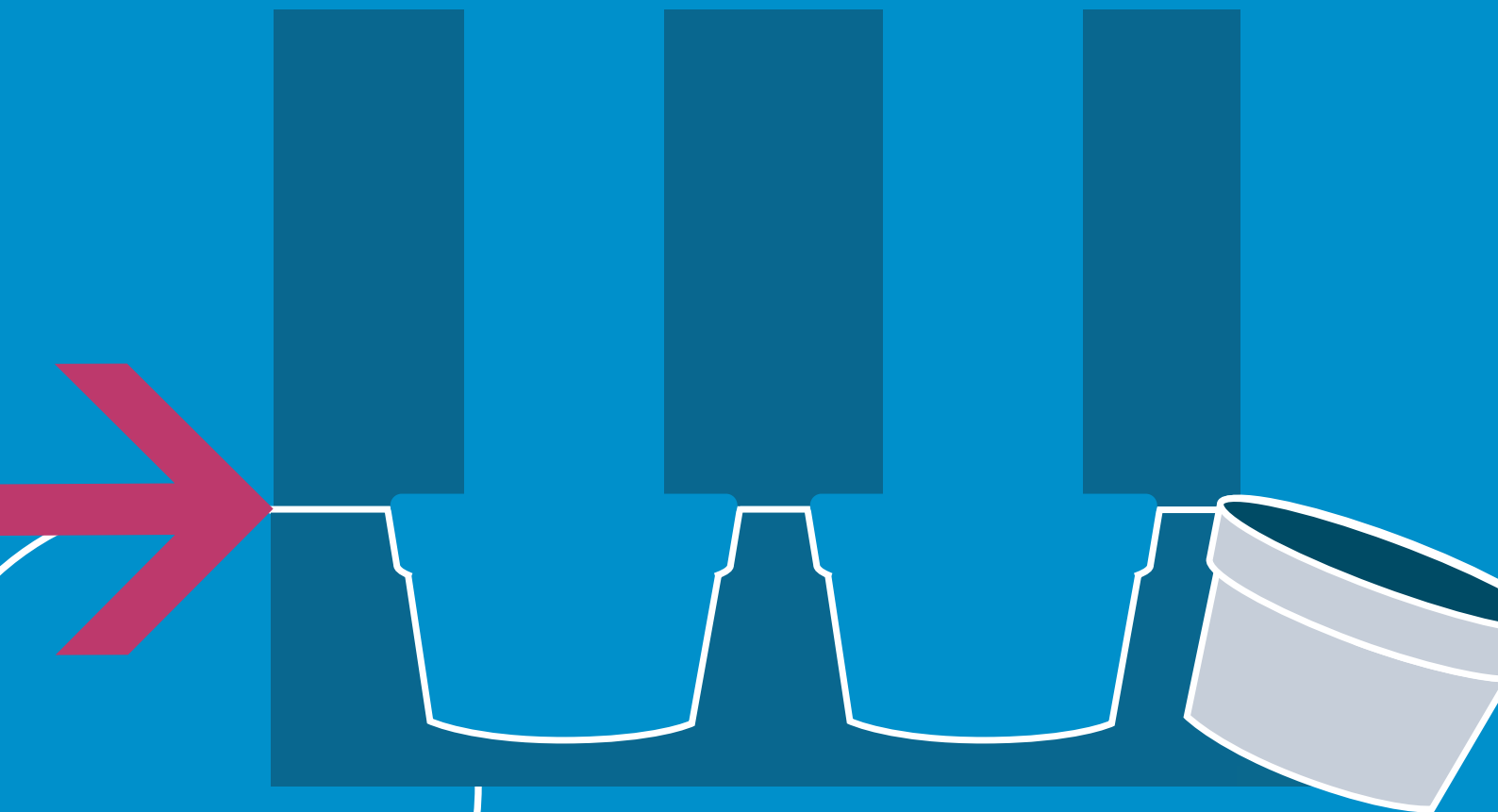


Automatic pressure

Thermoforming machines



WM Thermoforming
Machines



FC 600/780/1000 SPEEDMASTER plus series

Vacuum and pressure forming with steel rule cutting

MODEL FC: HIGH FLEXIBILITY - HIGH QUALITY

More than just fast: **Reliable**

The range SPEEDMASTER plus

The new series **FC SPEEDMASTER plus**, new generation of vacuum and pressure forming machines, assure the highest level of automation and the new control system guarantees efficiency and higher performances with any materials. Constant forming quality, very short re-tooling time, accuracy in cutting, high flexibility and ease of use are only few of the advantages of the series **FC SPEEDMASTER plus**.

