			
	Power	Nett									
	gr/sec (low speed) gr/sec (				(high spe	ed)	Consumption	Weight			
ECOMASTER 2 60/30	100		500	200	1000		32	1700			
ECOMASTER 2 15/5	/		/	75	250		27	1650			

The outputs quoted above in grams/sec. are calculated using an average component specific gravity of 1.2 gr/cc and assuming a component viscosity not exceeding 2000 cps.





The above data is issued for guidance only, the detailed specification of any machine is subject to confirmation. We reserve the right to improve the features of our equipment at any time without prior notice.

### Impianti OMS Spa

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Polyuret

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