



BLOW-MOULDING SYSTEMS for PET, BOPP and PLA from GERMANY

gtrpet
smf



- BLOW-MOLDING MACHINES FOR PET, BOPP & PLA
- ONE-STAGE INJECTION BLOW-MOLDING MACHINES
- PET PREFORM INJECTION MACHINES
- PERIPHERAL EQUIPMENT
- WIDE-MOUTH JARS
- BEER & SENSITIVE BEVERAGES
- MULTI-LAYER & HOT-FILLING
- PET + BOPP + PLA RESIN & PREFORMS



www.gtrpet.com



GTRPET manufactures in Germany a variety of compact, low-cost, energy-efficient equipment under the brand name SMF for producing plastic containers in PET, BOPP and PLA for water, soft drinks, foodstuffs, cosmetics, pharmaceuticals, chemicals and other products.

One-Stop Shopping for Packaging in PET, BOPP and PLA

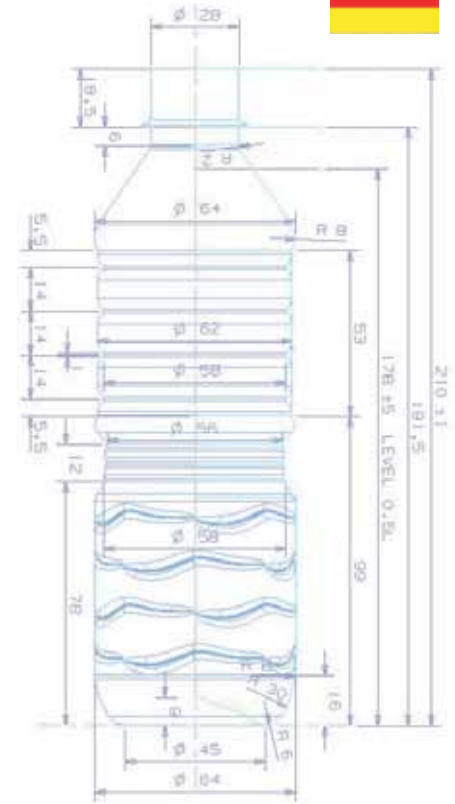
Our machines produce containers for a wide variety of products:

- | | |
|-------------------|-------------------|
| * still water | * milk |
| * sparkling water | * coffee |
| * sodas | * tea |
| * juices | * beer & wine |
| * cooking oil | * liquid soap |
| * salad dressing | * shampoo |
| * ketchup | * detergent |
| * mustard | * mouthwash |
| * mayonnaise | * pharmaceuticals |
| * ground coffee | * cough syrup |
| * spices | * cosmetics |
| * nuts | * hand lotion |

We are the only company in the market which supplies all three of the following types of equipment:

1. reheat stretch-blow-molding machine (starting from preform)
2. one-stage injection-stretch-blowing molding machine (starting from resin)
3. preform injection machine