Integrated power regeneration: the kinetic energy generated during braking movements is converted in electrical energy that is regenerated into the power system of the machine with important resulting on energy savings. The series **FC SPEEDMASTER plus** is available in a very wide range of models and versions, this makes it possible to provide the most suitable solution to the various production needs in the modern packaging industry.

FC E:

Vacuum and compressed air forming, in-line steel rule cutting press and vertical stacking unit;

FC E HP:

Vacuum and compressed air forming, in-line vertical press for punching holes (punch and die), steel rule cutting press and vertical stacking unit;

FC E IM:

Vacuum and compressed air forming with steel rule cutting in the forming tool and vertical stacking unit;

FC E IM2:

Vacuum and compressed air forming with possibility of steel rule cutting in the forming tool, additional in-line cutting press and vertical stacking unit.



Model		FC600 E	FC780 E	FC1000 E
Max. mould size	mm	640x450	780x570	1060x750
Max. pos/negative depth	mm	130	130	130
Forming clamping force	daN	15.000	30.000	60.000
Total heating power	kW	50	96	176
Cutting press clamping force	daN	50.000	60.000	105.000



The series **FC SPEEDMASTER plus** can process all thermoformable plastics materials under optimal conditions using vacuum and compressed air, including: PS - OPS - EPS - PP - PE - PVC - APET - PETG - PLA, multilayer and barrier materials.



These machines guarantee:

- *High speed of output*
- *Ease of use management and use*
- *Fast tool change speed with reduced machine downtime*
- *Energy saving*
- *Initial self-setting of the cycle parameters to support the operator's job*
- *Maximum safety. In addition to full compliance with European standards, all the movable platens have mechanical safety bars to prevent gravity falls*
- *The latest generation software program operating panel PC device touch screen, fitted on a sliding arm which runs the length of the operator side of the machine*
- *Maximum access to all parts of the machine to make cleaning and maintenance easier*
- *Remote service assistance, a new access hardware support, an evolution of the modem connection, with the advantage of higher speed without phone connection costs guarantees an after-sale assistance service more efficient and precise all over the world*



Fast tool change system



Additional chain spreading

Reel-holder unit with automatic unwinder

An asynchronous motor and inverter is used to unwind the sheet material. The unit is fitted with a photoelectric cell, suitable for transparent materials, to control unwinding and signal the end of the reel. The unwinder can operate either with a reciprocating motion controlled by a photoelectric cell or in continuous mode synchronised with the speed of the thermoformer. An automatic reel lifter is also available (opt).

Sheet transport and guide system

The material is transported by means of double-link toothed chains with the teeth working upwards. The chain-rails are water cooled and fitted with hardened retention plates to contain the transversal forces on the chain. The infeed is designed so that it is possible to regulate the depth to which the chain teeth penetrate the material. A servomotor drives the chains (with a fine tolerance of ± 0.2 mm). Independent motors and absolute encoders adjust the width, and control the stretching of the chain-rails. The infeed is fitted with a system to guarantee the correct and constant tensioning of the chain. There is also the possibility to add a photocell to read registration marks on pre-printed sheet to ensure the optimum pitch precision and an automatic lubrication system for the transport chain (opt).

Sheet heating system

It is essential to get a correct and uniform heating to achieve high quality of production.

The **FC SPEEDMASTER plus** thermoformer units are fitted with two heaters, upper and lower, moved by a pneumatic system which also ensure the immediate retraction of the ovens in case of material overheating. The adjustment of the temperatures occurs by independent longitudinal rows both on the upper heater than on the lower one. It is also possible to have various partitions to optimize the heating in function of the type of material being processed. The entire unit is insulated to keep heat dispersion at minimum and increase the yield, providing further energy savings. The entire oven structure can be easily positioned lengthwise by means of a proper handle according to tool size in order to meet the optimum heating pitch. Finally it is possible to have an optical reader (opt) for the automatic closed loop adjustment of the temperature.

Forming station

The forming station consists of two movable platens (upper and lower) driven on two tie-bars on the FC 600 model and three tie-bars on the FC 780 and FC 1000 models.

The movable platens are independently handled by a crank-handle system combined with dual toggles operated by servomotor. The speed of the platens can be adjusted independently in both the closing and opening phases. The material is formed using vacuum and/or compressed air.

Pneumatic clamp frames, quick mould locking and automatic centring assemblies and a servomotor driven plug assembly are also available (opt).



