



MACHINES FOR PET BIG BOTTLES PRODUCTION

1.0 – 20.0 L



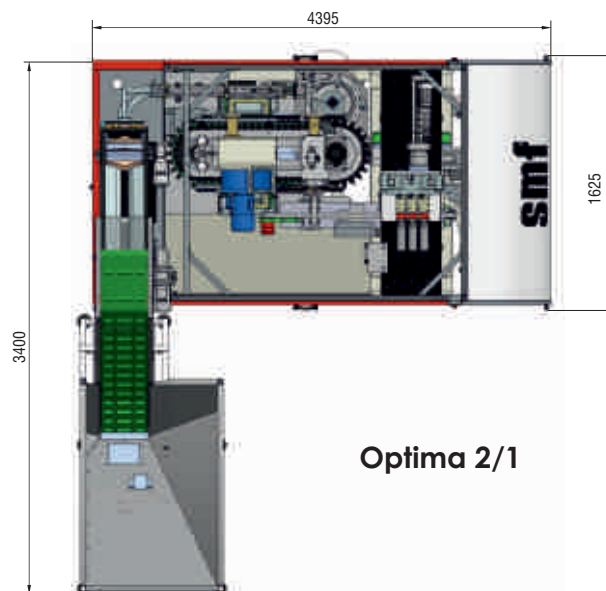
Optima 2 Turbo in classic version is 2-cavity suitable for PET bottles from 200ml up to 3000ml. **Optima 2/1** is one cavity version with nominal working speed 2500 bph of 5l, suitable for bottle 200 ml up to 7000 ml. Ready bottles are discharged in upright position. Unique feature of **Optima 2** is VCN system (variable cavity number) which allows to adapt the same machine to be one, two or three cavities system. This system, available as option, allows the number of cavities to be intelligently adapted to the product to be manufactured. In practice, this means that 200ml containers and big-volume bottles up to 7L could also be produced on this machine.

Optima 2 is energy-efficient, with a specially-designed NIR heating process in place of conventional IR ovens, with very compact design and user-friendly maintenance – central lubrication system, pyrometers, quick mould-change system, detection of cracked bottles, router for internet connection, preform dumper. **Optima 2** is modern, innovative and versatile solution for most demanding clients.



Optima 2/1	
Bottle size	1,0 – 7,0 L
Output	ca. 1 800 bph (1,0 L)
	ca. 1 500 bph (5,0 L)
	ca. 1 300 bph (7,0 L)
Power installed	65 kW
Effective power	13,2 kW (5,0 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 5,3 Nm ³
Number of cavities	1

version VCN (variable cavities number) available as option



Optima 2/1

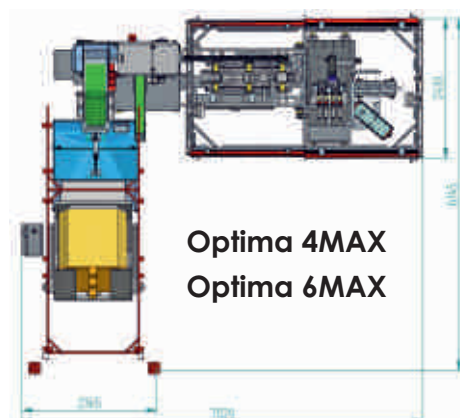
Optima MAX are special versions of classic 8 cavities machine with all advantages of **Optima** series - reliable operation and easy use - central lubrication system, pyrometers, quick mould-change system, detection of cracked bottles, router for internet connection, preform dumper. This modern machine is fully electric with all vital processes controlled and steered by Mitsubishi servo drives and ready bottles are discharged

in upright position. With 6 cavities version, it is possible to produce bottles up to 3L, with nominal working speed 10000 bph of 1l. suitable for bottle 200 ml-3000 ml. **Optima 4MAX** is 4 cavities machine with nominal working speed 7000 of 1L, suitable for bottles up to 6000 ml. **Optima** machines are designed for customers interested in high advanced and reliable blower.