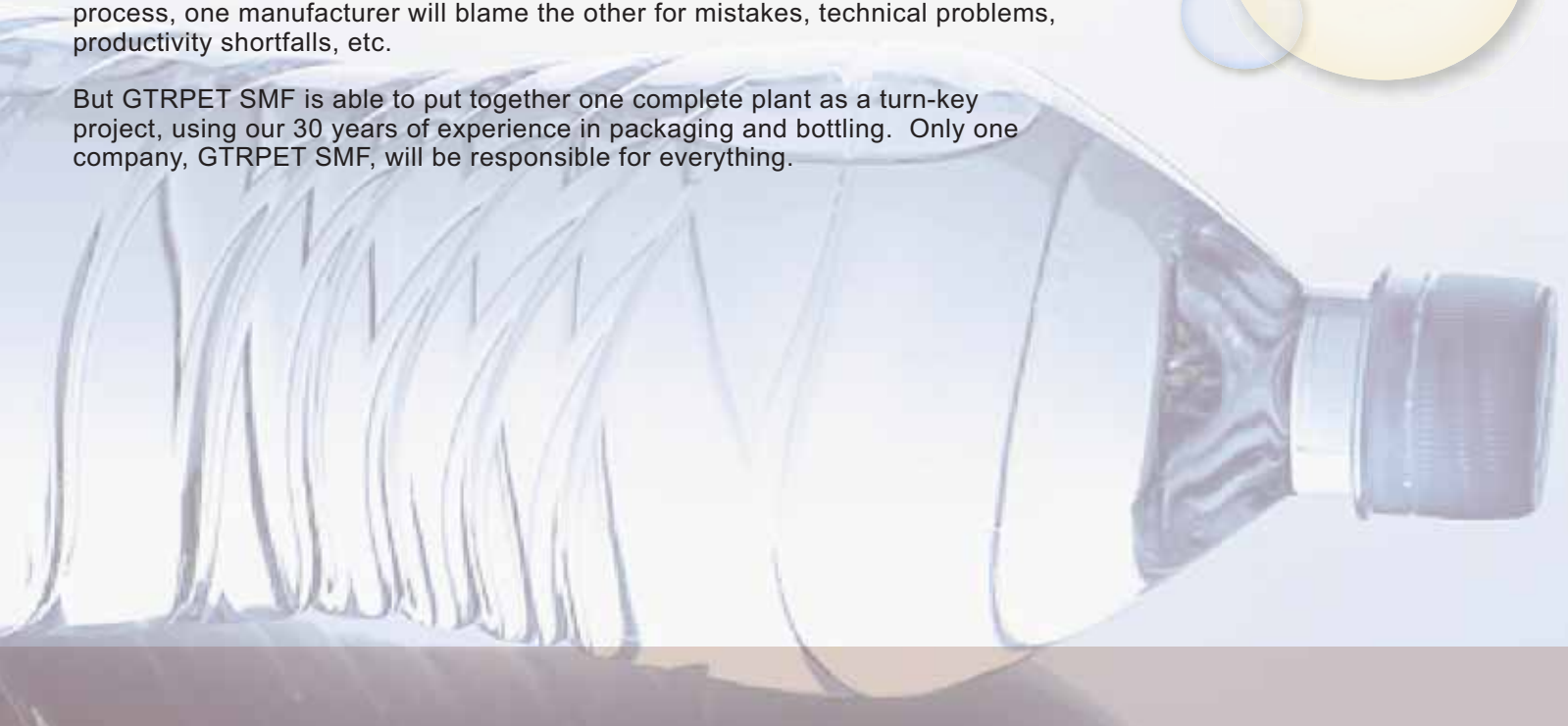
GTRPET SMF guides the client at every stage of their investment in a blow-molding operation, including the design of the container and the mould, and the supply of peripheral equipment and raw materials.






- wide-mouth jars
- multi-layer & coatings
- hot-filling
- bottles with handles
- ovoid & rectangular shapes
- irregular & asymmetrical bottles

Unlike our competitors, we supply all the support equipment required for a complete blow-moulding operation, such as resin dryer, air compressor, and chiller. A customer who acquires a blow-moulding machine from other sources must put together the complete package himself and coordinate with multiple suppliers of support equipment. And he would need a highly skilled technician to manage it all. If any problem arises in the production process, one manufacturer will blame the other for mistakes, technical problems, productivity shortfalls, etc.

But GTRPET SMF is able to put together one complete plant as a turn-key project, using our 30 years of experience in packaging and bottling. Only one company, GTRPET SMF, will be responsible for everything.



Alone in the industry, GTRPET-SMF supplies a complete plant on a turn-key basis, with all upstream and downstream equipment, plus resins and preforms, so that customers can turn to a single supplier for starting up their operations.

GTRPET-SMF will also supply any downstream equipment beyond the blow-molding process, including:

- * bottle unscrambler
- * torque machines
- * filling line
- * injection machine for caps
- * injection machine for handles
- * handle applicator
- * capping machine
- * labelling machine
- * packing equipment

We also supply raw materials, such as resins and preforms, at highly competitive prices.

GTRPET / SMF machines are in operation all over the world, including Europe, the United States, Latin America, the Middle East, Africa and Asia.

GTRPET / SMF maintains offices and representatives in

all parts of the world, including the USA, Germany, Japan, India, Pakistan, Mexico, Brazil and other Latin American countries. We can serve you in English, French, Spanish, Portuguese, German, Japanese and Hindi-Urdu.



ABOUT THE FOUNDER & PRESIDENT

Ajmal Khan, founder and president of GTRPET-SMF, is a pioneer of PET technology who developed the first PET bottle during his 10 years as the Technical Director for Pepsi Cola International in the USA, Japan, Asia-Pacific, Latin America and Europe.