Reel lifter



Heating ovens



Forming station

Holes punching press (punch and die)

The holes punching press consists of two movable platens (upper and lower) driven along by three tie-bars. Platens move independently by servomotor system. Platen moving speed regulation with 4 different speeds, regulated on video. Bars prevent falls on the two movable platens with manual coupling and warning alarm to indicate the safety block is in place. The speed can be adjusted independently. The height of the upper and lower (opt) groups is adjustable and controlled by servomotors and transducers. The longitudinal positioning of the press is motor-driven and controlled by absolute encoder.

Steel rule cutting press

The cutting press consists of two independent movable platens (upper and lower) which runs along four tie-bars, moved by combined double-toggle and servomotor driven connecting rod and crank system. There is a motorised vertical height adjustment on the upper platen, to guarantee perfect control of the cut height. The upper moving press platen is fitted with a heated plate, electrically heated with an insulation panel and an independent cooling circuit. This heated plate is easy to mount on the lower platen, if required. The longitudinal positioning of the cutting press is motor-driven and controlled by absolute encoder. The toggle assembly is lubricated automatically by a centralised electric pump. Finally, automatic locking and X-Y axis adjustment of the tool are available on both the upper and lower platens. The X-Y adjustment is electrically driven and fitted with position transducers (opt).

Stacking-counting unit

The standard vertical stacking system is driven by servomotors, pushing the parts from below and stacking upwards. The upward and downward stacker speeds are set independently and different speeds can be selected along the stacker pusher stroke. The assembly is fitted with a pneumatic frame to clamp the scrap. The stacked and counted pieces are then ejected to the adjustable take-off tray. The longitudinal positioning of the entire stacking unit is motorised and controlled by absolute encoder. There are also alternative stacking versions, including a downwards stacker and conveyor belt extraction (opt). A 3 axis robot system is also available (opt) to solve stacking of complex shapes, with A - B - C stacking and faster settings.