Optima 4 MAX	
Bottle size	1,0 – 6,0 L
Output	ca. 7 000 bph (1,5 L)
	ca. 6 500 bph (5,0 L)
Power installed	210 kW
Effective power	93,6 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 22,8 Nm ³
Number of cavities	4

version for JAR available

Optima 6 MAX	
Bottle size	1,0 – 3,0 L
Output	ca. 10 000 bph (1,0 L)
	ca. 9 000 bph (3,0 L)
Power installed	160 kW
Effective power	86,4 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 19,5 Nm ³
Number of cavities	6

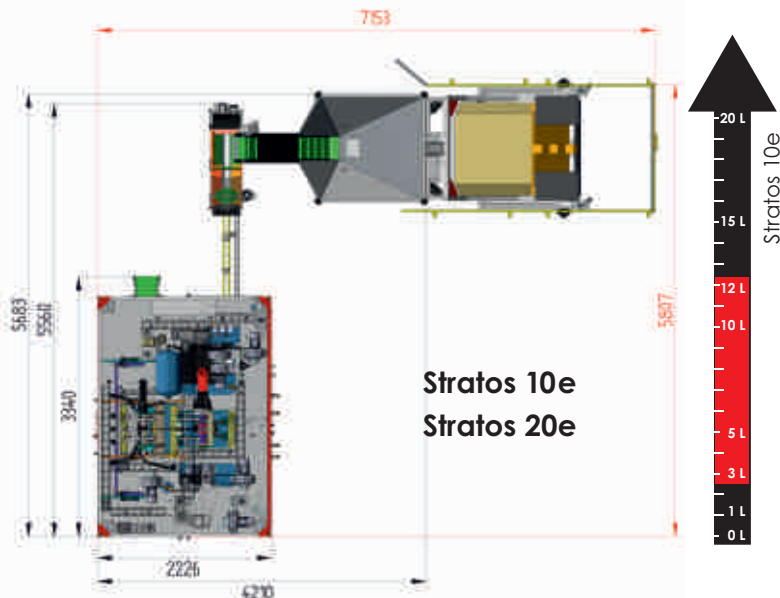
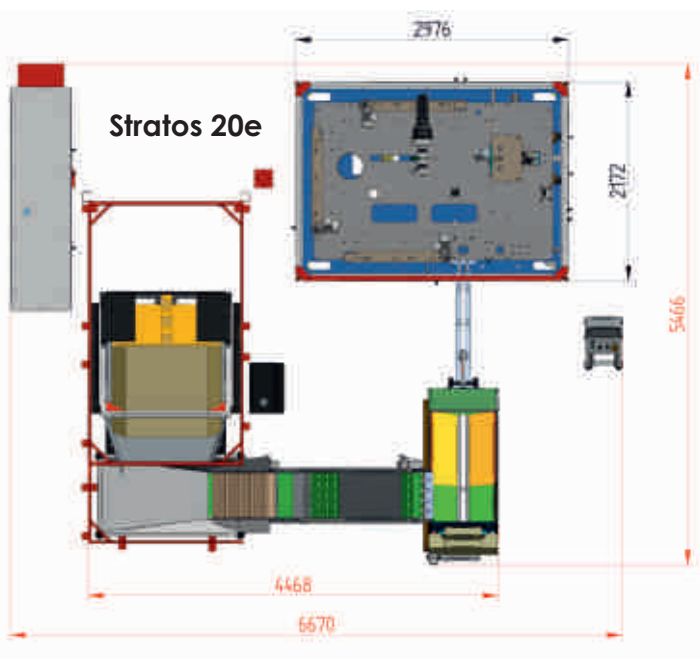


Optima 4MAX
Optima 6MAX

Stratos 10e	
Bottle size	3,0 – 12,0 L
Output	ca. 2 000 bph (3-5 L) ca. 1 300 bph (10 L)
Power installed	105 kW
Working air quantity (10 bar)	8,0 m³/h
Blowing air quantity (35 bar)	591 m³/h (5,0 L bottle)
Number of cavities	2