For 12 years, Dr. Khan was also the Executive Vice President of Nissei ASB Machine Company of Japan and USA, and CEO of its Mexican and Latin American operations, where he developed the PET market in the Western Hemisphere in its earliest years. He has also worked for two Italian PET machine manufacturers, SIPA and Magic, for a total of 7 years as Vice President. His combined PET experience is over 30 years.

Dr. Khan has conducted business in nearly every country in the world, and maintains close contacts across the globe in the food & beverage, machinery

and materials sectors, including such major multinational corporations as Pepsi, Coke, Cadbury-Schweppes, Nestlé, Unilever, RC Cola, Kraft Foods, Alcoa, Pfizer, Plastipak Packaging, Clorox, Colgate-Palmolive, Graham Packaging, United Brands, Amcor PET, Mitsubishi Group, Hitachi, Toyo-Seikan.

Besides PET packaging technology, Dr. Khan's expertise includes extrusion blow-moulding of HPDE, PP and PVC; processing of juices, beverages & water; product & packaging development; treatment of water & waste water; plastic recycling; and plastic materials & resins.

Dr. Khan holds BS, MS and PhD degrees in Plastics Engineering from top Japanese universities, as well as a BA in Japanese language and general sciences. He is fluent in English, Japanese and Spanish.

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Automatic Stretch Blow-Molding Machine Series



COMBI



The COMBI series represent a range of German-built but inexpensive, fully automatic stretch blow-molding machines for producing bottles and other containers from preforms in PET, BOPP and PLA. The capacity of the Combi series ranges from 1500 to 24,000 bottles per hour.

INEXPENSIVE but PRODUCTIVE

Low prices. Low energy costs. Low maintenance costs. Best possible price in relation to quality and productivity.



SIMPLICITY

The Combi doesn't have the mechanical and electronic complexity of other machines. It's a simple unit which heats and blows preforms. Simplicity is energy-efficient. Simplicity means low maintenance.

COMPACT

Combi machines weigh between 500kg and 2000kg, depending on model. The required production space is only 40 to 50 m² (including the compressor station) for up to 5000 bph and no more than 80m² for 10,000 bph.

LINEAR SYSTEM

The Combi operates on a linear system which is faster and less complex than a rotary system. This saves on maintenance and energy costs.

STURDY

The Combi operates successfully even in the most remote and difficult parts of the world.

EASE OF OPERATOR

A built-in PLC computer from Mitsubishi controls all steps of the production cycle. Operating the Combi requires only one operator, who would have very little to do except turning the machine on and off. Highly skilled labour is not required for operating the Combi.

COMPLETE SYSTEM

We provide a complete plant on a turn-key basis. The Combi unit comes with an air compressor package and a chiller.

EASY MOLD CHANGES

On a Combi machine, the mold can be changed easily and quickly. All you need is a screw driver.

MULTIPLE BOTTLE DESIGNS IN ONE UNIT

The Combi unit permits the production of bottles of two different designs simultaneously, as long as both are blown from the preform of the same weight.

QUALITY CONTROL

The Combi blower's gravity-based loading of preforms avoids the scratches and scuff marks on preforms that are common to preform loading by robot.

ENERGY-EFFICIENT HEATING

The patented infrared oven technology heats preforms in multiple stages, resulting in substantial energy efficiency. Preforms are preheated before they are fully heated, and then pre-blown, before they are blown finally into bottles.

ENERGY-EFFICIENT BLOWING

A unique low-air pressure technology allows the Combi machine to blow bottles at 25 bar of air pressure while maintaining the same quality and productivity as 40 bar of air pressure. This substantially reduces energy costs.

Model	Cavities	Bottle Sizes	Max. Output *
Combi-100	2	250ml - 2L	1500
Combi-200	2	250ml - 3L	2500
Combi-400	4	250ml - 3L	4500
Combi-600	6	250ml - 3L	6000
Combi-800	8	250ml - 3L	8000
Combi-10	10	250ml - 3L	10,000
Combi-12	12	250ml - 3L	12,000
Combi-15	15	250ml - 3L	15,000
Combi-20	20	250ml - 3L	20,000
Combi-24	24	250ml - 3L	24,000

* Bottles per hour. Output of each machine depends on size, weight and design of the bottle.