Cutting press



Additional holes punching press



Upward



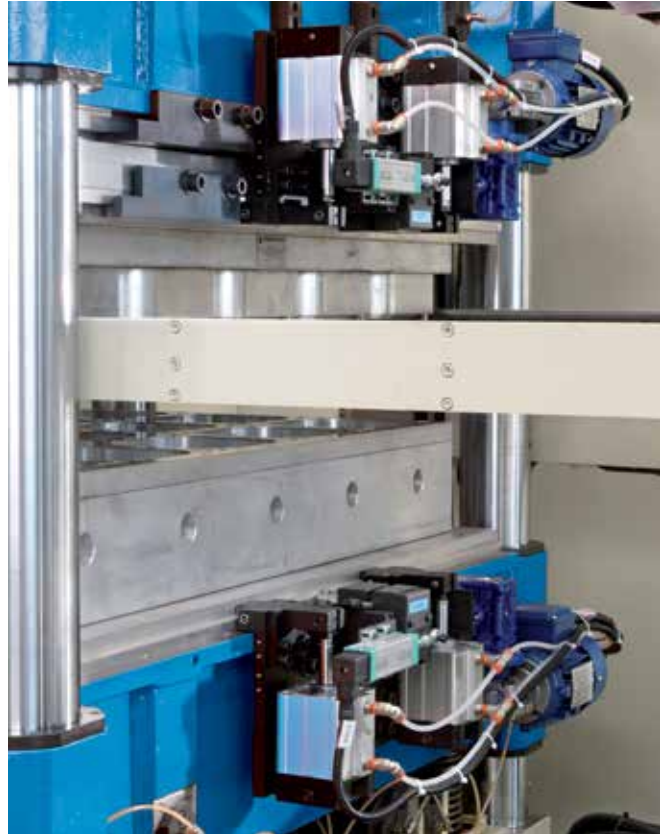
Downward



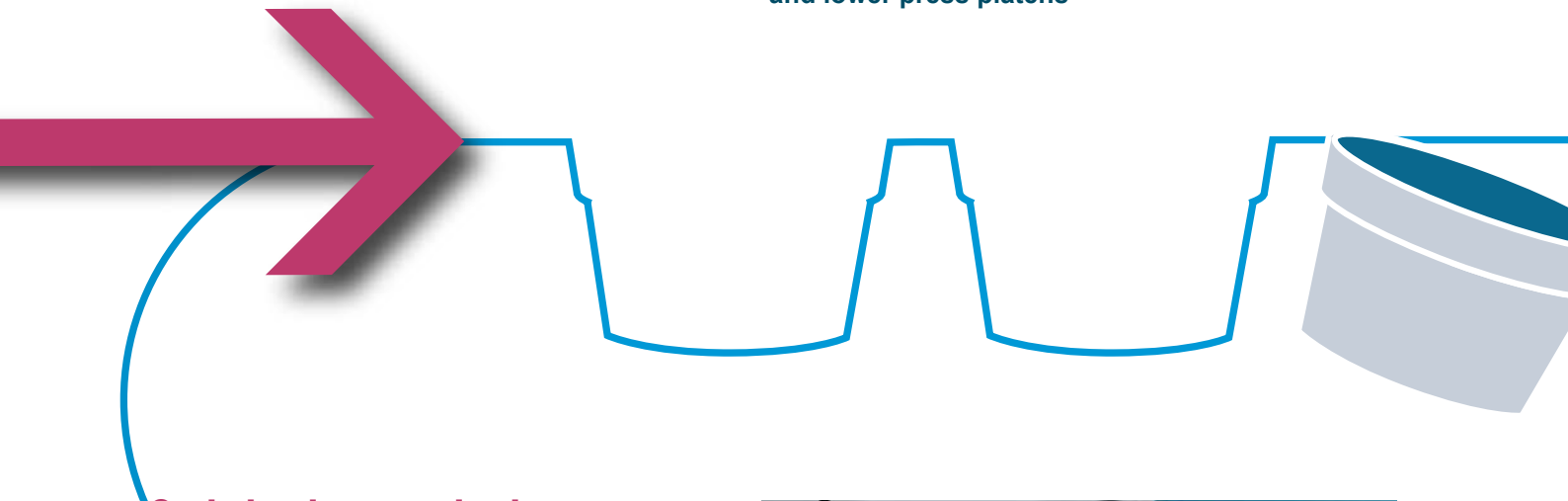
3 axis robot system



Servo-motor driven plug assembly



Automatic locking and x-y axis electrical adjustment of the tool on both, upper and lower press platens



Control and command system

The system is based on an extremely reliable and well tested B&R industrial PC.
The Panel PCs combine a display and a PC into a single extremely compact device touch screen.
The PC is equipped with USB ports, for the storage of all the data on memory keys, and ETHERNET switches to connect the line to the company network.
The Panel is mounted on a sliding arm which can move along the machine side.

The line is also completed with a modem for remote connection(opt) to facilitate any aftersales technical support.



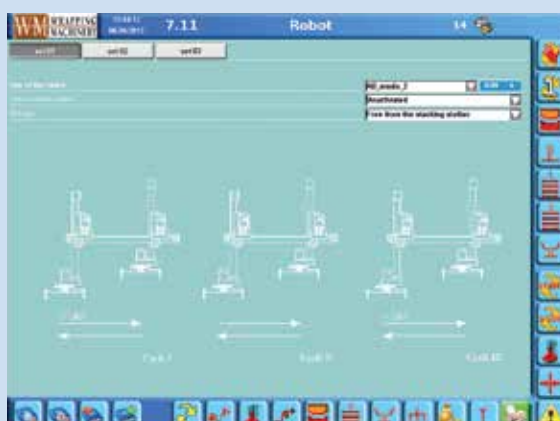
The software, heart of the system

Computer-aided machine basic setting

All the thermoforming machines series **FC SPEEDMASTER plus** are equipped with the latest generation software that provides perfect management of all the cycle parameters and machine functions.

Special pages are dedicated to the various settings and readouts. The system is also fitted with a cycle self-setting processor. The operator has at his disposal a function that, depending on the type of material, the thickness and the type of article, as well as the width and pitch of the sheet, automatically provides the basic settings for the optimal moulding cycle and for the machine's operating functions from heating through the stacking.

This data can then be stored and/or modified by the operator at any time during operation.





Preheating ovens

All thermoforming machines can be completed with the PRE-HEATING OVEN PH series:

- *easy sheet pass*
- *easy and quick feeding*
- *high efficiency and optimum temperature distribution*
- *optimum insulation*
- *improvement in the thermoforming of polypropylene*

Main features model		PH 920	PH 1100
Hot air system capacity	Kw	30	53
Max speed	m/1'	27	32
Volume of moved air	cu.m/h	5.000	8.000
Fan motor	kW	3	5,5
Insulation thickness	mm.	80	80
Max sheet storage	m.	15	15
Output capacity	Kg/h	300-480	550-800
Max sheet width	mm.	920	1.100
Sheet thickness	mm.	0,35-1,5	0,35-1,5

The technical data and the pictures present on this brochure have merely explanatory and indicative purpose. They must be considered as approximate and not binding. The configurations of the machines shown may include optional equipment.



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 choose the right tool