Stratos family are automatic PET blowing machines designed for big bottles productions. **Stratos 10** is a two cavity machine which can produce bottles from 3.0L to 12L. **Stratos 20** is a one cavity machine suitable for containers from 5L to 20L. In these machines closing unit movements, stretching rods as well as closing unit manipulator system are steered by Mitsubishi servo drives which ensure fluent regulation, precise work and high performance of mechanical operations. **Stratos** machines are equipped with an Air Recuperation System which ensures low air consumption. After each high pressure air cycle, instead of going to the atmosphere, the air is transferred to a special container (air recycling) where it is stored and then used again in other processes. SMF also installs a Router – Internet module, which allows on-line analysis through easy access to the machine by the SMF software engineers. The shape and size of the bottle can be easily changed thanks to SMF easy mould change-over system including a special system that utilizes rollers and a mould trolley. An Advanced PLC control with an user-friendly interface allows easy regulation of the stretching and heating preforms systems. **Stratos** also has a CENTRAL LUBRICATION SYSTEM to minimize maintenance stopovers and ensure the highest standards. Additionally all **Stratos** machines have installed UPS system which protects PLC

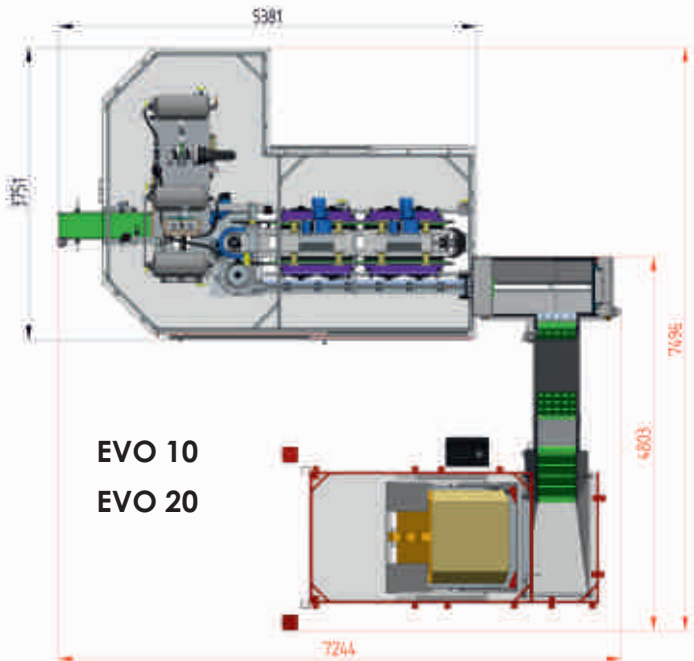
Stratos 20e	
Bottle size	5,0 – 20,0 L
Output	ca. 500 bph (5 US gal) ca. 700 bph (5,0 L)
Power installed	155 kW
Working air quantity (10 bar)	7,0 m³/h
Blowing air quantity (40 bar)	691 m³/h (5,0 L bottle)
Number of cavities	1



and motion controllers of the machine (optionally is also available Power Stabilizer for servo drives and oven section) . In a machine emergency stop situation, UPS minimizes the risk of damage. The machine can also be equipped with a POWER WIZARD™ - solution designed to ensure a stable temperature of the preforms during the reheating process. This system allows to eliminate disruptions resulting from fluctuations of air temperature. For better comfort and easy use of the **Stratos** machines, SMF also offers a preform dumper which are designed to automate the production process. Thanks to this solution, preforms are loaded into a preform hopper automatically. Handling is limited to changing pallets with octabin filled with preforms. **STRATOS** machines meet all the requirements for high quality production of PET bottles at the highest technological level.