	Combi 100	Combi 200	Combi 400
Blowing Air	90 m3	120 m3	240 m3
Power Consumption	28 kW	28 kW	56 kW
Dimensions	(L x W x H in metres & weight in kg)		
Blowing Machine	2 x 2.9 x 2.1 500kg	2 x 2.9 x 2.1 1000kg	2.9 x 2.1 x 2 2000kg
Preform Loader	2.4 x 1.1 x 2.5 150kg	2.4 x 1.1 x 2.5 150kg	3.4 x 3.3 x 3 300kg
Bottle Conveyor	2.4 x 0.4 x 1.2 110kg	2.4 x 0.4 x 1.2 110kg	4.2 x 0.4 x 1.2 110kg

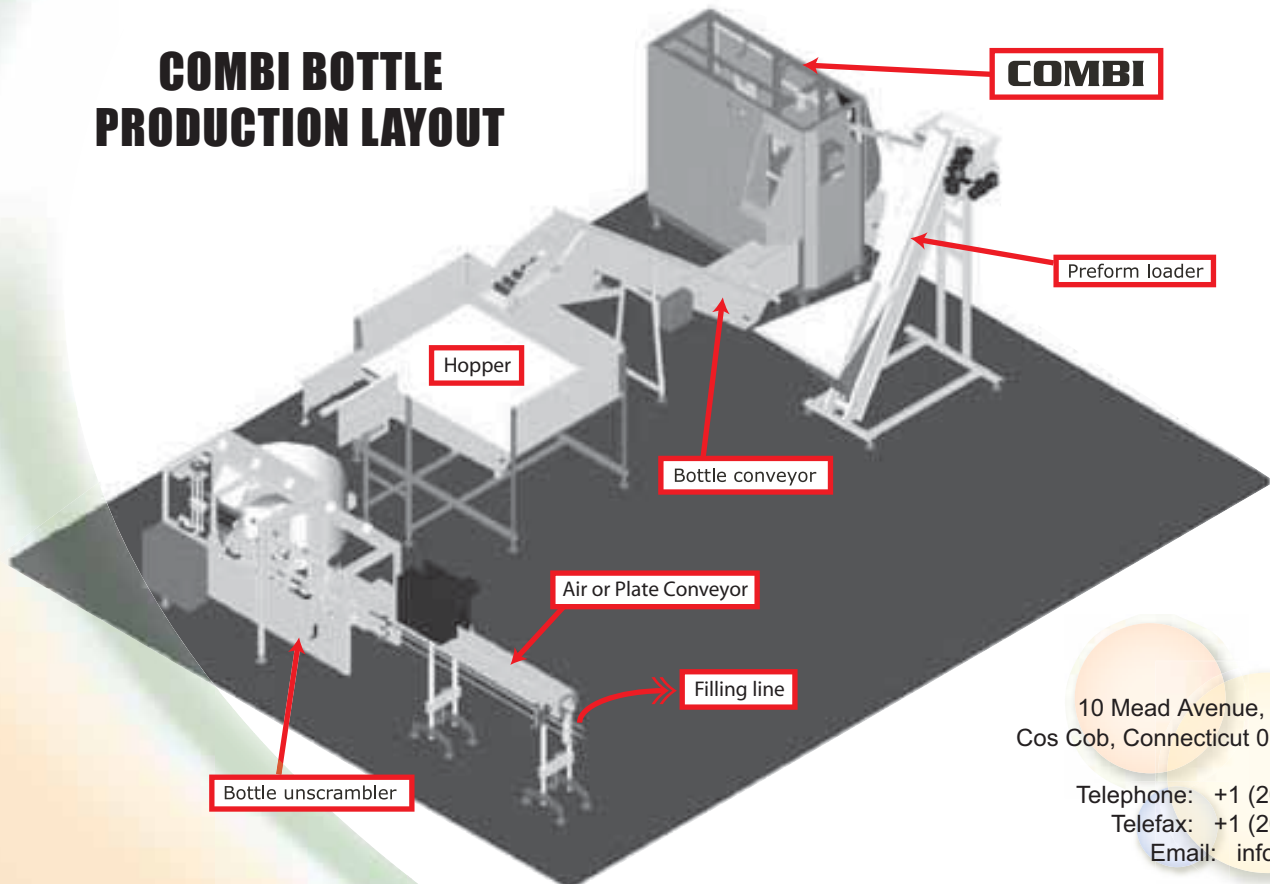
KAESER AIR COMPRESSOR



Included with the Combi blower:
 * air compressor system
 * chiller system
 * preform loader
 * bottle conveyor
 * filtration & storage systems



COMBI BOTTLE PRODUCTION LAYOUT



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One-Stage Injection Stretch Blow-Molding Machine



ACURA™

Acura is a fully computerised one-stage injection stretch-blow-moulding machine for producing plastic containers directly from resin. The process could not be simpler: the raw material (resin or pellets) is fed into the machine, which ejects the finished container.

- The Acura can be equipped with...
- * 1 injection and 2 blowing cavities
 - * 2 injection and 4 blowing cavities
 - * 4 injection and 8 blowing cavities

The advantages of single-stage production with Acura include:

HIGHER PROFIT MARGINS

By making containers directly from resin, producers capture all the profit margins in the injection-blow-molding process, instead of paying preform suppliers.

INDEPENDENCE

By making containers from scratch, producers are no longer dependent on preform suppliers. Resins are much more widely available than preforms.

OPTIMAL SOLUTION FOR FOOD, COSMETICS & PHARMACEUTICALS

The Acura is the optimal price-quality solution for low-volume, non-beverage applications such as food, pharmaceuticals and cosmetics.

IDEAL FOR NON-STANDARD CONTAINERS

The Acura is ideally suited for wide-mouth jars, ovoid bottles or highly customised containers for which standard preforms may not be available.

QUALITY CONTROL

Avoids the scratches and scuff marks that often result from preform handling in the two-stage process.

ALTERNATIVE MATERIALS

Besides PET, the Acura can process other plastic materials, such as PP, PLA, PE, PC and PEN.

SIMPLE AND RELIABLE

Preforms are loaded into the blowing section linearly (up and down, left and right), without the complications of a rotary system. A user-friendly PLC computer controls all operations. Only one operator is required, who does not have to be highly skilled.



PRODUCT PART			
VERSION	A	B	C
CAVITY NUMBER (injection)	1	2	4
CAVITY NUMBER (blowing)	2	4	8
MAX. NECK DIAMETER (mm)	< 120	< 90	< 36
MAX. BODY DIAMETER (mm)	< 250	< 90	< 65
MAX. BODY HEIGHT (mm)		300	
PRODUCTIVITY (bottles/hour)	240	500	1000
VOLUME OF PRODUCT (ml)	< 3000	< 1500	< 600
MACHINE WEIGHT (ton)		8	
MACHINE DIMENSION (mm)	2900 (L)	2300(W)	2800(H)

INJECTION UNIT	
Screw Diameter (mm)	25
Theoretical Injection Volume (cm ³)	58,8
Plasticizing Capacity (PET)	14,4
Screw Rotation Speed (rpm)	0-130
Clamping Force (ton)	40
BLOWING UNIT	
Blowing Mould Clamping Force (ton)	20
Blowing Mould Clamping Stroke (mm)	120
Stretching Stroke (mm)	180
Processing air pressure (kg/ cm ²)	25
Electric Power (hp/kw)	25/19
HYDRAULIC UNIT	
Oil Tank Capacity (liter)	250
System Maximum Pressure (kg/cm ³)	140
Cooling Water Capacity (l/min)	20
AIR PRESSURE	
Machine Operating Air Pressure	10
Blowing pressure	25
Hydraulic components	Mannesman Rexroth
Pneumatic components	Festo



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*Acura is
ideal for...*

- * cosmetics
- * facial cream
- * hand lotion
- * shampoo
- * cough syrup
- * pills / tablets
- * pickles
- * mayonnaise
- * mustard
- * peanut butter
- * spices
- * nuts & seeds
- * jars & other wide-mouth containers
- * dispenser bottles
- * spray bottles

COMPLETE ACURA INSTALLATION INCLUDES:

- » Injection stretch blow moulding machine ACURA with a set of injection and blowing moulds
- » Automatic granulate loader (2 units)
- » Chiller for moulds, capacity 24,000 kcal/hour
- » Kaeser air compressor set, including screw compressor (10bar), booster (25BAR), air tanks, air filters, air dryers
- » Hopper dryer and dehumidifier for granulate (120kg)
- » Complete set of cooling water connections
- » Complete set of material conveying connections and transporters
- » Two discharging product conveyors