EVO family are automatic PET blowing machines designed for big bottles productions. **EVO 10** is a two cavity machine which can produce bottles from 3.0L to 12L. **EVO 20** is a one cavity machine suitable for containers from 5L to 20L. This modern machines have all vital units controlled and steered by Mitsubishi servo drives - for preform transportation system inside the oven, oven manipulator, closing unit manipulator, closing unit itself and stretching rods during blowing process. Thanks to a new transport chain inside the heating sections, it was possible increase the speed and upgrade efficiency of the machine. On the star wheel preforms are moved from the gravity rails to the pins of the transport chain. By means of a transport chain, preforms are transported through the oven, where they are subject to the thermal softening process. Regular heating of the whole preform surface is ensured by rotation of preforms - hot preforms are taken from the transport chain by the manipulator and moved to the closing unit manipulator, which transport them directly to the blowing moulds. Loading of heated preforms and collecting of ready bottles take place simultaneously in one move of the manipulator. The cycle of opening and closing the blowing moulds is controlled by the control panel. Blown bottles are cooled and placed orientated on the exit plate conveyor; they are ready to be delivered to the next stage of production line. **EVO** is user-friendly machine - with central lubrication system, air recovery system, pyrometers, quick mould-change system, router for internet connection and optional preform dumper for automatic preform loading - modern solution for demanding clients.



EVO 10
EVO 20



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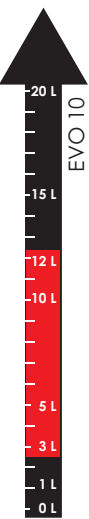
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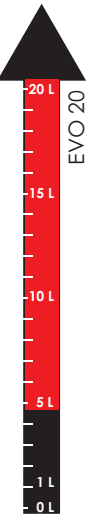
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	EVO 10
Bottle size	3,0 – 12,0 L
Output	ca. 3 000 bph (5,0 L) ca. 2 500 bph (12,0 L)
Power installed	95 kW
Effective power	61 kW
Working air quantity (10 bar)	1,4 Nm ³ /min
Working air quantity (40 bar)	9,2 Nm ³ /min
Number of cavities	2



	EVO 20
Bottle size	5,0 – 20,0 L
Output	ca. 800 bph (5,0 L) ca. 600 bph (20,0 L)
Power installed	110 kW
Effective power	79 kW
Working air quantity (10 bar)	1,8 Nm ³ /min
Working air quantity (40 bar)	3,3 Nm ³ /min
Number of cavities	1



JUMBO is a series of semi-automatic machines designed for an industrial production of medium size and large PET packages. **0.25 and 6.0 liters** bottles can be blown as well as **ONE-WAY USE or MULTIPLE-WAY USE 5 GALLON BOTTLES**. **JUMBO** machine can also manufacture **WIDE-MOUTH JARS** with the neck diameter up to 120mm. The machines are easy to operate and service. Robust construction of closing unit, easy regulation and efficient nozzle clamping system ensures production of bottles at the highest technological level. Machines are manufactured with the use of top brands components supplied by companies which guarantee service around the world: TOSHIBA, MITSUBISHI, FESTO, NORGREN.

JUMBO machines fulfill all the European standards and requirements as well as the EU machinery directive 2006/42/EC.

	Jumbo 5	Jumbo 20	Jumbo-Jar
Bottle capacity	0,25 – 6,00 L	10,0 – 20,0 L	0,25 – 6,00 L
Bottle dimensions	D _{max} 170mm; H _{max} 350mm	D _{max} 250mm; H _{max} 550mm	D _{max} 170mm; H _{max} 350mm
Output	ca. 600 bph (5,0 L)	ca. 250 bph (5,0 L)	ca. 150 bph (5,0 L)
Power installed	55 kW (max 97 kW)	55 kW (max 97 kW)	30 kW (max 65 kW)
Blowing pressure	25 bar ±2 bar	25 bar ±2 bar	25 bar ±2 bar
Working pressure	10 bar ±5%	10 bar ±5%	10 bar ±5%
Number of cavities	2	1	1