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PET PREFORM INJECTION MACHINE SERIES



GTI™



The GTI preform injection machines for producing PET preforms from resin are offered in 8, 16 or 32 cavities. The output capacity depends on the desired weight of the preform. The GTI series have the following features:

- * Hot runner system
- * Even preform thickness distribution
- * Stable feeding in hot runner plate
- * IC programming unit
- * Mould temperature controller
- * Soft start system
- * Short cycle time, high productivity
- * Easy maintenance and repair
- * Stable feeding in hot runner plate
- * IC programmer controls mold temperature

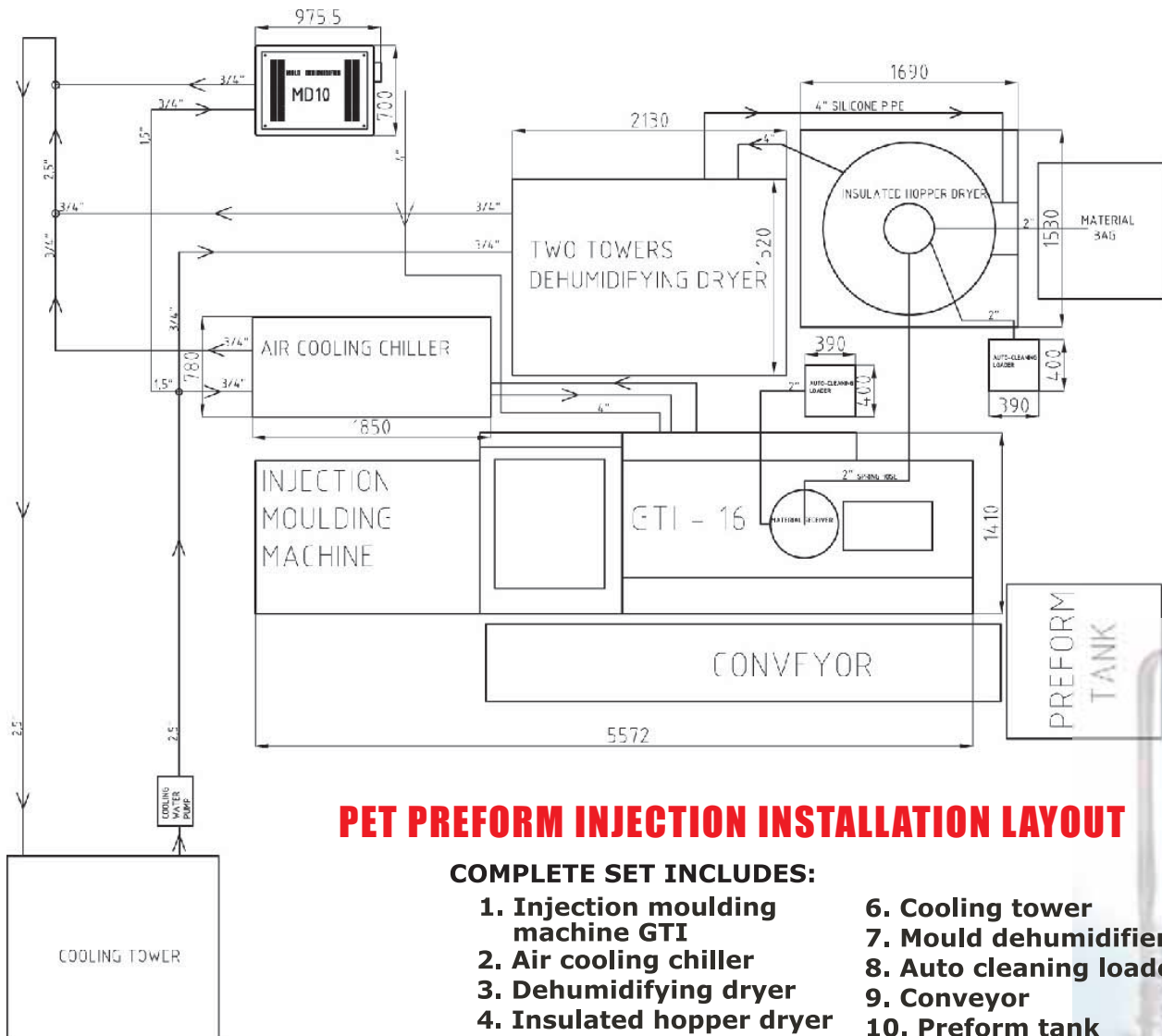
	GTI-8	GTI-16	GTI-32
Output	1000 preforms / hour	2000 preforms / hour	4000 preforms / hour
Preform weight	39 gr PCO	39 gr PCO	39 gr PCO
Mould type	hot runner	hot runner	hot runner
Number of cavities	8	16	32
Voltage required	380 V/50 Hz 5%	380 V/50 Hz 5%	380 V/50 Hz 5%
Nominal power consumption	70 kW	110 kW	165 kW
Production area	minimum 50 m ²	minimum 50 m ²	minimum 80 m ²
Production facility height	minimum 4,5 m	minimum 4,5 m	minimum 4,5 m
INJECTION INSTALLATION			
Injection pressure	180 Mpa	180 Mpa	175 Mpa
Clamping force	180 Ton	300 Ton	430 Ton
Oil pump	30 HP	37 HP	45 HP
Shot weight max.	450 gr	1050 gr	1600 gr
Heating power	18 kW	22 kW	26 kW
Oil tank capacity	400 l	500 l	600 l
Length	6700 mm	7100 mm	9000 mm
Width	1360 mm	1800 mm	2300 mm
Height	1660 mm	2200 mm	2200 mm
Weight	6500 kg	12000 kg	17000 kg
MOULD			
Temperature control	microprocessor	microprocessor	microprocessor
Soft start system	standard	standard	standard
Power	6 kW	10 kW	16 kW
Air required	0,8 Mpa	0,8 Mpa	0,8 Mpa
Weight	700 kg	1300 kg	2400 kg
Preform weight	17 - 54gr	17 - 54gr	17 - 54gr
Cavities	8	16	32
Cycle time	28sec	28sec	28sec
Preform thickness		as per preform drawing	
Preform length		as per preform drawing	

16-cavity preform mould



COMPONENTS:

- * Preform production machine;
 - * Hot-runner mould;
 - * Mould controller;
 - * Material dryer with regenerating and dehydrating system;
 - * Air dryer;
 - * Dryer granulate feeder;
 - * Injection machine granulate feeder;
 - * Mould chiller;
 - * Injection machine chiller;
 - * 8 bar compressor
- Components from Mannesman Rexroth, Vickers, Schneider, Wattlow



PET PREFORM INJECTION INSTALLATION LAYOUT

COMPLETE SET INCLUDES:

- | | |
|-----------------------------------|-------------------------|
| 1. Injection moulding machine GTI | 6. Cooling tower |
| 2. Air cooling chiller | 7. Mould dehumidifier |
| 3. Dehumidifying dryer | 8. Auto cleaning loader |
| 4. Insulated hopper dryer | 9. Conveyor |
| 5. Material container | 10. Preform tank |

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STRATOS



STRATOS is a reheat stretch-blow-molding machine designed for the production of large bottles in the range of 5L to 20L (or in the United States, 1 to 5 gallons). The typical end uses are water, cooking oil, detergents, dishwashing liquid, cleaning agents and other products which come in bulk quantities. Hot-filling of juices and milk is also possible. Stratos units have options for making oval and rectangular bottles.



- * Preform unscrambler is standard
- * Delivers with a Kaeser air compressor set
- * Easy operation and low maintenance
- * Energy-efficient
- * Fast and easy change of molds
- * Linear system
- * Compact; minimal operational space

MAIN PARAMETERS	STRATOS-5	STRATOS-20
BOTTLE SIZE	2.5 - 10L	20L / 5 gallons
MAX. BOTTLES PER HOUR	1000 bph (5L)	140 bph
MOLD / CAVITIES	2	1
RESIN	PET / PEN / PP / PC	
UTILITIES		
POWER INSTALLED	25KW	
OPERATION AIR	120 m3/h (8.0bar)	
BLOW AIR	150 m3/h (25-35.0 bar)	
COOLING WATER	6 m3/h	
MACHINE DIMENSIONS		
L x W x H	1880mm x 1280mm x 1980mm	
WEIGHT	approx. 2000kg	